

PUNCH LIST MANAGEMENT USING THE CLOUD

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North Tarrant Express (NTE) Project - Intro

Project Purpose:

- Improved **mobility** along one of the most congested corridors in Texas
- Road **capacity** nearly doubled
 - Reconstructed main lanes (free)
 - Expanded frontage roads
 - Four new managed toll lanes (two in each direction)
- Managed lane **network** to extend from North Dallas to downtown Fort Worth



NTE PROJECT
Opens 2015

DFW CONNECTOR
Opens 2014

LBJ PROJECT
Phase 1 Opens December 2013
Phase 2 Opens Mid-2014
Phase 3 Opens December 2015

NTE 35W PROJECT
3A Opens 2018
3B Opens 2017

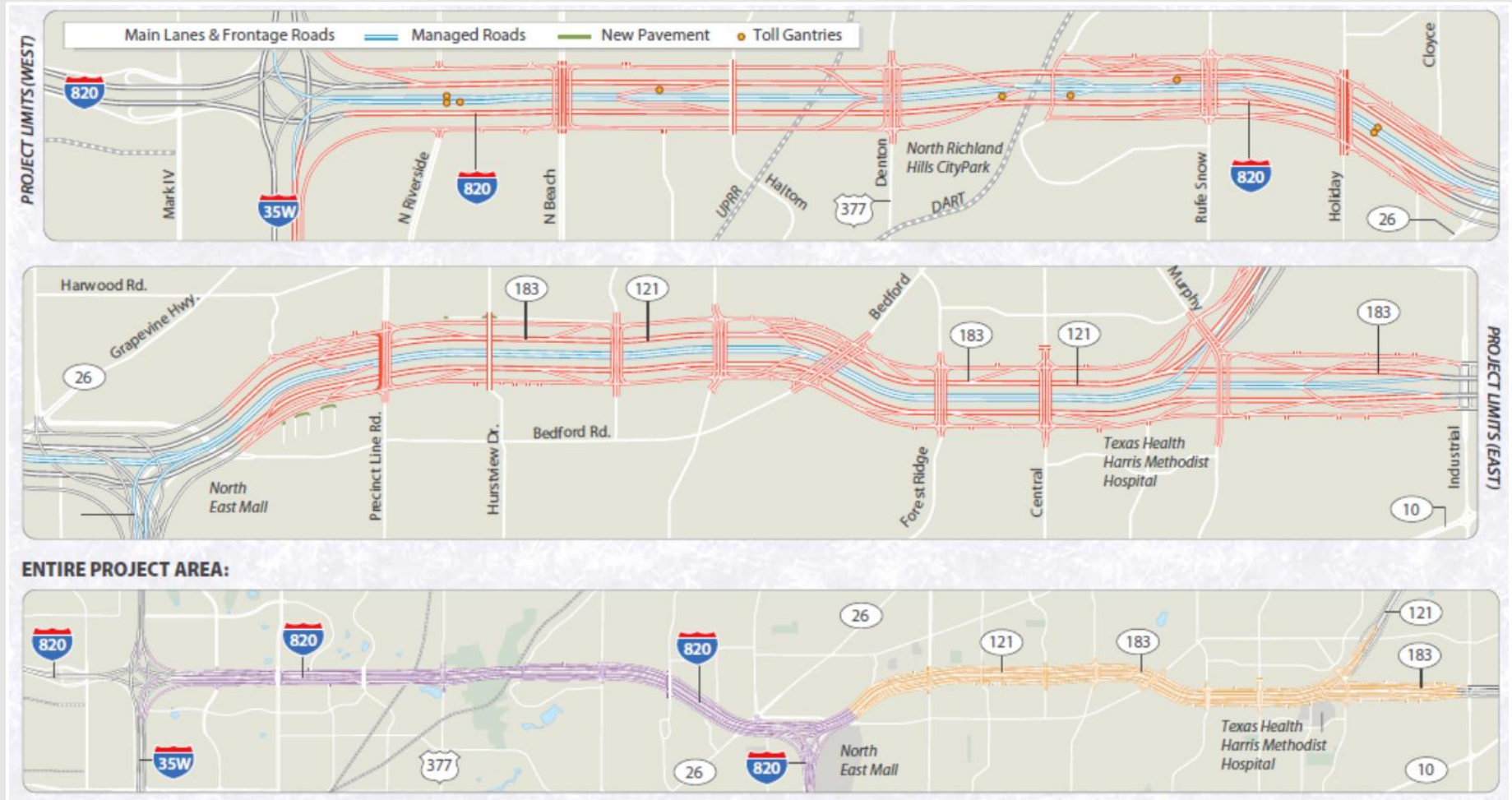
35E PROJECT
Opens 2018

North Texas TEXpress Lanes System



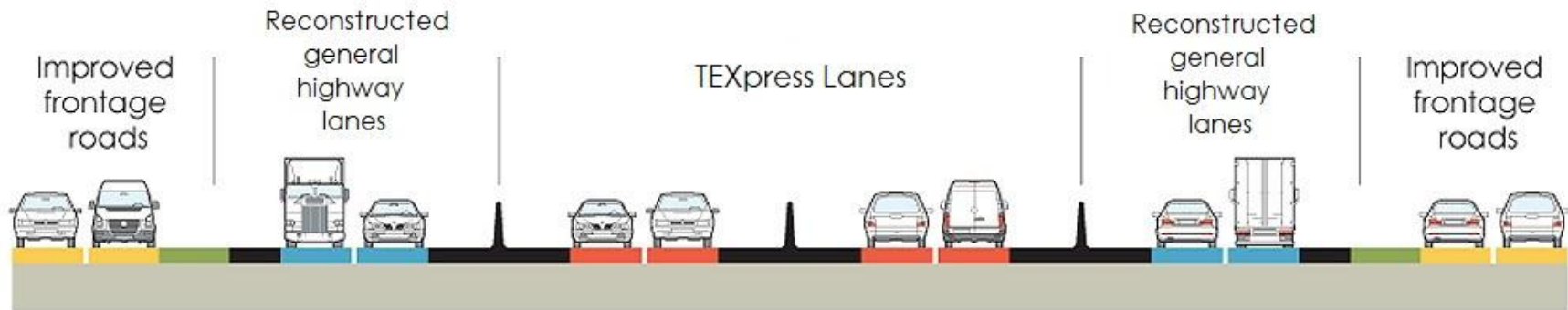
NTE Segments 1 & 2W

Project Scope Overview: 13.5 Mile Corridor

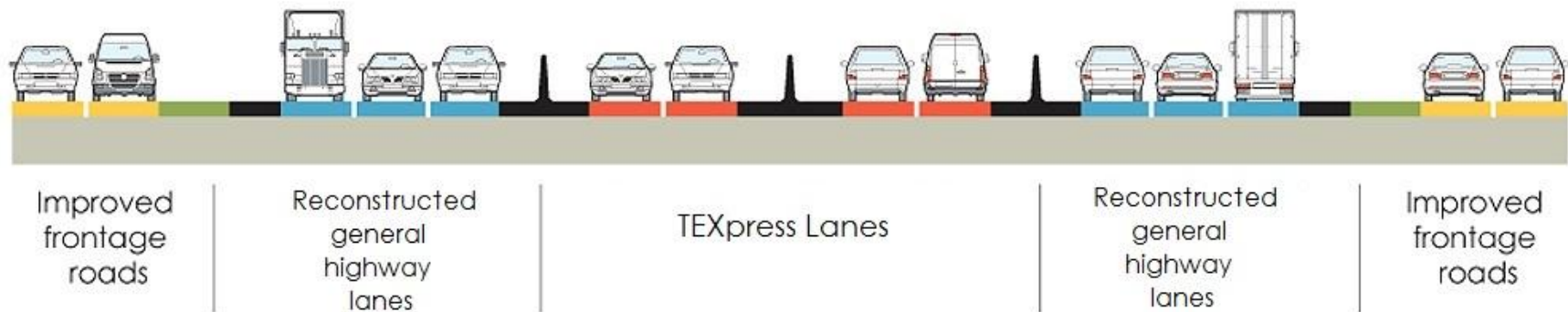


NTE Cross Section View

IH-820 Cross-Section



SH-121/183 Cross-Section



NOTE: Illustration depicts example managed lane design only.

TxDOT graphic

North Tarrant Express



NTE Construction Statistics

- 200 newly constructed lane miles
- 75 bridges
- 2.5 million sq.ft. of retaining walls



Meeting the Project Requirements

- **7.8.2** Punch List
- **7.8.2.3** Developer shall prepare and maintain the Punch List.
- The Independent Engineer and TxDOT may; but are not obligated to, participate in the development of the Punch List.
- Developer shall deliver to TxDOT and the Independent Engineer a true and complete copy of the Punch List, and each modification thereto, as soon as it is prepared.
- **7.8.3** Conditions to Service Commencement
- (e) Developer, and, if applicable, TxDOT and the Independent Engineer have completed preparation of the Punch List in accordance with Section 7.8.2;

How Punch Lists are Typically Generated

Spreadsheets

WEST DRIVETHROUGH SUMMARY.xlsx [Protected View] - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER

PROTECTED VIEW Be careful—email attachments can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

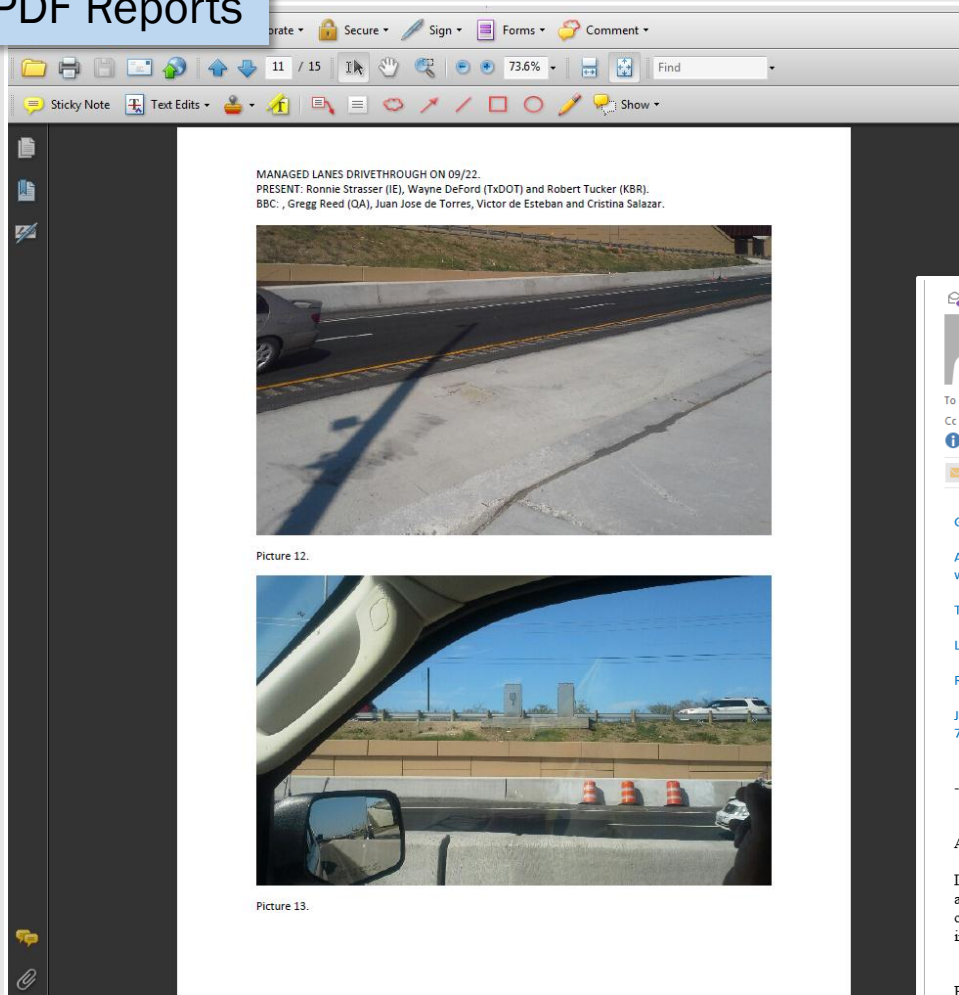
N1

	H	I	J	K	L	M
	LOCATION	ROAD	DESCRIPTION	DEPARTMENT	ACTION	PICTURE #
3	WEST		It appears that quite a lot of them are still missing to be placed.	TRAFFIC	NCO	
4	WEST		Deflectors can be removed easily. Check on epoxy/resin been used.	TRAFFIC	NCO	
5	WEST		Some of the type III splits on the barrier do not allow for water to get out of the split.	PRODUCTION	JJT	01
6	WEST		Detail missing to be included in the drawings showing the cut joint.	DESIGN	CGZ	06
7	WEST		All protruding conduits located on the splits are missing any sort of cover.	UTILITIES	JHR	05
8	WEST		Some of the type III barrier are still not filled.	PRODUCTION	JJT	07
9	WEST		Prybar is missing.	PRODUCTION	JJT	
10	WEST		There appears to be some inconsistency between Signage drawings and the pavement marking drawings.	DESIGN	CGZ	
11	WEST		Cover missing.	UTILITIES	JHR	14
12	AP04		On those inlets where no grate is considered necessary, they might be acting as a blunt end.	DESIGN	CGZ	02
13	WEST		Missing quite a lot of them.	TRAFFIC	NCO	
14	AP04	EBGP	Exposed conduit should be covered.	PRODUCTION	VDN	03
15	AP04A	EBML	Barrier edge at the bottom needs to be trimmed down	PRODUCTION	JJT	04
16	PROJECT		Does the standard detail approved for the installation of ground mounted signs to the side of the barriers contemplate having almost 2" protruding from the barrier?	DESIGN	CGZ	08
17	RUFE SNOW STRUCTURE	WBGP	Concrete protection is missing.	PRODUCTION	JJT	09
18	RUFE SNOW STRUCTURE	WBGP	Is the white pipe including in the drawings of the structure?	PRODUCTION	JJT	09
19	WEST		Lamps missing on quite a few high masts.	UTILITIES	JHR	10
20	WBGP Station 795+00	WBGP	Water is ponding inside. Requires some way out to fall towards the WBGP.	PRODUCTION	VDN	11
21	WBGP Station 795+00	WBGP	Duct sticking out requires to be covered.	UTILITIES	JHR	11
22	WBGP Station 795+00	WBGP	Box situated on the right hand side of the WBGP seems low.	UTILITIES	JHR	12
23	WBGP Station 795+00	WBGP	The embankment around the ITS driveway requires a concrete rip rap underneath to avoid further erosion.	PRODUCTION	VDN	13
24	WEST		Is this situation correct or does need to be amended?	TRAFFIC	NCO	16
25	Station 710+00	WBML	Should the conduit behind the mast be located inside?	UTILITIES	JHR	15
26	Station 710+00	WBML	Exposed conduits should be covered.	UTILITIES	JHR	16
27	Station 710+00	WBML	Should the conduit located on the WBGP side, not be located inside?	UTILITIES	JHR	15

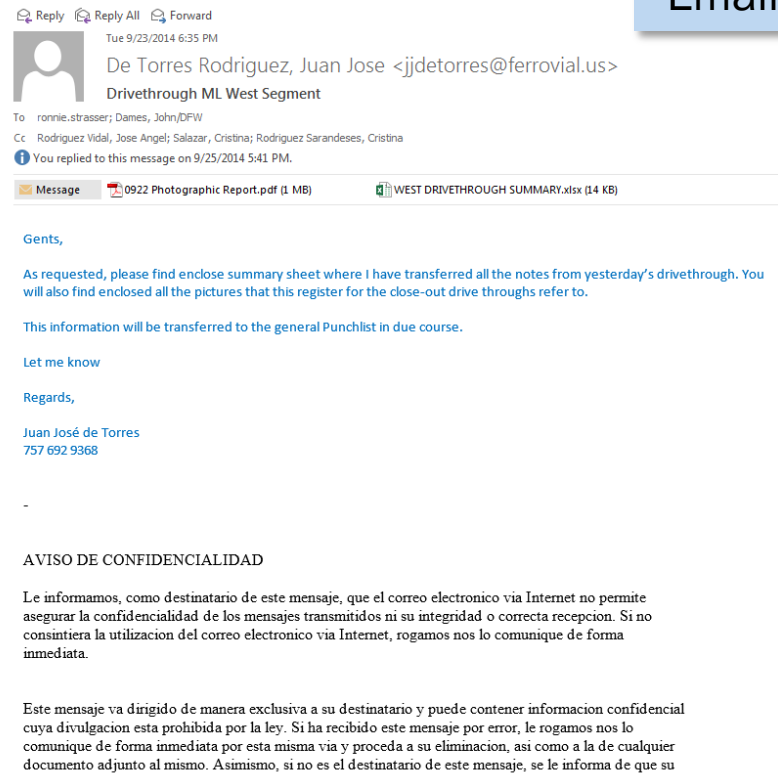
ML 140922 Sheet2 Sheet3

How Punch Lists are Typically Generated

PDF Reports



Emails



The Punch List Organizer

- Smartphone / Tablet interface – **Cloud-Based** architecture
- **Multi-User** (owner, contractor, subcontractors, designer, etc.)
- **Simultaneous access** to organize, input, view, update, report on issues
- **Organizes text and photos**
 - Easy tracking from identification thru resolution and final acceptance


Locations

Punch List Organizer: Locations Screen

Name	Total	Open	Level 1 Closed	Level 2 Closed	Contested
<input type="text"/>					
<u>East Segment</u>	14	14	0	0	0
<u>Precinct to EBGPL</u>	27	27	0	0	0
<u>EB Westpark Exit Ramp</u>	31	3	0	28	0
<u>Subsection J - EB FR</u>	55	49	0	6	0
<u>Subsection J - EB GPL</u>	115	7	16	92	0
<u>Subsection J - EB ML</u>	55	0	3	52	0
<u>Subsection J - WB FR</u>	64	64	0	0	0
<u>Subsection J - WB GPL</u>	91	7	14	70	0
<u>Subsection J - WB ML</u>	32	2	1	29	0
<u>Subsection K - EB FR</u>	30	27	0	3	0
<u>Subsection K - EB GPL</u>	46	10	23	13	0
<u>Subsection K - EB ML</u>	29	0	2	27	0
<u>Subsection K - WB FR</u>	40	40	0	0	0
<u>Subsection K - WB GPL</u>	55	10	14	31	0

Location Details

Punch List Organizer: Location Details Screen





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By Location: Subsection L - EB ML


[Add New](#)

Count: 48
[View Report](#) [View Location Updates](#)

	Date Created	#	Detailed Location	Details	Date Resolved	Resolved Details	Status
	<input type="text"/>  	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>  	<input type="text"/>	<input type="text"/>
Details	8/13/2014	1	Column under hurstview	Remove joint and seal	10/1/2014	It was inspected by Roberto Luna 09-30-14	Level 2 Closed
Details	8/13/2014	2	South barrier	Repair this chip over the barrier	8/20/2014	It was inspected by Roberto Luna 08-20-14.	Level 2 Closed
Details	8/13/2014	3	General note	Fix the holes on top	8/20/2014	It was inspected by Roberto Luna 08-20-14.	Level 2 Closed
Details	8/13/2014	4	1B31A	Clean and install bolts	9/26/2014	James Diver	Level 2 Closed
Details	8/13/2014	5	Sta 3093	Repair this patch of asphalt	9/18/2014	It was inspected by Roberto Luna 09-17-14	Level 2 Closed
Details	8/13/2014	6	General note	SMA is pending	9/12/2014	It was inspected by Roberto Luna.	Level 2 Closed
Details	8/13/2014	7	East of hurstview	Missing illumination pole	10/2/2014	It was inspected by Roberto Luna 10-01-14.	Level 2 Closed
Details	8/13/2014	8	East of hurstview	Boxes are too close to the barrier			Open
Details	8/13/2014	9	East of hurstview	Complete connections and install covers. Bend over the rebar		The ground connection is out the of the light pole, Qa/QC need a letter from Mica that all the connections are according with the specifications 10-02-14. RL.	Level 1 Closed
Details	8/13/2014	10	Sta 3094	Remove joint and seal it	10/2/2014	It was inspected by Roberto Luna 10-01-14.	Level 2 Closed
Details	8/13/2014	11	Sta 4097	Repair this joint	9/29/2014	It was inspected by Roberto Luna 08-20-14 and it not done. It has cracks. It was inspected buy Roberto Luna 09-26-14	Level 2 Closed
Details	8/13/2014	12	1-B27	Clean and bolts	9/26/2014	James Diver	Level 2 Closed

Item Details

Punch List Organizer: Item Details Screen

 **CH2MHILL.**

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[Back to Subsection G - EB GPL](#)

Punchlist Item Details

Date Created:

Created By:

Status:

Segment:

Location:

#:


Date Level 2 Closed:

Contractor:

Resolved Details:

Detailed Location:

Details:

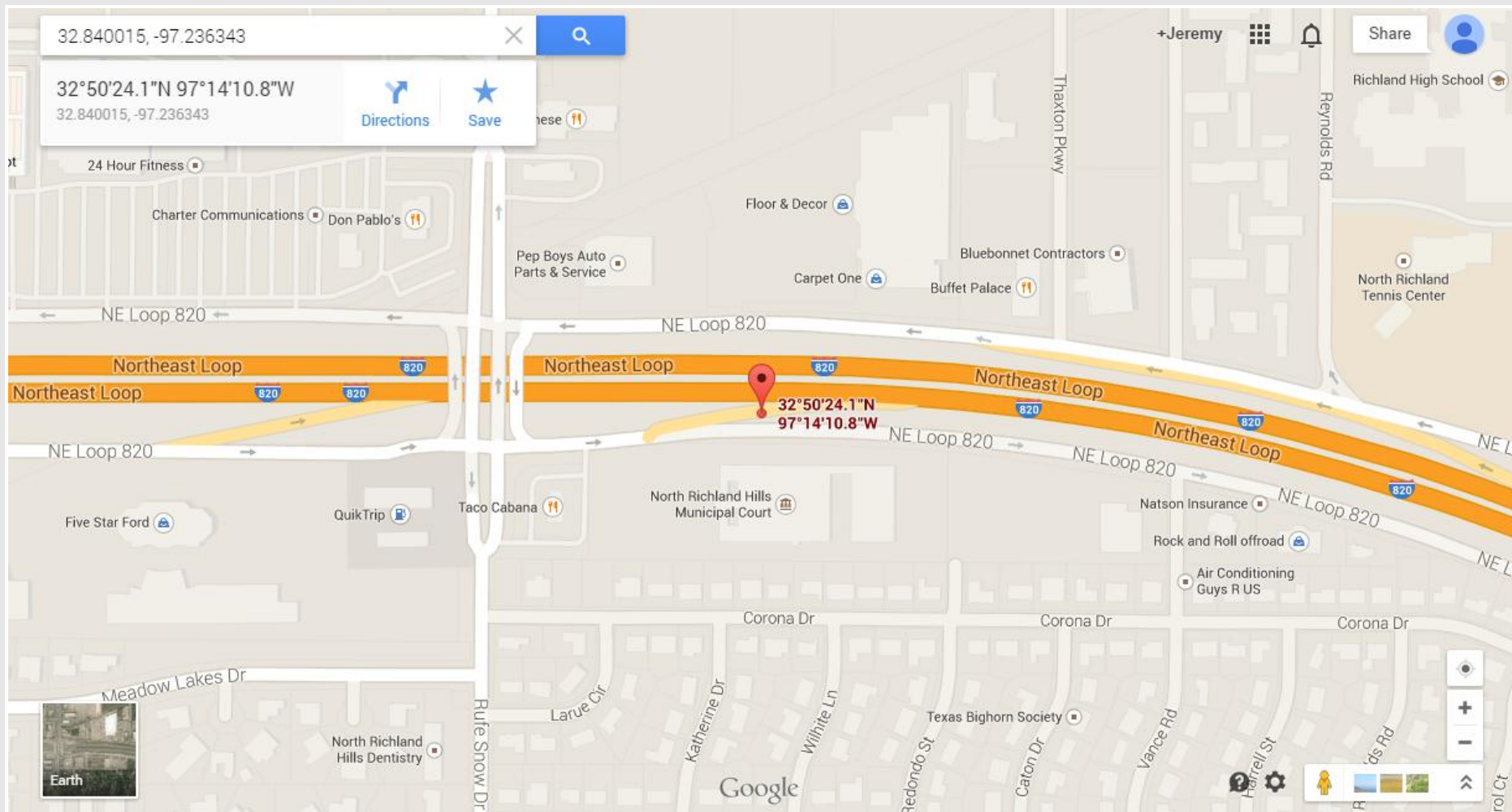


[Download Image](#) [Show on Map](#)

Date Created	CreatedBy	Details	Image
9/18/2014	Cristina Salazar	Cristina Salazar made the following changes: Status was changed from Open to Level1Closed Resolved Details was changed from to Asphalt removed from inlet.	
9/22/2014	Andrew Velasquez	Andrew Velasquez made the following changes: Status was changed from Level1Closed to Level2Closed Resolved Details was changed from Asphalt removed from inlet. to Asphalt removed from inlet. 8-8-14: Inspected by Nick Ciofani.	

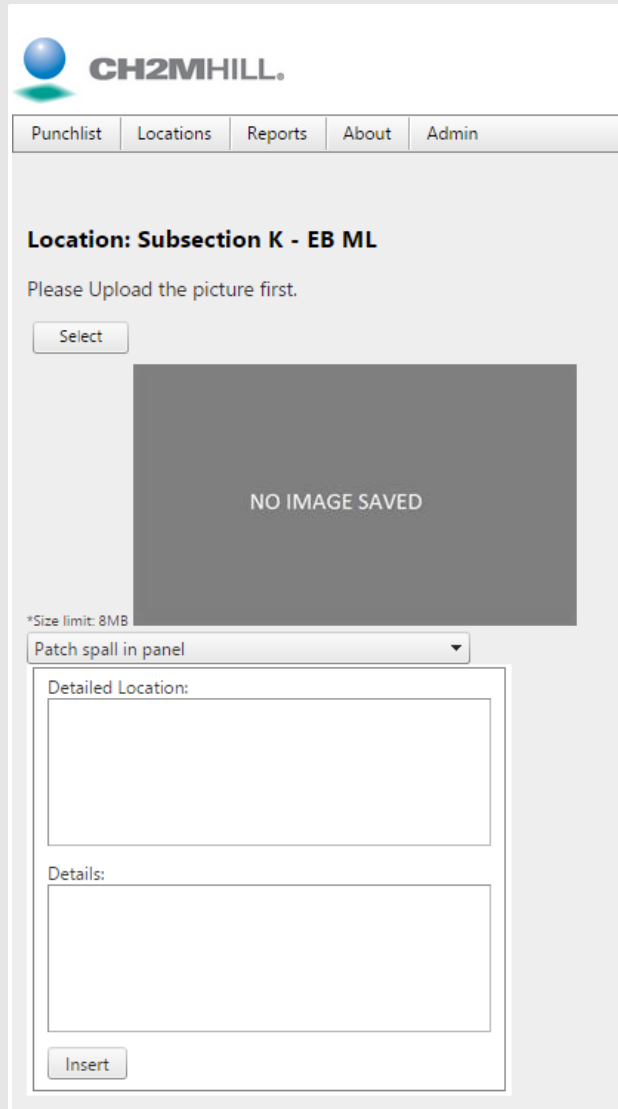
Geotagging

Punch List Organizer: Geotagging Feature



Add New Item

Punch List Organizer: Adding a New Item



The screenshot shows the CH2MHILL web application interface. At the top is the CH2MHILL logo and a navigation bar with links: Punchlist, Locations, Reports, About, and Admin. The main content area is titled "Location: Subsection K - EB ML". Below this, it says "Please Upload the picture first." and there is a "Select" button. A large gray box in the center contains the text "NO IMAGE SAVED". Below this box, there is a note "*Size limit: 8MB" and a dropdown menu currently showing "Patch spall in panel". Under the dropdown are two text input fields labeled "Detailed Location:" and "Details:". At the bottom of the form is an "Insert" button.

CH2MHILL.

Punchlist Locations Reports About Admin

Location: Subsection K - EB ML

Please Upload the picture first.

Select

NO IMAGE SAVED

*Size limit: 8MB

Patch spall in panel

Detailed Location:

Details:

Insert

Live Demonstration

- Go to: washto.cmmanager.net

Video – How to Create an Item



Punch List Organizer Reporting

- **Summary Reports**
- **Tracking Statistics** to achieve goals







*For live demo go to washto.cmmanager.net

Reporting: Exported PDF Report

Punch List Organizer: Exported PDF Report

Segment: West - Bridge 50

Report for Bridge 50

#	Status	Date Created	Detailed Location	Details	Image	Date Resolved	Resolved Details	QR
1	Level 2 Closed	4/11/2014	NE Shoofly hand rail	missing grout under rail		5/21/2014	All rails have been grouted and touched up with paint	
2	Level 2 Closed	4/11/2014	NW Shoofly hand rail	missing grout under rail		5/21/2014	All rails have been grouted and touched up with paint	
3	Level 2 Closed	4/11/2014	NE Replacement Bridge hand rail	missing grout under rail		5/21/2014	All rails have been grouted and touched up with paint	

*For live demo go to washto.cmmanager.net

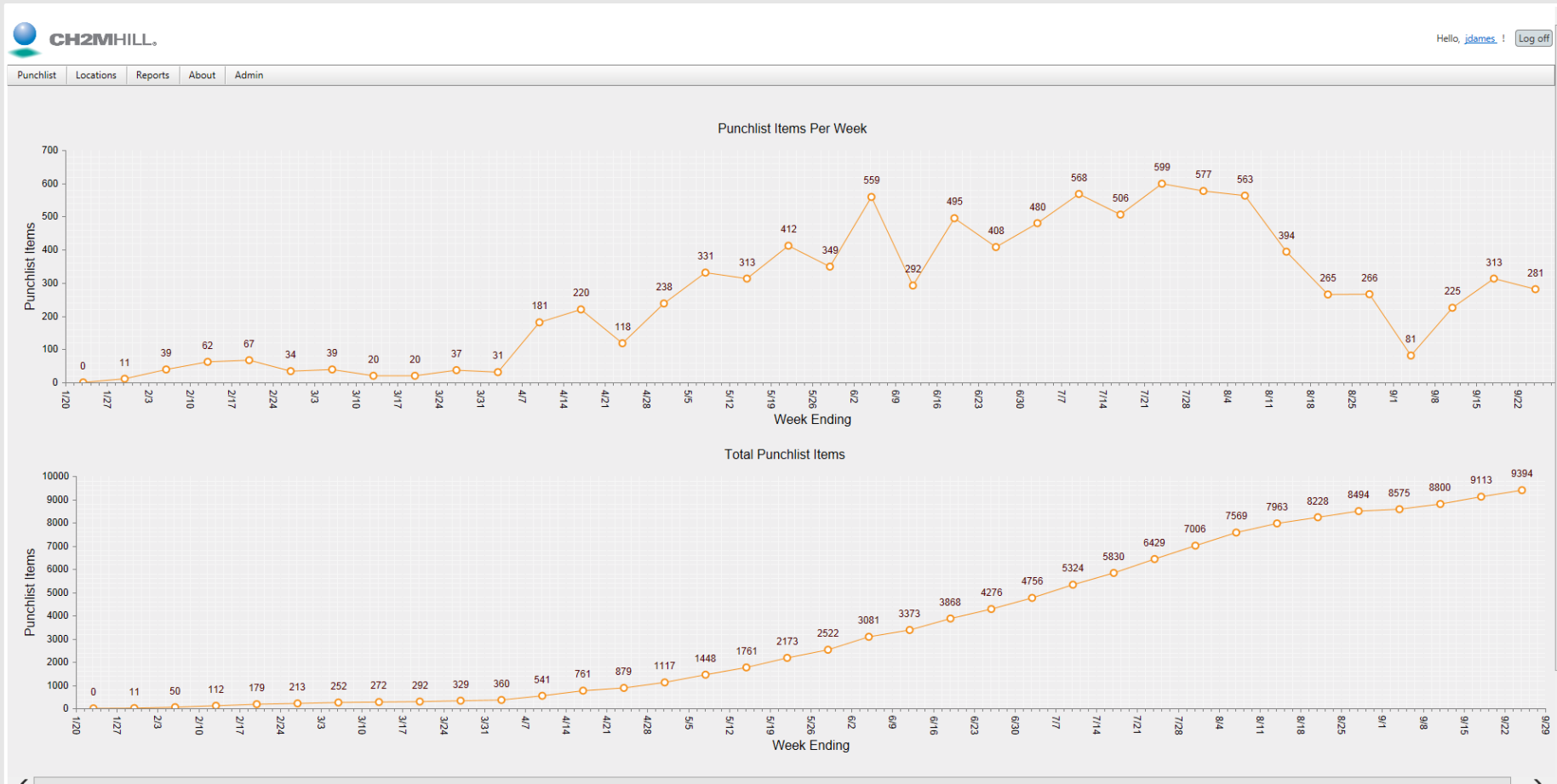
Reporting: Project Summary

Punch List Organizer: Reports - Project Summary



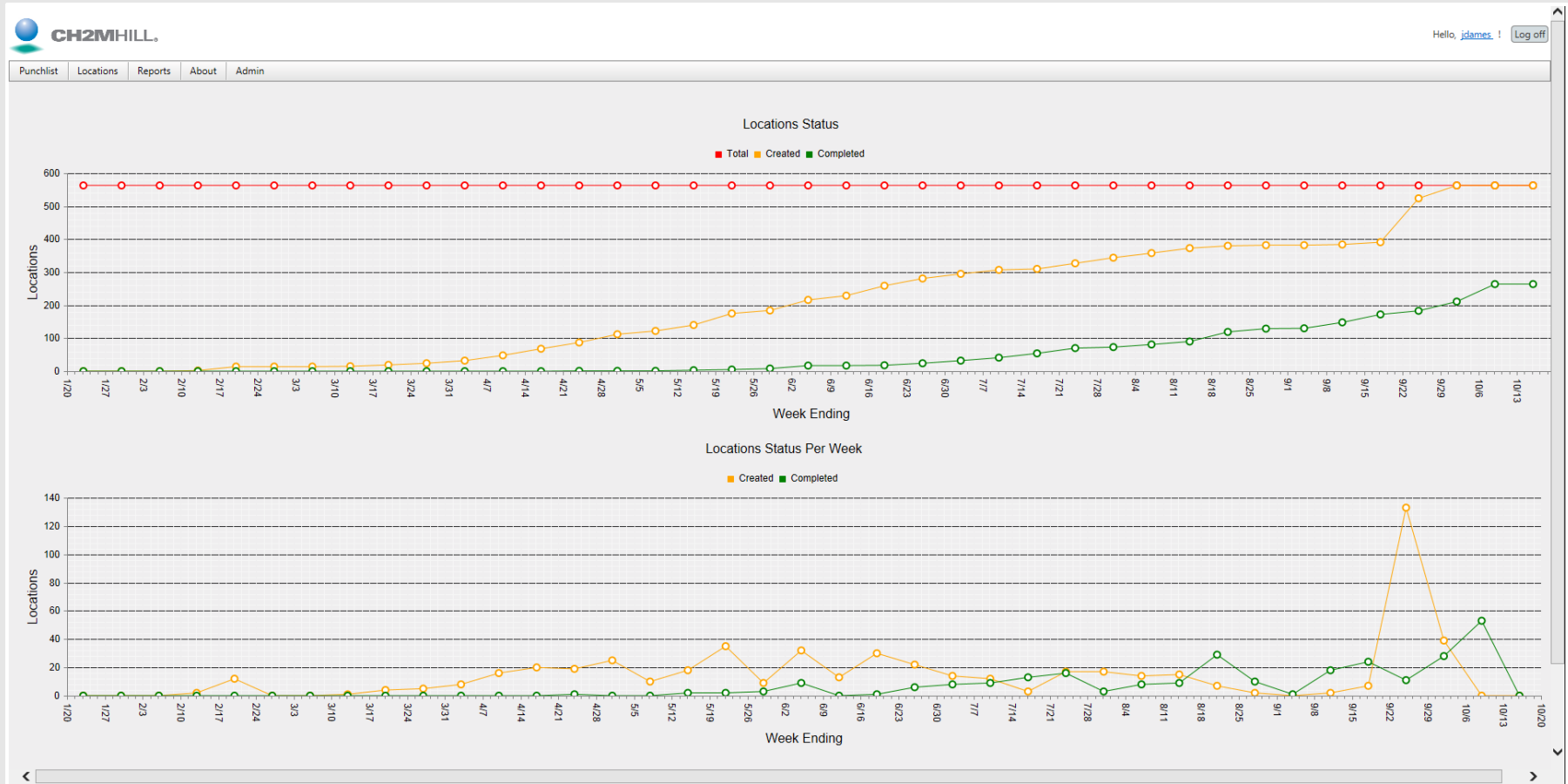
Reporting: Project Summary

Punch List Organizer: Reports – Punch List Items Per Week



Reporting: Project Summary

Punch List Organizer: Reports – Locations Status



Benefits

- **Organized**
- **Accountable / Auditable**
- **Transparent – Item / Location / Project levels**
- **User-Friendly**
- **Tracking / Monitoring progress**
- **Collaborative**
- **Real-Time Data**
- **Better Communication for all Parties**
 - Text and Geotagged Photos

TxDOT Perspective

- **Innovative Tool**
 - Simplifies a complex task
 - Reduces construction time & impacts to travelling public
- **Quality and Value**
 - Identification of trends
 - Better tracking and accountability of punch list items to ensure final product meets project requirements
- **Transparency**
 - Real-time data collection for stakeholder to review
 - Research and analyze trends
 - Track progress and perform audits (contested items function)
- **Application Potential**
 - Has potential to benefit various operations across TxDOT (e.g. maintenance)


Maintenance - Dashboard

Maintenance Organizer: Dashboard Screen


CH2MHILL

DashboardAll ItemsAdd NewElementsReportsAdmin

User: jlewis



Current Time: Wednesday, March 18, 2015 9:22:58 AM


#	Due By	TimeRequirement	Image	Details
Details	20 -25 Day(s), -22:-26:-34	Category 1 - Hazard Mitigation	NO IMAGE SAVED	<p>Date Created: 2/19/2015 10:56:24 AM</p> <p>Element Category: 8) Lighting</p> <p>Element: 8.5) High Mast Lighting</p> <p>Detailed Location: HM Lights in IH 35W Interchange</p> <p>Details: HM Lights were out when I drove thru intersection on Tuesday night. When was this identified by NTEMP?</p>
Details	20 -24 Day(s), -22:-26:-34	Category 1 - Remedy	NO IMAGE SAVED	<p>Date Created: 2/19/2015 10:56:24 AM</p> <p>Element Category: 8) Lighting</p> <p>Element: 8.5) High Mast Lighting</p> <p>Detailed Location: HM Lights in IH 35W Interchange</p> <p>Details: HM Lights were out when I drove thru intersection on Tuesday night. When was this identified by NTEMP?</p>
Details	21 12 Day(s), 7:56:32	Category 1 - Remedy		<p>Date Created: 3/2/2015 5:19:31 PM</p> <p>Element Category: 5) Guardrails, Safety Barriers, and Impact Attenuators</p> <p>Element: 5.1) Guard rails and safety barriers</p> <p>Detailed Location: WB GPL west of Beach</p> <p>Details: Guadrail damage, post broken and missing.</p>

Maintenance - Details

Maintenance Organizer: Details Screen

Date Created	Created By
3/2/2015 5:19:31 PM	Jeremy Lewis
Category	Responsible Party
Category 1	NTEMP
Element Category	
5) Guardrails, Safety Barriers, and Impact Attenuators	
Element	
5.1) Guard rails and safety barriers	
Location	
Zone: NA See Location Details for full location description	
Detailed Location	
WB GPL west of Beach	
Details	
Guardrail damage, post broken and missing.	
Resolution Details	
<input type="checkbox"/> Mark as TxDOT Item	

Status			
Hazard Mitigated			
Time Requirements			
Description	Date Required	Date Performed	Report Performed
Hazard	3/3/2015 5:19:31 PM	3/3/2015 8:33:50 AM	<input checked="" type="checkbox"/>
Remedy	3/30/2015 5:19:31 PM		<input checked="" type="checkbox"/>
Repair			<input checked="" type="checkbox"/>



[Download Image](#) [View on Map](#)

Maintenance - Input

Maintenance Organizer: Add New Item Screen

GPS Position: 32.8371638,-97.1973197

☐ Do not use this GPS location. The device is not at the location.

Please Upload the picture first.

Select

*Size limit: 8MB

NO IMAGE SAVED

Element Category:

Elements:

Category:

Detailed Location:

Details:

Save New

Cancel

Questions

- Questions?
- For more information on the **Punch List Organizer** email:
 - John Dames john.dames@ch2m.com
 - Blake Axen blake.axen@txdot.gov

