**Meeting Minutes (for guardrails) – Iowa DOT August 1st, 2016**

**Guide to Data and Information Sharing Workflows across the Life Cycle of Transportation Assets**

**Attendees:**

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This is 5th meeting.

Project updates: initial development for sign data workflow. Identified 3 data exchange workflow for new, replacement and maintenance. The process map do not show the role of maintenance staff who collect data feedback to programming and planning or maintenance activities.

Exchange requirement - When data is collected who are the people that collect that data, what programs are used, and what format is it handed off in and to whom

Process map shows where in the workflow things happen and by which workgroup - shows what databases are used to create and store data.

ER matrix lists the types of data - fields, etc and documents where the information in required or optional.  Also notes exchange requirements - for these the project phase, data sender/receiver and date are noted.

Different triggers that start guardrail projects - resurfacing, bridge replacement or reconstruction projects - system upgrades may occur based on older standards being in place

On smaller scale projects guardrail may not be dealt with.  Decisions on these are case by case and based on the standards guidelines coming from specifications.  These are often handled by district staff engineers.  Leveraging google earth and road view. Not getting data from Brad (Oracle database administer) for guardrails.

The bridge office also makes decisions about guardrail that may need to be replaced.   This usually occurs during the concept process and specifications often gets questions if guidance in the design manual is unclear.

Design - if there is survey they use that to lay out the new guardrail.  If there is not survey then they go off of the AsBuilt plans from when it was built and do a best guess assuming there is an AsBuilt available.  Otherwise they use asLet information as a best guess.  Making decision about height based on standards, then they determine how long it will need to be based on what it is protecting.  They use MicroStation to draw in the guardrail layout, and then use an excel file to tabulate the details for the guardrail.  Also using AsBuilt plans from ERMS if survey is not available.  Might also use Access or BidX to make decisions about costs.  Also a decision point about what kinds of retrofits might need to be done if there is an existing guardrail that isn't up to specification or non-standard conditions.  They will also use the AADT traffic volume data to make decisions as well - this sometimes involves someone from construction going out to do measurement to report back to design for on the fly during construction adjustments

What does the funding process look like for guardrail?

In house design - for cable guardrail they only determine the start and end points but not the details of the install for post locations, number of posts, etc.  This is handled under the contracts process so the contractor is make a decision about materials depending on which manufacture is chosen by the contractor.  The contractor may also reach out of a replacement is needed that is for a barrier that is too old.  This is often the case with the older crash cushions.  Contractors have to use pre-approved product list for their bids / installs. (NCHRP 350 / NASH federal highway approval - installed based on regulations)  Leveraging bid item history to make cost planning.  The contracts office also does some estimates based on their own parameters. Both designer (as planner) and cost estimator do cost estimating.

District using the same standards, design manuals as Iowa design office is.  The process would be the same.

Maintenance crews do some of the repairs depending on the guardrail type, age, severity of damage.  There are also some on call contracts that are used to do guardrail repairs in certain areas for certain types of guardrail. Low tension and long high tensions have contract come out to do replace exactly what out there. Upgrading the system may be more expensive than brand new systems sometimes.

When maintenance staff not sure what to do, something like layout (maintenance shop). They would come to design office for consultant or redesign.

No annual state funding for guardrail maintenance.

IF damage is done during an active construction project repairs will be added on to the project budget and also bill back through insurance where possible.

For new crash cushions in the bid items there is a spare parts kit as part of this but can be challenging to know where the kit is housed (which garage is holding these) These parts are used pretty quickly and shared with other shops as needed in the field.  Currently there isn't an inventory of what parts are where.

Note: Brian will provide the design manual standards to Dr Jeong

Design keeps a history of installation manuals - PDF stored on the LAN - keeping a history of these as well.

Contracts only uses information for bid costs.  Construction if the primary customer of the design data for grading information and install information.  Leveraging the tabulation information - bridge transition section based on a standards - certain install sequence, length, flare, etc.  Occasionally they provide custom designs with a detail schematic in the plan set

Plans go to contracts - there is a PDF version of the plan sets which are archived in ERMS - also the CAD files and spreadsheets go to to the contractors corner of the contracts website and also in to ProjectWise - working to move tabulations data from excel to Oracle (slow process) - often calling out standards number (i.e. BA205 - base on a certain date) in the tabs

Construction is only document what is changed from the plans but not identifying what manufacturers product are actually built in the field.  As-built not too detailed, not including the details of standard drawings. Material not including in as-built. Material in submittals. Only being stored in Fieldbook and the materials submitals.  Construction is collecting what is being installed but not going into a master database - only described in Fieldbook - location, length, comments - occurring daily. And daily report data recorded in field book. Not connecting with Brad’s system/Oracle database. Someone needs to survey and collect data for asset management. Construction verify offset, length, make sure correct materials. Updated as-built and sent to ERMS. Design approves some products to be installed. Construction may do little survey like grading.

Process maps

New/reconstruction

Repair/replace existing

Reconstruction due to damage of existing needing to be brought up to spec - special cases or parts no longer available

The only way design knows what was done for guardrail is to look at the bid items in contracts

The only master guardrail inventory we have is what maintenance collected in 2015/16

Construction - they verify the grade/slopes of the shoulder to make sure to standards, once installed verify that was installed to standard - height, posts, end types, etc.

Design is going to determine what kind of guardrail (steelbeam, cable, etc) and then there are choices for each type.  For cable they only state a length, crash cushion they state need one a certain location, for steelbeam design non propriety pieces and then end types vary, for concrete there is not a proprietary piece so all done in design - for temporary construction crash cushions there are different levels - severe use, etc.

Action Items: meet with Brian and Khyle and get a copy of specifications

Meet with Ames/Boone shops to learn about their processes for guardrail

Brian will send specifications, information on types - put out on projectwise site

Think about how to work Performance and Technology data team into the process