Internal Audit Report

Highway Condition Reporting

TxDOT Office of Internal Audit
Objective
To evaluate data integrity in the Highway Condition Report.

Opinion
Based on the audit scope areas reviewed, control mechanisms are effective and substantially address risk factors and exposures considered significant relative to impacting financial reporting reliability, operational execution, and compliance. The organization's system of internal controls provides reasonable assurance that most key goals and objectives will be achieved despite significant control gap corrections and improvement opportunities identified. Control gap corrections and improvement opportunities identified are likely to impact the achievement of the organization's business/control objectives, but management has agreed to corrective action plans to address the relevant risks within 6 months.

Overall Engagement Assessment
Satisfactory

<table>
<thead>
<tr>
<th>Findings</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding 1: User Access Reviews and Update</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td>Finding 2: Incomplete DriveTexas Map</td>
<td>Satisfactory</td>
</tr>
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Management concurs with the above findings and prepared management action plans to address deficiencies.

Control Environment
Overall there is a positive tone relating to the Highway Conditions Reporting System (HCRS) from both the Travel Information Division (TRV) and the Districts. The TRV makes available an up-to-date procedural manual, as well as, training for HCRS users. Both the TRV and the Districts recognize the importance of data integrity in maintaining an accurate system and its impact to the traveling public.

Summary Results

<table>
<thead>
<tr>
<th>Finding</th>
<th>Scope Area</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Access Controls</td>
<td>100 of 590 (17%) HCRS users reviewed no longer required edit access</td>
</tr>
<tr>
<td>2</td>
<td>Input Validation</td>
<td>7 of 60 (12%) maintenance and construction projects reviewed, which had current lane closures, were not included in HCRS</td>
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</tbody>
</table>
Audit Scope
The scope of the audit work was focused on the HCRS activities during July 2014, including testing proper edit access to the tool, as well as, the accuracy of both construction and maintenance projects reported. Audit coverage included project and user access reviews for 6 districts: Beaumont, Corpus Christi, Dallas, Houston, Lubbock, and Yoakum. The audit was performed by Keith Laird, Anuradha Masand, and Lindsay Bibeau (Engagement Lead). The audit was conducted during the period from June 11, 2014 to August 8, 2014.

Methodology
The methodology used to complete the objectives of this audit included:

- Reviewing TxDOT internal documents including manuals, organizational charts, and process maps
- Interviewing key personnel including Information Technology (IT) and District Highway Conditions Reporting Coordinators (Coordinators)
- Conducting judgmental sampling of reportable road conditions and access to the HCRS
- Observing personnel performing data entry and other key functions in the HCRS

These procedures were applied as necessary to perform the audit fieldwork.

Background
This report is prepared for the Texas Transportation Commission, TxDOT Administration, and Management. The report presents the results of the Highway Condition Reporting Audit which was conducted as part of the Fiscal Year 2014 Audit Plan.

The Highway Conditions Reporting System (HCRS) is a web-based tool to inform the traveling public of lane closures due to weather events or construction or maintenance. Travel Information Division is responsible for overseeing and maintaining the system; however, actual road conditions are updated by the respective Districts. HCRS was first implemented in 2006 and had its most recent upgrade in June 2014. This upgrade has moved HCRS data to the cloud for faster processing, as well as, allowing for a significant increase to simultaneous users of the public-facing portion of HCRS, known as “DriveTexas.org”. Analytics performed by IT demonstrated that the website obtained approximately 1.6 million hits between April 2013 and May 2014, however, no more than 100,000 hits at any given time.

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards and in conformance with the International Standards for the Professional Practice of Internal Auditing. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. Recommendations to mitigate risks identified were provided to management during the engagement to assist in the formulation of the management action plans included in this report. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The Office of Internal Audit transitioned to Committee of Sponsoring Organizations of the Treadway Commission (COSO) Internal Control – Integrated Framework version 2013 in December 2013.
A defined set of control objectives was utilized to focus on reporting, operational, and compliance goals for the identified scope areas. Our audit opinion is an assessment of the health of the overall control environment based on (1) the effectiveness of the enterprise risk management activities throughout the audit period and (2) the degree to which the defined control objectives were being met. Our audit opinion is not a guarantee against reporting misstatement and reliability, operational sub-optimization, or non-compliance, particularly in areas not included in the scope of this audit.
Detailed Findings and Management Action Plans (MAP)

Finding No. 1: User Access Reviews and Update

Condition
Districts evaluated are not performing user access reviews of the Highway Conditions Reporting System (HCRS) to assess if edit access is needed and appropriate for their individual job responsibilities.

Effect/Potential Impact
Users who no longer require edit access may make entries that impact the integrity of the data.

Criteria
Texas Administrative Code Title 1 Part 10 Chapter 202 subchapter B Rule 202.25 (3) (B) regarding information resources security safeguards states that a user’s access authorization shall be appropriately modified or removed when the user’s employment or job responsibilities within the state agency change.

Cause
The Highway Conditions Reporting System Manual currently addresses that it is the Coordinator’s responsibility to add users to HCRS; however, it does not address removal of user edit access to HCRS when it is no longer required. Currently emails are sent by the Travel Information Division (TRV) to Coordinators with instructions to add/delete users.

Evidence
Of the 1,839 users that have edit access to HCRS, 590 users in 6 districts were assessed and the following was noted:
- 100 of 590 (17%) users were not reviewed by the Districts to verify their need for edit access
  - 71 users no longer require edit access in current role
  - 29 users are no longer employed at TxDOT and these employees did not have access to TxDOT’s network

Management Action Plan (MAP):

MAP Owner:
Martha Martin, Special Projects Supervisor, Travel Services Section

MAP 1.1:
- Highway Conditions Reporting System (HCRS) Manual will be updated to:
  - reflect within the “duties of a Coordinator” the need to review access to HCRS at least semi-annually, and remove edit access when it becomes unnecessary
  - include instructions for granting and removing edit access to users

Completion Date:
October 15, 2014
MAP Owners:
Michelle Releford, Public Information Officer Dallas District
Jennifer Malinovsky, Yoakum Maintenance Operations
David Barrera, Lubbock Maintenance Administration
Rickey Dailey, Public Information Officer Corpus Christi

MAP 1.2:
At least twice annually, the Coordinator will send out an email to District Highway Conditions Reporting System (HCRS) users asking who no longer uses the system. Updates will be made to remove access for users no longer needing edit access to the system.

Completion Date:
February 15, 2015
Finding No. 2: Incomplete DriveTexas Map

Condition
The “DriveTexas.org” map did not include all state maintained road closure updates as of July 2014.

Effect/Potential Impact
Without incorporating all updates to the “DriveTexas.org” map, the traveling public would be relying on incomplete roadway information. In addition, in an emergency situation (such as an evacuation, hurricane, etc.), not having complete information within Highway Conditions Reporting System (HCRS) could affect the alternate routes shown in the “DriveTexas.org” map and offered by the media.

Criteria
The Highway Conditions Reporting System Manual states that the goal of HCRS is to provide highway condition information that is “as accurate and as timely as possible.” It also states that it is the Coordinator’s responsibility to review conditions for quality control purposes and to work with the HCRS users as to when they should be entering/updating/removing conditions.

Cause
The process at the districts is not sufficient to provide support during employee transition and to provide input verification. This process relies mainly on the districts, which have first-hand project knowledge to ensure that maintenance and construction projects are entered into the system timely. Division monitoring of the DriveTexas map is a reactive process based on requests by the districts and the public.

Evidence
The evidence obtained in the review noted that during July 2014:

- 7 of 60 (12%) maintenance and construction projects reviewed, which also had current lane closures, were not included in HCRS
  - 6 projects were in metro districts and 1 project was in an urban district

Management Action Plan (MAP):

MAP Owner:
Martha Martin, Special Projects Supervisor, Travel Services Section

MAP 2.1:
- Establish a rotating schedule of Districts that the Travel Information Division (TRV) will review for compliance with entering/updating/removing conditions into Highway Conditions Reporting System (HCRS) for display on “DriveTexas.org.”
- Work with a District contact person (i.e., Area Offices and Maintenance Sections), who will obtain roads with current lanes closures that should be entered into HCRS per HCRS manual guidelines for an agreed upon date. District will appoint contact person.
- Compare information obtained from the District contact with conditions that were actually entered into HCRS for the agreed upon date. Obtain feedback from District
contact about any missing conditions and work with them to ensure the condition is corrected as necessary.

- Provide feedback to district reviewed with results of TRV activity. Include best practice tips, if any patterns of missing conditions are discovered.

**Completion Date:**
January 15, 2015

**MAP Owner:**
Karen Othon, Public Information Officer Houston

**MAP 2.2:**
A new full-time employee will take over HCRS entry for the Houston District Public Information Office, upon completion of HCRS training. The training will include procedures to ensure transfer of data from TranStar to HCRS.

**Completion Date:**
September 15, 2014
Observations and Recommendations

Observation (a): Duplicate Conditions Are Not Prevented within the Highway Conditions Reporting System

The Highway Conditions Reporting System (HCRS) allows for the same road condition to be posted more than once to the “DriveTexas.org” map within the same mile marker.

Effect/Potential Impact
Multiple entries can result in instability of the data reported. In addition, multiple or duplicated conditions in the system could cause a slower response time.

Recommendation:
- Travel Information Division (TRV) HCRS staff in Austin should continue to monitor the site daily and contact the district when they encounter a duplicate condition.
- TRV should coordinate with IT to obtain a best cost benefit solution.
- TRV should ensure district coordinator awareness to reporting and edit screens available that can be used to identify duplicated conditions.
### Summary Results Based on Enterprise Risk Management Framework

#### Audit Results Dashboard

**Highway Condition Reporting Audit**

<table>
<thead>
<tr>
<th>ERM Component</th>
<th>Control Activities</th>
<th>Scope Areas Evaluated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Objectives (Reporting, Operational, Compliance)</strong></td>
<td>R,O,C</td>
<td>R,O,C</td>
</tr>
<tr>
<td><strong>ERM Component</strong></td>
<td><strong>Control Activities</strong></td>
<td><strong>Input Validation</strong></td>
</tr>
<tr>
<td><strong>Control Environment</strong></td>
<td>Organizational Tone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forecasting</td>
<td></td>
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<tr>
<td></td>
<td>Goal-Setting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cost-Benefit Analysis</td>
<td></td>
</tr>
<tr>
<td><strong>Risk Assessment</strong></td>
<td>Business Continuity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Evaluations/Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management Action Plans</td>
<td></td>
</tr>
<tr>
<td><strong>Control Activities</strong></td>
<td>Policies/Procedure Development &amp; Maintenance</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Approvals/Authorizations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supporting Evidence/Records Availability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Segregation of Duties</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Safeguarding Assets</td>
<td></td>
</tr>
<tr>
<td><strong>Information &amp; Communication</strong></td>
<td>Information Classification</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information Input</td>
<td>2, a</td>
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<tr>
<td></td>
<td>Information Processing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Output/Reporting and Messaging</td>
<td>2</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td>Exception Reporting Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reconciliations/Root-Cause Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peer Reviews</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management Representations</td>
<td></td>
</tr>
<tr>
<td><strong>Scope Area Assessment</strong></td>
<td></td>
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</tbody>
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**Rating Assessment Grid**

<table>
<thead>
<tr>
<th>Exemplary</th>
<th>Satisfactory</th>
<th>Needs Improvement</th>
<th>Unsatisfactory</th>
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### Closing Comments

The results of this audit were discussed with Travel Information Division (TRV) management and the districts. We appreciate the assistance and cooperation received from the TRV and the various districts contacted during this audit.