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A Multi-Perspective Study On Safety Performance at the Colorado DOT

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16. Abstract
This is the second of a two-part research effort to determine how to improve the effectiveness of CDOT safety efforts. This effort focuses on the safety culture within CDOT and the effectiveness of the CDOT safety programs on improving safety culture. The study used a survey approach based on interviews with senior safety officials to determine the scope of the survey questions. The survey was distributed to all five regions and to job classifications that included both field crews and supervisory personnel. The survey received 470 responses including a distribution horizontally across the regions and vertically across the job classifications. The survey also received 341 open-ended comments concerning worker perspectives on the CDOT safety culture. The critical conclusions from the data showed that there exists a variation between regions in terms of the current safety culture and these variations exist between supervisory and field crew job classifications. Additionally, mixed opinions exist as to whether safety practices are changing within CDOT. Field crews believe they are provided with proper safety equipment and feel comfortable talking about safety, but these same crews do not necessarily believe that supervisory personnel will act on safety concerns. This leads to an overall perception of safety culture at CDOT that is consistent across the regions at about a 7 out of 10.

Based on the survey results, it is recommended that CDOT continue to engage in culture enhancement activities. Of particular importance is the continued discussion of the Excellence in Safety program and the undertaking of a follow-up effort to understand why specific regions have a higher level of implementation and change than others. Additionally, the effort needs to focus on understanding the differences in perception between supervisory and field crew personnel.

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EXECUTIVE SUMMARY

The Colorado Department of Transportation (CDOT) faces the serious and urgent challenge of reducing the frequency and severity of work-related injuries. The incident rates for CDOT are significantly higher than the those achieved by private organizations (e.g., Kiewit) and other departments of transportation. In response to this fact, two research efforts were undertaken to determine how to improve the effectiveness of CDOT safety efforts. In Part 1, the research focused on the evaluation of Job Safety Analysis forms (JSA's) and their use as one element in determining the current state of safety practices within CDOT. The results from Part 1 were published under Worker Safety: Study 93-00. Part 2 of this effort is detailed in this report focusing on the safety culture within CDOT and the effectiveness of the CDOT safety programs.

The method used to accomplish this study was a survey approach based on interviews with senior safety officials to determine the scope of the survey questions. The survey was distributed to all five regions and to job classifications that included both field crews and supervisory personnel. The survey received 470 responses including a distribution horizontally across the regions and vertically across the job classifications. The survey also received 341 open-ended comments concerning worker perspectives on the CDOT safety culture.

The critical conclusions from the data are as follows:
- There exists a variation between regions in terms of the current safety culture. The survey results show a pattern of differences between the regions concerning the confidence in safety programs.
- There exists a difference in perception between supervisory and field crew job classifications with supervisory personnel having a higher perception than field crews.
- Mixed opinions exist as to whether safety practices are changing within CDOT.
- Field crews believe they are provided with proper safety equipment and feel comfortable talking about safety, but do not necessarily believe that supervisory personnel will act on safety concerns.
- There is a neutral to negative perception that current safety practices are having a long-term effect on safety practices.

- The overall perception of safety culture at CDOT is consistent across the regions at about a 7 out of 10.

Implementation Statement

The results from the survey indicate that a general improvement of safety culture remains as an overall goal that needs to be achieved within CDOT. However, the survey results provide a focused set of issues that need to be addressed as follows:

- Ensure the Excellence in Safety program is discussed on a regular basis in all regions.
- Follow-up on the data from the survey to understand why specific regions have a higher level of implementation and change than others.
- Conduct interviews with supervisory personnel to understand the differences in perception between supervisory and field crew personnel.
- Launch an intensive program to ensure that safety engagements are achieving the desired level of effectivness.

In summary, the CDOT safety issue is recognized at all levels through the Executive Safety Committee. This recognition is the first step to establishing a strategic correction. This two-phase study provided details of where safety needs to be examined in terms of specific practices (JSAs and safety engagements among others) as well as general perceptions of safety culture at CDOT. The opportunity exists to enhance the CDOT safety culture with the appropriate actions and interventions. This report is intended to guide where these interventions should be considered.

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SECTION 1: INTRODUCTION

The first CDOT Safety Study by the University of Colorado Boulder was completed in 2009 in response to concerns that the safety record at the Colorado Department of Transportation (CDOT) had been lagging the safety record of private industry and many comparable Departments of Transportation for several years. The incident rate had remained consistent over that time with little actual improvement in injury rates. As a result, the first CDOT Safety Study was undertaken to examine the critical issues of how CDOT compares with both private industry and comparable DOTs in terms of safety incidents as well as determining potential approaches for improving the safety record within CDOT.

The current study followed the initial work by examining the safety culture within CDOT and the perceptions of the ongoing Excellence in Safety program. In contrast to the first study, the current effort took a broader approach, looking at issues such as safety engagements, overall perceptions of safety, and changes in safety procedures to get insights into the overall safety culture at CDOT.

The Safety Culture study focused on three overall questions for which an agency-wide survey was deployed to get a broad set of responses on these issues.

1. How do employees view the safety culture at CDOT?
2. Do employees feel safe doing their tasks and talking about safety?
3. What effect has the Excellence in Safety program had on the safety culture at CDOT?

Given these overall questions, the study set several specific objectives as follows:

- ***Determine if differences exist between regions in terms of safety culture.*** This objective guided the team to ensure that all regions within the Colorado were included within the study.

- ***Determine if any variance exists between management and crews.*** The team focused on obtaining input from all levels within a region to determine if any variability existed between management and work crew perspectives.

- ***Determine the level of impact that the Excellence in Safety program has had on daily and long-term processes.*** The Excellence in Safety initiative is a broad and ambitious program to improve and standardize safety practices. The team incorporated both scaled and open-ended questions to obtain a perspective on this issue.

- ***Determine areas where immediate and long-term improvement could be made.*** Following on the recommendations provided by the first safety study, the current effort provides specific recommendations based on the data collected.

As summarized in the following sections, these objectives provided the scope under which the current study evolved. It is acknowledged that a survey represents only a sampling of the overall population in the CDOT organization. However, the breadth and depth of the respondents provides a basis for the recommendations provided in this report.

SECTION 2: APPROACH

The CDOT Safety Culture Study incorporated two primary phases, (1) background interviews with senior personnel and (2) a survey of multiple job classifications on the CDOT safety culture.   The overall goal of these two phases was to obtain a sufficient understanding of the safety culture within CDOT; from an overall, regional, and worker level perspective.
In Phase 1, multiple interviews were conducted with senior CDOT personnel directly or indirectly involved with safety within the organization. The intent of the interviews was to obtain an understanding of the Excellence in Safety program objectives as well as understand the management objectives for achieving and implementing a CDOT safety culture. From this understanding, the survey was developed by the University of Colorado Boulder team with input from the CDOT management personnel.

The categories of the survey included;

1. Demographics of the respondents
2. Current perspectives of CDOT safety culture
3. Worker perceptions of the Excellence in Safety program
4. Worker perceptions about safety practices such as safety engagements and tailgate talks
5. Worker opinions on overall safety changes within CDOT.

The establishment of the overall categories for the survey allowed the team to develop, deploy, and subsequently analyze the CDOT safety culture survey. Accomplishing this task included the following steps;

1. Development of survey questions by the University of Colorado Boulder team
2. Review and modification of the questions by CDOT safety personnel
3. Test deployment of the survey to a single region to obtain survey feedback
4. Modification of survey questions based on test feedback
5. Development of distribution lists by CDOT research department
6. Deployment of anonymous survey link by CDOT research office
7. Analysis and summarizing of survey results by CU personnel

8. Development of final report by CU personnel.

The following sections provide an overall analysis of the survey data followed by a set of overall conclusions and recommendations for approaching safety culture within the CDOT organization.

SECTION 3: RESULTS

Section 3.1: Demographics

The first part of the Safety Management survey focused on obtaining the demographics of the respondents. The goal of the survey being to obtain responses from across the job titles as well as the multiple regions. As shown in Table A, 470 responses were received from across the organization. Region 2 had the largest group of respondents with 138 (29% of the total) and Region 1 had the lowest number with 65 (14% of the total). The response rate reflected the overall population in terms of job classifications with the Employee/Laborer category having the greatest number of respondents with 259 (55%) and Management having the lowest total at 35 (7%). This distribution of worker categories was essential to ensure that the response rates reflected the overall distribution of personnel within the organization.

There were regional differences in the makeup of the response rates. Region 5 has slightly more Management personnel responding than Supervisor level employees. Region 4 had the largest number of Supervisor and Management respondents be percentage (22%). Region 1 had the largest number of Employee/Laborer respondents by percentage (60%). However, from an

Table A. Demographics of respondents across the regions and worker classifications. The percentages indicate the percent of respondents within an individual region.

	Region 1	% of Region	Region 2	% of Region	Region 3	% of Region	Region 4	% of Region	Region 5	% of Region	Total
Employee/Laborer (ex. TMI)	39	60%	75	54%	53	58%	40	53%	52	52%	259
Lead Worker(ex. TMII)	14	22%	42	30%	19	21%	19	25%	28	28%	122
Supervisor (ex. TMIII)	8	12%	15	11%	11	12%	11	15%	9	9%	54
Management (ex. LTC OPS)	4	6%	6	4%	9	10%	5	7%	11	11%	35
Total	65	100%	138	100%	92	100%	75	100%	100	100%	470

overall response perspective, the demographics of the respondents met the criteria set for the overall study.

Table B provides a second perspective on the demographics, focusing on the percentage of respondents from an overall total of the worker category by each region. For example, 15% of the Employee/Laborer category respondents originated from Region 1. Similarly, 26% of the Management respondents originated from Region 3. Once again, although there are variations between the regions in terms of the percentage distribution, the survey did achieve a distribution across all regions for all worker categories.

Table B. Demographics of respondents focusing on percentages from the overall worker classifications. For example, Region 1 had 15% of the Supervisor level responses from the overall pool of supervisors that responded to the survey.

	Region 1	% of Total	Region 2	% of Total	Region 3	% of Total	Region 4	% of Total	Region 5	% of Total	Total
Employee/Laborer (ex. TMI)	39	15%	75	29%	53	20%	40	15%	52	20%	259
Lead Worker(ex. TMII)	14	11%	42	34%	19	16%	19	16%	28	23%	122
Supervisor (ex. TMIII)	8	15%	15	28%	11	20%	11	20%	9	17%	54
Management (ex. LTC OPS)	4	11%	6	17%	9	26%	5	14%	11	31%	35
Total	65		138		92		75		100		470

Of the respondents, 76% have been recognized as safety leaders or safety champions. Of the respondents who have been recognized as one of these categories, 62% of reported having a positive or very positive impression of being recognized. These demographics are highlighted here as there is a chance that this could influence the overall responses with individuals being recognized and having a positive impression of being recognized being more likely to answer positively to the questions in the survey.

Section 3.2: Safety Engagements

The second part of the Safety Management survey focused on the safety engagements between the workers and the supervisors. Figure 1 shows the distribution of the responses from all respondents. As illustrated, the majority of the respondents, 268 (57%), indicated that they had a safety engagement within the last month. Only 77 (16%) of the respondents indicated that it had been 6 months or longer since their last engagement. As detailed in the full data set in Appendix A, all of the regions approach or exceed this 50% metric. This demonstrates that the desire to have frequent safety engagements is being achieved on an overall basis.

Figure 1. The time when respondents last had a safety engagement with a supervisor. The X-axis indicates the number of respondents who choose a specific timeframe.
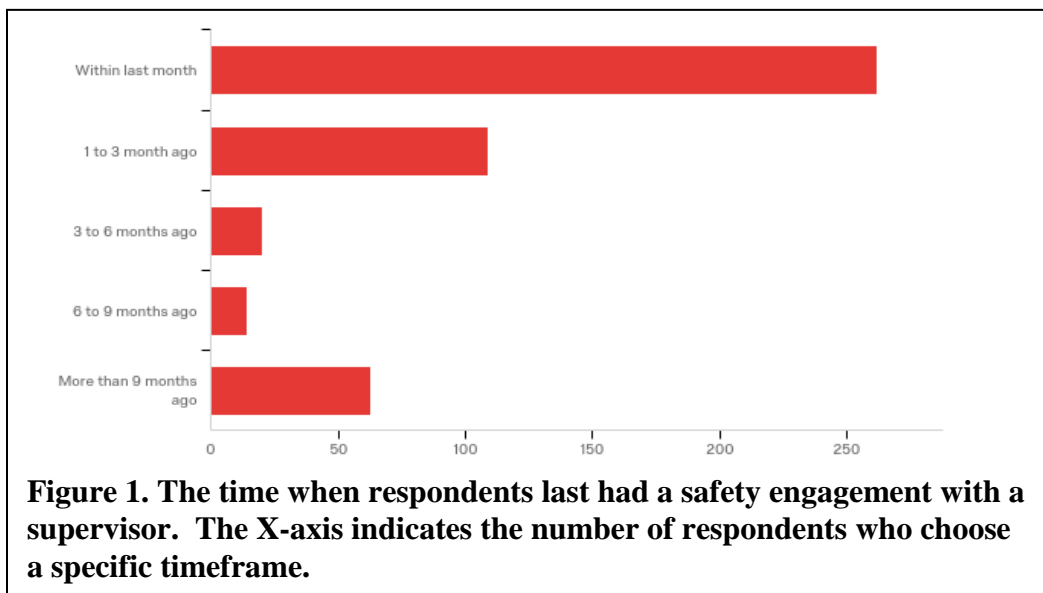
The second concern in safety engagements is the regular frequency of the safety engagements. As detailed in Appendix A, 68% of the total respondents indicated that they have engagements on at least a monthly basis. Once again, this is consistent across the regions. Of potential concern is that 10% of the respondents in Region 2 and 14% of the respondents in Region 5 indicated that they have not had a safety engagement.

In these safety engagements, the intent is to have safety discussed directly and openly. As such, the extent to which respondents agreed or disagreed with the statement that, "When interacting with my supervisor, safety is directly/openly discussed," was the focus of the next question (Figure 2). Once again, there is consistency across the regions with respondents agreeing or strongly agreeing with the statement from 69% to 76%. Region 2 had the largest number of
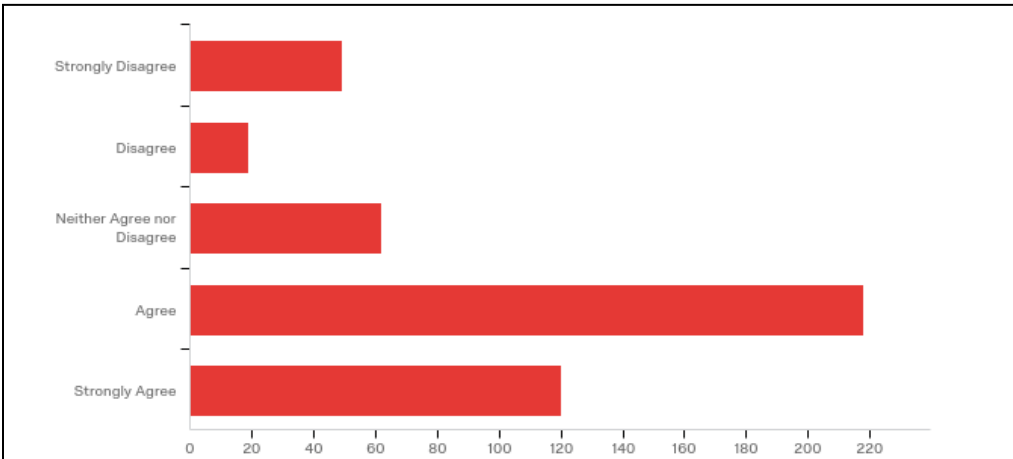
Figure 2. The level of agreement from respondents regarding the statement, "When interacting with my supervisor, safety is directly/openly discussed. The X-axis indicates the number of respondents who choose a specific level of agreement.
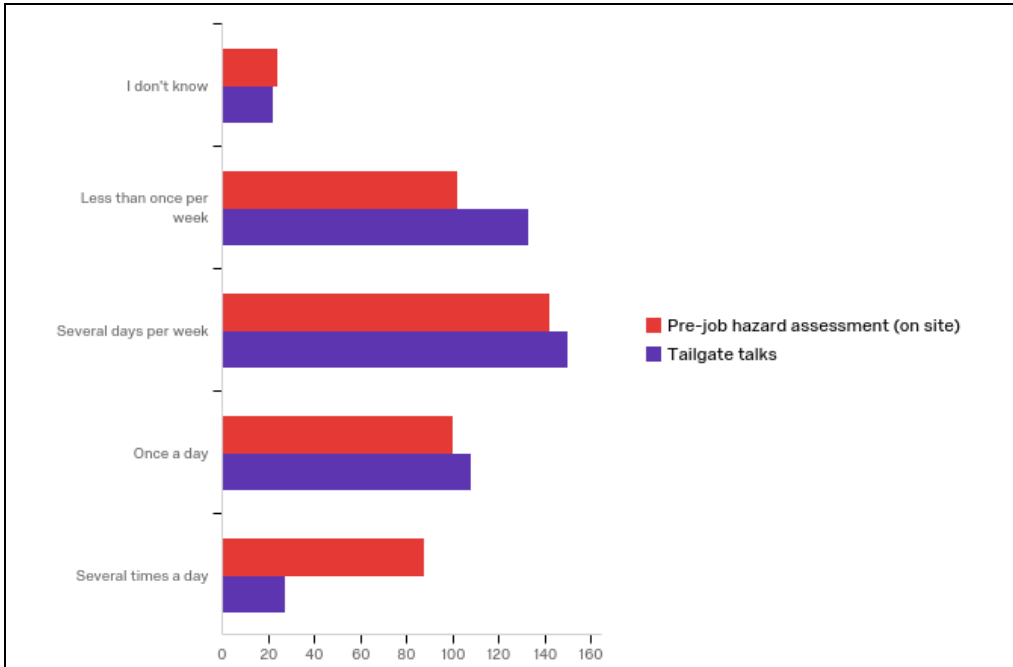
Figure 3. The level of response from respondents regarding the how often they participated in the two specific safety practices. The X-axis indicates the number of respondents who choose a specific timeframe.

respondents disagreeing or strongly disagreeing with this statement at 20%. In contrast, Region 1 had the lowest disagreement level at 8%.

Continuing with the focus on engagements and the effect of those engagements, the next questions focused on how often they participated in pre-job hazard assessments or tailgate talks. The results are illustrated in Figure 3 for both questions. The answers to both questions followed the same pattern with "Several days per week" receiving the greatest response and "Less than once per week" receiving the second most responses. In this case, there is a difference between the regions, with Region 1 having 52% of the respondents saying they participate at least once a day in pre-job hazard assessments compared to only 30% in Region 5. Similarly, 66% of Region 1 respondents indicate they participate in tailgate talks at least once a day compared to 32% in Region 3 as the next highest total and the rest of the regions below this level. This disparity in frequency may be of concern and should be investigated further.

As a conclusion to this section, the question of, "How effective are the following to increase my awareness of safety issues and ability to respond to changes?" was asked to determine the effect of these engagements and practices on job activities. Table C provides the detail of the responses received for this question. As illustrated, the majority of respondents indicated that all of the practices were wither Very Effective or Somewhat Effective. Of the four practices listed, Pre-job Hazard Assessments received the highest positive response with 72% of the respondents indicating Very Effective or Somewhat Effective. Safety Engagements received the lowest response rate at 60%, but that is still a majority of respondents.

Table C. Responses to the question of how effective the different practices were on job practices. The numbers indicate the total number of responses for each practice and response level.

#	Question	Very effective	Somewhat effective	Neutral	Somewhat ineffective	Very ineffective	I don't know	Total
1	Pre-job hazard assessment (on site)	171	161	66	24	28	9	459
2	Tailgate talks	126	183	85	25	27	12	458
3	Safety engagements	95	178	100	34	40	11	458
4	Monthly safety meetings	105	188	87	37	34	5	456

One response that should be investigated further in the effectiveness area is the response in Region 5 to the effectiveness of safety engagements. For this option, only 48% gave a Very Effective or Somewhat Effective response with 27% indicating a Neutral response. This was the only response category to receive lower than a 50% response rate for positive effectiveness. The intent of safety engagements is to have a long-lasting impact on safety practices. To gauge whether the engagements with supervisory personnel are having a long-lasting effect, a question addressing this specifically was posed as, "The safety engagements with my supervisor have a long lasting impact on my daily safety routine." The response to this question indicates that only 47% of respondents believe that the engagements are having a long-term positive effect (Table D and Appendix A). A great many are neutral in their response indicating that they do not have a definite opinion on whether a long-term effect is being achieved.

Table D. Responses to the question, "The safety engagements with my supervisor have a long lasting impact on my daily safety routine." The numbers indicate the total number of responses for each practice and response level.

	Region 1	% of Region	Region 2	% of Region	Region 3	% of Region	Region 4	% of Region	Region 5	% of Region	Total
Strongly Disagree	2	3%	4	3%	5	6%	2	3%	7	7%	20
Disagree	3	5%	11	8%	9	10%	4	5%	13	14%	40
Neither Agree nor Disagree	27	42%	52	40%	25	28%	30	41%	43	45%	177
Agree	23	36%	51	39%	37	42%	32	43%	28	29%	171
Strongly Agree	9	14%	13	10%	12	14%	6	8%	5	5%	45
Total	64	100%	88	100%	92	100%	74	100%	96	100%	453

Section 3.3: Safety Perspective

The next section of the survey focused on worker perspectives of safety practices and culture at CDOT. A series of 12 questions provide a broad perspective on safety perspectives at the organization. Tables E and F provide a summary of the responses to the questions with Table E providing counts and Table F providing summary statistics.

- Appropriate Resources – The respondents had a strong response to the question of whether they were provided with the resources required to do their job safely. Of the respondents, 80% Agreed or Strongly Agreed with this statement. The responses were consistent across the regions with all regions receiving greater than 70% of the responses in the agreement categories.

- Excellence in Safety – The second question focused on the Excellence in Safety program and whether it has improved the safety culture at CDOT. For this question, 62% of the respondents agreed that the program has improved the culture. 27% of the respondents were neutral in their responses indicating that a large number of respondents have not reached a final conclusion on their opinion about the Excellence in Safety program.

- Management Awareness – The question of whether management listens to safety concerns is the focus of this question. The positive response to this question was 62%. Although this is a majority, there is a concern that 38% of the respondents did not have a positive response indicating disagreement or neutral feelings. Notable in the responses is Region 1 with 22% of the respondents disagreeing with the statement.

- Management Actions – Closely related to the issue of management listening to safety concerns is the question of whether management acts upon the safety concerns raised by the workers. Similar to the previous question, 61% of the respondents gave a positive response to this question. Once again, that leaves a notable number of respondents who do not believe that management is acting on safety concerns. Of note for this question is Region 4 where only 4% of the respondents indicated a negative response to this question.

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- Supervisor Interaction – Moving to a more focused question on management interaction on safety, the next question asked if, "My supervisor approaches me, on a regular basis, to ask if I need anything to make my job safer." The positive response to this question dropped to 50%. Of particular concern is the Strongly Disagree responses with 8% of the total respondents choosing this option, the largest percentage of any question in this section. This is potentially concerning and should be investigated further.

- Management Example – Following the focus on management actions, this question asked respondents, "I feel management encourages safe behavior by leading by example." Once again the positive response rate remains consistent with a 61% positive response. However, Region 4 remains the positive outlier for this question with only 2% of the respondents giving a negative response. Overall, the respondents outside of Region 4 remain neutral or negative about management leading by example.

- Management Encouragement – Complementary to the question on management actions is a question focusing on management encouragement for safety innovations. The response to this question is similar to the previous responses with a 63% positive response rate. The range between the regions is quite high for this question with a low of 54% in Region 1 and a high of 76% in Region 4. A potential concern with this question lies in Region 1 where 16% of respondents disagreed with the statement regarding encouragement of innovation.

- Safety Perception – Transitioning from whether respondents perceive management support for safety to personal perceptions of safety, the next question asked respondents, "I feel safe while on the job." The result of this question is higher than the previous perception questions with 70% of the respondents giving a positive response. While this is an improvement, 30% of the respondents are indicating they do not have a positive perception of personal safety on the job. Once again, there is a range of negative response rates between the regions ranging from 7% for Regions 2 and 3 to 13% for Region 1.

- Peer Discussion – The remaining four questions in this section focused on the comfort that respondents feel when discussing safety with different constituencies. The first of these constituencies is peers with a question of, "I feel comfortable talking about safety issues with my peers." In a strong response to this question, 87% of respondents indicated agreement with the statement. This indicates a strong perception that employees feel comfortable discussing safety with similar ranking employees.

- Supervisor Discussion – Continuing the focus on safety discussions, the next question asked of the employee felt comfortable talking with their supervisor about safety issues. Similar to the previous question, 84% of the respondents gave a positive response to this question. Once again, the indication from the survey is that employees feel comfortable discussing safety with peers and supervisory personnel. The only exception to this response rate is Region 5 where 15% of respondents disagreed with this statement.

- Safety Violations – The third question in this series asked respondents about speaking up with concerns about safety violations. The question statement of, "I feel empowered to speak up about safety violations," received a notably reduced level of agreement with only 67% of respondents giving a positive response. There is similarity of responses across the regions with negative responses ranging from 6% to 13%. This question requires further investigation as 2/3 of the respondents indicate that they do not feel comfortable speaking up about safety violations.

- RSO Communication – The final question in this section focuses the issue of speaking up about safety issues specifically to the Regional Safety Officer (RSO). In this case, the question receives the lowest positive response rate of the series with only 63% responding in agreement to the statement. Once again, this question requires further investigation as 27% of the respondents are indicating that they do not feel comfortable speaking about safety issues with the RSO.

Table E. Responses to a series of questions focusing on the perspectives of respondents on safety culture issues. The numbers indicate the total number of responses for each practice and response level.

Question	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total
I am provided with appropriate resources for conducting work as safely as possible	14	21	58	265	100	458
Excellence in Safety has improved the safety culture at CDOT	12	36	125	227	57	457
Management listens to my concerns about safety	22	42	112	218	63	457
Management acts on and concerns about safety	16	42	122	219	58	457
My supervisor approaches me, on a regular basis, to ask if I need anything to make my job safer	37	52	141	170	58	458
I feel management encourages safe behavior by leading by example	18	42	119	229	49	457
I feel management encourages safety innovations	20	26	125	236	50	457
I feel safe while on the job	11	30	98	263	54	456
I feel comfortable talking about safety issues with my peers	8	11	39	274	124	456
I feel comfortable talking to my supervisor about safety issues	13	20	43	248	133	457
I feel empowered to speak up about safety violations	15	24	113	221	82	455
I feel comfortable talking to my RSO about safety issues	31	28	111	220	65	455

Table F. The summary statistics to the series of questions focusing on the perspectives of respondents on safety culture issues.

Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
I am provided with appropriate resources for conducting work as safely as possible	1.00	5.00	3.91	0.89	0.80	458
Excellence in Safety has improved the safety culture at CDOT	1.00	5.00	3.61	0.90	0.80	457
Management listens to my concerns about safety	1.00	5.00	3.56	1.00	0.99	457
Management acts on and concerns about safety	1.00	5.00	3.57	0.94	0.89	457
My supervisor approaches me, on a regular basis, to ask if I need anything to make my job safer	1.00	5.00	3.35	1.09	1.19	458
I feel management encourages safe behavior by leading by example	1.00	5.00	3.54	0.94	0.88	457
I feel management encourages safety innovations	1.00	5.00	3.59	0.91	0.84	457
I feel safe while on the job	1.00	5.00	3.70	0.85	0.72	456
I feel comfortable talking about safety issues with my peers	1.00	5.00	4.09	0.78	0.60	456
I feel comfortable talking to my supervisor about safety issues	1.00	5.00	4.02	0.90	0.82	457
I feel empowered to speak up about safety violations	1.00	5.00	3.73	0.93	0.86	455
I feel comfortable talking to my RSO about safety issues	1.00	5.00	3.57	1.03	1.06	455

Section 3.4: Supervisor Perceptions

The broad survey provides a general overview of the safety perspectives at CDOT. However, to focus in further on the perspectives of supervisory personnel, two questions were asked to supervisors regarding their perspectives on the effectiveness of safety procedures (Table G). Of the overall respondents, 198 had supervisory responsibilities and thus responded to the two questions. The first of the questions focused on the impact of safety engagements on immediate safety practices by the crews. The question asked, "My safety engagements with my team impact their daily safety routines." In contrast to the 60% overall positive response to the similar question posed in the previous section, the supervisory personnel responded with a 73% positive response to this question. However, there was variance among the regions with a low of 60% from Region 5 to a high of 77% in Regions 2 and 3. The Region 5 result followed the low agreement rate found in the overall response to engagement effectiveness.

The second question in this set asked the respondents, "My safety engagements with my team have a long lasting impact on their daily safety routines." The focus of this question being the longer term impact of the engagements on safety practices. The response to this question was notably lower with only 58% of the supervisory personnel believing that engagements were having a long-term effect. Once again, there was variance among the regions with a low of 43% in Region 5 to a high of 65% in Region 1. This variance follows the overall response to this question from the larger population.

In summary, these two questions highlight important issues requiring further investigation. First, the difference between the supervisor perception and the general employee perception of engagement effectiveness is notable. This difference could be hindering an honest discussion about engagement effectiveness and its role in operations. Second, the variance between the regions indicates that further investigation is required to determine why personnel within the regions have a very different perception of engagement effectiveness.

Table G. Responses to the two supervisory questions focusing on the perspectives of respondents on safety practice effectiveness. The numbers indicate the total number of responses for each practice and response level.

#	Question	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	NA	Total
1	My safety engagements with my team impact their daily safety routines.	2	9	42	118	26	1	198
2	My safety engagements with my team have a long lasting impact on their daily safety routines.	3	8	69	98	19	1	198

Section 3.5: Safety Culture

The previous sections have provided a detailed look at how the overall employee and supervisory perspectives currently exist regarding safety at CDOT. As an overall perspective, a question was asked about the overall safety culture at CDOT. The question, "How would you rate our current safety culture at CDOT? (1 = low 10 = high)" provided an opportunity to rate the organization on a broad scale. The resulting responses to this question by region clustered around a 7 as follows:

- Region 1: 7.16
- Region 2: 7.04
- Region 3: 6.90
- Region 4: 7.49
- Region 5: 6.82

As illustrated, the overall perception of the safety culture at CDOT is approximately a 7 out of 10. This is above neutral and in the good range (6-7), but short of the Very Good range (8-9). When comparing this finding to Part 1 of the study in 2009, the results have similarities. While that study was focused more specifically on hazard analysis, it was found that there was broad awareness of the practice, but uneven deployment. The same can be said of the current finding. The awareness of the need for safety is broad, but the implementation is uneven among the regions. Thus, the overall feeling of the safety culture at CDOT is that it is "Good" but needs improvement to achieve the level desired by the organization.

Section 3.6: Respondent Comments

In addition to the specific response questions summarized above, an open-ended question was included in the survey to obtain comments from the respondents regarding how they believed the Excellence in Safety program was affecting their job responsibilities. The question, "As a result of Excellence in Safety, please describe how your daily safety routine has changed," provided the opportunity for respondents to give an anonymous opinion on the CDOT safety efforts. The survey received 341 comments from respondents of all levels and regions. The comments were then analyzed for themes based on a content analysis of key words and phrases. The comments were divided into three categories; positive, neutral, and negative. Within each of these categories, the most frequent phrases and words were identified to create the "most frequent" theme lists below.

Positive
- They are now more safe
- They are now more aware
- There are more tailgate talks and safety is discussed more
- They think more about the safety of their coworkers rather than just theirs
- They do more paperwork regarding safety
- More thought about how to avoid possible dangers
- They no longer rush to get work done

Neutral
- There has been no change
- They have always worked in a safe manner
- A personal experience shaped them more regarding safety than the new changes
- They have just started working so cannot honestly answer either way
- Danger is a part of the job and changes will not change that much

Negative
- No change in routine
- Management does not care about worker's safety

- There is still danger in traffic

- The conditions in which they work are uncomfortable

- There is more paperwork without an increase in safety

As documented, there are comments that span the spectrum of positive and negative perceptions. However, this should be expected based on the diversity of responses in the scaled questions. The variance between worker and supervisory personnel as well as the differences between the regions indicate a broad range of perceptions exist within the CDOT organization.

Of particular interest in the lists above are the comments that some workers feel more safe while others say there has been no change in routine and that management does not care about worker safety. This is a clear indication that an uneven implementation of safety practices is occurring in the organization.

SECTION 4: CONCLUSION

The Colorado Department of Transportation has been aggressively addressing the challenge of reducing safety incidents. A central part of this process has been the implementation of the Excellence in Safety program to improve the overall safety culture as well as the daily safety practices in the field. This study focused on answering the question of whether the Excellence in Program is making an impact on the CDOT safety culture specifically and what are the worker perceptions of safety culture at CDOT in general.

As documented in the demographics section, the survey had a broad representation of respondents from the five regions as well as representation across the four worker classification levels. This broad sample provided a basis for the following set of conclusions and recommendations.

- There exists a variation between regions in terms of the current safety culture. The survey results show a pattern of differences between the regions concerning the confidence in safety programs.

- There exists a difference in perception between supervisory and field crew job classifications with supervisory personnel having a higher perception than field crews.

- Mixed opinions exist as to whether safety practices are changing within CDOT.

- Field crews believe they are provided with proper safety equipment and feel comfortable talking about safety, but do not necessarily believe that supervisory personnel will act on safety concerns.

- There is a neutral to negative perception that current safety practices are having a long-term effect on safety practices.

- The overall perception of safety culture at CDOT is consistent across the regions at approximately a 7 out of 10.

The results from the survey indicate that a general improvement of safety culture remains as an overall goal that needs to be achieved within CDOT. However, the survey results provide a focused set of issues that need to be addressed as follows:

- Ensure the Excellence in Safety program is discussed on a regular basis in all regions.

- Follow-up on the data from the survey to understand why specific regions have a higher level of implementation and change than others.

- Conduct interviews with supervisory personnel to understand the differences in perception between supervisory and field crew personnel.

- Launch an intensive program to ensure that safety engagements are achieving the desired level of effectiveness.

We believe the implementation of these suggestions will result in a renewed focus on enhancing the safety culture within the CDOT organization.

In summary, the CDOT safety culture continues to be a primary focus for the organization. There is a common focus by management on improving the overall culture and specific practices that guide the work at the organization. However, differences exist in the implementation and perception of safety culture changes across the regions and across the worker classification levels. It appears that progress is being made to address safety culture, but further investigation is needed to understand why the differences exist between regions and worker levels.

APPENDIX "A"
INTERVIEW QUESTIONS AND RESPONSE DATA

What region do you work in?

		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
What is your job level?	Employee/Laborer (ex. TMI)	39	60%	15%	75	54%	29%	53	58%	20%	40	53%	15%	52	52%	20%	259
	Lead Worker(ex. TMII)	14	22%	11%	42	30%	34%	19	21%	16%	19	25%	16%	28	28%	23%	122
	Supervisor (ex. TMIII)	8	12%	15%	15	11%	28%	11	12%	20%	11	15%	20%	9	9%	17%	54
	Management (ex. LTC OPS)	4	6%	11%	6	4%	17%	9	10%	26%	5	7%	14%	11	11%	31%	35
	Total	65	100%	14%	138	100%	29%	92	100%	20%	75	100%	16%	100	100%	21%	470

		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
When was the last time you had a safety engagement with your supervisor?	Within last month	36	55%	14%	73	54%	28%	56	61%	21%	49	66%	19%	47	47%	18%	261
	1 to 3 month ago	19	29%	17%	33	24%	30%	15	16%	14%	19	26%	17%	23	23%	21%	109
	3 to 6 months ago	4	6%	20%	3	2%	15%	6	7%	30%	3	4%	15%	4	4%	20%	20
	6 to 9 months ago	1	2%	7%	6	4%	43%	4	4%	29%	0	0%	0%	3	3%	21%	14
	More than 9 months ago	5	8%	8%	21	15%	33%	11	12%	17%	3	4%	5%	23	23%	37%	63
	Total	65	100%	14%	136	100%	29%	92	100%	20%	74	100%	16%	100	100%	21%	467

How often do you and your supervisor have a safety engagement?

		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Monthly	44	68%	14%	94	69%	30%	65	72%	21%	50	67%	16%	61	62%	19%	314
	Quarterly	14	22%	20%	21	15%	30%	5	6%	7%	20	27%	29%	10	10%	14%	70
	Semi Annual	0	0%	0%	4	3%	22%	7	8%	39%	2	3%	11%	5	5%	28%	18
	Annual	3	5%	15%	3	2%	15%	5	6%	25%	0	0%	0%	9	9%	45%	20
	Have not had one	4	6%	9%	14	10%	33%	8	9%	19%	3	4%	7%	14	14%	33%	43
	Total	65	100%	14%	136	100%	29%	90	100%	19%	75	100%	16%	99	100%	21%	465

Please rate the extent to which you agree with the following statement: "When interacting with my..."

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Strongly Disagree	3	5%	6%	21	16%	43%	7	8%	14%	10	13%	20%	8	8%	16%	49
Disagree	2	3%	11%	5	4%	26%	5	5%	26%	1	1%	5%	6	6%	32%	19
Neither Agree nor Disagree	12	18%	19%	17	13%	27%	10	11%	16%	9	12%	15%	14	14%	23%	62
Agree	27	42%	12%	67	50%	31%	37	40%	17%	39	51%	18%	48	48%	22%	218
Strongly Agree	21	32%	18%	25	19%	21%	33	36%	28%	17	22%	14%	23	23%	19%	119
Total	65	100%	14%	135	100%	29%	92	100%	20%	76	100%	16%	99	100%	21%	467

As a result of Excellence in Safety, have you been recognized as a safety champion or safety leader?

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Yes	42	66%	12%	118	87%	33%	70	75%	20%	46	63%	13%	77	77%	22%	353
No	22	34%	20%	17	13%	15%	23	25%	21%	27	37%	24%	23	23%	21%	112
Total	64	100%	14%	135	100%	29%	93	100%	20%	73	100%	16%	100	100%	22%	465

What is your overall impression of being recognized?

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Very positive	7	17%	10%	27	23%	40%	13	19%	19%	7	15%	10%	13	17%	19%	67
Positive	18	43%	12%	50	42%	33%	27	39%	18%	24	52%	16%	33	43%	22%	152
Neutral	16	38%	14%	37	31%	31%	25	36%	21%	14	30%	12%	26	34%	22%	118
Negative	1	2%	8%	3	3%	23%	4	6%	31%	1	2%	8%	4	5%	31%	13
Very negative	0	0%	0%	1	1%	50%	0	0%	0%	0	0%	0%	1	1%	50%	2
Total	42	100%	12%	118	100%	34%	69	100%	20%	46	100%	13%	77	100%	22%	352

How often do you participate in the following safety activities? - Pre-job hazard assessment (on site)

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
I don't know	5	8%	21%	8	6%	33%	4	4%	17%	6	8%	25%	1	1%	4%	24
Less than once per week	10	16%	10%	20	15%	20%	24	27%	24%	16	22%	16%	31	33%	31%	101
Several days per week	15	24%	11%	41	31%	29%	26	29%	18%	25	34%	18%	35	37%	25%	142
Once a day	22	35%	22%	31	23%	31%	18	20%	18%	13	18%	13%	16	17%	16%	100
Several times a day	11	17%	13%	33	25%	38%	18	20%	20%	14	19%	16%	12	13%	14%	88
Total	63	100%	14%	133	100%	29%	90	100%	20%	74	100%	16%	95	100%	21%	455

How often do you participate in the following safety activities? - Tailgate talks

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
I don't know	2	3%	9%	10	8%	45%	3	3%	14%	5	7%	23%	2	2%	9%	22
Less than once per week	8	13%	6%	32	25%	24%	29	34%	22%	23	34%	17%	40	42%	30%	132
Several days per week	11	18%	7%	56	43%	37%	27	31%	18%	22	32%	15%	34	36%	23%	150
Once a day	31	51%	29%	23	18%	21%	23	27%	21%	14	21%	13%	17	18%	16%	108
Several times a day	9	15%	33%	8	6%	30%	4	5%	15%	4	6%	15%	2	2%	7%	27
Total	61	100%	14%	129	100%	29%	86	100%	20%	68	100%	15%	95	100%	22%	439

28

How effective are the following to increase my awareness of safety issues and ability to respon... - Pre-job hazard assessment (on site)	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Very effective	22	35%	13%	55	41%	32%	34	38%	20%	32	43%	19%	27	28%	16%	170
Somewhat effective	23	37%	14%	44	33%	27%	30	33%	19%	27	36%	17%	37	38%	23%	161
Neutral	7	11%	11%	16	12%	24%	18	20%	27%	8	11%	12%	17	18%	26%	66
Somewhat ineffective	4	6%	17%	7	5%	29%	1	1%	4%	2	3%	8%	10	10%	42%	24
Very ineffective	6	10%	21%	6	5%	21%	6	7%	21%	5	7%	18%	5	5%	18%	28
I don't know	1	2%	11%	5	4%	56%	1	1%	11%	1	1%	11%	1	1%	11%	9
Total	63	100%	14%	133	100%	29%	90	100%	20%	75	100%	16%	97	100%	21%	458

How effective are the following to increase my awareness of safety issues and ability to respon... - Tailgate talks	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Very effective	21	33%	17%	26	20%	21%	32	36%	26%	23	31%	18%	23	24%	18%	125
Somewhat effective	24	38%	13%	53	40%	29%	31	34%	17%	31	42%	17%	44	45%	24%	183
Neutral	7	11%	8%	30	23%	35%	19	21%	22%	12	16%	14%	17	18%	20%	85
Somewhat ineffective	3	5%	12%	9	7%	36%	2	2%	8%	3	4%	12%	8	8%	32%	25
Very ineffective	7	11%	26%	8	6%	30%	4	4%	15%	4	5%	15%	4	4%	15%	27
I don't know	2	3%	17%	6	5%	50%	2	2%	17%	1	1%	8%	1	1%	8%	12
Total	64	100%	14%	132	100%	29%	90	100%	20%	74	100%	16%	97	100%	21%	457

29

How effective are the following to increase my awareness of safety issues and ability to respon... - Safety engagements		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Very effective	17	27%	18%	25	19%	27%	25	28%	27%	17	23%	18%	10	10%	11%	94
	Somewhat effective	21	33%	12%	56	42%	31%	34	38%	19%	30	41%	17%	37	38%	21%	178
	Neutral	12	19%	12%	27	20%	27%	18	20%	18%	17	23%	17%	26	27%	26%	100
	Somewhat ineffective	6	9%	18%	8	6%	24%	5	6%	15%	4	5%	12%	11	11%	32%	34
	Very ineffective	7	11%	18%	11	8%	28%	6	7%	15%	5	7%	13%	11	11%	28%	40
	I don't know	1	2%	9%	5	4%	45%	2	2%	18%	1	1%	9%	2	2%	18%	11
	Total	64	100%	14%	132	100%	29%	90	100%	20%	74	100%	16%	97	100%	21%	457

How effective are the following to increase my awareness of safety issues and ability to respon... - Monthly safety meetings		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Very effective	17	27%	16%	31	23%	30%	27	30%	26%	17	23%	16%	12	13%	12%	104
	Somewhat effective	22	35%	12%	56	42%	30%	32	36%	17%	37	50%	20%	41	43%	22%	188
	Neutral	11	17%	13%	27	20%	31%	15	17%	17%	13	18%	15%	21	22%	24%	87
	Somewhat ineffective	6	10%	16%	8	6%	22%	8	9%	22%	5	7%	14%	10	10%	27%	37
	Very ineffective	5	8%	15%	9	7%	26%	7	8%	21%	1	1%	3%	12	13%	35%	34
	I don't know	2	3%	40%	1	1%	20%	1	1%	20%	1	1%	20%	0	0%	0%	5
	Total	63	100%	14%	132	100%	29%	90	100%	20%	74	100%	16%	96	100%	21%	455

Please determine to what extent you agree or disagree with the following statements. - I am provided with appropriate resources for conducting work as safely as possible		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	4	6%	29%	1	1%	7%	5	6%	36%	1	1%	7%	3	3%	21%	14
	Disagree	7	11%	33%	6	5%	29%	4	5%	19%	0	0%	0%	4	4%	19%	21
	Neither Agree nor Disagree	7	11%	12%	24	18%	41%	14	16%	24%	3	4%	5%	10	10%	17%	58
	Agree	38	59%	14%	74	56%	28%	40	45%	15%	57	76%	22%	56	57%	21%	265
	Strongly Agree	8	13%	8%	27	20%	27%	25	28%	25%	14	19%	14%	25	26%	25%	99
	Total	64	100%	14%	132	100%	29%	88	100%	19%	75	100%	16%	98	100%	21%	457

Please determine to what extent you agree or disagree with the following statements. - Management listens to my concerns about safety		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	7	11%	32%	4	3%	18%	3	3%	14%	1	1%	5%	7	7%	32%	22
	Disagree	7	11%	17%	14	11%	33%	8	9%	19%	4	5%	10%	9	9%	21%	42
	Neither Agree nor Disagree	19	30%	17%	32	24%	29%	21	24%	19%	18	24%	16%	21	21%	19%	111
	Agree	24	38%	11%	65	49%	30%	39	44%	18%	44	59%	20%	46	47%	21%	218
	Strongly Agree	6	10%	10%	17	13%	27%	17	19%	27%	8	11%	13%	15	15%	24%	63
	Total	63	100%	14%	132	100%	29%	88	100%	19%	75	100%	16%	98	100%	21%	456

Please determine to what extent you agree or disagree with the following statements. - Management acts on and concerns about safety		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	4	6%	25%	5	4%	31%	3	3%	19%	1	1%	6%	3	3%	19%	16
	Disagree	5	8%	12%	13	10%	31%	9	10%	21%	2	3%	5%	13	13%	31%	42
	Neither Agree nor Disagree	19	30%	16%	41	31%	34%	21	24%	17%	15	20%	12%	25	26%	21%	121
	Agree	28	44%	13%	58	44%	26%	40	45%	18%	49	65%	22%	44	45%	20%	219
	Strongly Agree	7	11%	12%	15	11%	26%	15	17%	26%	8	11%	14%	13	13%	22%	58
	Total	63	100%	14%	132	100%	29%	88	100%	19%	75	100%	16%	98	100%	21%	456

Please determine to what extent you agree or disagree with the following statements. - I feel management encourages safe behavior by leading by example		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	1	2%	6%	4	3%	22%	6	7%	33%	1	1%	6%	6	6%	33%	18
	Disagree	7	11%	17%	15	11%	36%	10	11%	24%	1	1%	2%	9	9%	21%	42
	Neither Agree nor Disagree	16	25%	14%	35	27%	30%	21	24%	18%	17	23%	14%	29	30%	25%	118
	Agree	32	51%	14%	69	52%	30%	39	44%	17%	46	61%	20%	43	44%	19%	229
	Strongly Agree	7	11%	14%	9	7%	18%	12	14%	24%	10	13%	20%	11	11%	22%	49
	Total	63	100%	14%	132	100%	29%	88	100%	19%	75	100%	16%	98	100%	21%	456

Please determine to what extent you agree or disagree with the following statements. - I feel management encourages safety innovations		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	4	6%	20%	6	5%	30%	5	6%	25%	0	0%	0%	5	5%	25%	20
	Disagree	6	10%	23%	7	5%	27%	2	2%	8%	4	5%	15%	7	7%	27%	26
	Neither Agree nor Disagree	19	30%	15%	35	27%	28%	24	27%	19%	14	19%	11%	32	33%	26%	124
	Agree	28	44%	12%	67	51%	28%	46	52%	19%	50	67%	21%	45	46%	19%	236
	Strongly Agree	6	10%	12%	16	12%	33%	11	13%	22%	7	9%	14%	9	9%	18%	49
	Total	63	100%	14%	131	100%	29%	88	100%	19%	75	100%	16%	98	100%	22%	455

Please determine to what extent you agree or disagree with the following statements. - I feel safe while on the job		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	2	3%	18%	3	2%	27%	1	1%	9%	1	1%	9%	4	4%	36%	11
	Disagree	6	10%	20%	7	5%	23%	5	6%	17%	7	9%	23%	5	5%	17%	30
	Neither Agree nor Disagree	10	16%	10%	38	29%	39%	26	30%	27%	10	13%	10%	14	14%	14%	98
	Agree	39	62%	15%	66	50%	25%	45	51%	17%	47	63%	18%	66	67%	25%	263
	Strongly Agree	6	10%	11%	17	13%	32%	11	13%	21%	10	13%	19%	9	9%	17%	53
	Total	63	100%	14%	131	100%	29%	88	100%	19%	75	100%	16%	98	100%	22%	455

Please determine to what extent you agree or disagree with the following statements. - I feel comfortable talking to my RSO about safety issues		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	5	8%	16%	7	5%	23%	4	5%	13%	1	1%	3%	14	14%	45%	31
	Disagree	7	11%	25%	3	2%	11%	5	6%	18%	4	5%	14%	9	9%	32%	28
	Neither Agree nor Disagree	19	30%	17%	38	29%	34%	19	22%	17%	15	21%	14%	20	20%	18%	111
	Agree	26	41%	12%	64	49%	29%	44	50%	20%	42	58%	19%	43	44%	20%	219
	Strongly Agree	7	11%	11%	19	15%	29%	16	18%	25%	11	15%	17%	12	12%	18%	65
	Total	64	100%	14%	131	100%	29%	88	100%	19%	73	100%	16%	98	100%	22%	454

33

Please determine to what extent you agree or disagree with the following statements. - I feel comfortable talking about safety issues with my peers

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Strongly Disagree	2	3%	25%	1	1%	13%	2	2%	25%	1	1%	13%	2	2%	25%	8
Disagree	1	2%	9%	3	2%	27%	1	1%	9%	1	1%	9%	5	5%	45%	11
Neither Agree nor Disagree	7	11%	18%	12	9%	31%	12	14%	31%	3	4%	8%	5	5%	13%	39
Agree	35	56%	13%	78	60%	29%	44	50%	16%	52	69%	19%	64	65%	23%	273
Strongly Agree	18	29%	15%	37	28%	30%	29	33%	23%	18	24%	15%	22	22%	18%	124
Total	63	100%	14%	131	100%	29%	88	100%	19%	75	100%	16%	98	100%	22%	455

Please determine to what extent you agree or disagree with the following statements. - I feel comfortable talking to my supervisor about safety issues

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Strongly Disagree	3	5%	23%	3	2%	23%	3	3%	23%	1	1%	8%	3	3%	23%	13
Disagree	2	3%	10%	4	3%	20%	2	2%	10%	0	0%	0%	12	12%	60%	20
Neither Agree nor Disagree	8	13%	19%	16	12%	37%	10	11%	23%	2	3%	5%	7	7%	16%	43
Agree	33	52%	13%	75	57%	30%	40	45%	16%	52	70%	21%	48	49%	19%	248
Strongly Agree	18	28%	14%	34	26%	26%	33	38%	25%	19	26%	14%	28	29%	21%	132
Total	64	100%	14%	132	100%	29%	88	100%	19%	74	100%	16%	98	100%	21%	456

Please determine to what extent you agree or disagree with the following statements. - I feel empowered to speak up about safety violations

	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Strongly Disagree	5	8%	33%	2	2%	13%	2	2%	13%	2	3%	13%	4	4%	27%	15
Disagree	3	5%	13%	6	5%	25%	4	5%	17%	2	3%	8%	9	9%	38%	24
Neither Agree nor Disagree	16	25%	14%	41	32%	36%	19	22%	17%	16	21%	14%	21	21%	19%	113
Agree	29	46%	13%	57	44%	26%	42	48%	19%	44	59%	20%	48	49%	22%	220
Strongly Agree	10	16%	12%	24	18%	29%	21	24%	26%	11	15%	13%	16	16%	20%	82
Total	63	100%	14%	130	100%	29%	88	100%	19%	75	100%	17%	98	100%	22%	454

Please determine to what extent you agree or disagree with the following statements. - My supervisor approaches me, on a regular basis, to ask if I need anything to make my job safer		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	7	11%	19%	10	8%	27%	9	10%	24%	3	4%	8%	8	8%	22%	37
	Disagree	11	17%	21%	15	11%	29%	8	9%	15%	5	7%	10%	13	13%	25%	52
	Neither Agree nor Disagree	16	25%	11%	39	30%	28%	27	31%	19%	22	29%	16%	37	38%	26%	141
	Agree	23	36%	14%	52	39%	31%	33	38%	19%	33	44%	19%	29	30%	17%	170
	Strongly Agree	7	11%	12%	16	12%	28%	11	13%	19%	12	16%	21%	11	11%	19%	57
	Total	64	100%	14%	132	100%	29%	88	100%	19%	75	100%	16%	98	100%	21%	457

Please determine to what extent you agree or disagree with the following statements. - Excellence in Safety has improved the safety culture at CDOT		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	5	8%	42%	3	2%	25%	2	2%	17%	0	0%	0%	2	2%	17%	12
	Disagree	4	6%	11%	11	8%	31%	8	9%	22%	3	4%	8%	10	10%	28%	36
	Neither Agree nor Disagree	18	29%	14%	31	23%	25%	23	26%	18%	25	33%	20%	28	29%	22%	125
	Agree	32	51%	14%	65	49%	29%	43	49%	19%	39	52%	17%	47	48%	21%	226
	Strongly Agree	4	6%	7%	22	17%	39%	12	14%	21%	8	11%	14%	11	11%	19%	57
	Total	63	100%	14%	132	100%	29%	88	100%	19%	75	100%	16%	98	100%	21%	456

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How would you rate our current safety culture at CDOT? (1 = low 10 = high)	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
1	0	0%	0%	1	1%	20%	2	2%	40%	0	0%	0%	2	2%	40%	5
2	1	2%	33%	1	1%	33%	0	0%	0%	0	0%	0%	1	1%	33%	3
3	0	0%	0%	2	2%	17%	3	3%	25%	2	3%	17%	5	5%	42%	12
4	3	5%	15%	4	3%	20%	8	9%	40%	0	0%	0%	5	5%	25%	20
5	9	14%	18%	18	14%	37%	9	10%	18%	5	7%	10%	8	8%	16%	49
6	7	11%	12%	11	8%	19%	10	11%	18%	9	12%	16%	20	20%	35%	57
7	13	21%	15%	32	24%	36%	12	14%	14%	18	24%	20%	13	13%	15%	88
8	16	25%	12%	46	35%	33%	28	32%	20%	26	35%	19%	22	22%	16%	138
9	9	14%	16%	14	11%	25%	9	10%	16%	7	9%	12%	18	18%	32%	57
10	5	8%	19%	3	2%	11%	7	8%	26%	8	11%	30%	4	4%	15%	27
Total	63	100%	14%	132	100%	29%	88	100%	19%	75	100%	16%	98	100%	21%	456

Please determine to what extent you agree or disagree with the following statements. - The safety engagements with my supervisor have a long lasting impact on my daily safety routine.	Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
Strongly Disagree	2	3%	10%	4	3%	20%	5	6%	25%	2	3%	10%	7	7%	35%	20
Disagree	3	5%	8%	11	8%	28%	9	10%	23%	4	5%	10%	13	14%	33%	40
Neither Agree nor Disagree	27	42%	15%	52	40%	29%	25	28%	14%	30	41%	17%	43	45%	24%	177
Agree	23	36%	13%	51	39%	30%	37	42%	22%	32	43%	19%	28	29%	16%	171
Strongly Agree	9	14%	20%	13	10%	29%	12	14%	27%	6	8%	13%	5	5%	11%	45
Total	64	100%	14%	131	100%	29%	88	100%	19%	74	100%	16%	96	100%	21%	453

Do you have supervisory responsibilities?		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Yes	26	41%	13%	57	43%	29%	41	47%	21%	43	58%	22%	32	33%	16%	199
	No	38	59%	15%	75	57%	29%	47	53%	18%	31	42%	12%	66	67%	26%	257
	Total	64	100%	14%	132	100%	29%	88	100%	19%	74	100%	16%	98	100%	21%	456

Please determine to what extent you agree or disagree with the following statements. - My safety engagements with my team impact their daily safety routines.		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	1	4%	50%	0	0%	0%	0	0%	0%	1	2%	50%	0	0%	0%	2
	Disagree	3	12%	33%	1	2%	11%	1	3%	11%	2	5%	22%	2	6%	22%	9
	Neither Agree nor Disagree	4	15%	10%	12	21%	29%	8	21%	19%	7	16%	17%	11	34%	26%	42
	Agree	15	58%	13%	36	63%	31%	24	62%	21%	28	65%	24%	14	44%	12%	117
	Strongly Agree	3	12%	12%	8	14%	31%	6	15%	23%	4	9%	15%	5	16%	19%	26
	NA	0	0%	0%	0	0%	0%	0	0%	0%	1	2%	100%	0	0%	0%	1
	Total	26	100%	13%	57	100%	29%	39	100%	20%	43	100%	22%	32	100%	16%	197

Please determine to what extent you agree or disagree with the following statements. - My safety engagements with my team have a long lasting impact on their daily safety routines.		Region 1	% of Region	% of Total	Region 2	% of Region	% of Total	Region 3	% of Region	% of Total	Region 4	% of Region	% of Total	Region 5	% of Region	% of Total	Total
	Strongly Disagree	1	4%	33%	0	0%	0%	1	3%	33%	1	2%	33%	0	0%	0%	3
	Disagree	1	4%	13%	1	2%	13%	1	3%	13%	3	7%	38%	2	6%	25%	8
	Neither Agree nor Disagree	7	27%	10%	20	35%	29%	11	28%	16%	15	35%	22%	16	50%	23%	69
	Agree	13	50%	13%	30	53%	31%	22	56%	23%	21	49%	22%	11	34%	11%	97
	Strongly Agree	4	15%	21%	6	11%	32%	4	10%	21%	2	5%	11%	3	9%	16%	19
	NA	0	0%	0%	0	0%	0%	0	0%	0%	1	2%	100%	0	0%	0%	1
	Total	26	100%	13%	57	100%	29%	39	100%	20%	43	100%	22%	32	100%	16%	197