

# **MDT as the Employer of Choice for Talent: Evidence-Based Strategy Development**

by

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## **PROBLEM STATEMENT**

State departments of transportation face a variety of challenges with recruitment and retention of staff. The transportation workforce is older than the national average with a significant portion of staff eligible to retire. New technologies and evolving agency mandates are also changing the nature of work and the type of skillsets required by personnel, intensifying competition with private industry for in-demand workers. Recruitment and retention challenges are exacerbated by tight labor markets in rural states like Montana. The Montana Department of Transportation (MDT) will want to implement evidence-based strategies to successfully compete for qualified workers.

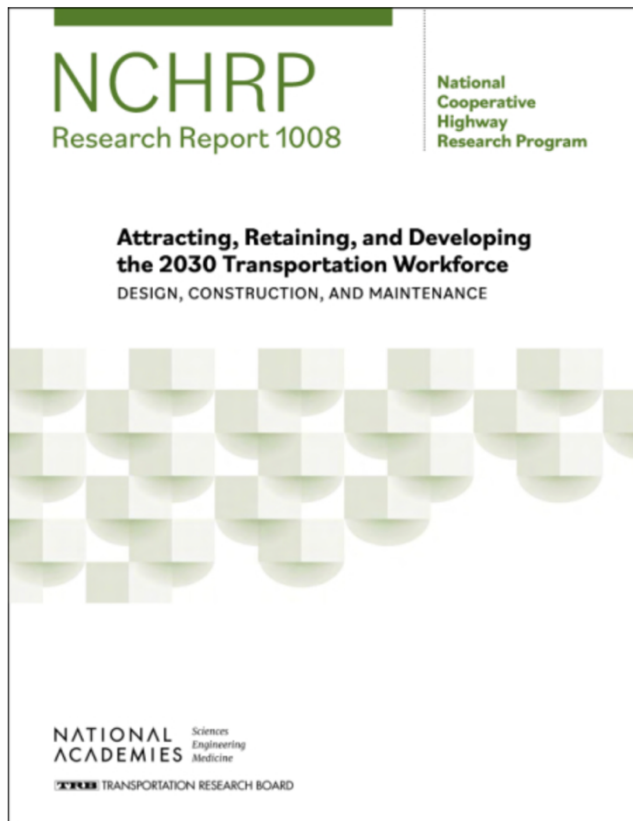
## **BACKGROUND SUMMARY**

The transportation sector broadly and State Departments of Transportation (DOTs) more specifically often struggle to achieve a stable workforce. Cronin et al. (2022) highlight several key challenges for state DOTs' workforce planning efforts, to include: adoption of new technologies (that are changing job roles and which skillsets are in demand); economic challenges (including industry-wide competition for skilled workers); blue-collar stigma, slow hiring processes, popularity and expectation of flexible workplace policies, difficulty recruiting and retaining mid-level or young staff, generational differences, and steady downsizing of staff (i.e., requiring staffing adaptations to do more with less). Implementation of emerging technologies increasingly places public agencies in competition with private industries for new hires with technology-focused skillsets (Cronin et al. 2011). Transportation agencies have comparatively more retirement-eligible staff than other industries nationwide, and therefore correspondingly high expected vacancies, particularly for senior staff (U.S. Department of Education 2015). As senior staff retire, human resource managers are struggling to manage demographic shifts in the workforce and to attract and recruit younger workers who may have different career goals and expectations (Gallagher and Villwock-Witte, 2016). Literature on transportation workforce issues highlights challenges in attracting younger generations to transportation careers, upskilling to manage technological changes, and creating attractive career pathways to achieve a sustainable workforce (Gallagher and Villwock-Witte 2016; Cronin and Alexander 2019; Cronin et al. 2022). Findings from the 2012 National Transportation Workforce Summit additionally underline missed opportunities to better promote transportation career awareness and training across the education-career continuum, including among seasoned workers considering second careers (Council of University Transportation Centers 2012).

Worker shortages can negatively impact state DOTs' ability to provide critical services. Furthermore, high attrition and unfilled vacancies are costly to agencies. The calculation of turnover cost for a specific occupation varies depending on the level of specialized expertise and training needed for the position. One study calculated the average turnover cost equates to 21% of an employee's annual salary (Boushey and Glynn 2012). Direct expenses related to staff turnover encompass advertising and outreach to attract applicants to fill positions, as well as onboarding and training expenses for new staff (Boushey and Glynn 2012). Less quantifiable costs include losses in productivity and efficiency as new staff get up to speed on work processes, loss of institutional knowledge, and higher burnout rates (Boushey and Glynn 2012).

The Montana Department of Transportation's (MDT) recruitment and retention challenges are likely aggravated by relatively low unemployment rates in the state of Montana and tight labor markets that increase competition among employers for qualified staff (West Region Transportation Workforce Center 2015). This makes workforce planning and programming efforts especially important for the agency as it seeks to attract new workers and to retain experienced staff. The proposed project will outline evidence-based and actionable strategies MDT can implement to enhance internal and external communications, strengthen organizational leadership around workforce planning and programming, foster supportive workplace environments and employee engagement, improve recruitment and retention outcomes, and promote MDT as an employer of choice for talent in the transportation sector.

## Strategies to Advance the MDT Workforce



**Figure 1:** NCHRP Research Report on Attracting, Retaining, and Developing the 2030 Transportation Workforce

Due to the variety of obstacles to attaining a stable, qualified, and well-trained workforce, effective strategies promoted in the literature encompass the full employee lifecycle—early career messaging and outreach; recruitment, hiring and onboarding practices; and sustained employee development, retention, and advancement practices. Factors that impact successful recruitment and retention cited in the literature include connecting early with pre-career students, building community and education/training partnerships, establishing unassailable hiring processes, providing welcoming and flexible workplaces, and supporting uniform access to professional development and career advancement opportunities (Godfrey and Bertini 2019; Cronin et al. 2022; Ivey et al. 2021). Organizations additionally must promote workplace cultures that are supportive of all staff (Ivey et al. 2024). The key take-away is that effective strategies must target all levels and occupational categories within an organization. To achieve this, workforce development must be an agency priority with buy-in from top leadership down to entry-level positions where everyone is held

accountable for achieving workforce goals and supporting organizational values (National Academies of Science, Engineering, and Medicine 2007).

Employee development programs are instrumental in expanding the pool of qualified talent available to fill positions, in providing pathways for skills development and career advancement, and in demonstrating agencies' commitment to employee well-being. Supportive organizational cultures are, in turn, linked to heightened employee engagement and retention (Noland et al. 2021, Foursquare Integrated Transportation Planning 2023). However, a key finding in the literature is that most state DOTs do not have processes in place to help them make data-informed decisions about effective practices that lead to real improvements in workforce outcomes.

The proposed research will build upon past findings on effective recruitment, retention, and advancement practices to address challenges to attaining a skilled workforce. The research will identify potential opportunities for improved communications, outreach, and other practices or policies that MDT may consider to achieve its workforce goals. It will also lead to suggested data collection and assessment tools to quantify outcomes from implemented recruitment, retention, and employee development programs.

## **BENEFITS AND BUSINESS CASE**

Staff turnover, position vacancies, and worker shortages are costly to agencies. Shortages of qualified staff can decrease the agency's ability to provide critical services (Foursquare Integrated Transportation Planning 2023). Costs related to the recruitment, hiring, onboarding, and training of new staff also are considerable. When experienced employees leave a position, a variety of negative impacts to the organization can accrue, including loss of institutional knowledge, decreased productivity, and lower morale among remaining staff who must cover the temporary staffing shortfalls (Boushey and Glynn 2012). Supportive organizational cultures can foster increased retention and employee engagement (Noland et al. 2021). Research indicates that job seekers value welcoming work environments as a critical factor when considering potential employers (Paget-Seekins et al. 2023; Ivey, Powers, and Clark 2019).

The literature points to myriad recruitment and retention benefits deriving from workforce strategies that ensure welcoming workplaces for all employees. Employees who are engaged at work and have a sense of well-being are more productive, high-performing, and more likely to be retained (Buck et al. 2022). A skilled workforce provides financial value, promotes creativity and innovation, and enhances performance and global competitiveness (Ivey, Powers, and Clark 2019; Cronin et al. 2022).

Expected benefits to MDT from implementation of recommended strategies emerging from this research, include:

- Cost savings (from reduced turnover, reduced vacancies and absenteeism, increased retention, and improvements in recruitment and hiring outcomes)
- Efficiency gains (from increased retention, which increases return on investment from employee training and development)
- Improved procedures and processes to enhance communications and accountability for outreach, recruitment, and employee development outcomes
- Improved workplace climate that promotes employee engagement and satisfaction
- Improved public image and perception of MDT as an employer of choice for talent (which enhances recruitment outcomes by improving the talent pipeline)
- Improved safety (through retention and engagement of experienced, trained staff)
- Improved quality of service (through increased employee engagement, well-being, productivity, creativity, and innovation).

For the reasons outlined above, MDT will want to explore strategies to enhance current employee development programs in order to capitalize on potential cost savings and efficiency gains. The proposed research will produce actionable recommendations to support recruitment and retention, and to improve public perception of MDT as an employer of choice for qualified talent. As a public agency, MDT will want to have a workforce that reflects the stakeholders and communities it serves. Ultimately, the organization as a whole benefits from a workplace that is engaging and supportive of all staff.



## **OBJECTIVES**

The objective of this research is to develop concrete recommendations for evidence-based strategies and actions to advance MDT as an employer of choice for multi-skilled talent. The research will produce strategic action plans to enhance employee engagement, improve internal and external communications, and establish accountability measures and practices to achieve and sustain a high-performing workforce.

## RESEARCH PLAN

The goal of the proposed research is to develop evidence-based strategies to:

- Improve workplace climate and employee engagement
- Enhance internal and external communications
- Strengthen organizational leadership on workforce efforts
- Increase recruitment and retention of high quality staff; and
- Establish MDT as an employer of choice for talent.

The strategies will be developed within the context of MDT's existing goals and practices and will be based on findings from an assessment of current employee perceptions, as well as the perceptions of other external pools of potential staff recruits at pre-career and mid-career levels.

To achieve research goals, the following project tasks are proposed:

- Task 0: Project Management
- Task 1: Characterize MDT's workforce goals, motivation, and communications
- Task 2: Document MDT current state of practice
- Task 3: Examine evidence-based practices to advance workforce outcomes
- Task 4: Assess workplace culture/employee engagement
- Task 5: Assess public perception: Surveys of potential talent pools
- Task 6: Develop strategic action plans

### TASK 0: PROJECT MANAGEMENT

Project management will be ongoing throughout the full period of performance, which will commence with a kick-off meeting as soon as the contract is in place. This meeting will ensure that all participants are aware of the contractual obligations, scope of work, deliverables, project schedule and milestones, and other project elements. Any questions or concerns regarding research design, process, or implementation will be addressed during the kick-off meeting. A data management plan will be submitted upon award contracting.

A check-in conference call with the Technical Panel will be scheduled monthly to obtain feedback on project progression and deliverables throughout the duration of the project. The meetings will ensure that Technical Panel members are aware of research project progress and have multiple opportunities to provide input to the research team. The project Principal Investigator (PI) will schedule meetings in advance to ensure maximum availability of Technical Panel members and will develop and distribute a meeting agenda a week prior to each meeting. Meeting notes will be provided to panel members following the monthly call.

Additionally, a quarterly progress report will be submitted to the technical panel, which will include information on project expenses.

#### *Task 0 Deliverables:*

- Kick-off Meeting
- Data Management Plan
- Monthly Conference Call with Technical Panel
- Quarterly Progress Reports

**TASK 1: CHARACTERIZE MDT WORKFORCE GOALS AND COMMUNICATIONS**

To develop strategic action plans that align with MDT goals, the research team will need to clearly understand the agency's specific workforce development goals and motivations.

Leadership perceptions of the key challenges and barriers MDT faces in achieving workforce goals will provide needed contextual information to the research team. This task will assess how MDT leadership formulates its employee development goals and how they are communicated and operationalized through internal and external communications, policies, and practices. The project team will review agency communications, strategic plans, and other relevant documentation in conjunction with staff interviews to identify challenges and opportunities.

Task 1 data collection involves multiple steps.

- Meet with MDT Human Resources Division and other key staff to identify agency communications, strategic planning documents, reports, and other communication pieces that define the agency's workforce goals and approach.
- Collect and review existing documentation on MDT's public-facing or internal communications related to human capital.
- Identify and meet with key personnel involved in recruitment, retention, and workforce planning processes to discuss workforce goals, motivation, and challenges.

MDT organizational mission statements, strategic plans, and other communications will be reviewed to highlight how/where the department communicates workforce development as a key organizational value both internally and externally. Data from interviews/meetings with key MDT staff and divisions about staffing goals, motivations, and challenges will be synthesized to clarify internal goals. A gap analysis will be conducted on internally stated goals and public-facing communications related to organizational mission, values, and recruitment. The gap analysis will be used to identify potential improvements for agency communications and to develop strategic action plans to improve public messaging. The report will also summarize the key barriers and challenges MDT staff identified to achieving human resources goals.

In this and all subsequent tasks, any survey instrument and interview protocols, and contact/distribution lists will first be reviewed and approved in advance by the project Technical Panel. Institutional Review Board (IRB) approval will also be obtained prior to implementation.

*Task 1 Deliverable:*

1. Task Summary Report: Gap analysis on workforce goals and communications

**TASK 2: DOCUMENT CURRENT STATE OF PRACTICE**

The research team will review and summarize MDT's current state of practice related to recruitment, retention, workplace climate, and other existing programs and policies in place to advance its workforce. This task will involve interviews with staff leading employee development activities and programs, and a review of existing workforce data and statistics. The research team is additionally interested in documenting existing data tracking and assessment processes, any longitudinal evidence for impact, and organizational structures and accountability measures in place.

Details will be collected and documented on programs or practices that are perceived by staff as making demonstrable improvements in recruitment or retention outcomes for different groups/divisions/occupational categories. The research team will also document any longitudinal data demonstrating evidence of progress, as well as performance metrics for specific workforce programs.

*Task 2 Deliverable:*

2. Task 2 Summary Report: Data on progress and noteworthy practices to advance MDT workforce outcomes

**TASK 3: EXAMINE EVIDENCE-BASED PRACTICES TO ADVANCE WORKFORCE OUTCOMES**

This task will involve a comprehensive literature review on strategies, programs, and practices that have produced evidence of improved workforce recruitment, retention, or other desired outcomes. Programs and strategies in the literature that specifically relate to other peer industries, such as construction, engineering, and transportation will be explored. Literature that documents workforce outcomes in both the public and private sectors will be examined and a synthesis of evidence-based practices produced. Special attention will be paid to literature on occupations specifically identified by MDT as difficult to fill or with high turnover rates.

A survey of private sector employers will be conducted to identify promising practices and evidence for successful workforce outcomes at comparable industries within the state. The survey will focus on industries employing difficult to fill and/or difficult to retain positions at MDT as identified by the Human Resources Division. These positions currently span a number of job categories, to include skilled craft workers (e.g., maintenance technicians and mechanics), technicians (e.g. civil engineering techs, accounting techs, and surveyors), professionals (e.g., designers, engineers, transportation planners, analysts, and software developers), as well as administrative and IT support staff. The survey will collect information from peer industries on personnel composition; on recruitment, retention, or other workforce strategies in place; as well as on any assessment practices and evidence of impact produced. With input from the MDT Technical Panel, a distribution list will be developed. Professional associations and other entities representing peer industries in the state will be contacted to assist with survey distribution. The survey will be developed using MSU's Qualtrics online platform. Institutional Review Board approval from MSU will be obtained prior to survey distribution.

Survey results will be analyzed to determine employers demonstrating targeted staffing levels across occupational groupings of interest and/or innovative workforce development strategies. Follow-up outreach will be conducted to employers reporting implemented solutions to common staffing challenges. Interviews with respondents from high-performing firms will be conducted to obtain more detailed information on specific workforce practices and outcomes. The survey, interview, and literature review findings will be compiled into a summary report that highlights promising practices among peer industries nationally and in Montana.

*Task 3 Deliverables:*

- *Survey instrument*

- *Interview protocol and summaries*
- *Task 3 Summary Report: Promising Practices Among Peer Industries*

#### TASK 4: WORKPLACE CLIMATE/EMPLOYEE ENGAGEMENT ASSESSMENT

The project team will develop a survey on employee engagement and workplace culture and climate to distribute to MDT employees. Researchers will work with MDT Human Resources staff to ensure that the survey includes relevant demographic classifications and other agency-specific categories for occupations, regions/districts, etc. The team will also work with Human Resources to ensure that survey distribution follows agency protocols. Institutional Review Board approval will be obtained, and measures implemented to protect survey data and respondent privacy. The survey will be statistically analyzed to identify any workplace climate factors revealing significant response differences across groups of interest (e.g. job categories, etc.).

Survey responses will be augmented by in-depth interviews with staff from a variety of occupational groupings, career stages, and departments/divisions within the agency. The interviews will collect more in-depth qualitative data on experiences within the agency for staff members. The research team will again work with Human Resources and the Technical Panel to develop interview protocols and to recruit research participants from MDT staff. No identifiable information will be provided in project reporting. Themes and other findings from interview data will be reported in aggregate form.

The culture assessment will identify any gaps that exist between how different employees perceive their workplace environment and characterize MDT's core values. The results will be used to develop strategies to address employee engagement issues.

##### *Task 4 Deliverables:*

- *Survey instrument*
- *Survey data analysis*
- *Interview protocol and synthesis of findings*
- *Task 4 Summary Report: MDT workplace climate assessment*

#### TASK 5: ASSESS PUBLIC PERCEPTION - SURVEYS OF POTENTIAL TALENT POOLS

The research team will assess MDT's current public image as an employer of choice. This task will involve surveys of the following three potential "talent pools" for MDT recruiting.

1. Pre-college students
2. Current college students
3. Mid-career/Incumbent workers

The surveys will be designed to gather data on current attitudes among potential recruits about desirable career and workplace attributes. The survey will capture perceptions at different points on the career pathway pipeline about the benefits and drawbacks of pursuing specific career paths. The surveys will be catered to specific age groups and career stages. Surveys of Montana high school students will focus on career goals, desirable workplace attributes, and awareness of

various career opportunities and benefits. The survey will assess how pre-college students perceive different potential employer types within their envisioned career path. Survey results will highlight desired workplace attributes common among this age group. Survey distribution will focus on high school students enrolled in relevant Career and Technical Education (CTE) courses like automotive technologies, engineering, welding and fabrication, coding/programming, and business management.

At the college level, the research team will work with the Technical Panel to identify key “feeder programs” at Montana community colleges and universities. Surveys of college students in these programs will replicate questions asked of high school students about perceptions and attitudes around desirable workplace and career attributes. The college survey will add additional questions about students’ awareness of, or participation in, internships or experiential learning opportunities with MDT, career fair or other interactions with the agency, and expected impact of these experiences on career decisions.

The third survey will target incumbent mid-career personnel employed at relevant peer industries who may consider transitioning to jobs at MDT. The mid-career survey will also ask questions about desirable workplace and career attributes and add questions about respondents’ perceived pros and cons to public versus private sector employment in terms of career advancement, work-life balance, workplace climate, and other factors. All three surveys will query preferred employer outreach, engagement, and communication strategies and approaches to attract recruits.

Survey findings will highlight desirable workplace and career attributes as expressed by respondents, and whether these attributes vary between age groups. Survey analysis will additionally identify desirable employer outreach and communication strategies and approaches. The summary will present relevant findings regarding any significant differences between respondent types and any significant differences in perception around desirable employer attributes at different points along the talent pipeline—pre-college, college, and mid-career.

The research team will present draft survey instruments to the Technical Panel for approval or revision as needed. Outreach to educational institutions and professional associations will be conducted to distribute surveys. Institutional Review Board approval from MSU will be obtained prior to survey distribution. The survey will be developed using MSU’s Qualtrics online platform and shared as a link. Paper copies may be distributed for high school student participation as appropriate. In all cases, participant consent forms will be obtained. In cases of low survey response rates, the research team will consult with the Technical Panel to consider other data collection tactics to bolster findings, such as focus groups.

#### *Task 5 Deliverables:*

- *3 survey instruments*
- *Survey data analysis*
- *Task 5 Summary Report: Perceptions of MDT as an employer of choice*

#### **TASK 6: DEVELOP STRATEGIC ACTION PLANS AND FINAL DELIVERABLES**

The proposed research will result in actionable recommendations to improve workforce outcomes based on findings in Tasks 1-5. In Task 6, results from the first five tasks will be used

to synthesize findings into specific strategic action plans that MDT can implement to increase recruitment and retention across occupational groupings. For each strategic action plan developed, the team will outline pertinent information and resources to support implementation, such as appropriate agency leads and potential external partners or funding sources, expected outcomes and benefits, long-term data collection and assessment strategies, and communication/outreach strategies. The recommended strategies will be mapped to primary barriers and challenges identified in Task 1.

Strategic Action Plans will be incorporated into a final report that synthesizes findings from Tasks 1-5. A draft report will be submitted to the Technical Panel and Research Program Manager for review and comment. Comments and feedback will be incorporated into report revisions by the research team until MDT accepts the report as final. The project schedule allows for one month of MDT review time.

Task 6 will also include additional final project close-out actions and deliverables for tech transfer and communication purposes. A Project Summary Report will be compiled to present a brief overview of the project using the proposed MDT components:

- Introduction
- What we did
- What we found
- What the researchers recommend

The project team will also prepare a poster that provides a clear overview of the project with graphics/visualization of outcomes.

A Performance Measures Report will document the value of the research products in terms of measurable metrics. An Implementation Report will be developed to assist MDT staff in communicating project results and recommendations. The report will consist of a Word document using MDT's implementation report template, which will include an: 1) Introduction and Purpose, 2) Implementation Summary, and 3) Implementation Recommendations. The implementation plan will be developed after a meeting with the Technical Panel and other MDT staff.

A final presentation will be created, which will be delivered to the Technical Panel and other interested MDT staff at a project close-out meeting. The presentation will describe the project findings and strategic action plans, and present recommendations for implementation and will be recorded for distribution as a webinar.

*Task 6 Deliverables:*

- *Draft Final Report*
- *Final Report*
- *Project Summary Report*
- *Project Poster*
- *Performance Measures Report*
- *Implementation Report and Meeting*
- *Final Presentation/Webinar*

## **INTELLECTUAL PROPERTY**

No intellectual property issues are anticipated with this project.



## **MDT AND TECHNICAL PANEL INVOLVEMENT**

The research team would like to schedule a monthly meeting with the Technical Panel throughout the duration of the project. These meetings would be kept to less than one hour, scheduled or cancelled (by request of the Technical Panel if deemed unnecessary in a given month) well in advance. The proposed research will involve considerable engagement of MDT staff, as well as outreach to external, related entities such as professional associations (e.g., Montana ASCE, Montana ITE, MCA), education institutions, and other community partners. The purpose of these meetings is to ensure that the researchers are capturing relevant stakeholders in survey efforts, using staff and demographic categories that are in line with existing MDT data collection efforts, and to obtain Technical Panel member assistance in requesting and scheduling interviews with relevant staff at headquarters and division offices and with survey distribution efforts. The regularly scheduled meetings will facilitate continuous engagement of the Technical Panel to ensure that the results of the project are in line with expectations.

The researchers will request interviews of Technical Panel members, as appropriate, as well as for information on organizational structures, strategic planning documents, and internal/external agency communications related to the workforce. Information on existing programs and partnerships related to workforce recruitment and retention efforts (e.g., internship programs, structured mentorship programs, K-12 or other career outreach initiatives) will also be requested. Other internal MDT data requests include longitudinal data on human resources statistics and previous results from workplace climate or employee satisfaction surveys. The research team will work closely with the Technical Panel to ensure that no information deemed confidential is shared in public-facing reports. The team may request office space at MDT headquarters or division offices to facilitate in-person interviews, as needed.

The team will request review, comment, and approval from the Technical Panel for all survey instruments, interview protocols, and distribution/contact lists before implementation. Review of deliverables (task summary reports, draft report, performance measures, implementation report, project summary report, and the project poster) will also be requested from the Technical Panel.

## **OTHER COLLABORATORS, PARTNERS, AND STAKEHOLDERS**

The researchers will engage with education providers in the state (high schools, community and tribal colleges, and universities) and with Montana professional associations and industry representatives to implement surveys. WTI has established relationships with education institutions and industry members through activities conducted by the West Region Transportation Workforce Center (WRTWC), as well as through past and current research and outreach efforts. The team will utilize its network of teachers among past participants of WTI's Research Experience for Teachers program, and it will engage with MSU's Science Math Resource Center and the MSU Department of Education to facilitate outreach efforts to high schools. The PI will leverage her network as a result of serving on the Transportation Research Board's (TRB) *Transportation Workforce Summit* planning committee, and as Co-PI on *NCHRP Synthesis Project 20-25* to identify workforce innovations at other state DOTs and in sharing project results. MDT has formed a robust Technical Panel for this project, which will be instrumental in creating buy-in for project results and implementation at the agency.

## **PRODUCTS**

As described in the research plan, the following twenty-two deliverables are proposed:

1. Kick-off Meeting
2. Data Management Plan
3. Monthly Conference Call with Technical Panel
4. Quarterly Progress Reports
5. Task 1 Summary Report: Gap analysis on workforce goals and communications
6. Task 2 MDT staff interview protocol
7. Task 2 Summary Report: Data on progress and noteworthy practices to advance MDT workforce outcomes
8. Task 3 Survey instrument (peer industries)
9. Task 3 Interview protocol (peer industries)
10. Task 3 Summary Report: Promising Practices Among Peer Industries
11. Task 4 Survey Instrument (MDT Workplace Climate)
12. Task 5 Interview protocol (MDT Workplace Climate)
13. Task 4 Summary Report: MDT workplace climate assessment
14. Task 5 Talent Pipeline Survey Instruments (high school, college, mid-career)
15. Task 5 Summary Report: Perceptions of MDT as an employer of choice
16. Draft Final Report
17. Final Report
18. Project Summary Report
19. Project Poster
20. Performance Measures Report
21. Implementation Report and Meeting
22. Final Presentation/Webinar

## **RISKS**

The proposed research involves interviews of MDT staff to understand their perspectives on workplace climate, organizational cultures, and employee engagement efforts and outcomes. These topics can be sensitive, and it is critical for staff to feel confident that their responses will remain confidential and in no way impact their employment standing. Specific quotes from interviews will be redacted from final reports to protect respondent confidentiality. All interview findings will be aggregated, and identifiable information removed. The team will follow all Institutional Review Board (IRB) guidelines and procedures to protect human subjects.

Likely risks to project schedule and scope are associated with low survey uptake and response rates. Due to survey fatigue at many agencies and companies, and the relatively smaller pool of available respondents within the state of Montana, the probability of low survey response is moderate. The risk for the project is therefore deemed medium. The team will work closely with the Technical Panel to ensure robust outreach plans are in place and organizational champions are identified to assist with survey distribution both internally at MDT and with external entities. Follow-up requests will be sent out weekly to encourage greater survey response rates and incentives offered (through a random drawing of survey respondents to receive a cash prize). The contingency plan in the case of extremely low survey response rates on a given survey is to identify a smaller sample from the target pool for more in-depth interviews and/or focus groups.

## **IMPLEMENTATION**

The project will produce strategic action plans designed to guide implementation of evidence-based policies and practices for improving MDT's workforce development efforts.

Recommendations will be made in the context of MDT's goals, motivations, and existing practices, and based on an assessment of existing workforce trends and perceived organizational climate and culture. Comparisons with peer industries in the state will provide an important benchmark. Assessment of MDT's public image among potential recruits will help shape external outreach and communication efforts moving forward.

The final report will include specific strategic action plans based on research findings. The action plans will lay out clear information that will facilitate implementation, such as relevant resources, potential community partners and/or funding sources, appropriate staff at MDT to lead implementation efforts, communication and outreach strategies, expected benefits, and data collection strategies to assess outcomes. Strategic action plans will address multiple facets of MDT operations, to include strategic leadership and accountability measures, talent pool development and recruitment strategies, and approaches to improving workplace climate and retaining high-quality staff across divisions and occupational groupings.

## SCHEDULE

The full project period of performance is 24 months with a start date of July 1, 2025.

**Table 1: Project Time Schedule**

Tasks/Activities	Dates	2025						2026												2027					
		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
<b>0 - Project Management</b>																									
Kick-off Meeting	7/2/25	X																							
Monthly Check-in Calls	Monthly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Quarterly Reports	Apr 30, July 31, Oct 31, Jan 31			X			X			X			X			X			X			X			
<b>1 - Characterize Workforce Goals</b>																									
MDT meetings		X	X																						
Documentation Review		X	X																						
Leadership interviews		X																							
Task Summary Report	30-Sep-25		X																						
<b>2 - Document Current State of Practice</b>																									
Review of data and statistics		X	X																						
Staff interviews			X	X																					
Task Summary Report	30-Nov-25				X																				
<b>3 - Examine Evidence-Based Practices</b>																									
Literature Review						X	X	X	X																
Survey Instrument	15-Jan-26						X																		
Interview Protocols	1-Mar-26							X																	
Data Analysis	30-Apr-26									X															
Task 3 Summary Report	31-May-26										X														
<b>4 - Workplace Climate Assessment</b>																									
Survey Instrument	30-Apr-26									X															
Interview Protocols	6/30/26											X													
Data Analysis	7/31/26												X												
Task 4 Summary Report	8/31/26													X											
<b>5 - Talent Pool Perception Surveys</b>																									
Survey Instruments (3)	11/30/26														X	X	X								
Data Analysis	1/31/27																	X	X						
Task 5 Summary Report	2/28/27																			X					
<b>6 - Strategic Action Plans</b>																									
Draft Final Report	3/31/27																			X	X				
Final Report	6/30/27																							X	
Performance Measures Report	4/30/27																					X			
Project Summary Report	4/30/27																					X			
Project Poster	5/31/27																						X		
Implementation Report	5/31/27																						X		
Final Presentation/Webinar	6/1/27																							X	

## **BUDGET**

The total project budget is \$229,973.18. Limited in-state travel (\$341) has been included in the project budget for MDT staff interviews and meetings. Other direct costs include expendable materials and supplies for survey recruitment flyers/poster (\$100) and human subject payments (\$400) to incentivize survey responses.

The following tables provide a breakdown of the budget by various categories of interest to MDT.

3. Table 2: Detailed Project Budget
4. Table 3: Travel Budget
5. Table 4: Task, Meeting, and Deliverable Budget
6. Table 5: State Fiscal Year (SFY) (7/1 – 6/30) Breakdown

**Table 2: Detailed Project Budget**

Labor Expenses														
Person	Role	Task 0	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Total Hours	Hourly Wage Rate	Total Wages	Hourly Benefit Rate	Total Benefits	Total Cost
Susan Gallagher	PI/Researcher	100	130	130	350	350	350	350	1760	\$ 47.04	\$ 82,790.40	\$ 24.23	\$42,644.80	\$ 125,435.20
Karalyn Clouser	Researcher	20	34	34	120	80	80	55	423	\$ 40.00	\$ 16,920.00	\$ 21.46	\$ 9,077.58	\$ 25,997.58
Undergraduate	Researcher	16	80	80	400	40	400	300	1316	\$ 18.00	\$ 23,688.00	\$ 1.80	\$ 2,368.80	\$ 26,056.80
Accounting	Administration	8	0	0	0	0	0	8	16	\$ 32.75	\$ 524.00	\$ 16.86	\$ 269.76	\$ 793.76
Dana May	Technical Editing	4	4	4	4	4	4	20	44	\$ 42.61	\$ 1,874.84	\$ 20.04	\$ 881.76	\$ 2,756.60
Neil Hetherington	Graphic Design	0	4	4	4	4	4	20	40	\$ 35.77	\$ 1,430.80	\$ 17.77	\$ 710.80	\$ 2,141.60
<b>Total:</b>		148	252	252	878	478	838	753	3599		\$ 127,228.04		\$55,953.50	\$ 183,181.54
Indirect Cost X 25% on labor														\$ 45,795.39
Total Labor Cost:														\$ 228,976.93
Direct Expenses														
In State Travel														\$ 341.00
Expendable Supplies														\$ 100.00
Human Subject Payments														\$ 400.00
<b>Total Direct Expenses:</b>														\$ 841.00
Indirect Cost x 25% on other direct costs														\$ 155.25
<b>Total Project Cost</b>														<b>\$ 229,973.18</b>



**Table 3: Travel Budget**

<b>Travel</b>				
<b>Assumption</b>		<b>Number</b>	<b>Unit Cost</b>	<b>Total</b>
Rental Car	4 trips - 1 day per trip	4	\$60.00	\$240.00
Meals	4 days per diem for 1 person/trip (lunch & dinner)	4	\$25.25	\$101.00
<b>Total:</b>				<b>\$341.00</b>

Travel expenses for four trips to MDT headquarters or division offices by research staff to facilitate project meetings and in-person interviews are included in the budget. The trips will not require overnight stays. Only rental car expenses and per diem is included (for lunch and dinner only).

**Table 4: Task, Meeting, and Deliverable Budget**

Task, Meeting, and Deliverable Cost Breakout			
Item	Labor	Travel	Total
<b>Task 0 Project Management</b>			
Kick-off Meeting	\$ 466.02		\$ 466.02
Data Management Plan	\$ 932.05		\$ 932.05
Monthly Check-in Conference Call Meetings	\$ 4,194.22		\$ 4,194.22
Quarterly Progress Reports	\$ 3,728.19		\$ 3,728.19
<b>Task 1 - Characterize goals</b>			
MDT meetings	\$ 4,691.23	\$ 85.25	\$ 4,776.48
Deliverable: Task Summary Report	\$ 8,712.28		\$ 8,712.28
<b>Task 2 - Document State of Practice</b>			
Deliverable: Interview Protocol	\$ 8,712.28	\$ 85.25	\$ 8,797.53
Deliverable: Task Summary Report	\$ 4,691.23		\$ 4,691.23
<b>Task 3 - Evidence-Based Practice</b>			
Deliverable: Survey Instrument	\$ 14,246.56		\$ 14,246.56
Deliverable: Interview Protocol	\$ 14,246.56		\$ 14,246.56
Deliverable: Task Summary Report	\$ 12,211.34		\$ 12,211.34
<b>Task 4 - Workplace Climate Assessment</b>			
Deliverable: Survey Instrument	\$ 12,447.22		\$ 12,447.22
Deliverable: Interview Protocol	\$ 10,891.32	\$ 85.25	\$ 10,976.57
Deliverable: Task Summary Report	\$ 7,779.52		\$ 7,779.52
<b>Task 5 - Talent Pool Perception Surveys</b>			
Deliverable: Survey Instruments	\$ 24,859.94		\$ 24,859.94
Deliverable: Task Summary Report	\$ 13,386.12		\$ 13,386.12
<b>Task 6 - Strategic Action Plans</b>			
Deliverable: Draft Final Report	\$ 16,643.47		\$ 16,643.47
Deliverable: Final Report	\$ 9,246.37		\$ 9,246.37
Deliverable: Performance Measures Report	\$ 1,849.27		\$ 1,849.27
Deliverable: Implementation Report	\$ 1,849.27		\$ 1,849.27
Deliverable: Project Summary Report	\$ 1,849.27		\$ 1,849.27
Deliverable: Project Poster	\$ 1,849.27		\$ 1,849.27
Deliverable: Final Presentation/Webinar	\$ 3,698.55	85.25	\$ 3,783.80
<b>Total:</b>	<b>\$ 183,181.55</b>	<b>\$ 341.00</b>	<b>\$ 183,522.55</b>

**Table 5: State Fiscal Year (SFY) (7/1 – 6/30) Breakdown**

Item	State Fiscal Year (SFY)	
	2026	2027
Wages & Benefits	\$ 87,730.73	\$ 95,450.81
In-State Travel	\$ 170.50	\$ 170.50
Expendable Supplies	\$ 50.00	\$ 50.00
Human Subject Payments	\$ 200.00	\$ 200.00
Total Direct Costs	\$ 88,151.23	\$ 95,871.31
Indirect Cost - 25%	\$ 21,982.81	\$ 23,967.83
<b>Total Project Cost:</b>	<b>\$ 110,134.04</b>	<b>\$ 119,839.14</b>

## STAFFING

Susan Gallagher is the Education and Workforce Program Manager at the Western Transportation Institute (WTI). She will serve as the Principal Investigator (PI) on this project. Karalyn Clouser, WTI Research Associate, will provide research support to the project. Ms. Gallagher served as the Director of the West Region Transportation Workforce (WRTWC), one of five regional workforce centers selected by the Federal Highway Administration (FHWA) to develop partnerships and apply knowledge, experience, and resources to strategically build a strong transportation workforce for the future. She has extensive experience conducting workforce development focused literature reviews; and outreach, surveys, and interviews with transportation professionals to identify workforce gaps and to catalyze promising practices. Recently, she served as Co-PI on an NCHRP synthesis project focused on state DOT practices to advance gender equity in the workforce. Ms. Clouser provided support to the WRTWC, maintaining its database of transportation-related degrees and experiential learning programs in Montana and the western region, and supporting outreach, communications, surveys and other workforce-focused research efforts. She also provided research support to a Clear Roads project on Recruitment and Retention of Highway Maintenance Workers, which involved surveys and interviews of state DOT staff to identify successful strategies.

Other supporting project staff include an undergraduate research assistant who will work under the direction of the PI, and WTI communications and administrative support staff, who will ensure that final deliverables are of high quality, include professional graphics, and are 508 compliant. Administrative support will monitor project budgets and expenses.

Table 6 provides the level of effort provided to the project by each participating staff member.

**Table 6: Project Staffing**

Name of Employee or Support Classification	Role in Study	Task								Percent of Time vs. Total Project Hours	Percent of Time - Annual Basis (total hours/person/4160)
		0	1	2	3	4	5	6	Total		
Susan Gallagher	Principal Investigator	100	130	130	350	350	350	350	1760	49%	42%
Karalyn Clouser	Researcher	20	34	34	120	80	80	55	423	12%	10%
Undergraduate Student	Researcher	16	80	80	400	40	400	300	1316	37%	32%
Accounting	Administration	8	0	0	0	0	0	8	16	0.4%	0.4%
Dana May	Technical Editing	4	4	4	4	4	4	20	44	1%	1%
Neil Hetherington	Graphic Design	0	4	4	4	4	4	20	40	1%	1%
<b>TOTAL</b>		<b>148</b>	<b>252</b>	<b>252</b>	<b>878</b>	<b>478</b>	<b>838</b>	<b>753</b>	<b>3599</b>		

All listed staff are fully supported on grant-funded projects and have adequate availability to devote the time and effort described in Table 6. The level of effort proposed for principal and professional members of the research team will not be changed without written consent of MDT.

Biosketches are provided below for key personnel on the project.

**Susan Gallagher**, Education and Workforce Development Program Manager  
M.A., Anthropology, University of New Mexico, 1999  
B.A., History, St. Olaf College, 1992

Ms. Gallagher has extensive program development and management experience, serving as the Principal Investigator (PI) or co-PI on a variety of transportation research, education, and professional capacity-building projects (over \$3.5 million in funded grants). Prior to joining the Western Transportation Institute, she directed a USAID-funded resource center in the Caspian Sea basin to support civic engagement in environmental decision-making processes and to assist fledgling NGOs with organizational capacity building resources and training. Gallagher brings a social science lens to education and workforce development research and to qualitative data analysis. As Director of the *West Region Transportation Workforce Center*, she has conducted surveys, interviews, and focus groups with a wide variety of transportation practitioners to assess current practices and resource or training needs; and she has collaborated with partners to develop resources and training to meet agency needs. Examples include the *National Transportation Career Pathways Initiative*, which focused on identifying and integrating safety competencies across transportation occupations. Project findings informed the development of the Road Safety Champion Program, a comprehensive safety training certificate program managed by the National Center for Rural Road Safety. She additionally contributed to *NCHRP 02-25: Workforce 2030—Attracting, Retaining, and Developing the Transportation Workforce: Design, Construction, and Maintenance* (led by ICF, Incorporated), which produced a comprehensive guide on workforce development strategies for use by DOTs. She also supported a Clear Roads-funded project on *Recruitment and Retention of Highway Maintenance Workers*.

Recent projects include: *Intelligent Transportation Systems (ITS) Professional Capacity Building*, *NCHRP Synthesis 54-20: Practices to Promote Gender Equity in the DOT Workforce* (co-PI), *National Summer Transportation Institute (NSTI)* (PI), *Research Experience for Teachers in Innovative Transportation Systems* (co-PI) and the *Community-engaged and Transformational Scholarship (CATS)* initiative (PI).

**Karalyn Clouser**, WTI Research Associate

M.S., Sustainable Transportation, University of Washington, 2020  
B.S., Earth Sciences - GIS/Planning, Montana State University, 2013

Karalyn Clouser's background is in GIS and transportation planning. She has experience editing and managing spatial data to support transportation planning and implementation projects and offers skills with numerous GIS tools. As part of her role with the National Center for Rural Road Safety (managed by WTI), Ms. Clouser manages and prepares many of the Safety Center's outreach activities including bi-weekly training newsletters, quarterly newsletters, training invitations, and questionnaires. She also assisted senior researchers in conducting literature reviews and prepared surveys for research efforts for the WTI managed West Region Transportation Workforce Center (WRTWC). She maintained WRTWC's databases of transportation-related degrees and experiential learning programs. She also assisted on a recent Clear Roads-funded project that explored recruitment and retention best practices for highway and winter maintenance staff.

Karalyn has conducted research in the areas of rural mobility, safety, public transportation, workforce development, and winter maintenance.

## FACILITIES



The research team has the resources necessary to successfully complete the research and does not anticipate needing additional equipment or facilities that are not already on hand.

The Western Transportation Institute at Montana State University is housed in the Transportation and Systems Engineering Building on the south side of the Montana State University (MSU) campus, which provides ready access to MSU's library, computing, and other facilities. The 27,000 square feet of office space provides dedicated onsite space for project staff and facilities for archiving and transmitting data.

**Research Computing:** MSU computing resources and software will be available and sufficient to perform the research tasks described in the Research Plan.

**Information Services:** The MSU Library system has licenses with the largest databases of published literature and open access to published articles in peer-reviewed journals. Literature and information gathering is performed through the extensive resources of the MSU Library which subscribes to more than 250 databases and 18,000 journals in print and electronic format. Specific items not accessible through these sources can be located and retrieved by the Interlibrary Loan service, which is affiliated with other research libraries across the United States.

**Graphic and Communication Services:** Communications staff provide technical editing, layout, graphic design, and web page support. Information Technology staff maintains network servers and individual computers, software, and hardware. Relevant university communication facilities include fully equipped video and conference room facilities. WTI routinely conducts internet-based meetings with clients and staff located around the world. Webinars are hosted to facilitate training and information dissemination and recorded for later access by stakeholders.

**Administrative Services:** The researchers at WTI are assisted by a highly qualified group of experienced support staff. Administrative staff members assist with budgeting, procurement, contracts, and accounting. The university provides Extended University services for online educational course development and publications and an Institutional Review Board (IRB) to oversee all research engaging humans. In addition, the MSU Academic Technology and Outreach department can provide continuing education units.

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