

# Women in Railroad Operational Roles

**Final Report**  
**June 2018**

---

**Sponsored by**

Midwest Transportation Center  
U.S. Department of Transportation  
Office of the Assistant Secretary for  
Research and Technology



IOWA STATE UNIVERSITY  
Institute for Transportation

## **About MTC**

The Midwest Transportation Center (MTC) is a regional University Transportation Center (UTC) sponsored by the U.S. Department of Transportation Office of the Assistant Secretary for Research and Technology (USDOT/OST-R). The mission of the UTC program is to advance U.S. technology and expertise in the many disciplines comprising transportation through the mechanisms of education, research, and technology transfer at university-based centers of excellence. Iowa State University, through its Institute for Transportation (InTrans), is the MTC lead institution.

## **About InTrans**

The mission of the Institute for Transportation (InTrans) at Iowa State University is to develop and implement innovative methods, materials, and technologies for improving transportation efficiency, safety, reliability, and sustainability while improving the learning environment of students, faculty, and staff in transportation-related fields.

## **ISU Non-Discrimination Statement**

Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515-294-7612, Hotline: 515-294-1222, email [eooffice@iastate.edu](mailto:eooffice@iastate.edu).

## **Notice**

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. The opinions, findings and conclusions expressed in this publication are those of the authors and not necessarily those of the sponsors.

This document is disseminated under the sponsorship of the U.S. DOT UTC program in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in this document. This report does not constitute a standard, specification, or regulation.

The U.S. Government does not endorse products or manufacturers. If trademarks or manufacturers' names appear in this report, it is only because they are considered essential to the objective of the document.

## **Quality Assurance Statement**

The Federal Highway Administration (FHWA) provides high-quality information to serve Government, industry, and the public in a manner that promotes public understanding. Standards and policies are used to ensure and maximize the quality, objectivity, utility, and integrity of its information. The FHWA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.





# WOMEN IN RAILROAD OPERATIONAL ROLES

**Final Report  
June 2018**

## **Principal Investigator**

Ray A. Mundy, John Barriger III Professor for Transportation Studies  
Center for Transportation Studies, University of Missouri–St. Louis

## **Co-Principal Investigator**

Daniel Lee Rust, Assistant Director for Undergraduate Program Development  
College of Business Administration, University of Missouri–St. Louis

## **Authors**

Ray A. Mundy and Daniel L. Rust

Sponsored by  
The Midwest Transportation Center and  
The U.S. Department of Transportation  
Office of the Assistant Secretary for Research and Technology

A report from  
**Institute for Transportation**  
**Iowa State University**  
2711 South Loop Drive, Suite 4700  
Ames, IA 50010-8664  
Phone: 515-294-8103 / Fax: 515-294-0467  
[www.intrans.iastate.edu](http://www.intrans.iastate.edu)



## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	vii
PROBLEM STATEMENT .....	1
BACKGROUND .....	2
METHODOLOGY .....	5
FINDINGS .....	6
IMPLICATIONS .....	9
RECOMMENDATIONS .....	10
LIMITATIONS AND FURTHER RESEARCH .....	12
CONCLUSION .....	13
REFERENCES .....	15
APPENDIX: SURVEY OF RAILROAD EMPLOYEES .....	17





## **ACKNOWLEDGMENTS**

The authors would like to thank the Midwest Transportation Center and the U.S. Department of Transportation Office of the Assistant Secretary for Research and Technology for sponsoring this research. Additionally, the authors extend thanks to the participating US and Canadian railroads; this project would not have been possible without their cooperation.



## **PROBLEM STATEMENT**

Over the next 10 years, one of the largest living generations in the United States' workforce—the baby boomer generation (born between 1946 and 1964)—will reach and surpass retirement age. This phenomenon will likely cause a spike in retirements and a rapid decline in available human resources within this narrow demographic. Recognizing this reality, US industry should prepare for one of the largest labor shortages in recent history. While most business sectors in Canada manage to keep bolstering the Canadian Pacific Railway (CP) with globalization trends in order to survive, while also driving innovation, other traditional transportation industries continue to grapple with the change.

As baby boomers retire, the leadership of transportation providers (such as railroads) can smooth this transition with successful programs and tactics, including hiring a greater percentage of women into their workforce. Leaders in transportation industries should understand the challenges associated specifically with more women in their workplaces and, perhaps more importantly, gain a clearer understanding of how to attract and retain more female employees.

## **BACKGROUND**

Railroad operating positions have been historically male-dominated for a variety of reasons. By its very nature, the work done by train crews and maintenance-of-way personnel is physically demanding, with long hours and significant dangers. In addition, railroad worker unions have a history of barring women from membership, and society in general has viewed the work of train crews and maintenance-of-way personnel as part of the “male domain.”

However, from the early days of railroading in the 1800s, women have worked for North American railroads in a variety of jobs, including coach and depot cleaners, restaurant servers, and passenger train hostesses. They have also worked with railroad operations as telegraphers or clerks. Female exclusion from the operating and skilled maintenance crafts remained firmly in place until the 1970s, except during times of national emergencies like World War I (WWI) and World War II (WWII).

The federalization of America’s railroads in 1917 and wartime labor shortages led to US railroads hiring large numbers of women. By October 1918, more than 101,000 women were working for the U.S. Railroad Administration (which controlled the railroads from December 1917 to March 1920).

Also, during both WWI and WWII, the Canadian Pacific Railway turned its railway shops into munitions factories. Because so many men were fighting overseas, there was a real shortage of workers, and women stepped in to fill the void. Women not only worked at manufacturing munitions, they also served as engine wipers, car cleaners, and nurses (Canadian Pacific 2018).

In the US, the vast majority of these women worked in traditional jobs, including more than 73,000 serving in clerical or semi-clerical positions and more than 10,000 as cleaners and shop workers, while a mere 872 performed track work and 100 worked in train service. Unfortunately, there are not comparable figures for Canadian rail workforces, but it is estimated that both the US and Canada had similar proportions of women to men workers during WWI.

In both countries, these types of jobs soon reverted to male workers shortly after wartime. As one industry observer noted in 1919, “[t]he use of women as section laborers, for instance, in a gang of men working along the tracks at a distance from any house or station was judged to be unsuitable. This was also found to be the case where women were employed as truckers in depots and warehouses, on account of the extraordinary physical exertion required of them” (Goldmark 1919).

The US federal bureau supervising women in the workplace during this time period instituted “protective” restrictions on what women could and could not do, effectively limiting women from carrying out the entire range of duties within their craft. Men, not under any such restrictions, quickly replaced them. Most women experienced an immediate reduction in pay (as much as 50%) as they took non-railroad jobs. After WWI, railroad craft unions adopted

“protective” measures to their bylaws in order to bar women from gaining entry (Middleton et al. 2007, Greenwald 1975).

Large numbers of women answered the call to serve in the North American railroad industry again during WWII. In 1941, approximately 40,000 women worked for railroads, mostly as clerical workers and stewardesses. By war’s end, 116,000 women worked for railroads in the United States but were classified as “temporary” employees and excluded from operating craft unions. Once again, when the war was over, men replaced women in the field, just as they had at the conclusion of WWI. However, the formation of the American Council of Railroad Women in 1994 signaled that women sought a voice in the railroad industry and promotion of career development opportunities in railroading (Railroad Museum of Pennsylvania 2015).

In the United States, legal challenges to railroad hiring practices followed the enactment of the Civil Rights Act of 1964. The Act’s Title VII prohibited discrimination based on race, color, religion, sex, and national origin. Title VII conflicted with railroad labor practices and protective labor laws. Court rulings forced craft unions to open their doors to qualified women and struck down protective laws, which restricted women’s employment opportunities in more than 40 states. Additionally, the Railroad Revitalization and Regulatory Reform Act of 1976 contained a non-discrimination clause and a mandate for affirmative action to remove or overcome the effects of the prior discriminatory practice or usage. The Act opened the door for women, including Bonnie Leake, Union Pacific’s first female locomotive engineer, to become locomotive engineers and conductors (Middleton et al. 2007).

Leake and others like her faced less-than-ideal working conditions, such as inadequate restroom and locker room facilities, poorly maintained equipment, physically demanding work, difficulties in holding secure work, pervasive foul language, and sometime verbal harassment from fellow male employees. Many women quit after only a short time on the job.

Since the 1970s, significant numbers of women have joined the railroad operating workforce, yet much work remains to attract and retain women in railroad operating positions. In 2014, of the 55,000 locomotive engineers and operators employed in the United States, only 1.4% were female (U.S. Bureau of Labor Statistics 2015). This percentage is among the very lowest of any industry in America, where the national workforce is 47% female.

In Canada, some railroads were much less inclined to employ women in almost any aspect of railroading after the war. Women had to go to court to overcome discrimination against their employment in non-traditional railroad jobs.

For example, the Canadian Human Rights Council declared that “despite advancements in women’s rights, the Canadian National Railway Company (CNR) hired very few women. In 1987, women made up only 0.7% of CNR’s unskilled workforce, even though they represented 41% of Canada’s labor force (Canadian Human Rights Commission 1987).

Action Travail des Femmes, a public interest lobby group that supports women’s rights in Canada, complained to the Canadian Human Rights Commission that CNR had broken s.10 of

the Canadian Human Rights Act and thereby was guilty of systemic discrimination. A tribunal discovered that CNR had indeed made no real effort to hire women. It found that the company had done wrong in the following ways:

- CNR recruited for skilled jobs mainly by sending representatives to technical schools where there were almost no women.
- When women applied at the personnel office, they were encouraged to apply for secretarial jobs only.
- Women applying for employment were often not clearly informed about the qualifications needed to fill the job openings.
- Coach cleaners were required to have experience in soldering, which very few women did (even though soldering was hardly a skill required in cleaning coaches).
- CNR had turned a blind eye to the harassment of female employees.

In the end, the tribunal ordered CNR to start an employment equity program. CNR refused and appealed its case to the Supreme Court of Canada.

The result? CNR got de-railed.

Citing s.41(2)(a) of the Canadian Human Rights Act, the Supreme Court of Canada ruled that the commission had the right to impose an employment equity program to break CNR's continuing cycle of systemic discrimination, which included exclusionary hiring and promotion policies as well as the harassment of female employees.

When it came to employment equity, CNR was forced get on board (Canadian Human Rights Commission 1987).

## **METHODOLOGY**

Research for this study included both literature and field research methods. A cross-section of similar and dissimilar industries and their diversification shifts were considered to make note of shared characteristics, common challenges, and best practices. Some examples of specific industries researched extended beyond rail to include a cross-section of industries with similar employment challenges, such as motor carrier and waterways transportation, along with public safety industries such as community police and firefighting. Sources include documentary data and multiple expert sources in human resources, community development, minority culture, and business strategy.

Field research was compiled from current public and private demographic data regarding the number of women in transportation operating positions from the U.S. Census as well as Canadian transportation companies. Additionally, the Center for Transportation Studies (CTS) at the University of Missouri–St. Louis anonymously surveyed male and female railroad employees deemed as serving in traditionally male-dominated operational roles. The survey included requests for demographic information, individual opinions regarding women in these positions, and personal recommendations to expand opportunities to women. Employees were additionally asked about their impressions of these operational positions—the long hours, time away from home, pay and benefits structure, etc.—to gauge their attitudes towards women filling those positions and what changing some of these attitudes may entail. Surveys consisted of 24 questions and did not include any requests for personal identification information, in order to ensure complete anonymity. The survey questions are included in the Appendix.

## **FINDINGS**

Overall, the findings from the surveys were positive. Of the 634 Canadian responses, 21% of participants were female and 79% male, revealing a male-dominated response. However, not all participants worked in traditionally male-dominated operational roles. It was found that 66% of Canadian respondents said they do not think it would be difficult to bring women into traditional operational roles, while 89% thought women should work in operational roles for the railroad.

Of the 727 US responses, 56.8% of participants were female and 43.2% were male, revealing a fairly well-balanced contribution from both genders; all respondents worked in traditionally male-dominated operational roles. It was found that 66.5% of respondents said they do not think it would be difficult to bring women into traditional operational roles, while 96% thought women should work in operational roles for the railroad.

Thus, there appeared to be no differences between US and Canadian railroad workers regarding the positive attitude of bringing in women to these traditionally operational railroad jobs. Additionally, the vast majority of all respondents felt that women should work in these operational roles.

The CTS also explored patterns in the reasons for the pursuit of railroad positions, hypothesizing that employees were more willing to apply for railroad jobs if immediate family members had once held railroad positions or positions within a similar labor industry. The Canadian data showed that 27% of survey respondents had immediate family members who worked for the railroad, and almost the same percentage of US workers (26%) had a family member connected to railroading.

In researching the connection between railroad employees and similar labor industries, CTS found that 26% of Canadian respondents and/or their family members had worked in agriculture, while 42.6% of respondents' immediate family members had worked in other heavy industries, such as steel, mining, or automotive. Similar results were found among US respondents, with 26% coming from an agriculture background and 33% from heavy industry. Therefore, one could conclude that having a family member in railroading or coming from a farming or heavy industry background would be a common characteristic of women in railroad positions.

In general, there were some differences between Canadian and US railroad employees regarding educational backgrounds. It was found that 13% of Canadian respondents were military veterans, while 17% of US workers had similar military backgrounds. Also, 47% of Canadian rail workers were high school graduates or held a GED equivalent, while only 14% held a bachelor's degree. Comparatively, in the US, 37% of respondents had a high school diploma or an equivalent degree, while 31% held at least a bachelor's degree.

Additionally, current job characteristics were also explored. When asked about typical hours within a daily shift, 98% of Canadian respondents averaged between 8 to 14 hours, with the majority working between 8 to 10 hours per shift. Respondents usually worked an average of



five days per week, but only 42% usually worked the same shift each week. It was found that 81% of respondents held agreement jobs when starting at the railroad and continued to do so, with some 82% responding that they currently hold an agreement position but 31% indicating that their job was part of an extra board.

Their US counterparts reported similar job characteristics, with 98 US respondents averaging between 8 to 14 hours, with 64.6% working an average of five days per week and 66.9% usually working the same shift each week. Additionally, 70.3% of respondents held agreement jobs when starting at the railroad, but currently only 52.8% hold agreement positions, while 12.8% said their job is part of an extra board.

Furthermore, motivational characteristics were researched and yielded the following data. While 79% of Canadian respondents claimed their paycheck was a motivating factor to do their job, 50% also claimed the challenge was motivation, and 48% of respondents said their family was their motivation. Additionally, 26% of respondents, which comprised the highest percentage among Canadian respondents, were very dissatisfied with their work-life balance. Nearly half of all respondents indicated being dissatisfied or very dissatisfied in this area.

US rail workers had slightly different responses. While 73.6% of respondents claimed their paycheck was a motivating factor to do their job, 63.7% also claimed the challenge was motivation, and 62.4% of respondents said their family was their motivation. In addition, 36.7% of respondents, which comprised the highest percentage among US respondents, said that they were satisfied with their work-life balance.

Finally, individual perceptions of women in specific roles were requested and produced the following feedback:

- Of the Canadian railroad workers participating in the survey, 74% of respondents did not believe that train, engine and yardmen (TEY) positions required more consideration when hiring women over men.
- 71% of respondents did not believe that maintenance of way (MOW) positions required more consideration.
- 82% of respondents did not believe that mechanical positions required more consideration.
- Overall, it was found that 90% of respondents did not believe that non-agreement management positions required more consideration.

Similar attitudes were expressed by US respondents:

- 76% of respondents did not believe that TEY positions required more consideration when hiring women over men.
- 63% of respondents did not believe that MOW positions required more consideration.
- 80% of respondents did not believe that mechanical positions required more consideration.
- 87.7% of respondents did not believe that non-agreement management positions required more consideration.

When respondents were asked whether they thought women in field positions would have difficulty working with the rest of their team, both Canadian and US respondents disagreed. When asked a series of relative questions rating common perceptions of women's choices in not pursuing a career field position, responses were spread fairly throughout all 18 questions. Examples of reasons women may not pursue a field position included the following:

- The job requires heavy lifting.
- The job has unappealing work conditions.
- Women don't want their time and activities controlled by the extra board process.
- Women may experience harassment by male coworkers
- Women prefer to work in female-dominated environments.
- Women don't feel they have a good chance for promotion in that field.

Most individual perceptions of whether or not these reasons were common or probable tended to be neutral but tended to span fairly evenly across "very likely" and "likely" and "not likely" and "not likely at all." This span of opinions likely demonstrates that whether or not a woman pursues a career field position with the railroad likely depends more on individual employee preferences rather than on whether or not they are female.

Despite the fact that the data seem favorable toward female hires across the board, perhaps the most prominent data discovery was that when respondents were asked if their railroad tries to attract women for operational roles in the field, a majority of both US and Canadian respondents replied that they were "unsure." However, over 700 respondents provided ideas as to how they think their company could attract more women for operational roles.

## IMPLICATIONS

The findings of the survey describe an employee environment that is receptive to hiring more women for various operational roles. It seems that the reason there are not more women in these roles is that railroads may need to establish more aggressive hiring campaigns. Judging from the responses regarding employee background, hiring campaigns may be able to recruit more women if they push for higher quotas directly from local high schools, colleges, and areas frequented by workers in heavy industrial industries. Approaching more female veterans might also be a sound recruitment tactic that could yield more hires. These sentiments were echoed in individual survey responses, as employees recommended more engagement with women, wherever women happen to be.

Additionally, respondents had some ideas for how they thought the company could better recruit more females:

- Send female employees to local schools to discuss career options.
- Encourage human resource (HR) representatives to offer consideration of operational roles, when applicable; also hire more female HR representatives.
- Include a much broader female presence in employment and general advertisements.
- Demonstrate to and educate internal employees and external community members that women are capable of performing operational tasks.

Finally, participating employees had recommendations for making the work environment better for female employees and thus raising retention rates for new female hires. Their suggestions included the following:

- Provide oversight to ensure fair job advancement.
- Ensure female presence within management circles, which is imperative for women to visualize their advancement.
- Offer better maternity and family benefits that afford a good work-life balance:
  - Maternity leave
  - Family health plans and time off
  - Flexible or predictable shift options
  - Daycare onsite
- Provide discrimination and harassment policies that protect the accuser from retaliation.
- Show commitment to reinvesting in employees by providing a cleaner workplace and more (clean) bathrooms.

## RECOMMENDATIONS

Traditional top-down corporate structures foster change by setting and executing desired behavior from the very top (Johnson 2016). Although both US and Canadian railroads have affirmative missions and visible signage promoting their commitment to employee safety and well-being, employees believe the company could improve on this without a massive overhaul. Reducing the number of people, including women, on the extra board, for example, would greatly improve the quality of life for these operational employees.

Simple tweaks, such as promoting an encouraging environment through visible signs and verbal cues from management, can make women feel more empowered. Additionally, both US and Canadian railroads may want to consider instituting a workforce campaign to keep common places such as bathrooms cleaner and promoting more employee respect.

The commitment to gender balance, while currently visible, might be more prominent in the company brand and image, staff, policies and practices, business partners, and proximal communities (Boulton 2015). If interested in driving female hires and retention, executives could consider assigning short- and long-term goals to every department and celebrate milestones as a chance to reward individual compliance and remind stakeholders how hiring more women benefits them. In addition, more targeted advertising toward hiring pools and within workplaces specifically featuring more women will not only help confirm an ambitious gender-balanced workplace but also promote the company as a career destination for women. Regardless of scale, as long as commitment to change is reflected from executives and top management, even small changes will deliver a measurable, beneficial impact.

Seeking new partners and investors is another option that can be used to promote gender equality while garnering positive press. The transportation industry has excellent repeat demand and a lot of capital. However, many operational roles are perceived to require physically strong and/or tall individuals to operate equipment autonomously. Transportation technology would directly benefit from collaborating with some technology businesses that are seeking a large industry in which to prove themselves. Such a joint venture would affect stock prices and brand image while making it easier to increase female hires in operational roles.

Additionally, showing interest in suppliers with diverse workforces or encouraging long-term partners to make similar investments in diversifying their workforce are other ways to demonstrate a company's commitment to gender equality. Suppliers that are more diverse may tend to show greater flexibility during economic stress in the future, whereas traditional companies more averse to adaptation could soon struggle with an unforeseen industry shift. Traditional suppliers can be rewarded for taking action in addressing their business flexibility by lengthening the life of contract agreements. Otherwise, new suppliers can be rewarded by acknowledging their dedication to balanced workforces and agile business strategies by putting a new business venture into play.

In order for the board and management teams to further reflect the company's commitment to workplace gender balance, part of the company's goals could include female hire quotas. With

more women in influential management roles, the work environment will change so that women will have female mentors to consult and emulate, and any remaining persistent discrimination would further subside. This kind of environment, free from discrimination, promotes not only employee happiness but also productivity and innovation. The less an employee is encumbered by stress, the greater his or her ability to complete duties more efficiently and contribute more quality to the work environment. This quality can come in the form of company or employee ideas, product ideas, time to assist others, discovering a more efficient process to complete a goal, etc. (Forbes Coaches Council 2016).

Revised recruitment policies should also be considered. Employee candidates can be recruited from reliable sources such as high schools or trade schools, college job fairs, veterans' community locations, and community locations frequented by families and employees in the agricultural, automotive, and other heavy industries. Local searches can be broadened online, and potential employees can be recruited from outside provinces or regions. Incentives can prove useful, as well. Bonus structures for professional recruiters can be revised to reflect rewards for promoting and driving female and minority hires needed to meet variable human resource goals.

Appropriate advertising is also critical to this outreach strategy. Women should be present in any and all advertising material so as to easily convince potential employees that they have the ability to fit in (Morsella 2006). Furthermore, additional promotional material (even something as quick as a letter of commitment from the CEO) promoting the railroad's commitment to gender diversity and citing various internal policies can ensure that communities and employees are educated and aware that the railroad actively seeks female hires.

Ultimately, utilization of all recommendations and tactics can easily be regarded as "too much too soon." However, even small and progressive changes will slowly create a positive impact on employee satisfaction, production efficiency, and recruitment reputation. If most people can agree that an alternative vision of the business would most benefit and ensure its future, change can begin with grand goals and expectations and be pared down from there into actionable tactics. Continually celebrating milestones along the way will remind all those involved how small changes, and perhaps unfavorable descriptions, are all part of a larger picture and how those changes already contribute to an overall benefit (Forbes Coaches Council 2016).

## **LIMITATIONS AND FURTHER RESEARCH**

Few scientific studies have been conducted on the benefits of improving gender equality in the rail industry, which means that more research is needed about other rail companies to compare with the data and findings from the present study. Further research is needed to identify and diagnose sources of workplace and recruitment gender barriers so that recommendations can ensure that improvement is swift and accurate rather than achieved through endless and costly trial and error because of general problem speculation.

Furthermore, the absolute benefits of gender-balanced workforces for railroad companies are difficult to predict. It could very well be that the benefits are either significant yet unremarkable or profoundly industry changing. With greater access to employee demographics, survey data, and, eventually, case studies, we can better determine the best gender solutions to complement companies according to their needs and attributes. Perhaps small businesses flourish better with a higher volume of women in specific operating roles, or large corporations find that instituting a company incentive program has a particular impact on a gender-balanced workforce. As more information is gathered on the internal business culture and practices of the railroad industry, these businesses will be better able to use information specifically tailored to leverage their unique assets.

## **CONCLUSION**

These days, more women are entering the workforce than ever before while one of the largest generations in the workforce today is about to retire. In order to anticipate this economic shift, companies comprised mostly of male employees should be prepared to recruit and support a different mix of demographics for their employee pools. Women have proven themselves as general business assets for decades, but more recently women have emerged not only as contributors of unique perspectives and abilities but also as employees who challenge their companies to be more adaptable.

The Canadian Pacific Railway is highly regarded as an excellent employer. The company strives to better its employees, the communities it serves, and customer satisfaction. As CP continues to grow as a leading transportation and shipping company, more and more employees will be needed to not only meet growth but also fill the impending vacancies left by the baby boomer generation. CP would greatly benefit in designing an aggressive female hiring campaign that increases its employee pool, strengthens community loyalty through its commitment to gender diversity, and attracts consumers through positive press and demonstration of company agility.





## REFERENCES

- Boulton, C. 2015. Women CIOs Say Visibility is Key to Closing Gender Gap. Data and information available on CIO website: [www.cio.com/article/2997722/cio-role/women-cios-say-visibility-is-key-to-closing-gender-gap.html](http://www.cio.com/article/2997722/cio-role/women-cios-say-visibility-is-key-to-closing-gender-gap.html).
- Canadian Human Rights Commission. 1987. Enforcing Employment Equity. Data and information available on CHRC website: [www.chrc-ccdp.gc.ca/historical-perspective/en/timePortals/milestones/120mile.asp](http://www.chrc-ccdp.gc.ca/historical-perspective/en/timePortals/milestones/120mile.asp).
- Canadian Pacific. 2018. The History of the Canadian Pacific Railroad. Data and information available on CPR website: <http://www.cpr.ca/en/about-cp-site/Documents/cp-history-for-students.pdf>.
- Forbes Coaches Council. 2016. 13 Ideas To Promote Female Equality In The Workplace. Data and information available on Forbes website: <https://www.forbes.com/sites/forbescoachescouncil/2016/04/08/13-ideas-to-promote-female-equality-in-the-workplace/#4c882df3f142>.
- Goldmark, P. 1919. Women in the Railroad Service. *Proceedings of the Academy of Political Science in the City of New York*, Vol. 8, No. 2, pp. 17–22.
- Greenwald, M. W. 1975. Women Workers and World War I: The American Railroad Industry, A Case Study. *Journal of Social History*. Vol. 9, No. 2, pp. 154–177. <https://www.jstor.org/stable/pdf/3786250.pdf?refreqid=excelsior%3A2f64b0655aba4ad700cc363f47b3c686>.
- Johnson, S. 2016. *Top-Down Approach in Business*. Hearst Newspapers, New York City, NY.
- Middleton, W. D., G. Smerk, and R. L. Diehl. 2007. *Encyclopedia of North American Railroads*. Indiana University Press, Bloomington, IN.
- de Morsella, T., editor, 2006. *The Diversity Recruitment Advertising Toolkit*. Convergence Media, Inc., Spanish Fork, UT.
- Railroad Museum of Pennsylvania. 2015. Women and Railroads During World War II Exhibit. Data and information available on website: <https://rrmuseumpa.org/>.
- U.S. Bureau of Labor Statistics. 2015. Labor Force Statistics from the Current Population Survey: Women. Data and information available on U.S. Department of Labor website: <https://www.bls.gov/>.



## **APPENDIX: SURVEY OF RAILROAD EMPLOYEES**

The Center for Transportation Studies at the University of Missouri–St. Louis anonymously surveyed male and female railroad employees deemed as serving in traditionally male-dominated operational roles. The survey included requests for demographic information, individual opinions regarding women in these positions, and personal recommendations to expand opportunities to women.

The information gathered in this survey is **CONFIDENTIAL** and for research purposes only. We value your time and feedback. No information disclosed will be distributed to third parties, your coworkers or management. The survey should take approximately 20 minutes to complete.

\* 1. Please indicate your gender:

- Male
- Female

2. Have you ever served in the military?

- Yes
- No

3. Do any of your immediate family members work for the railroad?

- Yes
- No

If yes, what relation to you (mother, father, etc.)?

4. Have you or any of your immediate family members ever worked in agriculture?

- Yes
- No

If yes, what relation to you (mother, father, etc.)?

5. Have you or any of you immediate family members ever worked in another heavy industry? (i.e. steel, mining, automotive, etc.)

- Yes
- No

If yes, what relation to you (mother, father, etc.)?

6. What led you to consider a career in the railroad industry?

7. Please indicate your highest level of education:

- Some high school
- High school graduate or GED equivalent
- Associate's Degree
- Vocational or Trade School
- Bachelor's degree (please indicate field of study)
- Graduate or professional degree (please indicate field of study)

Field of study:

8. How many total years have you worked for the railroad (please round to nearest year)

9. How many hours is your typical daily shift (including breaks)?

10. How many days do you usually work consecutively?

11. Do you usually work the same shift every week?

- Yes
- No
- Sometimes

12. The first job you held with the railroad was:

- Agreement
- Non-Agreement

Former job title:

13. The current job you hold with the railroad is:

- Agreement
- Non-Agreement

Current job title:

14. Is your job part of an extra board (spareboard)?

- Yes
- No

If yes, what is your opinion of the extra board process?

15. What motivates you to do your job? Mark all that apply.

- The challenge
- The paycheck
- The coworkers
- My family
- It's just what I do
- Other (please specify)

16. How satisfied are you with the balance between the time you spend working and the time you spend outside of work (leisure, errands, time with family)?

- Very Satisfied
- Satisfied
- Nether satisfied nor dissatisfied
- Dissatisfied
- Very Dissatisfied

17. Do you feel that hiring a female for the following positions requires more consideration than hiring a male for the same position? .

Yes No

TEY (Train Engine and Yardmen - including conductors, engineers, RCO operators, etc.)

If yes, please explain why:

MOW (Maintenance of Way - including track laborers, signal maintainer, bridge and building, equipment operators, tele-com, etc.)

If yes, please explain why:

Mechanical (Locomotive and railcar - including electricians, mechanics, boiler makers, etc.)

If yes, please explain why:

Non-agreement management position

If yes, please explain why:

18. Do you think women in the field positions mentioned above would have a difficult time working with the rest of their team?

Yes

No

Why?

19. Why might women choose **NOT** to pursue a career in field positions?

	Very Likely	Likely	Neutral	Not Likely	Not at all Likely
1. Job requires heavy lifting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Job has unappealing working conditions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Job has unsafe working conditions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Job requires long hours.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Job hours are inconsistent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Women don't want their time and activities controlled by the extra board process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Job could be difficult for mothers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Women may feel uncomfortable in male dominated environments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Women may experience harassment by male coworkers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Women may feel ostracized by male coworkers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Women don't feel supervisors will treat them equal to their male coworkers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Women don't feel they will be assigned the same tasks as their male coworkers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Women don't know other women who work in operational field roles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Women prefer to work in female dominated environments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Women don't like the type of work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Women don't feel they have a natural ability for the type of work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Women are worried about the social stigma of being a woman in a "man's job."	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Women don't feel they have a good chance for promotion in that field.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



20. Do you feel it would be difficult to bring women into these positions?

Yes

No

Why?

21. If you started in a traditional role at the railroad (i.e. marketing and sales) and moved to a non traditional role (i.e. operations),how did you make that move? Did anyone support or encourage you?

22. Does the company you work for try to attract women for operational roles in the field?

Yes

No

I'm not sure

If yes, what does the company do to attract women for operational roles in the field?

23. Do you think women should work in these roles?

Yes

No

If no, why?

24. What do you think the company should do to attract more women for operational roles in the field?



**THE INSTITUTE FOR TRANSPORTATION IS THE FOCAL POINT FOR TRANSPORTATION  
AT IOWA STATE UNIVERSITY.**

**InTrans** centers and programs perform transportation research and provide technology transfer services for government agencies and private companies;

**InTrans** manages its own education program for transportation students and provides K-12 resources; and

**InTrans** conducts local, regional, and national transportation services and continuing education programs.



**IOWA STATE  
UNIVERSITY**

Visit [www.InTrans.iastate.edu](http://www.InTrans.iastate.edu) for color pdfs of this and other research reports.