

Women in the ADOT Workforce

SPR 743

August 2019



18-386



Arizona Department of Transportation Research Center



Women in the ADOT Workforce

SPR 743

August 2019

Published by:

Arizona Department of Transportation

206 South 17th Avenue

Phoenix, Arizona 85007

In cooperation with

U.S. Department of Transportation

Federal Highway Administration



This report was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data, and for the use or adaptation of previously published material, presented herein. The contents do not necessarily reflect the official views or policies of the Arizona Department of Transportation or the Federal Highway Administration, U.S. Department of Transportation. This report does not constitute a standard, specification, or regulation. Trade or manufacturers' names that may appear herein are cited only because they are considered essential to the objectives of the report. The U.S. government and the State of Arizona do not endorse products or manufacturers.

This report is subject to the provisions of 23 USC § 409. Any intentional or inadvertent release of this material, or any data derived from its use, does not constitute a waiver of privilege pursuant to 23 USC § 409, which reads as follows:

23 USC § 409 — Discovery and admission as evidence of certain reports and surveys

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Technical Report Documentation Page

1. Report No. FHWA-AZ-19-743	2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Women in the Arizona Department of Transportation Workforce			5. Report Date August 2019.	
			6. Performing Organization Code	
7. Author Sally Stevens, Monica Davis, Tamara Sargus, Candace Black, Rosi Andrade, and Stephanie Murphy			8. Performing Organization Report No.	
9. Performing Organization Name and Address University of Arizona Southwest Institute for Research on Women 925 N. Tyndall Ave. Building 0438 Tucson, AZ 85721-0438			10. Work Unit No.	
			11. Contract or Grant No. SPR-PL-1(185) 743	
12. Sponsoring Agency Name and Address Arizona Department of Transportation 206 S. 17th Ave. Phoenix, AZ 85007			13. Type of Report & Period Covered FINAL	
			14. Sponsoring Agency Code	
15. Supplementary Notes Prepared in cooperation with the U.S. Department of Transportation, Federal Highway Administration				
16. Abstract The study examined the role and experience of women employed in the Arizona Department of Transportation (ADOT) workforce. The research was designed to help ADOT better understand the factors that both promote and impede women's employment at ADOT, especially in the job categories for which the department has not achieved parity and for those that comprise less than 25 percent women. The research collected qualitative and quantitative data through a variety of methods and, based on that data, identified opportunities for ADOT to consider as it develops policies, practices, and programs to address the underrepresentation of women in the ADOT workforce. Major findings from the study provided insights on factors that may have facilitated or hindered the attraction, recruitment, and retention of women employees.				
17. Key Words Women, Employment, Recruitment, Selection and Appointment, Retention, Hiring Policy, Promotion, Workforce, Transportation Industry, Parity		18. Distribution Statement Document is available to the U.S. public through the National Technical Information Service, Springfield, Virginia 22161		23. Registrant's Seal
19. Security Classification Unclassified	20. Security Classification Unclassified	21. No. of Pages 25	22. Price	

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
AREA				
in ²	square inches	645.2	square millimeters	mm ²
ft ²	square feet	0.093	square meters	m ²
yd ²	square yard	0.836	square meters	m ²
ac	acres	0.405	hectares	ha
mi ²	square miles	2.59	square kilometers	km ²
VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft ³	cubic feet	0.028	cubic meters	m ³
yd ³	cubic yards	0.765	cubic meters	m ³
NOTE: volumes greater than 1000 L shall be shown in m ³				
MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
TEMPERATURE (exact degrees)				
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
ILLUMINATION				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m ²	cd/m ²
FORCE and PRESSURE or STRESS				
lbf	poundforce	4.45	newtons	N
lbf/in ²	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
AREA				
mm ²	square millimeters	0.0016	square inches	in ²
m ²	square meters	10.764	square feet	ft ²
m ²	square meters	1.195	square yards	yd ²
ha	hectares	2.47	acres	ac
km ²	square kilometers	0.386	square miles	mi ²
VOLUME				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m ³	cubic meters	35.314	cubic feet	ft ³
m ³	cubic meters	1.307	cubic yards	yd ³
MASS				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
TEMPERATURE (exact degrees)				
°C	Celsius	1.8C+32	Fahrenheit	°F
ILLUMINATION				
lx	lux	0.0929	foot-candles	fc
cd/m ²	candela/m ²	0.2919	foot-Lamberts	fl
FORCE and PRESSURE or STRESS				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in ²

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.
(Revised March 2003)

<i>Introduction.....</i>	<i>1</i>
<i>Opportunities</i>	<i>4</i>
<i>Findings</i>	<i>6</i>
Profile of Women in DOT Workforces.....	6
DOT Policies and Practices	8
Experiences and Perceptions of Women in ADOT	9
<i>Methods</i>	<i>15</i>
<i>References.....</i>	<i>18</i>
<i>Appendix</i>	<i>20</i>

LIST OF ACRONYMS

AAP	Affirmative Action Plan
ADOT	Arizona Department of Transportation
CDL	commercial driver's license
CFR	Code of Federal Regulations
CDOT	Colorado Department of Transportation
CTDOT	Connecticut Department of Transportation
DOT	department of transportation
EEO	Equal Employment Opportunity
FHWA	Federal Highway Administration
HR/EO	Human Resources and Equal Opportunity
HR	human resources
IDO	Infrastructure Delivery and Operations
IDOT	Iowa Department of Transportation
MVD	Motor Vehicle Division
STAR	situation, task, action, result
STEM	science, technology, engineering, mathematics
TRB	Transportation Research Board
TSMO	Transportation Systems Management and Operations
UDOT	Utah Department of Transportation
VDOT	Virginia Department of Transportation

The Arizona Department of Transportation (ADOT, the department), through its Office of Human Resources and Equal Opportunity (HR/EO), has established a mission of “promoting respect, diversity, and equality for ADOT’s workforce, businesses and the community.” Programs implemented through HR/EO are designed to help ensure that the department recruits and retains a staff that reflects diversity of gender and race. As of December 31, 2016, ADOT had 3,537 employees of which 1,405 (39.7 percent) were women and 669 of these women were minorities.

ADOT’s Affirmative Action Program is administered by HR/EO and governed by the regulatory requirements of Title 23 Code of Federal Regulations (CFR) Part 230, Subpart C, Appendix A—Part II State Highway Agency Employment. The Program is charged to develop, implement, monitor, and evaluate a written affirmative action plan (AAP) to ensure fair and equal treatment for all persons, regardless of race, color, religion, sex or national origin in all employment practices. The ADOT Federal AAP uses job categories developed by the U.S. Equal Employment Opportunity (EEO) Commission to analyze workforce data. Table 1 defines these categories and gives examples of ADOT job classifications within each.

Table 1. ADOT Equal Employment Opportunity Job Categories Description

EEO Job Category	Definition
Officials/Administrators (EEO 1)	Occupations which set broad policies, exercise overall responsibility for execution of such policies, and direct individual departments or special phases of an agency’s operation or provide a specialized consultation on a regional, district, or area basis, e.g. deputy director, district engineer
Professional (EEO 2)	Occupations which require specialized and theoretical knowledge, e.g. accountant 4, senior transportation planner, transportation engineer 1
Technicians (EEO 3)	Occupations requiring a combination of basic scientific knowledge and manual skill, e.g. traffic operations center operator, traffic operations center supervisor, transportation construction technician 4
Protective Services – Sworn (EEO 4)	Occupations entrusted with safety, security, and protection of the public from destructive forces, e.g. airport firefighter 2, Enforcement and Compliance specialty officer
Paraprofessional/Protective Services – Non Sworn (EEO 5)	Occupations which perform some of the duties of a professional or technician in a supportive role, e.g. procurement specialist, MVD customer service representative
Administrative Support (EEO 6)	Occupations responsible for internal and external communication support, or in-office recording and retrieval of data and information, e.g. IT help desk analyst, Enforcement and Compliance dispatcher
Skilled Craft (EEO 7)	Occupations that perform jobs requiring a special manual skill along with comprehensive knowledge in a specialized vocation, e.g. signal/light/electrical technician 3, equipment repair technician, welder
Service/Maintenance (EEO 8)	Occupations which contribute to the environmental health, convenience, or safety of the general public and workplace via the upkeep or care of building facilities or public property, e.g. highway operations technician 3, highway operations technician supervisor, warehouse worker

Source: Arizona Department of Transportation, Human Resources and Equal Opportunity, 2016.

ADOT employs a higher percentage of women in traditionally female-dominated occupations than in traditionally male-dominated occupations.

The AAP also details ADOT's workforce composition, including gender and ethnicity, and includes goals and timetables for meeting parity with the available state civilian labor pool of women and minorities as defined by the U.S. Census Bureau. Gender parity, as used in the AAP and this research report, refers to a comparison between the state DOT's workforce and the state's civilian labor force (i.e., available workers), calculated by gender and by EEO category according to the U.S. Census Bureau.

Table 2 shows how women are utilized in the ADOT workforce by category, and whether parity is met. For example, the job category with the lowest utilization of women is Service/Maintenance. In order to meet parity, 248 of the 633 total employees in this category would need to be women. ADOT employs a higher percentage of women in traditionally female-dominated occupations than in traditionally male-dominated occupations, defined as those comprising less than 25 percent women (U.S. Department of Labor Women's Bureau 2016). As shown in Table 2, the highest percentages of women are employed in the Paraprofessional/Protective Service -- Non-Sworn and the Administrative Support job categories, which include clerical and support positions that require less training than what is required for professional or technical status. Conversely, women employees are less represented in the Technicians, Protective Service-Sworn, Skilled Craft, and Service/Maintenance categories.

Table 2. Employment of Women in the ADOT Workforce, 2016

Job Category	Total ADOT Employees	Women Employed at ADOT	Percent of Women at ADOT	Percent of Women in Arizona Civilian Labor Force, by Category	Number of Additional Women Required to Reach Parity at ADOT
Officials/ Administrators (EEO 1)	234	79	33.8%	39.5%	13
Professionals (EEO 2)	1136	569	50.1%	53.4%	6
Technicians (EEO 3)	337	72	21.4%	52.0%	105
Protective Service- Sworn (EEO 4)	94	16	17.0%	19.5%	2
Paraprofessional/ Protective Service- Non Sworn (EEO 5)	848	623	73.5%	49.8%	0
Administrative Support (EEO 6)	47	25	53.2%	62.5%	6
Skilled Craft (EEO 7)	208	11	5.3%	5.0%	2
Service/ Maintenance (EEO 8)	633	10	1.6%	42.4%	248

Source: Arizona Department of Transportation, Human Resources and Equal Opportunity, 2016.

This research was designed to help ADOT HR/EO better understand the factors that both promote and impede women’s employment at ADOT, especially in the job categories for which the department has not achieved parity, particularly where disparity is the greatest. The research collected qualitative and quantitative data through a variety of methods and, based on that data, identified opportunities for ADOT to consider as it develops policies, practices, and programs to address the underrepresentation of women in the ADOT workforce.

The research identified opportunities that ADOT may consider to help increase the recruitment (defined to include attracting and hiring) and retention of women in the ADOT workforce, particularly in the job categories determined to not meet federal requirements for parity (i.e., categories for which the percent of women employed is below the percent of women available in the state civilian labor force according to the U.S. Census Bureau). These opportunities may be relevant to both ADOT and the Arizona Department of Administration, which administers the human resource operations of all state agencies.

To **attract** women to apply for positions at ADOT, the positions must offer attributes that specifically appeal to women, and job announcements will be more likely to draw candidates if they communicate these attributes clearly and prominently. The research identified perceptions that certain positions, as described in job announcements, do not appeal to women. To address these perceptions, ADOT may wish to:

- **Review position requirements that women may perceive as barriers, especially if such requirements are rarely asked of employees in practice.**
 - Explore opportunities to revise requirements or reclassify positions, particularly for those that have not reached gender parity.
 - Consider, for example, the necessity of requiring the ability to lift and carry items of a certain weight, and the ability to respond to emergency calls 24 hours per day, seven days per week.
 - Assess requirements that candidates must have considerable experience to qualify, and consider how on-the-job training, potentially supplied by contractors, might fill the experience gap.
- **Emphasize positive job attributes when advertising a position.**
 - Place information on the benefits of employment with state government, such as health insurance and paid leave, in a prominent position within a job announcement.
 - Enable candidates to learn about ADOT's mission, projects, and staff by ensuring that ADOT web pages positively communicate current information about the department's work groups. Consider posting to the web page photos of staff, especially female staff, engaged in work characteristic of the position. In job announcements, include a link to the ADOT web page associated with the position.
 - In a job announcement, describe and provide links to the ADOT programs that support career advancement, such as training opportunities associated with the position and college tuition reimbursement.
- **Conduct outreach to women and girls to generate current and future interest in ADOT positions.**
 - Assign women recruiters and highlight women in a range of roles at the department by incorporating pictures of women in outreach materials, agency reports, etc.
 - Develop marketing materials, including videos, to highlight women in ADOT careers.
 - Partner with Arizona K-12 schools, community colleges, and universities to educate women and girls, especially those in science, technology, engineering, and mathematics (STEM) programs, on transportation careers and opportunities at ADOT.
 - Participate in career fairs that target demographically diverse candidates.

-
- Consider engaging with community organizations and public-sector agencies that help women enter or re-enter the workforce.

Based on interviews with women who described their experiences in being hired by ADOT, the research identified opportunities for enhancing the **hiring** process to benefit both women and men:

- **Ensure an effective and fair interview process.**
 - Train managers and supervisors, who are responsible for hiring, to take full advantage of the tools ADOT provides and requires to be used in the interviewing process. As examples:
 - Ensure that interview panels allow time for candidates to ask questions about the position.
 - Ensure that interview panels reflect diversity, and that they include individuals who are knowledgeable about the position and can respond to questions posed by candidates.
- **Simplify the hiring process.**
 - Enable new hires to complete online as much of the onboarding process as possible. Reduce or eliminate the need for time-consuming travel to fulfill onboarding requirements, especially in rural areas.

The research showed that many women may leave ADOT because they lack a clear understanding of the opportunities and benefits available to them or because they perceive that those opportunities and benefits are inconsistently communicated and applied within the department. To increase **retention**, ADOT may consider opportunities to:

- **Expand educational assistance and mentoring opportunities.**
 - Determine employee needs for training and education and offer programs to fulfill those specific needs.
 - Explore opportunities to enhance the mentoring program to more closely meet the needs of women employees.
 - Provide employees with clear, consistent, and comprehensive information on training, mentoring, educational assistance, and related resources.
- **Establish or extend practices that enable employees to fulfill both their ADOT responsibilities and personal expectations for family caregiving (children and elders).**
 - Promote a fair and consistent application of the telecommuting policy.
 - Assist managers and supervisors in developing guidelines to determine the use of telecommuting and other forms of flexible scheduling.
 - Consider the possibility of providing financial assistance for caregiving services to employees who must work extended or non-traditional schedules.
 - Provide employees with clear, consistent, and comprehensive information on benefits and programs that support employees in their caregiving responsibilities.
- **Continue to explore ways to financially compensate high-performing employees.**
 - Evaluate policies for spot incentive awards and for merit-based incentives. Establish and apply consistent, objective, transparent criteria to determine award recipients across ADOT divisions.

FINDINGS

Profile of Women in DOT Workforces

For this research, data were collected from ADOT and five other state departments of transportation (DOTs): Colorado, Connecticut, Iowa, Utah, and Virginia. As shown in Figure 1, data from those states show that ADOT's workforce includes the highest percentage of women (40 percent). This is largely explained by ADOT's inclusion of the Motor Vehicle Division (MVD), which employs 79.8 percent women. Of the six state DOTs, only Arizona and Iowa include motor vehicle divisions within their DOTs. Among the six, however, ADOT employed the highest percentage of women even when MVD employment was excluded from the total ADOT workforce.

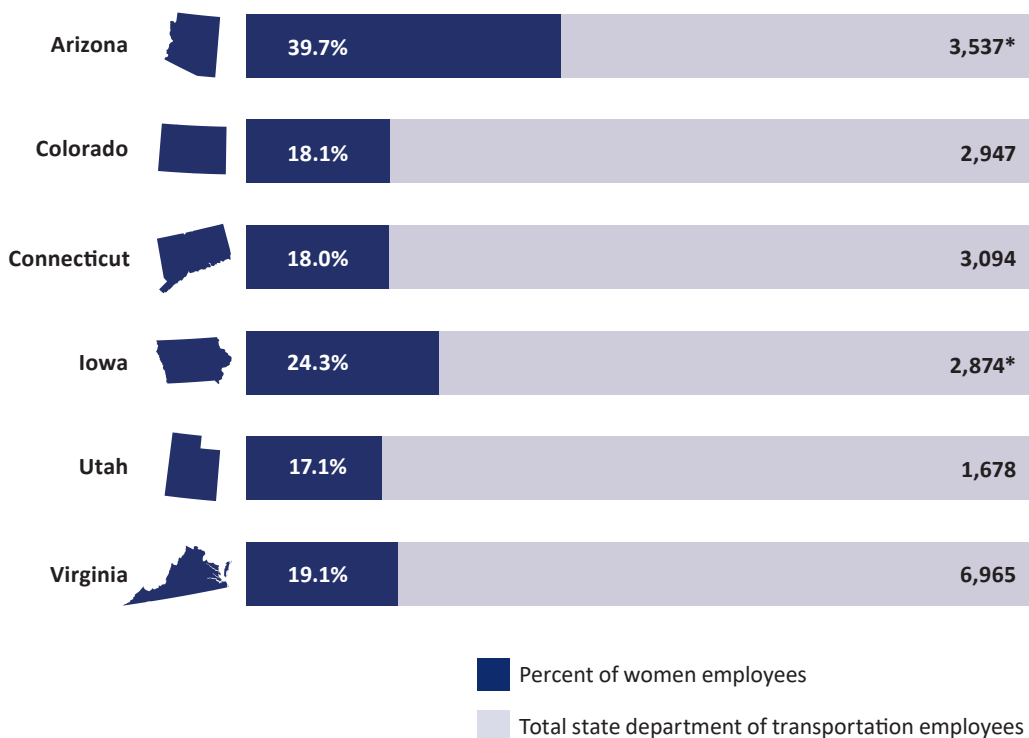


Figure 1. Percent of Women in State DOT Total Workforces, by Surveyed State

*Includes motor vehicle division staff in reported total employees.

Sources:

Arizona Department of Transportation, Human Resources and Equal Opportunity, 2016
Colorado Department of Transportation Affirmative Action Report and Plan, 2015; data from FY 2014
Connecticut Department of Transportation Affirmative Action Plan, 2016; data from 2015
Iowa Department of Transportation Affirmative Action Program Overview 2014; data from FY 2013
Utah Department of Transportation Affirmative Action for Minorities and Females 2015; data from FY 2015
Virginia Department of Transportation Affirmative Action Plan, 2011; data from FY 2011

Across ADOT work units in 2016, the MVD and the Director’s Office employed more than 55 percent women, while the Infrastructure Delivery and Operations (IDO) Division employed 21 percent women and the Transportation Systems Management and Operations (TSMO) Division employed 18 percent.

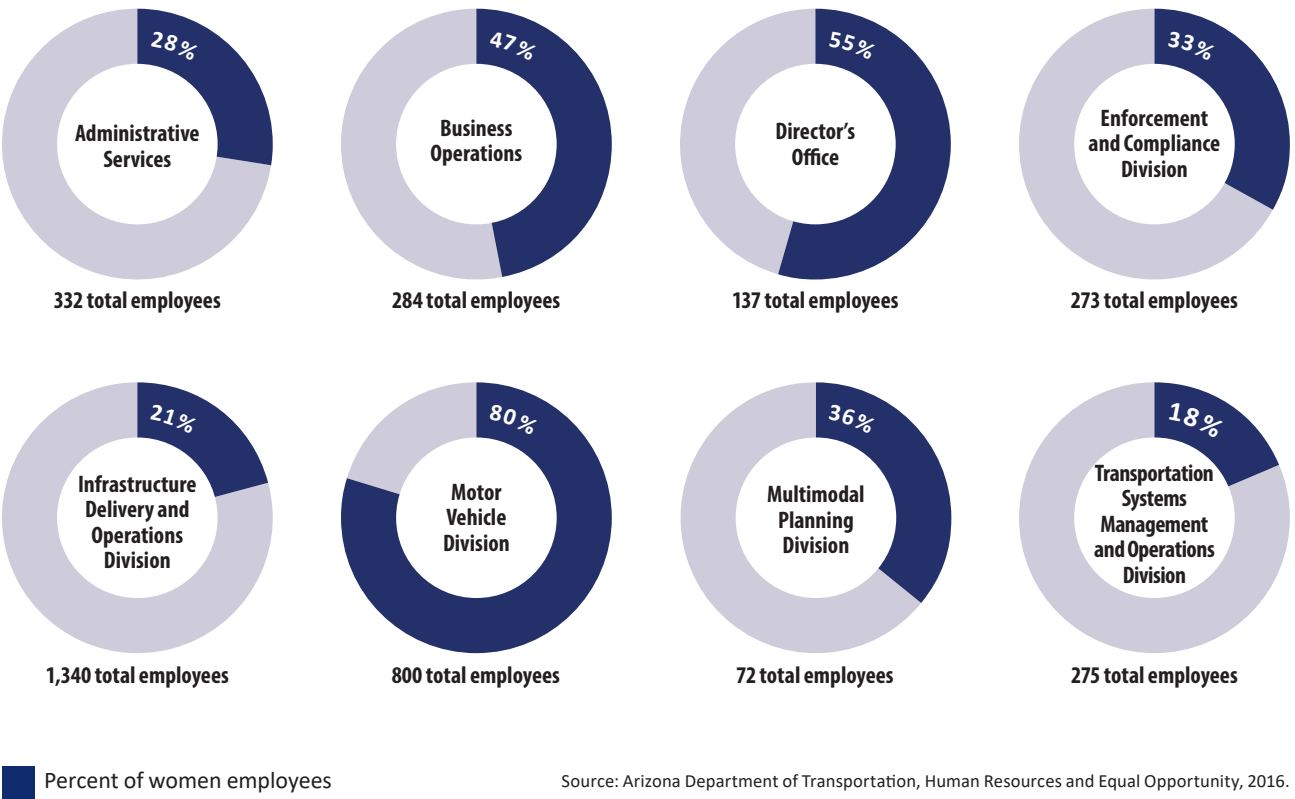


Figure 2. ADOT Workforce Distribution by Work Unit by Gender, 2016

As noted previously and shown in Table 2, ADOT currently employs a higher percentage of women in traditionally female-dominated occupations than in traditionally male-dominated ones. Table 3 compares by category the employment of women at ADOT to that of the five other states also surveyed. Compared with those states, ADOT has the highest percentage of women employed in the Official/Administrator category, as well as in the Professional category. While the employment of women in ADOT’s Technicians category compares favorably, employment in ADOT’s Service/Maintenance job category lags behind; only 1.6 percent (10 employees out of 633) of the employees are women. From state to state, job positions may align with different EEO categories.

Table 3. Percent of Women in State DOT Total Workforce, by EEO Job Category

	Official/ Administrator (EEO 1)	Professional (EEO 2)	Technician (EEO 3)	Protective Service Sworn (EEO 4)	Paraprofessional/ Protective Service Non- Sworn (EEO 5)	Administrative Support (EEO 6)	Skilled Craft (EEO 7)	Service/ Maintenance (EEO 8)
Arizona*	33.8%	50.1%	21.4%	17.0%	73.5%	53.2%	5.3%	1.6%
Colorado	20.4%	30.7%	13.4%	NA	77.6%	94.0%	2.5%	24.4%
Connecticut	26.4%	22.9%	17.1%	0.0%	77.8%	96.9%	4.1%	6.3%
Iowa*	30.0%	38.3%	25.1%	10.0%	NA	89.5%	2.5%	33.3%
Utah	22.2%	25.0%	8.0%	50.0%	59.8%	100.0%	0.6%	16.0%
Virginia	27.7%	26.4%	18.6%	36.9%	NA	87.5%	2.1%	26.6%

*Includes motor vehicle division staff in reported total employees.

Sources:

Arizona Department of Transportation, Human Resources and Equal Opportunity, 2016

Colorado Department of Transportation Affirmative Action Report and Plan, 2015; data from FY 2014

Connecticut Department of Transportation Affirmative Action Plan, 2016; data from 2015

Iowa Department of Transportation Affirmative Action Program Overview 2014; data from FY 2013

Utah Department of Transportation Affirmative Action for Minorities and Females 2015; data from FY 2015

Virginia Department of Transportation Affirmative Action Plan, 2011; data from FY 2011

DOT Policies and Practices

Human resource (HR) staff from ADOT and the five other state DOTs, Maricopa County, Pima County, the City of Phoenix, and the City of Tucson provided the HR policies and practices that apply to their DOTs. As is typical for public sector agencies, the policies and practices are gender-neutral and contain legal language that states adherence to federal requirements for equal employment opportunity and affirmative action.

Interviews with the HR staff showed that they generally share the perception that gender disparities in various occupations were likely a product of longstanding norms and beliefs (e.g., women as collaborators; men as leaders). They noted the value of changing the perception of gender roles in the DOT workplace and of promoting non-traditional roles for both women and men.

When asked to identify the most prominent barrier to hiring women into these occupations, HR interviewees cited women candidates' lack of experience. Some also suggested that DOTs might be more successful at hiring women into these roles if work experience, as measured by specific numbers of years, was considered a preference rather than a requirement when evaluating candidates. Staff of one DOT noted their practice to not specify years of experience or specific educational requirements (unless sanctioned by law) in their job announcements. To address the disparity in experience, ADOT and all DOTs interviewed have offered education, tuition reimbursement, internships, and training to help women qualify for non-traditional jobs. Some DOTs have partnered with community colleges so that students can earn their commercial driver's license (CDL) and track their practical hours as experience toward licensure. One DOT's Temporary Service and Higher Class program provides a model for ongoing professional development toward promotion. The behaviorally based interview system ADOT uses, known as STAR (situation, task, action, result), asks job candidates to demonstrate their qualifications by responding to questions with narratives oriented around situational experiences.

HR interviewees also noted the budgetary constraints that limit the wages and salaries that the public sector can provide, compared with those offered by the private sector. To attempt to overcome this challenge, many DOTs take a long-term approach to generating interest among women and girls in non-traditional jobs by partnering with STEM programs in colleges, high schools, and even elementary schools. DOTs also proactively seek candidates through career fairs, colleges, professional organizations, and community associations that target women and minorities. Using outreach materials that depict women in diverse work roles and assigning women recruiters at outreach events was reported as increasing the number of women who apply for DOT jobs. For potential candidates, contact with current employees who share the applicant's background can positively affect self-identification with the agency and with the particular job role. In this sense women's visibility in recruitment and outreach is an important factor for attracting job applicants who are women.

Based on the HR interviews, mentorship and networking opportunities are important factors in retaining women in the transportation workforce although, overall, DOTs lack formal policies on mentorship and networking. These activities are also viewed as important to the ability of women to break through the "glass ceiling" and/or counter the "good old boys network" (i.e., closed informal male social network that favors mentoring other men). HR interviewees emphasized that women in DOT leadership positions serve as role models to prospective and existing women employees and convey the agency's support of women's career advancement.

To achieve work-life balance, a concept prioritizing a balance between career ambition and demands with one's lifestyle, including health, family, and other personal dimensions (Malone and Issa 2013), the HR interviewees reported that women, who often carry the bulk of domestic responsibilities, were more likely to both use and benefit from policies and procedures that increase work-life balance.

Experiences and Perceptions of Women in ADOT

A survey of all ADOT staff (men and women) was conducted to identify experiences and perceptions regarding recruitment and retention in ADOT positions. Following the survey, interviews were administered to a random sample of ADOT women employees to gain a better understanding of the survey findings. Both the survey and interview findings are presented below.

Recruitment

When employees were asked how they learned of the opening for their current ADOT position, women respondents most often reported (33.8 percent) the Arizona State Jobs website (<https://azstatejobs.azdoa.gov/>), where Arizona state agencies are required to post job announcements and through which all applications are submitted. The second most reported source was referral by an ADOT supervisor, with the rate of referral for women (15.4 percent) reported as similar to that for men (15.1 percent). Referral by an ADOT co-worker (11.9 percent) and through a weekly email message announcing open positions (10.1 percent), which ADOT formerly sent to all employees, were also relatively common. However, men more frequently reported using these sources (co-worker

Women in DOT leadership positions serve as role models to prospective and existing women employees and convey the agency's support of women's career advancement.

referrals: 13.4 percent of men vs. 10.4 percent of women; internal email: 11.4 percent of men vs. 8.9 percent of women). According to ADOT HR, the weekly email announcement was discontinued in 2016.

The survey presented a list of ADOT job attributes and asked respondents to choose what most attracted them to apply at ADOT. Collectively, as shown in Figure 3, women reported that they were most inspired by the benefits offered at ADOT including the Arizona State Retirement System (pension), medical/dental insurance, “job security,” paid sick/annual leave, and paid holidays. However, the priority of the various job attributes differed when analyzed by the EEO category of the respondents:

- Officials/Administrators (EEO 1): Meaningfulness of work/sense of accomplishment was the most commonly selected job attribute increasing their desire to apply for the position, followed by the Arizona State Retirement System, job security, and positive interactions with prospective supervisors and co-workers.
- Technicians (EEO 3, women are less represented): The Arizona State Retirement System, medical/dental insurance, paid sick/annual leave, and paid holidays were the greatest draw at the application stage, followed by job security, opportunities for advancement, and meaningfulness of work/sense of accomplishment.
- Protective Service – Sworn (EEO 4, women are less represented): Paid sick/annual leave and paid holidays, and job security were the top two selected job attributes, followed by meaningfulness of work/sense of accomplishment, Arizona State Retirement System benefits, and medical/dental insurance.
- Skilled Crafts (EEO 7, women are less represented) and Service/Maintenance (EEO 8, women are less represented) combined: Paid sick/annual leave and paid holidays, meaningfulness of work/sense of accomplishment, medical/dental insurance, and job security were most often selected.

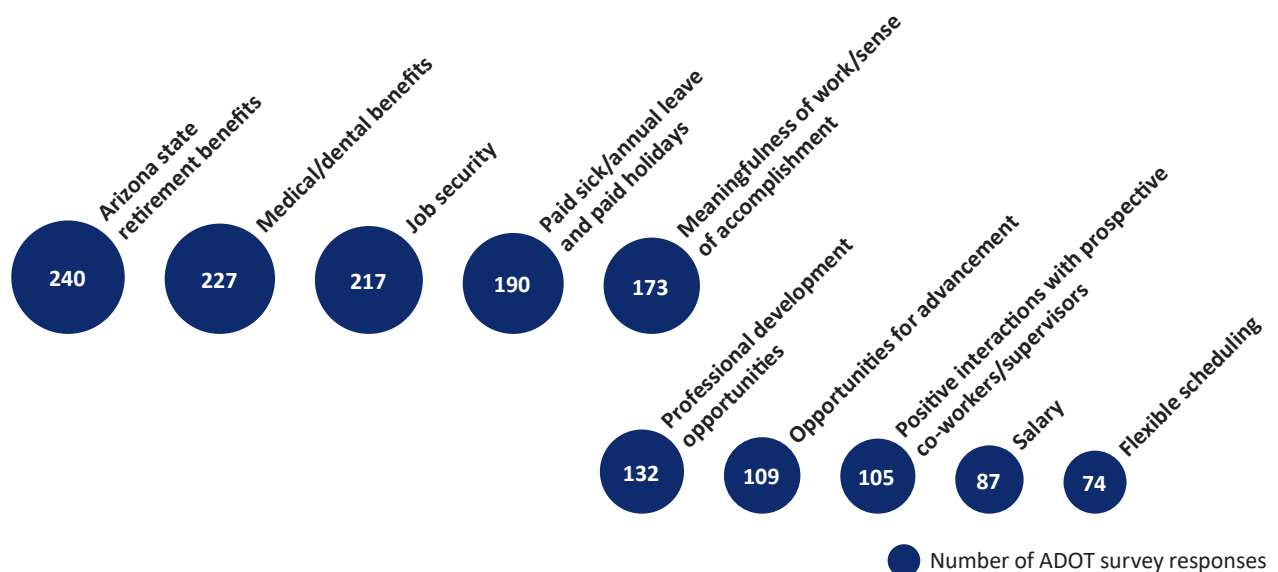


Figure 3. Top Ten Job Attributes Cited by ADOT Women Survey Respondents

Women survey respondents also cited some of the same job attributes as “requiring improvement.” Salary was most often cited, followed by opportunities for advancement, ability to telecommute, professional development opportunities, and flexible scheduling.

Both men and women survey respondents reported that the ADOT hiring process was similar in difficulty to that of other jobs for which they had applied. About 10 percent of men and 10 percent of women reported that the hiring process was easier than for other jobs for which they had applied. A majority of women interviewees (67.4 percent) reported satisfaction with the hiring process. The positive aspects cited were the professional and comfortable interview environment (18.6 percent) and the ease of the interview process (16.2 percent).

More than 90 percent of both men and women who responded to the survey reported that they were not asked any inappropriate or discriminatory questions (e.g., questions about parenting plans, age, or race) during the job interviews for their current positions. However, a small number of respondents cited cases in which they believed interviewers asked inappropriate or discriminatory questions, gave sarcastic responses, exhibited inappropriate body language, or made references to a “good old boy network.”

Of the 43 ADOT women employees who were interviewed, 23 reported having experienced or witnessed discrimination and harassment based on gender while employed at ADOT. About a third described subtle practices or behaviors that may be perceived as inappropriate and discriminatory. For example, interviewees described being dismissed or even laughed at when providing suggestions in a meeting while a man offering similar suggestions received praise; receiving negative comments in regard to caretaking responsibilities; and experiencing use of language that created an uncomfortable environment for women. About a quarter said they experienced or witnessed sexual harassment, and a third cited unfair practices such as women monitored for the time they took for bathroom breaks, not having immediate access to private outdoor area for bathroom breaks, and lack of access to appropriately sized personal protective equipment required for the job. (Note: While ADOT takes seriously any allegations of sex discrimination and sexual harassment from its employees, it is precluded from investigating general allegations from anonymous survey and interview responses. Any employees who have witnessed or experienced such violations are encouraged to immediately report them to the ADOT Civil Rights Office.)

ADOT’s nondiscrimination policy provides a formal process to investigate employee complaints which include allegations of discrimination, retaliation, or harassment based upon race, color, national origin, religion, disability, pregnancy, age, sex, or retaliation for having participated in protected civil rights activity. The Civil Rights office is responsible for employee-focused nondiscrimination cases. While some of the interviewees said they brought these incidents to the attention of their supervisors and/or filed a formal complaint, others stated that they opted to forego reporting in order not to jeopardize their workplace relationships.

Salary was most often cited by women as requiring improvement.

Retention:

Through the survey and interviews, employees were asked to report on several aspects of employment at ADOT that influenced their desire to remain employed by the agency or to leave.

Overall, women survey respondents were most positive about ADOT benefits and programs, and largely agreed that the ADOT workplace climate is positive and egalitarian with respect to gender.

ADOT women interviewees were asked to cite the top three attributes of their jobs that contribute to their job satisfaction. Women most often cited satisfaction with their colleagues, the degree to which their work is engaging (challenging/learning new things/non-routine), and the nature of their work.

TOP THREE JOB ATTRIBUTES THAT GIVE WOMEN INTERVIEWEES JOB SATISFACTION



Women interviewees from rural areas, however, highlighted challenges in accessing certain programs and training in their geographic regions.

Survey respondents were asked if they participated in any of the 19 identified ADOT programs (see Table 4). Women employed in Administrative Support (EEO 6), Skilled Craft (EEO 7), and Service/Maintenance (EEO 8) positions reported the lowest level of participation in these programs, while participation was highest among women employed in Professional (EEO 2), Paraprofessional/Protective Service – Non Sworn (EEO 5), and Official/Administrator (EEO 1) jobs. The effect on retention was more positive among women who used these programs compared to those who did not.

The interviews with women employees were found to be consistent with this finding. The majority (60.5 percent) of interviewees indicated that they were offered adequate opportunities for training, that their supervisors encouraged attendance at both required and continuing education courses, and that they viewed training as a way to build skills that might help them qualify for future job opportunities. When asked about ADOT policies and practices that have contributed to their decisions to remain employed at the department and to their opportunities for advancement, nearly one-third of interviewees noted the support of their direct supervisors. Almost one-quarter of interviewees noted a culture of informal mentorship from supervisors and co-workers wherein they received advice for professional development and instruction when new to their positions. Women interviewees from rural areas, however, highlighted challenges in accessing certain programs and training in their geographic regions.

Table 4. ADOT Women Survey Respondents' Participation Rate in ADOT Programs in Percent

(Percent of total women survey respondents by EEO category)

	EEO Job Category							
	Official/Administrator	Professional	Technician	Protective Service Sworn	Paraprofessional/Protective Service Non-Sworn	Administrative Support	Skilled Craft	Service/Maintenance
ADOT Program	EEO 1	EEO 2	EEO 3	EEO 4	EEO 5	EEO 6	EEO 7	EEO 8
Employee Assistance Program (counseling and/or referral services)	5.9	55.5	4.2	2.5	25.2	.8	.8	0.0
Employee Wellness Program	6.1	57.8	3.9	1.1	18.9	.6	.6	1.7
Tuition Assistance Program	4.7	58.1	0.0	0.0	25.6	0.0	2.3	0.0
Educational Discounts	2.5	70.0	0.0	2.5	22.5	0.0	0.0	0.0
Non-mandatory training through TraCorp online learning platform or ADOT Learning Center	8.0	55.1	6.5	1.1	17.5	.8	.4	1.5
Other non-mandatory training such as those offered by TRB or FHWA	12.3	54.3	7.2	.7	13.0	0.0	.7	2.9
Lunch and Learn Forums	12.2	61.0	1.6	1.6	11.4	.8	.8	0.0
Career development courses such as performance, leadership, personnel management, or resume development	10.7	60.7	4.5	.6	10.1	1.1	.6	2.2
Attendance at conferences	11.2	61.0	6.7	1.3	6.7	.4	.9	2.2
Engineer-in-Training or Landscape-Architect-in-Training	0.0	60.0	6.7	0.0	13.3	0.0	0.0	0.0
Construction Academy Pre-Apprenticeship Training Program	9.1	63.6	0.0	0.0	27.3	0.0	0.0	0.0
Mentoring Program	13.5	58.1	0.0	2.7	17.6	0.0	1.4	0.0
Networking groups such as Women's Information Network, Education Encouragement Connection	11.0	62.4	3.7	1.8	10.1	0.0	.9	0.0
Buddy Program	8.2	48.5	2.1	1.0	32.0	0.0	0.0	0.0
Rideshare or bus-fare assistance	8.7	61.4	2.4	.8	13.4	0.0	.8	0.0
Employee discounts through PerksConnect	5.6	54.2	6.5	.9	20.6	.9	0.0	.9
Disability and/or Life Insurance	7.9	49.8	5.4	1.1	24.2	1.1	.4	1.4
Awards and Recognition (Service Awards, Going the Extra Mile, Employee of the Year, etc.)	8.2	55.6	4.3	.9	20.3	.9	.9	1.3
Employees Helping Employees Program	7.7	52.7	5.5	1.1	24.2	1.1	0.0	0.0

Survey respondents also reported their perceptions of supervisor support regarding their use of ADOT benefits to fulfill caregiving responsibilities. According to women respondents, supervisors are, at best, neutral when it comes to employees telecommuting or using flexible scheduling, particularly in Paraprofessional/Protective Service Non-Sworn, Administrative Support, Skilled Craft, and Service/Maintenance positions (categories EEO 5-8). To fulfill this responsibility and maintain work-life balance, interviewees reported most often using annual/personal sick leave, followed by family sick/medical leave and flexible scheduling.

When asked to rate specific benefits as having a positive, negative, or neutral influence on their decision to remain employed at ADOT, women in all job categories identified the following areas with the most positive influence:

- Job security
- Medical/dental benefits
- Arizona State Retirement System benefits
- Paid sick/annual leave and paid holidays

The five areas identified to have less positive or a negative influence on women's decision to remain at ADOT are:

- Opportunities for advancement
- Ability to telecommute
- Child care assistance
- Salary
- Availability of overtime

Across non-traditional job categories where women are less represented in ADOT — Technicians (EEO 3), Protective Services-Sworn (EEO 4), Skilled Craft (EEO 7), and Service/Maintenance (EEO 8) — women survey respondents from these job categories commonly cited two areas for improvement:

- Opportunities for advancement
- Child care assistance

The research used several methods to develop a better understanding of existing practices to recruit and retain women in the public sector transportation field and of the experiences and perceptions of women in that field.

The research included a review of relevant literature on women in the overall workforce, in the transportation industry, and in departments of transportation within the public sector. Special relevance was assigned to literature addressing jobs considered non-traditional and for which employers struggle to achieve parity (Appendix).

The researchers interviewed human resources staff of state, county, and local departments of transportation (DOTs) to collect perspectives on recruiting and retaining women to transportation positions. They were also asked to share their agencies' relevant policies and procedures. Information was collected from ADOT, the Colorado DOT (CDOT), Connecticut DOT (CTDOT), Iowa DOT (IDOT), Utah DOT (UDOT), Virginia DOT (VDOT), two Arizona county DOTs (Maricopa and Pima), and two Arizona city DOTs (Phoenix and Tucson).

A survey was sent to all ADOT staff to identify views on the strengths of ADOT's policies and practices relevant to recruitment and retention, as well as on areas for improvement. Staff was assured of the confidentiality of their responses. The survey was administered from November 7, 2017, through December 1, 2017. A total of 1,180 ADOT employees (men and women) responded to the survey for an overall response rate of 32 percent.

Guided by findings from the survey, researchers also interviewed a random sample of 43 ADOT women employees across all EEO job categories. The interviews investigated, in greater detail than could be accomplished through the survey, the experiences and perceptions of women employees regarding the hiring process, current job satisfaction, and opportunities for advancement. Interviews focused particularly on areas identified as challenging by survey respondents.

Profile of ADOT Survey Respondents:

WHAT IS YOUR GENDER?



Female
536



Male
522

Not Reported
122

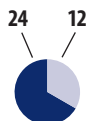
WHAT IS YOUR RACE?



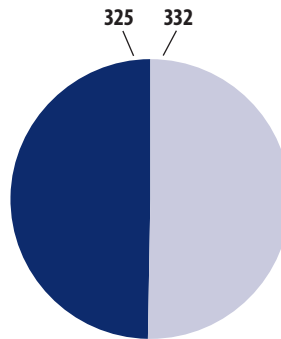
American Indian or Alaska Native



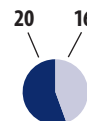
Asian



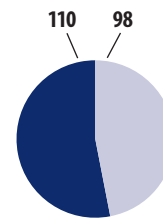
Black or African American



White



Other



Hispanic/Latino



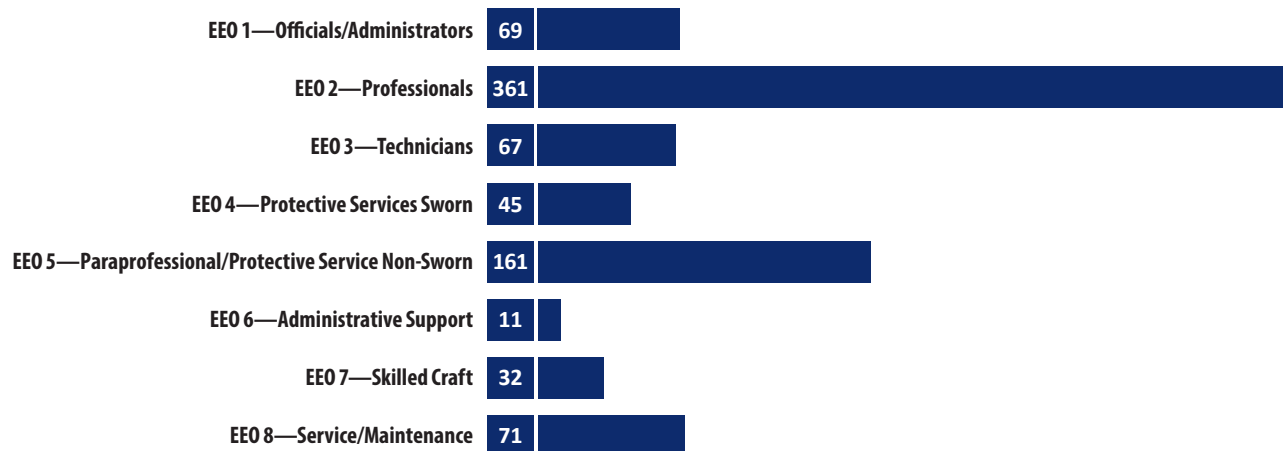
Native Hawaiian or Pacific Islander



Two or more races

Female Male

WHAT IS YOUR POSITION (EEO CATEGORY)?



HOW LONG HAVE YOU WORKED FOR ADOT?

Average number of years

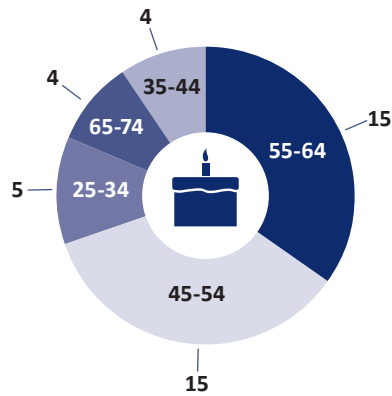


Male: 5.73 years

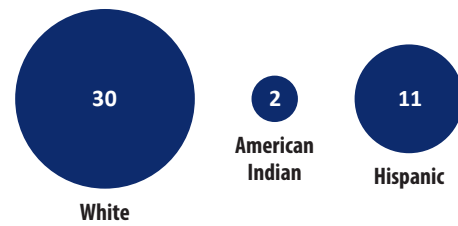
Female: 4.74 years

Profile of ADOT Women Interviewees:

WHAT IS YOUR AGE?



WHAT IS YOUR RACE?



WHAT IS YOUR POSITION (EEO CATEGORY)?

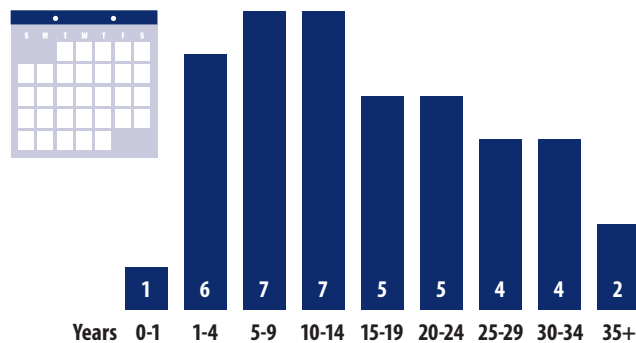
EE0 3, 4, 7, 8 (Technicians; Protective Services Sworn; Skilled Craft; Service/Maintenance)

26

EE0 1, 2, 5, 6 (Officials/Administrators; Professionals; Paraprofessional/Protective Services Non-Sworn; Administrative Support)

17

HOW LONG HAVE YOU WORKED FOR ADOT?



REFERENCES

- ADOT (Arizona Department of Transportation). 2016. *2011-2016 Federal Affirmative Action Plan*. Phoenix: Arizona Department of Transportation.
- Barbulescu, Roxana, and Matthew Bidwell. 2013. "Do Women Choose Different Jobs from Men? Mechanisms of Application Segregation in the Market for Managerial Workers." *Organization Science* 24 (3): 737–56.
- Bussey, Kay, and Albert Bandura. 1999. "Social Cognitive Theory of Gender Development and Differentiation." *American Psychological Association* 106 (4): 676–713.
- Cheryan, Sapna, Victoria C Plaut, Paul G Davies, and Claude M Steele. 2009. "Ambient Belonging: How Stereotypical Cues Impact Gender Participation in Computer Science." *Journal of Personality and Social Psychology* 97 (6): 1045–60.
- CDOT (Colorado Department of Transportation). 2015. *CDOT Affirmative Action Report (October 1, 2014 to September 30, 2015) and CDOT Affirmative Action Plan (October 1, 2015 to September 30, 2016)*. Denver: Colorado Department of Transportation.
- Crozier, Sharon D. 1999. "Women's Career Development in a 'Relational Context.'" *International Journal for the Advancement of Counselling* 21 (1986): 231–47.
- CTDOT (Connecticut Department of Transportation). 2016. *Affirmative Action Plan Book 1 (May 30, 2016)*. Newington: Connecticut Department of Transportation.
- CTDOT (Connecticut Department of Transportation). 2016. *Affirmative Action Plan Book 2 (May 30, 2016)*. Newington: Connecticut Department of Transportation.
- Fouad, Nadya A. 2014. "Leaning In, but Getting Pushed Back (and Out)." In *Annual Convention of the American Psychological Association*, 1–39. Washington, D.C.
- Hood, Jacqueline N, Tony Alarid, and David Albright. 2000. "Staffing Plan Survey of State Transportation Agencies." *Transportation Management and Education: Planning and Administration*, 12–20.
- IDOT (Iowa Department of Transportation). 2014. *Iowa Department of Transportation Affirmative Action Program Overview: Fiscal Year 2013*. Ames: Iowa Department of Transportation.
- Johnson, Peggy A. 2013. "State of Women in Civil Engineering in the United States and the Role of ASCE." *Journal of Professional Issues in Engineering Education and Practice* 139 (4): 275–80.
- Konrad, Alison M., J. Edgar Ritchie, Jr., Pamela Lieb, and Elizabeth Corrigan. 2000. "Sex Differences and Similarities in Job Attribute Preferences: A Meta-Analysis." *Psychological Bulletin* 126 (4): 593–641.

-
- Matsui, Tamao, Hiroshi Ikeda, and Ritsuko Ohnishi. 1989. "Relations of Sex-Typed Socializations to Career Self-Efficacy Expectations of College Students." *Journal of Vocational Behavior* 35 (1): 1–16.
- National Women's Law Center. 2014. "Women in Construction: Still Breaking Ground." Washington, D.C.: National Women's Law Center.
- Pinarowicz, Jill, Jessica Cade, Robin Lange, Briana Hedman, Allison Bondanza, and Patrick Sherry. 2011. "Identification of Barriers to the Recruitment & Retention of Women Intermodal Transportation Workers." Denver: National Center for Intermodel Transportation.
- Servon, Lisa J., and M. Anne Visser. 2011. "Progress Hindered: the Retention and Advancement of Women in Science, Engineering and Technology Careers." *Human Resources Management Journal* 21 (3): 272-84.
- UDOT (Utah Department of Transportation). 2015. *Affirmative Action Programs (July 1, 2015 to June 30, 2016)*. Salt Lake City: Utah Department of Transportation.
- U.S. Department of Labor Women's Bureau. 2016. "Traditional and Nontraditional Occupations." Accessed September 15, 2016. https://www.dol.gov/wb/stats/nontra_traditional_occupations.htm.
- USDOT (U.S. Department of Transportation). 2013. "APEC Women in Transportation White House Forum Summary." Washington, D.C.: U.S. Department of Transportation.
- VDOT (Virginia Department of Transportation). 2012. *Equal Employment Opportunity Programs (2011 to 2013)*. Richmond: Virginia Department of Transportation.
- Women's Transportation Seminar. 2014. "Women in the San Francisco Bay Area Transportation Industry: The 2nd of a Longitudinal Study for Benchmarking of Women in Leadership Roles." San Francisco: Women's Transportation Seminar.

Based on the review of literature, two complementary perspectives explain the “tendency for women to work in systematically different occupations and industries than men” (Barbulescu and Bidwell 2013, p. 737). One perspective theorizes the behavior of women who are employed or seeking employment and the other perspective theorizes barriers that may arise or not due to employers’ and colleagues’ behavior. The perspectives are not mutually exclusive, as each can influence the other.

Behaviors and beliefs

Three theories emphasize the influence of gender role socialization on women’s employment application decisions.

Expansionist Theory—Some research suggests that gender role socialization may influence how women and men view rewards associated with a job through prescribing the values that are stereotypically associated with each gender. For example, stereotypically masculine values might include being an income provider, having power or dominance, or achieving success (Konrad et al. 2000). Consequently, according to this theory, the key job rewards for men would include salary and benefits, leadership opportunities, and promotions. In contrast, stereotypically feminine values would include being a homemaker or taking opportunities for affiliation and nurturance. Under the view of gender role socialization, then, women are expected to value different job attributes, such as flexible hours and a short commute that allow more time for caretaking, and opportunities to network with peers, and share expertise when appropriate to assist others.

Relational Theory — Social psychology research indicates that individuals make decisions in accordance with the values and norms associated with their sense of identity (Barbulescu and Bidwell 2013; Bussey and Bandura 1999). Thus, one’s gender identity is expected to be a strong influence in choosing among job opportunities. Further, gender identity may lead individuals to avoid positions that conflict with that identity. Companies may unintentionally provide cues to a gendered work climate, such as company materials and workspace decorations (Cheryan et al. 2009). The types of tasks involved in a job, the manner in which those jobs are completed, and co-workers’ non-verbal and verbal communication may also be suggestive of a gendered work culture. Finally, an important cue to incoming employees is the existing composition of the organization, such that jobs that have predominantly male employees are seen as masculine, while jobs that have predominantly female employees are seen as feminine (Barbulescu and Bidwell 2013). Accordingly, career development for women may follow a different trajectory than that of men because of gender differences in identity formation (Crozier 1999).

Social Cognitive Theory—This theory emphasizes perceived efficacy—or belief in one’s ability to produce an outcome—as a key force in career decisions (Bussey and Bandura 1999). Women’s perceived self-efficacy is positively associated with taking nontraditional jobs (Bussey and Bandura 1999). Women who view themselves as feminine, have low confidence in their math abilities, believe there are few female role models, and have lower self-efficacy tend to be less likely to consider jobs in a male-dominated industry (Matsui, Ikeda, and Ohnishi 1989).

Workplace climate

Existing research points to workplace climate (i.e., employer-controlled factors) that contribute to the underrepresentation and decreased retention of women in the transportation industry. Some workplace climate factors include, but are not limited to: 1) degree of compatibility with work-life balance, 2) presence of discrimination and harassment, and 3) barriers to entry, advancement, and promotion (Pinarowicz et al. 2011; National Women's Law Center 2014; Women's Transportation Seminar 2014).

Inconsistent Work-Life Balance — A key factor in women's underrepresentation in the workforce may be attributed to a lack of accommodation for work-life balance, including not meeting the time required for caregiving responsibilities or choices. In a 2000 survey of state transportation agencies (Hood et al. 2000), retention was listed as one of the top three high priority areas for the transportation agencies. The survey results revealed that several reasons for the difficulty in retaining employees were related to a perceived limit on promotion, dissatisfaction with working conditions, poor job security, and dull nature of work. In a 2013 survey of transportation employers in the San Francisco Bay area, participants were asked to identify barriers for women in the recruitment, retention, or advancement in the industry. Respondents reported workplace culture as the prevailing challenge for women, followed by a lack of flexible work schedules (Women's Transportation Seminar 2014). In 2013, over 80 representatives from the public and private sectors met to discuss strategies for advancing opportunities for women in transportation. Addressing work-life balance was judged to be important for the recruitment and retention of women, and it was recommended that agencies promote workplace flexibility, including telecommuting, flexible work schedules, and job sharing (U.S. Department of Transportation 2013).

Discrimination and Harassment — Workplace climate issues have been cited as a major impediment to the advancement and retention of women (Fouad 2014). Women may leave the workforce due to discrimination, harassment, and related biases. A 2011 study surveyed 2,500 executive women working in science, engineering, and technology fields to identify factors that discouraged women's participation in these fields. The study found that the majority of women experienced sexual harassment, were viewed as less capable, perceived bias in performance evaluations, and received unwanted attention due to their feminine appearance (Servon and Visser 2011). If women feel that confronting or reporting discrimination or harassment might jeopardize their jobs, prevent job advancement, or add to a negative workplace climate, they may prefer to remain silent and not take action.

Barriers to Entry, Advancement, and Promotion — Women in the transportation industry face barriers to entry, advancement, and promotion similar to those of women in all job classifications and job categories in the general workforce (Pinarowicz et al. 2011). Formal and informal networking opportunities in all aspects of the industry — from pre-apprenticeship programs through full employment — play a crucial role in the success and advancement of transportation workers; women report a lack of access to formal and informal networking opportunities throughout all stages of training and employment within the transportation industry and similar nontraditional fields.

