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# Highway Construction Workforce Partnership Post-Mortem

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The Highway Construction Workforce Partnership (HCWP) was launched in 2023 through collaboration between the Texas Department of Transportation (TxDOT), the Texas A&M Transportation Institute (TTI), Blinn College District, and the Texas Asphalt Pavement Association (TXAPA). Designed to address skilled labor shortages in Texas’s heavy highway industry, the program provided short-term training and certification to low-income and non-college-bound participants, funded through partner scholarships. Despite early success and strong industry support from firms such as Knife River and Big Creek Construction, the program faced declining employment outcomes with only about 20 percent of graduates securing long-term positions in the industry. This post-mortem analysis examines the program’s structure, cohort data, recruitment challenges, and industry engagement to understand barriers to workforce entry and retention. Findings reveal that cultural mismatches, limited job availability, and inconsistent employer participation hindered program success. Lessons learned provide actionable recommendations for future workforce initiatives seeking to align training design, participant selection, and employer demand in the heavy civil sector.

**Keywords:** Workforce Development, Highway Construction, Heavy Civil Industry, Labor Shortage, Training Programs, Texas Department of Transportation, Asphalt Paving

## Introduction

In 2023, a first-of-its-kind, tuition-free workforce development initiative was launched in Brazos County, Texas, to address the critical shortage of skilled labor in the highway construction industry. Supported through grant funding and full scholarships, the program targeted primarily non-college-bound and low-income individuals, introducing them to stable, well-paying career pathways in an industry facing mounting workforce challenges.

The program was designed to deliver an intensive short-term training program aimed at preparing entry-level workers for employment in asphalt paving, equipment operation, and materials testing. Graduates were expected to enter the labor force with a distinct competitive advantage—possessing foundational technical skills, safety awareness, and realistic expectations about the demands of road construction.

Initially, the program faced modest enrollment but quickly gained traction as local contractors, community leaders, educators, and the Texas Asphalt Pavement Association (TXAPA) recognized its potential. What followed was a story of early success tempered by later setbacks. While some

graduates secured long-term employment and broke cycles of generational poverty, others struggled to find or retain jobs. This paper examines the program's evolution, outcomes, and the complex interplay of factors that influenced its eventual decline in job placement success.

### Concept Background

Texas maintains the largest transportation network in the United States, encompassing more than 300,000 miles of roadways and approximately 55,000 state-maintained bridges (Texas Department of Transportation, 2025). The Texas Department of Transportation (TxDOT) estimates that maintaining these assets in a state of good repair will require an investment of approximately \$547 billion through 2040 (Texas Department of Transportation, 2015). Despite this sustained demand for infrastructure maintenance and expansion, the state's construction workforce has struggled to keep pace. A 2023 survey published by Associated General Contractors of America (2023) found that 92 percent of Texas contractors reported difficulty filling some or all open positions.

The absence of a skilled workforce has measurable economic implications. Contractors report that workforce shortages contribute to increased project costs, extended completion timelines, and reduced bid competitiveness (Associated General Contractors of America, 2023). Industry stakeholders, including material suppliers, engineering firms, owner agencies (TxDOT, cities, and counties), and subcontractors, have voiced growing concern over the escalating shortage of qualified personnel (Associated General Contractors of America, 2023). Yet, despite the scale of this challenge, public awareness of the heavy highway industry's employment opportunities remains low.

To address this gap, TxDOT and the Texas A&M Transportation Institute (TTI) launched a federally funded Highway Construction Workforce Partnership (HCWP) in 2023. The initiative was designed to recruit, train, and prepare a new generation of skilled workers for the heavy highway sector. To implement the program, TTI collaborated with the Blinn College District and the TXAPA to design and deliver a comprehensive training curriculum focused on asphalt paving and production. The Brazos County HCWP program specifically sought to engage low-income individuals within the TxDOT Bryan District, equipping participants with marketable skills and connecting them to sustainable-wage, career-oriented positions within the asphalt paving industry.

Through consultation with industry, the HCWP was built to provide students with a diverse knowledgebase within the asphalt paving and production industry. It was believed that participants required introductory knowledge of the industry, jobsite safety, and basic construction mathematics. It was also believed that participants required more detailed knowledge of the asphalt paving and production industry that would require both classroom and hands-on training. Program developers initially developed a curriculum to meet these needs using 240 contact hours.

### Industry Support

From its inception, the TXAPA, representing more than 250 contractors, civil engineering firms, equipment suppliers, and related organizations, served as a key advocate and primary partner of the Highway Construction Workforce Partnership (HCWP) (Texas Asphalt Pavement Association, 2023). Beyond promoting the initiative across its statewide membership, the TXAPA provided substantial financial and instructional support that proved critical to the program's early success.

The association covered tuition costs for the first cohort and supplied qualified instructors and course materials for *Introduction to Paving, Soils and Aggregates, Level 1B*, and *Level 1A* - collectively comprising 40 contact hours of instruction. For the inaugural cohort, the TXAPA furnished paving instructors at no cost to the program and further enhanced student engagement by sponsoring career-fair luncheons and graduation dinners for participants, guests, and industry attendees. This level of

industry involvement not only strengthened program's legitimacy but also demonstrated the sector's willingness to invest directly in the development of its future workforce.

In addition to the statewide engagement of the TXAPA, the HCWP benefited from strong local and regional support. Numerous contractors, suppliers, and industry professionals contributed materials, expertise, and in-kind resources that were critical to the program's implementation and early success. This localized backing transformed the HCWP into a community-driven workforce development effort, uniting public agencies, private firms, and individual experts around a shared goal: to cultivate a sustainable pipeline of skilled workers for Texas's heavy highway construction industry.

### **HCWP Course Content**

Capitalizing on industry support and input, HCWP developed a curriculum that directly reflected the practical needs of the heavy highway construction sector. The program combined classroom-based instruction with field and laboratory experiences to provide participants with both the theoretical understanding and the hands-on skills required for immediate workforce entry.

The classroom component emphasized both safety and technical proficiency. Participants completed the *OSHA 10-Hour Construction Safety* course, *Flagger Certification*, and a *16-hour Traffic Control Training* module to establish a strong foundation in work zone safety and compliance. Foundational professional development was also incorporated through *Life Skills Training*, *Job Site Mathematics*, and *Reading Plans and Specifications*, which together reinforced employability and applied problem-solving skills. In partnership with the TXAPA, trainees advanced to specialized technical courses, including *Soils and Aggregates*, *Level 1B Hot Mix Asphalt (HMA) Roadway Specialist*, and *Level 1A HMA Plant Production Specialist*. These modules introduced the materials science, production processes, and field techniques essential to modern asphalt paving operations.

Field and laboratory training complemented classroom learning through applied, experiential exercises conducted at partner facilities and live job sites. Participants toured active HMA plants and highway paving operations to observe production workflows and equipment in operation. Laboratory sessions focused on asphalt mixture testing, quality control procedures, and production monitoring. In the field, trainees received formal training on skid steers and loaders. Also in the field, participants performed job layout exercises and received direct instruction on the use of compactors, brooms, skid steers, front-end loaders, and paving machines. This combination of technical instruction and practical exposure was designed to simulate real construction environments, preparing participants to meet the physical, procedural, and technical demands of employment in the heavy highway industry.

### **Cohort Implementation and Cohort Analysis**

Following the development of the HCWP curriculum, the program was implemented in four cohorts between 2023 and 2025. Each cohort represented an opportunity to refine instructional delivery, strengthen industry partnerships, and assess participant outcomes. The sequential nature of these cohorts provided valuable insight into both the operational challenges and successes of workforce training in the heavy highway construction sector. The following sections summarize each cohort's structure, participant characteristics, and key lessons learned, offering a longitudinal view of the program's evolution and its practical implications for future workforce development initiatives.

#### *Cohort 1: Program Launch and Early Success*

The inaugural Brazos Valley HCWP cohort was conducted from July 10 to October 12, 2023. The course spanned 15 weeks, with participants attending four-hour sessions each weekday morning (8:00 a.m.–12:00 p.m.). This structure was intentionally designed to accommodate part-time employment in the afternoons and to provide flexibility for weather-related make-up days, targeting 240 contact

hours. Instruction was evenly divided between classroom learning and hands-on field and equipment training, ensuring a balanced integration of theoretical knowledge and practical application.

Recruitment for the first cohort yielded 14 applicants, of whom seven began training. Two participants did not complete the program: one was dismissed after failing a mandatory drug test and refusing to retest, while another withdrew in the final weeks due to persistent attitude and engagement issues. The remaining five participants (four men and one woman) successfully completed the program and graduated in October 2023.

Post-graduation outcomes for this initial cohort were notably strong. All five graduates obtained employment within the heavy highway construction industry. Two graduates joined Big Creek Construction, two were hired by Knife River (one in asphalt plant operations and one on a paving crew), and one accepted a position with the Texas Department of Transportation (TxDOT). At the time of this report, three of the five graduates remain employed in the heavy highway sector. Of the two who transitioned out of the industry, one sustained employment for nearly eighteen months before departing.

### *Cohort 1: Lessons Learned*

Although the first Brazos Valley HCWP cohort produced five successful graduates who all entered the heavy highway industry, the attrition rate between initial applicants ( $n = 14$ ) and graduates ( $n = 5$ ) highlighted important operational challenges. This disparity prompted the HCWP leadership team to begin systematically tracking applicant-to-graduate ratios in subsequent cohorts to refine recruitment strategies and optimize class sizes. Initial targets of 10–15 graduates per cohort were later adjusted based on observed enrollment and retention trends to ensure each participant received adequate instruction, equipment access, and individual support.

Key lessons from Cohort 1 informed adjustments in several programmatic areas.

**Participant Recruitment:** Early recruitment efforts revealed inefficiencies, particularly in targeting high school seniors during the fall semester when students were less focused on post-graduation planning. Future recruiting initiatives shifted to the latter half of the academic year and emphasized relationship building with school counselors and teachers who could identify and recommend qualified students. Efforts also expanded to include outreach to veterans and coordination with industry partners to send participants from across the state. Program staff developed a structured presentation schedule and implemented follow-up communication protocols, such as reminder emails and phone calls, to minimize missed recruiting opportunities.

**Participant Behavior and Expectations:** Early attrition underscored the importance of establishing clear behavioral and participation standards. The program instituted mandatory drug testing for all enrollees and developed a formal code of conduct outlining attendance, punctuality, and engagement expectations. Participation in all program activities became a non-negotiable requirement, and procedures were introduced requiring that students who withdrew or were dismissed return or reimburse the cost of issued safety gear and materials.

**Program Length:** Feedback from instructors and participants suggested that the 15-week structure, while thorough, might be unnecessarily long for the program's objectives. Consequently, the instructional team planned to pilot a condensed six-week format for the second cohort to determine whether a shorter, more intensive schedule would improve retention and logistical efficiency.

**Personnel and Industry Engagement:** The inaugural cohort demonstrated the need for dedicated internal personnel to manage marketing, recruitment, and industry coordination. Effective program delivery relied heavily on staff who could liaise with subject-matter experts, equipment providers, and

materials producers. Continued goodwill and in-kind support from industry partners remained essential to maintaining program affordability and relevance.

**Equipment Availability:** Finally, consistent access to appropriate training equipment emerged as a critical factor in the program's long-term sustainability. Stabilizing equipment logistics through stronger partnerships and earlier coordination with providers was identified as a top operational priority moving forward.

#### *Cohort 2: Program Refinement and Implementation of a Condensed Format*

The second Brazos Valley HCWP cohort was conducted from June 3 to July 12, 2024, representing the first implementation of the program's condensed, full-day format. Based on lessons from the initial 15-week schedule, the instructional team restructured the course into a six-week intensive program meeting eight hours per day, five days per week (i.e., 240 contact hours). This change was motivated by several factors: (1) industry feedback indicating that the original duration was excessively long for an entry-level training model; (2) recognition that the program's primary purpose was to prepare participants for entry-level field positions rather than extended technical study; (3) the difficulty of maintaining participant engagement over a 15-week period; and (4) insufficient hands-on practice time under the previous half-day equipment schedule.

Recruitment efforts yielded approximately 30 applicants, of whom 12 began training. One participant left the program during the first day in response to the program's mandatory drug-free policy, resulting in 11 graduates. The graduating cohort comprised five White males and six Hispanic males, marking a more diverse participant profile than the inaugural class. Of the 11 graduates, six were recruited directly from area high schools, two were recent high school graduates with prior work experience, two were current industry employees sponsored by their companies, and one participant was a prospective construction management student seeking to gain field experience before pursuing a degree.

Despite the structural improvements and a higher graduation count, post-graduation employment outcomes for Cohort 2 were notably weaker than those of Cohort 1. Of the eight graduates available for employment, only one, identified as the top student in the cohort, was hired by an industry employer. However, that individual left the position after more than a year of employment, providing little explanation for his departure. Two graduates appeared disengaged from the job search process, repeatedly declining communication about placement opportunities. Four graduates obtained work in unrelated fields, such as residential construction, electrical work, or remodeling, while one displayed an ongoing pattern of short-term employment and voluntary turnover across multiple jobs.

#### *Cohort 2: Lessons Learned*

The second Brazos County HCWP cohort offered valuable insight into both the strengths and persistent challenges of workforce recruitment and participant management. While the condensed six-week structure improved engagement and instructional efficiency, difficulties remained in attracting, screening, and retaining motivated participants. Presentations at area high schools revealed significant attention and discipline challenges among students, many of whom displayed disengagement through mobile phone use, gaming, and inattentiveness during class visits. Teachers often did not intervene to correct these behaviors, highlighting broader motivational barriers within the high school population.

**Participant Recruitment:** As in the first cohort, a substantial gap persisted between the number of initial applicants and those who ultimately began training. The program team determined that the drug-free policy of both the HCWP and the broader highway construction industry was a major deterrent for some recruits. Consequently, this policy was incorporated into all initial outreach

presentations to set expectations early. The team also adopted a strategy of over-enrolling applicants to offset expected attrition and continued to identify internal advocates (teachers, counselors, or career and technical education (CTE) directors) who could champion the program within each school. While high school career fairs yielded limited direct enrollment, they proved useful for relationship-building with school personnel, enabling more targeted classroom presentations in the future.

**Participant Behavior and Expectations:** Implementation of a formal policy and conduct manual during Cohort 2 proved highly effective in improving attendance and accountability. Participants were informed of clear consequences for excessive absences or tardiness, and enforcement of these standards fostered a more professional training environment. A no-phone policy was also emphasized to reduce distractions during instruction and hands-on training for future cohorts.

**Program Length:** The transition from a 15-week to a six-week structure was widely regarded as successful, producing greater participant engagement and reducing attrition. The instructional team determined that a five-week schedule might further improve program flow and operational efficiency without compromising instructional quality.

**Equipment Availability:** Consistent with findings from the first cohort, the need to stabilize equipment availability remained a core concern for program sustainability. Reliable access to training equipment was identified as essential for maintaining the hands-on emphasis that distinguished the HCWP curriculum.

**Veteran Recruitment Initiative:** Based on lessons from earlier cohorts, the program team began developing a dedicated training cohort for military veterans, scheduled for March 2025. Plans included collaboration with Blinn College to establish a SkillBridge program and active recruitment through Ft. Cavazos job fairs. This new initiative aimed to attract highly motivated candidates with relevant skills and work discipline while expanding the program's service demographic.

### *Cohort 3: Diversification of Recruitment and Continuing Challenges in Retention*

The third Brazos Valley HCWP cohort was conducted from March 31 to May 9, 2025, marking the program's first five-week (i.e., 200 contact hours) intensive format following prior refinements. Classes met eight hours per day, five days per week, maintaining the balance between classroom instruction and hands-on field training that had become a defining feature of the program.

Initially envisioned as a dedicated veterans' cohort, the class schedule was planned for early spring to accommodate potential SkillBridge participants. When veteran recruitment proved unsuccessful, the program retained the same start date and redirected outreach toward non-high-school populations. Recruitment through online employment platforms and social media posts generated significant interest; however, most potential applicants declined participation upon learning that the highway construction industry is strictly drug-free. Ultimately, 15 individuals applied, 10 began training, and one withdrew after two weeks due to personal circumstances, resulting in nine graduates.

The composition of Cohort 3 reflected the program's most diverse class to date: one White male, three Hispanic males, two Black males, one White female, and two Hispanic females. Only three graduates were recent high school completers; the remaining six were adults seeking to change or re-enter careers. This demographic shift yielded improved attendance, punctuality, and overall professionalism, with instructors noting significantly fewer behavioral concerns compared to prior cohorts.

Post-graduation outcomes, however, revealed persistent challenges in long-term industry retention. Seven of the nine graduates accepted 12-week internships with the TxDOT that concluded in September 2025. As of this report, only one of those seven interns has transitioned into full-time

employment within the highway construction sector. Four remain unemployed, and two have not responded to follow-up communication attempts. The remaining two graduates received immediate employment offers from private contractors, yet one resigned after only a few months, with his current employment status unknown.

### *Cohort 3: Lessons Learned*

The third Brazos County HCWP cohort yielded new insights into effective recruitment strategies, participant composition, and classroom management. While the program's operational structure had largely stabilized by this stage, Cohort 3 provided valuable feedback on refining outreach methods and broadening potential employment pathways for graduates.

**Participant Recruitment:** The use of local social media job boards proved to be the most effective recruitment tool to date, generating significantly higher interest than prior in-person outreach efforts. Although many respondents ultimately declined participation upon learning of the drug-free workplace policy, online postings successfully reached adult job seekers who might not otherwise have encountered the program.

**Veteran Recruitment:** Despite extensive outreach efforts, including multiple visits to on-base job fairs and coordination with Blinn College's SkillBridge initiative, the program did not attract any veteran participants. It was concluded that veterans often have access to more competitive career-transition programs offering higher pay and free training, reducing the incentive to pursue entry-level positions in the heavy highway industry. Future recruitment efforts may therefore need to emphasize long-term career pathways and potential for advancement within the construction sector to appeal to this demographic.

**Non-Highway Contractor Recruitment:** The program team recognized the potential to expand graduate placement opportunities beyond traditional highway contractors. Efforts began to establish relationships with municipal agencies, county governments, and engineering firms to place graduates in laboratory or street maintenance roles, thereby broadening the employment base and reducing reliance on a single segment of the construction industry.

**Participant Behavior:** The inclusion of older participants, many of whom were pursuing career transitions, resulted in a marked improvement in classroom behavior and professionalism. Attendance was consistent, tardiness was rare, and participants exhibited a noticeably higher level of engagement and motivation to master course material.

**In-Class Leadership:** One key refinement emerging from this cohort was the identification of a student leader within each class to assist with communication, logistics, and group coordination. This peer leadership model was suggested to improve group cohesion and foster a sense of shared responsibility among participants, enhancing overall class dynamics and instructional efficiency.

### *Cohort 4: Expansion, Specialization, and Declining Industry Placement*

The fourth and final Brazos Valley HCWP cohort was conducted from June 9 to July 11, 2025, marking both the program's largest enrollment and its most structurally ambitious iteration. The five-week course maintained the established format of eight-hour training days, five days per week, balancing classroom instruction with extensive field training.

Building on lessons from earlier cohorts, the instructional team introduced a dual-track format designed to align training more closely with individual career preferences. Participants who expressed interest in equipment operation received additional hands-on paving and machinery training, while those pursuing the technician track received more intensive instruction oriented toward Level 1B or

Level 1A certification pathways. This curricular adjustment aimed to improve post-graduation placement by tailoring instruction to specific employment roles within the heavy highway industry.

Recruitment efforts for this cohort combined high school outreach presentations with online advertising, yielding an unprecedented level of interest. Nearly 30 individuals completed application paperwork, prompting the team to expand capacity to 20 participants, nearly double the typical class size. When the program began, 16 students were in attendance. Of these, seven were recent high school graduates, and the remaining nine were experienced workers, several of whom were in their 40s and seeking mid-career transitions.

Despite the enhanced training model and diverse class composition, post-graduation employment outcomes were disappointing. Unlike previous cohorts, TxDOT did not offer internship placements for Cohort 4 graduates, leaving nearly all participants immediately available for full-time employment. Yet only one student received an immediate job offer, accepting a laboratory technician position with a local engineering firm. Within several weeks, another graduate secured employment as an equipment operator with the City of College Station, and ten weeks after graduation, one participant began part-time work as a contract flagger. Four additional graduates found employment outside the heavy highway sector, while seven remained unemployed at the time of reporting. One student could not be reached for follow-up, and notably, none of the 16 graduates received offers from highway contractors.

### Program Reflection and Outcomes

Following the launch of the HCWP in 2022, the program demonstrated steady growth in visibility, structure, and instructional quality but ultimately fell short of its employment placement goals. Recruitment efforts began in the fall of 2022, initially focusing on community outreach and later shifting almost exclusively to high school seniors as the most promising target demographic. Early attempts to recruit through career fairs produced limited engagement, leading the team to adopt in-class presentations and build relationships with CTE instructors who served as program “champions.” These advocates, often from smaller districts, played a crucial role in identifying motivated students and connecting them with program staff. However, maintaining student engagement during presentations proved difficult, as inattention and phone use were pervasive even under teacher supervision.

A major barrier to recruitment and retention was the industry’s drug-free policy, which disqualified a significant proportion of otherwise interested participants. Once this policy was incorporated early into program presentations, applicant numbers declined, but the rate of mid-program attrition decreased substantially. In contrast, local media exposure proved highly effective in building community awareness and program legitimacy. Coverage from newspapers, radio, and television, as well as a dedicated social media presence, drew considerable attention and established the HCWP as a credible workforce development initiative.

**Table 1.** Summary of Cohort Results

Cohort	Applied	Students Admitted	Graduated	Employed after Graduation	Still Employed
1	14	7	5	5	3
2	30	12	11	3	2
3	15	10	9	2	2
4	30	16	16	3	3
<b>Totals</b>	89	45	41	13	10

Across four cohorts from 2023 to 2025, the HCWP program graduated a total of 41 participants (Table 1). Of these graduates, 13 individuals (approximately 32%) obtained initial employment in the heavy highway construction industry; however, subsequent attrition due to voluntary resignation, dismissal, or transition into unrelated fields reduced sustained industry participation. When evaluated based on verified full-time employment six months post-graduation, the program achieved an estimated long-term placement rate of approximately 24 percent. Despite extensive collaboration with the TXAPA and consistent hiring support from two local contractors, engagement and employment uptake among the remaining firms were limited. These outcomes suggest a structural misalignment between the volume of trained graduates and localized industry demand rather than deficiencies in training delivery or participant preparation. In response, the program expanded outreach to municipal public works departments, county maintenance crews, and private engineering laboratories, yielding modest but promising alternative placements. Yet, the underlying issue remains unresolved: the anticipated industry absorption of trained entry-level workers did not materialize.

### **Conclusion**

The Highway Construction Workforce Partnership (HCWP) represented a collaborative and innovative effort to address reported labor shortages in Texas's heavy highway construction industry through short-term, skills-focused training. Across four cohorts, the program demonstrated that intensive, industry-aligned instruction can successfully prepare participants for entry-level technical and field-based roles. Strong instructional outcomes, meaningful community engagement, and sustained industry support—particularly from the Texas Asphalt Pavement Association and select local contractors—validated the program's educational design and delivery model.

However, despite these strengths, employment outcomes fell short of expectations. With approximately one-third of graduates securing initial industry employment and long-term placement stabilizing closer to 24 percent when evaluated six months post-graduation, the HCWP hiring results indicate a fundamental misalignment between local labor market absorption capacity and the scale of training delivery rather than deficiencies in curriculum quality or participant preparedness. The HCWP experience underscores the importance of grounding workforce development initiatives not only in industry-reported need but also in verified, region-specific hiring demand.

### **Future Research and Practice Recommendations**

The HCWP findings raise important considerations for future workforce development initiatives seeking to implement short-term training programs aimed at rapid job placement. First, regional labor market analysis should be conducted prior to cohort sizing and program launch to ensure that projected hiring demand can realistically absorb graduating participants. Programs may achieve stronger outcomes in larger metropolitan markets or regions with more frequent entry-level turnover.

Second, the use of pre-screening tools, such as aptitude assessments, work-readiness evaluations, or structured interviews, may help identify participants most likely to sustain long-term employment in physically demanding, drug-free construction environments. Third, recruitment strategies should prioritize digital outreach platforms, which proved more effective than traditional school-based presentations in attracting mature and motivated candidates.

Finally, workforce programs should expand placement partnerships beyond a single industry segment. The HCWP's modest success with municipal agencies, county maintenance departments, and engineering laboratories suggests that diversified employer engagement can improve placement resilience when private-sector hiring fluctuates. Collectively, these recommendations provide practical guidance for future short-term workforce programs seeking to align training delivery with labor market realities while maintaining pathways to upward mobility in the heavy civil construction sector.

### References

- Associated General Contractors of America. (2023). *2023 Workforce Survey Results*. Associated General Contractors of America. [https://www.agc.org/sites/default/files/Files/Communications/2023\\_Workforce\\_Survey\\_Texas.pdf](https://www.agc.org/sites/default/files/Files/Communications/2023_Workforce_Survey_Texas.pdf)
- Texas Asphalt Pavement Association. (2023). *TXAPA 2023 Annual Report*. Texas Asphalt Pavement Association. [https://texasasphalt.org/wp-content/uploads/2024/03/TXAPA-Annual-Rpt\\_2023\\_web.pdf](https://texasasphalt.org/wp-content/uploads/2024/03/TXAPA-Annual-Rpt_2023_web.pdf)
- Texas Department of Transportation. (2025, September 4). *2024 Roadway Inventory Report*. Texas Department of Transportation. <https://www.txdot.gov/content/dam/docs/division/tpp/roadway-inventory/2024.pdf>
- Texas Department of Transportation. (2015, February). *Texas Transportation Plan 2040*. Texas Department of Transportation. <https://www.txdot.gov/projects/planning/ttp/ttp-2040/downloads.html>