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RESEARCH SUMMARY

EVALUATING MDOT SHA'S FACILITY MAINTENANCE TECHNICIAN'S (FMT) TRAINING PRO-GRAM

WHAT WAS THE NEED?

The Maryland Department of Transportation State Highway Administration (MDOT SHA) relies heavily on Facility Maintenance Technicians (FMTs) to ensure the functionality and safety of critical infrastructure. Despite a structured training and certification program, rising employee turnover and concerns about job satisfaction highlighted potential deficiencies in the program's effectiveness, accessibility, and alignment with operational demands. A comprehensive evaluation was needed to identify strengths and address gaps in workforce training, development, and retention.

WHAT WAS THE GOAL?

The primary goal of this research was to review national practices in FMT training, assess the effectiveness of MDOT SHA's program, evaluate job satisfaction among FMTs, and develop evidence-based recommendations to improve training delivery, professional development, and workforce retention. Ultimately, the project aimed to align training with MDOT SHA's mission of operational efficiency, safety, and infrastructure resilience.

WHAT DID THE RESEARCH TEAM DO?

The research team at the University of Maryland conducted a comprehensive, multi-stage evaluation of MDOT SHA's FMT training program. First, they performed an extensive review of nationwide training practices for non-supervisory maintenance personnel, gathering data from 15 state departments of transportation through AASHTO information requests, a TRB survey, and online search. This benchmarking helped contextualize Maryland's program within national norms. Then, the team

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conducted a thorough analysis of the existing MDOT SHA training framework, including its tiered FMT certification structure, equipment-specific instruction, leadership development initiatives, and organizational development offerings.

To assess the program's effectiveness from the ground up, the team analyzed three targeted surveys conducted by MDOT SHA: one for current FMTs, one for trainees in the Office of Maintenance program, and one for trainers. These surveys collected quantitative and qualitative data on topics such as job satisfaction, perceptions of training sufficiency, hands-on learning opportunities, trainer competence, and barriers to advancement. Responses from 146 FMTs and 35 trainers provided a robust dataset for identifying trends and pain points. The team also evaluated correlations between training satisfaction and job satisfaction, and analyzed open-ended responses to extract actionable insights.

WHAT WAS THE OUTCOME?

The study revealed several strengths in MDOT SHA's training program, including its structured certification ladder, safety-first standards, and hybrid instructional approach. However, areas needing improvement included outdated materials, inconsistent training delivery, and unclear promotion pathways. The team recommended modernizing training content, expanding practical learning, streamlining certification, improving communications, and supporting trainers. These changes are expected to enhance workforce satisfaction and retention, strengthening Maryland's transportation system.

HOW WILL MDOT SHA USE THE RESULTS?

Based on the results, targeted recommendations include to strengthen the effectiveness, relevance, and accessibility of MDOT SHA's training program for FMTs. By addressing systemic challenges and supporting employee growth, job satisfaction and operational outcomes can be enhanced. This study identified the need for the modernization of training materials and processes, expansion

of hands-on and field-based training, enhancement of communication, improvement of scheduling and accessibility, clarification of career advancement, and strengthening trainer preparation.

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