Quality Control for Concrete Paving Tech Tuesday Webinar – Questions and Answers (6/14/2022)

The questions submitted during the webinar follow with answers that our speakers have provided.

Key resources available include:

- https://intrans.iastate.edu/app/uploads/2021/12/QC_for_concrete_paving.pdf

1. How do the panelists define the difference between quality control and quality assurance? Oklahoma

   In development of guidance documents, the team has followed the definitions as they appear in the seventh edition of the Transportation Research Board's (TRB's) Transportation Research Circular E-C235, *Glossary of Transportation Construction Quality Assurance Terms* (TRB 2018). The seventh edition of E-C235 reflects efforts to align the definitions of key terms presented in the TRB glossary with the definitions used in publications from the American Association of State Highway and Transportation Officials (AASHTO). As such, the definitions of quality assurance and control are shown below.

   Quality assurance (QA) – (1) All those planned and systematic actions necessary to provide confidence that a product or facility will perform satisfactorily in service, or (2) making sure the quality of a product is what it should be. QA addresses the overall process of obtaining the quality of a service, product, or facility in the most efficient, economical, and satisfactory manner possible. Within this broad context, QA includes the elements of quality control (QC), independent assurance, acceptance, dispute resolution, laboratory accreditation, and personnel certification. The use of the term QA/QC or QC/QA is discouraged, and the term QA should be used. QA involves continued evaluation of the activities of planning, design, development of plans and specifications, advertising and awarding of contracts, construction, maintenance, and the interactions of these activities.

   Quality control (QC) – The process specified by the agency for a contractor to monitor, assess, and adjust their production or placement processes to ensure that the final product will meet the specified level of quality. QC includes sampling, testing, inspection, and corrective action (where required) to maintain continuous control of a production or placement process. QC may or may not be specified by the agency. Even when it is, the specified QC requirements or activities may not be adequate to ensure the final product will meet the specified level of quality. Thus, a contractor may elect to conduct activities in addition to specified QC activities to ensure the specified level of quality. These additional activities are referred to as process control (PC) activities. QC measurements (sampling, testing, and inspection results) may or may not be used with other factors as a basis for acceptance or payment. PC measurements are not used by the agency in acceptance.

2. With the shortage of workforce and the increase of cost (inflation), industry has difficulty hiring qualified QC/QA technicians. In the job market, QC technician is not attractive to young folks because of its low salary and reputation. What are the comments from speakers on this subject? Less testing? Warranty? Or increase the salary? Wisconsin

   Thank you for this very thought-provoking (and challenging) question. A few things come to mind:

   - Many industries, including the construction industry, are making efforts to increase the number of individuals entering the trade professions – perhaps similar efforts (advertising, PR, targeted marketing) could be made to entice workers to enter this field.
   - In general, FHWA has encouraged incentives for providing good (or exceptional) QC, and perhaps this approach could offer an avenue for contractors to improve salaries or bonuses to QC personnel.
   - "Less testing" may not be an approach supported by agencies, but perhaps more efficient testing (testing the right things at the right frequencies) could be an appropriate strategy. The Performance Engineered Mixtures initiative helps agencies and contractors achieve the desired outcomes with their concrete mixtures and construction efforts. As such, PEM initiatives could be promoted in hopes of perhaps reducing the demand on contractor QC personnel as quality objectives are achieved.