

NCHRP 20-68A
US Domestic Scan Program
Domestic Scan 15-01
Developing And Maintaining
Construction Inspection Competence

Findings, Conclusions and Recommendations

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Domestic Scan 15-01

“Developing And Maintaining Construction Inspection Competence”

- This scan was conducted as a part of NCHRP Project 20-68A, the U.S. Domestic Scan program
- The program was requested by the American Association of State Highway and Transportation Officials (AASHTO) Subcommittee on Construction (SOC), with funding provided through the National Cooperative Highway Research Program (NCHRP)

NCHRP 20-68A

U. S. Domestic Scan Program

- The Program is a multi year project conducting 3-4 scans per year.
- Each scan is selected by AASHTO and the NCHRP 20-68A Project Panel.
- Each scan addresses a single technical topic of broad interest to many state departments of transportation and other agencies.
- The purpose of each scan and of Project 20-68A as a whole is to accelerate beneficial innovation by:
 - facilitating information sharing and technology exchange among the states and other transportation agencies;
 - identifying actionable items of common interest .

Scan Team

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Scan Team Subject Matter Expert

NCHRP Panel's General Guidance to the Scan Team

“This scan will investigate such programs, focusing particularly on leading states, counties, metropolitan areas, municipalities and other transportation agencies adoption of teaching and learning methods such as the following examples:

- Mentoring programs
- Hands on training
- Online training
- Just-in-time training
- Video training
- Public private training partnerships
- Innovative hiring practices
- Certification testing
- Pay for “qualifications”

NCHRP Panel's General Guidance to the Scan Team (cont.)

“The scan team will consider learning outcomes, measure of success, and how agencies plan to maintain competence in the future.

...The scan team may interview trainers and construction inspectors from the states identified to have innovative practices...

... Consideration should also be given to investigating successful programs offered by universities, contractor associations, materials trade associations, and other organizations. The scan will gather information on innovative methods of implementation and performance measurement, including determining competency. “

NCHRP Panel's Anticipated Outcomes

“By documenting and sharing successful practices the scan team will produce a valuable resource for use by agencies in developing and maintaining construction inspection competence during a time where they are facing the prospect of losing a tremendous amount of institutional knowledge due to retirements of long-term employees and reductions in overall staffing levels while experiencing increasing levels of complexity of construction methods and the use of more varied contracting methods.”



Developing And Maintaining Construction Inspection Competence

**Meeting
Overview**



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Participating states looked for . . .

- ways to train new inspectors quickly-super charged effort.
- information about successful mentoring programs.
- information on who is doing the training.
- the latest in technology.
- information on successful construction inspector training programs.



Overview



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Scan revealed . . .

- the number of consultant inspectors vary from state to state.
- training delivery methods range from on the job training to instructor led training.
- few states use formal mentoring to develop inspector competency.
- each participating state is actively developing inspector competency.
- Experienced inspectors are recruited to serve as instructors and mentors.



Overview



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Critical Areas



- Consultants
- Content Development/
Instructional Design
- Delivery Modalities
- Existing Certification
Programs
- Instructors
- Manuals/Publications
- Mentoring
- Partnerships – Industry
and Academia
- Resources
- Staffing and hiring
practices
- Technology
- Testing/Exams

Overview



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Developing And Maintaining Construction Inspection Competence

Findings,
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Consultants

The number of consultant inspectors used by agencies varies widely.

Presenting states were divided on the topic of training consultants.

Develop or adopt certification programs for internal inspectors and consultant inspectors

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Content Development/ID

Presenting states developing and/or converting content for online delivery.

A well defined scope, audience analysis, defined learning objectives needed.

Use an instructional design framework (such as ADDIE) in the development of inspector course materials.

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Delivery Modalities

Presenting states use a broad mix of delivery methods.

Effective training programs leverage a combination of different modalities or a blended approach to training delivery.

Use various modes of training delivery based on agency resources, geography, generational differences, learning styles, and content.

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Existing Certification Programs

Programs vary by structure, content and internal versus external.

NETTCP is an example of a successful framework for a regional certification program.

Establish or adopt a certification program for construction inspectors.

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Instructors

Creation of an instructor certification program for SMEs is critical for competency development.

Utilizing field (field experience) SMEs (in-house or within industry) demonstrated to be effective and more beneficial for the student.

Developing a pool of SMEs for the development and delivery of training content.

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Manuals/Publications

Manuals and guidance publications are shared electronically and in print.

States use both electronic and hard copy versions for effective development efforts.

Explore other state transportation agencies use of manuals and publications for adaptation to use in training.

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Mentoring

Incorporate mentor programs into performance management /employee development program/cycles.

Most presenting states support mentoring as a method for inspector development.

Development of a framework for a mentoring program for construction inspector development.

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Partnerships

Industry groups and vendors are a good source for training.

Value in joint training with industry, consultants, local personnel to ensure equivalent competencies.

Encourage state transportation agencies to partner with industry and academia to leverage resources.

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Resources

Sustainable programs require stable resources.

Insufficient resources to meet the challenge of developing competencies of construction inspectors.

States have qualified staff dedicated to manage the training programs for construction inspectors.

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Staffing/Hiring Practices

Internal staffing for the valleys and use of consultants to address the peaks is a proven strategy.

Success in recruiting and hiring construction inspectors from colleges and universities from internship programs reported.

Use appropriate screening and hiring practices to ensure aptitude.

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Technology

Learner response systems are widely accepted.

Funding and IT policies/security issues are two resources that limit use of state of the art technologies.

Leverage technology in the development and delivery of training.

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Exams/Tests

Exam questions should test for experiential knowledge not just for data recall.

Use of psychometrics aided in creating fair and effective test questions.

Agencies should put in place policies or processes for determining exam protocol i.e., prerequisites, remediation, open- or closed-book, etc.

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