Institutionalizing CSS
Part II: The Universities

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Size of the Problem

- Tens of thousands of practicing transportation engineers
- Hundreds of thousands of others engaged in planning, designing, constructing, operating, or maintaining transp. system
- Almost nobody with CSS knowledge to this point
- How to educate people in CSS?
Education Options

• For current workers:
  – On-the-job training
  – Reading material
  – Workshops, conferences, seminars, etc.
  – Short courses
  – Part-time university courses

• For future workers:
  – Educate after hiring (see above)
  – University courses

Size of Training Market

• NCDOT easily found 1000+ employees for three-day CSS short course
• At same rates, market size is at least 40,000 across US
• Will private training providers rise to the challenge?
The Case for Worker Training

- What are the advantages to waiting until after hiring to provide CSS training (instead of relying on university courses) using the methods shown on the previous slide?

The Case for University Courses

- What are the advantages of educating future workers in CSS while they are still at a university (instead of relying on worker training)?
Is CSS a Better Graduate or Undergraduate Topic?

• Assuming that universities have a role, what level is best suited to providing CSS material?

Where is CSS in Current Curriculum?

(Besides this course)

• Undergraduate civil engineering:

• Graduate civil engineering:

• Elsewhere across the university:
Glaring CSS Holes in Current Undergrad C.E. Curriculum

- Management skills
  - Meetings
  - Negotiation
  - Assembling teams
- Advanced communication skills
- Aesthetics and placemaking

Barriers to More CSS in Undergraduate C.E. Curriculum

- Most faculty uneducated in CSS themselves
- Curriculum already full
- Stovepipe organizational structures make interdisciplinary courses very difficult
- CSS not fundamental or classic
  - Not on FE exam
- Need prerequisites
Barriers to More CSS in Graduate C.E. Curriculum

- Cannot add credit hours to program
- Do not want to compete with other courses for students
- CSS is not high-tech
- Where are the research opportunities?
- CSS is tough within distance ed.

Pull Versus Push

- If students demand courses, universities and faculty will respond
- Students will demand when employers demand this skill of applicants
- When will employers begin to demand CSS education of applicants?
CSS Education Summary

- Large problem and opportunity
- Training needed for current workers
- University education needed for future workers
- Serious impediments to integrating CSS into curricula
- Need demand from employers