

SLIDE-IN BRIDGE CONSTRUCTION WORKSHOP

Instructor Guide

July 2015



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Federal Highway Administration



Photo courtesy of Horrocks Engineers

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16. Abstract <p>This Instructor Guide accompanies the Slide-in Bridge Construction workshops. It is intended to help instructors optimize the presentation of any or all of six related workshops, depending on the specific audience and time allowed for training. Presentation slides for all six workshops are included, as well as a sample agenda and tips for preparing for and conducting the training.</p>			
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This Slide-in Bridge Construction Workshop: Instructor Guide is part of a training package prepared for Federal Highway Administration (FHWA) under contract DTFH61-13-D-00009, Task Order 2, with Iowa State University (ISU). The ISU team sincerely appreciates the support of FHWA in providing this low- or no-cost training to appropriate audiences across the United States. In particular, the team is grateful for the guidance and support provided by FHWA Task Managers Romeo Garcia and Chris Schneider.

During the process of developing these training materials, the ISU team was advised by a technical working group (TWG) consisting of national experts in slide-in bridge construction. The members of the TWG are

Hugh Boyle, H. Boyle Engineering
Michael Culmo, CME Associates, Inc.
Larry Gescher, Slayden Construction Group
Finn Hubbard, Fish & Associates, Inc.
Mike LaViolette, HDR Engineering, Inc.
James Nelson, Iowa DOT
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Charlie Stein, Colorado DOT

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INTRODUCTION

Slide-in bridge construction (SIBC) is one of several accelerated bridge construction (ABC) technologies being advanced by the Federal Highway Administration (FHWA). Compared to more traditional methods of bridge construction, and due to its shorter work zone durations and reduced impacts on traffic, SIBC (like other ABC technologies) can

- Increase safety for workers and travelers.
- Enhance mobility.
- Reduce impacts of construction on the environment.

Because of these potential benefits, the FHWA (through the Every Day Counts 2 initiative, or EDC-2) has sponsored the production of resources for agencies, designers, and construction contractors desiring to learn more about SIBC technologies.

Under contract to the FHWA (DTFH61-13-D-00009, Task Order 2), a team led by Iowa State University's Institute for Transportation has developed materials for six (6) instructor-led short courses (or workshops) on SIBC, plus this Instructor Guide, a Participant Handbook, and an optional Notes Booklet. The goal of the courses is to provide various key audiences with the essential information and incentive to begin selecting and implementing SIBC technologies for appropriate projects.

The goal of this Instructor Guide is to provide advice and tips for presenting any one or all of the six courses (workshops).

Note: Course instructors are encouraged to refer participants to another useful resource for owner-agencies, designers, and construction contractors interested in SIBC: A web page with links to dozens of complementary materials and resources, organized by category, along with information about other training opportunities: www.fhwa.dot.gov/construction/sibc/ (search "FHWA slide").

WORKSHOP OBJECTIVES

To varying degrees, each of the six (6) SIBC courses/workshops will help participants understand

- The potential benefits of SIBC.
- Various issues to be considered when determining the feasibility of SIBC for a specific bridge project.
- The potential challenges and issues related to planning, designing, and constructing an SIBC project.

WORKSHOP AGENDA

Courses 1 through 5 are approximately one hour in length, and the agenda for each is outlined in the presentation slides. Following is a suggested agenda for course 6, the half-day overview for all audiences:

Topic	Estimated Time (Minutes)
SIBC overview	90
Break	10
Case study: Massena	20
Case study: Dingle Ridge.....	30
Case study: Wanship.....	25
Break	10
Case study: Elk Creek.....	25
Case study: Mesquite	25
Case study: Jamaica Avenue.....	25

WORKSHOP CONTENT

Six SIBC instructor-led training courses (workshops) are available. Table 1 gives the general description and proposed audience for each workshop, as well as its approximate duration.

Table 1. Description of SIBC Courses/Workshops

Course No.	Description and Audience(s)	Duration	No. of Slides
1	Overview for Designers (suitable as a “brown bag lunch” event)	45–60 min total (with 1 case study)	76
2	Overview for Contractors (suitable as a “brown bag lunch” event)	45–60 min total (with 1 case study)	85
3	Overview for Owner Agencies (suitable as a “brown bag lunch” event)	45–60 min total (with 1 case study)	100
4	Overview (All Audiences)	60 min (30-min overview plus 3 case studies)	141
5	Case Studies (All Audiences)	3 case studies from courses 1, 2, 3, plus 3 more	152
6	Half Day Training (All Audiences)	4 hr (includes 6 case studies from course 5)	224

With the exception of course 5, all workshops cover the following general topics to varying degrees, depending on the intended audience:

- Definition of SIBC
- Benefits
- Challenges
- Costs
- Decision Making (When and where to use ABC, and which type of ABC to use)
- Delivery Methods / Contracting
- Planning
- Design and Detailing
- Hardware and Equipment
- Submittals
- Media / Public Relations
- Case Studies

Courses 1, 2, and 3 are short (up to one hour) overviews of SIBC intended for designers, construction contractors, and owner agency decision makers, respectively. After a summary of SIBC focused on the interests of the specific audience, each of these short courses includes an approximately 10-minute description of a case study, each of which was carefully selected to match the interests of the specific audience.

Course 4 is a short (one hour) overview intended for a mixed audience of designers, construction contractors, and owner agency decision makers. After a 30-minute general overview, course 4 describes each of the case studies from courses 1, 2, and 3.

Course 5 consists solely of case studies. In addition to those presented in courses 1, 2, and 3, it includes three more case studies that represent additional challenges and considerations for SIBC selection, design, and construction.

Course 6 is a half-day (four-hour) workshop for all audiences. It includes an in-depth discussion of SIBC, plus a thorough description of all six case studies presented in course 5.

COURSE FORMAT

The workshops are designed to be interactive. Participants should be encouraged to ask questions and actively participate. “Knowledge Checks” are included at intervals in course 6 (the half-day workshop) to review material and provide opportunities for participants to ask questions.

COURSE MATERIALS

The course materials for each course consist of this Instructor Guide, a set of presentation slides targeted to a particular audience, a Participant Handbook, and an optional Notes Booklet.

Slide Presentations

All presentations are fully annotated for the instructor(s). A technical working group consisting of subject matter experts from across the country helped in the development of these courses, and their experience and expertise are reflected in the notes.

Instructor tip: Instructors are strongly encouraged to supplement the information in the slides with information in the detailed notes.

However, a thorough discussion of all details in the notes will likely make the workshop(s) run long. Instructors are also encouraged, therefore, to customize their presentations for any given workshop, either in advance or as the workshop progresses, by purposefully selecting which notes to highlight and which to skim over.

As shown in Table 2, a total of six (6) case studies are discussed to varying degrees in the different courses, depending on the anticipated audience.

Instructor tip: Although a case study has been pre-selected for courses 1, 2, and 3, the courses can be further customized for a particular audience by substituting or adding a different case study from course 5.

This mix-and-match approach can help instructors put together just the right slides to meet a particular audience’s needs.

Table 2. Overview of Case Studies in Each Workshop

Course No.	Description and Audience(s)	Case Study Description(s)
1	Overview for Designers	Iowa DOT; near Massena, IA: new construction, pretensioned, prestressed concrete beam bridge incorporating semi-integral abutment and abutment diaphragm. First bridge slide completed in the State of Iowa.
2	Overview for Contractors	Oregon DOT; bridge replacements near Elk Creek, south of Eugene in mountains of western Oregon: unique terrain challenges and site constraints including the proximity to a tunnel; a significant need to maintain traffic to eliminate a lengthy detour; design-build; 3-span, continuous steel plate girder and 2-span, prestressed concrete deck girder bridges
3	Overview for Owner Agencies	New York DOT; bridge replacement on Dingle Road 50 miles north of New York City near Connecticut: single-span bridges with concrete double-T beams with UHPC connections and integrated approach slabs slid on inverted T sleeper slabs, over a road with 15.7% grade

Course No.	Description and Audience(s)	Case Study Description(s)
4	One-Hour Overview (All Audiences)	<ul style="list-style-type: none"> Iowa DOT near Massena, IA (from Course 1) Oregon DOT near Elk Creek, OR (from Course 2) New York DOT on Dingle Road (from Course 3)
5	Case Studies (All Audiences)	<ul style="list-style-type: none"> Iowa DOT near Massena, IA (from Course 1) Oregon DOT near Elk Creek, OR (from Course 2) New York DOT on Dingle Road (from Course 3) Utah DOT near Wanship, UT (east of Salt Lake City): high truck and recreational vehicle traffic; single-span (replaced 3-span structure), stainless steel deck reinforcement Nevada DOT near Mesquite, NV (northeast of Las Vegas, near AZ border): high percentage of freight traffic; precast concrete I-girders (Utah DOT bulb-tee shape) and precast panel deck, with roundabouts and other improvements; design-build, saved \$10 million from original estimate New York DOT, Jamaica Avenue over Van Wyck Expressway in New York City: high traffic volumes near JFK airport, significant utility issues, and asbestos abatement; replaced 2-span with longer 2-span LRFD structure
6	Half Day Training (All Audiences)	Same as Course 5

Participant Handbook

Workshop participants will receive a print or electronic handbook containing the following materials:

- General workshop information.
- An evaluation form.
- Copies of slides.

Instructor tip: The electronic Participant Handbook (.pdf file) includes copies of the presentation slides for all six workshops. When printing hard copies for participants at any specific workshop, the slides for the other five (5) workshops can be omitted to save printing costs.

Notes Booklet

Workshop participants may receive a print or electronic Notes Booklet that summarizes the instructor notes for all topics except the case studies in course 6 (the half-day workshop).

SUGGESTED WORKSHOP ADMINISTRATION

The following suggestions are primarily intended for course 6, the half-day workshop. This information is based on best practices that can help instructors provide a well managed and informative training experience for course participants.

Agency/Industry Partner Hosts

Instructors may provide SIBC training to staff within their own organization or may be invited to provide SIBC training to staff at other “sponsor/host” organizations. When another organization is involved, the instructor and the host(s) share responsibilities for preparing for and conducting the workshop. The instructor should stay abreast of the host’s activities and be ready to take care of anything that may have fallen through the cracks.

Suggested Pre-Workshop Activities

Instructor(s)

As soon as possible after the workshop host(s) and location(s) have been identified, the instructor should send a memorandum to the host(s) outlining the scope and focus of the course to be presented and the host responsibilities (listed under **Host(s)** below). The host(s) should indicate agreement by signing and returning the memo.

Before the workshop, the instructor(s) should

- Become thoroughly familiar with the workshop materials.
- Rehearse presentations until they can present the information without reading directly from the notes in the suggested timeframe.
- Send the following items to the host(s):
 - Participant handbooks.
 - Electronic slide presentations to be uploaded at the workshop facility.
 - Notes booklets (optional).
- Double-check logistics with the host organization(s) to ensure that the facility is prepared, lunch and snacks have been ordered, etc.
- Print a backup copy of slide presentation(s) to take to the workshop.
- Optional: Take a backup laptop computer, with presentation slides, to the workshop.

On the day of the workshop, instructor(s) should arrive at the workshop facility at least an hour early to make sure

- The audiovisual equipment is working and all presentations are uploaded and running.

- The classroom is arranged so that participants have unobstructed views of the screen and sufficient room to refer to their handbooks and take notes.

Host(s)

As soon as possible, host(s) should

- Secure workshop space (at or near a hotel if overnight accommodations are required) with audiovisual equipment and sound system.
- Secure hotel accommodations for workshop participants, if necessary.
- Market the workshop to appropriate audiences.
- To help cover workshop expenses, secure partner host(s) (other agencies or state or regional concrete pavement associations, etc.). The goal is to provide the workshop free of charge or at nominal cost.
- Conduct advance registration (suggested limit: 50 participants).
- Prepare nametags for participants and the instructor(s).
- Arrange transportation for instructors and participants (from/to airport, hotel, workshop, etc.).
- If necessary, arrange noon lunches and snacks for breaks.
- Receive delivery of participant handbooks.

At least an hour before the workshop begins, the host(s) should prepare the workshop facility:

- Check the audiovisual equipment, sound system, and lights in the room to ensure they are working properly.
- Make sure the classroom is arranged so that participants have unobstructed views of the screen and sufficient room to use their materials and take notes.
- Set up equipment and other materials:
 - Computer (loaded with PowerPoint presentations), computer projector, projector table, laser pointer, and screen.
 - Podium (optional).
 - Clip-on microphone for instructor(s).
 - Portable microphone(s) for participants (optional).
 - White board or flip chart with markers.
- Check in participants (sign-in sheet with contact information, nametags, etc.).

Collecting Participant Information

If a host representative is not available to sign in workshop participants, the instructor(s) should circulate a sign-in sheet during the workshop and ask participants to provide their names, job titles, employers, and contact information.

- Distribute participant handbooks (and optional notes booklets).
- Post the instructor(s) name(s) and the workshop date and location in a prominent location (e.g., on a whiteboard or a slide displayed on the screen) where it can be referenced throughout the workshop.

During the workshop the host should assist the instructor(s) as follows:

- Introduce the instructor(s) at the start of the workshop (see ***Getting Started*** below).
- Coordinate arrangements with the facility staff regarding timing for snacks, lunches, etc.
- Carry portable microphone(s) to participants as needed.
- Collect participants' evaluations at the end of the workshop.

Workshop Activities

Getting Started

- Begin the workshop on time.
- Welcome participants and instructor(s).
- Review the workshop agenda, including breaks, lunch, and starting and ending times.
- Encourage participation—attendees can ask questions throughout the workshop.
- Point out the exits and the location of restrooms.
- Learn about the audience (e.g., how many of you represent a state DOT? a city or county agency? a contractor? a materials supplier? etc.; how many of you are engineers? technicians? supervisors? chemists? etc.).
- Introduce the instructor(s) (backgrounds, technical interests, employers, etc.).

Breaks

One or two breaks during the four-hour workshop will help participants maintain a high level of attention and interest, particularly when the material being presented is highly technical. One 20-minute breaks or two 10-minute breaks are recommended.

Tips for a Successful Course

The following suggestions for instructors are adapted from NHI instructor materials:

1. Make frequent eye contact with workshop participants. Refer to your notes, but don't read from them or from the slides.
2. Don't read each slide verbatim. Present the information as if you were having a conversation. The instructor's notes included with the slides will be helpful.
3. Encourage participants to follow along in their handbooks and take notes.
4. Keep the classroom atmosphere informal but on topic.
5. Encourage classroom participation and respond to questions, but keep the presentation on track and moving forward.
 - Encourage participants to speak so that everyone can hear. Use a portable microphone if available.
 - Avoid engaging in a dialogue with just one or two participants in the front. You run the risk of losing the interest of participants who can't hear.
 - Do not let the workshop be dominated by a few participants.
 - Discourage side discussions.
6. Don't be afraid to admit what you don't know. If you don't immediately know the answer to a question, say so. Suggest that you'll find the answer and get back to them.
7. Do what you can to minimize the "workshop coma" effect. Make your presentations energetic and interactive. Encourage participants to stand up, stretch, or get a fresh cup of coffee whenever they need to.
8. At the end of the course, ask participants to describe the most important points.

Workshop Evaluations

Evaluation forms are included in the Participant Handbook; an example is provided on page 11.

The following instructions should be given to participants regarding the evaluations:

- Write the workshop date(s) and location in the spaces provided.
- Provide your name if you wish, but you are not required to do so.
- Use the extra space to provide additional feedback to help improve the workshop for future participants.

Post-Workshop Activities

As soon as possible after the workshop, the host(s) should

- Itemize host expenses and send to the instructor.
- Return completed evaluation sheets and unused participant handbooks to the instructor.
- Send copy of registration information (participants' names, job titles, employers, and contact information) to the instructor.

The instructor(s) should tally the evaluations, recording the information to determine how the workshop can be improved in the future.

FOR MORE INFORMATION

For advice or information about the SIBC workshop and materials, contact the following:

Romeo Garcia
Bridge and Tunnel Construction Engineer
Federal Highway Administration
202-366-1342
romeo.garcia@dot.gov

EVALUATION FORM

Date: _____

Your title: _____

Location: _____

Your organization (optional): _____

Instructor's name: _____

Course (check one):

Your name (optional) _____

- Overview for Designers
- Overview for Contractors
- Overview for Owner Agencies
- Overview (All Audiences)
- Case Studies
- Half Day Training

1. Rate each criterion below by circling the appropriate number:

Criteria	Excellent	Good	OK	Needs Improvement	Very Poor
Organization of material	5	4	3	2	1
Technical level of the material	5	4	3	2	1
Visual presentation of material	5	4	3	2	1
Usefulness of material for on the job	5	4	3	2	1
Instructor's knowledge of subject	5	4	3	2	1

2. Fill in the blanks:

I would have liked more information about _____

Other comments: _____

THANK YOU FOR HELPING US IMPROVE THIS WORKSHOP FOR FUTURE PARTICIPANTS.