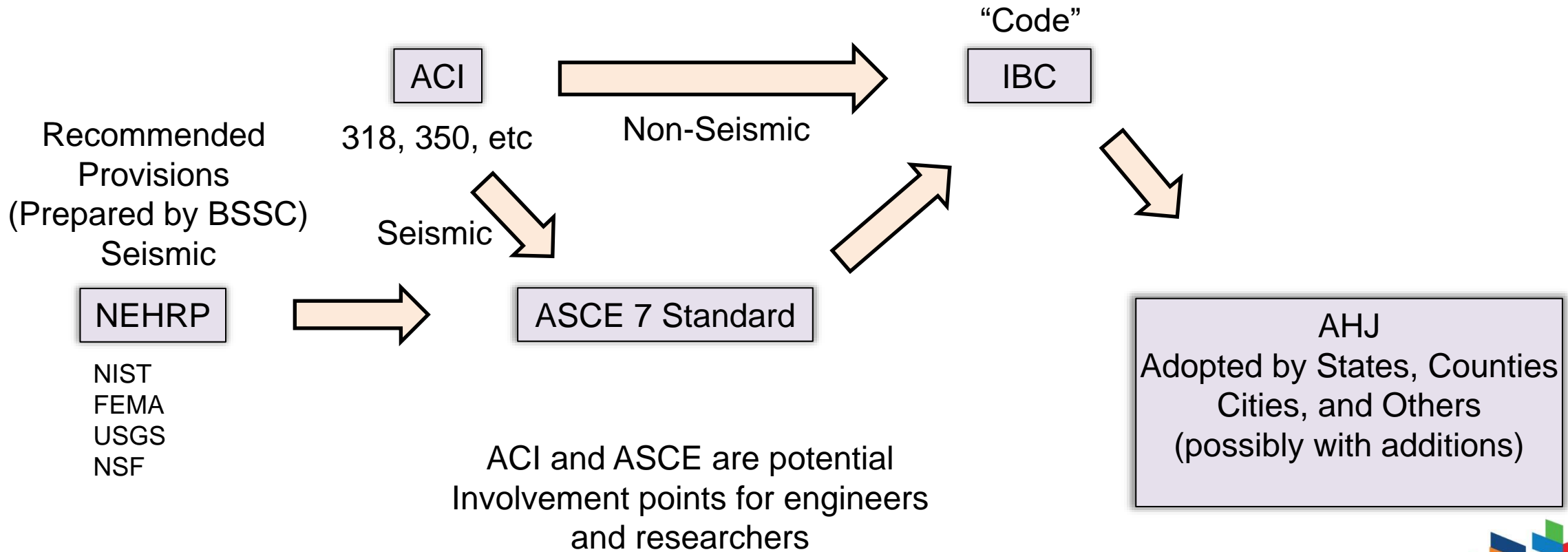


Overview of the AASHTO Code Provision Process

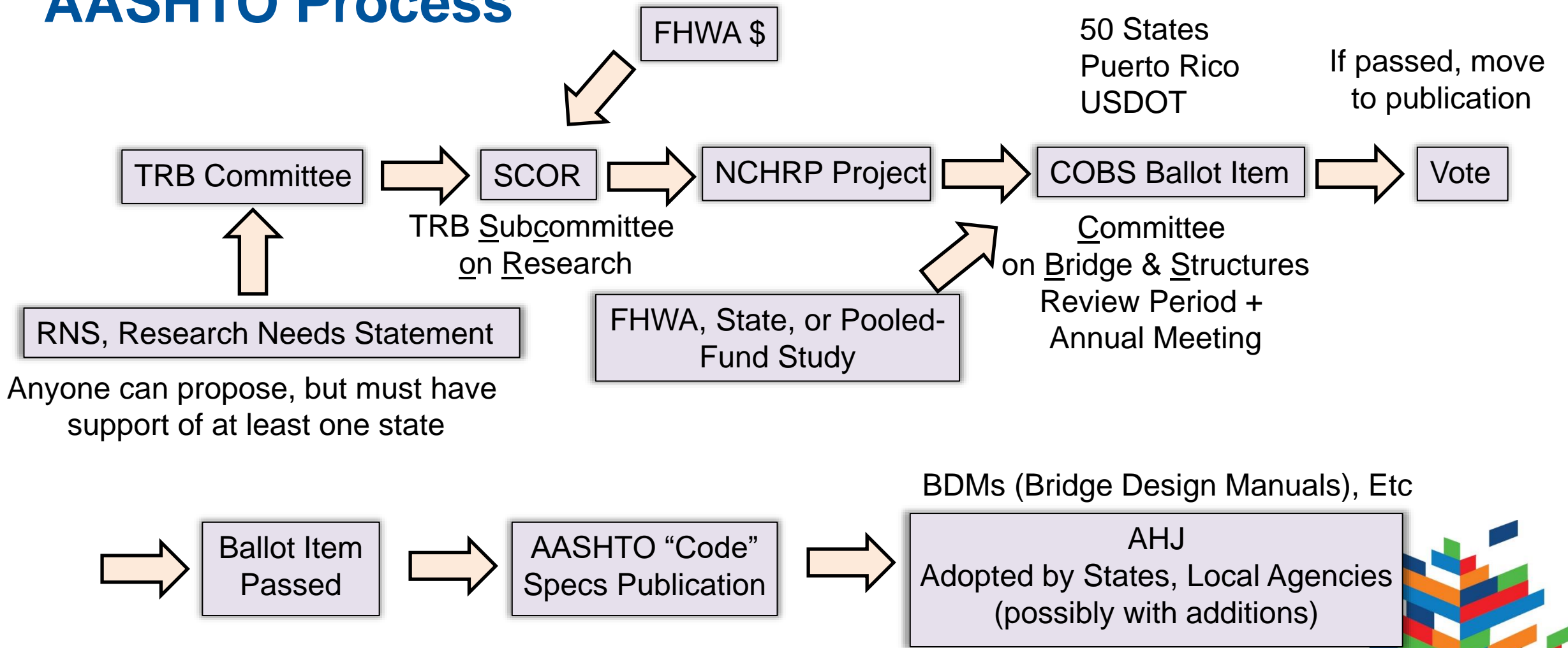
ACI Session – ACI's Role in Bridge Code Development
April 3, 2023

Lee Marsh PE PhD
Technical Fellow WSP-USA

International Building Code Process



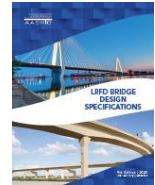
AASHTO Process



AASHTO Documents - Seismic Design for Example

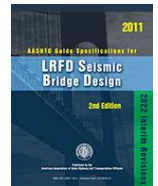
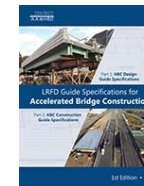
- Specifications

- *LRFD Bridge Design Specifications* (Seismic - Force-Based Design, FBD)
- *LRFD Movable Highway Bridge Design Specifications* (FBD)



- Guide Specifications for:

- *LRFD Seismic Bridge Design* (uniquely viewed as spec-based alternate to FBD)
- *Seismic Isolation Design*
- *Bridges Subject to Tsunami Effects*
- *Accelerated Bridge Construction*



- Guidelines

- *Performance Based Seismic Design of Highway Bridges* (in press)



AASHTO Technical Committees – Partial List

- T-1 Security
- T-2 Bearings and Expansion Devices
- T-3 Seismic Design
- T-4 Construction
- T-5 Loads and Load Distribution

- T-10 Concrete

- T-14 Structural Steel Design

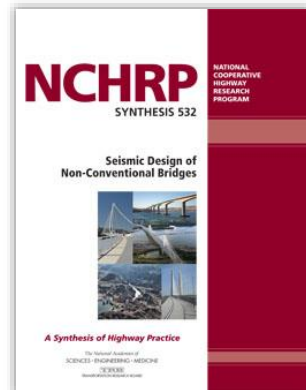
For a full list see:

[https://bridges.transportation.org/
technical-committees/
list-of-technical-committees/](https://bridges.transportation.org/technical-committees/list-of-technical-committees/)

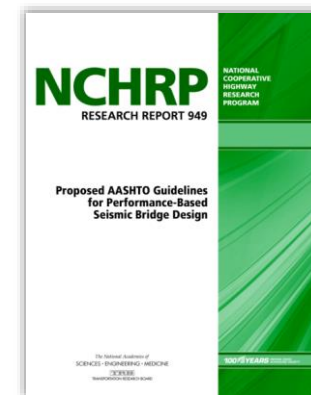
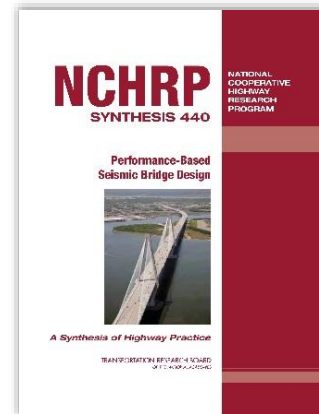
NCHRP Projects as Source Documents

- Once NCHRP projects are complete, their recommendations may generate proposed changes to AASHTO specifications.
- Often a required work product of a NCHRP project is recommendations for improvements of AASHTO documents.
- NCHRP teams may, at the request of AASHTO one or more technical committees, draft a ballot item for AASHTO

Synthesis 532:
Non-Conventional
Bridge Seismic



Synthesis 440:
PBSD



Guidelines
for PBSD



AASHTO Ballot Item Process

1. With the support of one or more states, propose ballot item
2. With the support of one or more technical committees, draft ballot item
3. Technical committee review and approval
4. Assemble all ballot items for the annual COBS meeting
5. States review all ballot items, approx. 4 months
6. Annual COBS meeting further technical committee discussion
7. Advance ballot item to full group
8. Vote (each state has one vote)
9. Approval by simple majority

ACI Ballot Approval Process

Excerpt from:
Concrete International
December 2022

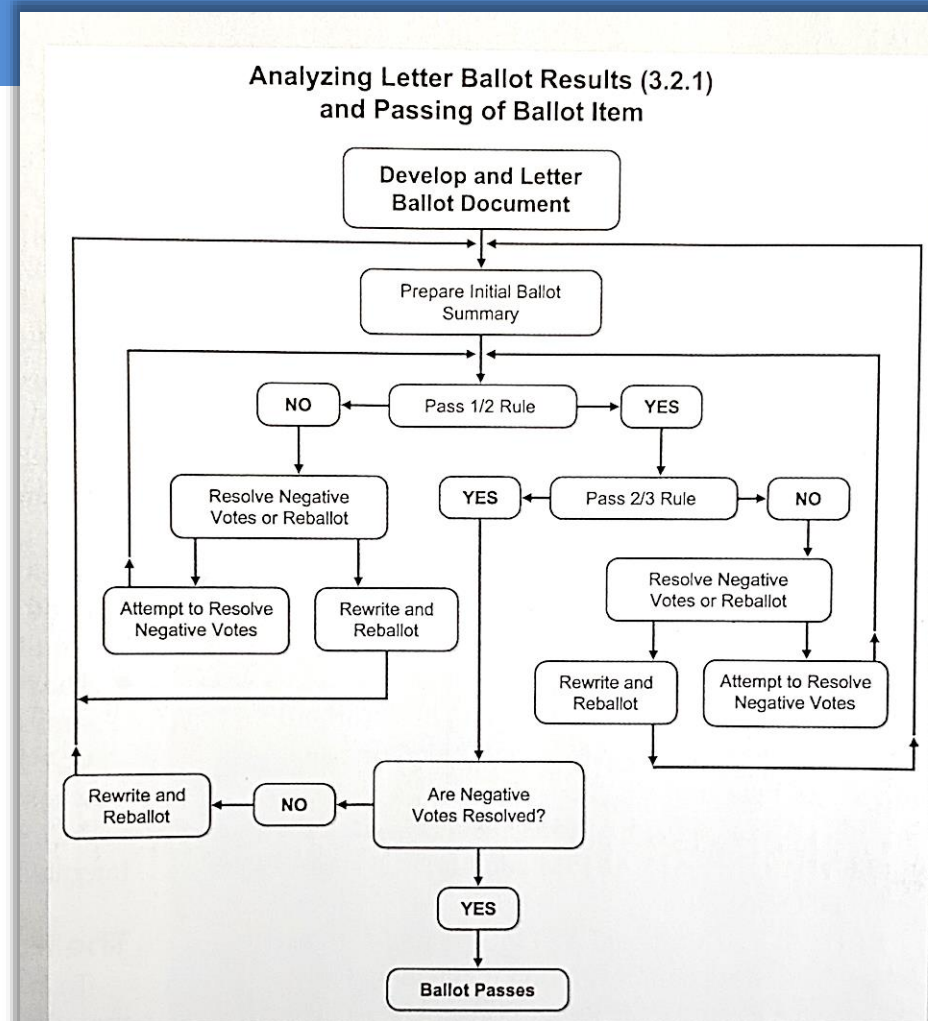


Fig. 3.2.1—Analyzing letter ballot results and passing of ballot items, 2022 ACI Technical Committee Manual. “Pass 1/2 Rule” means at least half of all eligible voting members must cast an affirmative vote. “Pass 2/3 Rule” refers to the requirement that the number of affirmative votes must be at least twice the number of negative votes

AASHTO Ballot Item Format

- Subject
- Technical Committee
- Type – Revision, Addition, New Document
- Specifications Involved
- Date
- Agenda Item
- Other Affected Articles
- Background
- Anticipated Effect on Bridges
- References
- Other

2014·AASHTO·BRIDGE·COMMITTEE·AGENDA·ITEM:·¶

¶
SUBJECT: ·LRFD·Bridge·Design·Specifications:·Section·3,·Articles·3.10.9.2¶

¶
TECHNICAL·COMMITTEE:·T-3·Seismic¶

¶
·REVISION→ → → ·ADDITION→ → → ·NEW·DOCUMENT¶

¶
·DESIGN·SPEC → → ·CONSTRUCTION·SPEC → ·MOVABLE·SPEC¶

·MANUAL·FOR·BRIDGE → ·SEISMIC·GUIDE·SPEC → ·COASTAL·GUIDE·SPEC¶

·····EVALUATION → → ·OTHER·○○○○○¶

¶
DATE·PREPARED: → 1/10/14¶

DATE·REVISED: → ○○○○○¶

¶
AGENDA·ITEM:·····Section Break (Continuous)·····

Item#1¶

¶
Delete the third paragraph of Article 3.10.9.2.¶

¶
Change the first paragraph of Article C3.10.9.2, accordingly:¶

¶
These provisions arise because, as specified in Article 4.7.4, seismic analysis for bridges in Zone 1 is not generally required. These default values are used as The minimum connection design forces of this Article are used in lieu of determining such forces through rigorous analysis. The division of Zone 1 at a value for the an acceleration coefficient, A_s , of 0.05 recognizes that, in parts of the country with very low seismicity, seismic forces on connections are very relatively small. However as outlined below, the intent of this Article is to prevent connections from becoming unintended weak links in the seismic lateral load path. Accordingly, the minimum connection forces specified in this Article are intended to be sufficiently conservative to prevent premature failure and are not intended to precisely reflect the expected dynamic seismic forces. See C3.10.7.1 for a description of typical elements considered to be connections, and note that a connection, as considered in this Article, may be an element that simply restrains a member and may not physically connect to that member, such as transverse shear keys. Additionally, anchorage design and detailing for connections should be completed far enough into the adjacent member to ensure that premature or unintentional local failure is prevented. Similarly, the design of a girder support pedestal should consider the connection forces specified in this Article, since failure of a pedestal above the main pier cap could potentially lead to loss of span support.¶

¶
Replace the second paragraph of Article C3.10.9.2 with:¶

¶

Examples of Recent Ballot Items

- 2014 minor revision - Modification of Seismic Zone 1 and SDC A connection force requirements (T-3 Committee, 2 documents)
- 2022 major revision – Adoption of Risk-Targeted Ground Motions (T-3 and T-5 Committees, 3 documents)
- 2021 new document – *Guidelines for Performance-Based Seismic Design of Highway Bridges* (T-3 Committee)

Abbreviations

- AASHTO – American Association of State Highway and Transportation Officials
- AHJ – Authority Having Jurisdiction
- BSSC – Buildings Seismic Safety Council
- COBS – Committee on Bridge and Structures
- FEMA – Federal Emergency Management Agency
- FHWA – Federal Highway Administration
- NCHRP – National Cooperative Highway Research Program
- NEHRP – National Earthquake Hazard Reduction Program
- NIST – National Institute of Standards and Technology
- NSF – National Science Foundation
- RNS – Research Needs Statements (TRB)
- SCOR – Subcommittee on Research (TRB)
- TRB – Transportation Research Board

THANK YOU!

THE WORLD'S GATHERING PLACE FOR ADVANCING CONCRETE

