



# Two-span Continuous Steel Plate Bridge Girder Design Workshop

Thursday, September 24, 2020 — 10:00 AM – 3:30 PM

This workshop covers the fundamentals and background required for analysis and design of a steel plate girder for flexure, shear, and deflection under dead, live, and construction loads. This design meets the Michigan Department of Transportation (MDOT) policies documented in the *Bridge Design Manual*, *Bridge Design Guides*, and the *AASHTO LRFD Bridge Design Specifications* (8th Edition). Certain material and design parameters demonstrated in the workshop are selected to illustrate compliance with MDOT practice reflected in the Bridge Design System, the MDOT legacy software. In addition to the unique MDOT practices, typical practice by other agencies and consultants will be discussed. The workshop will also feature several interactive activities. This workshop is ideal for state and county bridge/structural engineers and consultants.

View [Agenda](#).

## Registration\*

State and local agency: no cost to attend

Other agencies/consultants: \$50

Register online at [ctt.nonprofitsoapbox.com/2020steelgirderworkshop](http://ctt.nonprofitsoapbox.com/2020steelgirderworkshop)

Class size is limited; register early to attend. Participants will be emailed after 09/20/2020 with webinar instructions; webinar will be held in Microsoft Teams. Participants will also receive training handouts and a certificate. The included training manual has a detailed numerical example with step-by-step analysis and design guidelines.

Questions? E-mail [ctt@mtu.edu](mailto:ctt@mtu.edu)

*\*Required for fulfillment of continuing education. Participants are eligible for 4 PDHs. The Center for Technology & Training's continuing education policy is available at [ctt.mtu.edu/ContinuingEducation](http://ctt.mtu.edu/ContinuingEducation).*

*No-shows or cancellations will be charged as follows: full refund on/before 9/15, 50% refund between 9/16 and 9/20, and no refund after 9/20. Substitutions will be accepted.*



Michigan's  
Local Technical  
Assistance Program



Photo: CTT Archive



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## Agenda

9:50 Webinar opens

10:00 Welcome & Workshop Overview

10:10 Session I

Geometry

Material properties

Section properties

Interior girder

Exterior girder

Loads

Dead loads

Live loads

Support settlement

Load combinations and load factors

Live load distribution factors

Interior girder

11:00 Break

11:20 Session II

Live load distribution factors

Exterior girder

Moments and shear forces due to dead loads, support settlement, and construction loads

Session II, cont'd

Moments and shear forces due to live loads

Combined loads for service and strength limit states

Optional live-load deflection

Noon Lunch

1:00 Gordie Howe Bridge Update (MDOT)

1:10 Session III

Girder design

Section proportion limits

Strength limit state

Constructibility

2:00 Break

2:10 Session IV

Girder design

Service limit state

Fatigue limit state

Field splice design

3:00 2nd Avenue Arch Bridge Update (MDOT)

3:10 Discussion, Q&A, and Evaluation

3:30 Adjourn

View [webinar overview](#).







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## Presenter

Upul Attanayake, PhD, PE is an associate professor of Civil and Construction Engineering at Western Michigan University. Dr. Attanayake is the director of the Center for Structural Durability, MDOT Centers of Excellence, at Western Michigan University. He specializes in structural/bridge engineering and civil engineering materials. Dr. Attanayake has more than 18 year of experience on bridge project scoping, bridge structural analysis and design, construction, and maintenance related research. His work resulted in revisions to MDOT Bridge Design Manual and Guides. Also, he has developed revised specifications and design details for Wisconsin Department of Transportation manuals, guides, and specifications. His recent research involved accelerated bridge construction, fatigue monitoring of steel bridges, and assessment of deterioration mechanisms in prestressed concrete beams.

Dr. Attanayake's recent professional activities include membership on the Transportation Research Board (TRB) Committee on Durability of Concrete (2007-2015), TRB Committee on Concrete Bridges (2014-present), the American Society of Civil Engineers, and the Precast/Prestressed Concrete Institute. Dr. Attanayake has authored/co-authored more than 85 peer-reviewed papers and three dozens of technical reports. He has made more than 80 technical presentations at national and international conferences. Further, he has conducted several workshops for bridge engineers, fulfilling their continuing education requirements.

Dr. Attanayake received his PhD from Wayne State University in Detroit, Michigan. He regularly offers a graduate course on bridge engineering where the content includes designing and rating a bridge. Dr. Attanayake is a licensed professional engineer (PE) in the state of Michigan. For more information, please visit <http://homepages.wmich.edu/~uattanayake/index.html>.

View [webinar overview](#).

