2026

ISI ANNUAL CONFERENCE

Envision the Future of Sustainability

Book of Abstracts

& Conference Information

CONTENTS

Welcome from ISI Leadership 4

About the ISI Annual Conference 5

Envision the Future of Sustainability 5

A Community of Infrastructure Leaders 5

What You'll Find in This Volume 5

About Envision 5

Acknowledgments 6

Thank you to our Abstract Reviewers 6

Sponsors & Supporting Organizations 7

2026 Conference Sponsors 7

SIAB Members 7

Promotional Partners 7

Schedule at-a-glance 8

Detailed Schedule 9

ABSTRACTS 11

Project Showcase 12

Delivering Envision Platinum for the Bull Run Filtration Facility 12

Envision Strategies: Vancouver Fraser Port Authority's Holdom Overpass Project 12

From Policy to Practice: Delivering Sustainable Infrastructure at the JFK RUGTC Project 13

Panels 14

Making Construction Decarbonization Real: Lessons from Envision Projects 14

Designer, Builder & Owner Collaborations for Sustainability . . . 14

Embodied Carbon in Bridges 15

Sustainable Construction Outcomes: Fostering Strong Contractor Partnerships Across Delivery Methods 15

Sustainability from Start to Finish: Envision Implementation on the Federal Way Link Extension Project 16

Applying the Envision Framework to Municipal Infrastructure: Case Studies from the City of St. John's, Newfoundland and Labrador 16

Education Session Themes 19

Education Sessions 20

Theme: Sustainable Procurement and Materials Selection for Better Outcomes

Extending Service Life, Reducing Embodied Carbon: Two Rehabilitation Case Studies for Sustainable and Resilient Concrete 20

Integrating Envision into Procurement: Strategic Approaches and Implementation Insights 20

Strategies for Sustainable Product Procurement in Envision . . . 21

Sustainable Infrastructure Development: Impact, Resilience and Regeneration 21

Theme: Best Practices in Sustainable Infrastructure

Inclusion, Diversity, Equity, and Accessibility With Climate-Resilient Infrastructure Processes 22

Advancing Sustainable Floodplain Development: Integrating Distributed Detention within Pervious Parking Infrastructure to Enhance Resilience and Land Efficiency 22

Embedding Envision, Part 2: Turning Principles into Practice 23

Deploying a Hyper-local Index of Vulnerability to Environmental Risks at Port Corpus Christi to Inform Infrastructure Design, Fortification, and Management 23

Theme: Envision in Curriculum

Envision for Sustainability Qualification in Clarkson University Civil & Environmental Engineering Capstone Projects 24

Engineering Student Development Through Authentic Sustainability Projects Using the Envision Framework 24

Integrating Envision in Engineering Courses: A Multi-institute Discussion of Curricular Examples 25

Integrating Envision Throughout the Capstone Design Process 25

Theme: Sustainability at Airports

Institutionalizing Envision: Lessons from Denver's Infrastructure Department and Denver International Airport Implementation Approaches 26

Lessons from HCAA's MP1: Updating Sustainable Design and Procurement 26

Operationalizing Sustainability and Resilience in Airport Project Delivery: Lessons from Miami International Airport 27

Innovation on the Airfield: Designing Bird Deterrent Devices at SEA to Balance Safety, Maintainability, and Operational Performance 27

Reconciling Thermal Comfort, Carbon Reduction, and Climate Resilience in Aviation Infrastructure: Emerging Integrative Strategies for Airports 28

CONTENTS

Theme: Beyond the Project – Systems Thinking for Lasting Impact

From Statewide Risk to Project-Level Resilience: Equipping IDOT to Pursue Envision Credits Across their Infrastructure Portfolio 29

Proposed Approach to Integrate the Envision Framework and Value Methodology 29

ROI of Sustainability: Shifting the Mindset from Upfront Costs to Lifecycle Savings 30

Scaling Sustainability Across Infrastructure: Programmatic Envision Lessons from the Port of Long Beach 30

Building Sustainability into the New Mexico Department of Transportation DNA 31

Theme: Sustainability in Practice

All Aboard! A Regional Transit Agency's Sustainability Journey 32

Delivering Better Outcomes: Envision Lessons from Alternative Project Delivery in Transit, Bridges, and Airports . . . 32

Closing the Loop: Envision Post Construction Documentation for Long Term Value 33

Theme: Value Beyond Envision

One Tower, Three Acres: A Resilience Case for Rethinking Density in Coastal Cities 33

Next Generation of Sustainable Urban Transit Infrastructure – Paris New Subway Line 15 34

Poster Sessions 35

Academic Poster – Student

A Metric-Based Framework for Evaluating Lifecycle Carbon of Designs To Extend Bridges' Service Life in Canada. 35

Bluleaf: Designing a Sustainable and Resilient Data Center 35

Comparative Evaluation of Infrastructure Sustainability Rating Systems 36

Creating an Equitable Clean Energy Marketplace in the City of Riverside, California: A Community-Centered Framework for Sustainable Infrastructure Investment 36

Digital Geospatial Intelligence for Sustainable and Resilient Infrastructure – Integrating GIS, GPS, AI, and Digital Twins for Sustainable Infrastructure Delivery. 37

Functionally Graded Materials for Sustainable and Resilient Infrastructure 37

Project G.R.C. – Green Resilient Compute Campus. 38

Utilizing the Envision Rating System to Assess Sustainable Infrastructure Design in a Civil Engineering Capstone Project 38

Academic Poster – Professional/Faculty

Advancing Zero-Emission Bus (ZEB) Fleets. 39

Integrating Sustainability in Environmental Engineering Capstone Design 39

Simulunda-Sindowe Pedestrian Bridge (Zimba District, Southern Province, Zambia) 40

Understanding Persistent Barriers that Inhibit the Transition from Asset-based Infrastructure Delivery to Integrated, Sustainable Infrastructure Systems. 40

Index of Authors and Presenters 41

FAQs 46

Welcome from ISI Leadership

Dear Colleagues,

Welcome to the 2026 ISI Annual Conference.

Whether you are joining us as a long-time member of the Envision community or participating for the first time, we are pleased to have you with us for this year's gathering of infrastructure professionals, public agency leaders, academics, researchers, and sustainability practitioners from around the world.

Infrastructure plays a critical role in shaping the health, resilience, and prosperity of our communities. As the challenges facing our industry continue to evolve, so too must our approaches to planning, designing, delivering, and operating infrastructure. The need for solutions that create lasting environmental, social, and economic value has never been more important.

Our theme, Envision the Future of Sustainability, invites us to look beyond today's projects and consider how our decisions are influencing the future of our communities and infrastructure systems. Throughout the conference, you will find examples of innovation, leadership, collaboration, and practical implementation that demonstrate what is possible when sustainability is embedded into infrastructure decision-making.

The abstracts collected in this volume showcase the breadth of work being undertaken across sectors, geographies, and disciplines. From transportation and water systems to resilience planning, sustainable procurement, emerging technologies, and community outcomes, these presentations reflect a shared commitment to advancing sustainable infrastructure practice.

We are grateful to the speakers, presenters, moderators, reviewers, sponsors, volunteers, and attendees whose contributions make this conference possible. The exchange of ideas and experiences is what makes this community so valuable, and we encourage you to engage fully in the conversations, ask questions, share your perspectives, and connect with colleagues throughout the event.

Thank you for being part of the ISI community and for your ongoing commitment to creating infrastructure that serves both present and future generations.

We hope you find inspiration, practical insights, and new connections during the conference.

Warm regards,
The ISI Team

ABOUT THE ISI ANNUAL CONFERENCE

The ISI Annual Conference brings together infrastructure professionals from across disciplines and sectors to explore the ideas, partnerships, and practical solutions shaping the future of sustainable infrastructure. Through keynote presentations, project showcases, panel discussions, educational sessions, and academic research, the conference provides a forum for learning, collaboration, and professional exchange among the leaders advancing sustainability in the built environment.

The conference reflects the Institute for Sustainable Infrastructure's mission to improve the sustainability and resilience of civil infrastructure through education, evaluation, and recognition. Presentations highlight real-world applications of the Envision framework, emerging research, innovative project delivery approaches, and strategies that help communities achieve stronger environmental, social, and economic outcomes.

Envision the Future of Sustainability

As infrastructure owners, practitioners, and communities face increasingly complex challenges, the need for sustainable, resilient, and equitable infrastructure has never been greater. The conference theme, Envision the Future of Sustainability, encourages participants to examine both the critical issues facing infrastructure today and the emerging trends that will shape the decades ahead. Discussions explore how organizations are responding to challenges such as climate adaptation, carbon reduction, sustainable procurement, social value creation, technological innovation, and long-term resilience.

A COMMUNITY OF INFRASTRUCTURE LEADERS

The conference welcomes professionals from across the infrastructure lifecycle, including:

- Engineers
- Planners
- Architects and designers
- Constructors and contractors
- Infrastructure owners and operators
- Public agency staff
- Sustainability professionals
- Researchers and academics
- Students and emerging professionals
- Policy and procurement leaders

Together, these diverse perspectives create a unique learning environment where participants can share experiences, learn from peers, and discover practical approaches that can be applied within their own organizations and communities.

WHAT YOU'LL FIND IN THIS VOLUME

This book of abstracts contains the presentations accepted for the 2026 ISI Annual Conference, including educational sessions, project showcases, panel discussions, and academic poster presentations. The abstracts represent a wide range of infrastructure sectors and sustainability topics, reflecting the breadth of innovation occurring throughout the industry.

While each abstract represents a unique perspective, together they demonstrate a shared commitment to improving infrastructure outcomes through thoughtful planning, collaborative leadership, and the application of sustainability principles. We hope this collection serves as both a guide to the conference and a lasting resource for professionals working to create infrastructure that benefits communities today and for generations to come.

ENVISION™

About Envision

Envision is a sustainability framework and rating system for infrastructure that helps project teams and organizations assess and improve the environmental, social, and economic impacts of infrastructure projects. Developed by the Institute for Sustainable Infrastructure, Envision provides a comprehensive approach to delivering infrastructure that creates lasting value for communities while advancing sustainability and resilience goals.

ACKNOWLEDGMENTS

The ISI Annual Conference is made possible by a community of people who generously share their time, expertise, and passion for sustainable infrastructure.

Thank you to our speakers, authors, moderators, reviewers, sponsors, volunteers, and attendees for helping create a conference that encourages learning, collaboration, and meaningful conversations. Your willingness to share experiences, research, lessons learned, and innovative ideas strengthens our profession and helps advance more sustainable and resilient infrastructure around the world.

We are especially grateful to the many volunteers and committee members whose behind-the-scenes efforts help shape the conference program and create a welcoming experience for participants.

Whether you contributed a presentation, reviewed an abstract, supported the event, or joined the discussion, thank you for being part of the ISI community and for your commitment to creating infrastructure that serves communities today and for generations to come.

We are grateful for your partnership, participation, and continued support of ISI's mission.

Thank you to our Abstract Reviewers

Amanda Schweickert
Chi Dara
Clément Boisselier
Courtney Eaton
Daeun Yoon
Deborah Jackman
Diana Byrne
Dimitri Pasquion
Edita Kemzuraite
Elkhatab Babiker
Griselda Gonzales
Ivana Nitzova
Jennifer Mueller
Joshua Chan
Judith Rodriguez
Leslie Brunell
Libby Jones
Lindsey Nelson
Marsha Anderson Bomar
Megan Kilinski
Michael Bloom
Minda Sarmiento
Natasha Nelson
Nidal Hussein
Rajeev Ruparathna
Sandy Mukherjee
Yaneth Rodriguez Livesey

SPONSORS & SUPPORTING ORGANIZATIONS

The Institute for Sustainable Infrastructure gratefully acknowledges the organizations whose generous support helps make the ISI Annual Conference possible.

Their commitment to advancing sustainable, resilient, and high-performing infrastructure strengthens the professional community and enables the sharing of knowledge, research, and practical solutions that benefit communities around the world.

Sponsorships allow us to offer this event FREE for all participants

2026 CONFERENCE SPONSORS

HDR — PLATINUM

ARDURRA — GOLD

Public Works Los Angeles County — GOLD

RS&H — GOLD

SANPEC — GOLD

AECOM — SILVER

Beyond21 Academy — SILVER

COWI — SILVER

RVA — SILVER

vhb — SILVER

WSP — SILVER

Concrete Sustainability Council — COBALT

Curtis+Rogers Design Studio Inc. — COBALT

Mountain Town Environmental Consulting — COBALT

SIAB MEMBERS

Bentley

HNTB

NV5

Stantec

PROMOTIONAL PARTNERS

AWWA

Advancing a More Sustainable Water Future

WATERSMART INNOVATIONS

Founded by Southern Nevada Water Authority

2026
ISI ANNUAL CONFERENCE
Envision the Future of Sustainability

SCHEDULE AT-A-GLANCE

WEDNESDAY, NOV. 4

10:30 AM - 11:00 AM
OPENING REMARKS
Anthony Kane, President & CEO, ISI

11:00 AM - 12:00 PM
OPENING KEYNOTE
Matt Scott, Director of Storytelling & Engagement, Project Drawdown

12:00 PM - 1:00 PM
CONCURRENT PANEL SESSIONS
- Panel 1: Making Construction Decarbonization Real: Lessons from Envision Projects
- Panel 2: Designer, Builder & Owner Collaborations for Sustainability
- Panel 3: Embodied Carbon in Bridges

1:00 PM - 2:00 PM
ACADEMIC POSTER SESSIONS / Break

2:00 PM - 4:15 PM
CONCURRENT EDUCATION SESSIONS
Session Themes:
- Sustainable Procurement and Materials Selection for Better Outcomes
- Envision in Curriculum
- Best Practices in Sustainable Infrastructure

4:30 PM - 5:30 PM
CONCURRENT PANEL SESSIONS
- Panel 4: Sustainable Construction Outcomes: Fostering Strong Contractor Partnerships Across Delivery Methods
- Panel 5: Sustainability from Start to Finish: Envision Implementation on the Federal Way Link Extension Project
- Education Session/Panel: Connecting Local Projects and University Students with Envision – Memorial University of Newfoundland

THURSDAY, NOV. 5

10:30 AM - 1:15 PM
CONCURRENT EDUCATION SESSIONS
Session Themes:
- Sustainability At Airports
- Beyond The Project: Systems Thinking for Lasting Impact
- Sustainability In Practice / Value Beyond Envision

1:30 PM - 2:30 PM
NETWORKING SESSIONS
Hosted By Platinum and Gold Sponsors

2:30 PM - 4:00 PM
PROJECT SHOWCASE
Envision Project Case Studies:
- From Policy to Practice: Delivering Sustainable Infrastructure at the JFK RUGTC Project
- Delivering Envision Platinum for the Bull Run Filtration Facility
- Envision Strategies: Vancouver Fraser Port Authority's Holdom Overpass Project

4:00 PM - 5:30 PM
CLOSING KEYNOTE PANEL
MODERATOR:
Anthony Kane, President & CEO, ISI

PANELISTS:
Marsha Anderson Bomar, Transportation Strategic Advisor, GHD; President, ASCE

Lorenzo Orsenigo, President & General Manager, ICMQ

Angélica Ospina, CEO, Consejo Colombiano de Construcción Sostenible / Colombia GBC

Peter Templeton, President & CEO, U.S. Green Building Council

2026 ISI ANNUAL CONFERENCE
Envision the Future of Sustainability

Wednesday, November 4

10:30 AM

CONFERENCE OPENING
Anthony Kane, President and CEO, ISI

11:00 AM

OPENING KEYNOTE
Matt Scott, Project Drawdown

11:30 AM

12:00 PM

PANEL 1

Making Construction Decarbonization Real: Lessons from Envision Projects

Moderator: Clement Boisselier, Aecon
Patrick Lacombe, Pomerleau
Elsa Langill, Port of Vancouver
Laurence Roy-Grégoire, Port of Quebec

PANEL 2

Designer, Builder & Owner Collaborations for Sustainability

Moderator: Howard Lusk, Jacobs
Bayanne Alrawi, Jacobs
Jonathan Knoll, Walsh Group
James Wood, DFW International Airport

PANEL 3

Embodied Carbon in Bridges

An interactive design decision game balancing carbon, cost, and construction schedule

Moderator: Peter Wang, HNTB [SIAB]
Ken Donald, VHB
Cierra Ford, VHB

12:30 PM

1:00 PM

Poster presentation order as shown.

POSTER SESSION 1

Moderator: Leslie Brunell, ISI

Academic Poster, Student

Digital Geospatial Intelligence for Sustainable and Resilient Infrastructure – Integrating GIS, GPS, AI, and Digital Twins for Sustainable Infrastructure Delivery
Indira Prasad, Stevens Institute of Technology

Comparative Evaluation of Infrastructure Sustainability Rating Systems
Roza Afaz, University of Windsor
Bragaaruthi Nandakumar, University of Windsor

A Metric-based Framework for Evaluating Lifecycle Carbon of Designs to Extend Bridges' Service Life in Canada
Weiwei Chen, McMaster University

Bluleaf: Designing a Sustainable and Resilient Data Center
Daniel Geystrin and Janine Choy, The Cooper Union

Academic Poster, Professional/Faculty

Simulunda-Sindowe Pedestrian Bridge (Zimba District, Southern Province, Zambia)
Libby Jones, University of Nebraska

Integrating Sustainability in Environmental Engineering Capstone Design
Ramanitharan Kandiah and Krishna Kumar Nedunuri, Central State University

POSTER SESSION 2

Moderator: Lindsey Nelson, ISI

Academic Poster, Student

Utilizing the Envision Rating System to Assess Sustainable Infrastructure Design in a Civil Engineering Capstone Project
Erin Glowatz, Amelia Thieman, and Travis Judson
Rose-Hulman Institute of Technology

Project G.R.C. – Green Resilient Compute Campus
MD Rasel, Muhatasim Fuad Hridoy, Fahim Nuzhat Zahin, Dibakar Chandra Singha Kabya, and Atif Alam
Chittagong University of Engineering & Technology

Creating an Equitable Clean Energy Marketplace in the City of Riverside, California: A Community-Centered Framework for Sustainable Infrastructure Investment
Tatiana Torres, Harvard University Extension School

Functionally Graded Materials for Sustainable and Resilient Infrastructure
Farid Ahmad Niazi, Bursa Technical University

Academic Poster, Professional/Faculty

Understanding Persistent Barriers that Inhibit the Transition from Asset-based Infrastructure Delivery to Integrated, Sustainable Infrastructure Systems
Leticia Solaun, University of Florida; Suzanne Moreland, AECOM

Advancing Zero-Emission Bus (ZEB) Fleets
Jason Leung and Kat Lee, AECOM

1:30 PM

2:00 PM

Education session presentation order as shown.

EDUCATION SESSION 1

Moderator: Clément Boisselier, Aecon Group Inc.

Sustainable Procurement and Materials Selection for Better Outcomes

Sustainable Infrastructure Development: Impact, Resilience and Regeneration
Dmytro Kovhanich, FIABCI-Europe
Alissa Bankovska, FIABCI-Ukraine
Antin Kushnir, MD

Extending Service Life, Reducing Embodied Carbon: Two Rehabilitation Case Studies for Sustainable and Resilient Concrete
Lesley Ko, P+Ex
David Whitmore, Vector Corrosion Technologies

Integrating Envision into Procurement: Strategic Approaches and Implementation Insights
Pia Abercromby, COWI
Colleen Hutchison, COWI

Strategies for Sustainable Product Procurement in Envision
Lionel Lemay, ConcreteNexus LLC

EDUCATION SESSION 2

Moderator: Brad Moore, [SIAB]

Best Practices in Sustainable Infrastructure

Inclusion, Diversity, Equity, and Accessibility with Climate-Resilient Infrastructure Processes
Stephanie Poirer, Standards Council of Canada
Nancy Mitchell, Toronto Metropolitan University

Advancing Sustainable Floodplain Development: Integrating Distributed Detention within Pervious Parking Infrastructure to Enhance Resilience and Land Efficiency
Akshay Dumbre, Arcadis
Aashish Khandelwal; Princeton Critical Minerals

Embedding Envision, Part 2: Turning Principles into Practice
Ivana Nitzova, Wade Trim

Deploying a Hyper-local Index of Vulnerability to Environmental Risks at Port Corpus Christi
Jeffrey Pollack, Port of Corpus Christi Authority
Richard Smith, Conrad Blucher Institute for Surveying and Science at TX A&M Corpus Christi

EDUCATION SESSION 3

Moderator: David Abraham, Rice University

Envision in Curriculum

Engineering Student Development through Authentic Sustainability Projects Using the Envision Framework
Shannon Parks, University of Pittsburgh at Johnstown

Envision for Sustainability Qualification in Clarkson University Civil & Environmental Engineering Capstone Projects
Erik Backus, Clarkson University

Integrating Envision in Engineering Courses: A Multi-institute Discussion of Curricular Examples
Jeong Ahn, Cooper Union
Jennifer Mueller, Rose-Hulman Institute of Technology
Rebekah Oulton, Cal Poly SLO
Fethiye Ozis, Carnegie Mellon University
Shannon Parks, University of Pittsburgh at Johnstown

Integrating Envision Throughout the Capstone Design Process
Fethiye Ozis, Carnegie Mellon University
Sarah Christian, Carnegie Mellon University

2:30 PM

3:00 PM*

***There will be a short break around 3:00 pm, during the education sessions.**

3:30 PM

4:00 PM

4:15 PM

Short Break

4:30 PM

PANEL 4

Sustainable Construction Outcomes: Fostering Strong Contractor Partnerships Across Delivery Methods

Moderator: Courtney Gantt, RS&H
Samantha Pinto, AUS International Airport
Jennifer Mattheis, Austin Bridge and Road
Juan Martinez, SLC International Airport
Tony Lau, SLC International Airport

PANEL 5

Sustainability from Start to Finish: Envision Implementation on the Federal Way Link Extension Project

Moderator: Catherine Sheane, Parsons
Sonja O'Claire, Sound Transit
Catherine Calvert, Sound Transit
Brian Ortiz, Parsons
Ed Chargualaf, Kiewit

EDUCATION SESSION/PANEL 6

Applying the Envision Framework to Municipal Infrastructure: Case Studies from the City of St. John's, Newfoundland and Labrador

Memorial University of Newfoundland

Moderator: Stephen E. Bruneau

Long Pond Flow Control Structure and Flood Mitigation Project: An Envision Credentialing Perspective
Bettegowda Jayaramu Aravind Chakravarthy

Transforming Galway Village Green into an Inclusive and Climate-Resilient Community Hub
Anjan Pokharel and Ashish Khanal

How Galway Village Green – Multi-Phase Development in Newfoundland, Canada Supports Sustainable Infrastructure Through the Envision Framework
Okechukwu Ezekwesili

Envision-Based Sustainability and Resilience Assessment of the Proposed Bowring Park Skating Loop
Phlinkee Faith Pradia and Maria Gonzalez

Canada Drive Active Transportation and Road Safety Improvements
Gyaltshen Sherpa and Hemant Khadka

5:00 PM

5:30 PM

2026 ISI ANNUAL CONFERENCE
Envision the Future of Sustainability

Thursday, November 5

10:30 AM — Education session presentation order as shown.

EDUCATION SESSION 4

Moderator: Cassidy Nosenzo, RS&H

Sustainability at Airports

Reconciling Thermal Comfort, Carbon Reduction, and Climate Resilience in Aviation Infrastructure: Emerging Integrative Strategies for Airports
Kelly Whealan George,
Embry-Riddle Aeronautical University

Institutionalizing Envision: Lessons from Denver's Infrastructure Department and Denver International Airport Implementation Approaches
Dana Hoffman, City of Denver
David Plakorus, City of Denver

Lessons from HCAA's MP1: Updating Sustainable Design and Procurement
Amie Acevedo, RS&H

Operationalizing Sustainability and Resilience in Airport Project Delivery: Lessons from Miami International Airport
Patricia Gomez Acevedo,
Miami-Dade County Aviation Department

Innovation on the Airfield: Designing Bird Deterrent Devices at SEA to Balance Safety, Maintainability, and Operational Performance
Jordan Singletary, RS&H

EDUCATION SESSION 5

Moderator: Ashley Metius, NV5 [SIAB]

Beyond the Project: Systems Thinking for Lasting Impact

From Statewide Risk to Project-Level Resilience: Equipping IDOT to Pursue Envision Credits Across their Infrastructure Portfolio
Pierce Holloway, Resilient Analytics
Bryan Cross, Lochmueller Group

Proposed Approach to Integrate the Envision Framework and Value Methodology
Carlene Wong,
Metropolitan Water District of Southern California

ROI of Sustainability: Shifting the Mindset from Upfront Costs to Lifecycle Savings
Qian Zhang, GHD

Scaling Sustainability Across Infrastructure: Programmatic Envision Lessons from the Port of Long Beach
Scott Gallic, POLB
Jazz Peluchette, HDR
Shawn Choi, POLB

Building Sustainability into the New Mexico Department of Transportation DNA
Jerry Paz, Molzen Corbin & Associates
William Hutchinson, New Mexico DOT
Gerald Lujan, New Mexico DOT

EDUCATION SESSION 6

Moderator: Carly Shannon, Linx Strategies LLC

Sustainability in Practice

Delivering Better Outcomes: Envision Lessons from Alternative Project Delivery in Transit, Bridges, and Airports
Julia Adelman, Parsons
Catherine Sheane, Parsons

All Aboard! A Regional Transit Agency's Sustainability Journey
Sonja O'Claire, Sound Transit
Tan Lo Saeteurn, Stacy Witbeck/MRS
Melissa Wu, Jacobs

Closing the Loop: Envision Post Construction Documentation for Long Term Value
Brian Ortiz, Parsons
Sonja O'Claire, Sound Transit

Value Beyond Envision

Next Generation of Sustainable Urban Transit Infrastructure – Paris New Subway Line 15
Garrick Pierrefeu, Arcadis

One Tower, Three Acres: A Resilience Case for Rethinking Density in Coastal Cities
Ben Hutchens, Arquitectonica GEO

*There will be a short break around 12:00 pm, during the education sessions.

1:15 PM — Short Break

1:30 PM – 2:00 PM — NETWORKING SESSION

Embodied Carbon in Practice: Approaches, Challenges, and Lessons Learned

Reducing embodied carbon is becoming an increasingly important consideration for infrastructure projects. ***Join this interactive discussion*** on embodied carbon analysis, low-carbon material strategies, available tools and data sources, and experiences pursuing Envision Credit CR1.1 Reduce Net Embodied Carbon. The session will focus on practical lessons, common challenges, and emerging practices from across the industry.

Hosted by **HDR – Will Kirby and Chelsey Yan**

2:30 PM – 3:30 PM — *Project Showcase*

Moderator: Will Kirby, HDR

From Policy to Practice: Delivering Sustainable Infrastructure at the JFK RUGTC Project
Brian Ortiz, Parsons

Delivering Envision Platinum for the Bull Run Filtration Facility
Christopher Bowker, Portland Water Bureau
Brad Moore, Stantec [SIAB]
Gabriela Duarte, Stantec [SIAB]

Envision Strategies: Vancouver Fraser Port Authority's Holdom Overpass Project
Warren Mills, Vancouver Fraser Port Authority
Scott Smith, Mott MacDonald

4:00 PM – 5:00 PM — CLOSING KEYNOTE PANEL

This executive panel brings together leaders from organizations shaping the frameworks, standards, and system that guide sustainable infrastructure worldwide.

Moderator: Anthony Kane, ISI

Marsha Anderson Bomar
President, ASCE
Transportation Strategic Advisor, GHD

Lorenzo Orsenigo
President & General Manager, ICMQ

Angélica Ospina
CEO, Consejo Colombiano de Construcción Sostenible (CCCS) / Colombia GBC

Peter Templeton
President & CEO, U.S. Green Building Council

5:30 PM

Abstracts

The abstracts contained in this publication are presented as submitted by the authors, with only minor editorial modifications for consistency, formatting, and style. Responsibility for the accuracy of information, data, findings, references, and opinions expressed rests solely with the authors. The inclusion of an abstract in this publication does not constitute endorsement by ISI, sponsors, or affiliated organizations. Views and conclusions expressed by authors are their own and do not necessarily reflect those of ISI or conference partners.

ABSTRACTS
PROJECT SHOWCASE

Moderator: Will Kirby, HDR

Delivering Envision Platinum for the Bull Run Filtration Facility

Presenter(s): Christopher Bowker, Portland Water Bureau;
Brad Moore, Stantec [SIAB];
Gabriela Duarte, Stantec [SIAB]

ABSTRACT
The Bull Run Filtration Facility is a transformative investment in the Portland region's long-term drinking water future, designed to provide safe, reliable, and resilient water service for nearly one million people. Developed by the Portland Water Bureau, the facility will filter up to 135 million gallons of water per day, with flexibility for future expansion, while helping the region comply with federal and state drinking water regulations. Beyond improving water quality and removing disease-causing organisms, the facility strengthens system resilience against climate-related and natural hazard events, including wildfires, landslides, and seismic risks. The project also incorporates a range of sustainability-focused strategies, including energy-efficient systems, environmental stewardship initiatives, and thoughtful integration with the surrounding natural environment to support long-term community and ecological benefits.

This session will explore how the project team achieved Envision Platinum for the Bull Run Filtration Facility by integrating sustainability and resilience principles throughout planning and design. Presenters will provide an overview of the facility, highlight key strategies that supported achievement under the Envision Framework, and discuss the collaborative processes used to advance environmental protection, resource efficiency, and long-term community value. Attendees will gain insights into key project achievements, lessons learned, and practical applications of the Envision Framework for large-scale water infrastructure projects focused on sustainability, resilience, and public benefit.

Envision Strategies: Vancouver Fraser Port Authority's Holdom Overpass Project

Presenter(s): Warren Mills, Vancouver Fraser Port Authority;
Scott Smith, Mott MacDonald

ABSTRACT
The Vancouver Fraser Port Authority is the federal agency responsible for the shared stewardship of the lands and waters that make up the Port of Vancouver, Canada's largest and North America's most diversified port. As Canada looks to double exports to non-U.S. markets in the next decade, the port plays an outsized role in delivering more made-in-Canada products to more customers globally. To accommodate growing trade, the port authority funds and builds infrastructure throughout the region that aims to enhance trade capacity, reduce transportation bottlenecks, and improve safety, while minimizing impacts on local communities.

The Holdom Overpass Project is being delivered by the port authority in partnership with the City of Burnaby, CN, and the Government of Canada. This new four-lane overpass will improve traffic flow and safety for the local community and make Canada's trade more efficient. It is part of the Burnaby Rail Corridor Improvements Project, which involves a series of road and rail upgrades aimed at enhancing rail service to North Shore port terminals.

This presentation will go through how Envision was integrated throughout the project, highlight key project features that contributed to the verification, and end with lessons learned.

From Policy to Practice: Delivering Sustainable Infrastructure at the JFK RUGTC Project

Presenter(s): Brian Ortiz, Parsons

ABSTRACT
This session will provide a behind-the-scenes look at how sustainability can be embedded into large-scale infrastructure through policy alignment, contract requirements, and a design build delivery method. Using the JFK International Airport Central Terminal Area Roadways, Utilities, and Ground Transportation Center (RUGTC) project as a case study, the presentation will highlight verified successes and key challenges from the Envision verification process, offering actionable lessons for practitioners working on complex infrastructure programs.

As part of the Port Authority of New York and New Jersey's (PANYNJ) broader policy framework promoting Envision verification for large, complex, and high-profile projects, sustainability was integrated directly into procurement. This process resulted in more than 25 Envision-aligned commitments embedded within contract requirements. The approach positioned sustainability as a core project driver rather than an overlay.

One of the central focuses of the project is minimizing construction impacts while maintaining continuous airport operations. Verified achievements include strong performance in construction waste reduction and reduced energy construction consumption, alongside a targeted emphasis on improving construction safety through enhanced environmental health and safety practices. The project also reflects lessons learned from the first Envision review cycle, demonstrating how gaps in documentation, verification, and implementation can inform stronger outcomes in subsequent submissions.

The project further highlights the importance of a structured sustainability management approach to coordinate stakeholders, track performance, and adapt to evolving project conditions. In parallel, the project advances circular economy strategies through construction waste and byproduct synergies such as material re-use, leveraging an adjacent logistics and support services facility to divert and repurpose materials. At the same time, the project's commitment to integrate photovoltaic panels at the Ground Transportation Center supports PANYNJ's long-term decarbonization goals.

Attendees will gain insight into construction impact mitigation, circular economy strategies, and renewable energy integration to deliver measurable sustainability outcomes on complex infrastructure projects.

Making Construction Decarbonization Real: Lessons from Envision Projects

Moderator: Clément Boisselier, Aecon Group Inc.

Presenters: Patrick Lacombe, Pomerleau;
Elsa Langill, Port of Vancouver;
Laurence Roy-Grégoire, Port of Quebec

ABSTRACT
Reducing greenhouse gas emissions during construction remains one of the most challenging—and least standardized—aspects of infrastructure sustainability. While many projects have ambitious decarbonization goals, fewer successfully translate those goals into day-to-day construction decisions that align with cost, schedule, and safety realities. This panel brings together owner, constructor, designer, and sustainability leadership perspectives to explore how the Envision framework has been used to operationalize construction decarbonization on active infrastructure projects. Rather than focusing on high-level commitments, the discussion will center on the practical levers that delivered measurable outcomes—and the barriers that limited implementation. Panelists will share lessons learned related to construction energy use, low-carbon materials, temporary works, equipment selection, data collection, and contractor engagement, with particular attention to Envision credits such as RA2.2 (Reduce Construction Energy Consumption) and CR1.1 (Reduce Embodied Carbon). The conversation will highlight how governance structures, procurement requirements, and sustainability management plans influenced decision-making at the site level. Through moderated discussion and audience engagement, the panel will examine:

- Which decarbonization strategies proved feasible on live sites—and which did not
- How Envision helped align sustainability goals with construction execution
- Trade-offs encountered between emissions reduction, cost, schedule, and constructability
- How construction-phase carbon data can meaningfully support reporting and continuous improvement

Attendees will leave with practical insights they can apply to improve construction-phase decarbonization outcomes on their own Envision projects.

Designer, Builder & Owner Collaborations for Sustainability

Moderator: Howard Lusk, Jacobs

Presenters: Bayanne Alrawi, Jacobs;
Jonathan Knoll, Walsh Group;
James Wood, DFW International Airport

ABSTRACT
International Parkway is the primary roadway serving Dallas/Fort Worth (DFW) International Airport. This project, delivered through a design-build (DB) model, provides a time-critical replacement of 50-year-old bridges that have been weakened by prolonged heat stress. The roadway is also being reconfigured to enhance safety and operational efficiency.

The project is contractually required to achieve a minimum Envision Silver; however, the team exceeded this requirement and successfully earned a Gold rating.

Representatives from DFW Capital Improvements, DFW Sustainability, Jacobs (design partner), and Archer Western (construction partner) will present. They will share insights into the perspectives, responsibilities, and contributions of each partner, highlighting how effective coordination enabled the team to surpass minimum requirements while maintaining schedule and budget constraints. For three of the presenters, it was their first project to pursue Envision verification.

Embodied Carbon in Bridges

An interactive design decision game balancing carbon, cost, and construction schedule

Moderator: Peter Wang, HNTB [SIAB]

Presenters: Ken Donald, VHB;
Cierra Ford, VHB

ABSTRACT

"Embodied Carbon refers to the GHG emissions generated by the manufacturing, transportation, installation, maintenance, and disposal of construction materials used in buildings, roads, and infrastructure." (Carbon Leadership Forum). Embodied Carbon is still a relatively new topic in the infrastructure world despite accounting for approximately 10% of GHG emissions globally. As the infrastructure industry begins to have more data and guidance for calculating carbon, carbon management strategies will become more common. This learning session will begin with understanding what embodied carbon is, and where it comes from in our projects. Then we will dive into how to calculate it with an example bridge project through an interactive "design decision" game where teams work through common bridge design decisions—selecting beam types, span configurations, and material options for a virtual project—and immediately see how each decision changes embodied carbon, cost, and construction schedule. You'll leave with a clear understanding of why embodied carbon matters, which levers are most effective, and how to start making better, lower-carbon decisions on your own projects without needing to be a sustainability specialist, and how to apply this to Envision Credit CR1.1

Sustainable Construction Outcomes: Fostering Strong Contractor Partnerships Across Delivery Methods

Moderator: Courtney Gantt, RS&H

Presenters: Samantha Pinto, AUS International Airport;
Jennifer Mattheis, Austin Bridge and Road;
Juan Martinez, SLC International Airport;
Tony Lau, SLC International Airport

ABSTRACT

This panel features innovative approaches to developing strong contractor partnerships across delivery methods. Panelists from the Austin-Bergstrom International Airport (AUS) and Salt Lake City International Airport (SLC) will share their experiences of how the Institute for Sustainable Infrastructure's Envision framework supported their contractor engagement and partnerships on their midfield taxiway projects (both in verification).

The session will offer insights into how to conduct meaningful contractor outreach for design-bid-build projects including how to gain insight from contractors on particular project elements. The session will also discuss projects where the construction manager at risk (CMAR) delivery is utilized to show how contractor feedback was provided throughout the project process to inform credit achievement (e.g., RA 1.4 Reduce Construction Waste or QL 1.3 Improve Construction Safety).

Throughout the session, the audience will gain an understanding of how to successfully engage contractors during design and construction. Panelists will share lessons learned from the specification development process including how to adapt City specifications to include Envision requirements or adopting sustainability specifications for the first time. Panelists will also discuss lessons learned from the construction phase including opportunities for higher levels of credit achievement or times where alternative strategies had to be developed (e.g., for LD 1.4 Pursue Byproduct Synergies). Finally, panelists will discuss the value of these strong contractor partnerships, how the project sustainability has benefited from these efforts, and perspectives from construction contractors.

Sustainability from Start to Finish: Envision Implementation on the Federal Way Link Extension Project

Moderator: Catherine Sheane, Parsons

Presenters: Sonja O'Claire, Sound Transit;
Catherine Calvert, Sound Transit;
Brian Ortiz, Parsons;
Ed Chargualaf, Kiewit

ABSTRACT
The Federal Way Link Extension (FWLE) project is a 7.8-mile light rail system extension from Angle Lake to the Federal Way Downtown Station near South 320th Street. This project, which traverses the cities of SeaTac, Des Moines, Kent, and Federal Way in King County, demonstrates how clear vision, structured collaboration, and shared lessons drive Envision success for a Design-Build (D-B) transportation project.

From the outset, Sound Transit embedded sustainability performance requirements into the Request for Proposals and Technical Provisions. This early, explicit commitment was essential to institutionalizing sustainability expectations and roles across the D-B team. The Kiewit-Parsons Team also facilitated a multidisciplinary eco-charrette with key design, construction, and operations stakeholders to establish consensus-based sustainability priorities and performance targets related to three sustainability frameworks: Envision, LEED, and the Owner's Design Criteria Manual (DCM).

Collaborative workflows were central to enhanced Envision outcomes, leading to a Platinum verification, where Gold was the original target. The Sustainability Management Plan was used as a vehicle for establishing strategies, benchmarks, performance metrics, and tracking mechanisms. It was also critical to efficient coordination of overlapping but not always identical expectations of LEED, Envision, and the DCM. Regular coordination among subject matter experts improved the effectiveness of sustainability strategy integration and the collection of necessary documentation. The D-B team co-developed Envision narratives and used iterative review cycles with Sound Transit to capture Owner-led perspectives. Close collaboration with clear identification of construction phase documentation expected from ISI was vital for consistent implementation and successful post-construction Verification (completed April 2026).

The panel will include organizational and project-specific perspectives from Sound Transit (Sonja O'Claire and Catherine Calvert); design and construction best practices from Parsons and Kiewit (Brian Ortiz and Ed Chargualaf), and structured audience participation. The panel will be moderated by Catherine Sheane, the project's lead ENV SP.

Applying the Envision Framework to Municipal Infrastructure: Case Studies from the City of St. John's, Newfoundland and Labrador

Memorial University of Newfoundland

Moderator: Stephen E. Bruneau

Long Pond Flow Control Structure and Flood Mitigation Project: An Envision Credentialing Perspective

Presenter: Bettegowda Jayaramu Aravind Chakravarthy

ABSTRACT
This project, centered around the proposed Long Pond Flow Control Structure and Flood Mitigation initiative in St. John's, NL, within the Rennie's River watershed, aims to tackle a pressing issue. We're looking to significantly reduce flood risks for the homes and community infrastructure downstream, an urgency that seems to have grown considerably due to past major flood events, ongoing development, and the increasingly intense rainfall we're seeing with climate change. The plan involves building a flow control structure right at the outlet of Long Pond, alongside other crucial flood mitigation elements, including what I think will be a lovely 3.0m wide pedestrian walkway. This whole endeavor, it appears, fits quite well with the Envision Credentialing System's principles for sustainable infrastructure. For instance, it really speaks to improving the Quality of Life by safeguarding our community and creating better public spaces. It also seems to show strong Leadership through its extensive public engagement and collaboration with key stakeholders like Memorial University, Pippy Park Commission, and Eastern Health. And, importantly, it addresses the Natural World by carefully managing the watershed's ecological footprint. Moreover, this project is clearly a step towards Climate and Resilience, offering a thoughtful response to the growing challenges of flood risks. The comprehensive way we're approaching environmental assessment and involving the community here really suggests it has the potential to earn some high sustainability marks under the Envision framework.

Transforming Galway Village Green into an Inclusive and Climate-Resilient Community Hub

Presenters: Anjan Pokharel; Ashish Khanal

ABSTRACT
Galway Village Green in St. John's, Newfoundland and Labrador, currently provides accessible recreational amenities through its Phase 1 development. However, opportunities remain to enhance community connectivity, environmental sustainability, climate resilience, and cultural representation. This project proposes a Phase 2 development that transforms the park into an inclusive, multi-generational, and climate-resilient public space that serves residents of all ages and abilities.

The proposed design incorporates universal accessibility principles and low-impact development (LID) strategies, including bioswales, rain gardens, permeable pathways, native vegetation, and an engineered wetland to improve stormwater management and ecological performance. Additional community-focused features include a splash pad, pavilion, community garden, terraced garden, viewing platform, and flexible gathering spaces that support recreation, social interaction, and cultural events throughout the year.

The Envision framework is applied to evaluate opportunities for improving sustainability, resilience, and long-term community benefits. The assessment explores strategies across the Envision categories of Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Resilience. Particular attention is given to accessibility, social equity, environmental stewardship, cultural identity, and climate adaptation.

This case study demonstrates how community parks can serve as critical infrastructure assets that strengthen social connections, support environmental sustainability, and improve resilience to changing climate conditions. The project highlights the role of the Envision framework in guiding sustainable infrastructure planning and decision-making while creating meaningful community value and enhancing the livability of growing municipalities.

Envision-Based Sustainability and Resilience Assessment of the Proposed Bowring Park Skating Loop

Presenters: Phlinkee Faith Pradia; Maria Gonzalez

ABSTRACT
Bowring Park is one of St. John's most valued recreational and cultural public spaces, supporting community gathering, tourism, and year-round outdoor activity. The proposed Bowring Park Skating Loop presents an opportunity to enhance recreational value while integrating sustainability and resilience considerations early in project planning. This study applies the Envision Sustainable Infrastructure Framework to examine how a recreational infrastructure project can be evaluated not only for public-space value, but also for stormwater sensitive planning, climate resilience, long-term operational performance, and long-term community benefit. The study focuses on stormwater-sensitive planning as a key area of analysis. Rather than relying solely on conventional drainage approaches, the research uses selected Envision credits, including NW2.2 Manage Stormwater, CR2.2 Assess Climate Change Vulnerability, CR2.4 Establish Resilience Goals and Strategies, QL3.4 Enhance Public Space and Amenities, and QL1.1 Improve Community Quality of Life, to identify opportunities for permeable surfaces, drainage-sensitive grading, low-impact development, green infrastructure, and landscape-based runoff management. The study develops an Envision-based evaluation matrix that links project components, potential stormwater strategies, relevant credits, documentation needs, and expected environmental, operational, and community benefits. The research positions Envision as a decision-support framework beyond formal verification. By applying Envision during the conceptual design stage, the study demonstrates how project teams can organize sustainability priorities, compare design alternatives, identify documentation needs, and connect technical decisions with broader community outcomes. The Bowring Park case study illustrates how local recreation projects can use Envision to integrate stormwater management, climate adaptation, environmental protection, public-space enhancement, and resilient infrastructure planning in Newfoundland and Labrador.

How Galway Village Green – Multi-Phase Development in Newfoundland, Canada Supports Sustainable Infrastructure Through the Envision Framework

Presenter: Okechukwu Ezekwesili

ABSTRACT
Municipal green spaces are often developed in phases due to limited budgets and priorities. This can prevent green spaces from being recognized and planned as sustainable infrastructure. This presentation reviews the Galway Village Green infrastructure project in St. John's, Newfoundland, Canada and explores how phased planning can align incremental delivery with Envision sustainability goals and procurement decisions.

Envision is a sustainable infrastructure rating system organized into five credit categories, namely the Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Resilience, that evaluates community well-being, environmental stewardship, resource efficiency, collaborative delivery, and long-term resilience.

Phase 1 of the Galway Village Green project delivered a universally accessible playground, a multipurpose court, trails, landscaping, and parking. The City of St. John's invested nearly $1.9 million, while Galway Residential Development LP provided the land. Phase 1 aligns with Envision credit QL1.1 (Improve Community Quality of Life) by incorporating universal design features into the playground to accommodate residents of all abilities. It also meets QL3.4 (Enhance Public Space and Amenities) through trails, pathways, and a multi-purpose court that expand outdoor space for the community.

Future phases of the project will add a community garden, pavilion, splash pad, washrooms, open green space, seating areas, and an engineered wetland. The introduction of a sustainable wetland usually supports Envision credits NW2.2 (Manage Stormwater) and NW3.2 (Enhance Wetland and Surface Water Functions), with final credit achievement depending on detailed design and implementation.

This presentation outlines a phased credit-mapping approach that integrates Envision sustainability considerations into each delivery stage. This helps municipalities prioritize investments, guide procurement, communicate outcomes to stakeholders, and support decision-making, advancing community impact and social sustainability within limited budgets and timelines.

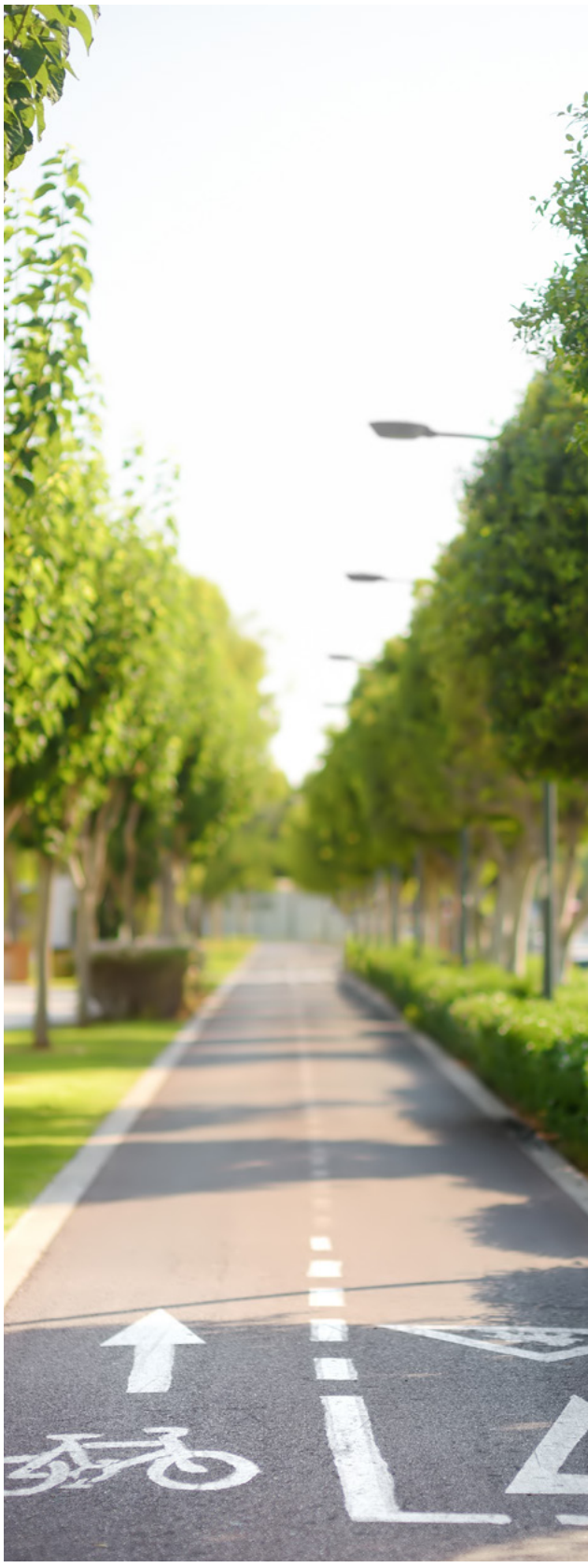
Canada Drive Active Transportation and Road Safety Improvements

Presenters: Gyaltshen Sherpa; Hemant Khadka

ABSTRACT
The Canada Drive Active Transportation and Road Safety Improvements Project in the City of St. John's aims to enhance safety, accessibility and sustainable mobility along Canada Drive between Columbus Drive and Team Gushue Highway. The project, part of the backbone cycling network identified in the Bike St. John's Master Plan, will involve building a shared-use path, improving walking facilities, rehabilitating roads, implementing traffic calming, and providing better links with other active transportation facilities, such as the Kelly's Brook Shared-Use Path. The project is also being implemented concurrent with the City's annual street rehabilitation program, which will save money and prevent future roadway excavation.

The project is designed to improve the safety and accessibility of the transportation corridor for pedestrians, cyclists, transit riders and those with mobility challenges. In 2022, public and stakeholder engagement was done to consider two roadway design options with the preferred roadway design being a shared-use path on the south side of Canada Drive with on-street parking on both sides. The proposed enhancements will improve multi-model transportation, slow vehicle traffic down with narrower traffic lanes and foster increased adoption of active transportation in the city.

This project may be assessed based on the Quality of Life, Resource Allocation, Leadership, Natural World and Climate and Resilience principles of the Institute for Sustainable Infrastructure (ISI) Envision framework. The project provides examples of potential benefits including public safety improvements, GHG reductions, transportation connectivity and climate resilience for a cold-region urban context. Overall, the Canada Drive project is an important achievement toward a safer, more sustainable and climate resilient transportation network in St. John's.



EDUCATION SESSION THEMES

Sustainable Procurement and Materials Selection for Better Outcomes

Discover how sustainable procurement and materials selection can drive lower-carbon, safer, more adaptable, and longer-lasting infrastructure. Through real-world examples spanning concrete rehabilitation, aviation innovation, responsible sourcing, and circular design, this session offers practical strategies for improving lifecycle value, resilience, and community outcomes.

Envision in Curriculum

Discover practical, transferable approaches for integrating Envision into engineering education — from focused assignments and short modules to capstone-wide applications. Drawing on examples from multiple institutions, this session shows how Envision can strengthen students' sustainability knowledge, communication, decision-making, and ability to design resilient, equitable infrastructure while preparing for ENV SP credentialing.

Best Practices in Sustainable Infrastructure

Discover practical strategies for delivering sustainable infrastructure through multifunctional design, data-driven climate-risk planning, inclusive engagement, and organization-wide implementation of Envision principles. Drawing on real-world applications in floodplain development, port resilience, engineering practice, and equitable project delivery, this session offers actionable approaches for creating more resilient, efficient, and community-centered infrastructure.

Sustainability At Airports

Explore how airports can embed sustainability and resilience across policies, procurement, project delivery, and terminal operations. This session brings together practical strategies for organizational change, sustainable materials, streamlined governance, energy efficiency, carbon reduction, climate adaptation, and passenger comfort using Envision as a guiding framework.

Beyond The Project: Systems Thinking for Lasting Impact

Explore how systems thinking can extend sustainability beyond individual projects by embedding Envision into agency culture, portfolio planning, governance, and lifecycle decision-making. Drawing on transportation, water, and port infrastructure examples, this session highlights practical strategies for managing climate risk, demonstrating long-term value, strengthening accountability, and delivering lasting impact across programs and organizations.

Sustainability In Practice / Value Beyond Envision

This track will begin by looking at sustainability in practice through real-world transportation projects that turn organizational commitments into measurable outcomes. Drawing on Envision-certified light-rail projects and lessons from alternative delivery across transit, bridges, and airports, this session explores how standards, funding, collaboration, contract requirements, and post-construction documentation drive stronger, accountable performance. Then, it will showcase how Envision can create value beyond formal verification by guiding consequential design decisions for complex urban infrastructure. Through examples in transit and coastal public space, this session shows how low-carbon materials, circular resource use, green infrastructure, climate adaptation, and community-centered design can deliver measurable environmental benefits and lasting public value.

Theme: Sustainable Procurement and Materials Selection for Better Outcomes

Moderator: Clément Boisselier, Aecon Group Inc.

Extending Service Life, Reducing Embodied Carbon: Two Rehabilitation Case Studies for Sustainable and Resilient Concrete

Presenters: Lesley Ko, P+Ex;
David Whitmore, Vector Corrosion Technologies

ABSTRACT

For existing concrete infrastructure, one of the most effective strategies is to preserve and extend service life through timely maintenance, repair, and rehabilitation rather than demolition and replacement. This approach improves resource efficiency, reduces embodied carbon, supports long-term asset performance and can minimize disruption to surrounding communities. It is well aligned with Envision's Sustainable Infrastructure Framework goal to encourage infrastructure owners to pursue more sustainable, resilient, and equitable outcomes across the full project life cycle.

The first case study examines repair of the Patrick V. McNamara Federal Building parking garage where standardized methods are used to compare repair with demolition and reconstruction. The analysis shows that extending service life by 60 years can avoid nearly 1,000 tons of CO2 equivalent. The project illustrates how rehabilitation can advance Envision's priorities related to resource allocation (e.g. RA1.3; RA1.4; RA2.2; RA3.1; RA 3.3), climate and resilience (e.g. CR1.1; CR1.2; CR2.5), and life-cycle decision-making by delivering measurable environmental benefit while preserving asset value.

The second case study highlights the City of Toronto's Gardiner Expressway Strategic Rehabilitation Plan, where rehabilitation was selected instead of demolition or underground relocation. Through structural repairs and galvanic encasement technology, the plan is expected to provide corrosion protection and extend service life by 30 to 40 years. This project case study demonstrates how targeted rehabilitation can strengthen resilience (link to Envision's indicators CR2.1, CR2.5), reduce material demand (link to Envision's indicators RA1.4; RA2.2; RA3.1) and environmental impact, maintain mobility, and improve quality of life by limiting disruption to the public (link to Envision's indicator QL1.1, QL1.4, QL1.6).

Together, these projects show that preserving existing infrastructure is a practical, evidence-based pathway to a more sustainable future.

Integrating Envision into Procurement: Strategic Approaches and Implementation Insights

Presenters: Pia Abercromby, COWI;
Colleen Hutchison, COWI

ABSTRACT

Integrating sustainability frameworks into infrastructure procurement presents an opportunity to influence project outcomes from early planning through delivery, while allowing flexibility for diverse project contexts. This session explores approaches for incorporating Envision into procurement processes across multiple delivery models without prescribing a single rigid methodology. Rather than focusing on specific credit pathways, the discussion emphasizes adaptable strategies that enable project teams to align sustainability goals with scope, budget, and stakeholder priorities.

Participants will be introduced to a range of procurement considerations, including the use of prescriptive credit targets, performance goals, and incentive opportunities that can be calibrated to suit varying levels of project definition and organizational familiarity with Envision. Approaches may include early-stage planning documents, ongoing coordination roles, or phased integration strategies that evolve throughout project delivery. Particular attention will be given to how procurement language can influence team behavior, encourage innovation, and manage potential risks, while maintaining flexibility to respond to changing conditions.

Attendees will leave with a conceptual understanding of how Envision can be incorporated into procurement in a way that supports both consistency and adaptability. By focusing on principles rather than prescriptive requirements, this session creates space for discussion of a variety of approaches and lessons learned, making it relevant to practitioners at different stages of their sustainability journey.

Strategies for Sustainable Product Procurement in Envision

Presenter: Lionel Lemay, ConcreteNexus LLC

ABSTRACT
As infrastructure owners and project teams increasingly prioritize sustainability, the Envision framework offers a powerful structure for evaluating material choices through the lenses of environmental stewardship, social responsibility, and long-term economic value. This presentation provides practical strategies for integrating sustainable product procurement into Envision-aligned project delivery, helping teams strengthen performance across key credit areas while advancing broader organizational sustainability goals.

The session will introduce the Envision framework's approach to materials, emphasizing how responsible sourcing, lifecycle impacts, and supply-chain transparency contribute to improved project outcomes. Participants will learn how to assess products using Envision's criteria for reducing embodied impacts, supporting resource efficiency, enhancing community well-being, and promoting ethical and resilient supply chains.

Building on this foundation, the presentation will outline actionable procurement strategies that align with Envision's objectives. Topics include evaluating environmental product declarations and responsible sourcing certifications, integrating sustainability criteria into procurement workflows, and collaborating with manufacturers to obtain documentation that supports Envision credit achievement. The session will also highlight how material decisions influence performance across Envision categories such as Resource Allocation, Climate and Resilience, Quality of Life, and Leadership.

By equipping practitioners with tools to make informed, impact-driven procurement decisions, this session demonstrates how sustainable materials selection can meaningfully advance Envision project performance while driving market transformation in the infrastructure sector.

Sustainable Infrastructure Development: Impact, Resilience and Regeneration

Presenters: Dmytro Kovhanich, FIABCI-Europe;
Alissa Bankovska, FIABCI-Ukraine;
Antin Kushnir, MD

ABSTRACT
The global construction industry is at a critical turning point. Climate change, resource constraints, rapid urbanization, and the need to rebuild communities affected by war require infrastructure that delivers lasting environmental, social, and economic value. Sustainable infrastructure must go beyond technical performance to strengthen resilience, improve quality of life, and support regenerative development.

This presentation explores how the Envision Sustainable Infrastructure Framework provides a practical methodology for planning, evaluating, and delivering resilient infrastructure. Drawing on more than 15 years of international experience in real estate, modular construction, and regenerative development, Dmytro Kovhanich will demonstrate how Envision supports informed decision-making throughout the project lifecycle.

The session will examine regenerative and human-centered approaches to infrastructure, including modular construction, circular resource use, adaptable building systems, stakeholder engagement, and trauma-informed design for communities affected by war, displacement, and climate-related challenges. Participants will explore how infrastructure can contribute not only to environmental sustainability but also to long-term community well-being and resilience.

Using practical case studies—including regenerative modular construction solutions and the concept of self-sustaining floating communities, the presentation will demonstrate how Envision's five credit categories: Quality of Life, Leadership, Resource Allocation, Natural World, and Climate & Resilience can be applied to create infrastructure that generates measurable long-term value.

Rather than focusing on individual technologies, the presentation emphasizes a holistic, framework-based approach to sustainable infrastructure. Attendees will gain practical insights into applying Envision to evaluate project performance, reduce lifecycle impacts, strengthen resilience, and support regenerative reconstruction and sustainable urban development in diverse international contexts.

Theme: Best Practices in Sustainable Infrastructure

Moderator: Brad Moore, Stantec [SIAB]

Inclusion, Diversity, Equity, and Accessibility With Climate-Resilient Infrastructure Processes

Presenters: Stephanie Poirier, Standards Council of Canada;
Nancy Mitchell, Toronto Metropolitan University

ABSTRACT
Aligning with the Envision Sustainability Framework, this session will offer an overview of the Guide on Applying Inclusion, Diversity, Equity and Accessibility Within Climate-Resilient Infrastructure as a complimentary tool to the Quality of Life category of the Pre-assessment Checklist. This session supports the growing importance of embedding inclusion, diversity, equity, and accessibility (IDEA) within climate adaptation strategies. This session recognizes the disproportionately impacts of climate change on Indigenous Peoples and equity-deserving communities and the necessity of integrating equity into climate-resilient infrastructure planning. While many organizations (particularly municipalities) are emphasizing this importance, they need support embedding IDEA within portfolio management and project design processes. This session will provide a framework for embedding IDEA within risk assessments, engagement, design elements, procurement, and more. We will explore the benefits of this work, challenges, and actions for change.

Advancing Sustainable Floodplain Development: Integrating Distributed Detention within Pervious Parking Infrastructure to Enhance Resilience and Land Efficiency

Presenter: Akshay Dumbre, Arcadis;
Aashish Khandelwal, Princeton Critical Minerals

ABSTRACT
Developing in regulated floodplains requires balancing stormwater compliance, land-use efficiency, and long-term resilience. Conventional centralized surface detention ponds are land-intensive, single-purpose systems that often limit site optimization and integration with broader infrastructure objectives.

This presentation introduces a distributed detention approach that integrates stormwater storage directly within pervious parking infrastructure, transforming conventional site elements into multi-functional systems. The methodology utilizes a hybrid storage strategy to meet regulated discharge requirements, combining subsurface void storage within gravel layers and controlled surface ponding.

Approximately 40% of the required storage volume is achieved through subsurface void capacity, while the remaining volume is provided through controlled surface ponding of 7–9 inches within strategically depressed parking areas. Each storage node is hydraulically controlled through dedicated restrictor structures and integrated with existing downstream infrastructure to ensure system-level performance.

Through grading optimization, the design achieves a floodplain-neutral condition, preserving floodplain storage capacity while reducing land disturbance and improving site functionality. By eliminating the need for dedicated detention basins, the approach enhances land-use efficiency and supports cost-effective project delivery.

This methodology aligns with key principles of the Envision Sustainable Infrastructure Framework, including resource allocation, Natural World and Climate & Resilience. Key design considerations, trade-offs, and lessons learned are presented to support replication across floodplain-constrained environments, providing a practical model for engineers, planners, and agencies seeking to deliver resilient and sustainable infrastructure solutions.

Embedding Envision, Part 2: Turning Principles into Practice

Presenters: Ivana Nitzova, Wade Trim

ABSTRACT
Last year, we shared how our firm adopted the principles of the Institute for Sustainable Infrastructure's Envision framework as an internal guide for project delivery, quality management, and decision-making without pursuing formal project verification. Inspired by Envision's focus on leadership, quality of life, resource allocation, natural systems, and climate resilience, we established a foundation for embedding sustainable thinking across the organization.

This year's presentation focuses on the next phase of that journey: moving from framework development to implementation. Building on the Envision framework as our organizational compass, we will discuss how we are integrating sustainability directly into our quality and standards program through project checklists, design standards, and technical guidance documents. We will also share our approach to developing sustainability resources for staff, including a verifications guide, specification integration strategy, and internal tools that support consistent application of sustainable practices.

In addition, we will highlight initiatives aimed at measuring and communicating value, including ESG tracking methods, lifecycle assessment and emissions evaluation approaches, funding and grant strategies, and tools for demonstrating the business case for sustainability to clients. The presentation will also cover outreach and engagement efforts, client-focused webinar development, and emerging work exploring the intersection of artificial intelligence and sustainability, including the environmental impacts of AI usage.

Attendees will gain practical examples, lessons learned, and actionable strategies for using the Envision framework beyond verification as a practical tool for embedding sustainability into quality systems, project delivery, client engagement, and everyday engineering practice.

Deploying a Hyper-local Index of Vulnerability to Environmental Risks at Port Corpus Christi to Inform Infrastructure Design, Fortification, and Management

Presenters: Jeffrey Pollack, Port of Corpus Christi Authority; Richard Smith, Conrad Blucher Institute for Surveying and Science at TX A&M Corpus Christi

ABSTRACT
Coastal ports build and operate critical infrastructure at the intermodal nodes of the global freight mobility network. Ports, and the coastal communities in which they operate, face escalating environmental risks, necessitating the creation of tools to quantify vulnerability at the asset level. Yet most existing risk assessments operate at a facility-wide or regional scale, leaving engineers and planners without the granular data needed to make design and investment decisions at a practical scale.

Port Corpus Christi contracted Conrad Blucher Institute for Surveying and Science (CBI) to help develop a bespoke, but replicable, Vulnerability Index to quantify risk to storm surge, pluvial flooding, relative sea level rise, wind, and temperature at the scale of individual assets—with sub-meter resolution—to inform infrastructure design; refine insurance coverage; and prioritize capital investment on the basis of relative risk and criticality. This tool has direct application to all six of the Envision Resilience credits as well as select Wellbeing, Community, Collaboration, Planning, Economy, Siting, and Ecology credits.

Phase I of this endeavor integrated 41 discrete data streams, including NOAA tidal predictions, high-resolution LiDAR-derived elevation models, FEMA flood hazard layers, and historical climate records, into the Port's enterprise GIS (GeoPORT). To maximize utility to community partners, data were gathered for the entire three-county area around the Port. In Phase II, the team is developing pre-formulated tools and a web-based portal that allows users to create customized, hyper-local indices of vulnerability. The team also developed detailed operating and data maintenance procedures to ensure scalability of the curated data and replicability of the risk assessment methodology in other ports and coastal communities. This presentation will share lessons learned, demonstrate the portal, and discuss how the methodology can be adapted by other port authorities and infrastructure owners pursuing Envision verification or similar sustainability frameworks.

Theme: Envision in Curriculum

Moderator: David Abraham, Rice University

Envision for Sustainability Qualification in Clarkson University Civil & Environmental Engineering Capstone Projects

Presenter: Erik Backus, Clarkson University

ABSTRACT
Since 2015, the Civil & Environmental Engineering capstone design and construction planning course at Clarkson University has utilized the Envision rating system as a mechanism to address project sustainability qualification in stride with other design requirements. A separate elective course provides self-selecting students to have strong working knowledge of the rating system that is then applied in a wide variety of infrastructure capstone efforts. This poster will provide a sweep of examples as well as a reflective look at the use across a decade of such experiences.

Engineering Student Development Through Authentic Sustainability Projects Using the Envision Framework

Presenter: Shannon Parks, University of Pittsburgh at Johnstown

ABSTRACT
Integrating the Envision framework into undergraduate engineering coursework offers a promising approach for engaging students in authentic, sustainability-focused practice. This study examines how embedding Envision within real-world engineering assignments influences student motivation, engagement, and understanding of sustainability in professional engineering contexts. Specifically, it explores how Envision-based projects support the development of communication skills and strengthen students' ability to evaluate economic, environmental, and societal impacts of engineering decisions.

The Envision framework is incorporated into CE 1610: Engineering & Sustainable Development, a junior-level required course for civil engineering majors at the University of Pittsburgh at Johnstown and an elective for mechanical, chemical, electrical, and computer engineering students. The course emphasizes sustainability, systems thinking, and social responsibility, making it well suited for Envision's holistic approach to infrastructure planning and evaluation.

Key integration elements include a Writing and Reflection assignment focused on engineering case studies and professional responsibility, and an Industry Research and Innovation Project. In the latter, students engage with practicing professionals, evaluate organizational sustainability goals, apply relevant Envision credits, and develop conceptual design improvements supported by structured business cases. Through these activities, students use Envision not only as a rating system, but as a planning and communication framework to justify sustainability innovations to diverse stakeholders.

Educational outcomes are assessed through three short in-class surveys administered before Envision instruction, after the first team project, and at the end of the course. Quantitative and qualitative analyses examine changes in student perceptions, engagement, and learning across the semester. Support for this work is provided by an ISI Faculty Support Grant. Findings will inform best practices for integrating Envision into engineering curricula and preparing students for sustainability-driven infrastructure careers.

Integrating Envision in Engineering Courses: A Multi-institute Discussion of Curricular Examples

Presenters: Jeong Ahn, Cooper Union;
Jennifer Mueller, Rose-Hulman Institute of Technology;
Rebekah Oulton, California Polytechnic University, San Luis Obispo (Cal Poly SLO);
Fethiye Ozis, Carnegie Mellon University;
Shannon Parks, University of Pittsburgh at Johnstown

ABSTRACT
The Institute for Sustainable Infrastructure's Envision Rating System does more than measure resiliency, social equity, and environmental justice of civil infrastructure projects; it also provides a framework for guiding design decisions throughout the entire design process. To prepare civil and environmental engineering students and equip them with the knowledge base to proactively utilize this framework as a design tool in their professional careers, we have incorporated the Envision Rating System as a teaching tool in civil and environmental engineering curriculum. In this session, we will describe transferable pedagogical examples of integrating Envision into various civil and environmental engineering courses that have been implemented across five different institutions of higher learning. By utilizing Envision as a framework to teach civil and environmental engineering students how to consider quality of life, allocation of resources, and resiliency in their designs, we are equipping them with the knowledge to prepare them for earning the Envision Sustainability Professional credential.

By applying Envision as a tool to provide concrete guidance during the design process, students begin to regard these considerations to be inherent in making technical design decisions. The innovative approaches shared in this session vary from micro-insertion techniques in lower-level courses to full application of Envision in capstone design courses. These pedagogical techniques could be used by other programs as they desire to use a vetted framework to enable students to create sustainable, forward-thinking designs, while preparing students to earn Envision Sustainability Professional credentialing that is beneficial in their professional careers as practicing engineers.

Integrating Envision Throughout the Capstone Design Process

Presenters: Fethiye Ozis, Carnegie Mellon University;
Sarah Christian, Carnegie Mellon University

ABSTRACT
This poster presents a practical model for integrating the Envision framework into senior civil and environmental engineering capstone design courses to strengthen students' ability to incorporate sustainable, resilient, and stakeholder-centered engineering within the design process. We describe how Envision and its supporting tools, including the Navigator, were embedded throughout the capstone design process as a decision-making aid and guide for improved processes. Students selected and applied prioritized Envision credits to their own projects, deepening their awareness of trade-offs, stakeholder needs, and long-term impacts. Integrating Envision into capstone design enhances students' ability to design equitable and resilient systems while preparing them to lead in a rapidly evolving engineering landscape. This work aligns with Carnegie Mellon University's mission to cultivate technically proficient, socially conscious, and innovation-driven engineers through authentic, collaborative, and community-connected project experiences. We will share a faculty-ready model for adoption along with insights into what worked well and what could be improved.

Theme: Sustainability at Airports

Moderator: Cassidy Nosenzo, RS&H

Institutionalizing Envision: Lessons from Denver's Infrastructure Department and Denver International Airport Implementation Approaches

Presenters: Dana Hoffman, City of Denver; David Plakorus, City of Denver

ABSTRACT
As more public agencies adopt the Envision framework to advance sustainable, resilient, and equitable infrastructure, a key challenge to success presents itself: how to successfully institutionalize Envision within an organization's policies, processes, project delivery systems and culture. This session will provide practical insights from two major Denver organizations—Denver's Department of Transportation & Infrastructure (DOTI) and Denver International Airport (DEN)—that are actively embedding Envision across their capital programs.

The presentation will highlight how DOTI has integrated Envision into policy, project governance, and everyday workflows, including development of internal support tools, training, and a scalable approach for projects of varying size and complexity. In parallel, DEN will share its own implementation strategy, for integrating Envision into airport-specific design standards, sustainability goals, procurement processes, and contractor engagement for horizontal infrastructure projects.

The session will offer a candid look at lessons learned, institutional hurdles, change management strategies, and measurable successes to date. Attendees will walk away with actionable guidance for launching, strengthening, or scaling an Envision program within their own organizations.

Lessons from HCAA's MP1: Updating Sustainable Design and Procurement

Presenter: Amie Acevedo, RS&H

ABSTRACT
The Envision verification presents a valuable opportunity to inform and strengthen airport-wide sustainability programs. As a result of the Envision verified Hillsborough County Aviation Authority (HCAA) Master Plan Phase 1 (MP1), the Team identified opportunities for updating the Sustainability Management Plan (SMP) and Sustainable Design Criteria Manual (SDCM) in 2023. Notably, HCAA's experience was unique, as it was the first entity to submit a large collection of Master Plan projects under a single application after construction was complete. This approach tested the effectiveness of the existing SMP and SDCM contributing to a successful Envision Verification.

Lessons learned through this process revealed strengths and gaps in the Authority's sustainability program. In response, the 2023 SMP update directly called for revisions to both the SDCM and Sustainable Procurement Policy (SPP) to consistently embed sustainability principles into both operational and capital decision-making.

The SDCM and SPP align internal departments and external services around shared environmental performance expectations by encouraging the reduction of material generation and increase in reuse and recycling everyday performance of an airport through RFP's, RFQ's, contract language and policies. Building on insights from the Envision verification process, HCAA established its first Sustainable Procurement Program in 2025, providing guidance on the preferred attributes and third-party certifications for products and contracted services.

Both the SDCM and the SPP were developed with the Envision framework in mind, positioning HCAA to more effectively support future projects in pursuing credits such as RA1.1 (Support Sustainable Procurement Practices) and RA1.2 (use Recycled Materials), as well as QL1.1 (Improve Community Quality of Life), LD2.4 (Plan for End of Life), and CR1.2 (Reduce Greenhouse Gas Emissions).

This presentation discusses how the Envision verification process can be leveraged to address gaps in Airport-wide sustainability programs and advance best management practices for sustainable procurement across airport operations and construction.

Operationalizing Sustainability and Resilience in Airport Project Delivery: Lessons from Miami International Airport

Presenter: Patricia Gomez Acevedo, Miami-Dade County Aviation Department

ABSTRACT
As airports face increasing pressure to deliver resilient infrastructure under evolving regulatory requirements, compressed schedules, and growing operational demands, governance and coordination processes are becoming as critical as the projects themselves. MIA, through the Miami Dade Aviation Department, launched a department wide initiative to strengthen how sustainability and resilience considerations are integrated into capital project delivery. Rather than creating a standalone compliance program, the initiative modernized existing workflows across procurement, design, construction, and project management to improve consistency, accountability, and operational effectiveness.

The effort supports Miami Dade County's broader sustainability and resilience policies, including the Sustainable Buildings Program, Sea Level Rise Standards, Purpose Driven Procurement, and the adoption of Envision for infrastructure projects. The Envision framework served not only as a verification tool but also as a guide for shaping project governance practices. Principles such as resource efficiency, enhanced resilience, collaboration, and long-term value creation informed project delivery and strengthened coordination structures and role clarity.

Initial assessments identified recurring challenges, including inconsistent implementation across divisions, reliance on institutional knowledge, fragmented email-based documentation, and approval timelines frequently exceeding four weeks. To address these gaps, MDAD re-engineered components of its procurement and project coordination workflows using a framework centered on people, structures, and outcomes. Envision concepts such as stakeholder coordination, improved decision making, and operational resilience guided the redesign. More than 160 employees have participated in training focused on elevating the integration of sustainability, resilience, and Envision aligned best practices.

The initiative also modernized workflow structures by transitioning to a centralized digital process using Autodesk Construction Cloud. Updated project tracking tools, automated compliance forms, and standardized workflows improved visibility, continuity, and accountability while reducing schedule. This session will share lessons learned and demonstrate how Envision can support best practices, drive efficiencies, align with standards, and advance long-term resilience.

Innovation on the Airfield: Designing Bird Deterrent Devices at SEA to Balance Safety, Maintainability, and Operational Performance

Presenter: Jordan Singletary, RS&H

ABSTRACT
Airports across the country face ongoing challenges with birds perching on airfield signage, where deterrent systems must balance aviation safety, maintainability, regulatory compliance, and operational practicality. This session will highlight an innovative bird deterrent solution developed for Seattle-Tacoma International Airport (SEA) as part of the 2026 Airfield Improvement Program project currently seeking Envision verification. It will demonstrate how collaborative infrastructure design can be implemented to overcome challenges on the airfield.

The project required bird deterrents on 40 new and existing airfield signs; however, conventional systems were found to create significant concerns related to foreign object debris (FOD), maintenance, worker safety, and sign warranty conflicts. Existing industry solutions, including fixed spikes, tilt devices, and adhesive systems, were evaluated through coordination with airport operations, maintenance staff, environmental teams, designers, and other airports. However, none adequately met all operational and safety requirements.

In response, the project team developed a novel modular bird spike mounting system that uses adhesive-mounted channels rather than permanent penetrations into sign structures. The system preserves sign integrity, minimizes FOD risk under jet blast conditions, and allows maintenance personnel to safely remove and reinstall deterrents during sign servicing. Maintenance staff actively participated in prototype development, creating a solution that addresses long-term operational needs. The design also supports interchangeable spike configurations to accommodate varying bird species and future adaptation.

This session will explore the collaborative design process, stakeholder coordination strategies, lessons learned, and implementation considerations that led to a scalable and transferable solution for airport environments. Attendees will gain practical insight into how innovation, cross-disciplinary coordination, and maintainability-focused design can improve infrastructure performance and resilience across aviation facilities.

Reconciling Thermal Comfort, Carbon Reduction, and Climate Resilience in Aviation Infrastructure: Emerging Integrative Strategies for Airports

Presenter: Kelly Whealan George, Embry-Riddle Aeronautical University

ABSTRACT

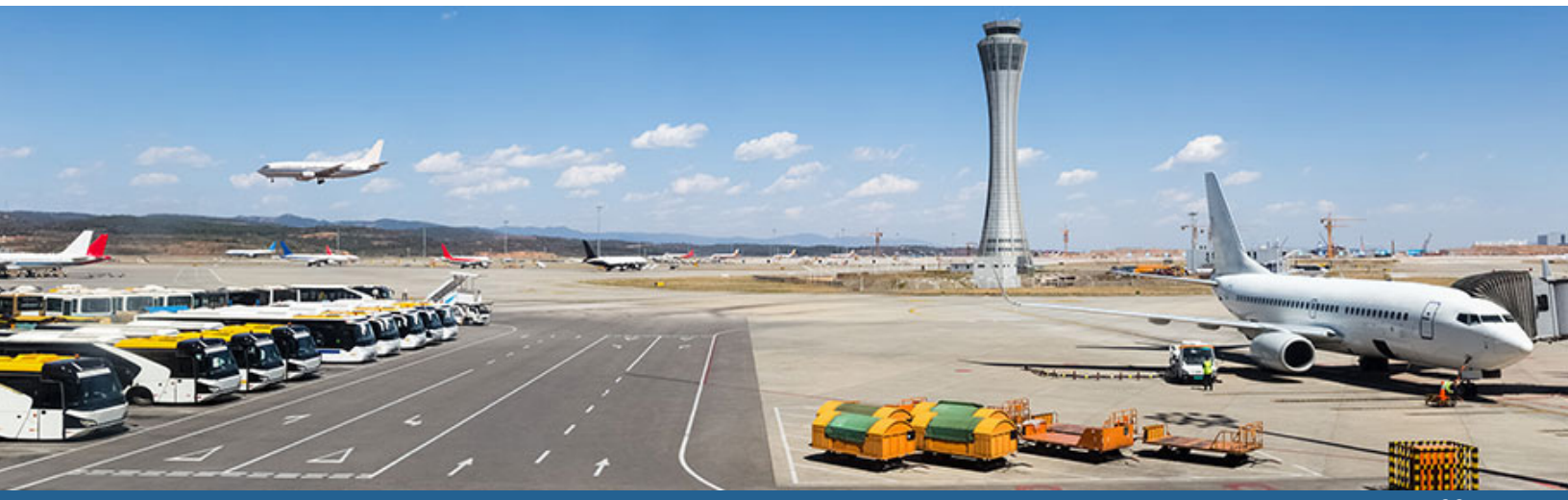
Airports are energy-intensive & operationally-constrained assets in the built environment, operating continuously under safety, security, and comfort requirements. Their large terminals, complex systems, & critical infrastructure result in high greenhouse gas (GHG) emissions while limiting conventional energy management flexibility. Airports represent high-leverage opportunities for integrated decarbonization, climate resilience, & sustainable infrastructure transformation at scale.

This paper examines emerging trends for aligning three interdependent objectives: carbon reduction, climate resilience, & occupant thermal comfort. Framed through the Envision Sustainable Infrastructure Framework, it offers a method for evaluating sustainability & resilience across infrastructure planning, design, delivery, and operations. Envision is relevant to this topic because airport decarbonization and resilience strategies cut across multiple Envision categories, including Quality of Life, Leadership, Resource Allocation, and Climate and Resilience. While this paper does not present a formal Envision verification, it identifies where Envision credits would likely apply to the strategies discussed.

Potentially applicable Envision credit areas include reducing operational energy use, increasing renewable energy integration, reducing greenhouse gas emissions, improving long-term adaptability, strengthening climate-change resilience, supporting resilient energy systems, advancing integrated project planning, and improving user health, safety, and comfort. In this context, Envision serves as an organizing framework and evaluative lens for understanding how terminal design, energy infrastructure, and governance commitments can contribute to broader sustainable infrastructure outcomes.

The paper conceptualizes airport terminals as socio-technical systems requiring coordinated interventions across building envelope performance, HVAC systems, hybrid energy infrastructure, digital optimization, and governance frameworks. Given that HVAC systems account for a substantial share of terminal energy demand, strategies such as high-performance façades, passive load reduction, radiant and displacement ventilation, occupancy-based controls, and on-site renewable integration are evaluated for their dual mitigation and comfort benefits.

The paper further analyzes hybrid microgrid architectures as mechanisms to couple emissions reduction with operational continuity during grid disruptions and extreme weather. Artificial intelligence-enabled management systems and predictive analytics are highlighted for their capacity to optimize energy use and indoor environmental quality. The study demonstrates how integrated design, resilient energy systems, and governance commitments can operationalize Envision-aligned principles for next-generation sustainable airport infrastructure.



Theme: Beyond the Project – Systems Thinking for Lasting Impact

Moderator: Ashley Metius, NV5 [SIAB]

From Statewide Risk to Project-Level Resilience: Equipping IDOT to Pursue Envision Credits Across their Infrastructure Portfolio

Presenter: Pierce Holloway, Resilient Analytics;
Bryan Cross, Lochmueller Group

ABSTRACT
As climate-related hazards intensify, transportation agencies face growing pressure to quantify risk, prioritize investment, and demonstrate resilience across aging infrastructure networks. This presentation details how Resilient Analytics (RA) developed the Illinois Department of Transportation's (IDOT) inaugural Resilience Improvement Plan (RIP), a federally-aligned effort satisfying Federal Highway Administration requirements while expanding IDOT's eligibility for PROTECT grant funding.

The RIP encompassed a statewide inventory of 586,219 road segments (148,660 miles) and 35,613 structures. Using ensemble climate modeling methods, RA's in-house climate scientist produced county-level projections quantifying future hazard exposure from flooding and landslides. A risk-based vulnerability assessment followed, applying a flexible, updatable scoring matrix built from state and federal data sources to evaluate asset sensitivity and prioritize intervention.

The project's most consequential output for IDOT project managers is a GIS-based web tool paired with an adaptation strategy toolbox. Together, these resources allow planners to evaluate individual projects against flooding and landslide risk, identify applicable adaptation measures, and assess PROTECT funding eligibility giving project teams the data foundation and documentation needed to pursue Envision's Climate and Resilience credits from the earliest stages of project development. Thirty-four high-priority projects were identified through this process, each representing an immediate opportunity for Envision-aligned investment.

By embedding climate risk data, vulnerability findings, and adaptation guidance directly into IDOT's planning infrastructure, this project positions agency managers to pursue Envision credits systematically and confidently, across the full portfolio.

Proposed Approach to Integrate the Envision Framework and Value Methodology

Presenter: Carlene Wong, Metropolitan Water District of Southern California

ABSTRACT
The Metropolitan Water District of Southern California (Metropolitan), a state-established cooperative that serves 19 million people over a 5,200 square-mile service area with a regional economy output of $1.6 trillion, has long been a leader in developing innovative, collaborative, and lasting solutions that support its 26 member agencies and the entire region. With climate change, shifting water demands, and aging infrastructure threatening the long-term reliability of Southern California's water supplies, Metropolitan is exploring strategies to address these challenges as well as to demonstrate its commitment to greater sustainability and resiliency. One approach under consideration is incorporating the Envision Sustainable Infrastructure Framework throughout a project's life cycle.

Aligning with the 2026 ISI Annual Conference's sustainability themes of "best practices" and "value of Envision beyond verification," this presentation explores a novel approach to integrate the Envision framework and Value Methodology (VM) to maximize value and enhance the sustainability and resiliency of a project. The VM is a systematic process used by a multidisciplinary team, led by a qualified VM facilitator, to improve the value of a project, product, process, service, or organization through the analysis of function.

As a best practice, Metropolitan conducts a Value Engineering Program to improve the overall value of its Capital Investment Program projects by applying the VM to examine a project's function, design, equipment, materials selection, and contracting approach. This presentation proposes expanding the application of the VM to facilitate establishing sustainability goals, achievement levels, and implementation strategies using the Envision framework, during initial planning of a project and through its life cycle.

A Function Analysis System Technique diagram has been preliminarily developed with the Envision framework's 64 sustainability and resilience indicators. The presenter seeks conference participants' feedback on this proposal with the objective to expand value in the areas of sustainability and resiliency beyond Envision verification.

ROI of Sustainability: Shifting the Mindset from Upfront Costs to Lifecycle Savings

Presenter: Qian Zhang, GHD

ABSTRACT
In infrastructure development, sustainability initiatives are frequently the first items cut during value engineering, as stakeholders and decision-makers remain hyper-focused on minimizing upfront capital expenditures. As a result, professionals struggle to bridge the gap between sustainable design principles and economic reality, making it difficult to gain approval for long-term, resilient solutions.

However, Envision framework is not just a rating system, but also a transformative educational tool for project economics. By shifting the focus away from a pure compliance mindset, learning the Envision framework can change how professionals approach project budgets. It equips teams with the vocabulary and perspective needed to transition conversations from immediate costs to long-term Return on Investment (ROI) and lifecycle savings.

This session will demonstrate how Envision credits can provide a structured methodology for lifecycle cost analysis. Attendees will see how reframing budget discussions around these principles helps identify operational and maintenance savings early in planning, and align engineers, planners, and financial stakeholders around a shared vision of long-term economic and environmental viability.

Scaling Sustainability Across Infrastructure: Programmatic Envision Lessons from the Port of Long Beach

Presenters: Scott Gallic, POLB;
Jazz Peluchette, HDR;
Shawn Choi, POLB

ABSTRACT
A programmatic application of the Envision framework offers benefits that extend well beyond freight and port infrastructure. When applied at the program level, Envision becomes a governance and decision-making tool that aligns sustainability, resiliency, equity, and lifecycle performance across transportation, water, energy, and public works portfolios.

Lessons from the Port of Long Beach's Pier B On-Dock Rail Support Facility Program demonstrate that a programmatic approach enables owners to establish shared sustainability goals, consistent performance metrics, and repeatable documentation practices across multiple projects—while still allowing flexibility for site-specific innovation. By defining a common Envision boundary and baseline early, the Port was able to integrate climate resilience, community priorities, multimodal safety, and future-ready zero-emissions planning into ten distinct project packages delivered over time.

Critically, this approach reduced duplication, improved coordination among multidisciplinary teams, and strengthened accountability across design and construction phases—outcomes that are directly transferable to large bridge replacement programs, corridor improvements, water system upgrades, and campus-scale capital programs. At Pier B, program-level planning enabled systemwide benefits such as mode shift, emissions reduction, workforce development, and energy readiness that would have been more challenging to achieve through a project-by-project lens.

This presentation shares practical, sector-agnostic insights from POLB, including how to structure program governance, standardize Envision credit strategies, manage evolving scopes, and leverage Envision to support long-term policy goals and innovative solutions including maintaining close working relationships and best practice sharing with the California Air Resources Board on voluntary zero-emissions construction programs and implementing through project lifecycles. Attendees will leave with actionable strategies for using Envision programmatically to drive durable sustainability and resiliency outcomes—regardless of asset type.

Building Sustainability into the New Mexico Department of Transportation DNA

Presenters: Jerry Paz, Molzen Corbin & Associates;
William Hutchinson, New Mexico DOT;
Gerald Lujan, New Mexico DOT

ABSTRACT

Transportation agencies are increasingly expected to deliver infrastructure that not only meets mobility needs, but also advances resilience, environmental stewardship, resource efficiency, and community outcomes. Recognizing that sustainability could not simply be another project requirement or checklist, the New Mexico Department of Transportation (NMDOT) began a journey to embed sustainable practices into the agency's culture and business processes.

This presentation will share NMDOT's path toward institutionalizing sustainability and transforming it from isolated initiatives into an agency-wide framework. Attendees will learn how earlier practices—including Context Sensitive Solutions, environmental commitments, pilot projects such as the I-25/University effort, and statewide climate initiatives—created the foundation for a broader sustainability vision. The session will also discuss how NMDOT leadership support was gained through collaboration among staff in key positions, and strategic planning efforts that led to development of a formal Sustainability Program.

Participants will gain practical insight into NMDOT's implementation approach, including the evaluation of multiple sustainability frameworks and the eventual selection of the Envision Sustainable Infrastructure Framework. Rather than applying a one-size-fits-all approach, NMDOT developed a scalable implementation strategy that incorporates sustainability pathways, project screening committees, streamlined tools, workforce training, updates to procurement and contract language, updates to NMDOT planning and design practices, and resources available for long term success.

The presentation will highlight lessons learned, implementation challenges, and strategies used to build long-term organizational acceptance. Attendees will leave with practical ideas and transferable approaches that can help agencies integrate sustainability into everyday decision-making and make it part of their organizational DNA.

Theme: Sustainability in Practice

Moderator: Carly Shannon, Linx Strategies LLC

All Aboard! A Regional Transit Agency's Sustainability Journey

Presenters: Sonja O'Claire, Sound Transit;
Tan Lo Saeteurn, Stacy Witbeck/MRS;
Melissa Wu, Jacobs

ABSTRACT
Sound Transit (ST) provides express buses, light rail, and commuter train services for the central Puget Sound Region serving over 150,000 daily riders across its system. This session will cover how ST employs agency standards, culture, and dedicated funding to set sustainability objectives on system expansion projects and advance progress towards its Sustainability Plan goals. The session will then highlight how a contractor leveraged those standards and goals to deliver the 3.4-mile Downtown Redmond Light Rail Extension (DRLE) project, leading it to be the first light rail project in the Pacific Northwest to earn Envision Platinum. Attendees will walk away understanding how ST's organizational structure and sustainability policies directly contributed to higher levels of achievement on the DRLE project from an owner and design and construction contractor perspective.

Delivering Better Outcomes: Envision Lessons from Alternative Project Delivery in Transit, Bridges, and Airports

Presenters: Julia Adelman, Parsons;
Catherine Sheane, Parsons

ABSTRACT
The purpose of this educational session is to compare and contrast performance on transportation-oriented alternate project delivery (APD) infrastructure projects that have used Envision versions 2 and 3. Drawing on Parsons' experience as the Owner's representative or lead Designer, the session synthesizes lessons learned from eight projects that have achieved or are undergoing verification for levels ranging from Silver to Platinum.

For two projects in each of four transportation categories (light rail transit, bus rapid transit, long-span river crossing bridges, and airport internal circulation), the session will present successes and lessons learned tied to a variety of project, team, and contractual attributes. The following will be discussed:

- Evolution of each project's Envision scores from early projections to the final Envision verification;
- Attributes of project surroundings, infrastructure type(s), and/or delivery method that presented inherent advantages or challenges;
- Advantages and drawbacks of applying more than one, and sometimes overlapping sustainability frameworks/ certification rating systems (e.g. LEED, Envision, Parksmart, or Owner-specific criteria); and
- Relationship between the specificity of contract-driven requirements such as Sustainability Management Plan, mandated construction-oriented Envision credits, sea level rise analysis or broader climate risk and vulnerability assessments on the approved Envision credit Levels of Achievement.

Other trends that may have led to the highest (i.e. Platinum) Envision verification levels will be identified, such as the scope and breadth of environmental planning activities; early-stage interdisciplinary sustainability workshops, maturity of organizational sustainability commitments of key team members and stakeholders; and team consensus and chemistry.

Lastly, the session will address how P3 and design–build delivery methods differ in their ability to address Envision credits focused on O&M obligations and end-of-life considerations as well as which prescriptive and performance procurement provisions best support Envision achievements.

Closing the Loop: Envision Post Construction Documentation for Long Term Value

Presenters: Brian Ortiz, Parsons;
Sonja O'Claire, Sound Transit

ABSTRACT
Sustainability objectives are often clearly defined during planning and design, while project closeout construction document requirements shift these objectives from aspirational to accountable. Attendees will see how Sound Transit integrated Envision verification and LEED certification concurrently on major light rail expansion projects, post-construction documentation verified outcomes at project closeout, captured lessons that informed future work, and turned certification from a milestone into lasting institutional and communal value.

Sound Transit (ST) employs agency standards, culture, and dedicated funding to set sustainability objectives on system expansion projects and advance progress towards its Sustainability Plan goals. Demonstrating that those objectives were fully realized, after years of construction, scope changes, substitutions, and team transitions, is where infrastructure projects are ultimately proven. On Sound Transit's 7.8-mile Federal Way Link Extension (FWLE), Envision provided the framework for confirming what was delivered, what evolved, and how project outcomes were ultimately verified.

FWLE achieved a final post-construction Envision Platinum level in early 2026, alongside LEED Silver and Gold certifications for associated facilities. While early design set the foundation, post-construction documentation was essential to demonstrating real performance. The Envision framework and scorecard served as a roadmap back through the project: validating leadership commitments, confirming construction practices, reconciling material and waste tracking, closing the gaps in energy and commissioning strategies, and documenting where assumptions required reconciliation with as-built conditions.

Credits related to construction impacts, materials, monitoring, and long-term operations required more than narratives; they required records, calculations, field documentation, and coordination across owner, designer, and contractor teams. In several cases, design-phase intent could only be confirmed or adjusted through post-construction review, reinforcing that Envision is not static and that aspirational or in-progress efforts are distinct from credits that are fully verified and implemented in practice.

Theme: Value Beyond Envision

Moderator: Carly Shannon, Linx Strategies LLC

One Tower, Three Acres: A Resilience Case for Rethinking Density in Coastal Cities

Presenter: Ben Hutchens, Arquitectonica GEO

Authors: Ben Hutchens, Arquitectonica GEO;
Margarita Blanco, Arquitectonica GEO;
Johanna Morales, Arquitectonica GEO

ABSTRACT
Miami Beach doesn't have the privilege of treating resilience as a future problem. Sea level rise is already reshaping how we plan, build, and maintain public infrastructure. Canopy Park, a three-acre public park along Alton Road, was designed inside that reality, not around it.

Originally, the site was planned for nine mid-rise towers. As ULI and Harvard research put Miami Beach at the center of the sea level rise conversation, the team made a different call — concentrate all density into one tower and return the rest of the land to the city as public open space. That decision is what made Canopy Park possible.

That same change of mindset guided the landscape design. Water was not treated as something to be rushed off site, but held, slowed, and put to work within the landscape. This approach fueled every element in the project: flood protection basins, bioretention berms, permeable soils, a 25,000-gallon cistern, and Sustainable Urban Drainage Systems that increased the site's stormwater capacity by more than eighteen times.

The ecological program was based on the same logic. More than 400 trees and native planting communities modeled after Coastal Dune Maritime Forests, mangroves and saltwater marshes now provide approximately 56 tons of carbon capture in the first year, increasing more than 73 tons annually as the canopy matures. These are not incidental results. They're what happens when the planting strategy is treated as infrastructure from the start.

In this session we will walk through the decisions behind those systems – where the design aligned with Envision principles around Natural World, Quality of Life, and Long-Term Resilience, and where the real challenge was. The goal is not to present a success story, but rather to share the methodology that other practitioners can analyze, adapt, and push further.

Next Generation of Sustainable Urban Transit Infrastructure – Paris New Subway Line 15

Presenter: Garrick Pierrefeu, Arcadis

ABSTRACT
As urban populations grow, delivering large-scale infrastructure that is resilient, resource-efficient, and ecologically integrated is paramount. Arcadis, as Integrated Project Manager, has leveraged the Envision framework as a guiding tool to drive the design and delivery of the ambitious on the Paris new Subway Line 15 infrastructure —a next-generation urban transit project.

On the East segment comprising 17 kms of tunnels, subway stations, ventilation shafts, and rolling stock depot under a Design & Build contract, Arcadis in consortium with the contractor, managed to set bold new sustainability standards, illustrating the next mobility infrastructure generation for public transport, in the following categories:

Resource Allocation was prioritized through the full local recycling of construction and tunnel waste, reducing environmental footprint and promoting circular economy principles. Early adoption of advanced BIM tools enabled optimized HVAC solutions, supporting material efficiency and lifecycle performance. Deployment of innovative low-carbon and fiber-reinforced concretes further reduced embodied carbon, contributing to a 40% reduction in the project's overall carbon footprint, significantly outperforming regional benchmarks.

Natural World outcomes were maximized by integrating 12 hectares of new green spaces within dense urban fabric, fostering biodiversity, enhancing stormwater infiltration, and improving community well-being. Stations were designed as mobility hubs, strengthening urban connectivity and access for local populations.

Climate and Resilience objectives steered the design of critical infrastructure—such as the train depot—to withstand extreme heatwaves and future climate stressors. Green roofs, permeable surfaces, and innovative stormwater management systems further boosted the line's climate adaptation capacity.

While Envision was not formally applied for verification, its comprehensive approach informed project decisions, driving higher performance across sustainability indicators and embedding resilience and circularity at every stage. Key challenges included balancing rapid delivery with robust stakeholder engagement and integrating novel construction materials within existing regulatory frameworks.

Poster Sessions

Moderators: Leslie Brunell, ISI; Lindsey Nelson, ISI

A Metric-Based Framework for Evaluating Lifecycle Carbon of Designs To Extend Bridges' Service Life in Canada

Presenter: Weiwei Chen, McMaster University

ABSTRACT
Canada's bridges are aging rapidly, creating increasing pressure on decision-makers to balance rehabilitation and replacement to extend bridges' service life in Canada while addressing sustainability constraints. My research examines the limitations of the current policy framework, particularly the absence of standardized methods to evaluate lifecycle environmental impacts in the bridge sector. To address this gap, the study develops a metric-based assessment framework grounded in life cycle assessment principles to quantify and compare the carbon impacts of bridge rehabilitation and replacement options. The framework introduces two normalized metrics—carbon intensity and avoided carbon—to enable consistent, project-level evaluation across alternatives.

A hypothetical case study based on the original Champlain Bridge is used to demonstrate the application of the framework. Results show that, under the assumptions of the analysis, the replacement proposal yields lower lifecycle carbon intensity than the rehabilitation proposal, highlighting the importance of quantitative evaluation rather than relying on default assumptions about sustainability. Building on these findings, the paper proposes policy recommendations, including integrating carbon metrics into procurement processes and requiring lifecycle environmental assessments for infrastructure projects.

This research aligns with the principles of the Envision framework developed by ISI, particularly its emphasis on lifecycle thinking, resource efficiency, and climate resilience in infrastructure decision-making. By providing a transparent and quantifiable approach to evaluating environmental performance, the proposed metric-based framework and standardized method support Envision's goal of enabling more sustainable, data-driven infrastructure investments. Ultimately, the study contributes to advancing circular economy strategies and supports Canada's transition toward low-carbon infrastructure systems.

Bluleaf: Designing a Sustainable and Resilient Data Center

Presenters: Daniel Geystrin, The Cooper Union;
Janine Choy, The Cooper Union

ABSTRACT
The rapid growth in demand for data center infrastructure in the age of artificial intelligence poses a significant risk to communities in terms of resource consumption and life cycle environmental impacts. Through the American Society of Civil Engineers' (ASCE) Sustainable Solutions Competition, the Cooper Union presents Bluleaf Data Center, an integrated infrastructure proposal that utilizes the Envision framework to guide the planning and development of an efficient, minimally intrusive facility.

Envision's Leadership, Natural World, and Climate & Resilience categories guided design and operational aspects. The project's cooling systems use non-potable water from the city's municipal wastewater treatment plant, which is first treated on the project site. Implementing blue-green infrastructure reduced stormwater runoff, captured stormwater, and reduced watershed impact on the site. On-site solar panels and wind power purchase agreements are strategies implemented to increase renewable energy usage at Bluleaf Data Center. Envision's Quality of Life credit category also guided us to consider noise reduction strategies and share metrics with the community, thereby minimizing strain on the local community.

Envision's Resource Allocation and Natural World credit categories played a significant role in planning the construction phase by providing metrics for reducing consumption, waste, and environmental contamination. Best management practices such as dust control water spraying, erosion blankets, using electric machinery where applicable, and reusing construction waste all reduce the construction phase's impact on the community and environment.

Bluleaf Data Center successfully demonstrates the use of Envision as a decision-support framework for planning and evaluating complex infrastructure systems. The project links credits and performance targets to specific design strategies, highlighting Envision's intuitive and modular strategy for integrating sustainability metrics into infrastructure. Although data centers are not known for their sustainable practices, following the Envision framework allows the project to minimize impacts or create benefits compared to conventional data centers.

Comparative Evaluation of Infrastructure Sustainability Rating Systems

Presenters: Roza Afaz, University of Windsor;
Bragaaruthi Nandakumar, University of Windsor

Authors: Bragaaruthi Nandakumar, University of Windsor;
Roza Afaz, University of Windsor;
Tharindu Dodanwala, University of Windsor;
Rajeev Ruparathna, University of Windsor

ABSTRACT
Sustainability rating systems have become essential tools for guiding the planning, design, and delivery of infrastructure projects. Widely adopted frameworks such as Envision, CEEQUAL, and Infrastructure Sustainability Rating Scheme provide structured approaches to assess environmental, social, and economic performance. However, differences in assessment criteria, weighting methods, regional adaptability, and implementation complexity present challenges for consistent application and comparison. This study presents a comparative analysis of major infrastructure sustainability rating systems, focusing on key dimensions including governance, resource efficiency, climate resilience, stakeholder engagement, and lifecycle impacts. The analysis identifies strengths, limitations, and gaps across systems, particularly in addressing climate risk, digital integration, and context-specific adaptability. The findings highlight the need for harmonized frameworks and decision-support tools to enhance cross-system comparability and support more informed, resilient, and sustainable infrastructure development.

Creating an Equitable Clean Energy Marketplace in the City of Riverside, California: A Community-Centered Framework for Sustainable Infrastructure Investment

Presenter: Tatiana Torres, Harvard University Extension School

ABSTRACT
The City of Riverside, California, faces a critical opportunity to accelerate its clean energy transition while addressing longstanding inequities in energy access, affordability, and environmental burden. Despite strong state and local climate commitments, barriers including limited financing mechanisms, regulatory complexity, and insufficient project pipelines continue to constrain the deployment of equitable renewable energy infrastructure.

This capstone project, developed in partnership with GRID Alternatives Inland Empire under Phase I of the Coalition for Green Capital's Municipal Investment Fund (MIF), proposes a scalable framework for establishing an equitable clean energy marketplace in Riverside. The project supports the development of community-centered solar infrastructure that prioritizes low-income and historically underserved communities while advancing greenhouse gas reduction goals and workforce development opportunities.

Using a mixed-methods approach, the study combined policy and literature review, stakeholder mapping, comparative case study analysis, and sustainability framework assessments, including Harvard University's SDG Scan tool and an informal Envision sustainability assessment. Findings revealed significant untapped solar potential in Riverside, with approximately 94% of rooftops suitable for solar deployment, alongside disproportionate energy burdens affecting lower-income households.

The project identifies four strategic implementation areas: (1) equitable project pipeline development, (2) collaborative governance and permitting coordination, (3) clean energy investment and market activation, and (4) inclusive workforce development pathways. Recommendations include leveraging community-based partnerships, utilizing environmental justice screening tools such as CalEnviroScreen, and expanding innovative financing mechanisms to reduce investor risk and improve accessibility for underserved residents.

This project demonstrates how municipalities, utilities, and nonprofit organizations can collaborate to create replicable, equity-centered clean energy investment models that advance climate resilience, economic opportunity, and sustainable infrastructure outcomes. The proposed framework offers transferable lessons for communities seeking to align clean energy deployment with environmental justice and long-term infrastructure sustainability goals.

Digital Geospatial Intelligence for Sustainable and Resilient Infrastructure – Integrating GIS, GPS, AI, and Digital Twins for Sustainable Infrastructure Delivery

Presenter: Indira Prasad, Stevens Institute of Technology

ABSTRACT
Sustainable infrastructure delivery increasingly relies on advanced geospatial intelligence that integrates GIS, GPS, AI analytics, and digital twin technologies to reduce environmental impact, improve lifecycle performance, and strengthen system resilience. This poster demonstrates how combining Geographic Information Systems (GIS) and Global Positioning Systems (GPS) with AI-enabled analytics and virtual infrastructure models enables agencies to transition from resource-intensive field workflows to efficient, low-carbon, digitally enabled practices. GPS provides precise positional data for distributed assets, while GIS organizes these inputs into spatial models that reveal environmental conditions, system vulnerabilities, and long-term performance trends. AI techniques further enhance these capabilities by automating anomaly detection, forecasting deterioration, and optimizing inspection and maintenance cycles to extend asset life and reduce rework.

Digital twin environments build on these geospatial foundations by creating virtual representations of infrastructure systems to support scenario testing, climate risk evaluation, and predictive maintenance planning. Through applications in land management, environmental monitoring, and infrastructure asset tracking, this work demonstrates how integrated geospatial AI workflows reduce travel-related emissions, streamline stakeholder communication, and improve the efficiency of planning and operations. As infrastructure systems grow more interconnected and climate pressures intensify, proficiency in GIS/GPS tools, AI analytics, and digital twin technologies is becoming essential for a sustainability-focused workforce. By integrating spatial intelligence, predictive modeling, and virtual planning, this poster highlights how digital technologies advance resilient, equitable, and environmentally responsible infrastructure systems. As these technologies reshape infrastructure practice, upskilling the current workforce to apply AI confidently, enhanced GIS/GPS intelligence becomes essential to realizing their full sustainability benefits.

Functionally Graded Materials for Sustainable and Resilient Infrastructure

Presenter: Farid Ahmad Niazi, Bursa Technical University

ABSTRACT
In addition to using materials more effectively, civil infrastructure assets are expected to withstand environmental deterioration, thermal gradients, shifting climate stresses, and long-term maintenance demands. By putting higher-capacity, corrosion-resistant, thermally compatible, or lower-impact constituents where they are most needed, Functionally Graded Materials (FGMs), whose composition or attributes vary spatially, present a viable method for performance-based material selection.

A conceptual framework for assessing FGMs as an Envision-aligned materials strategy for resilient and sustainable infrastructure is presented in this poster. The poster ties FGM performance mechanisms to Envision principles related to resource allocation, climate and resilience, quality of life, natural world considerations, and leadership in early-stage decision-making, as opposed to treating FGMs as a finished Envision project or formal scoring exercise.

The framework concentrates on six mechanisms that are relevant to sustainability: material optimization, extended lifespan, potential for carbon reduction, potential for integrating recycled materials, corrosion defense, and resistance to thermal stress. These mechanisms are linked to the requirements for infrastructure performance across civil components subjected to temperature fluctuations, dynamic effects, environmental deterioration, and long service-life requirements.

The poster includes implementation obstacles, such as manufacturability, construction scalability, pricing, design standards, long-term validation, quality control, and lifecycle carbon documentation, that must be overcome prior to broad infrastructure adoption. This work provides a structured approach for evaluating advanced material assessment as an emerging option for resilient, resource-conscious infrastructure by placing FGMs within an Envision-informed decision framework.

Project G.R.C. – Green Resilient Compute Campus

Presenters: MD Rassel, Muhatasim Fuad Hridoy, Fahim Nuzhat Zahin, Dibakar Chandra Singha Kabya, Atif Alam, Chittagong University of Engineering & Technology

ABSTRACT

Project G.R.C. is an 80 MW, Tier-IV equivalent hyperscale data center engineered to redefine digital infrastructure sustainability within the City of ASCE. Developed on a remediated brownfield site, the project utilizes a net-zero earthwork grading strategy that eliminates off-site soil export, seamlessly integrating heavy infrastructure with the surrounding landscape while preserving a natural 100-year flood-retentive wetland. Addressing the critical theme of Water and Wastewater, the facility abandons traditional water-wasting chiller plants. Instead, it deploys an AI-optimized, closed-loop Direct-to-Chip (D2C) liquid cooling architecture. Operating on a sealed 91,840-gallon thermal mass, the system successfully eliminates 152,000 gallons of daily evaporative water demand. Ongoing facility consumption is drastically reduced to under 10,000 gallons per day, sourced entirely from a municipal Advanced Water Treatment (AWT) skid, ensuring zero reliance on the public potable water grid. Within the Energy sector, Project G.R.C. champions circular thermodynamics. The data center's 60°C waste heat is captured and upgraded via a parabolic solar-boosted Organic Rankine Cycle (ORC). This hybrid system reliably generates 8.27 MW of net electricity from waste heat, covering 12.7% of the campus load. Furthermore, a predictive AI model drives the cooling pumps, achieving a Mean PUE of 1.16—a metric mathematically guaranteed against chaotic weather and IT loads via a 10,000-iteration Monte Carlo simulation. For the Landscape and Environment, civil resilience is fortified through a distributed Low Impact Development (LID) network. Bioretention cells and infiltration trenches aggressively reduce peak storm runoff volume by 56.97%. Structurally, utilizing Compressed Earth Blocks (CEB) and fly-ash concrete yields a massive 79% reduction in embodied carbon.

Utilizing the Envision Rating System to Assess Sustainable Infrastructure Design in a Civil Engineering Capstone Project

Presenters: Erin Glowatz, Rose-Hulman Institute of Technology; Amelia Thieman, Rose-Hulman Institute of Technology, Virginia Tech; Travis Judson, Rose-Hulman Institute of Technology

ABSTRACT

For a civil engineering senior capstone design project, the team worked for a local engineering firm to design the new West Lafayette Food Waste Handling Facility. The local engineering firm is working to expand West Lafayette's current Water Resource Recovery Facility by increasing the capacity from 10.5 MGD to 15 MGD. The overall expansion also includes improving the current fats, oils, and grease (FOG) and food waste facility. This facility processes and stores organic waste that is then fed to anaerobic digestors. Various components of the current system were added over the years; therefore, the facility does not operate as an efficient and cohesive system.

The purpose of this project is to replace the existing FOG and food waste handling facility in a way that increases capacity, efficiency, and ease of maintenance for delivery drivers and plant operators, so that the plant can serve the growing community, improve worker satisfaction, and strengthen collaboration with Purdue University and the City of West Lafayette. The team envisions a modernized FOG and food waste handling process with increased efficiency and capacity—accommodating West Lafayette's growth—through the redesign of the old and difficult unloading process and mixing mechanism with cost-effective solutions that meet plant concerns.

This project incorporates many credits from the Envision rating system, particularly in the categories of quality of life, leadership, and climate and resilience. This project meets the community's needs by expanding the capacity to handle FOG and food waste, allowing for community growth and further partnership with Purdue. Additionally, a redesign of the storage tank and unloading platform improved workers' safety and comfort. This facility also improves public health and safety by reducing waste that needs to be sent to landfills and by recovering energy in the form of biogas that is converted into electricity for the plant.

Advancing Zero-Emission Bus (ZEB) Fleets

Presenter: Jason Leung, AECOM;
Kat Lee, AECOM

ABSTRACT
The purpose of this poster is to provide transit agencies with an overview of key considerations associated with transitioning existing diesel or compressed natural gas (CNG) bus fleets to zero-emission bus (ZEB) fleets. The poster is intended to help agencies navigate an evolving, uneven regulatory landscape covering strategies for vehicle procurement, charging infrastructure deployment, utility coordination, opportunity charging, facility constraints, phased implementation, and future expansion planning.

At the federal level, fleet transition remains voluntary; however, to secure competitive federal funding, such as the Federal Transit Administration (FTA) Low or No Emission Grant Program, agencies must complete a formal Zero-Emission Fleet Transition Plan. Nationwide, the number of full-size ZEBs increased by approximately 16 percent between 2024 and 2025, reaching 8,116 vehicles funded, ordered, delivered, or deployed as of July 2025. California leads the nation in ZEB adoption, with 1,933 battery-electric buses (BEBs) and 690 fuel cell electric buses (FCEBs). This adoption is driven largely by the California Air Resources Board (CARB) Innovative Clean Transit (ICT) regulation, which legally mandates a 100 percent zero-emission transit fleet by 2040.

Evolving federal and state policies, grant programs, and financial incentives drive the acceleration of national ZEB adoption, supporting fleet electrification and long-term transportation decarbonization. As transit agencies pursue fleet modernization, local air quality improvements, and greenhouse gas (GHG) reductions, this transition reflects a broader long-term shift within the transit industry. This shift is driven by environmental and public health benefits, as well as operational considerations such as fuel cost stability, vehicle performance, energy efficiency, and reduced long-term maintenance and operating costs. Leveraging the Envision framework to guide implementation can help transit agencies optimize ZEB infrastructure planning while supporting the development of sustainable, resilient, and high-performing transportation infrastructure for decades to come.

https://calstart.org/wp-content/uploads/2026/03/ZIO-ZEB-March-2026.pdf

Integrating Sustainability in Environmental Engineering Capstone Design

Presenters: Ramanitharan Kandiah, Central State University;
Krishna Kumar Nedunuri, Central State University

ABSTRACT
Sustainability is central to environmental engineering capstone design and aligns with ABET-EAC program criteria. The authors present their experiences applying sustainability principles and Envision in two-part environmental engineering senior capstone courses at their institutions. These courses address the theory and practical applications of sustainability principles, the Sustainable Development Goals (SDGs), Envision, and ISO sustainability standards. The paper evaluates the effectiveness of this pedagogical approach in integrating these components through teaching materials, Envision case studies, assignments, grading rubrics, and the incorporation of SDGs and Envision into senior capstone projects. In addition, the authors summarize and analyze the sustainability aspects of five design projects undertaken from 2021 to 2026.

Simulunda-Sindowe Pedestrian Bridge (Zimba District, Southern Province, Zambia)

Presenter: Libby Jones, University of Nebraska

ABSTRACT
The Simulunda-Sindowe Pedestrian Bridge project connects two villages on either side of the Kolomo River in Zambia. Many residents of these communities have been displaced from other parts of the country, and nearly all of them are subsistence farmers. This bridge project, started by the communities in partnership with Engineers Without Borders, will provide improved and safer access to markets, schools, medical clinics, and more. The project team is designing the bridge so that it can be constructed and maintained in a sustainable manner that considers the culture and financial capacity of the community, as well as the potential impacts of climate change.

Understanding Persistent Barriers that Inhibit the Transition from Asset-based Infrastructure Delivery to Integrated, Sustainable Infrastructure Systems

Presenters: Leticia Solaun, University of Florida;
Suzanne Moreland, AECOM

ABSTRACT
Over the past two decades, substantial advances have been made in sustainable frameworks, stakeholder engagement, resilience planning, and social value implementation. Frameworks, such as Envision, have provided practitioners with tools and guidance to advance sustainability outcomes across infrastructure planning, design, construction, and operations. The application of systems thinking provides a vehicle for integrated infrastructure and collaborative governance, which is critical to move from focusing on individual assets to adopting a broader perspective.

This research examines the infrastructure transition gap, which is the disconnect between the growing knowledge of sustainable infrastructure practices and their limited adoption in practice. Grounded in key theories, specifically socio-technical transitions theory, path dependency theory, institutional theory, and complex adaptive systems theory, the study explores the structural and organizational mechanisms that inhibit movement toward integrated infrastructure systems and the role of Envision in that process.

The research includes primary data collection and investigates how governance structures, funding mechanisms, regulatory frameworks, risk cultures, and performance measurement systems contribute to asset centric approaches while constraining systems-based innovation. The study also considers the implications for sustainability frameworks, such as Envision, examining whether current approaches adequately address the institutional conditions necessary for transformative change.

INDEX OF AUTHORS AND PRESENTERS

Abercromby, Pia, ENV SP – Leading Specialist in Sustainability, COWI, North Vancouver, BC, Canada

Abraham, Dr. David, ENV SP – Office of Strategic Planning for the Harris County Toll Road Authority; Rice University, Houston, TX, USA

Acevedo, Amie, ENV SP – Consulting Associate, Environmental Stewardship & Resiliency, RS&H, Tampa, FL, USA

Adelman, Julia, ENV SP, LEED AP BD+C – Sustainability & Resilience Specialist, Parsons, Santa Barbara, CA, USA

Afaz, Roza – University of Windsor, Windsor, ON, Canada

Ahn, Jeong, PhD – Assistant Professor of Civil Engineering, Cooper Union, New York, NY, USA

Alam, Atif – B.Sc. Student, Civil Engineering, Chittagong University of Engineering & Technology, Chittagong, Bangladesh

Alrawi, Bayanne, ENV SP – Sustainability and Resilience Specialist, Jacobs, San Francisco, CA, USA

Backus, Erik, PhD, PE, LEED AP BD+C, ENV SP, FMP – Professor of Practice & Director, Construction Engineering Management, Clarkson University, Potsdam, NY, USA

Bankovska, Alissa – President, FIABCI-Ukraine

Blanco, Margarita, PhD, LEED AP – Global Director | Landscape Architecture & Urban Design, Arquitectonica GEO, Malaga, Andalusia, Spain

Boisselier, Clément, ENV-SP – Sr. Manager, Sustainability, Aecon Group Inc., Montreal, QB, Canada (Session 2)

Bowker, Christopher, PE – Civil Engineer, Filtration Projects, Portland Water Bureau, Portland, OR, USA

Bruneau, Stephen E., PhD, P.Eng, ENV SP – Associate Professor and Director of Industrial Outreach, Faculty of Engineering and Applied Science, Memorial University of Newfoundland, Memorial University of Newfoundland, St. John's, NL, Canada

Calvert, Catherine, AIA, ENV SP, LEED AP, CCS – Principal Architect/ OMFS Facilities Lead, Sound Transit, Seattle, WA, USA

Chakravarthy, Bettegowda Jayaramu Aravind – Memorial University of Newfoundland, St. John's, NL, Canada

Chargualaf, Ed, AIA – Design Manager, Kiewit, Lone Tree, CO, USA

Chen, Weiwei – Graduate Student, McMaster University, Hamilton, ON, Canada

Choi, Shawn, PE, ENV SP – Manager of Engineering, Port of Long Beach, Long Beach, CA, USA

Choy, Janine, ENV SP – Student, The Cooper Union, New York, NY, USA

Christian, Sarah, PhD, PE, ENV SP – Associate Teaching Professor, Carnegie Mellon University, Pittsburgh, PA, USA

Cross, Bryan – Lochmueller Group

Dodanwala, Tharindu – Post Doctoral Research Fellow, University of Windsor, Windsor, ON, Canada

Donald, Ken, PE, ENV SP – Project Manager & Carbon Reduction Lead, VHB, Watertown, MA, USA

Duarte, Gabriela, MSc, ENV SP – Sustainability Consultant, Stantec [SIAB], Vancouver, BC, Canada

Dumbre, Akshay, PE, PMP, M.ASCE – Senior Civil Engineer, Arcadis, Houston, TX, USA

Ezekwesili, Dr. Okechukwu, BEng, MEng, PhD, MASc. Candidate, EIT-Apegs, ENVSP – Department of Sustainable Infrastructure Engineering, Memorial University of Newfoundland, St John's, NL, Canada

Ford, Cierra, PE, ENV SP – Transportation Engineer, VHB, Waterbury Center, VT, USA

Gallic, Scott, ENV SP, LEED AP, ISO 14001 Lead Auditor, CARB GHG Lead Verifier – Sustainability Coordinator, Port of Long Beach, Long Beach, CA, USA

Gantt, Courtney, ENV SP – Consultant, Environmental Stewardship and Resilience, RS&H, Raleigh, NC, USA

Geystrin, Daniel, ENV SP – Student, The Cooper Union, New York, NY, USA

Glowatz, Erin – Graduate Student, Rose-Hulman Institute of Technology, Terre Haute, IN, USA

Gomez-Acevedo, Patricia, ENV SP – Special Advisor for Energy and Resilience, Miami-Dade County Aviation Department, Miami, FL, USA

Gonzalez, Maria Angelica, ENV SP – Graduate Student, MASc. in Sustainable Infrastructure Engineering, Memorial University of Newfoundland, St. John's, NL, Canada

Hoffman, Dana, ENV-SP, CC-P – Climate Strategy Manager, City Of Denver, Denver, CO, USA

Holloway, Pierce – Climate Data Consultant, Resilient Analytics, Boulder, CO, USA

Hridoy, Muhatasim Fuad – B.Sc. Student, Civil Engineering, Chittagong University of Engineering & Technology, Chittagong, Bangladesh

Hutchens, Ben, PLA, SITES AP, LEED AP – Principal / Design Director | Landscape Architecture, Arquitectonica GEO, Miami, FL, USA

Hutchison, Colleen, ENV SP – Project Coordinator, COWI, Vancouver, BC, Canada

Hutchinson, William, RLA, ENV SP – New Mexico Department of Transportation, Santa Fe, NM, USA

Jones, Libby, ENV SP – Professor, University of Nebraska, Omaha, NE, USA

Judson, Travis – Environmental Engineering Graduate Student, Rose-Hulman Institute of Technology, Terre Haute, IN, USA

Kabya, Dibakar Chandra Singha – B.Sc. Student, Civil Engineering, Chittagong University of Engineering & Technology, Chittagong, Bangladesh

Kandiah, Ramanitharan – Professor of Environmental Engineering and Interim Dean, Central State University, Wilberforce, OH, USA

Khadka, Hemant, ENV SP, MASc student in Sustainable Infrastructure Engineering, Memorial University of Newfoundland, St. John's, NL, Canada

Khanal, Ashish, ENV SP – Student, Memorial University of Newfoundland, St. John's, NL, Canada

Khandelwal, Aashish, PhD – Director of Engineering, Princeton Critical Minerals Princeton Critical Minerals

Kirby, Will, PE, ENV SP – Transportation Sustainability Leader, HDR, Omaha, NE, USA

Knoll, Jonathan – Project Manager, Archer Western, Dallas, TX, USA

Ko, Lesley, PhD – Executive Director, P+Ex, Columbia, MD, USA; Structural Technologies, Columbia, MD, USA

Kovhanich, Dmytro – President, Switzerland–Ukraine Chamber of Commerce | Vice President, FIABCI Euro, Regenerative approaches to Modular Construction and Development | Founder & Owner, PIXUB, Switzerland

Kushnir, Antin – Healthcare Professional, Trauma-Informed Approaches to Sustainable Infrastructure Development

Lacombe, Patrick – Sustainability Manager, Pomerleau, Montreal, QB, Canada

Langill, Elsa, P.Eng, PMP, PMI-CP, ENV SP – Senior Project Delivery Specialist, Port of Vancouver, Vancouver, BC, Canada

Lau, Tony, AAE, PE – Project Manager, Salt Lake City International Airport, Salt Lake City, UT, USA

Lee, Kat, ENV SP – Transportation Planner, AECOM, Los Angeles, CA, USA

Lemay, Lionel, PE, SE, LEED AP – CEO, ConcreteNexus LLC, Libertyville, IL, USA; Business Development, Concrete Sustainability Council, Geneva, Switzerland

Leung, Jason, ENV SP, LEED Green Associate – Transportation Planner, AECOM, Modesto, CA, USA

Lujan, Gerald – Climate Action Program Coordinator Resilience/PROTECT Programs, New Mexico Department of Transportation, Santa Fe, NM, USA

Lusk, Howard, ENV SP – Civil Engineer / Senior Technologist, Jacobs, Reston, VA, USA

Martinez, Juan, ENV SP – Sustainability Coordinator, Salt Lake City International Airport, Salt Lake City, UT, USA

Mattheis, Jennifer – Engineer II, Austin Bridge and Road, Austin, TX, USA

Metius, Ashley, ENV SP, WEDG – Senior Environmental Specialist, NV5 [SIAB], New York, NY, USA

Mills, Warren, ENV SP – Environmental Project Management Specialist, Vancouver Fraser Port Authority, Vancouver, BC, Canada

Mitchell, Nancy – Director of Research - Special Projects, Toronto Metropolitan University, Toronto, ON, Canada

Morales, Johanna, LEED AP, RA – GEO Americas Director | Landscape Architecture & Urban Design, Arquitectonica GEO, Miami, FL, USA

Moore, Brad, P.Eng, ALM, ENV SP – Sustainable Infrastructure Team Lead, Stantec [SIAB], Victoria, BC, Canada (Session 2)

Moreland, Suzanne, MBA, MOQ/OE – Vice President - Practice & Capabilities, Global Program Management, AECOM, Jacksonville, FL, USA

Mueller, Jennifer, PhD, PE, ENV SP – Professor of Civil and Environmental Engineering, Rose-Hulman Institute of Technology, Terre Haute, IN, USA

Nandakumar, Bragaaruthi – University of Windsor, Windsor, ON, Canada

Nedunuri, Krishna Kumar – Professor of Environmental Engineering, Central State University, Wilberforce, OH, USA

Niazi, Farid Ahmad – MSc Researcher, BEng (Civil & Industrial Engineering), MSc Candidate (Civil Engineering); Bursa Technical University, Bursa, Turkey

Nitzova, Ivana, PE, ENV SP, Assoc. DBIA – Professional Engineer, Project Manager, Sustainability Committee Lead, Wade Trim, New York, NY, USA

Nosenzo, Cassidy, ENV SP, CC-P® – Consultant, Env Stewardship & Resiliency, RS&H, Denver, CO, USA

Nuzhat Zahin, Fahim – B.Sc. Student, Civil Engineering, Chittagong University of Engineering & Technology, Chittagong, Bangladesh

O'Claire, Sonja, ENV SP, LEED AP, CSBA – Sustainability Project Manager, Sound Transit, Seattle, WA, USA Session 2 | Session 3

Ortiz, Brian, LEED AP BD+C, WELL AP, ENV SP, GPCP – Sustainability & Resilience Specialist, Parsons, Wylie, TX, USA Session 2 | Session 3

Oulton, Rebekah, PhD, PE, LEED AP, ENV SP – Professor of Civil and Environmental Engineering, California Polytechnic University, San Luis Obispo (Cal Poly SLO), San Luis Obispo, CA, USA

Ozis, Fethiye, PhD – Associate Teaching Professor in Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA, USA Session 2

Parks, Shannon, PhD, PE, ENV SP – Associate Professor, Civil Engineering, University of Pittsburgh at Johnstown, Johnstown, PA, USA Session 2

Paz, Jerry, PE, ENV SP – Chief Operations Officer, Molzen Corbin & Associates, Albuquerque, NM, USA

Peluchette, Jazz, ENV SP – Sustainability and Resilience Coordinator, HDR, San Diego, CA, USA

Pierrefeu, Garrick – Global Sustainability Director - Transport Networks, Arcadis, Paris, France

Pinto, Samantha, MASc, P.Eng. – Airfield Project Manager, Austin Aviation, Austin-Bergstrom International Airport, Austin, TX, USA

Plakorus, David, ENV SP – Environmental Planning Manager, City Of Denver, Denver, CO, USA

Poirier, Stephanie – Senior Policy Analyst, Standards Council of Canada, Ottawa, ON, Canada

Pokharel, Anjan – Student, Memorial University of Newfoundland, St. John's, NL, Canada

Pollack, Jeffrey, AICP, ENV SP – Chief Strategy and Sustainability Officer, Port of Corpus Christi Authority, Corpus Christi, TX, USA

Pradia, Phlinkee Faith, ENV SP – Graduate Student, MASc. in Sustainable Infrastructure Engineering, Memorial University of Newfoundland, St. John's, NL, Canada

Prasad, Indira – PhD Researcher - Ethical AI & Intelligent Infrastructure Systems, Stevens Institute of Technology, Hoboken, NJ, USA

Rasel, MD – B.Sc. Student, Civil Engineering, Chittagong University of Engineering & Technology, Chittagong, Bangladesh

Roy-Grégoire, Laurence – Energy Transition and Sustainability Lead, Port of Quebec, Montreal, QB, Canada

Ruparathna, Rajeev – University of Windsor, Windsor, ON, Canada

Saeteurn, Tan Lo, ENV SP – Systems Engineer, Stacy Witbeck/MRS, Seattle, WA, USA

Shannon, Carly, LEED AP BD+C, ENV SP, TRUE Advisor – Founder & Principal, Linx Strategies LLC, Los Angeles, CA, USA

Sheane, Catherine, PE, ENV SP, LEED AP BD+C – VP, ESG & Sustainability, Parsons, Los Angeles, CA, USA Session 2

Sherpa, Gyaltshen, ENV SP, MASc student in Sustainable Infrastructure Engineering, Memorial University of Newfoundland, St. John's, NL, Canada

Singletary, Jordan, ENV-SP, LEED AP BD+C – Environmental Consultant, RS&H, Tampa, Fl, USA

Smith, Richard, PhD – Executive Director, Conrad Blucher Institute for Surveying and Science at TX A&M University Corpus Christi, Corpus Christi, TX, USA

Smith, Scott, RPP, Env SP – Senior Consultant, Mott MacDonald, Toronto, ON, Canada

Solaun, Leticia, PhD, ENV SP, SPP – University of Florida, Gainesville, FL, USA; Global Principal - Communications & Engagement; Director - Social Value & Impact, Jacobs, Gainesville, FL, USA

Thieman, Amelia – Structural Engineering Graduate Student, Rose-Hulman Institute of Technology, Terre Haute, IN, USA; Virginia Tech, Blacksburg, VA, USA

Torres, Tatiana – Environmental Science Advisor, Harvard University, Extension School, Master of Liberal Arts in Global Development Practice, Cambridge, MA, USA

Wang, Peter, PhD, PE, ENV SP – Bridge Engineer, HNTB [SIAB], New York, NY, USA

Whealan George, Kelly, PhD – Associate Professor, Embry-Riddle Aeronautical University, Daytona Beach, FL, USA

Whitmore, David, P.Eng., FACI, FCSCE, NACE CP Specialist No.9424 – President and Chief Innovation Officer, Vector Corrosion Technologies Ltd., Winnipeg, MB, Canada; P+Ex, Columbia, MD, USA

Wong, Carlene, PE, ENV SP, CVS – Principal Engineer, Metropolitan Water District of Southern California, Los Angeles, CA, USA

Wood, James, PhD, CM – Sustainability Project Manager Environmental Affairs Department, DFW International Airport, Dallas, TX, USA

Wu, Melissa, ENV SP, PE, PMP – Project Manager, Jacobs, Bellevue, WA, USA

Zhang, Qian, ENV SP – Project Manager, Professional Engineer, North America Envision Coordinator, GHD, State College, PA, USA

FAQS

HOW DO I UPDATE MY PROFILE?

- Enter the event lobby
- In the upper right of the window, click on the sandwich menu for a dropdown menu of options.
- Click “My profile.”

  This will take you to a page where you can update your information and manage your settings.
- Click “Edit my profile” under the initials or photo.

  You are able to edit your **basic information** (i.e. name, position, company, country, bio), add your edit your **photo**, add **personal questions** and interests, and include your **social media** links and email address.
- Save and return to the Manage screen
- Click “Settings and notifications”

  Here you can change your **visibility and networking availability**, as well as your preferred method to join.
- Click “Manage connects”

  Here you can see pending, blocked, and active connections.
- When done with changes, click “Events portal” in the top right and join the conference lobby.

  Note that the profile page often opens in a new tab, so you can also close that tab to return to the previous instance of the event lobby.
- Back in the lobby, your profile card in the upper righthand corner will be updated with your information and status.

HOW DO I CONNECT WITH OTHER ATTENDEES?

To connect with other attendees, update your Zoom profile and set your networking mode to “feeling social” or “simply exploring.”

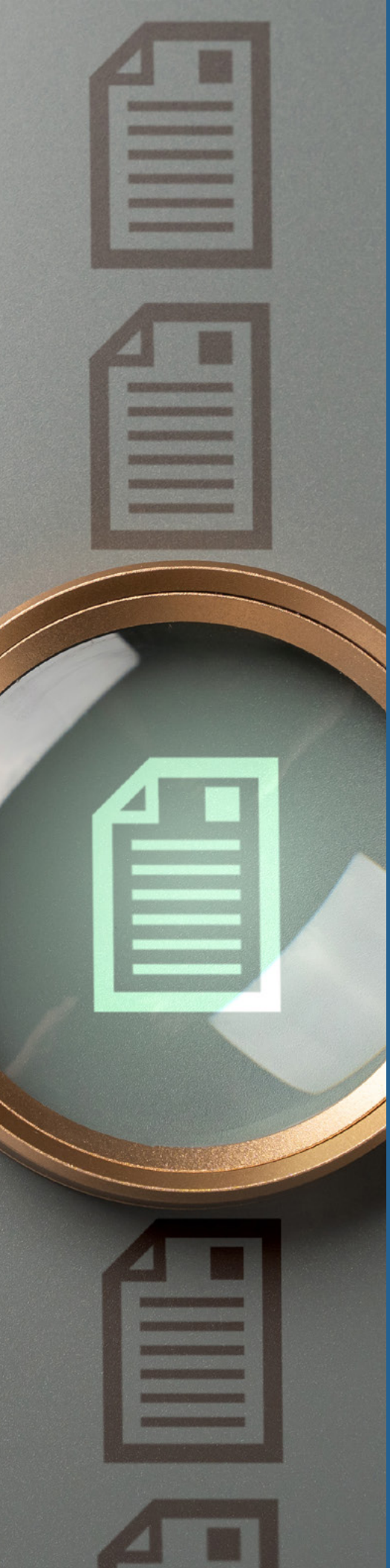
Go to the “Networking” tab and click on the “+” next to their name to connect with them. This will send a request to the person to approve the connection. You can also message attendees directly by clicking on the word bubble next to their name.

HOW DO I BUILD MY ITINERARY?

Go to the “Sessions” tab to explore the upcoming sessions.

Click the bookmark next to the session to add the session to your itinerary. It will be yellow when selected.

Go to the itinerary tab to see all of your selected sessions in a calendar view.



FAQS

WHAT IS AVAILABLE FOR ME ON THE ZOOM EVENTS PLATFORM?

The top navigation of the Zoom Events platform includes: Lobby, Sessions, Itinerary, Exhibitors, Speakers, Networking, FAQs.

- **Lobby** – Your starting point for the event, with key information, announcements and chat opportunities, and links to explore.
- **Sessions** – Explore, tag, and join presentations, panels, and other educational sessions.
- **Itinerary** – View your personal event schedule and keep track of sessions you plan to attend.
- **Exhibitors** – Explore sponsor information and learn more about their work, services, and resources.
- **Speakers** – Meet the presenters and learn about their backgrounds and expertise.
- **Networking** – Connect with other attendees, exchange ideas, and build professional relationships.
- **FAQs** – Find answers to common questions about the event and how to participate.

WILL SESSIONS FROM THE CONFERENCE BE RECORDED?

Yes. All 2026 ISI Annual Conference sessions are being recorded. Recordings will be available in the event lobby at the close of the conference. They will also be added to the Education tab of your ISI account by mid-December, alongside sessions from previous ISI Annual Conferences.

WHERE CAN I FIND SESSION MATERIALS OR SLIDES?

Materials and presentation slides will be available in the Zoom events platform and presentation slide pdfs will be available along with presentations when they are added to the Education tab of your ISI account later this year.

HOW DO I EARN CE/PD CREDIT FOR CONFERENCE SESSIONS?

ISI does not offer PDHs or other continuing education credit for the 2026 ISI Annual Conference. Attendees may determine whether conference sessions are eligible for self-reported continuing education credit through their own professional licensing or credentialing organizations.

FAQS

HOW DO I CLAIM MY ENV SP CM HOURS?

All ISI Annual Conference sessions are eligible for **ENV SP credential maintenance hours**. One hour of conference participation equals one credential maintenance hour and counts toward your **Direct Hours** requirement. Once that requirement has been met, additional eligible conference hours count toward **Flexible Hours**.

Within 24 hours after each session, you will receive an email with instructions and a link to claim your hours. **Hours are not applied automatically**, so be sure to follow the instructions in the email.

WHAT ARE "DIRECT" AND "FLEXIBLE" HOURS?

ISI has updated terms used for credential maintenance. **Direct Hours replace what were previously called "prescribed" hours, and Flexible Hours replace what were previously called "elective" hours.**

ENV SPs complete **seven credential maintenance hour**s annually, including at least **two Direct Hours**.

Direct Hours must come from ISI and can include ISI webinars and educational offerings, Annual Conference sessions, eligible Envision project work, and participation in ISI-hosted meetings such as forums, committees, and roundtables. Once you have completed the required two Direct Hours, additional eligible Direct Hours can count toward your Flexible Hours.

Flexible Hours include a broader range of professional development activities related to sustainable infrastructure, including eligible external webinars, trainings, conferences, and lunch and learns. Up to five Flexible Hours may be self-reported each annual renewal cycle.

HOW CAN I LEARN MORE ABOUT TRAINING OR THE ENV SP?

Visit ISI's credentialing resources to learn more about the Envision Sustainability Professional (ENV SP) credential, Envision training, and related educational opportunities.

Learn more about Envision training and credentialing

FAQS

WHAT IS THE ZOFNASS RESEARCH PROGRAM?

The Zofnass Research Program advances research and practical knowledge related to sustainable and resilient infrastructure. Organizations can support and help inform this work through participation in ISI's Sustainable Infrastructure Advisory Board (SIAB).

Learn more about the Zofnass Research Program

WHAT IS THE SIAB?

The Sustainable Infrastructure Advisory Board (SIAB) is a group of AEC and industry firms that supports the Zofnass Research Program through financial support, expert feedback, and industry guidance. SIAB representatives engage with researchers and help inform the continued development and improvement of Envision and sustainable infrastructure practice.

Interested in getting involved? Contact ISI to learn about SIAB membership.

Learn more about SIAB

WHAT IS THE PROGRAMMATIC APPROACH TO ENVISION VERIFICATION?

The Programmatic Approach provides a structured way for eligible organizations with multiple projects to incorporate Envision verification across a broader program of infrastructure projects, rather than approaching each project independently.

Learn more about the Programmatic Approach

WHAT IS THE ENVISION ACADEMIC GRANTS PROGRAM?

The Envision Academic Grants program supports the integration of Envision into higher-education curricula and helps introduce students to sustainable infrastructure concepts and the Envision framework. Applications are accepted during an annual application period; the next application period is expected to open in summer 2027.

Learn more about Envision Academic Grants

FAQS

WHERE CAN I LEARN MORE ABOUT ISI MEMBERSHIP?

ISI membership provides opportunities for organizations to engage with ISI and support the advancement of sustainable, resilient, and equitable infrastructure.

Learn more about ISI membership

WHAT ARE ENVISION QUALIFIED COMPANIES?

Envision Qualified Companies are private-sector organizations recognized by ISI for their commitment to using Envision and employing at least one Envision Sustainability Professional (ENV SP) within their workforce.

Learn more about Envision Qualified Companies

WHAT ARE ENVISION SUPPORTED AGENCIES?

Envision Supported Agencies are public-sector agencies recognized by ISI for their commitment to using Envision and employing at least one Envision Sustainability Professional (ENV SP) within their workforce.

Learn more about Envision Supported Agencies

WHERE CAN I FIND INFO/STATS ABOUT ISI AND ENVISION?

Check out Envision by the Numbers under Resources > Marketing on the ISI website. Updated quarterly, it provides current information such as projects participating in the verification program, verified projects, ENV SPs, and ISI membership.

View the latest publication

HOW CAN I REQUEST SOMEONE FROM ISI TO SPEAK TO MY GROUP?

ISI welcomes opportunities to share information about Envision and sustainable infrastructure with organizations, professional groups, agencies, universities, and other audiences. Submit a speaker request to tell us about your event and what you're looking for.

Request a speaker

2026

ISI ANNUAL CONFERENCE

Envision the Future of Sustainability

The 2026 ISI Annual Conference invites participants to Envision the Future of Sustainability by examining the critical and emerging issues shaping the planning, design, and delivery of civil infrastructure. Recognized as the leading event for sustainable infrastructure practitioners, the conference brings together professionals across the full project lifecycle—including engineers, planners, designers, constructors, owners, operators, policymakers, and procurement leaders—along with students and faculty. This diverse audience creates a dynamic environment for learning, collaboration, and forward-thinking solutions.

Institute for Sustainable Infrastructure

ENVISION™

The Institute for Sustainable Infrastructure is an education and research nonprofit (a 501c3) based in Washington DC. It was established in 2010 by the American Public Works Association (APWA), the American Society of Civil Engineers (ASCE), and the American Council of Engineering Companies (ACEC). Responding to the need for a comprehensive sustainability framework and rating system suitable for use in civil infrastructure development, ISI collaborated with the then Zofnass Program for Sustainable Infrastructure at the Harvard University Graduate School of Design to develop Envision.

Envision is a holistic sustainability framework and rating system that guides and assesses the sustainability and resilience of all types of infrastructure. It is a comprehensive tool created to assist agencies, municipalities, consultants, contractors, and operators, in planning, designing, and delivering more sustainable infrastructure projects. The Envision framework is a decision-making tool that allows project teams to evaluate projects across a broad range of sustainability indicators, or "credits," that address environmental, social, and economic dimensions of sustainability to encourage systemic change. At its core, Envision is about supporting higher performance through better choices in infrastructure development.

For more information, visit sustainableinfrastructure.org/

Contact: info@sustainableinfrastructure.org