SUSTAINABLE COMMUNITY | LAYING STRONG FOUNDATIONS USING ENVISION™

John Lazzara, P.E., ENV SP
Adriana Hemzacek, ENV SP

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01 THE NEED FOR AN INFRASTRUCTURE RATING SYSTEM

02 THE ENVISION RATING SYSTEM

03 PROJECT EXAMPLES

04 HOW TO GET INVOLVED

05 Q/A

01 THE NEED FOR AN INFRASTRUCTURE RATING SYSTEM

LEED TRANSFORMED THE BUILDING INDUSTRY

- **Redefined building value**
  - Building customers (owners, tenants, residents, the public) recognize value of building "green"
  - Low 1st costs = lower life cycle costs
- **Developed value metrics**
  - System for measuring, assessing and recognizing building performance
  - Better LEED-defined performance = higher value
- **Created the brand - became the standard**
- **Instituted LEED – ND**
  - LEED'S first effort beyond the building footprint

Source: Daniel Goleman, *Ecological Intelligence*, Broadway Books, New York, 2009

WHAT ABOUT INFRASTRUCTURE?

- **Infrastructure - a different challenge than buildings**:
  - Building design and construction - usually controlled by a single organization
  - Infrastructure projects are more public in nature and they affect or benefit macro ecosystems, communities, and regions
  - Infrastructure projects must consider:
    - Public stakeholder expectations and support
    - Environmental responsibility
    - Impact on public life
    - Use of public funds – sustainability needs to pay for itself!

America’s Infrastructure Today

Infrastructure for Tomorrow

STATE OF INFRASTRUCTURE AND NEED FOR RATING

- Envision applies to all civil infrastructure
- Currently rating system addresses design and planning
- Future updates will cover construction and maintenance
- Applicable at any point in an infrastructure project's life cycle
- Speaks to the triple bottom line: social, economic and environmental goals
- Designed to keep pace with a changing concept of sustainability

ACTIVITY

As an agency representative/consultant – What are your issues related to sustainability?

02 ENVISION RATING SYSTEM

PURPOSE OF ENVISION

To foster a dramatic and necessary improvement in the performance and resiliency of our physical infrastructure across the full dimensions of sustainability.

ENVISION – A COLLABORATIVE PROCESS

ISI FOUNDERS

American Public Works Association APWA Your Comprehensive Public Works Resource

ASCE American Society of Civil Engineers

ACEC American Council of Engineering Companies 100 Years of Excellence

ENVISION DEVELOPERS

Institute for Sustainable Infrastructure ISI

Zofnass Program for Sustainable Infrastructure

Graduate School of Design Harvard University

WHAT IS ENVISION™?

- A system of tools for planning, designing, constructing, operating and rating civil infrastructure
  - A self-assessment Checklist
  - The Envision™ Rating Tool
  - A credential program for individuals
  - A Project Verification Program
  - A Recognition Program

PHASE TOOL KITS

SELF-ASSESSMENT CHECKLIST

RECOGNITION VERIFICATION

ENVISION™ HELPS DECISION MAKERS:

- Meet sustainability goals
- Evaluate environmental benefits
- Guide decisions about investment of scarce resources
- Address community and environmental priorities in civil infrastructure projects
- Assess costs and benefits over a project's expected lifecycle
- Not only "Will we do the project right?", but also "Will we do the right project?"

FIVE CATEGORIES, 14 TOPIC AREAS AND 60 CREDITS

QUALITY OF LIFE
13 Credits

1 PURPOSE
QL1.1 Improve Community Quality of Life
QL1.2 Stimulate Sustainable Growth & Development
QL1.3 Develop Local Skills & Capabilities

2 WELLBEING
QL2.1 Enhance Public Health & Safety
QL2.2 Minimize Noise and Vibration
QL2.3 Minimize Light Pollution
QL2.4 Improve Community Mobility & Access
QL2.5 Encourage Alternative Modes of Transportation
QL2.6 Improve Accessibility, Safety, & Wayfinding

3 COMMUNITY
QL3.1 Preserve Historic & Cultural Resources
QL3.2 Preserve Views & Local Character
QL3.3 Enhance Public Space

QL0.0 Innovate or Exceed Credit Requirements

LEADERSHIP
10 Credits

1 COLLABORATION
LD1.1 Provide Effective Leadership & Commitment
LD1.2 Establish A Sustainability Management System
LD1.3 Foster Collaboration & Teamwork
LD1.4 Provide for Stakeholder Involvement

2 MANAGEMENT
LD2.1 Pursue By-Product Synergy Opportunities
LD2.2 Improve Infrastructure Integration

3 PLANNING
LD3.1 Plan For Long-Term Monitoring & Maintenance
LD3.2 Address Conflicting Regulations & Policies
LD3.3 Extend Useful Life

LD0.0 Innovate or Exceed Credit Requirements

RESOURCE ALLOCATION
14 Credits

1 MATERIALS
RA1.1 Reduce Net Embodied Energy
RA1.2 Support Sustainable Procurement Practices
RA1.3 Use Recycled Materials
RA1.4 Use Regional Materials
RA1.5 Divert Waste From Landfills
RA1.6 Reduce Excavated Materials Taken Off Site
RA1.7 Provide For Deconstruction & Recycling

2 ENERGY
RA2.1 Reduce Energy Consumption
RA2.2 Use Renewable Energy
RA2.3 Commission & Monitor Energy Systems

3 WATER
RA3.1 Protect Fresh Water Availability
RA3.2 Reduce Potable Water Consumption
RA3.3 Monitor Water Systems

RA0.0 Innovate or Exceed Credit Requirements

NATURAL WORLD
15 Credits

1 SITING
NW1.1 Preserve Prime Habitat
NW1.2 Protect Wetlands & Surface Water
NW1.3 Preserve Prime Farmland
NW1.4 Avoid Adverse Geology
NW1.5 Preserve Floodplain Functions
NW1.6 Avoid Unsuitable Development on Steep Slopes
NW1.7 Preserve Greenfields

2 LAND+WATER
NW2.1 Manage Stormwater
NW2.2 Reduce Pesticide & Fertilizer Impacts
NW2.3 Prevent Surface & Groundwater Contamination

3 BIODIVERSITY
NW3.1 Preserve Species Biodiversity
NW3.2 Control Invasive Species
NW3.3 Restore Disturbed Soils
NW3.4 Maintain Wetland & Surface Water Functions

NW0.0 Innovate or Exceed Credit Requirements

CLIMATE AND RISK
8 Credits

1 EMISSIONS
CR1.1 Reduce Greenhouse Gas Emissions
CR1.2 Reduce Air Pollutant Emissions

2 RESILIENCE
CR2.1 Assess Climate Threat
CR2.2 Avoid Traps & Vulnerabilities
CR2.3 Prepare For Long-Term Adaptability
CR2.4 Prepare For Short-Term Hazards
CR2.5 Manage Heat Island Effects

CR0.0 Innovate or Exceed Credit Requirement

ENVISION VERIFICATION PROCESS

HDR Process

ISI-Defined Process

Envision™ Alignment → **Registration** → **Assessment** → **Verification** → **Authentication** → **Recognition**

Project Team Sets Schedule

90 Days

Envision™ Alignment

- Identify project social, economic, environmental and Envision™-specific goals
- Envision™ feasibility meeting*
- Align Envision™ goals and project scope

Ideally, this occurs as soon as possible after the project has been identified.

Registration

- Register project online
- Submit application fee, paid by owner/client: $1,000
- Assign Verifier
- Complete online Envision™ Credit Workbook
- Initial call with Verifier to discuss Envision™ goals

Assessment

- Transfer credit information to the online Project Workbook (available after registering the project)
  - targeted achievement levels
  - identify N/A credits
- Identify documentation responsibilities
- Complete and compile documentation
- Upload documentation

Verification

- Mail a check to ISI to pay the verification fee; from owner/client, based on project size (see fee schedule below)
- Verifier reviews documentation
- Communicate with Verifier

Fee Schedule

	Price	
Project Size ($)	Non-Member	ISI member
Up to 2M	$3,000	$2,400
2-5M	$8,500	$7,000
5-25M	$17,000	$14,000
25-100M	$25,000	$21,000
100-250M	$33,000	$28,000
Over 250M	Contact ISI for large or multi-phase projects	

Authentication

- Review/authenticate Verifier's score for consistency
- Verification close-out

Project Award Levels

Recognition Level	Total Applicable Points
Bronze Award	20%
Silver Award	30%
Gold Award	40%
Platinum Award	50%

Recognition

- Receipt of project award

* The objectives of the Envision Feasibility Meeting are to: determine which credits are applicable to a project; discuss potential levels of achievement for all applicable credits; identify any additional scope items that a client may want to engage as required by some credits; and have an initial discussion regarding documentation responsibilities.

LEGEND: Team meeting oriented · Recurring item · Owner participation · **Blue Text**—HDR leads activity · **Orange Text**—ISI leads activity

ENVISION AWARDS

Recognition Level	Total Applicable Points* (%)
Bronze Award	20
Silver Award	30
Gold Award	40
Platinum Award	50

*Based on percentage of applicable points

ACTIVITY

Connection – Match up challenges/questions with Envision credits

03 PROJECT EXAMPLES

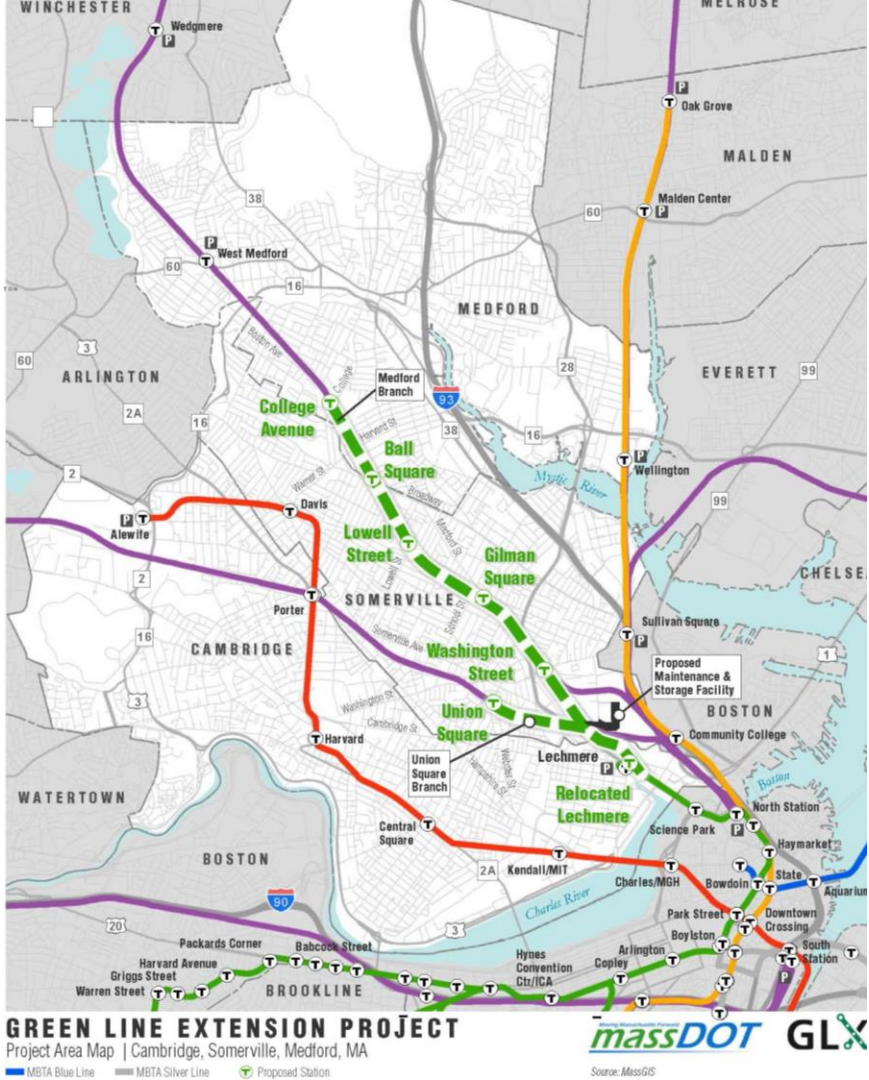
SAN DIEGO ASSOCIATION OF GOVERNMENTS (SANDAG) SORRENTO VALLEY DOUBLE TRACK (SVDT) PROJECT

- Additional track plus raising track grade
- $33.7 million budget
- Aligns with 221 out of 713 points (31%) – used Envision Checklist
- Targeted Level of Achievement: SILVER AWARD

Credit Category	Applicable Points	Total Points Pursued	% of Available Points
Quality of Life	149	51	34%
Leadership	106	42	40%
Resource Allocation	171	32	19%
Natural World	165	49	30%
Climate & Risk	122	47	39%
Total Workbook Pts	713	221	31%

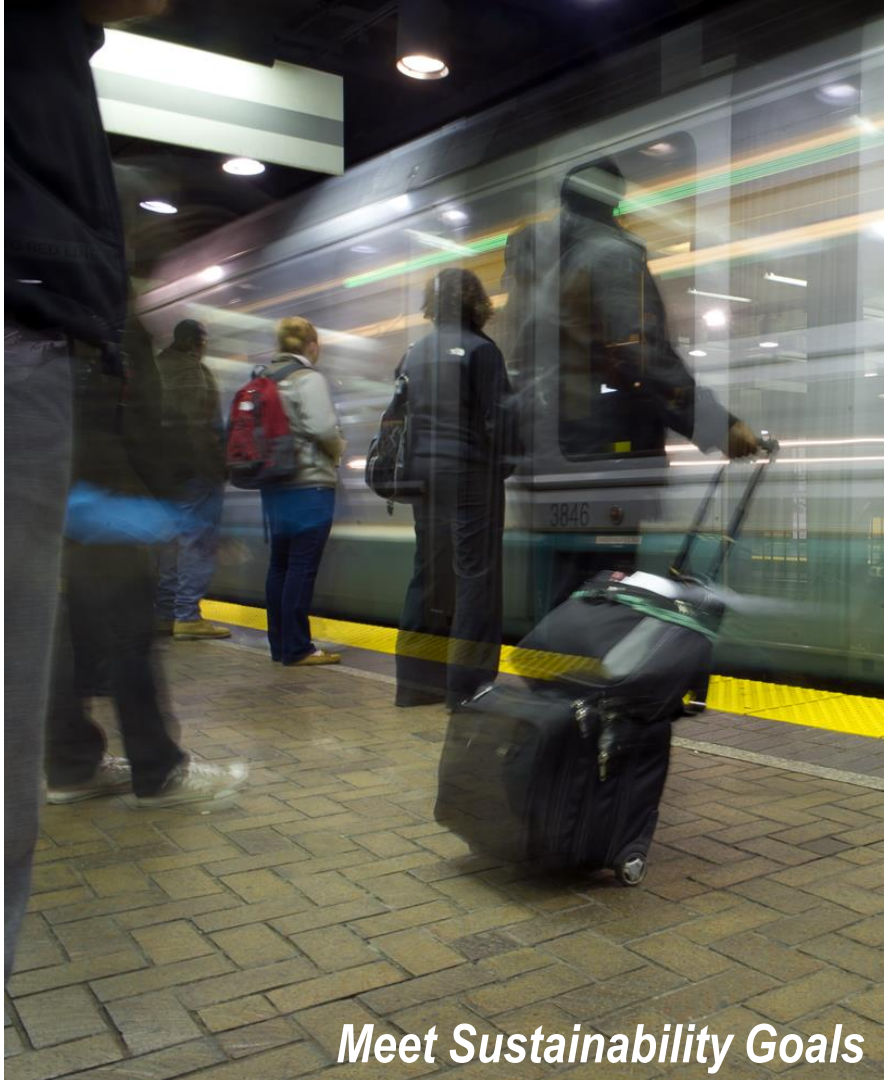
BOSTON GREEN LINE EXTENSION

- Extension of the Green Line through suburban communities
- 4.5 miles of light rail track will share a corridor with an existing commuter rail line
- 7 new stations add connectivity for more neighborhoods; scheduled to open by 2019
- Community path / trail connection
- Includes:
  - Reconstruction of bridges along the corridor
  - Two new buildings, including a vehicle maintenance facility



BOSTON GREEN LINE EXTENSION

- MassDOT requires projects to track sustainability – GreenDOT program
- GreenDOT driven by three primary goals:
  - Reduce greenhouse gas (GHG) emissions;
  - Promote the healthy transportation options of walking, bicycling, and public transit
  - Support smart growth development
- Covers strategic planning to construction and system operations of projects in Massachusetts
- MBTA using **Envision** to quantify and measure sustainability and fulfill GreenDOT requirements



Meet Sustainability Goals

BOSTON GREEN LINE EXTENSION

- First transit project in the pipeline working towards Envision verification – not yet registered
- Envision Credit Documentation Development:
  - GLX is in 60-90% design
  - Using existing documentation to write the credit narratives
  - Will finalize credits as the project finishes design
- Notable sustainability design features:
  - Utilizing existing commuter rail corridor
  - Using a brownfield / greyfield site for the vehicle maintenance facility
  - Sustainable station design with community input
  - Using gray water for landscaping and plumbing at the stations

Credit Category	Applicable Points	Points	Innovation Points	Total Points Pursued	Percentage of Available Points
QUALITY OF LIFE	181	151	8	159	83%
LEADERSHIP	121	101	6	107	83%
RESOURCE ALLOCATION	151	55	4	59	36%
NATURAL WORLD	172	137	4	141	80%
CLIMATE AND RISK	122	94	0	94	77%
Total Workbook Points	747	538	22	560	72%

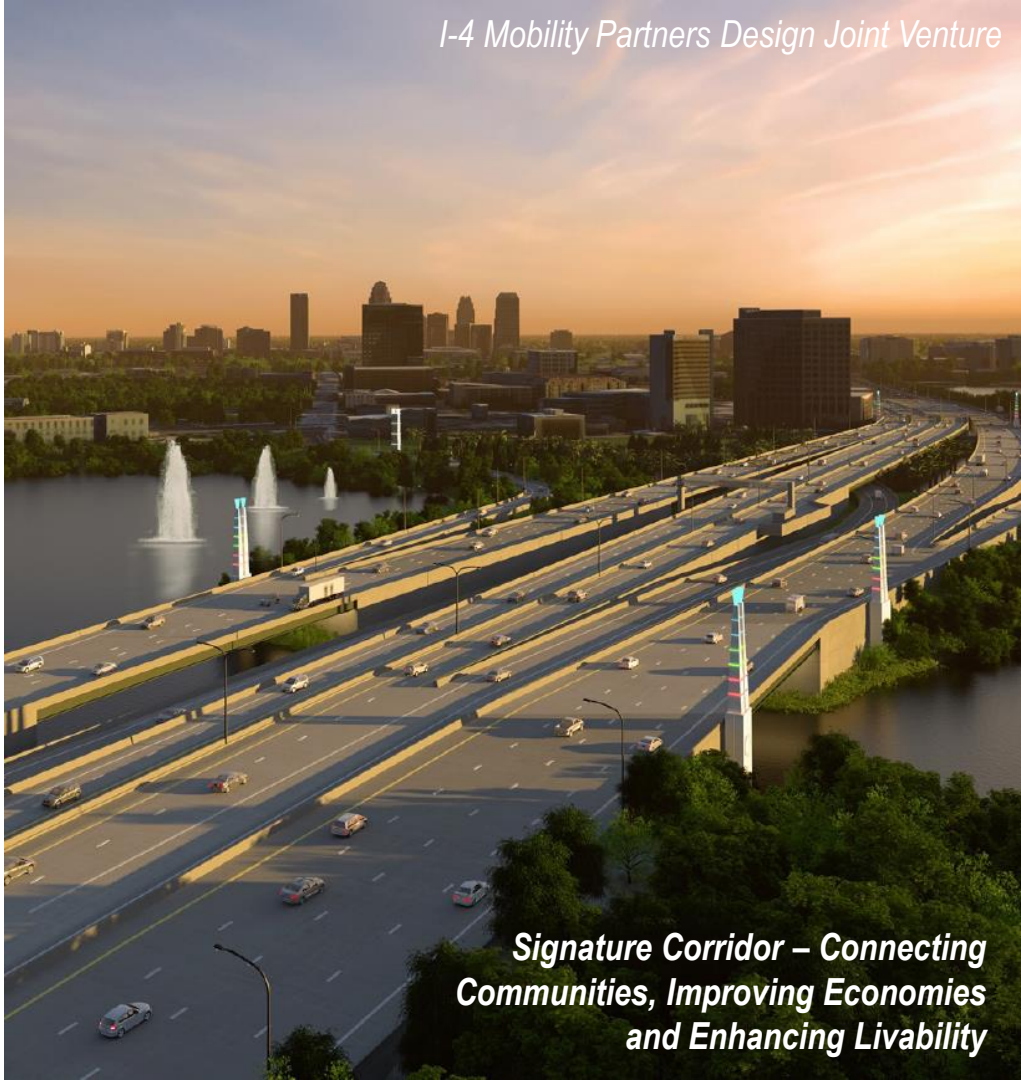
GREEN LINE EXTENSION (GLX) - MBTA

First light rail project for certification ($800M US)

I-4 ULTIMATE IMPROVEMENT, FLORIDA

Following the Envision process will:

- Help our team and all of the project's stakeholders collaborate
- Include community priorities
- Establish and meet sustainability goals
- Make investment decisions regarding use of scarce resources
- Assess costs and benefits over the project lifecycle
- Evaluate environmental benefits
- Use outcome-based objectives
- Reach higher levels of sustainability achievement

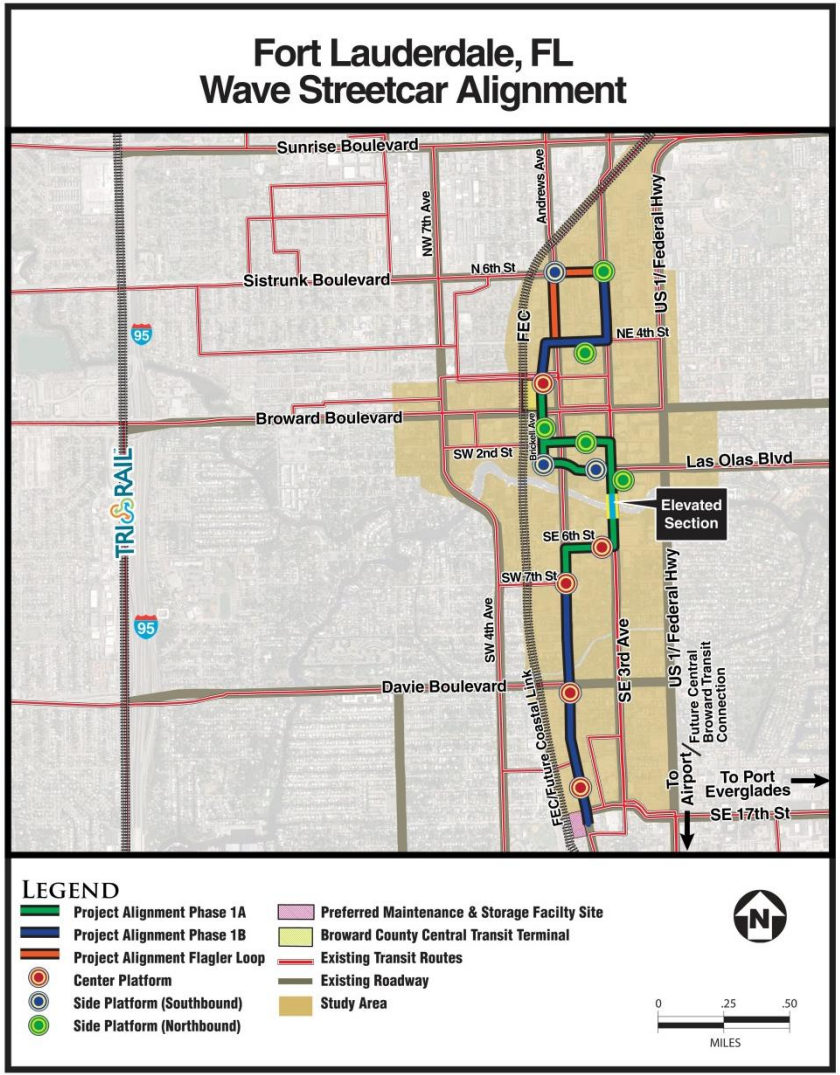


I-4 ULTIMATE IMPROVEMENT, FLORIDA

Credit Category	Applicable Points	Points	Innovation Points	Total Points Pursued	Percentage of Available Points
QUALITY OF LIFE	181	148	0	148	82%
LEADERSHIP	113	86	0	86	76%
RESOURCE ALLOCATION	150	55	0	55	37%
NATURAL WORLD	141	63	0	63	45%
CLIMATE AND RISK	122	15	0	15	12%
Total Workbook Points	**707**	**367**	**0**	**367**	**52%**

THE WAVE MODERN STREETCAR

- Located in downtown Fort Lauderdale
- 5 miles of track operating in mixed traffic
- Hybrid vehicle technology with nearly a mile of off-wire activity
- 12 stations overall; scheduled to open by 2018
- **Includes:**
  - Rehabilitation of the 3rd Avenue Bridge
  - Pedestrian/Streetcar only area near County Courthouse on SE 6th Street
  - Planned LEED Certification for maintenance facility



THE WAVE MODERN STREETCAR

- Urban circulator connecting major travel generators in downtown / adjoining neighborhoods
- Transit investment to encourage and focus development in the urban core
- **SFRTA has committed to sustainability both through Envision as well as LEED**
- Project partners, specifically Broward MPO and City have multiple sustainability initiatives
- The design is done in four phases but the system will be constructed as a single project

THE WAVE MODERN STREETCAR

- Kick off meetings for Envision were held – 12/2014
- Envision Credit Documentation Development:
  - Phase 1A: Final Design on-going
  - Phase 1B: 30% Design complete
  - Phase 1C and 1D: 30% Design on-going
  - Using existing documentation to write the credit narratives
  - Will finalize credits as the project finishes design
- **Notable sustainability design features:**
  - Solar panels at most station stops
  - Using a grey-field site for the vehicle maintenance facility
  - Local materials for the track slab

Credit Category	Applicable Points	Points	Innovation Points	Total Points Pursued	Percentage of Available Points
QUALITY OF LIFE	181	113	0	113	62%
LEADERSHIP	106	56	6	62	58%
RESOURCE ALLOCATION	182	52	0	52	29%
NATURAL WORLD	113	69	0	69	61%
CLIMATE AND RISK	122	64	0	64	52%
Total Workbook Points	704	354	22	360	51%

THE WAVE MODERN STREETCAR - SFRTA

$142 Million Capital Costs

WILLIAM JACK HERNANDEZ SPORT FISH HATCHERY

- First envision award ~ July 2013
- One-of-a-kind facility for the production of salmon and trout
- Intensive recirculation technology to reduce energy and water consumption
- Delivered on a tight schedule, integrated CM/GC team
- 100,000 visitors per year
- Gold Envision award

04 HOW TO GET INVOLVED

ISI MEMBERS

- Charter
- Sustaining
- Public Sector
- Academia

Membership benefits

- ✓ Discounts on training and professional credentialing
- ✓ Discounts on project Verification
- ✓ Networking opportunities
- ✓ Listing in the member directory
- ✓ Opportunities to serve on committees

GET ON BOARD!

- **What does it cost to obtain ISI credentialing?**

	ISI Member	Non-member	Government Employees	Full-Time Faculty
Application & Training Fees	$350	$450	$150	$150
Exam Fee	$200	$200	$0	$0

- **How long is the ENV SP credential valid?**
  The Envision Sustainability Professional (ENV SP) credential is valid for three (3) years starting on the date the ENV SP exam is passed. Details on re-credentialing or updating existing credentials at the end of the three-year period have not been determined.
- **HDR Envision Accreditation training is delivered via a one day / two-day training option**

APPLY ENVISION TO YOUR PROJECTS!

- Evaluate project merits on an **ENVISION Checklist**
- Evaluate project merits in an **ENVISION Online Workbook**
- **Register a project for ENVISION verification and award**

06 Q/A

ACTIVITY

1. Any parking lot questions?
2. Call for ENV SP input!
3. Any additional thoughts?

“For us, the value is not so much in the Envision rating itself, but in the process.”

Cheryl Welch, Strategic Planning Coordinator,

Tualatin Valley Water District

WILLAMETTE WATER SUPPLY, PORTLAND, OR

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