





Panel Introduction



Bill Bertera Executive Director, ISI

- Career as professional executive director
 - Water Environment Federation
 - Rebuild America Coalition
 - APWA
- Executive positions at ICMA and NA Counties
- BS in Business Management and MPA





Panel Introductions



Jennifer Rivers, ENV SP, LEED AP Technical Director, ISI

- Charged with continued development of Envision
- Broad engineering experience in PM, sustainable design, environmental security and outreach
- Army veteran Germany, Kuwait and Iraq
- BS, Mining Eng., MS, International Affairs and MS, Natural Resources and Sustainable Development





Panel Introductions



Michaella Wittmann, LEED Fellow, ENV SP Director of Sustainability, HDR

- 20 years' experience with integrating sustainable solutions across project types
- Initiated HDR's sustainability program
- Broad experience over a wide range of client types
- Led the first project certified by ISI
- BS, Mechanical Engineering





Infrastructure – Fundamental to Smart Growth

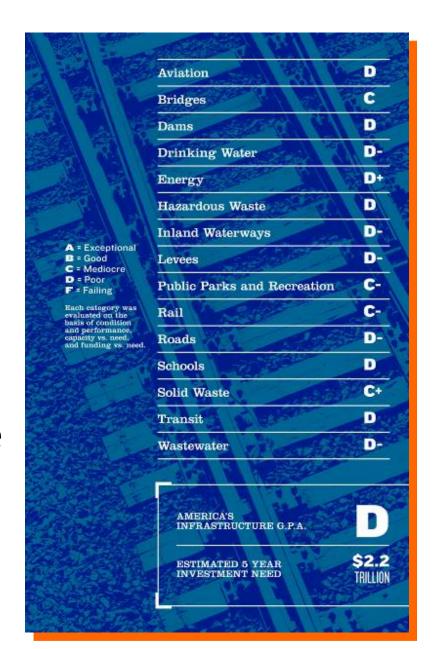
- Smart Growth demands Smart Infrastructure
- It can drive and supports Smart Growth for community development
- Infrastructure helps deliver environmental, social and economic resilience
- It must be high performance and sustainable
- But...Infrastructure is in a state of disrepair





ASCE's Report Card

- 15 categories rated
- Overall grade of D
- \$2.2 trillion = five year investment needed
- Ranked 23rd worldwide





America's Infrastructure Today

















The Infrastructure for Tomorrow





















Do Envision and Smart Growth Align?

- Envision's five categories were matched against with the six Livability Principles
- There was uniform congruence between the categories
- The fundamental Envision principle: "Are you doing the right project"?
- A positive Envision rating means the project supports Smart Growth





How Do We Know if It is Sustainable?

- ☐ There is no agreement on how to rate infrastructure
 - 900 rating systems are available worldwide



- Current US rating systems are sectorspecific
- No US system covers all infrastructure systems



■ Enter Envision™ - designed to fill the gap





What is Envision?

- Envision is a tool, which itself is part of a system, to help evaluate the sustainability of civil infrastructure
- ☐ The system includes:
 - A self assessment checklist
 - The Envision rating tool
 - A credential program for individuals
 - A project evaluation and verification program
 - A recognition program for sustainable infrastructure





Who Developed Envision?





ZOFNASS PROGRAM FOR SUSTAINABLE INFRASTRUCTURE

Graduate School of Design Harvard University

Envision™ was developed in joint collaboration between the Zofnass Program for Sustainable Infrastructure at the Harvard University Graduate School of Design and the Institute for Sustainable Infrastructure.







The Institute for Sustainable Infrastructure is a not-for-profit education and research organization founded by the American Public Works Association, the American Council of Engineering Companies and the American Society of Civil Engineers.





What Makes Envision Unique?

- Speaks to the triple bottom line social, economic and environmental goals
- Applies to all civil infrastructure
- Includes design, planning, construction and maintenance elements
- Applies at any point in an infrastructure project's life cycle
- Designed to keep pace with the changing concept of sustainability





What types of Infrastructure are Rated?

INFRASTRUCTURE CATEGORIES





geothermal hydroelectric nuclear coal natural gas oil/refinery wind solar biomass





potable water distribution capture and storage water reuse stormwater management flood control other



WASTE



solid waste recycling hazardous waste collection and transfer other





airports roads/highways bike/pedestrians railways public transit ports waterways other





public realm parks ecosystem services other





telecommunications internet /phones satellites data centers sensors other





Who is the Audience for Envision?

Public and Private Sector Infrastructure Developers and Owners





Why Will Developers and Owners Want to Use Envision?

Because it will improve their performance...and

public confidence in their performance





How Will it Help Them?

- By causing them to think about sustainability in an organized fashion that is consistent with their community values and priorities
- Envision is not prescriptive...it helps decide outcomes, not strategies
- It is a powerful planning tool for whole systems and, simultaneously, an individual project evaluator





AND...

- It includes metrics to help identify and measure the value of an investment in sustainable infrastructure over the life of the project
- It allows decision-makers to make decisions about that value at the point of procurement...where it matters...and
- It aligns with Smart Growth





Envision and Smart Growth Alignment











1 PURPOSE

- 4 QL1.1 Improve Community Quality of Life
- 3 QL1.3 Develop Local Skills & Capabilities

2 WELLBEING

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

3 COMMUNITY

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

QL0.0 Innovate or Exceed Credit Requirements

1 COLLABORATION

- ▲ LD1.1 Provide Effective Leadership & Commitment
- 3 OL1.2 Stimulate Sustainable Growth & Development 4 LD1.2 Establish A Sustainability Management System 3 RA1.2 Support Sustainable Procurement Practices
 - LD1.3 Foster Collaboration & Teamwork
 - 4 LD1.4 Provide for Stakeholder Involvement

2 MANAGEMENT

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

3 PLANNING

- 5 LD3.1 Plan For Long-Term Monitoring & Maintenance 2 RA2.2 Use Renewable Energy
- 5 LD3.2 Address Conflicting Regulations & Policies
- 5 LD3.3 Extend Useful Life

LD0.0 Innovate or Exceed Credit Requirements

1 MATERIALS

- RA1.1 Reduce Net Embodied Energy
- 3 RA1.3 Use Recycled Materials
- 6 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

- 2 RA2.1 Reduce Energy Consumption
- - RA2.3 Commission & Monitor Energy Systems

3 WATER

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

RAO.0 Innovate or Exceed Credit Requirements

1 SITING

- 6 NW1.1 Preserve Prime Habitat
- NW1.2 Protect Wetlands & Surface Water
- NW1.3 Preserve Prime Farmland
- 6 NW1.4 Avoid Adverse Geology
- 6 NW1.5 Preserve Floodplain Functions
- 6 NW1.6 Avoid Unsuitable Development on Steep Slopes 5 CR2.2 Avoid Traps & Vulnerabilities
- 4 NW1.7 Preserve Greenfields

2 LAND+WATER

- NW2.1 Manage Stormwater
 - NW2.2 Reduce Pesticide & Fertilizer Impacts
- 4 NW2.3 Prevent Surface & Groundwater Contamination

3 BIODIVERSITY

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

1 FMISSIONS

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

2 RESILIENCE

- 6 CR2.1 Assess Climate Threat
- CR2.3 Prepare For Long-Term Adaptability
- CR2.4 Prepare For Short-Term Hazards
- 6 CR2.5 Manage Heat Island Effects

CRO.O Innovate or Exceed Credit Requirements

NW0.0 Innovate or Exceed Credit Requirements

3 - Economic Competitiveness 4 - Support Existing Communities 5 - Leverage Investments 6 - Value Communities & N'hoods 1 - Transportation Options 2 - Affordable Housing





Applications Using Envision

- Over 150 Projects that we know about
 - Water and wastewater treat plants
 - Pipelines
 - Brownfield restorations
 - Airport upgrades
 - Highway interchanges
 - Light rail facilities
 - Wetlands development





Agencies Using Envision

- City of Dallas
- Port of Long Beach
- City of Chicago
- New York City DEP
- County of Los Angeles
- San Diego Airport
- Cape Cod Planning Authority
- California Water Resources Department





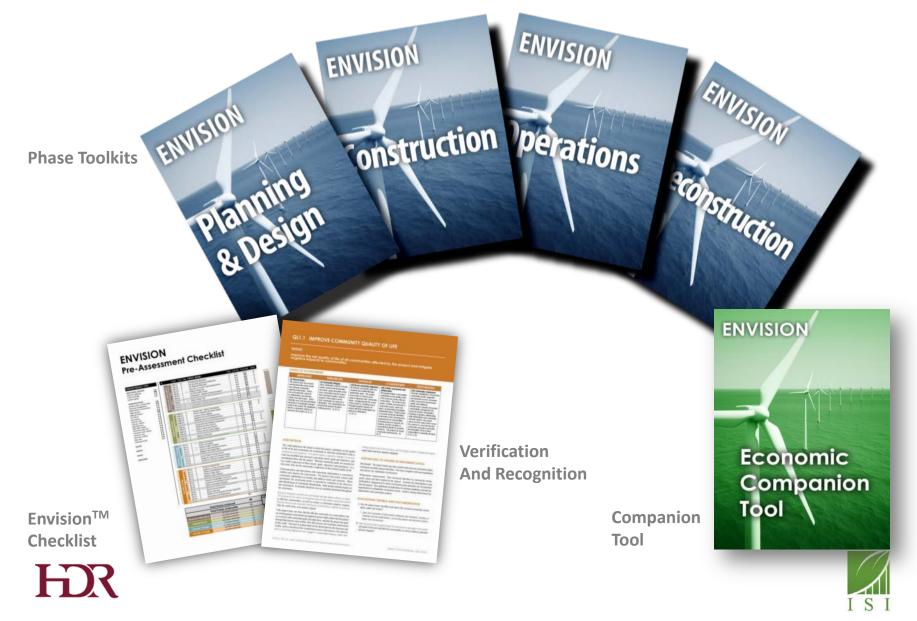


The **ENVISION™** Rating System





Envision Components



Envision Credits





LEADERSHIP

O Cradit







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QL1.1 Improve Community Quality of Life

QL1.2 Stimulate Sustainable Growth & Development

QL1.3 Develop Local Skills & Capabilities

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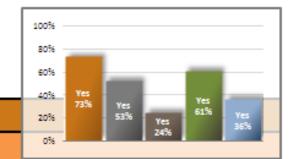
Envision Checklist

- Available for no cost on ISI website
- Contains Yes/No questions
- Used for project self-assessment
 - Introduce concepts of sustainability to infrastructure projects
 - Initial assessment before using Envision rating system, or
 - Rapidly compare project alternatives





Envision Checklist



Quality of Life

1. Purpose

QL 1.1 Improve Community Quality of Life

Intent: Improve the net quality of life of all communities affected by the project and mitigate negative impacts to communities.

Metric: Measures taken to assess community needs and improve quality of life while minimizing negative impacts.

Assessment Questions:	Y	es	No	N/A	
Are the relevant community needs, goals and issues being addressed in the project?		•	0	0	?
Are the potentially negative impacts of the project on the host and nearby communities been reduced or eliminated?	(•	0	0	?
Has the project design received broad community endorsement, including community leaders and stakeholder groups?	(0	•	0	?
Tot	al	2	of	3	





Envision Rating System

- Available for no cost on ISI website
- More in-depth assessment of sustainability aspects of project
 - 60 credits Evaluation criteria describe 5 levels of achievement
 - Quantitative and qualitative questions
 - Recognizes innovation
- For self-assessment or Verification





Envision Guidance Manual

QL1.1 IMPROVE COMMUNITY QUALITY OF LIFE

INTEN

Improve the net quality of life of all communities affected by the project and mitigate negative impacts to communities.

LEVELS OF ACHIEVEMENT

IMPROVED	ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
(2) laternal feeses. The project fees has been considered and reviewed the most received and reviewed the most received and reviewed the most received inference on Some, but not systematic custered to bediended and decision makes has been and decision makes has been and decision makes has been and decision makes the bediended professable important and makes and professable important and are community effects are caused by the project (A, B, C)	impacts of the project on the ot host community are reduced or	(10) Errad sommunity alignment. All micrant Community plans or excised and useffed through shallowing the program of the progr	(DI) Matain suscement and enablance arise. The project makes a red positive constitution to the quality of life of the host and ready effected ormunality. The project from makes a holdic assessment of commandy needs, sold and all other commandy needs, sold and all other commandy needs and long-term or exceeds importal redefied commandy needs and long-term requiremeds for auditariability. Remaining otherse impacts are missonal and an exceeding the sold and	(SS) Camunity remissance. Though rehabilition of impotent community arects, upgended and exterded access, nowased safely, improved environmental questions of accession of the property and additional community and accession of the property and additional. Whole by property continuation. Whole by property community decision-making, the project owners and the project terms on surp the project in a way that cleants community asserting and the project terms of the property of t

DESCRIPTION

This credit addresses the extent to which the project contributes to the quality of life of the host community. The community is which the constructed work is shatted and directly affects. This determination is based on how well the project team has identified and assessed community needs, goals and objectives, and incorporated them into the project. Relevant community plans are assumed to be a viable expression of those needs, goals, objectives and aspirations. In a real sense, they are the community's expression of the diserted quality off life.

Communication and interactions with community stakeholders is essential to reaffirm and improve the assessment. The project team works closely with community stakeholders to identify and address issues and concerns. When operational, the constructed works is expected to contribute to the efficiency and effectiveness of community infrastructure, while having minimal impact on the environment. Its benefits should be seen as equitably distributed throughout the community.

A project designed to benefit one community may have adverse effects on others. The purpose of this credit is to recognice projects that provide significant benefits to affected communities, as well as reduce or eliminate negative impacts. Positive effects on all important dimensions of performance may not be practical. Thus the credit selets a net positive impact.

If the project team can show that the affected community (or communities) has an existing project assessment and approval process that verifies that the project is in concert with community goals and objectives, and that the project has gone through that process successfully, then that success will constitute achievement of this credit. The level of achievement will be determined by the Assessor and of this credit. The level of achievement will be determined by the Assessor and other projects of the contraction of the credit projects of the contraction of the credit project has been according to the contraction of the credit project of the credit project project

Verifier, and is a function of the comprehensiveness of the process, the extent to which community stakeholders are engaged in collaborative dialogue (rather than merely outside input to the process), and the degree to which improvements were made and/or adverse impacts mitigated.

ADVANCING TO HIGHER ACHIEVEMENT LEVELS

Benchmark: The project team may have located and reviewed community plans, looking for possible project fatal flaws. The team complies with local regulations and policies for stakeholder involvement.

Performance improvement: Give increazed attention to community needs, goals, plans and their relation to the project. Increase the thoroughness and participatory engagement by which community goals and plans are incorporated into the project. Give additional consideration to existing conditions and look for opportunities to rehabilitate community assets. Achieve strong endorsement by stakeholders and community leaders.

EVALUATION CRITERIA AND DOCUMENTATION

- A. Has the project team identified and taken into account community needs, goals, plans and issues?
- Lists and examples of documents obtained and reviewed, minutes of meetings with key stakeholders, community leaders and decision-makers, letters and memoranda.

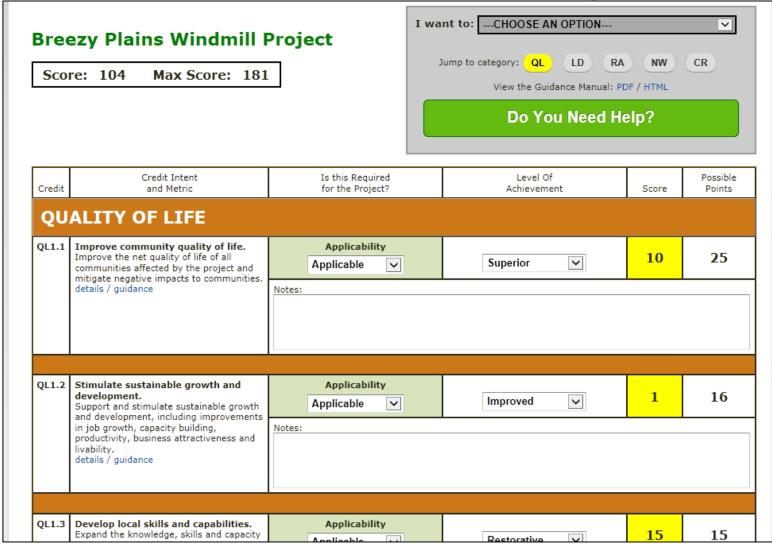
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- Intent
- Metric
- Levels of Achievement
- Description
- Advancing to higher achievement levels
- Evaluation criteria and documentation
- Sources





Envision – Online Scoring Sheet

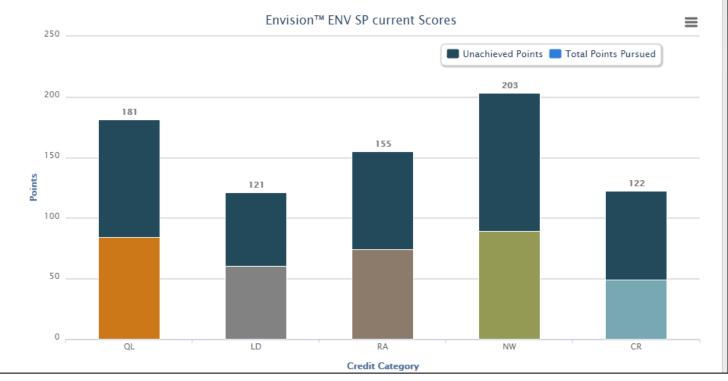






Envision – Online Scoring Sheet

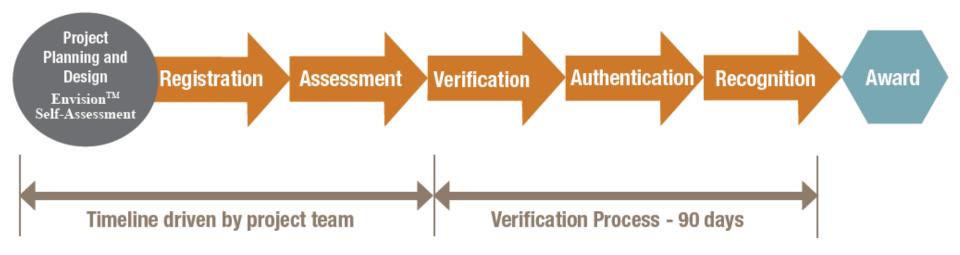
Credit Category	Applicable Points	Earned Points	Innovation Points	Total Points Pursued	Percentage of Applicable Points
QUALITY OF LIFE	181	84		84	46%
LEADERSHIP	121	56	4	60	50%
RESOURCE ALLOCATION	155	74	0	74	48%
NATURAL WORLD	203	89		89	44%
CLIMATE AND RISK	122	49		49	40%
Total Project Points	782	352	4	356	46%







Verification



- An optional independent, 3rd party review
- Confirms the project meets Envision criteria
- Enables projects to become eligible for awards





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





Envision Credentialing

- Envision Sustainability Professional (ENV SP)
 - Training and exam available on ISI website
 - Webinars on ISI website
 - In-person workshops (available soon)
 - Discounts for public sector, university faculty,
 ISI Members
- Provisional credential for students





Other Envision Resources

- Economic Tools
 - Some are publically available, others proprietary
- Academic Resources
 - Lesson plans, slides, capstone project ideas, etc. to introduce Envision to university classrooms
- Speakers Bureau
 - Request ENV SP speakers





Credentialing a Project

- Identifying the project
- Doing an initial Workbook
- Beginning the verification process
- Preparing documentation and narrative
- Verifying the project
- Earning the credits
- Receiving the award





Identifying the Project

- » Alaska's William Jack Hernandez Sport Fish Hatchery is a one-of-akind facility for the production of salmon and trout.
- The project marks the largest ever application of intensive recirculation technology by a public agency to dramatically reduce water and energy consumption.
- Delivered on a tight schedule through an integrated CM/GC team, the facility serves 100,000 visitors per year.











Initial Review Using Envision Workbook and Guidance Manual (12-07-12)

QL2.5	Encourage alternative modes of transportation. Improve accessibility to non-motorized transportation and public transit. Promote alternative transportation and reduce congestion.							
	INCLUDE	Enhanced (3/15)						
QL2.6	Improve site accessibility, safety and wayfinding. Improve user accessibility, safety, and wayfinding of the site and surrounding areas.							
	INCLUDE	Restorative (15 / 15)						
	Dunnamia historia	and subsumal was account	-					
QL3.1	Preserve historic and cultural resources. Preserve or restore significant historical and cultural sites and related resources to preserve and enhance community cultural resources.							
	INCLUDE	Improved (1/16)						
QL3.2	Preserve views and local character. Design the project in a way that maintains the local character of the community and does not have negative impacts on community views.							
	INCLUDE	Restorative (14/14)						





Next Steps by ISI

- ISI assigned a Project Verifier who contacted HDR within one week
- ISI and HDR finalized contract details for the project verification

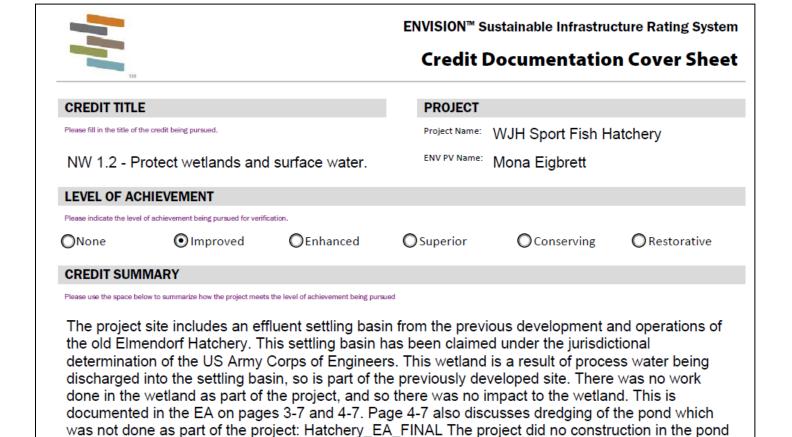
ISI Project Verifier: **Denise Nelson**PE, LEED AP, ENV SP

Greeley and Hansen





Initial Envision Documentation (4-05-13)



and maintained its use as a effluent settling basin for the new hatchery.





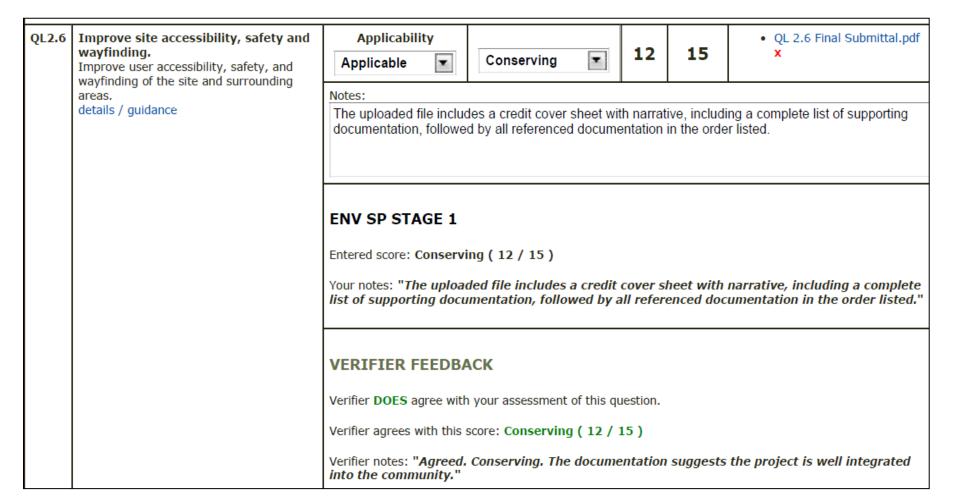
Initial Verifier Rating (5-02-13)

☐ The Verifier noted: The summary score below is based on the documentation provided (Achieved Now column). We identified several credits that were lacking documentation that we suspect the Assessor (HDR) has available. If the Assessor provides additional documentation, we anticipate the project will achieve a Gold Award.

Category	Total Applicable	Achieved Now	Can be Achieved
QL	181	66	75
LD	121	65	83
RA	182	25	55
NW	164	69	88
CR	122	21	21
Total	770	246	322
Percentage		32%	42%
Award		Silver	Gold

Initial Verifier Rating

Example of Verifier Agreeing with Credit Level



Initial Verifier Rating

■ Example of Verifier <u>Disagreeing</u> with Credit

LD1.3	Eliminate conflicting design elements, and optimize system by using integrated design and delivery methodologies and	Applicability Applicable	No Added Value ▼	0	15	Upload File for this Credit
	collaborative processes. details / guidance	Notes:				
			e (15 / 15) d file includes a credit cover ng documentation, followed			
		Verifier suggested score: Co	vith your assessment of this quonserving (8 / 15) Superior. To achieve Conse		rovide clea	r evidence of

Envision Documentation Responses (6-15-13)

- ☐ The table below lists the 12 Envision credits that were resubmitted.
- All revised text and supporting documentation were highlighted for easy reference.

Credit Name	Level of achievement requested	Total points	No. of new supporting documents
QL 1.3 Develop local skills and capabilities	Improved	1	1
LD 1.3 Foster Collaboration and Teamwork	Conserving	15	1
LD 2.2 Improve infrastructure integration	Restorative	16	1
LD 3.1 Plan for long-term monitoring and maintenance	Conserving	10	1
LD 0.0 Innovate or Exceed Credit Requirements	Requesting 2 of 6 points	2	1 new narrative
RA 2.1 Reduce energy consumption	Conserving	18	5
RA 3.2 Reduce potable water consumption	Superior	13	3
NW 1.3 Preserve Prime Farmland	Exclude		1
NW 1.4 Avoid Adverse Geology	Superior	3	2
NW 1.5 Preserve Floodplain	Enhanced	5	2
NW 1.7 Preserve Greenfields	Restorative	23	2
CR 2.2 Avoid Traps and Vulnerabilities	Conserving	16	4

ENVISION CREDITS EARNED





WJH Sport Fish Hatchery Quality of Life Credits Earned

Subcategory	Credits Awarded		Points Awarded	Level of Achievement
	QL 1.1	Improve community quality of life	20	Conserving
PURPOSE	QL 1.2	Stimulate sustainable growth and development	5	Superior
	QL 1.3	Develop local skills and capabilities	1	Improved
	QL 2.1	Enhance public health and safety	2	Improved
	QL 2.3	Minimize light pollution	2	Enhanced
WELLBEING	QL 2.4	Improve community mobility and access	7	Superior
	QL 2.5	Encourage alternative modes of transportation	3	Enhanced
	QL 2.6	Improve site accessibility, safety and wayfinding	12	Conserving
	QL 3.1	Preserve historic and cultural resources	1	Improved
COMMUNITY	QL 3.2	Preserve views and local character	3	Enhanced
	QL 3.3	Enhance public space	11	Conserving
QUALITY OF LIFE TOTAL				





WJH Sport Fish Hatchery Leadership Credits Earned

Subcategory	Credits	Credits Awarded		Level of Achievement
	LD 1.1	Provide effective leadership and commitment	17	Conserving*
COLLABORATION	LD 1.3	Foster collaboration and teamwork	15	Conserving*
	LD 1.4	Provide for stakeholder involvement	5	Enhanced
MANAGEMENT	LD 2.1	Pursue by-product synergy opportunities	15	Restorative*
	LD 2.2	Improve infrastructure integration	16	Restorative*
PLANNING	LD 3.1	Plan for long-term monitoring and maintenance	10	Conserving*
	LD 3.3	Extend useful life	3	Enhanced
Innovation Credit	LD 0.0	Intent to share sample documentation for training	1	Earned 1 point
		LEADERSHIP TOTAL	82	
	I			





WJH Sport Fish Hatchery Resource Allocation Credits Earned

Subcategory	Credits	Credits Awarded		Level of Achievement
MATERIALS	RA 1.6	Reduce excavated materials taken off site	2	Improved
ENERGY	RA 2.1	Reduce energy consumption	18	Conserving*
	RA 2.3	Commission and monitor energy systems	3	Enhanced
	RA 3.1	Protect fresh water availability	17	Conserving
WATER	RA 3.2	Reduce potable water consumption	13	Superior
	RA 3.3	Monitor water systems	3	Enhanced
		RESOURCE ALLOCATION TOTAL	56	





WJH Sport Fish Hatchery Natural World Credits Earned

Subcategory	Credits	Credits Awarded		Level of Achievement
	NW 1.4	Avoid adverse geology	3	Superior
SITING	NW 1.5	Preserve floodplain functions	5	Enhanced
	NW 1.7	Preserve greenfields	23	Restorative*
LAND & WATER	NW 2.2	Reduce pesticide and fertilizer impacts	5	Superior
	NW 2.3	Prevent surface and groundwater contamination	18	Restorative*
	NW 3.1	Preserve species biodiversity	2	Improved
BIODIVERSITY	NW 3.2	Control invasive species	5	Superior
	NW 3.3	Restore disturbed soils	8	Conserving
	NW 3.4	Maintain wetland and surface water functions	15	Conserving
		NATURAL WORLD TOTAL	84	





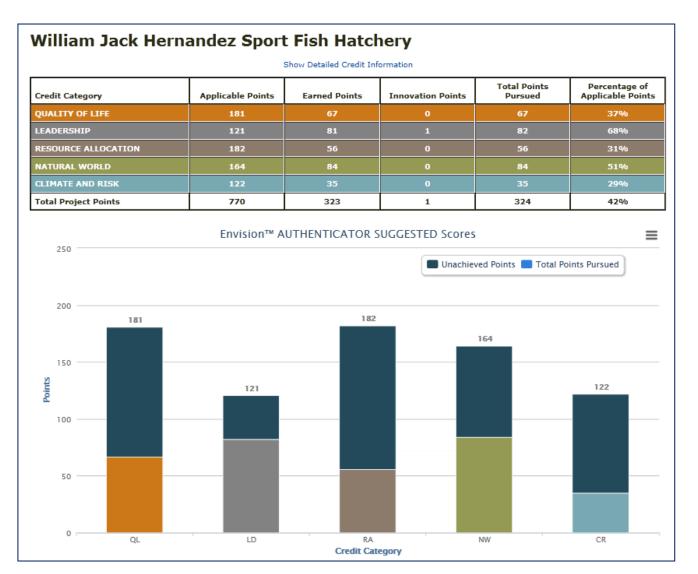
WJH Sport Fish Hatchery Climate and Risk Credits Earned

Subcategory	Credits	Awarded	Points Awarded	Level of Achievement
EMISSIONS	CR 1.2	Reduce air pollutant emissions	2	Improved
RESILIENCE	CR 2.2	Avoid traps and vulnerabilities	16	Conserving
	CR 2.4	Prepare for short-terms hazards	17	Conserving
		CLIMATE & RISK TOTAL	35	





Final Verifier/Authenticator Decision Gold Level Award: Received 7-02-13







ISI/HDR - First Envision Certified Project







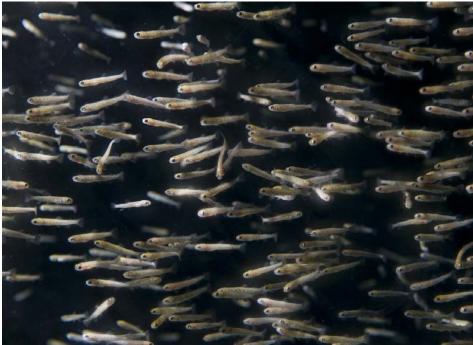


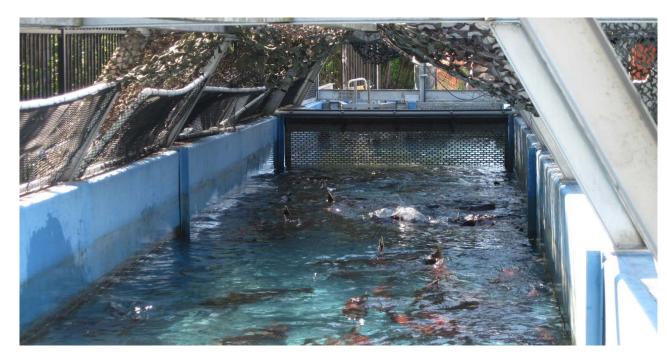
























Envision/Smart Growth Summary

- Envision mirrors and supports Smart Growth
- Results are measured and verified:
 - Quality of Life increases involvement and sustainable growth supported
 - Leadership means integrated collaborative planning
 - Materials are recycled and energy is reduced
 - Greenfields and are protected and urban locations emphasized
 - Emissions are lowered and resilience is increased







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Michaella Wittmann, Director of Sustainability

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Q&A





