

Envision^{TM 2} Helping Deliver the Next Generation of Infrastructure



Patel College of
Global Sustainability

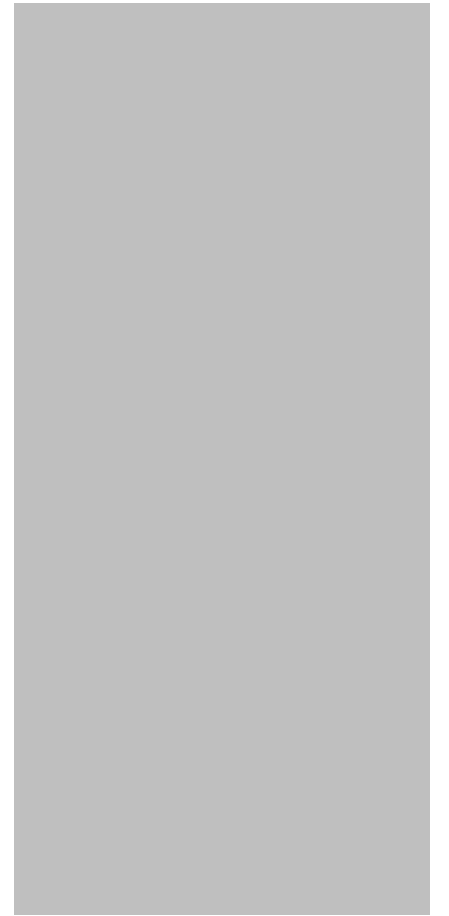
Systems Thinking The Key to Sustainability

David M. Taylor, ENV SP
President



FUTURE SOLUTIONS,

Sustainable Community and Transport Strategies



Sustainability Defined

#UN Brundtland Commission (Our Common Future, October) 1987

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

#Interpreted Corporate Definition

Sustainability is the act of balancing the environmental, community, and economic needs of the built and natural environments for present and future generations.



Habitat III Quito

‡H I ±1976, Vancouver: 38% of world population was urban

‡H II ±1996, Istanbul: 45% of world population was urban

‡H III²2016, Quito: 55% of world population was urban

‡By 2050, world urban population to double

‡21st century to be one of the most transformative in history

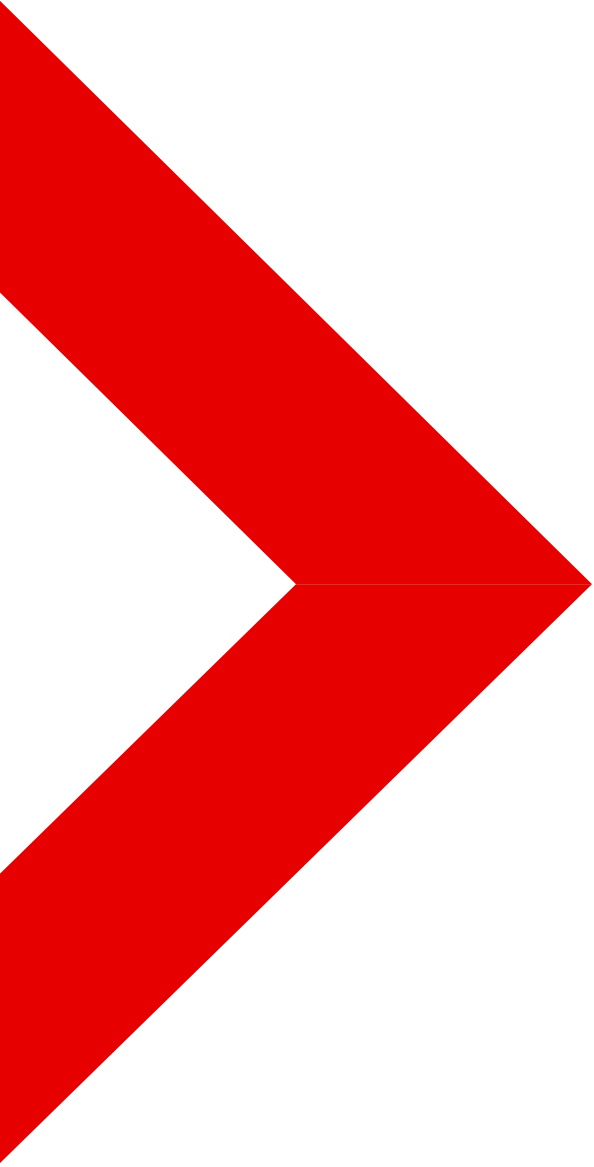
‡All parts of the globe will be impacted

‡New Urban Agenda calls for sustainable cities and human settlements for

<https://www2.habitat3.org/en/the-urban-agenda>

‡There is greater need for infrastructure and sustainable development for





INFRASTRUCTURE AND THE NEED FOR A PLANNING AND RATING SYSTEM

The Importance of Infrastructure

‡World is a fragile place and infrastructure provides:

‡5 H D O L W L H V R I W R G D‡\ p



LEED Transformed the Building Industry

‡ Redefined building value

‡ Building customers (owners, tenants, residents, the public) recognize value of buildings

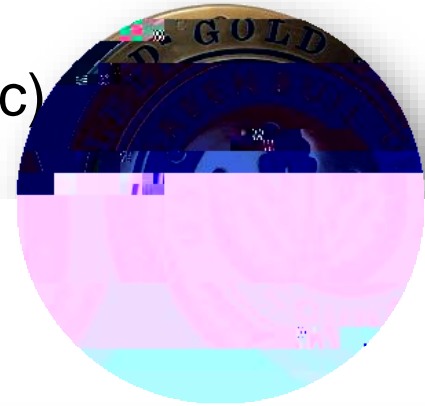
‡ Higher first costs → lower life cycle costs

‡ Developed value metrics

‡ System for measuring, assessing and recognizing building performance

‡ Better LEED performance = higher value

‡ Created the brand



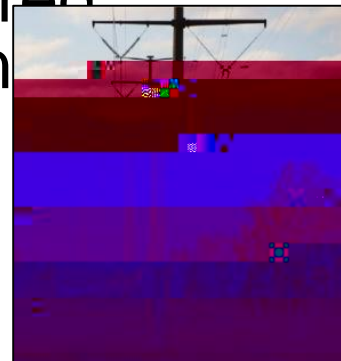
The Need for a Rating System

- ‡ 900 rating systems are available worldwide
- ‡ Current US rating systems are sector specific
- ‡ No US system covers all infrastructure systems
- ‡ The state of US infrastructure



State of Infrastructure

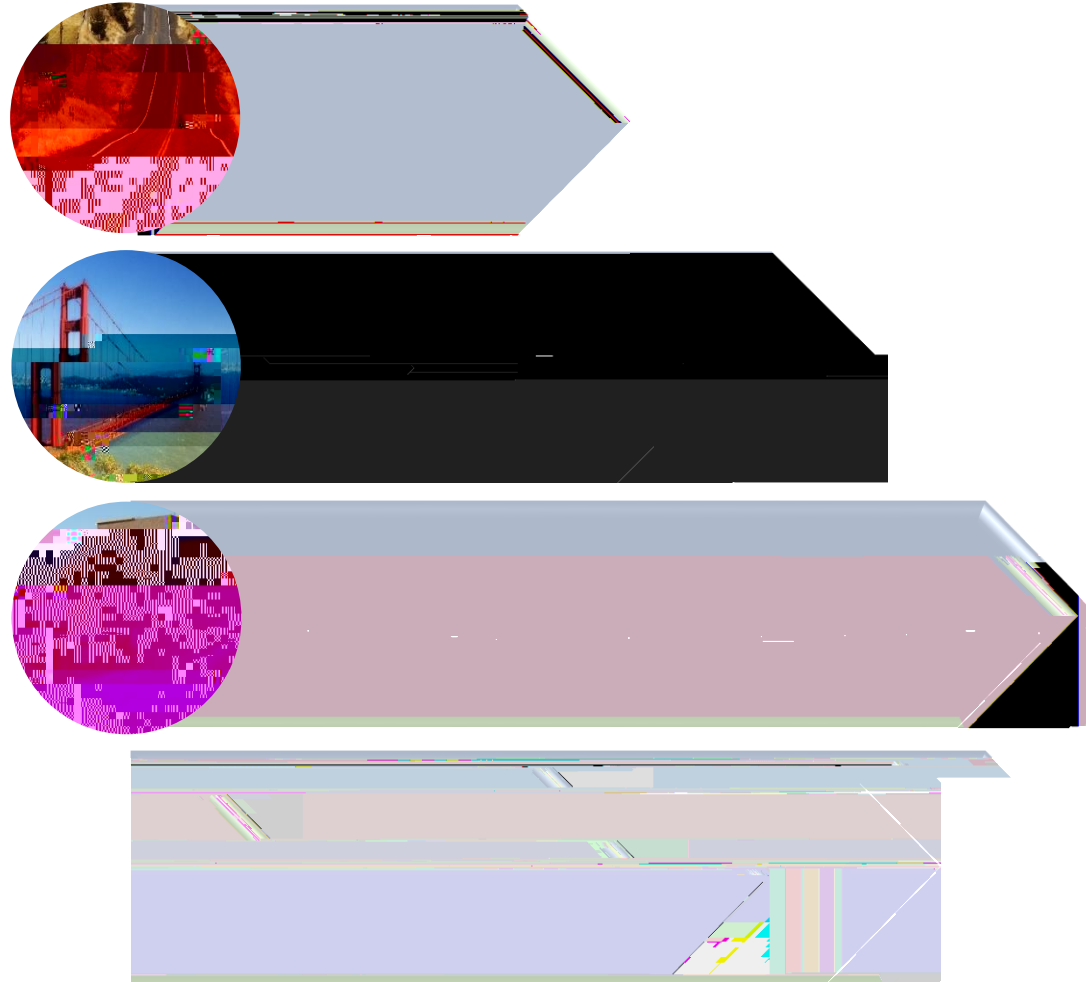
- ‡ North American infrastructure in decline and disrepair
- ‡ World Economic Forum Global Competitiveness Report
 - ‡ US ranked 25 worldwide, just ahead of Qatar
- ‡ Many communities have systems at the end of their useful life
- ‡ The typical strategy seems to be deferred maintenance, not system enhancement
- ‡ Lack of ability keep pace with changing sustainability concepts





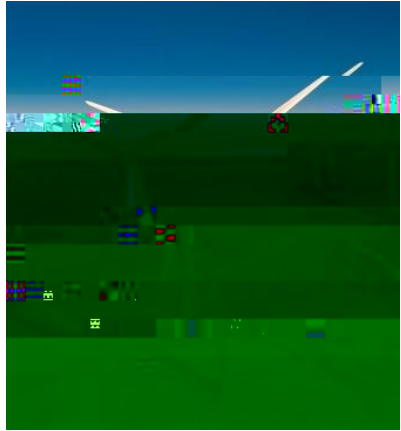


We Are Building 2030d Beyond Today!

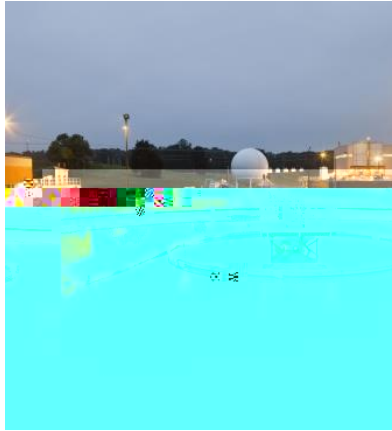


The Need A System for All Horizontal Infrastructure

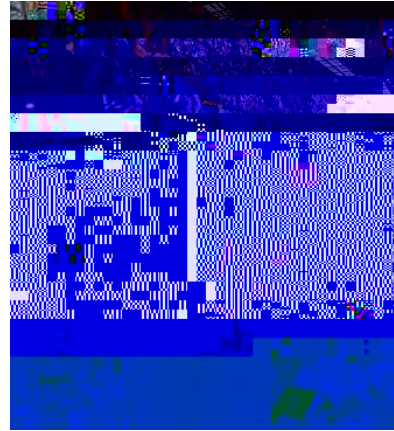
ENERGY



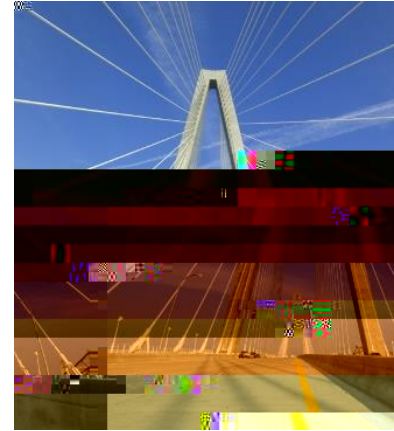
WATER



WASTE



TRANSPORTATION



LANDSCAPE



INFORMATION



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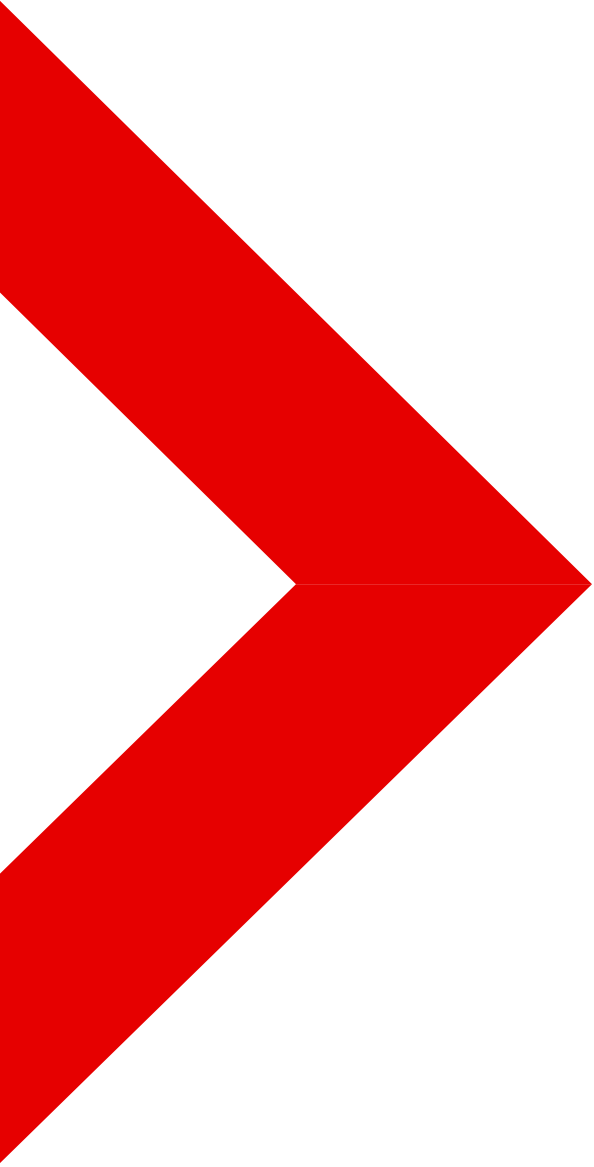
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THE ENVISION RATING SYSTEM

Envision™ - Collaborative Development



THE ISI MISSION

‡To help infrastructure owners make more informed decisions about the sustainability of their infrastructure projects

WHAT IS ENVISION?

‡Envision® is not a decision making tool

‡A challenging tool? Is it the *RIGHT* project?

‡It is a planning and decision making guide

WHAT MAKES ENVISION UNIQUE?

‡ Envision applies to all civil infrastructure

‡ Envision applies to all project phases

‡ Is designed to keep pace with a changing concept of sustainability





ENVISION COMPONENTS

GUIDANCE MANUAL

PRE-ASSESSMENT
CHECKLIST

ONLINE
SCORESHEET

‡ A no-cost,
downloadable
guidance manual



‡ A no-cost, downloadable, self
assessment tool

‡ Familiarizes users with sustainability

‡ Quick alternatives assessment option

‡ A no-cost, comprehensive online Scoresheet



FIVE CATEGORIES
60 CREDITS





PROJECT VERIFICATION AND AWARD PROGRAM

- ‡ Independent thirdparty review
- ‡ Optional with associated fee
- ‡ Easy to use online process
- ‡ Projects must meet a minimum percentage of points to be eligible
- ‡



Fee Schedule

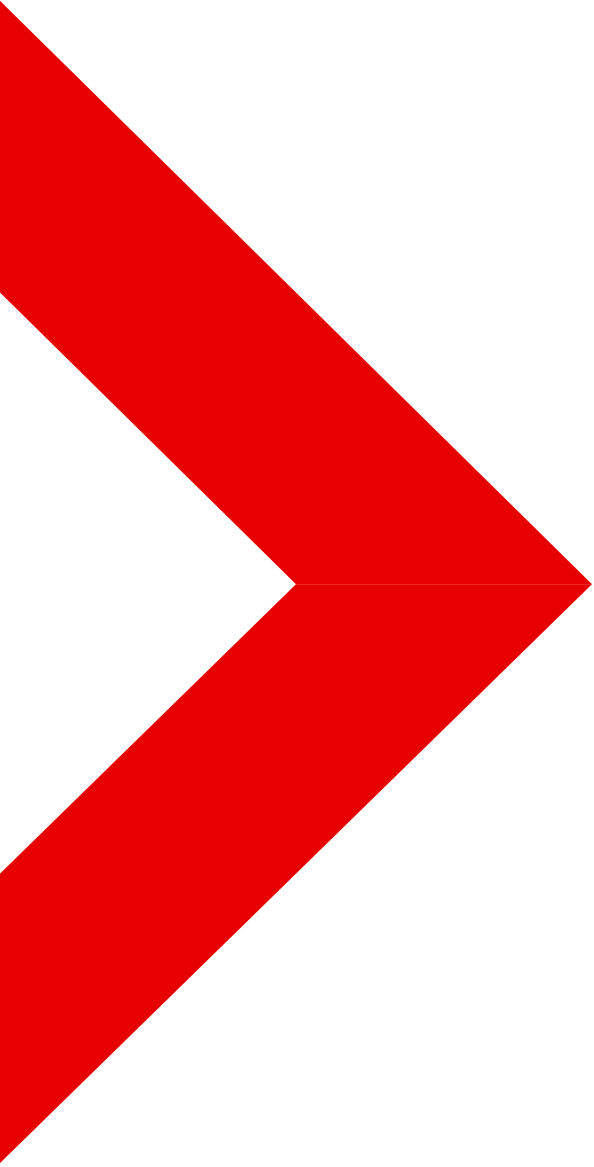
9 Registration Fee: \$1000

9 Verification Fee:

Project Size (M)	Non-Member Price	ISI Member Price
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	

9 Optional Appeals Fee: \$500 per credit





APPLYING THE SYSTEM

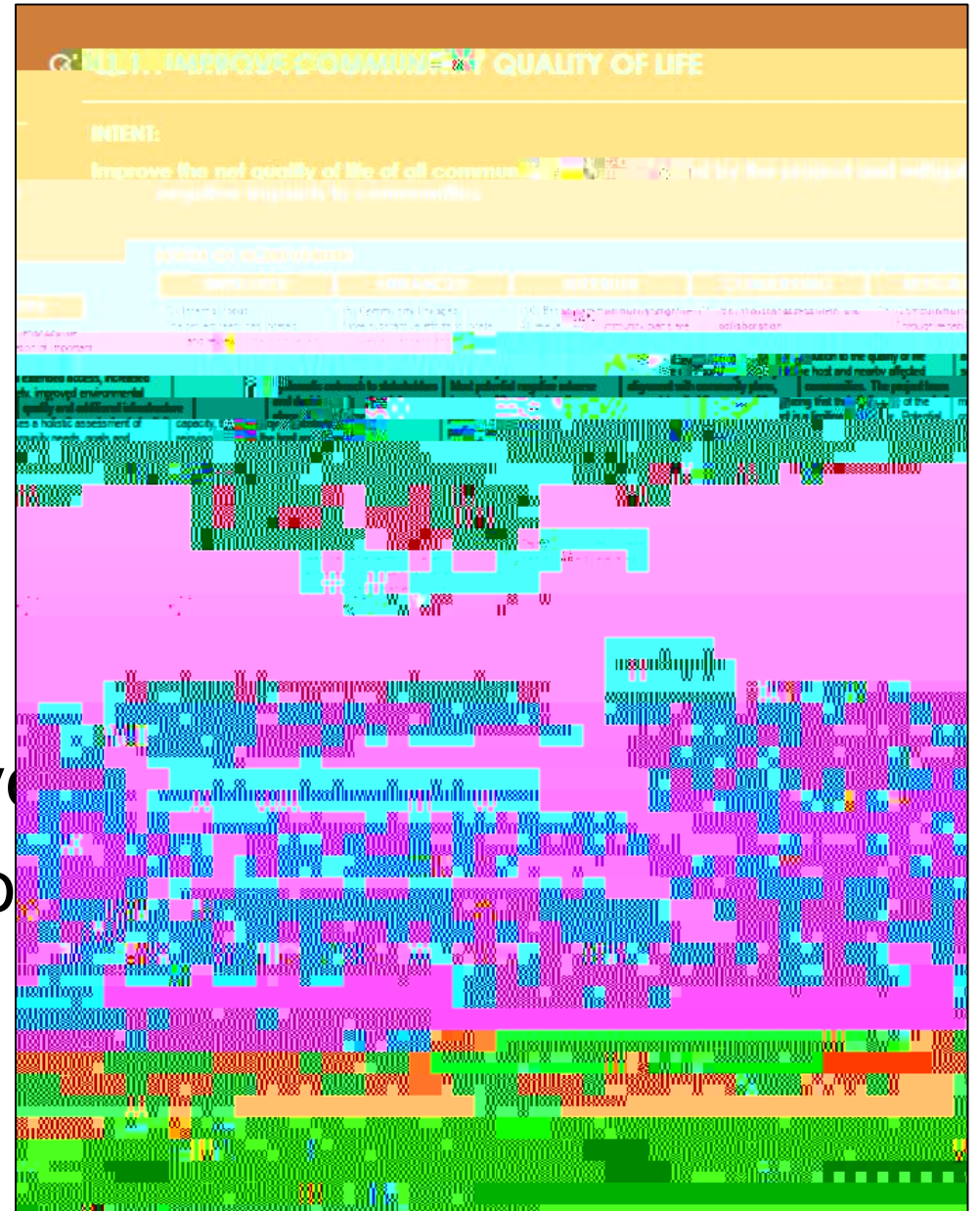
Envision Checklist

- ‡ Available for no cost on ISI website
- ‡ Contains Yes/No questions
- ‡ Used for project ~~self~~ assessment
 - ‡ Introduce concepts of sustainability to



Envision Guidance Manual Structure

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

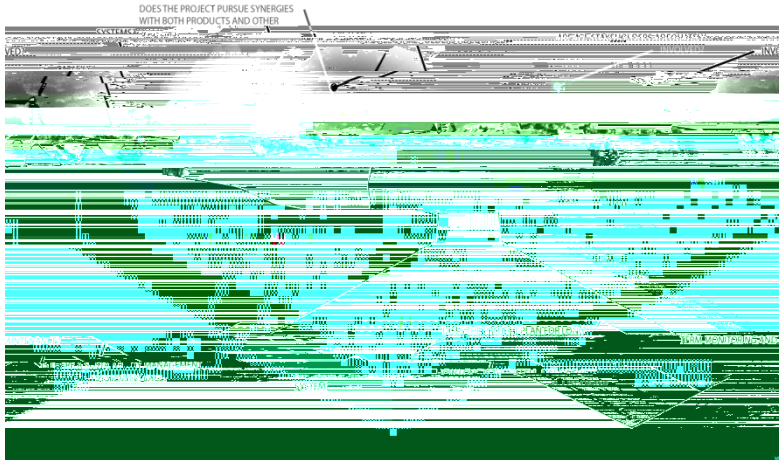


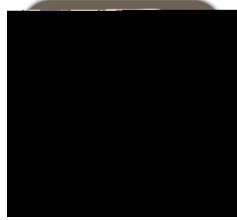


COLLABORATION



LEADERSHIP





RESOURCE ALLOCATION



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 and Recycling

ENERGY

- RA2.1 Reduce Energy Consumption
- RA2.2 Use Renewable Energy
- RA2.3 Commission and Monitor Energy Systems

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





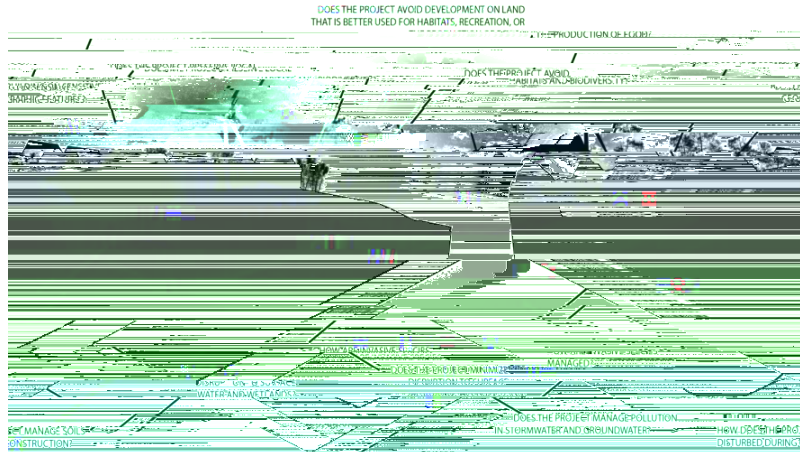
**NATURAL
WORLD**

SITING

NW1.1 Preserve Prime Habitat

NW1.2 Preserve Wetlands and Surface Water

NW1.3 Preserve Prime Farmland

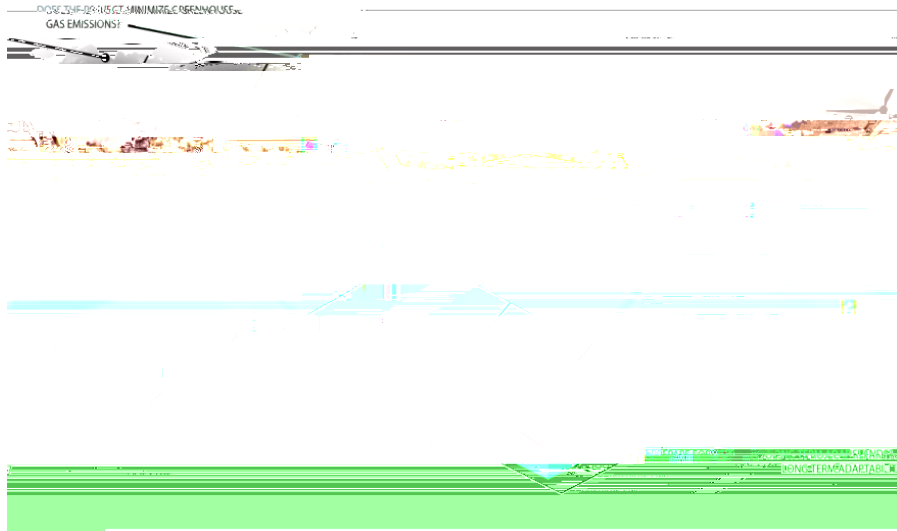




EMISSIONS

CR1.1 Reduce Greenhouse Gas Emissions

CR1.2 Reduce Air Pollutant Emissions



Envision²Online Scoresheet

The screenshot displays the Envision² Online Scoresheet interface. At the top, there is a dropdown menu labeled "I want to: ...CHOOSE AN OPTION...". Below this, the current score is shown as "Score: 104" and the maximum score as "Max Score: 181". A navigation bar includes icons for "Home", "LP", "PA", "NM", and "CP".

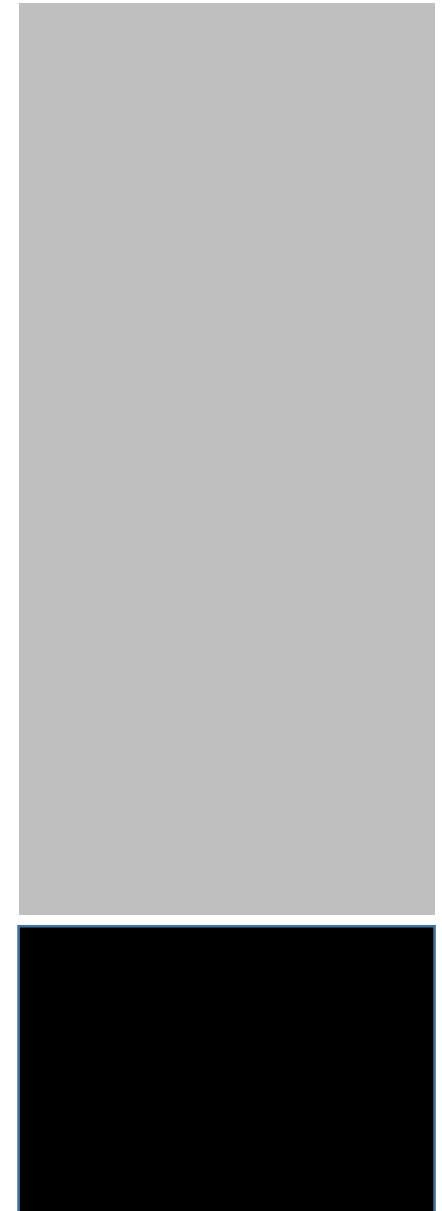
The main content area features a table with the following columns:

- Level of Achievement
- Score
- Possible Points
- Credit
- Credit Intent and Metric
- Is this Required for the Project?

The table contains several rows, with the most prominent one being:

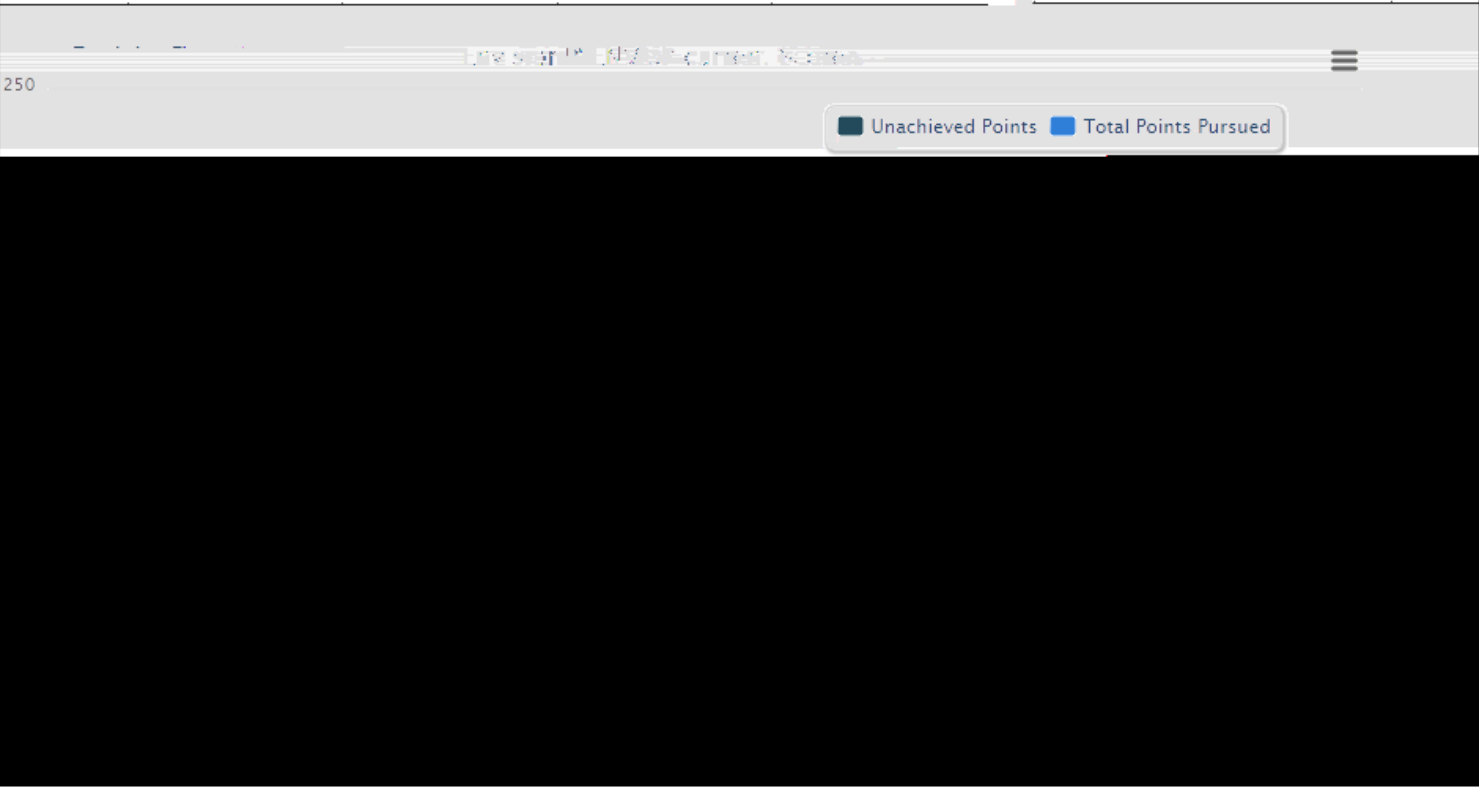
Level of Achievement	Score	Possible Points	Credit	Credit Intent and Metric	Is this Required for the Project?
Applicable	Superior			QL1.1 Improve community quality of life.	
				QL1.2 Stimulate sustainable growth and development, including improvement of...	

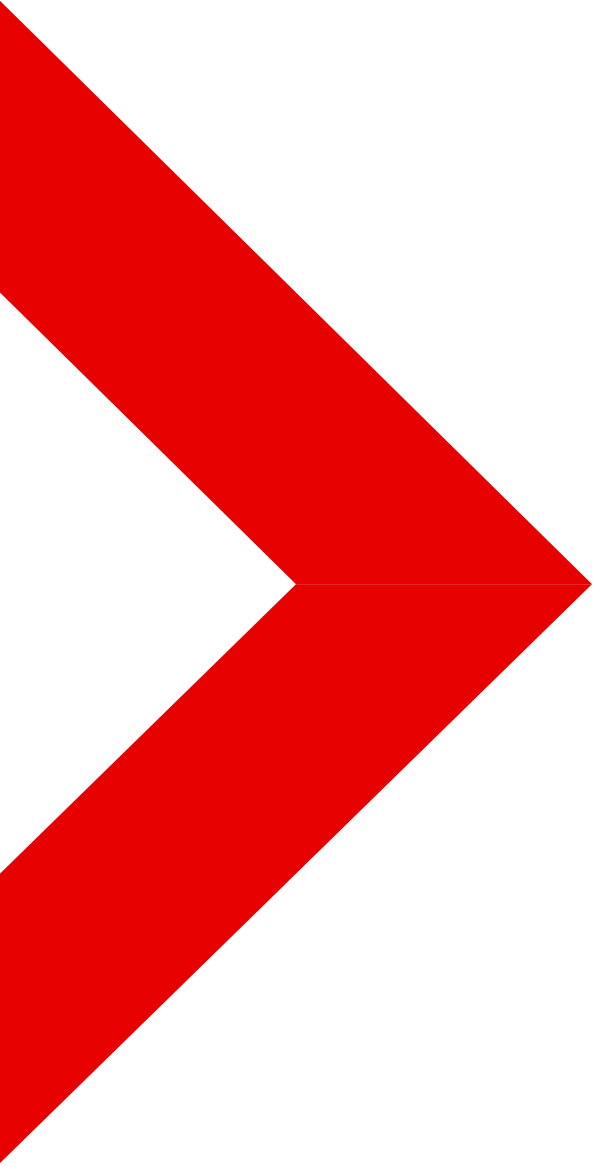
Below the table, there are links for "details / guidance" and a red arrow pointing right.



Envision² Summary Score

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





WHAT IS HAPPENING

#Projects

±Verification and recognition began September, 2012

±21 current project awards

±15 in verification

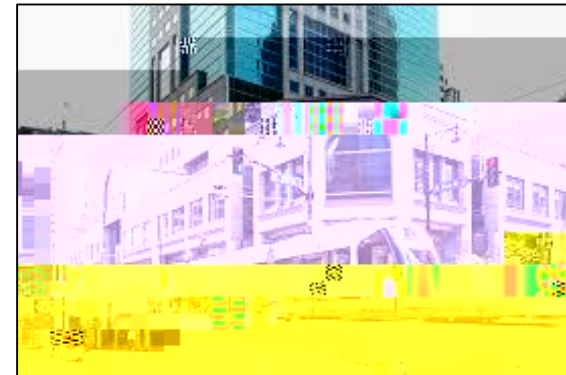
±25 registered/not submitted



#ENV SPs

±4900 worldwide

±20 countries represented



ENVISION AWARDS

VERIFIED PROJECTS



Tarrant Regional Water District Pipeline







Tucannon River Wind Farm



Find more information online:

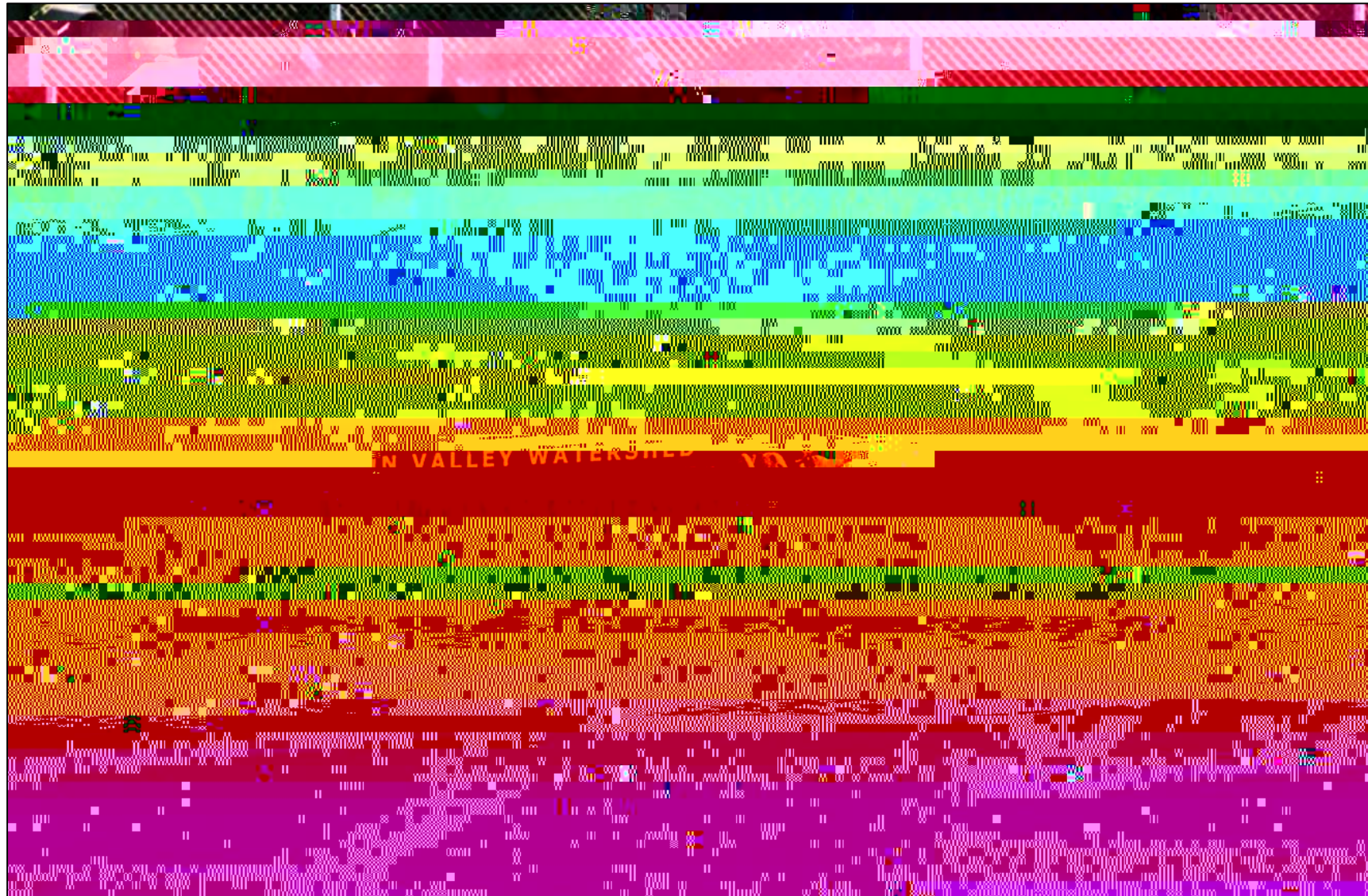
 [PG&E](#)  [Bentley](#)  [CSC](#)  [AECOM](#)



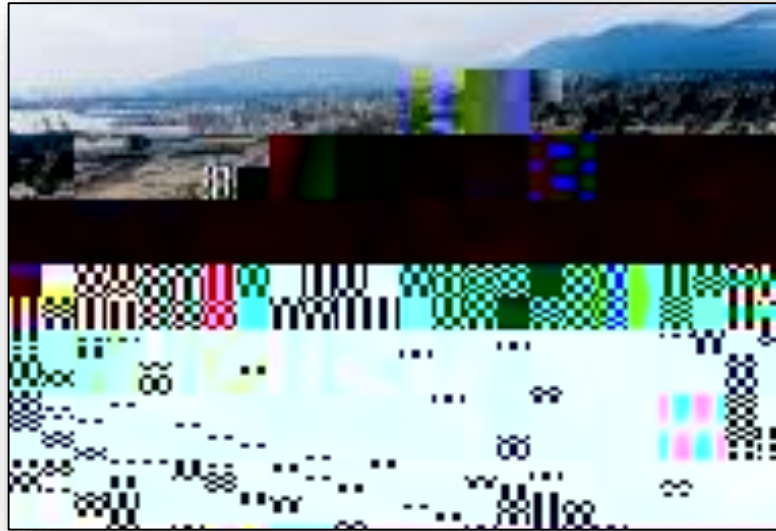
Kansas City Streetcar



Sun Valley Watershed MBL Benefit Project

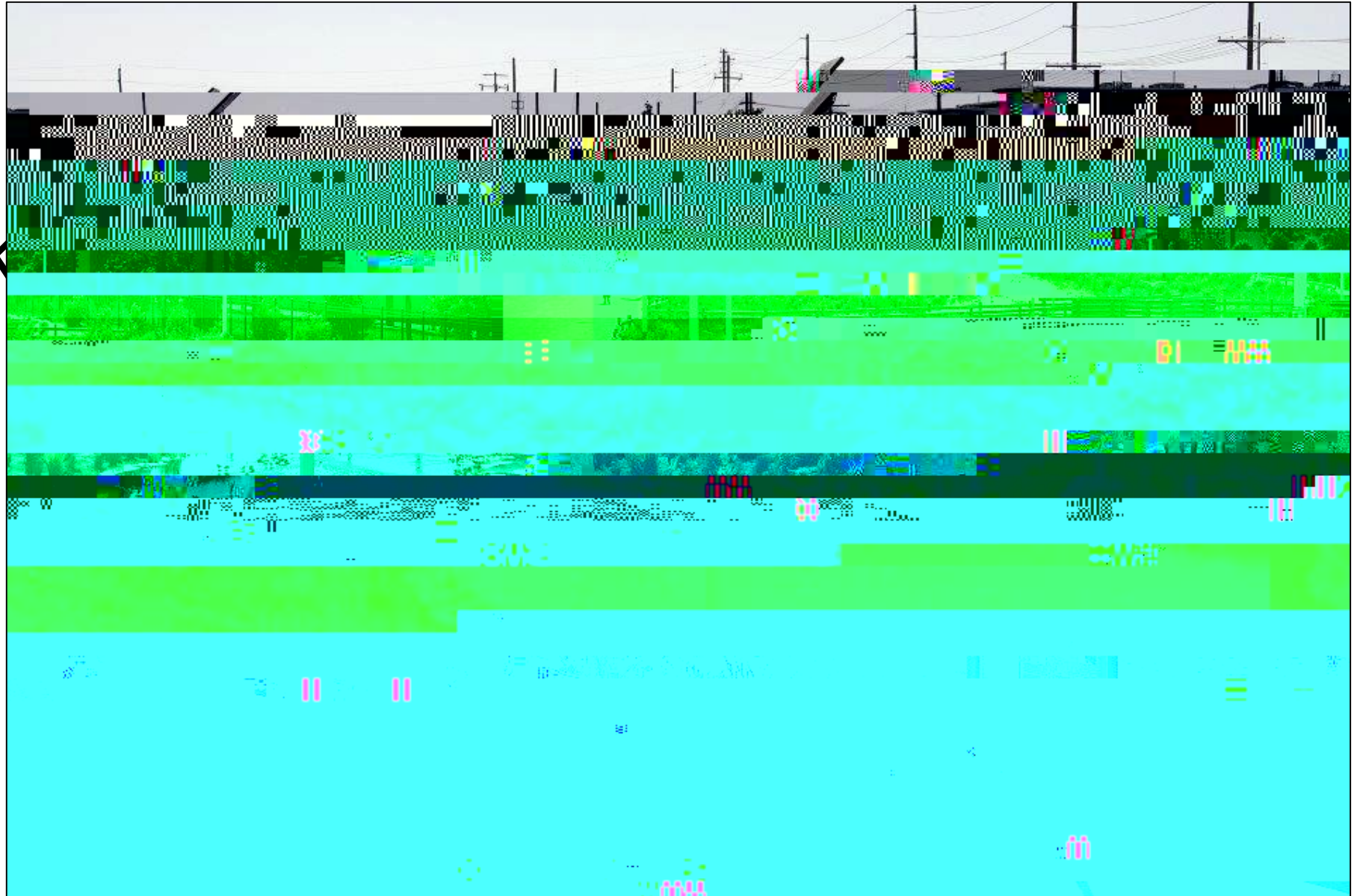


Port of Vancouver Low Level Road





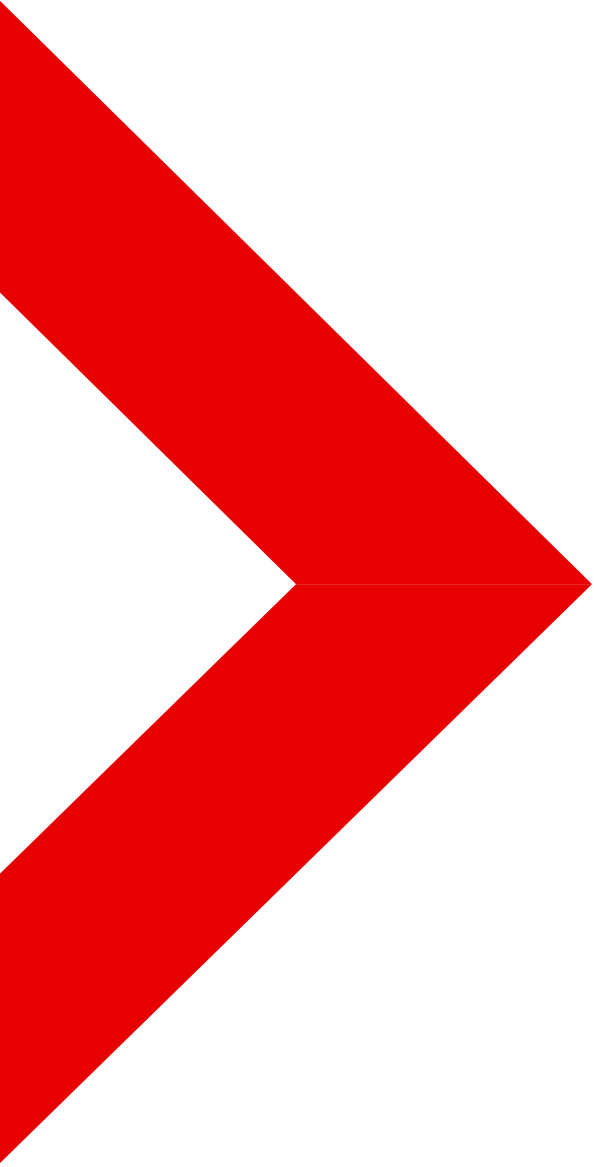
South Los Angeles Wetland Park



Grand Bend Area Wastewater Treatment Facility







A FINAL NOTE

At Least Remember that:

- ‡(Q Y L V L R Q L V 1 2 7 D 3 design, then look back and check P L U U R U ')
- ‡(Q Y L V L R Q V S R Z H U E N D of project L Q J W K H) 5 2 1 development
- ‡Use Envision to help define the project
- ‡The project will be properly delivered and sustainable without having to define it that way
- ‡If the owner decides to certify the project, the technical work is largely complete
- ‡





Envision™ Overview for



Patel College of
Global Sustainability

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Q&A



FUTURE SOLUTIONS,

Sustainable Community and Transport Strategies