



Strengthening Water Infrastructure Planning and Design Outcomes Using Sustainable Concepts within the Envision Rating System

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Presentation Outline

Brief Overview of Envision

Case Studies at Various Project Phases

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Lauren Zuravnsky – HRSD

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Brief Overview of Envision

What is Sustainability?



Sustainability often means different things to different people

“To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations”

United States Environmental Protection Agency

Individual Sustainability Concerns



Storm Surge /
Sea Level Rise



Extreme Weather
Events



Aging Workforce /
“Brain Drain”



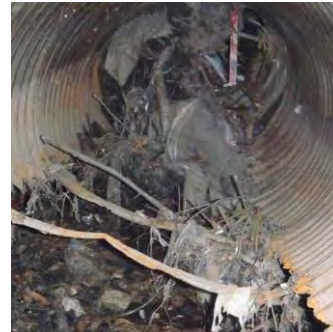
Energy Efficiency /
Carbon Emission



Economy and
Population Dynamics



Social Equity /
Engagement



Infrastructure Age
/ Reliability



Water Resource
Availability

Envision Sustainable Infrastructure Framework



ENVISION

Created and Maintained by:



ISI founded by:



Challenges Using LEED for Water Projects

- LEED is exceptional for sustainable design of *inhabited structures* (e.g. admin building)
- Application of LEED for civil/water projects is challenging, and not highly applicable
- LEED is extremely prescriptive, so need for a more holistic approach for planning was needed



Envision's Five Categories



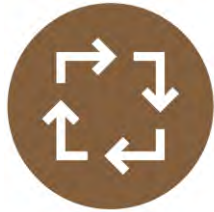
**Quality
Of Life**

*Wellbeing, Mobility,
Community*



Leadership

*Collaboration,
Planning, Economy*



**Resource
Allocation**

*Materials,
Energy, Water*



**Natural
World**

*Siting, Conservation,
Ecology*



**Climate and
Resilience**

*Emissions,
Resilience*

What Makes Envision Useful?

Directly and highly applicable to civil infrastructure

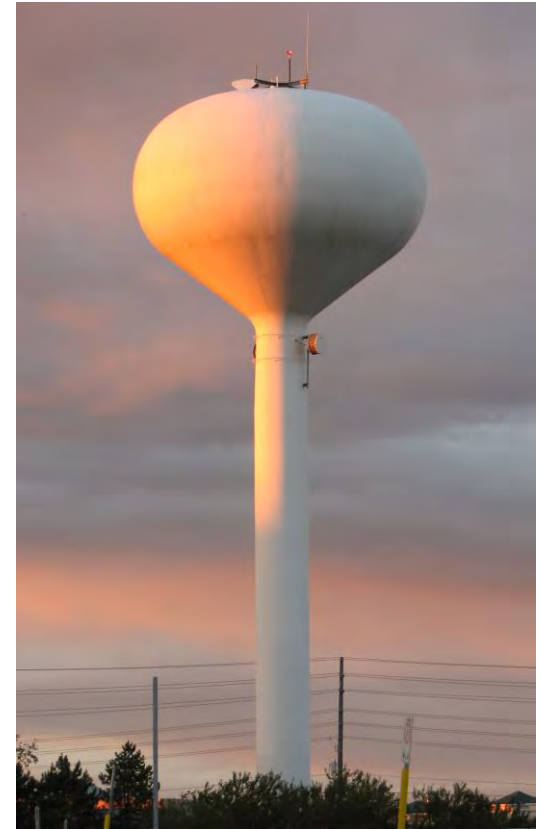
Anyone can use it at any point in the project

Multi-sector applicability in all project phases

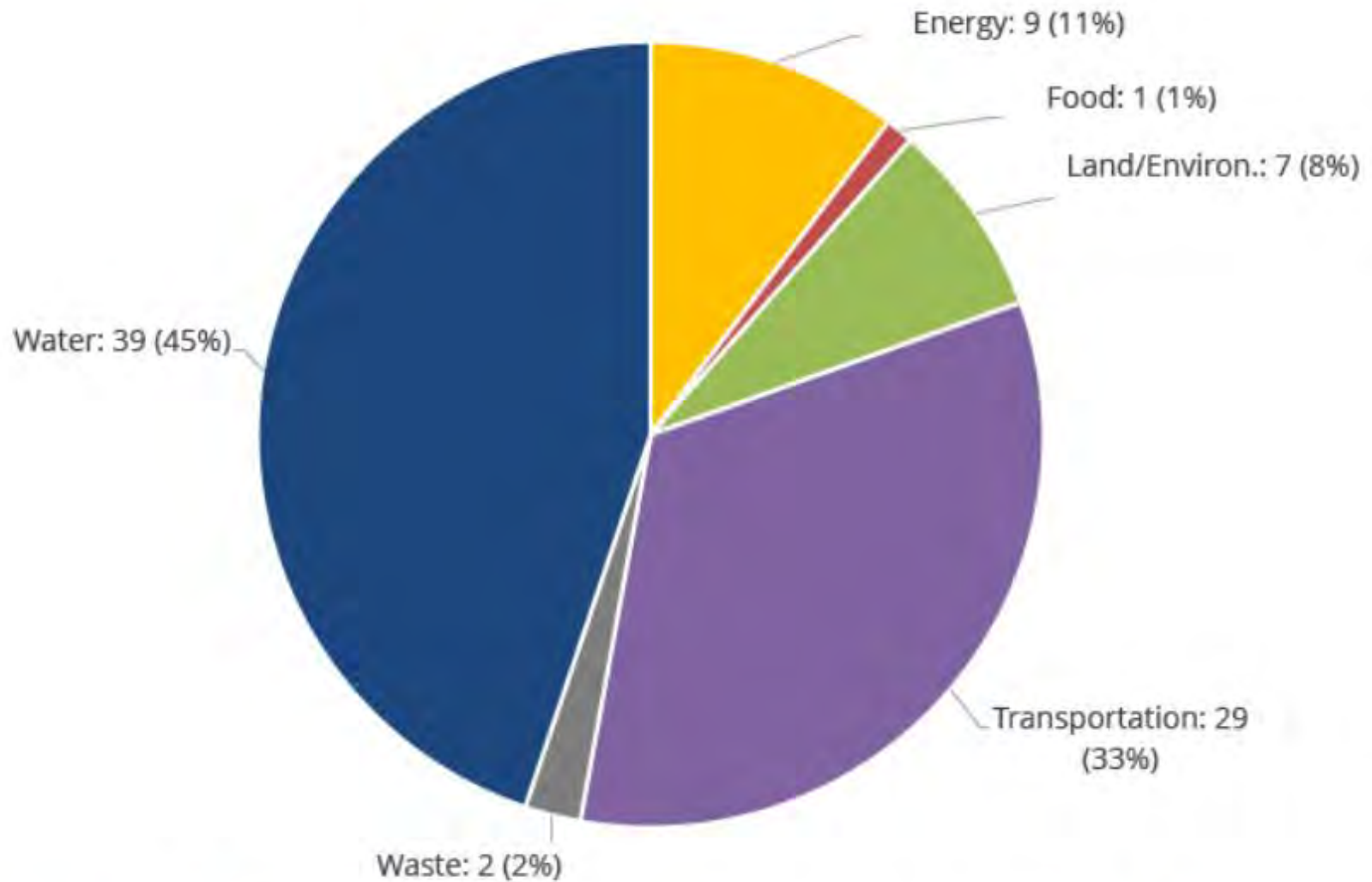
Addresses full spectrum of sustainability

- Social, Environmental, Economic
- Resilience

Convenient vehicle for bringing a consistent sustainability approach to any project



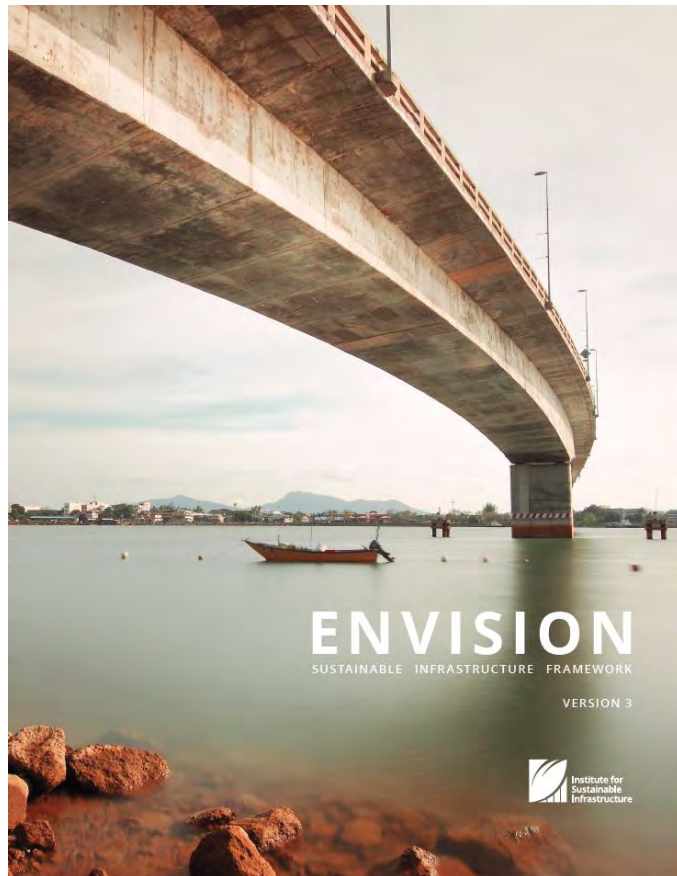
Envision Use by Sector (Verified Projects)



Energy Food Land/Environ. Transportation Waste Water

Source:
ISI, January 2020

Major Envision System Components



ENV SP Professional Credential
(ENV SP)

Guidance Manual

Pre-assessment Checklist

Online Scoresheet

Optional Third-Party Verification

Optional Project Certification

- Verified, Silver, Gold, Platinum

Envision Version 3 – Primary Updates

- **Credits**

- Revised/consolidated
- New credits focus on resiliency, construction phase, lifecycle costs, equity/social justice

- **Credential Maintenance**

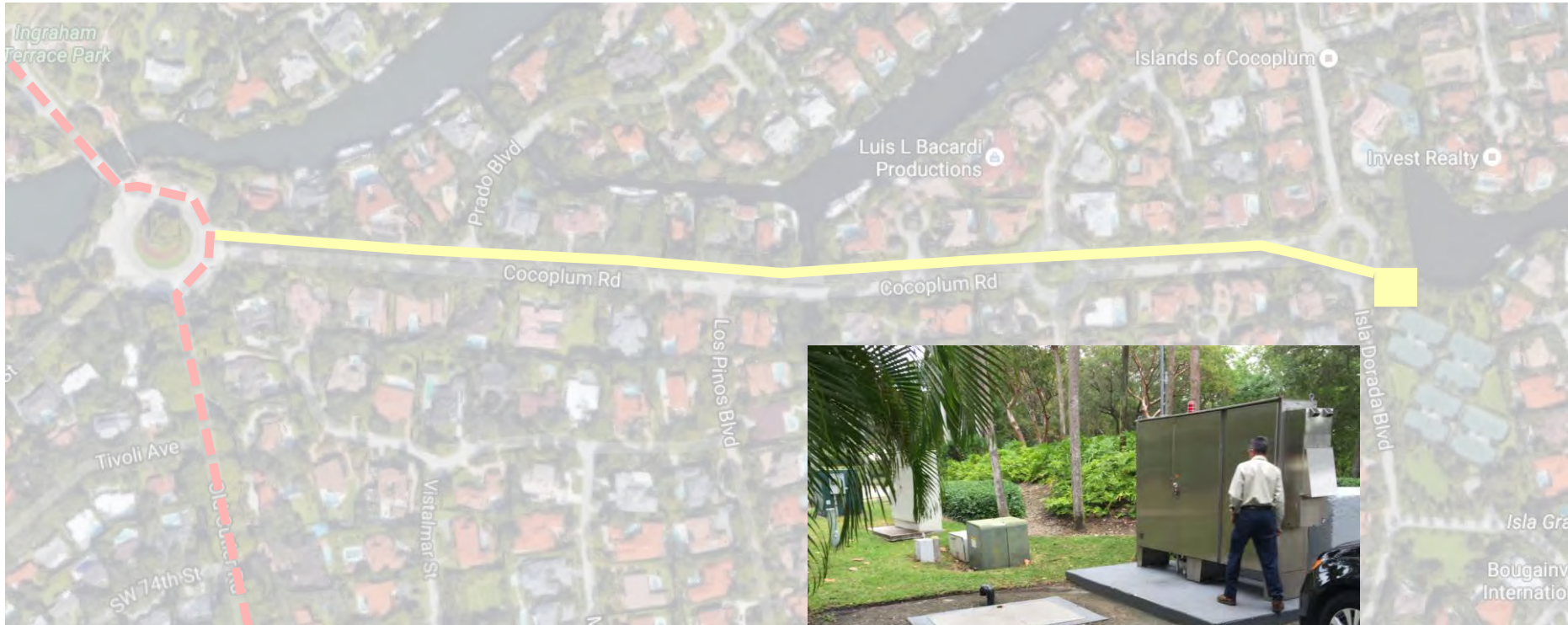
- Ensures ENV SPs maintain current with sustainability practices
- 7 hours annually

- **Third-Party Verification and Award (*Optional*)**

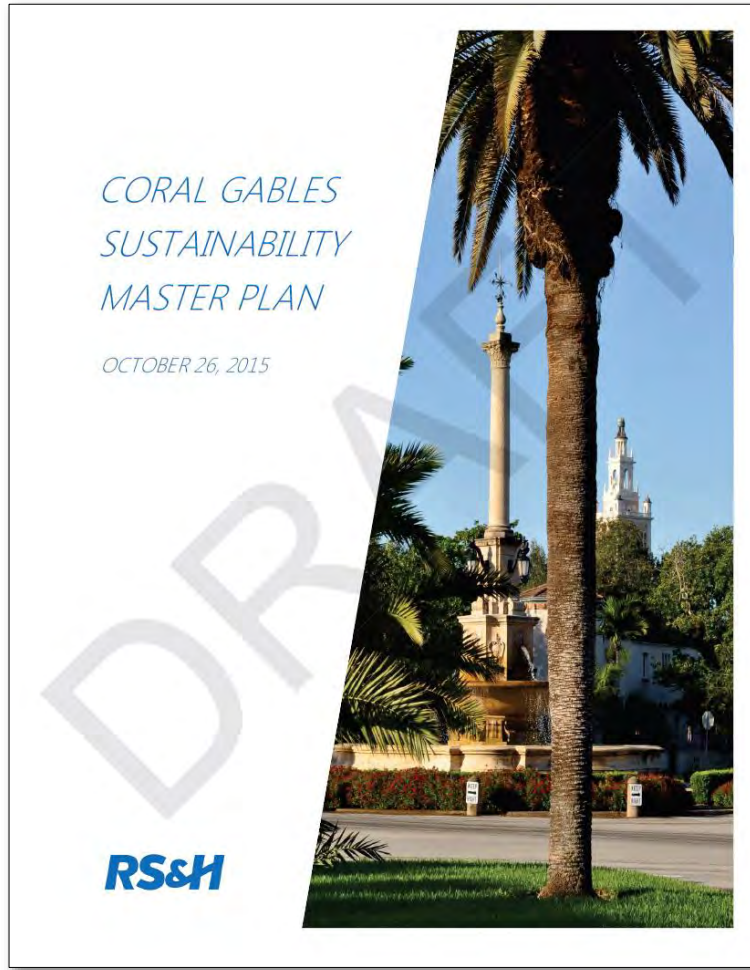
- Version 2: Pursue award as early as 95% design
- Version 3: Two different “Pathway” options
 - Pathway A: Award at 95% design; Confirm construction performance at 95% construction
 - Pathway B: Award at 95% construction

Case Studies at Various Project Phases

Coral Gables – Cocoplum PS and FM Upgrade



Progressive Sustainability Initiatives



- Highly progressive sustainability initiatives
- “Big Picture” goals
- Siloed efforts
- Challenged with project-level uniformity and guidance

Envision Helped Bring it All Together

Category: Quality of Life					
Subcategory	Credit	Credit Title	Coral Gables Document	Page No.	Applicability
Community	QL 2.3	Minimize Light Pollution	Green Comprehensive Plan	2	Policy GRN-1.3.3 - The City will research and develop provisions within Zoning Code that will encourage development of LEED (or similar) certified buildings including but not limited to the examination of the following: - "Dark skies" lighting strategies
Community	QL 2.4	Improve Community Mobility and Access	Sustainability Master Plan	30	Expansion of Transit Services: - Community Improvement District - Bicycle and Pedestrian Plan Implementation
			Green Comprehensive Plan	2	Policy GRN-1.3.2 - All new development proposals shall include designated safe pedestrian paths of travel within the site and provides pedestrian access to and from the public right-of-way to encourage walkability.
Community	QL 2.5	Encourage Alternative Modes of Transportation	Sustainability Master Plan	6	Reduce gasoline and diesel fuel use 20% below 2013 levels by 2025 - Fuel Economy - Fleet Size - Electric Vehicles & Infrastructure
			Green Comprehensive Plan	3	Policy GRN-1.3.5 - The City will encourage private and public sector employers to promote fewer work-based vehicle trips. - Incentives for carpooling - Employees incentives for energy efficiency and cost saving measures. - Promote video conferencing or conference calls. - Implement flex time programs for eligible employees. - Provide green building educational materials to the community - Collocation of facilities
Well Being	QL 3.1	Preserve Historic and Cultural Resources	Sustainability Master Plan	9	Preserve Historic Heritage

Envision Use at All Project Phases

CORAL GABLES
THE CITY BEAUTIFUL

Cocoplum 1 Pump Station and Force Main Upgrade

RESILIENT PROJECT OF THE YEAR
(Green Utility Facility Category)

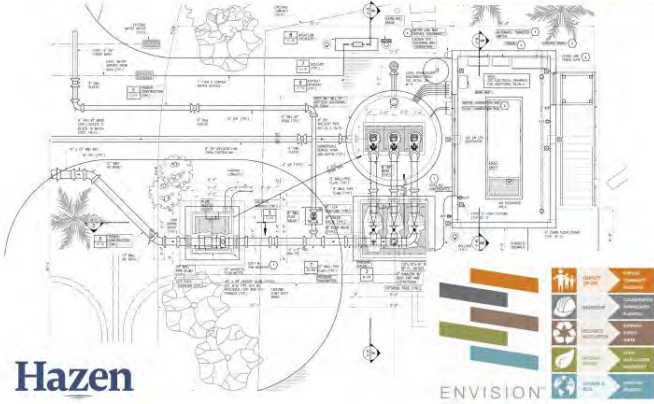

In an effort to proactively upgrade the City of Coral Gables' sewer system to better accommodate peak flows and increase system reliability and integrity, the City will implement various mechanical, electrical, and structural upgrades to the Cocoplum 1 Pump Station (PS-CC1), located at 121 Isla Dorado Boulevard. As part of these upgrades, the City examined the potential impacts of sea level rise on the facility as well as incorporated Envision into design and construction of the sustainable facility to achieve a projected Silver award.

The City of Coral Gables approach to the design of PS-CC1, and all subsequent infrastructure improvements, will take into consideration Envision's holistic framework for evaluating and rating the community, environmental, and economic benefits of this infrastructure project.

The implementation of innovative materials, reuse of in-situ excavated materials, and resiliency considerations to assure operation under adverse conditions as well as improvements to the existing community including a proposed park and pedestrian walkways have been incorporated into the design.

Key Design Elements

- Conversion of the station from a duplex to a triplex station.
- Replacement of existing 6-foot diameter concrete wet well with a 10-foot diameter HDPE well.
- Installation of 3,100 lf of 12-inch C900 PVC force main, which will tie PS-CC1 directly to the City's manifolded.
- Upgraded instrumentation system will provide the City with real-time remote viewing via telemetry of pump operation, wet well level, flow, and pressure.
- Electrical improvements include a triplex control panel and ancillary equipment. Proposed electrical equipment and generator will be elevated above required flood elevations and take into account sea level rise.



Hazen

ENVISION

- Enhanced interdepartmental coordination
- Identification of benefits for internal *and* external stakeholder engagement
- Standardized for project design



HRSD – Sustainable Design Opportunities

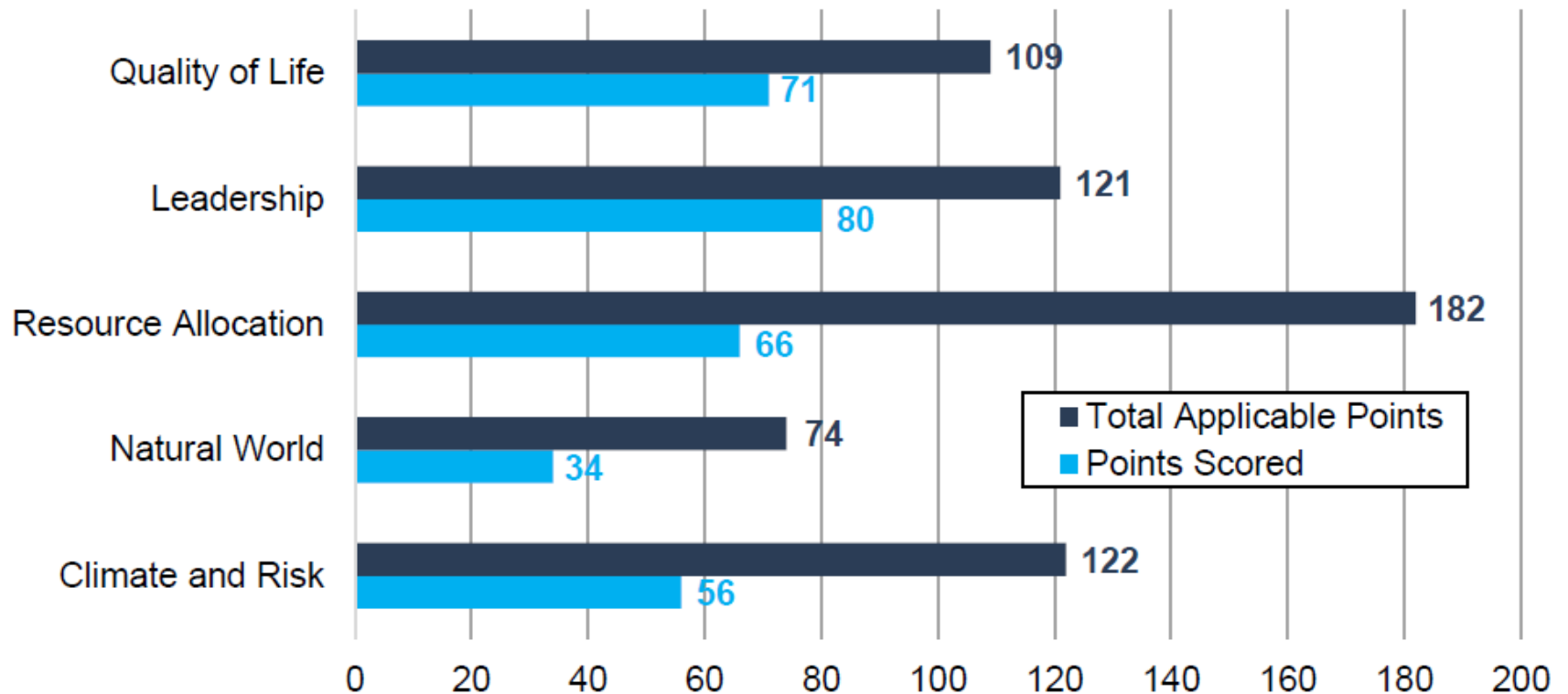
One (1) million gallon per day (MGD) aquifer replenishment and demonstration project for future full-scale 100 MGD program.

- Public outreach & engagement
- Rain water harvesting
- Solar panels
- Pervious pavement



Benefits of SWIFT Envision Evaluation

Project was on track to achieve greater than 50% of applicable points, which may have qualified for Platinum



Closing

Benefits of Using Envision Programmatically

- Sustainability initiatives into action
- Consistent, transparent approach
- Benchmark and track relative performance
- **Strengthens the overall outcome of the planning/design process**
- Long-term thinking through resiliency and preparedness principles
- Strengthen interdepartmental cooperation
- **Increased public involvement, confidence, and “buy in” (controversial projects)**

Thank you!



NEWWEA
WORKING FOR WATER QUALITY

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