Meeting Minutes
August 18, 2010 - 2:00 PM
Community Room, Police Headquarters

Attendees:

Dorie Bolze, HRWA
Kristi Earwood, Williamson County
Scott Gain, USGS
Tim Ham, Mallory Valley
Mark Hilty, City of Franklin
Mike Jones, Milcroften
Lee Keck, TDEC
Dan Klatt, Franklin representative
Gene Leboeuf, Vanderbilt
Ken Moore, BOMA
David Parker, City of Franklin
Ann Petersen, Alderman
Tom Puckett, HB&TS
Howard Smithson, Milcroften
Eric Stuckey, City of Franklin
Bobby Worthington, HVUD

Bo Butler, SSR
Kati Bell, CDM
Zack Daniel, CDM
Jamie Lefkowitz, CDM
Chris Provost, CDM
Dan Rodrigo, CDM
Kirk Westphal, CDM
Leeann Williams, CDM

Introduction
In previous Workshops, Stakeholders defined project Objectives and their supporting Performance Measures, and ranked them according to importance. A comprehensive list of improvement Options for each system was also created. During Workshop 3, Stakeholders developed five Alternatives or collections of options, one each supporting the Objective to:

- Improve water quality and ecological health of Harpeth River and watershed
- Provide excellent level of water/wastewater utility services at reasonable cost
- Maximize efficiency of water use and value of water resources
- Meet current and future demands for water and wastewater reliably
- Provide safety and security of water resources systems

Since Workshop 3, these Alternatives have been analyzed with the computer model developed for this project to objectively evaluate them according to the Performance Measures. The goal of Workshop 4 was to present the results of the analysis and to select Alternatives to carry into Phase II.

Alternatives Evaluation
The process of evaluating the alternatives was explained prior to the results presentation. The accompanying slides demonstrate the process.

The Performance Measures were either quantitative, which could be evaluated using the STELLA software, or qualitative. The qualitative Performance Measures were assigned a ranking score by the Steering Committee. Each Alternative was assigned a score for every Performance Measure. Because the scores were initially in units that varied with type of measurement the Performance Measures were normalized to a common unit measurement in order to evaluate the Alternative objectively.

Plots of the raw results of each Performance Measure were distributed to the Stakeholders, and the total normalized scores for each Objective were presented. In addition to the Alternatives listed above, a “Do Nothing” Alternative was evaluated. The “Do Nothing” Alternative assumes that no improvements are made to any water system, with the exception that essential demands are met. The Alternatives each performed best with the Objective they were designed around, with the exception of water quality.

The total, normalized score for the Alternatives was also presented, utilizing the Objective weighting system developed by the Stakeholders, and using equally distributed weights for each Objective. The Alternatives ranking was the same for both methods.

Hybrid Alternatives
Because the water quality Alternative was not the best-scoring in the water quality Objective, modifications were made as secondary or hybrid Alternative. A hybrid Alternative was also developed with the goal of taking the best options of the five alternatives to create a better scoring alternative.

The total, normalized scores were presented for comparison of these 8 Alternatives. The Stakeholders then held discussion on which alternatives to carry forward, with the following results:

1. Efficiency plus Safety & Security (Hybrid Alternative)
2. Water Quality Plus (same as #1 above less new WWTP and withdrawals from Harpeth River)
3. Low Cost (all wastewater through existing plant)
4. Reliability Alternative (option to add stormwater and conservation)

The list of project Options associated with each of these hybrid Alternatives is included following the slides.

City of Franklin

Integrated Water Resources Plan

August 18, 2010

Stakeholder Advisory Group

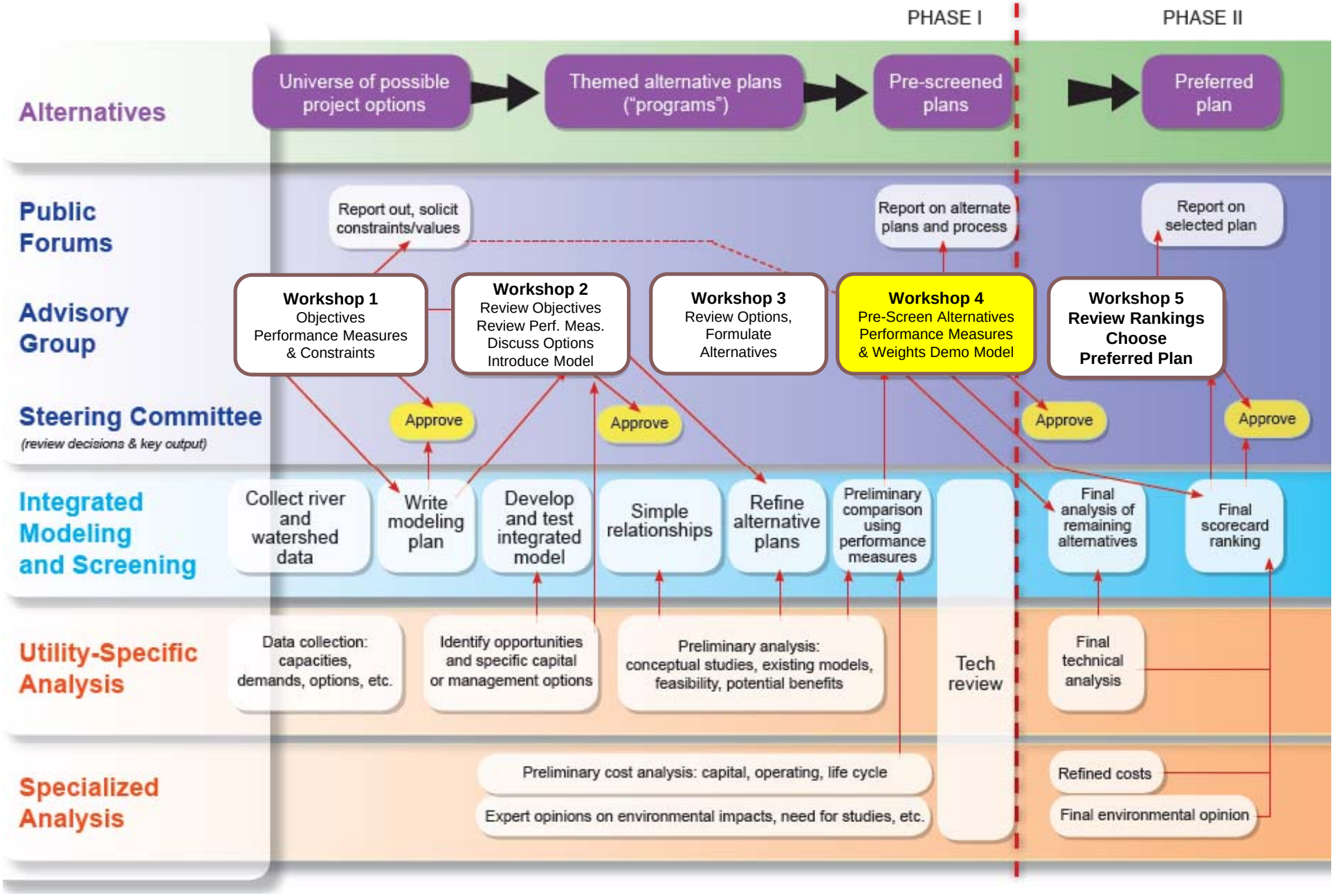
Workshop #4

CDM SSR Smith Seckman Reid, Inc. JACKSON THORNTON UTILITIES

Meeting Agenda
2:00 – 6:00 PM

- Review comparison of alternatives
- Discuss results
- Discuss hybrid alternatives
- Plan to move forward

Franklin IWRP Work Plan



Review of Terminology

Objectives	Defines the major goals of the IRP, in broad and understandable terms
Performance Measures	The specific metrics that indicate whether or not objectives are being achieved
Options	Individual projects that will be assembled into comprehensive alternatives
Alternatives	Packages of individual projects that are designed to meet objectives


Options and Alternatives

Alternatives

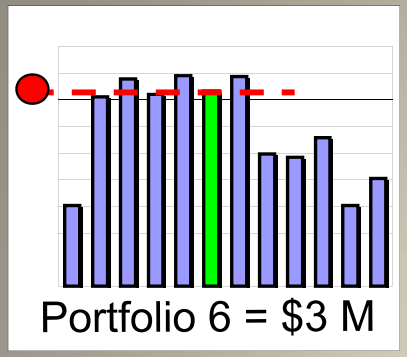
- Workshop #3: Developed 5 targeted alternatives
  - Reliability
  - Efficiency
  - Water Quality and Ecological Health
  - Low Cost
  - Safety & Security
- A “Do-Nothing” and several hybrid alternatives were added
- See handout for options chosen

Explanation of Handouts

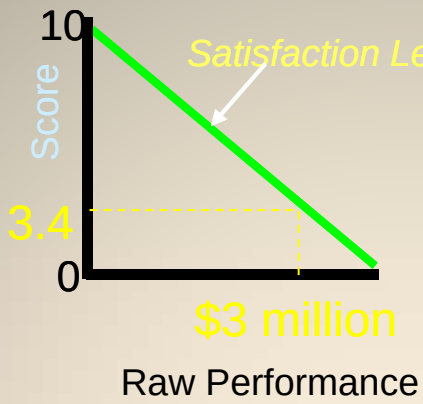
- Alternatives and Options
- Scorecard
- Raw Performance Measure Plots


Criterium Decision Plus
Decision Support Tool

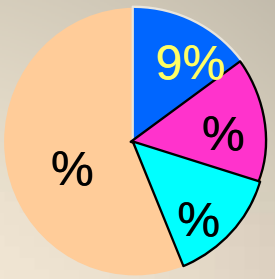
Math Behind CDP



1. Estimate Raw Performance for each Criterion (e.g., Cost)



2. Standardized Score



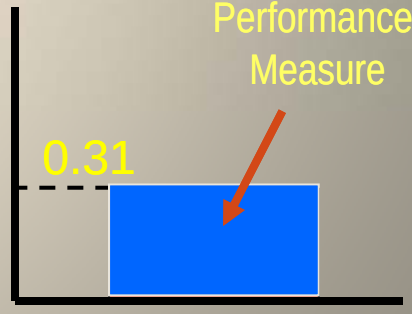
3. Weight Criteria

Satisfaction Level x Criterion Weight = Partial Score

3.4 x 0.09 = 0.31

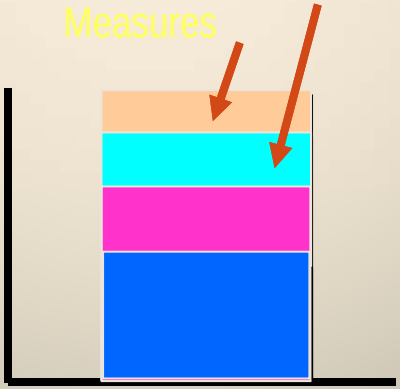
4. Calculate Partial Score

Partial Score for Cost Performance Measure

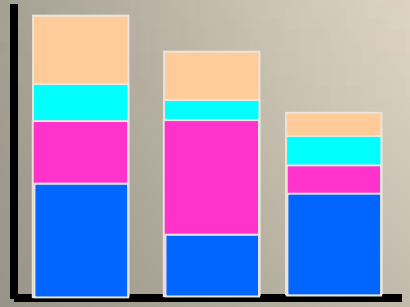


5. Plot Partial Score

Partial Scores for Other Performance Measures

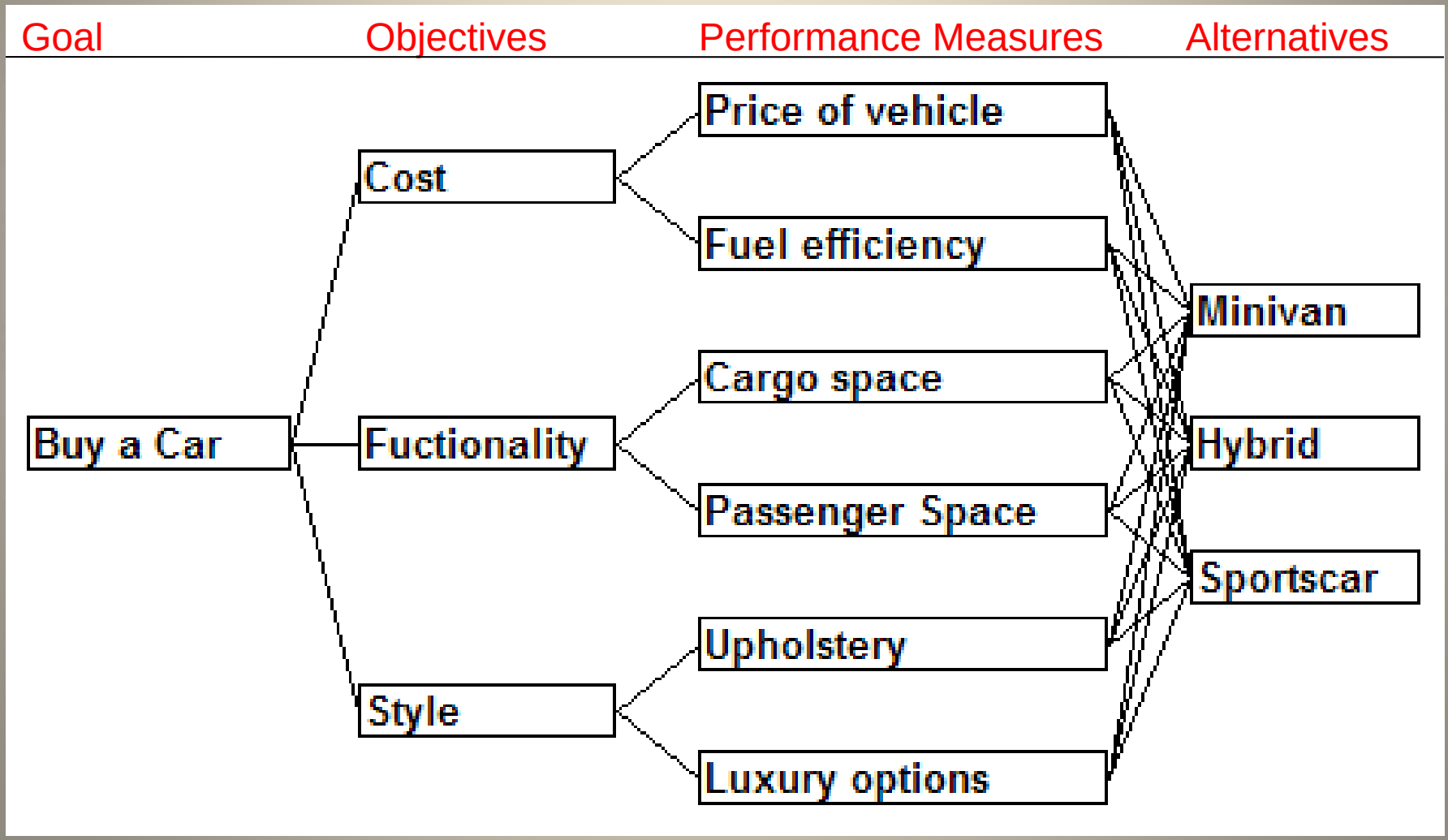


6. Repeat for all other Performance Measures for Portfolio 6



7. Repeat Process for other Portfolios to Compare Total Scores

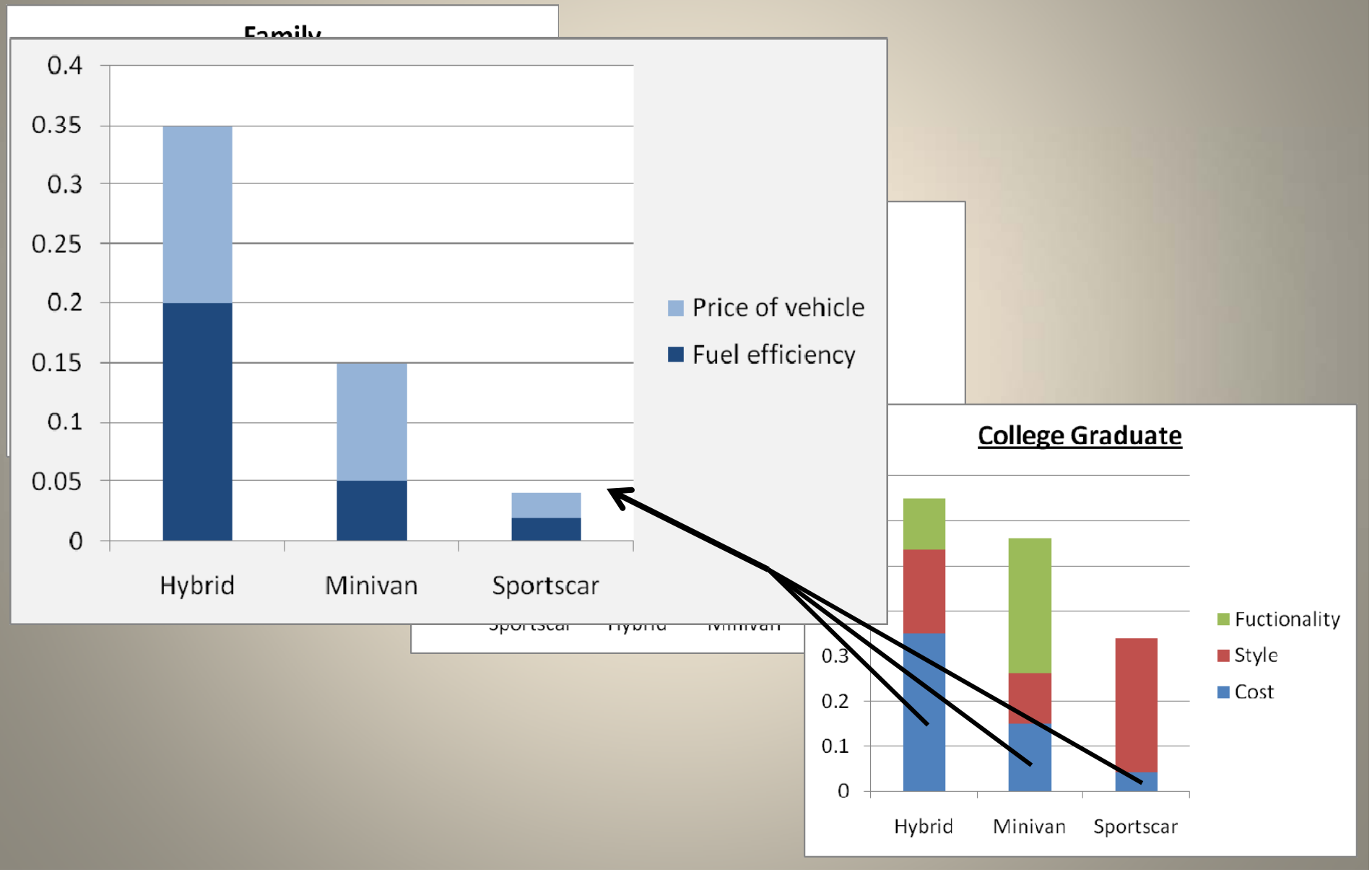
Example – Buying a Car



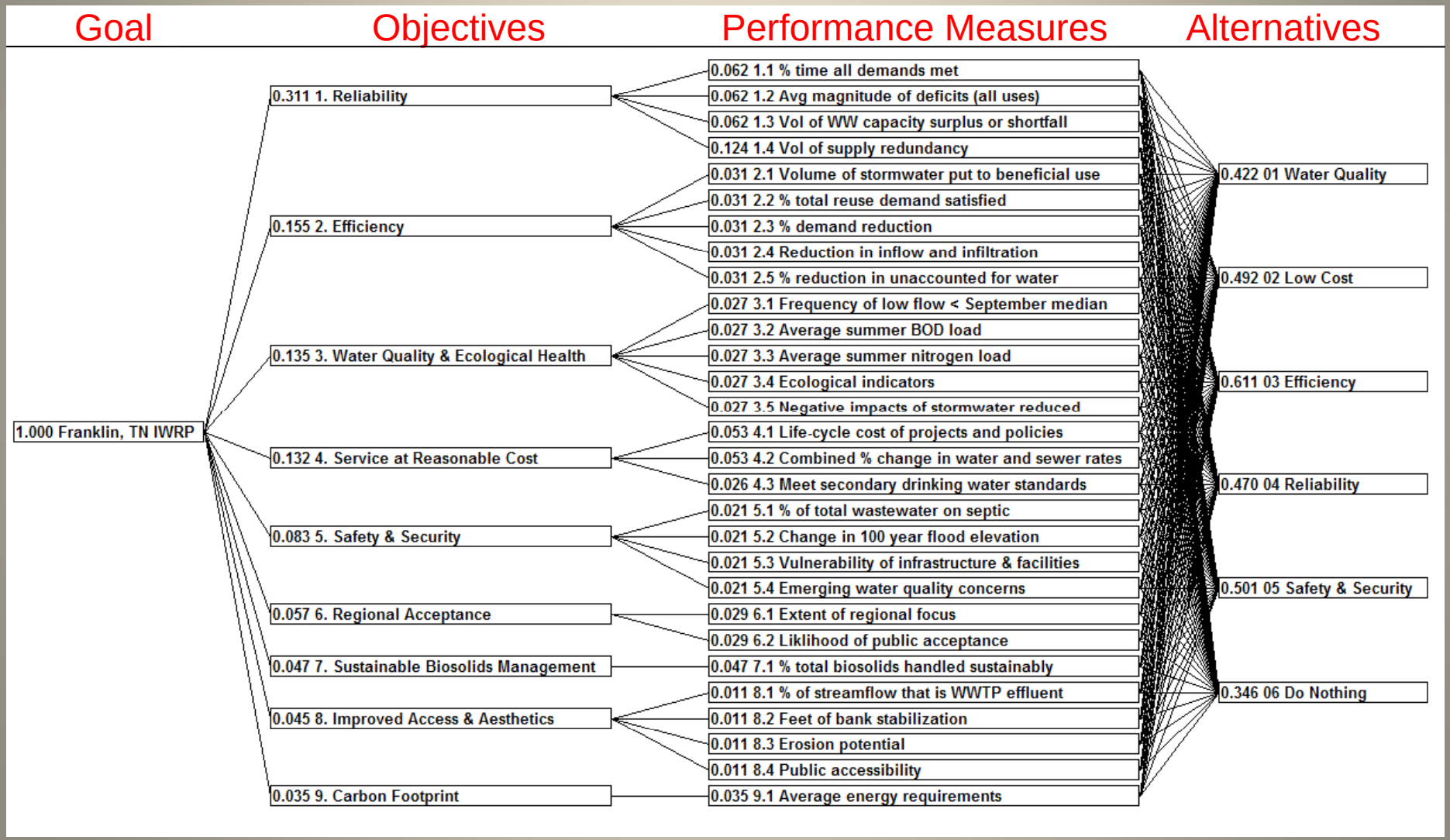
Example – Weighting Objectives

Objective	Family	Wealthy Individual	College Graduate
Cost	40	10	40
Functionality	50	20	30
Style	10	70	30

Example - Results

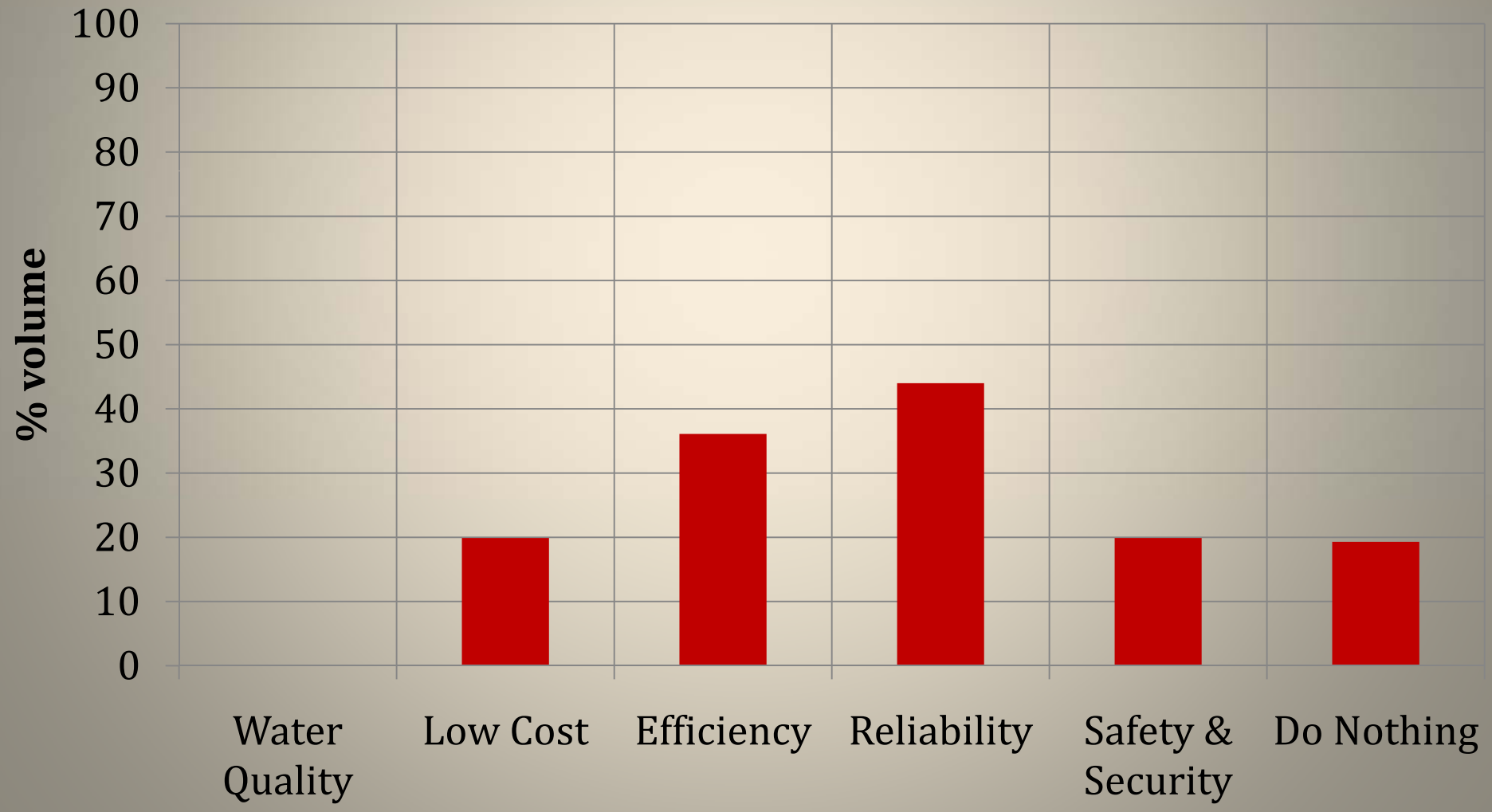


Franklin IWRP – CDP Set-Up



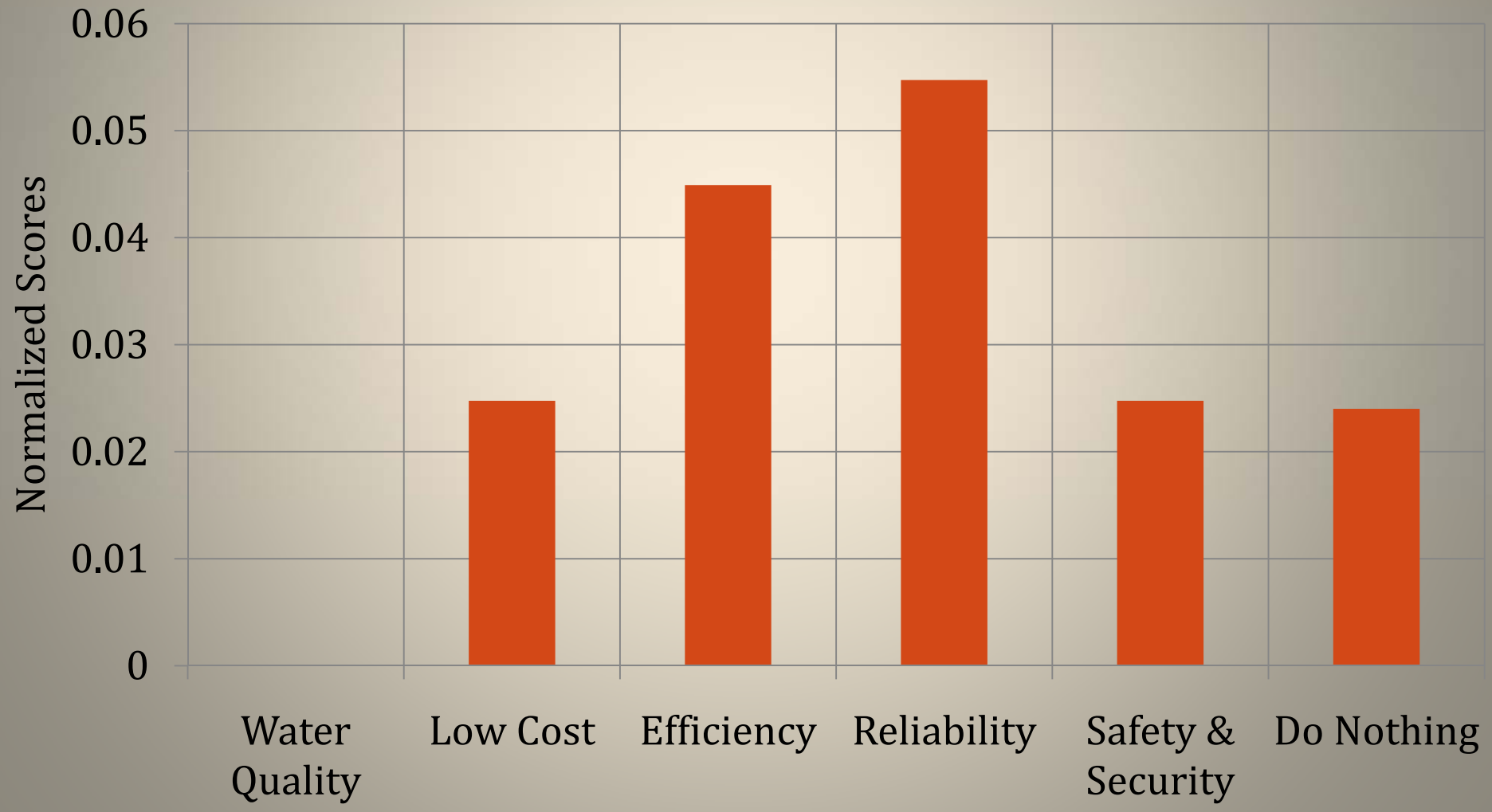
Reliability – Raw Scores

1.4 Supply redundancy

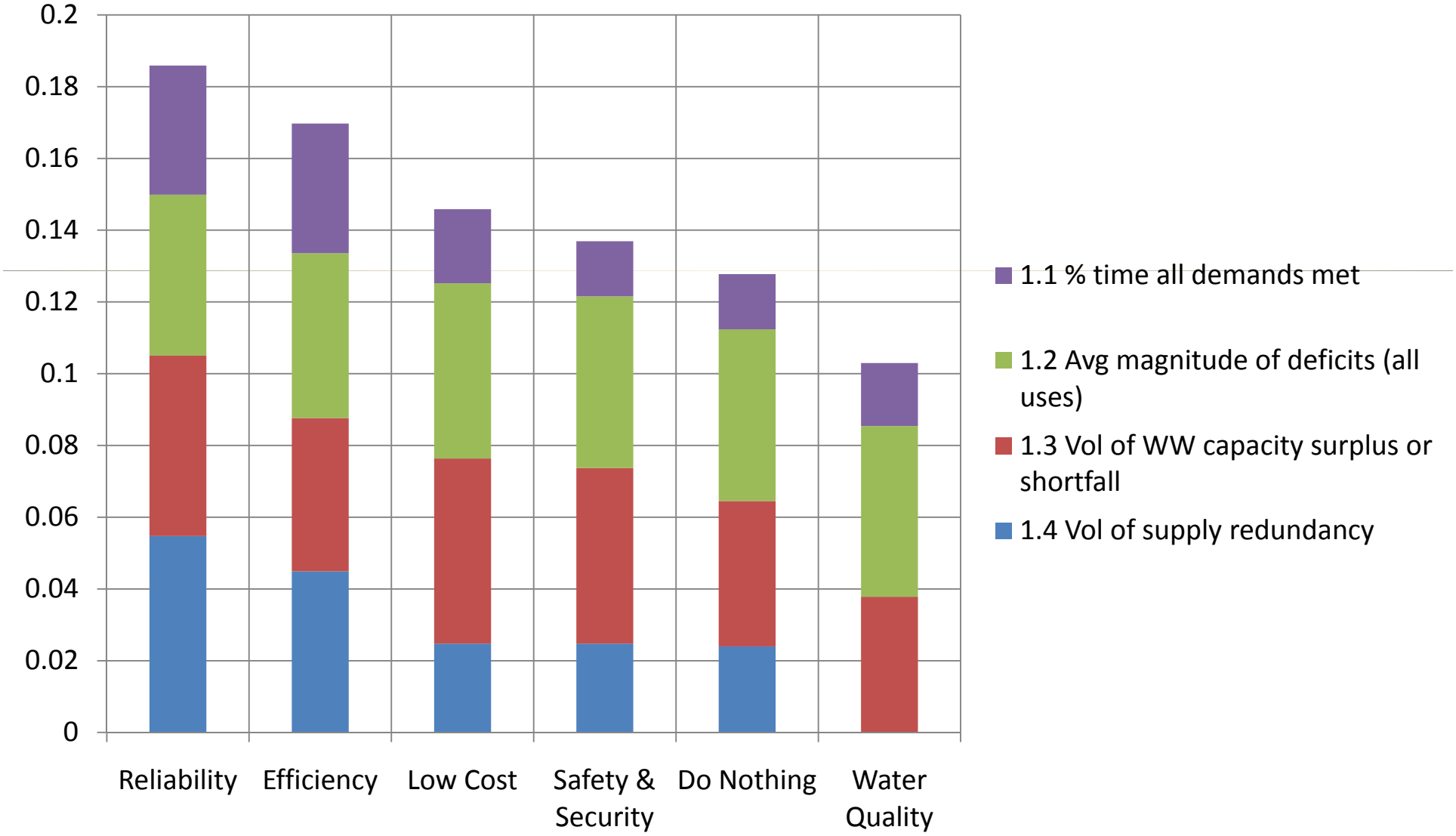


Reliability – Normalized Scores

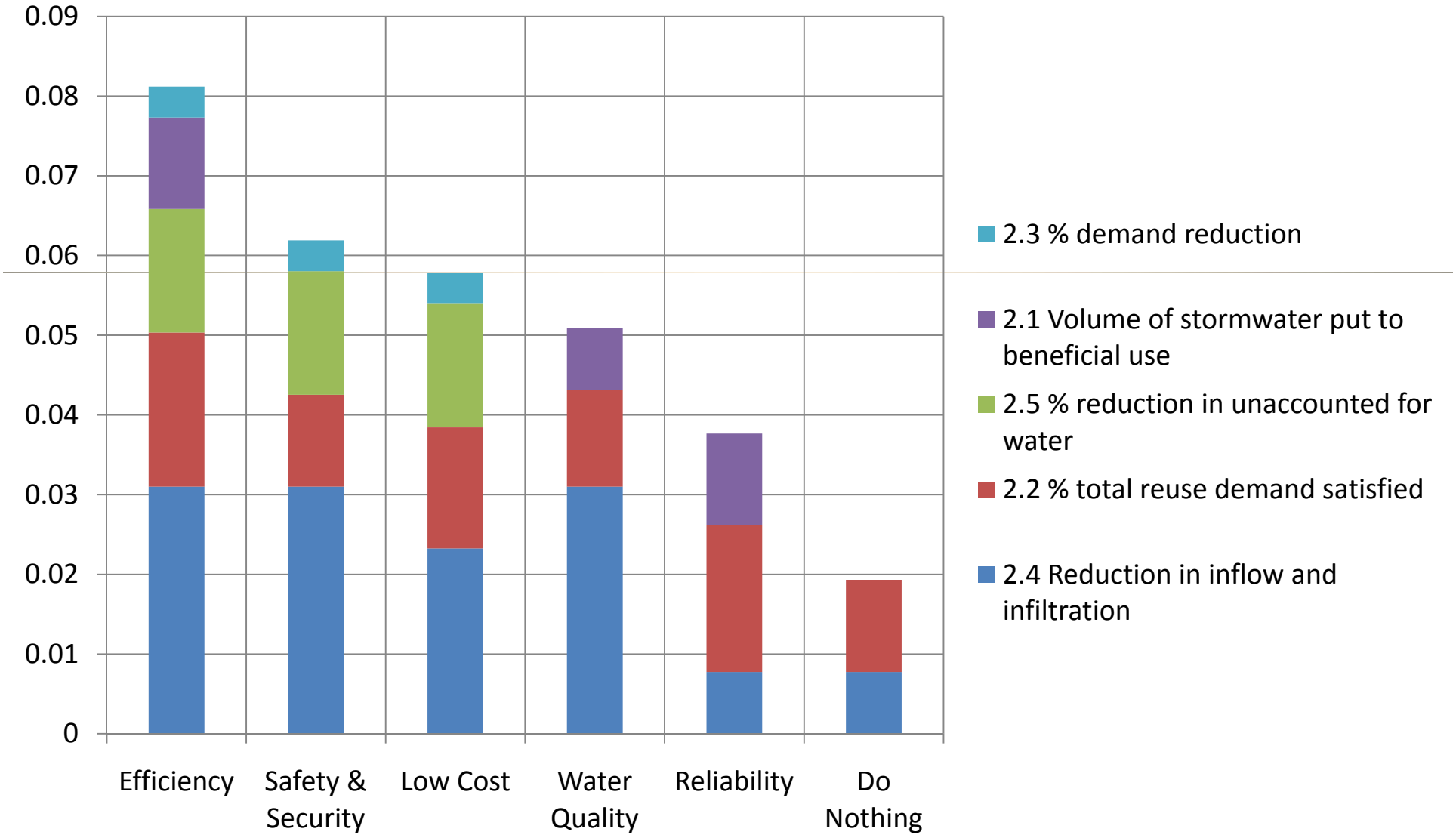
1.4 Supply redundancy



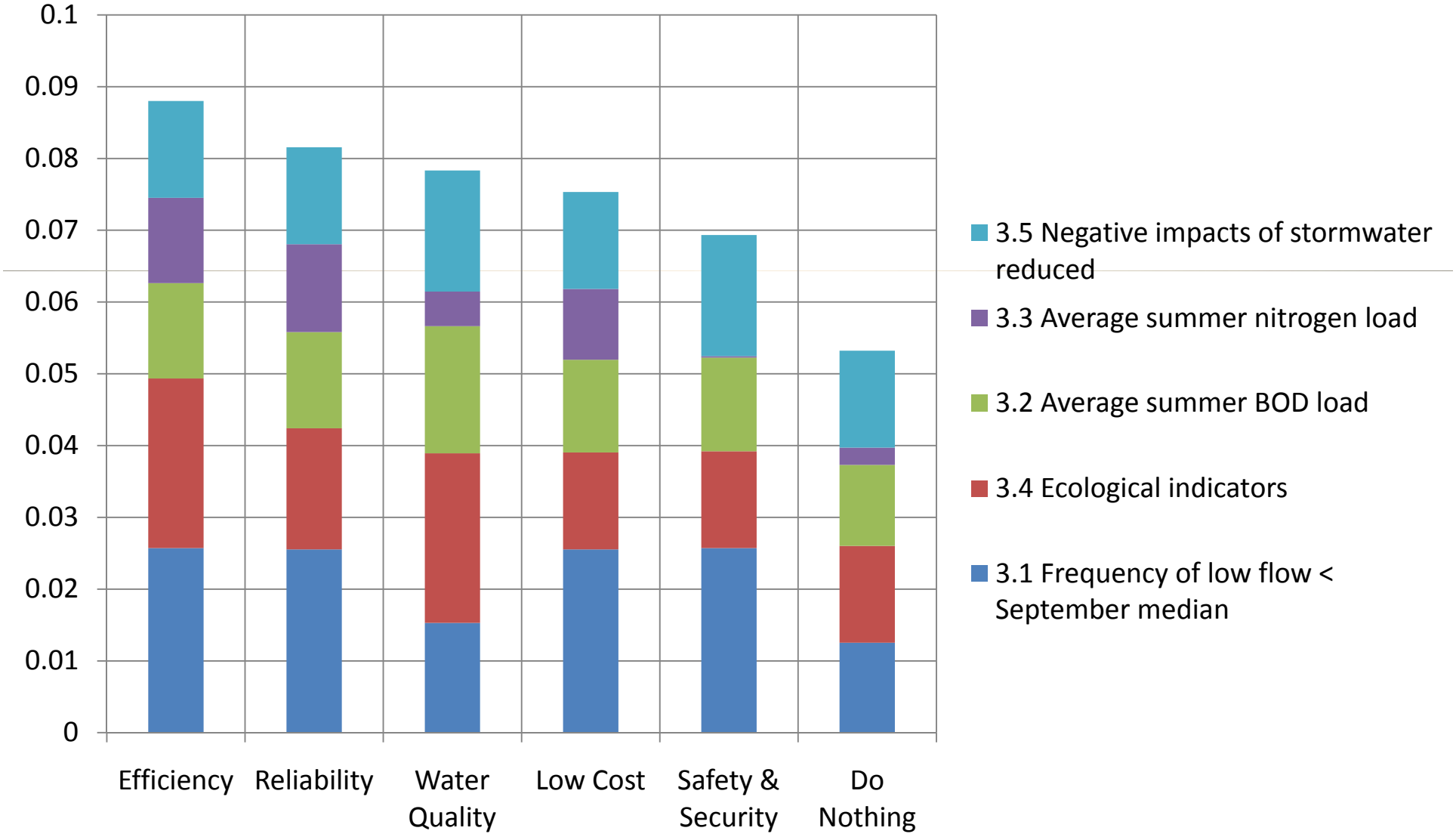
Reliability – Normalized Scores



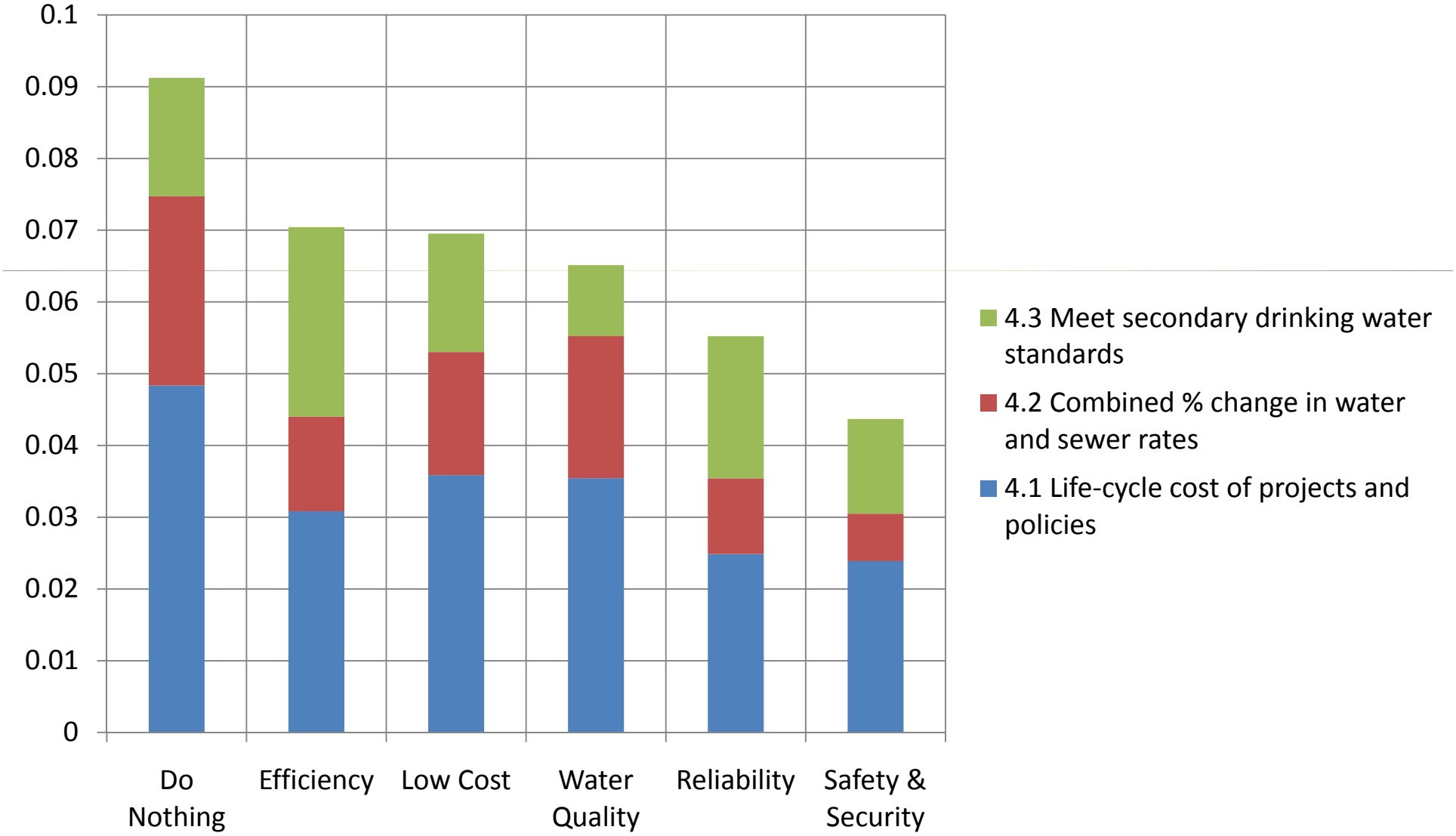
Efficiency – Normalized Scores



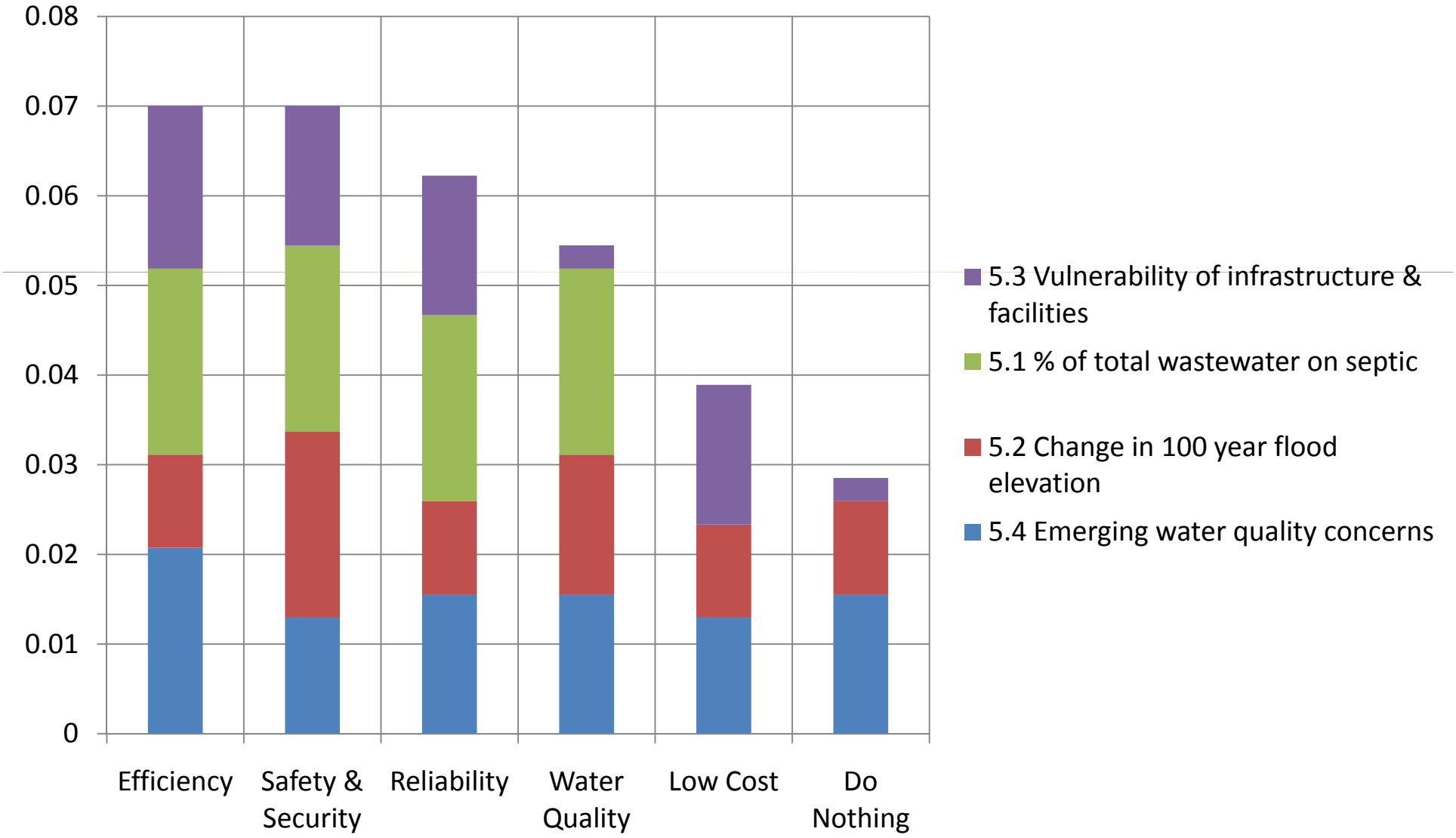
Water Quality – Normalized Scores



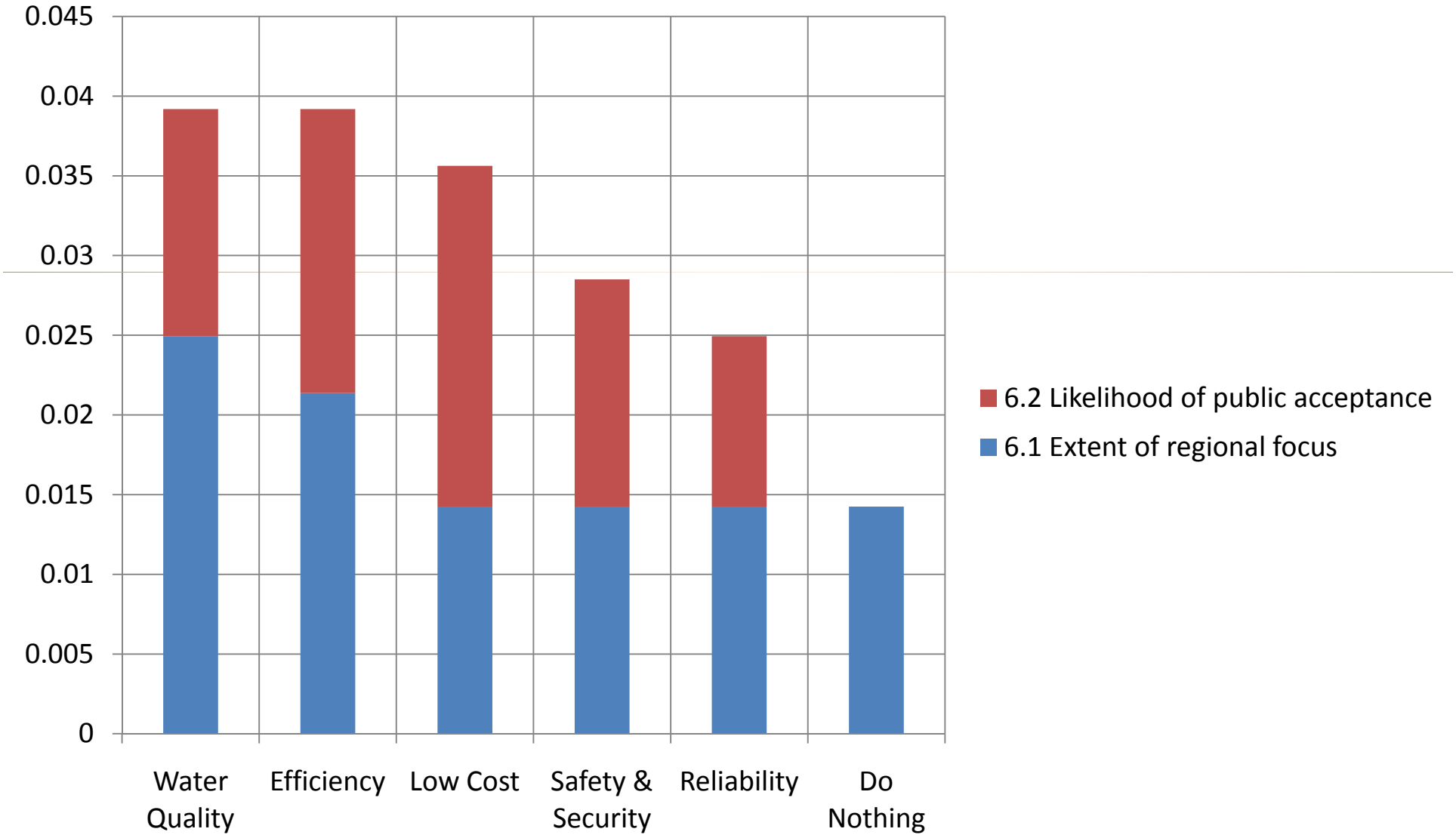
Reasonable Cost – Normalized Scores



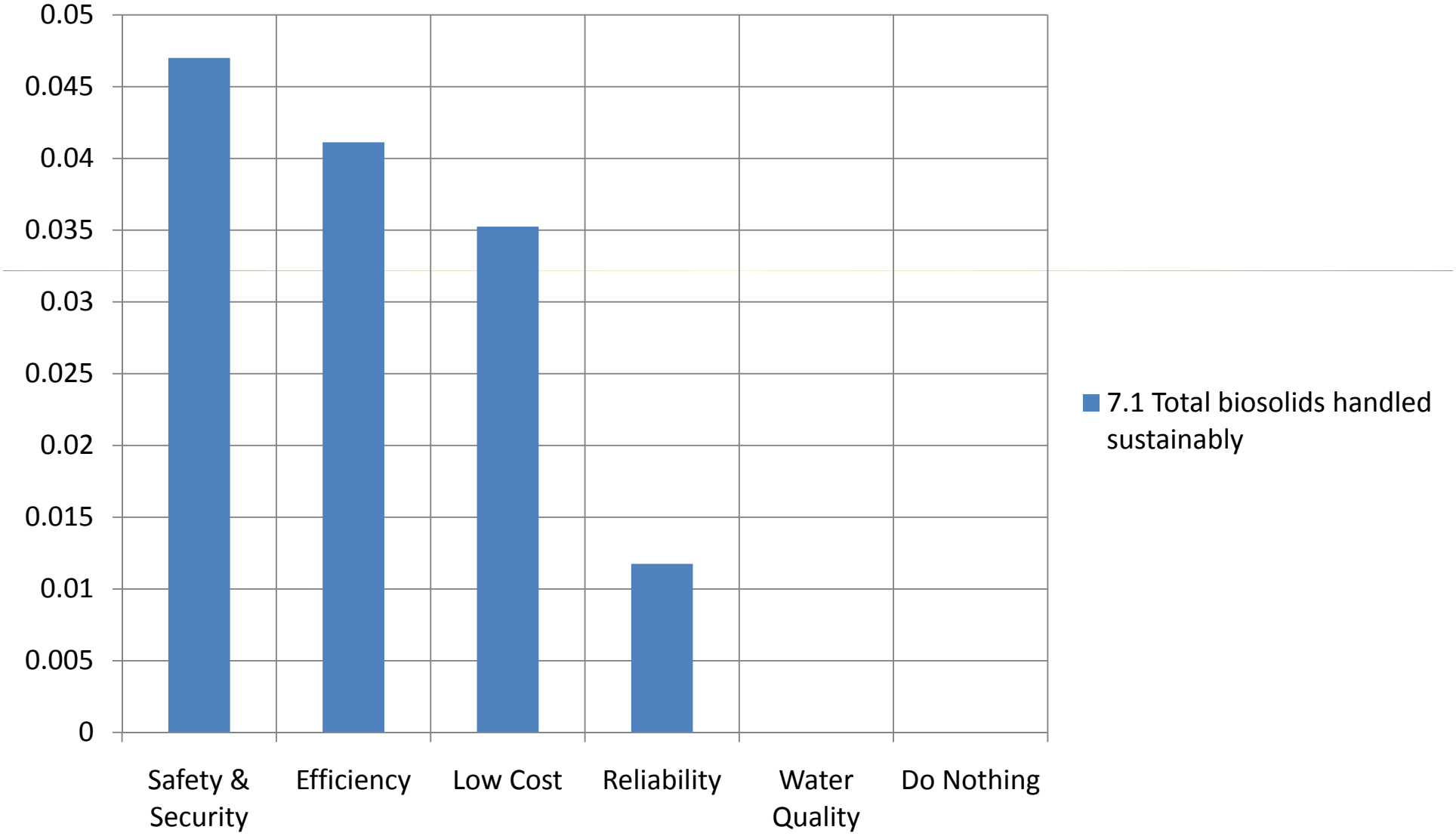
Safety & Security – Normalized Scores



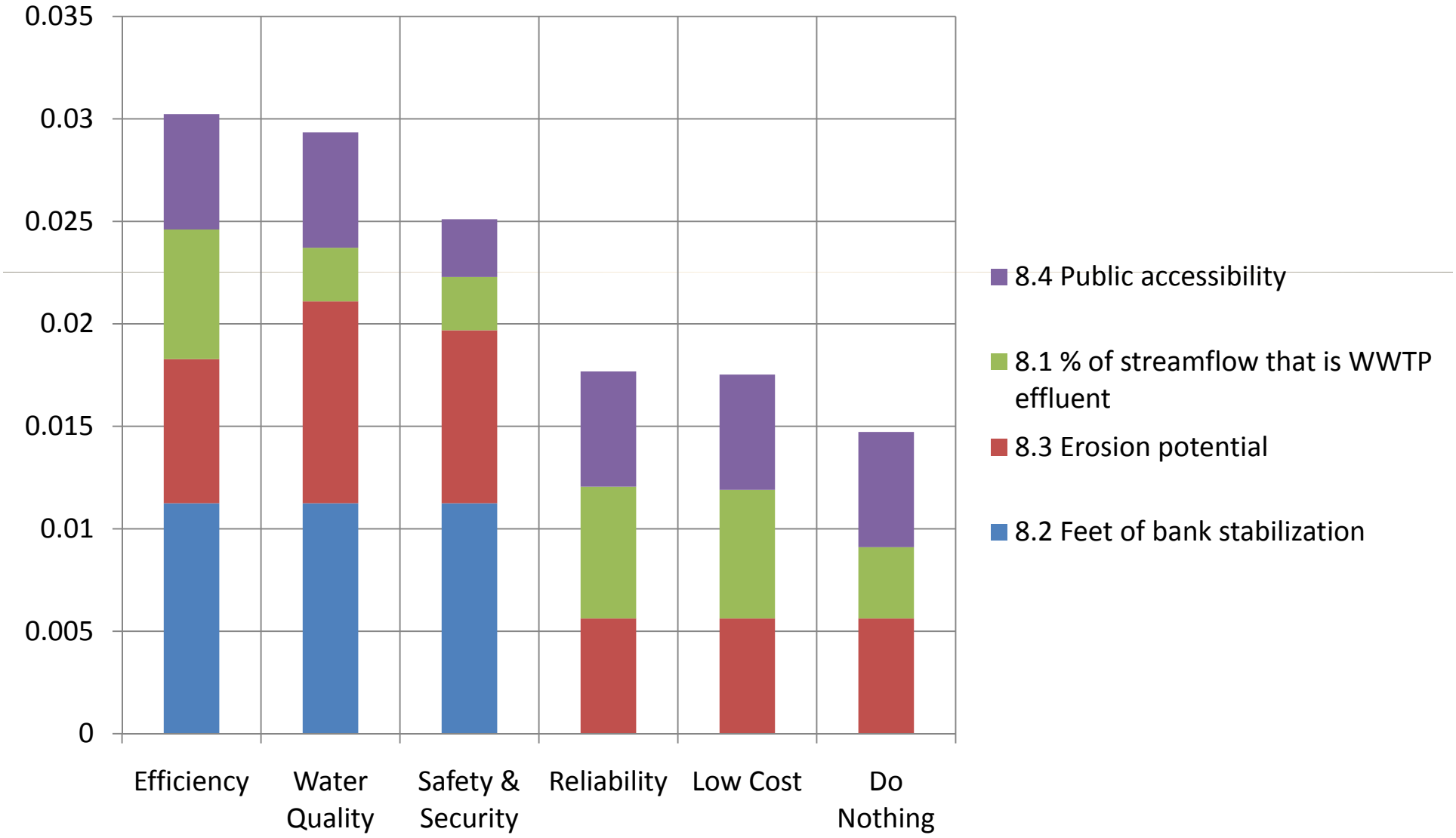
Regional Acceptance – Normalized Scores



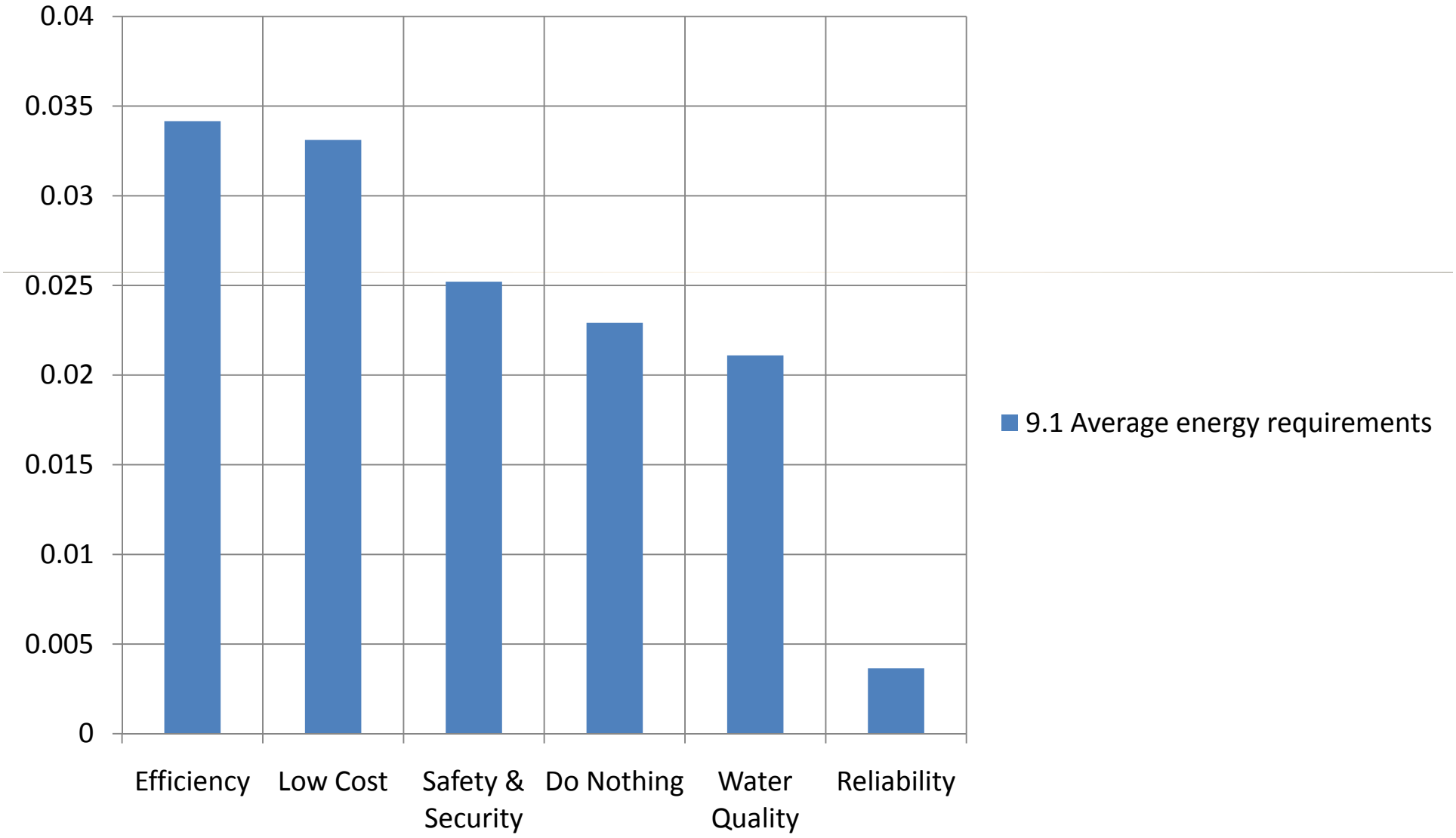
Biosolids Mgmt. – Normalized Scores



Access & Aesthetics – Normalized Scores



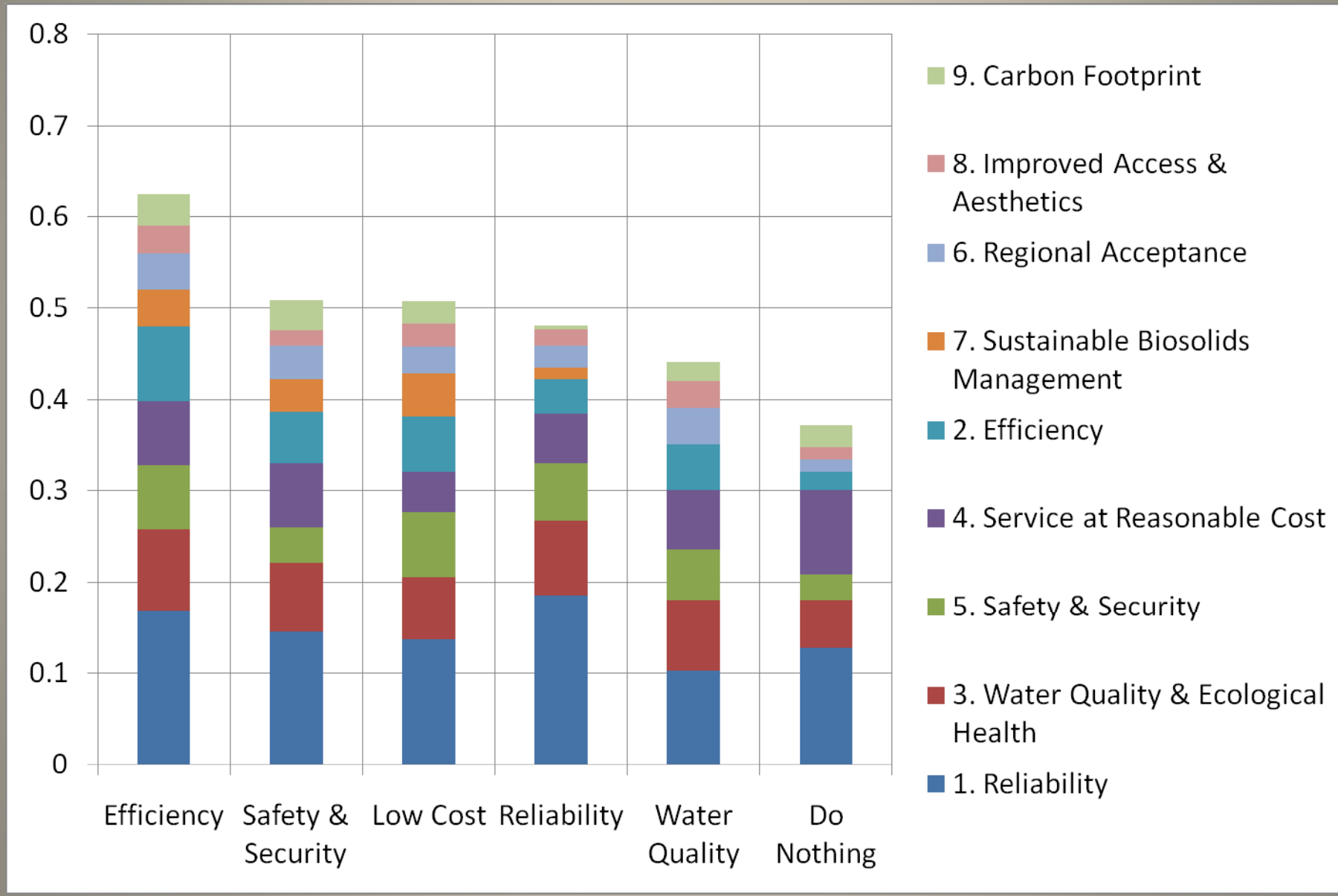
Carbon Footprint– Normalized Scores



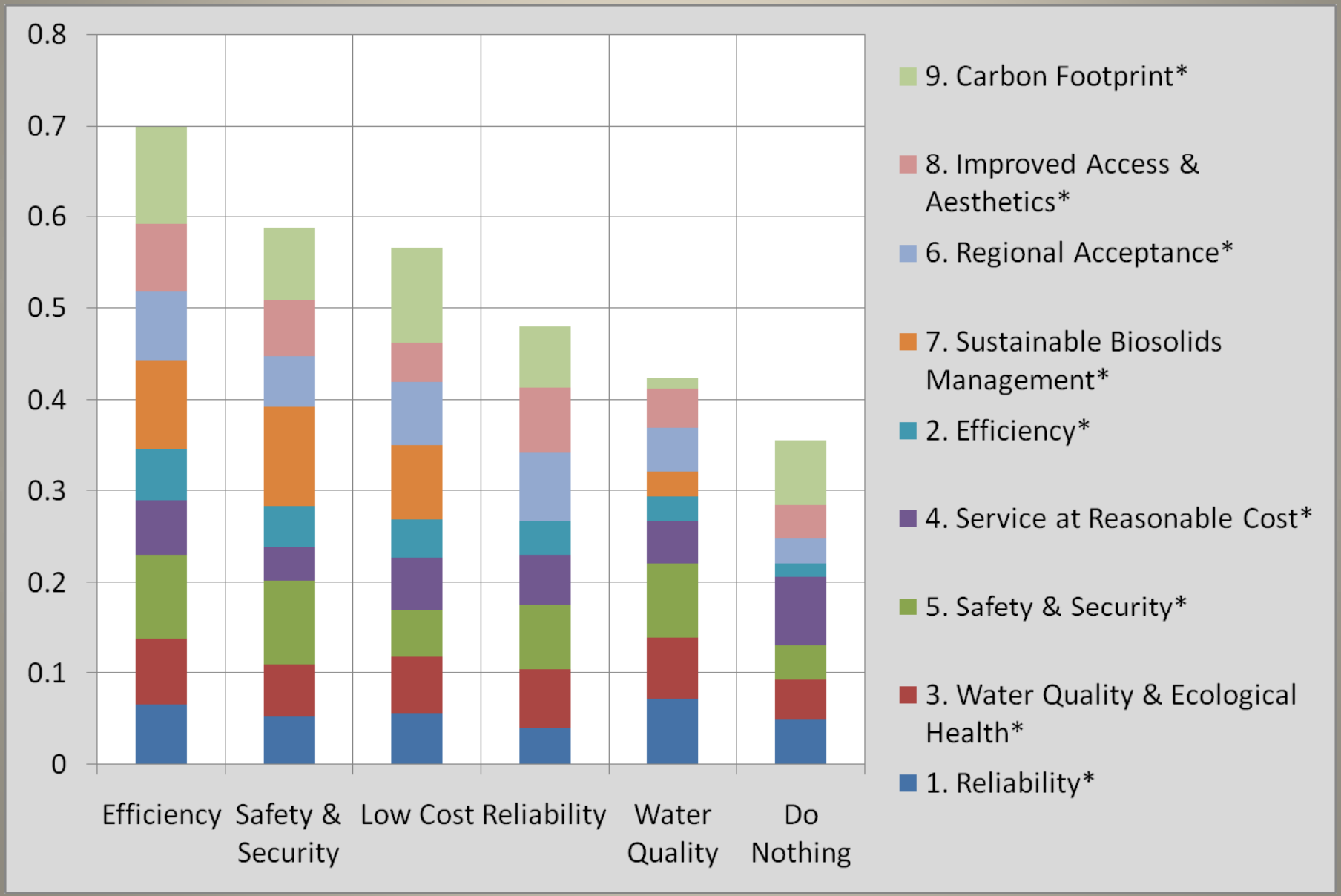
Franklin IWRP
Stakeholder Weights

Objective	Weight
Reliability	31.1
Efficiency	15.5
Water Quality & Ecological Restoration	13.5
Service at a Reasonable Cost	13.2
Safety & Security	8.3
Achieve Regional Acceptance	5.7
Sustainable Biosolids Management	4.7
Improved Access & Aesthetics	4.5
Carbon Footprint	3.5
Total	100

Franklin IWRP - CDP Analysis



CDP Analysis – Equal Weights

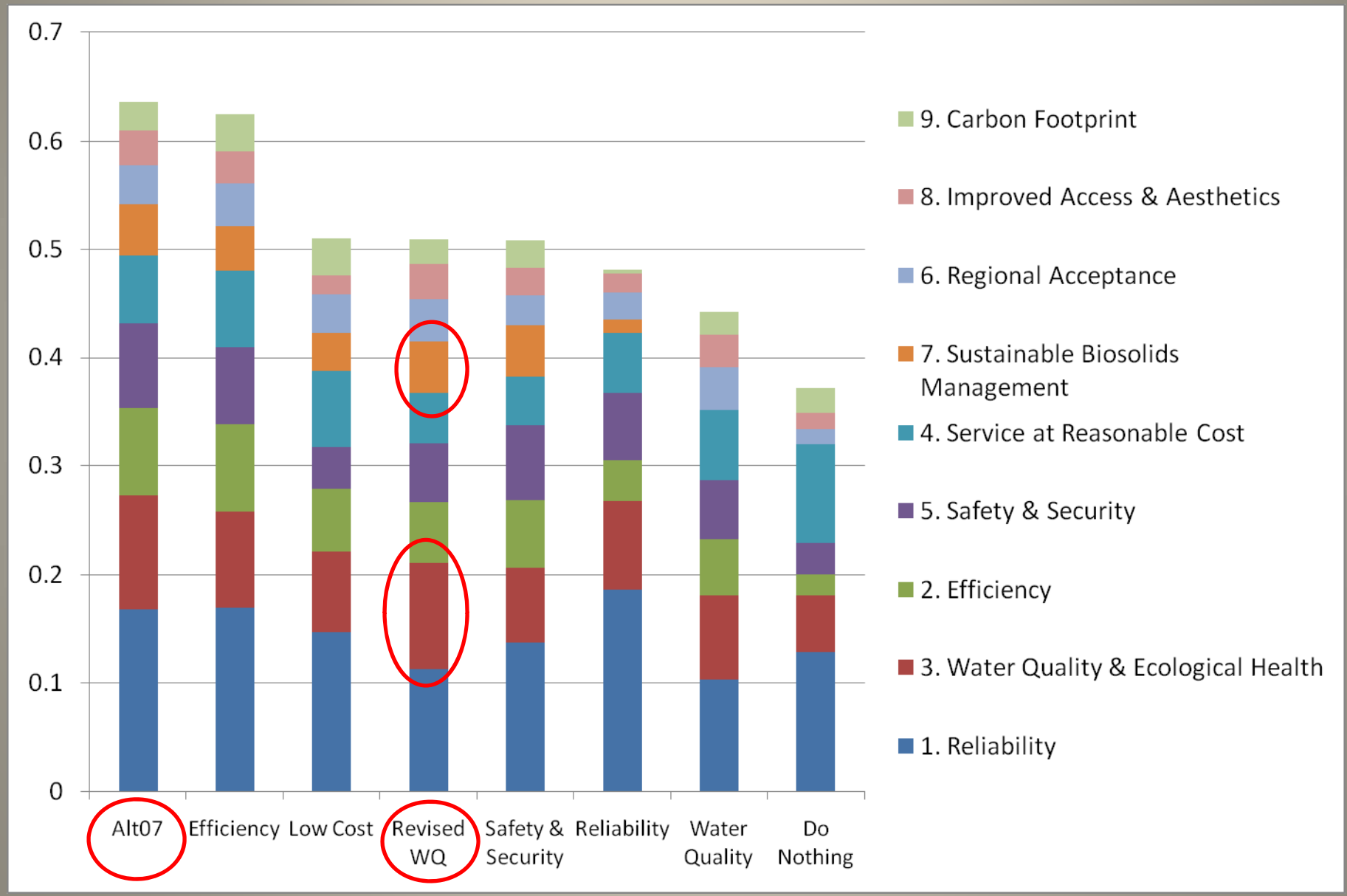


Development of Hybrid Alternatives

- Water Quality Alternative Revisions
  - WQ alternative not best WQ score, why?
    - Low flow frequency (no Goose Creek WWTP)
    - High loading (no reclaim options)
    - Bad biosolids score (same as today)

- Best Overall Alternative
  - How to make efficiency alternative better?
    - More stormwater quality and quantity controls
    - Revised biosolids handling (no hauling)

Development of Hybrid Alternatives



Recommended Alternatives

1. Efficiency plus Safety & Security (Alt07)
2. Water Quality Plus (#1 less new WWTP and withdrawals from Harpeth River)
3. Low Cost (all WW through existing plant)
4. Reliability Alternative (option to add stormwater, conservation)

Preliminary Findings

- Efficiency and hybrid are highest scoring alternatives
- Water quality alternative improved by addition of Goose Creek WWTP, reuse option, and biosolids option
- Equalizing the objective weights changes the scores, but not the ranking of alternatives
- “Do Nothing” becomes best alternative only when cost is weighted over 75%
- Sum of best scores for each objective creates total score just above our best alternative

Next Steps

- Refine hybrid alternatives
- Consensus on preferred alternatives
- Recommendation to BOMA


Thank You

Category	Options	Water Quality	Cost	Efficiency	Reliability	Safety and Security	Do Nothing	Alt07	Revised WQ	Efficiency + Safety & Security	Water Quality Plus	Revised Low Cost	Revised Reliability
Stormwater Options	Residential rain barrels	X		X	X			X	X	X	X		X
	Commercial stormwater reuse			X	X			X		X	X		X
	Recreational stormwater reuse			X	X			X		X	X		X
	Rain gardens	X						X	X	X	X		?
	Pervious pavement	X						X	X	X	X		?
	Constructed wetlands	X				X		X	X	X	X		?
	Conveyance upgrades	X				X		X	X	X	X		?
	Increased storage	X				X		X	X	X	X		?
Water Treatment Plant	Upgrade existing 2.1 mgd WTP and purchase remaining water from HVUD		X			X	X					X	
	Expand existing WTP to 4.0 mgd, upgrade WTP intake structure and purchase remaining water from HVUD			X				X		X			
	Repair water reservoir (ongoing)			X			X	X		X		X	
	Shut down existing WTP and purchase all water from HVUD	X							X		X		
	Construct raw water transmission line from the Cumberland River and upgrade water treatment plant to supply all City demand				X								X
Distribution System	Address water loss		X	X		X		X		X	X	X	
	Install advanced metering		X	X	X	X		X		X	X	X	X
	Remove outdated tanks			X				X		X	X		
	System management practices		X	X	X			X		X	X	X	X
Conservation Options	Indoor and outdoor conservation (public education, etc)		X	X		X		X		X	X	X	?
	Conservation ordinances		X	X		X		X		X	X	X	?
	Low flow incentives		X	X				X		X	X	X	?
	Rate block structure, etc		X	X				X		X	X	X	?
Wastewater Treatment Plant	Upgrade and rerate existing WWTP					X					X	X	X
	Construct new WWTP at Goose Creek		X	X	X	X		X	X	X			X
	Collect and treat wastewater from adjacent communities or other small systems (e.g., Lynwood, Cartwright Creek)	X		X		X		X	X	X	X		
	Treat discharged effluent to higher standard during summer months	X						X	X				
Collection System	Address inflow and infiltration	X	X	X		X		X	X	X	X	X	
	Hook up septic users to sewer	X		X	X	X		X	X	X	X		X
	System management practices	X		X		X		X	X	X	X		

Category	Options	Water Quality	Cost	Efficiency	Reliability	Safety and Security	Do Nothing	Alt07	Revised WQ	Efficiency + Safety & Security	Water Quality Plus	Revised Low Cost	Revised Reliability
Ecological Restoration Options	Removal of low head dam at the water treatment plant intake	X	X					X	X	X	X	X	
	Address old dump site (from downtown to Liberty Creek) and convert to Harpeth River access area	X						X	X				
	Use of Robinson Lake to provide enhanced based flow in the Harpeth River during dry periods	X		X		X		X	X	X	X		
	Cattle exclusion	X		X				X	X	X	X		
	Widespread stream and bank restoration	X		X		X		X	X	X	X		
Reclaimed Water Options	Complete the 12" Long Lane line and retrofit the existing 500,000 gallon Long Lane water reservoir for reclaimed water service			X				X		X	X		
	Complete the distribution loop around the city by constructing the 12" Columbia Avenue/Southeast Parkway reclaimed line and construct a 500,000 gallon storage tank in the vicinity of Winstead Hill			X	X			X		X	X		X
	Convert the Franklin Green/Horton Lane sanitary force main for reclaimed water distribution		X	X				X	X	X	X	X	
	Increase City-wide reuse by increasing customer base		X	X		X		X	X	X	X	X	
	Install additional pumps to increase the station capacity to approximately 12 million gallons per day			X	X			X	X	X	X		X
	Establish additional reclaimed water storage facilities/ convert existing water storage tanks to reclaimed storage tanks			X	X	X		X		X	X		X
	Identify and establish dedicated reclaimed water sites		X	X				X	X	X	X	X	
	System management practices		X	X		X		X		X	X	X	
Biosolids Options	Upgrade solids handling facilities to produce Class A solids				X								X
	Upgrade solids handling facilities to drying/ERS (ash disposal)				X								X
	Upgrade solids handling facilities to produce higher TS content sludge												
	Solids disposal at BFI (108 miles/trip)	X					X						
	Solids trucked to Metro Nashville for disposal/processing		X									X	
	Class A biosolids to Franklin's composting facility					X		X	X				
	Land application (Switch grass production)			X						X	X		
	Upgrade biosolids facilities for biogas to energy		X	X		X		X	X	X	X	X	