Water Forward
Austin's Integrated Water Resources Plan
Task Force Meeting

September 6, 2016

Project Status Update

Consulting Team Progress to Date

Task	Progress
Task 1 - Public Outreach and Participation	• Presented public outreach plan to PIO Subcommittee • Planning for Public Workshop 1 • Initiated planning for outreach events
Task 2 – Methodology	• Submitted Technical Memorandum for AW, Task Force Review
Task 3 – Disaggregated Water Demand	• Submitted review of disaggregated demand model and underlying data • Continued end use research
Task 4 – Water Conservation Potential	• Continued program benchmarking and summary of AW conservation progress • Held initial review meeting with AW to review demand management options
Task 5 – Climate Change	• Progress meeting in August to update consulting team on status
Task 6- Supply Analysis	• Initiated planning meetings with GHD

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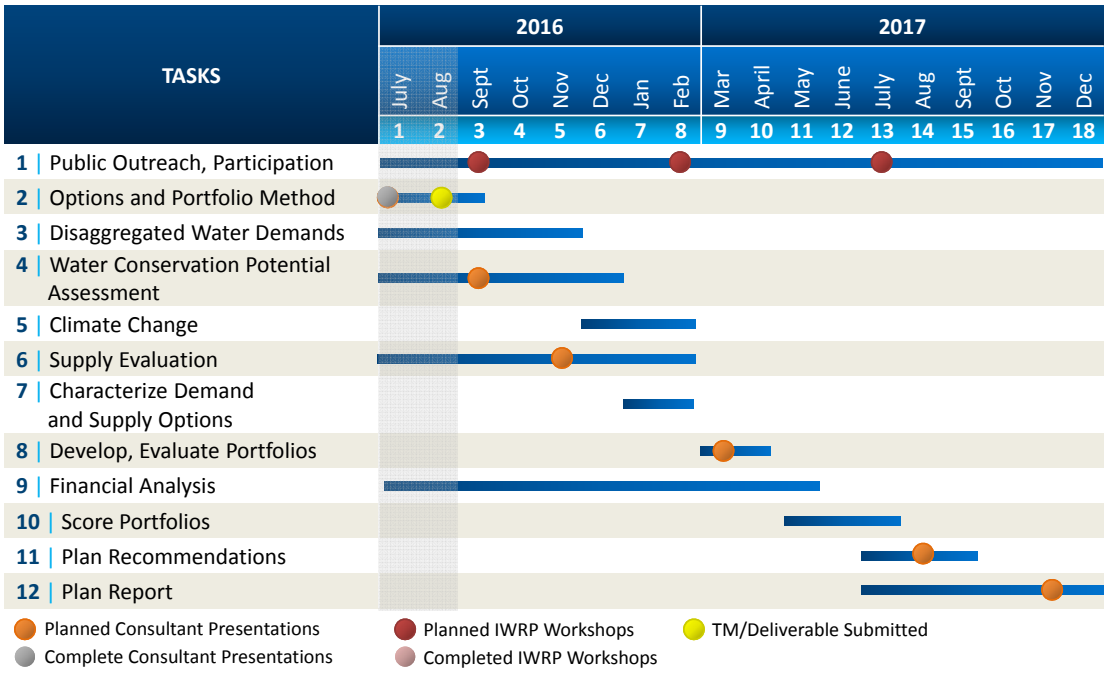
Consulting Team Next Steps

Task	Future Activities
Task 1 - Public Outreach and Participation	• Conduct Public Workshop 1 • Continue planning for outreach events
Task 2 – Methodology	• Receive input from Task Force on Technical Memorandum
Task 3 – Disaggregated Water Demand	• Initiate statistical modeling • Continue end use research • Meeting with AW to discuss water demand modeling
Task 4 – Water Conservation Potential	• Continued program benchmarking • Review of 25 demand management options • Screening of demand management options from 25 to 10 options
Task 5 – Climate Change	• Progress meeting with consulting team
Task 6 – Supply Options	• Continue supply and decentralized analyses

Project Schedule



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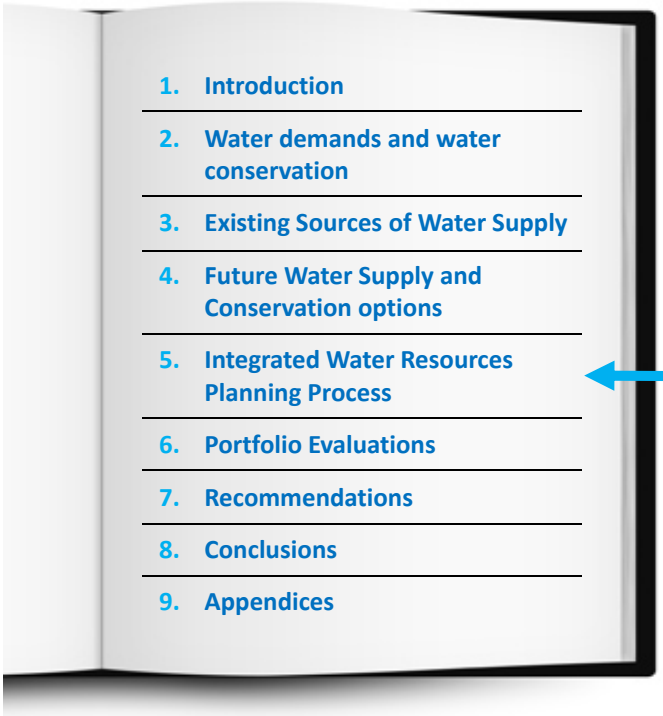
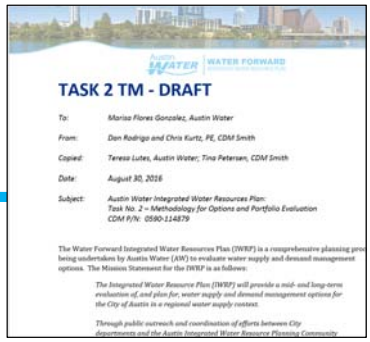
Where Public Outreach Plan Feeds into IWRP Report



Public Outreach Plan

Where Task 2 TM Feeds into IWRP Report


TASK 2 TM - DRAFT

To: Marisa Flores Gonzalez, Austin Water

From: Dan Rodrigo and Chris Kurtz, PE, CDM Smith

Copied: Teresa Lutes, Austin Water; Tina Petersen, CDM Smith

Date: August 30, 2016

Subject: Austin Water Integrated Water Resources Plan:
Task No. 2 – Methodology for Options and Portfolio Evaluation
CDM P/N: 0590-114879

The Water Forward Integrated Water Resources Plan (IWRP) is a comprehensive planning pro
being undertaken by Austin Water (AW) to evaluate water supply and demand management
options. The Mission Statement for the IWRP is as follows:

The Integrated Water Resource Plan (IWRP) will provide a mid- and long-term evaluation of, and plan for, water supply and demand management options for the City of Austin in a regional water supply context.

Through public outreach and coordination of efforts between City departments and the Austin Integrated Water Resource Planning Community

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Public Outreach Update

1. Public Workshop 9/7
   - Water Forward eNewsletter
   - WaterWise Residential and Commercial eNewsletters
   - Current AW Stakeholder List
   - Next Door
   - Mayor and Council Offices
   - Twitter/Facebook
   - News Release
2. Webpage
   - Brochure and Community Values Survey #1 added
3. Community Values Survey (closing at midnight 9/7)
4. Upcoming Events

Draft Public Outreach and Participation Plan

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Goals

- Identify community values around water and reflect in IWRP
- Seek input that reflects the diversity of Austin
- Build on community partnerships and communication networks
- Make project information readily available throughout process
- Provide stakeholders opportunities to interact with project team, ask questions
- Respond promptly to public questions and concerns

Objectives

- Identify stakeholders and respond to concerns
- Document public outreach efforts and feedback
- Target outreach events to reflect diversity of Austin

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Stakeholder groups

- Austin Water Customers
- Community at Large Stakeholders
  - Neighborhoods, schools and universities
- Community Leaders
  - Elected officials, boards and commissions, agencies, nonprofits
- Business, Professional and Civic Organizations
  - Industry professionals, Chambers
- General News Media
  - Print, radio and TV

Communication Tools

- Existing project website
- Water Forward logo
- Multi-lingual materials as needed
- Media releases
- Brochures
- Surveys
  - Collect community input, demographic information
- Email list
  - Water wise eNewsletters, Next Door
- Social media

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Stakeholder Outreach Activities

- Public Workshops
  - Workshop 1, September 7, 2016 – Objectives of IWRP, Review Criteria
  - Workshop 2, Tentatively February 2017 – Baseline Water Balance, Demand-side and Supply Options
  - Workshop 3, Tentatively July 2017 – Portfolio Development and Scoring, Initial Recommendations
- Additional outreach activities
  - Presenting to stakeholder groups
    - Chambers, neighborhood associations, churches
  - Booths/presence at high traffic events
    - Festivals, football games, local events
  - Council district events and town halls

Tracking and Reporting

- Demographic information will be self-reported through surveys
  - Age
  - Gender
  - Race/ethnicity
  - Council district or Zip Code
  - Household yearly income
  - Type of residence (single-family, duplex or triplex, multi-family, other)

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Media Relations

- Austin Water will lead media relations efforts
- Materials to be provided in Spanish and other languages if needed

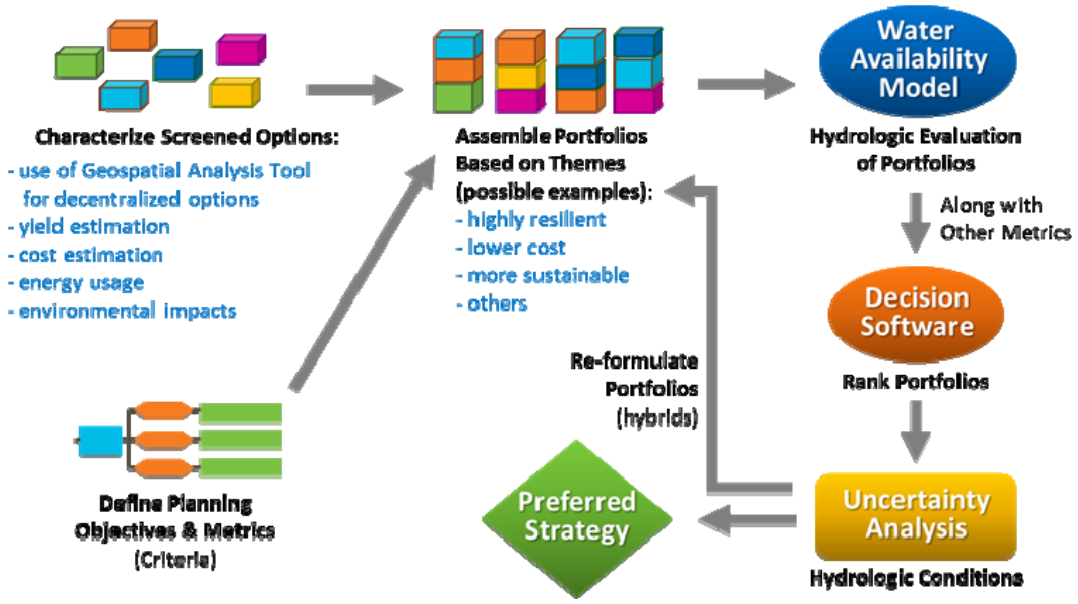
Upcoming events

- Workshop 1: Objectives and Sub-objectives
  - September 7th
  - 6:00-8:30pm
  - Waller Creek Center

Questions and Discussion

Draft Task 2
Evaluation Methodology
Technical Memorandum

IWRP Process



Attributes of "Good" Objectives

- Distinctive
- Measurable
- Non-Redundant
- Concise in Numbers

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Objectives, Sub-Objectives and Performance Measures

Objective	Sub-Objective	Performance Measure
Water Supply Benefit	Maximize Water Reliability	Water Supply Index (0 to 1) based on WAM modeling results
	Maximize Local Control	Proportion of total supply yield from locally controlled sources
	Maximize Supply Diversification	# of supply/demand-side management sources (above minimum yield threshold)

Objectives, Sub-Objectives and Performance Measures

Objective	Sub-Objective	Performance Measure
Economic Impacts	Maximize Cost-Effectiveness	Unit cost ($/AF) expressed as a present value sum of all costs over the lifecycle
	Maximize Advantageous External Funding	External Funding Score (1-5), where 1 = low potential and 5 = high potential

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Objectives, Sub-Objectives and Performance Measures

Objective	Sub-Objective	Performance Measure
Environmental Impacts	Minimize Ecosystem Impacts	Ecosystem Impact Score (1-5), where 1 = high combined negative impacts and 5 = high combined positive impacts
	Minimize Net Energy Use	Incremental net change in kWh
	Maximize Water Use Efficiency	Potable per capita water use (gallon/person/day)

Objectives, Sub-Objectives and Performance Measures

Objective	Sub-Objective	Performance Measure
Social Impacts	Maximize Multi-Benefit Infrastructure/Programs	Multiple Benefits Score (1-5), where 1 = low benefits and 5 = high benefits
	Maximize Net Benefits to Local Economy	Local Economy Score (1-5), where 1 = high negative impact and 5 = high positive impact
	Minimize Public Health & Safety Challenges	Public Health & Safety Score (1-5), where 1 = high challenges and 5 = low challenges

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Objectives, Sub-Objectives and Performance Measures

Objective	Sub-Objective	Performance Measure
Implementation Impacts	Minimize Implementation Challenges	Implementation Uncertainty Score (1-5), where 1 = high combined challenges and 5 = low combined challenges
	Maximize Scalability	Scalability Score (1-5), where 1 = small incremental sizing potential and 5 = high incremental sizing potential
	Minimize Technical Feasibility Challenges	Technical Feasibility (1-5), where 1 = high reliance on emerging or unproven technologies and 5 = low reliance on emerging or unproven technologies

Fast Track Criteria

In recognition that there could be projects/programs that need decisions regarding implementation/recommendations before the IWRP is finalized, "Fast Track" criteria were drafted to aid in the decision-making process. For moving forward, the project/program would have to pass all three criteria:

1. Is the window to implement/formally recommend the project/program limited to within the next 12 to 18 months?
2. Does the project/program align with the objectives for the IWRP, and specifically does it achieve at least three of the primary objectives well?
3. Does the project have any potential adverse or unintended consequences for implementation of other potential IWRP projects/programs that cannot be addressed/mitigated within the next 12 to 18 months?

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Next Steps

- Task Force review with input on Task 2 TM due by end of day Tuesday, September 13th
- Task Force review with input on Fast Track Criteria by end of day Tuesday, September 13th
- Input will be documented and considered for full draft report

Questions and Discussion

Preliminary Draft Demand Management Measures List Presentation

Preliminary Draft Demand Management Measures List

- Preliminary draft list provided to consultant team for initial review
  - Included in Task Force member packets
- Seeking feedback and input from Task Force review
  - Deadline: Monday, September 12th (end of day)
- Seeking public input
  - On-line public comment portal
  - Open September 7th – 15th (noon)

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Preliminary Draft Demand Management Measures List (continued)

- 25 demand-side options will be identified for initial screening by AW/consultant team
- Screening process will narrow list down to 10 demand-side options for further analysis (options characterization)
- Resulting list of 10 will be used in portfolio development and evaluation process
- Essentially the same process will next be used for supply-side options
- Some potential land development code change options may be considered in fast-track process

Questions and Discussion

GHD Subconsultant Experience Presentation

Introduction

- GHD's role
- Water Supply & Diversification Options Evaluation

GHD

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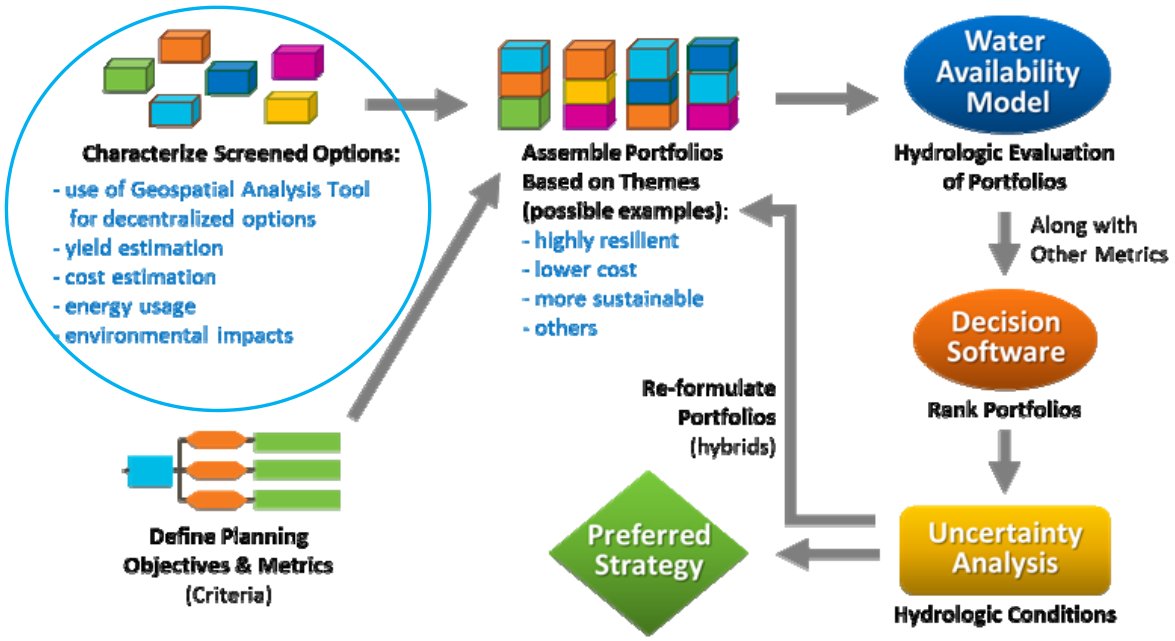
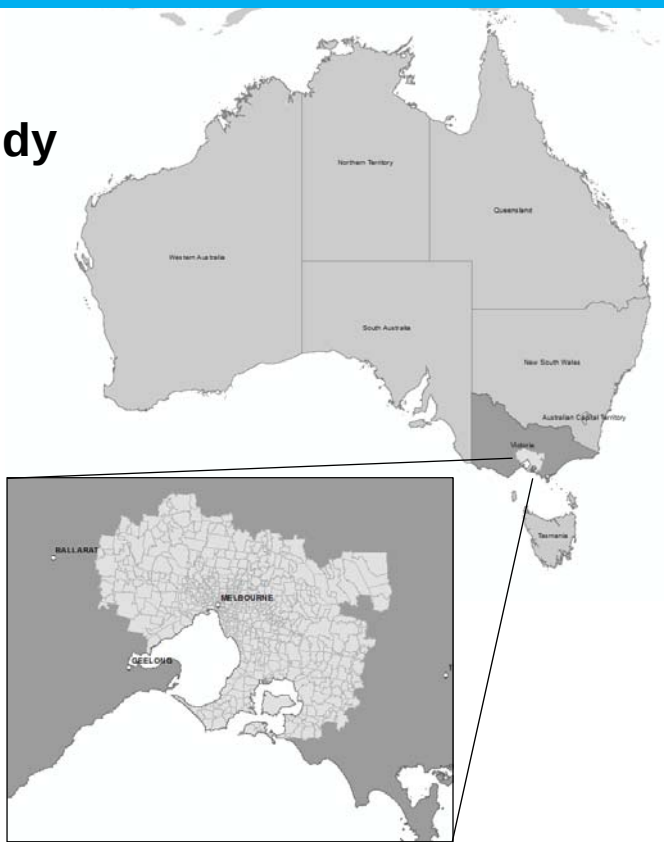
AW IWRP Planning Process



Melbourne Case Study

- Context
- Water Supply Demand Strategy
- Alternative Water Atlas & the 'geospatial approach'



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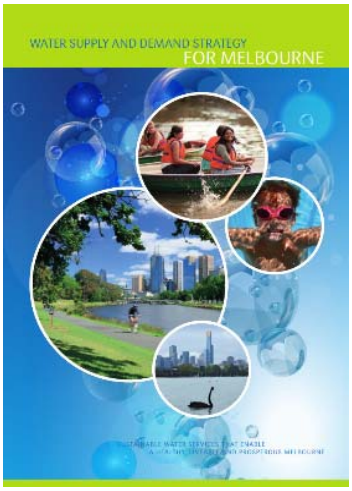
Melbourne's Recent Water History

- 1997–2009 'Millenium Drought'
- Response
  - Water conservation & restrictions
  - Water recycling (rainwater, stormwater, greywater, wastewater)
  - Desalination plant
- 2010–2011 Extreme rainfall
- Now?

Melbourne's Water Supply Demand Strategy

- WSDS
  - 50 Year Plan
  - Balance Supply and Demand
  - Whole of Government
  - Focus on Alternative & Decentralized Options … *Alternative Water Atlas*



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Melbourne's Alternative Water Atlas

Driver	Commissioned by Smart Water Fund to support Melbourne's 50 year WSDS	
Aim	Build an understanding of the parts of the city where it makes sense to invest in local scale alternative water schemes	
Spatial Approach	Developed a method of assessing the potential for alternative supply sources across Greater Melbourne to 2050, including:	Yield (volume & reliability) Cost ($/volume) Benefits & Impacts (Multi-Criteria Analysis Scoring)

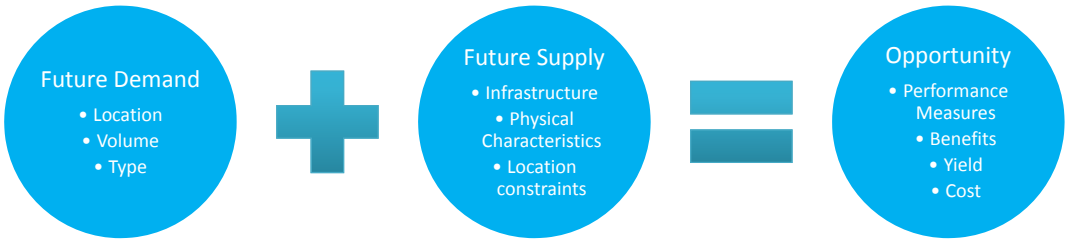
Smart Water Fund GHD

Spatial Analysis

Using spatial information to inform strategic planning in the water sector

- Location
- Spatial variability
- Geometric attributes
- Scale

The potential for different water supply options, now and in the future, can be dependant on physical features and characteristics of the landscape – both natural and built



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Demand

Time slices:
- 2012
- 2018
- 2030
- 2060

Residential

Residential & Employment Activity Centres

Industrial/Commercial

Green Space

Golf Courses

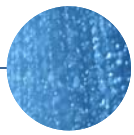
Agriculture

Environment

Centralised Wastewater Recycling
- Major Treatment Plants
- Local Treatment Plants

Stormwater Harvesting

Decentralised Wastewater Recycling
- 'Harvesting' or 'Sewer Mining'
- Blackwater Treatment Plants



Rainwater Harvesting
- Lot Scale
- Community Scale

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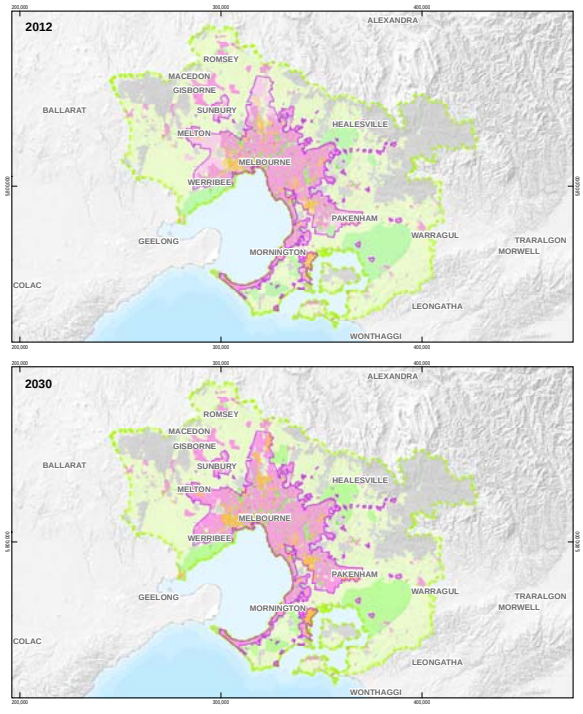

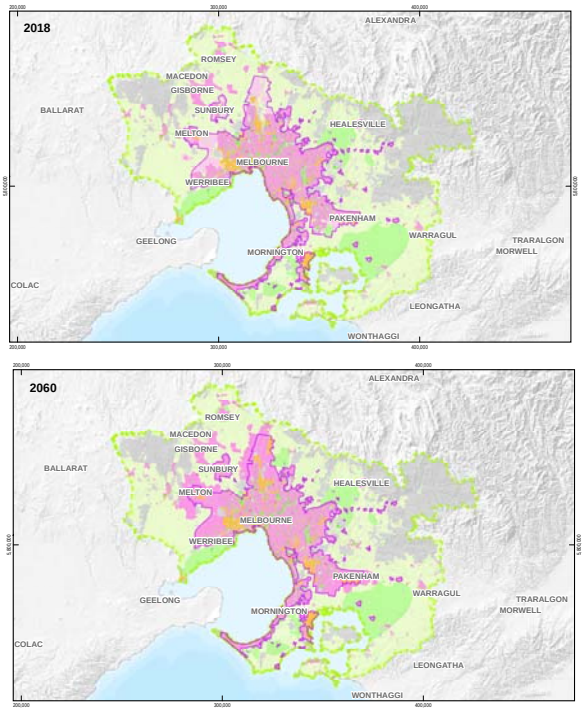

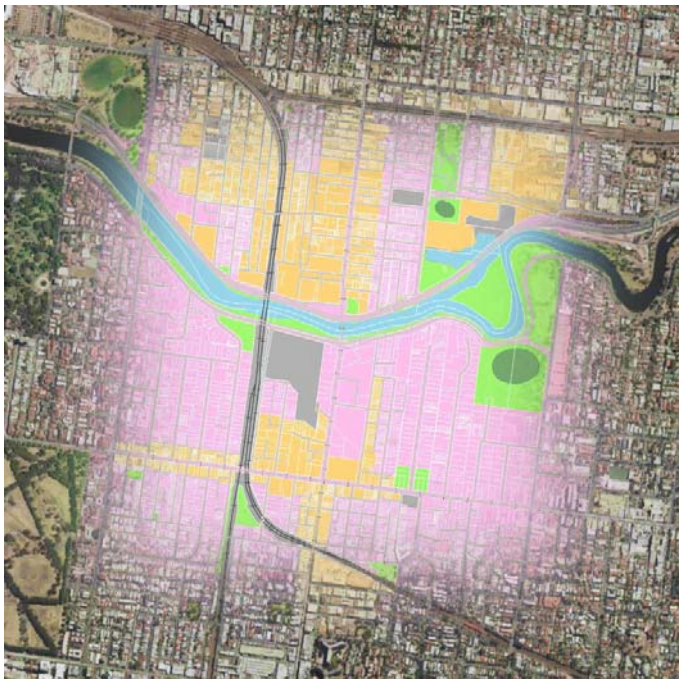

Using Spatial Analysis over 1,000 potential decentralized supply options were:

- Identified
- Modelled
- Costed
- Evaluated for the MCA

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Wastewater harvesting ('sewer mining') example

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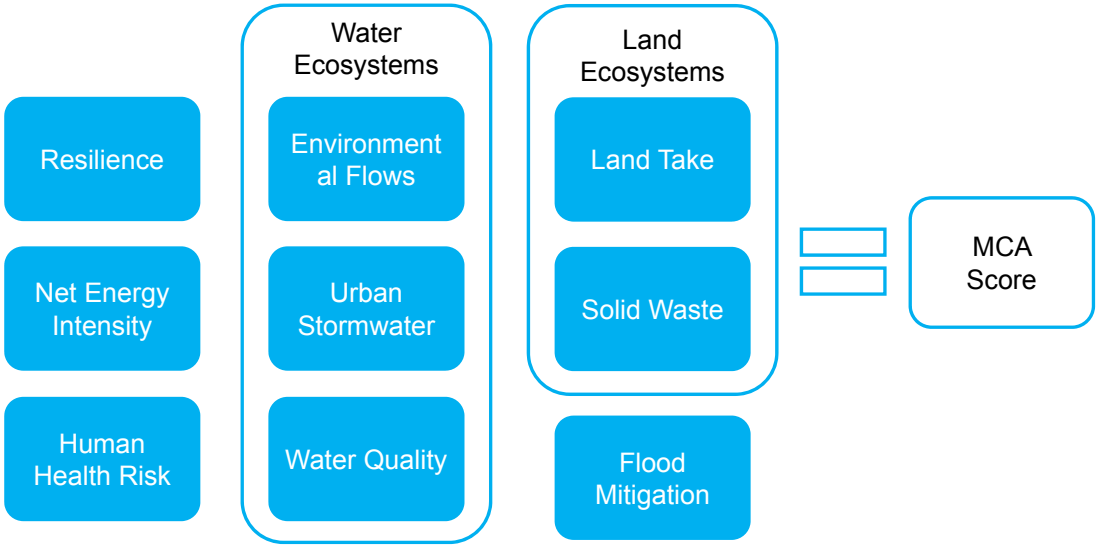
Multi - Criteria Assessment (MCA) Elements



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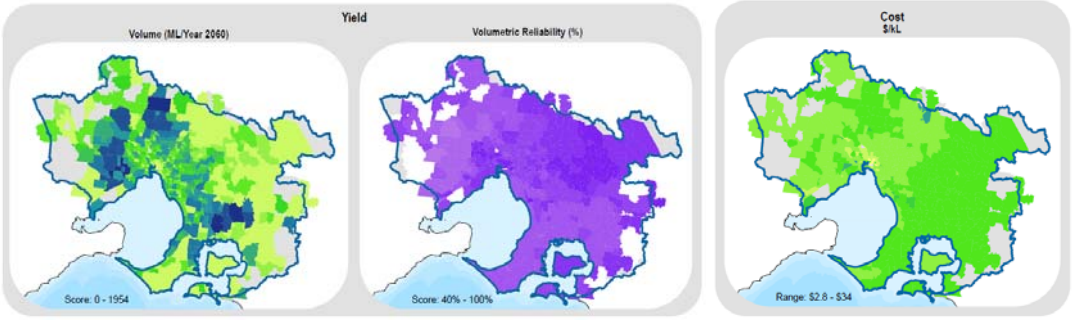
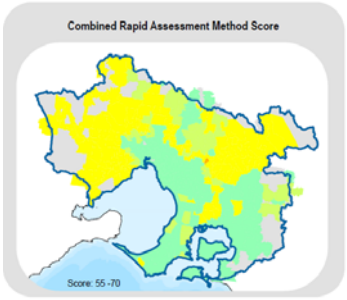
Rainwater Harvesting





Notes:
Yield (ML/Yr) = The Average Annual Volume at 2060
Cost ($/kL) = Levelised cost (discount rate 5%)
Reliability (%) = The Percentage of Annual Substitutable Demand met

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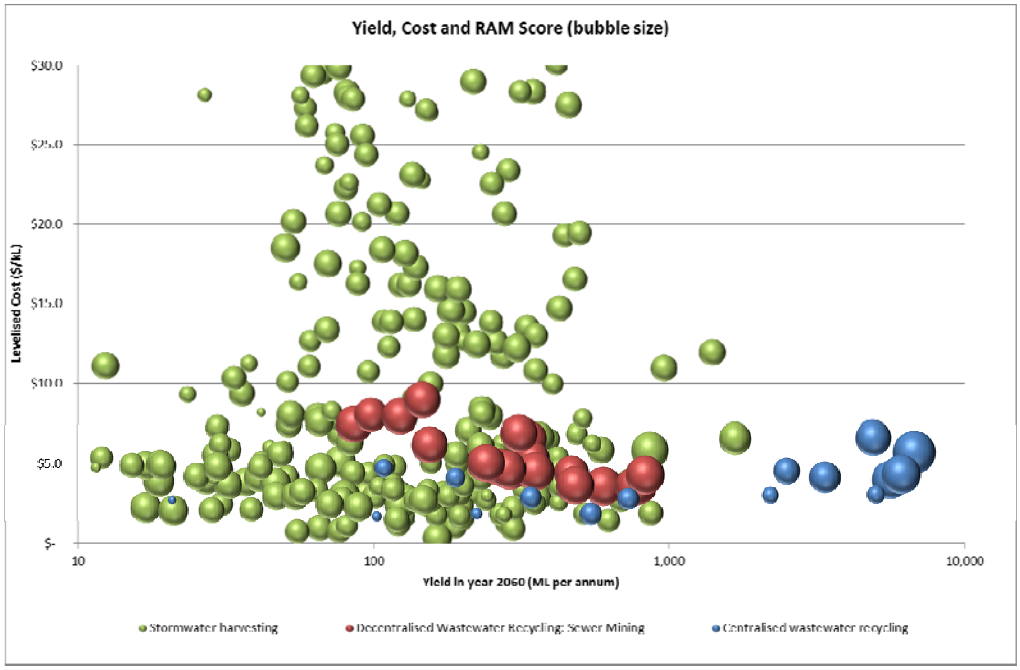
Decentralized Opportunity Results



Smart Water Fund

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Conclusions

- Contribution to WSDS for Melbourne
  - Rigorous evaluation of alternative supply options
    - Potential yield volumes
    - Comparative costs
    - Comparative impacts
  - Enabled alternative supply options to be incorporated into portfolio assessment

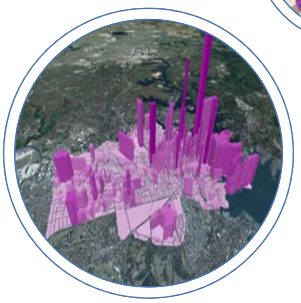
- WSDS outcomes
  - Demonstrated value of a balanced portfolio of options
    - Multiple Benefits
    - Resilience to Uncertain Future
  - IWM embedded in Victoria's water planning framework
  - Adoption of alternative/local solutions

Other examples

South East Water

City West Water

City of Sydney



Adelaide

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Questions?

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