

Incorporating Sustainability into the Decision-Making process with Value Engineering/ Value Analysis

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If you know your values, decisions are easy to make but...

How do we value sustainability on a specific project?

What do decision-makers value?

How much should we invest in Green?

What are the risks?

Anything can be improved!



Highway Standards Branch

Experience from the Green Building Industry

“Value engineering can be the **verification engine** for the meeting of environmental performance standards.”

~ Gregory S. Knoop, AIA,
LEED AP

LEED is an environmental design standard for new buildings; uses *integrated design process* similar to VE

Ref: Sustainable Design Form
– Collaboration and Marketing Best Practices in the Building Industry



U.S. Dept. of Transportation

“[VE/VA] can also increase the use of environmentally sound and energy efficient practices and materials. Nationally, state departments of transportation have realized substantial savings by using value engineering.”

~ Kurt Hyde, Assistant Inspector General for Surface and Maritime Programs, Department of Transportation

Ref: Office of the Inspector General, Final Report Value Engineering in FHWA's Federal-Aid Highway Program – Project MH-2007-040



U.S. Department of Transportation

Office of the Secretary of Transportation
Office of Inspector General

How can VE/VA affect sustainability?

The systematic VE/VA methodology can:

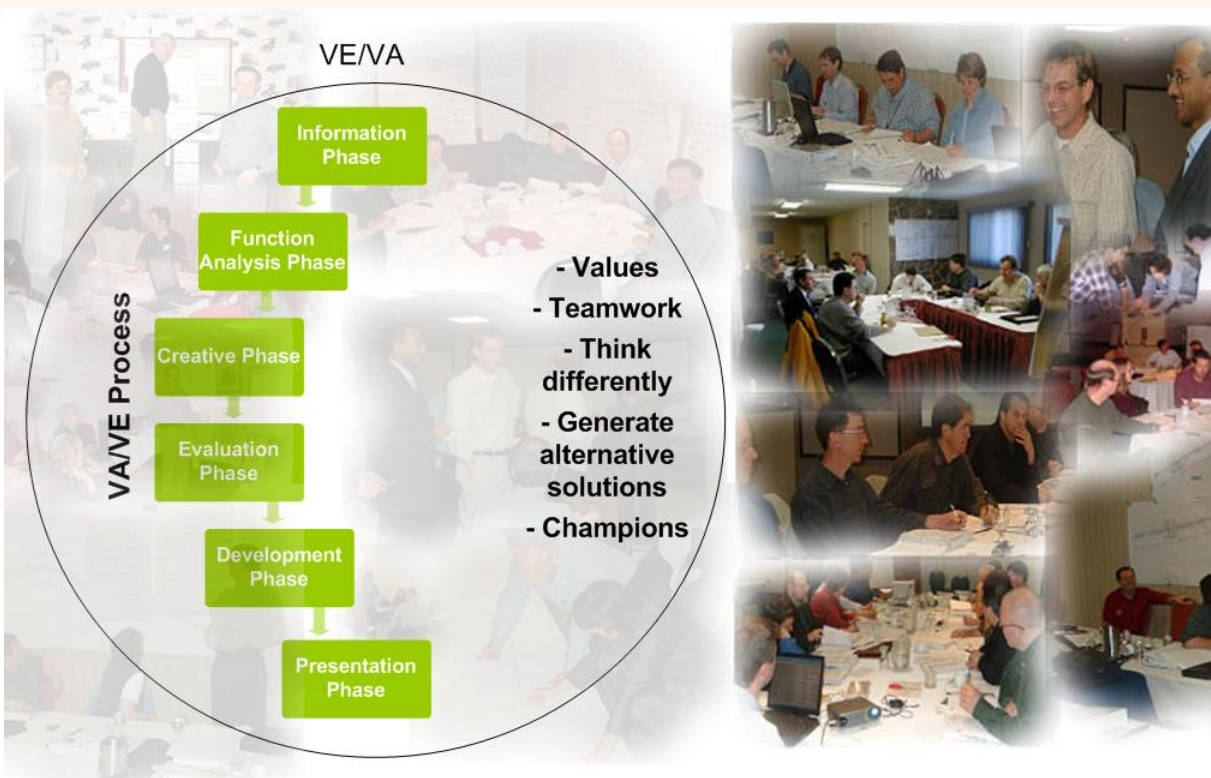
- Identify & prioritize project values amongst stakeholders;
- Achieve emerging performance standards such as green highways;
- Generate ***innovative and creative solutions*** to improve issues such as energy use, air quality...
- Maximize system efficiency and mitigate consumption of natural resources;
- Decrease both capital and ***life-cycle costs***.

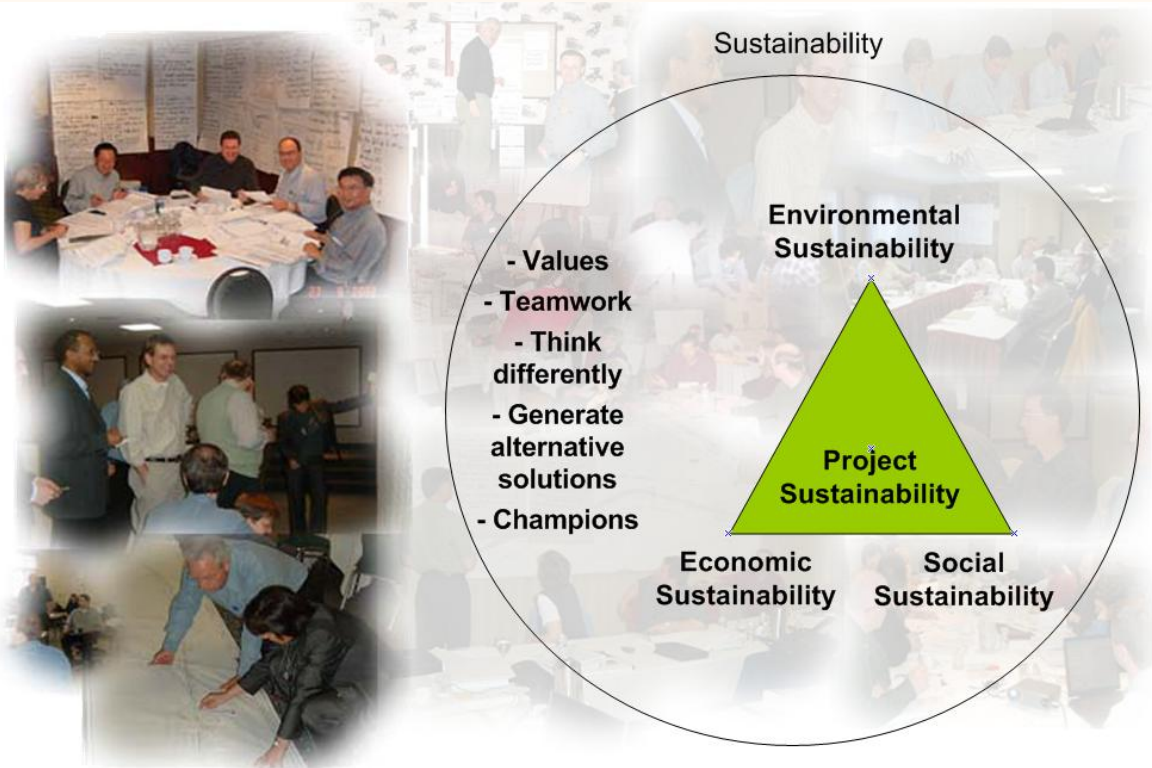
The Secrets to Success

- Every design has room for improvement.
- More creative ideas are generated by groups than individuals.
- The methodical VE job plan produces better results.
- A facilitated workshop creates synergy.
- Executive support of the process.

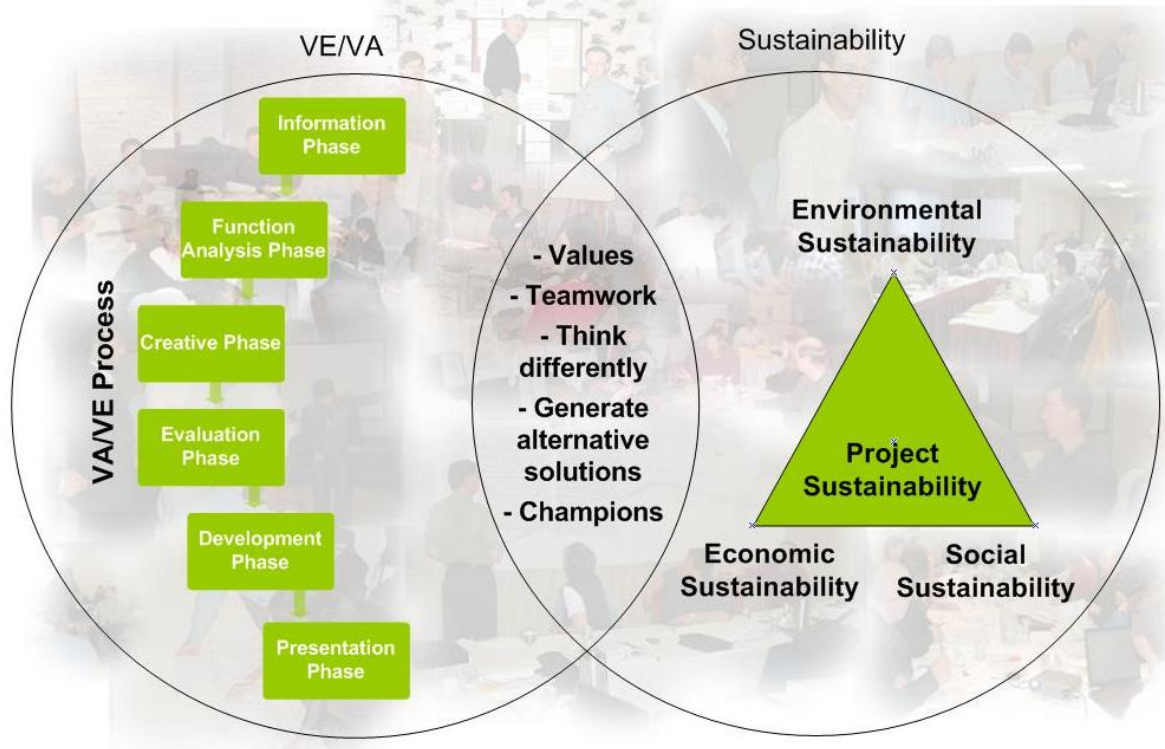
VE/VA is:

- Inherently sustainable as it:
 - Seeks best value for money spent;
 - Ensures you do the Right Project (solve the right problem);
 - Ensures you do the Project Right (cost effective);
- A structured and systematic decision making methodology
- An excellent tool for problem solving
- A generator of creative alternate solutions
- Applied in a workshop environment by a multi-disciplinary team





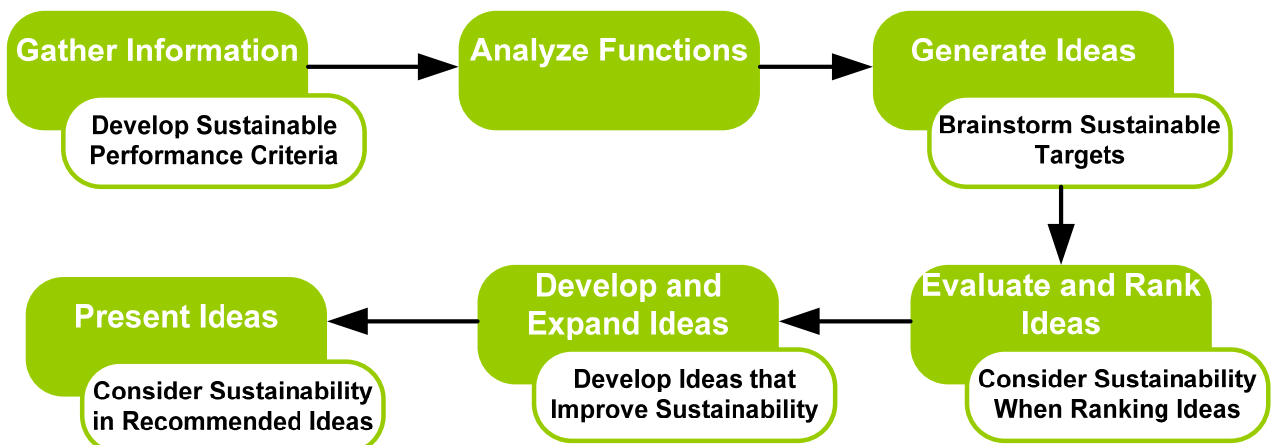
What Do VE/VA & Sustainability have in Common?



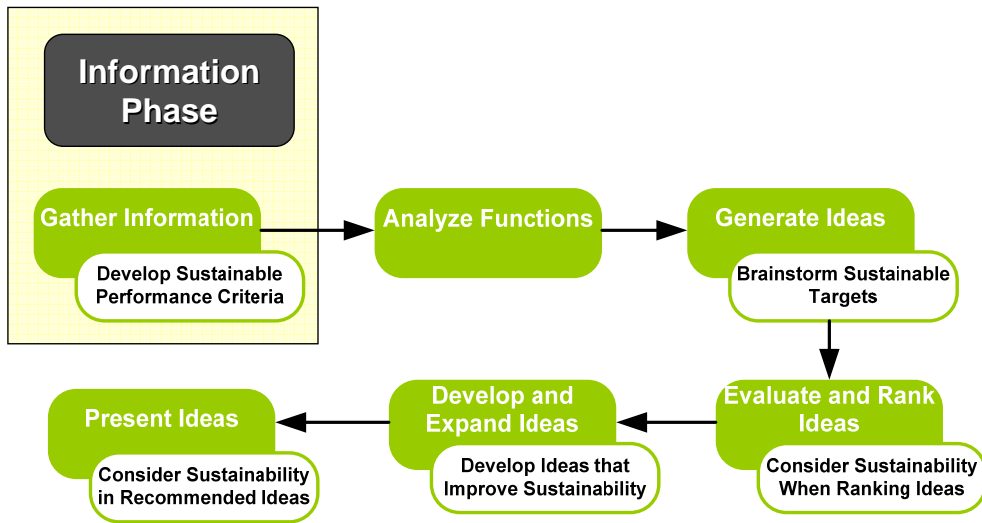
VE/VA teams value sustainability by:

- Multi-disciplinary approach helps explore sustainability from other perspectives
- Including Stakeholders & where appropriate advocacy groups.
- Seeking out subject matter experts (SME) who think differently
- Including SME with emerging areas of expertise –
 - Multi modal
 - Materials
 - Transportation Modelling (who can challenge dated assumptions)
 - LEEDs

Sustainability in the VE Job Plan



Gather Information



Develop & weigh project specific sustainable performance criteria that reflect environment, social and economic issues.

Performance Measures

Sustainability focused Performance Measures/ evaluation criteria can include

- New Land Area Impacted
- Farm/rural land affected
- Property Impact
- Forest / Vegetative Area Impacted
- Wetland / Water Body Impact
- Storm Water Management
- Alternative Transportation Modes
- Recycling / Reuse of Materials
- Use of local Materials

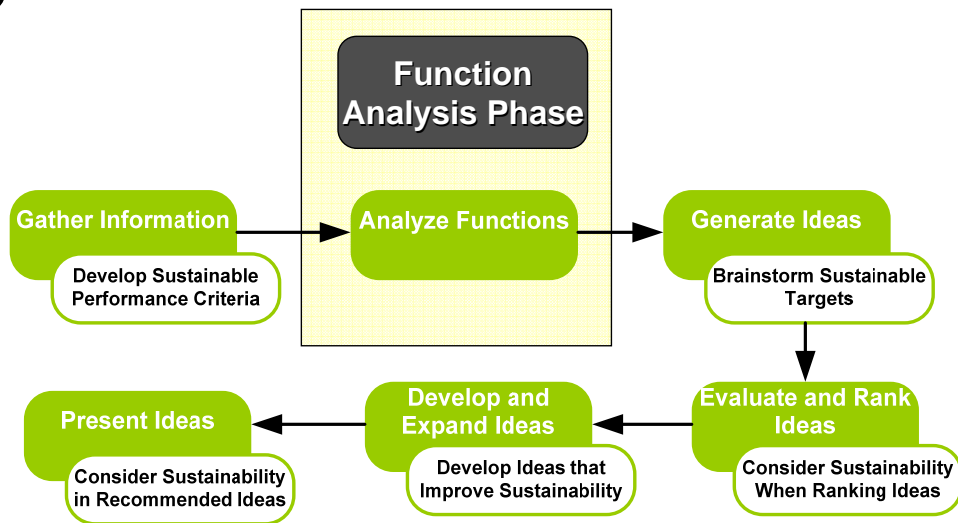
Secondary Measures

Environmental, Social and Economic Sustainability Issues Are Addressed Within Other Performance Criteria Such As:

air quality, noise, access, quality of life, health, business impact, etc.

Sustainability Issue	Performance Criteria	Consideration
Greenhouse Gas Emissions	Traffic Operations	– Avoid queuing
	Maintainability	– Fewer delays and queuing throughout life cycle
Economic Impact	Access	– Access businesses and community
	Traffic Operations	– Move people and goods efficiently

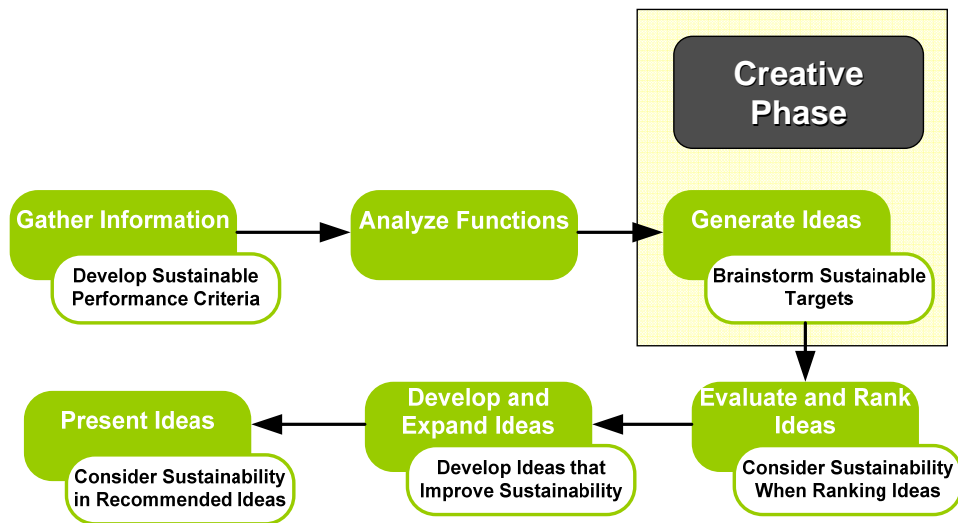
Analyze Functions



Include Sustainability objectives as functions

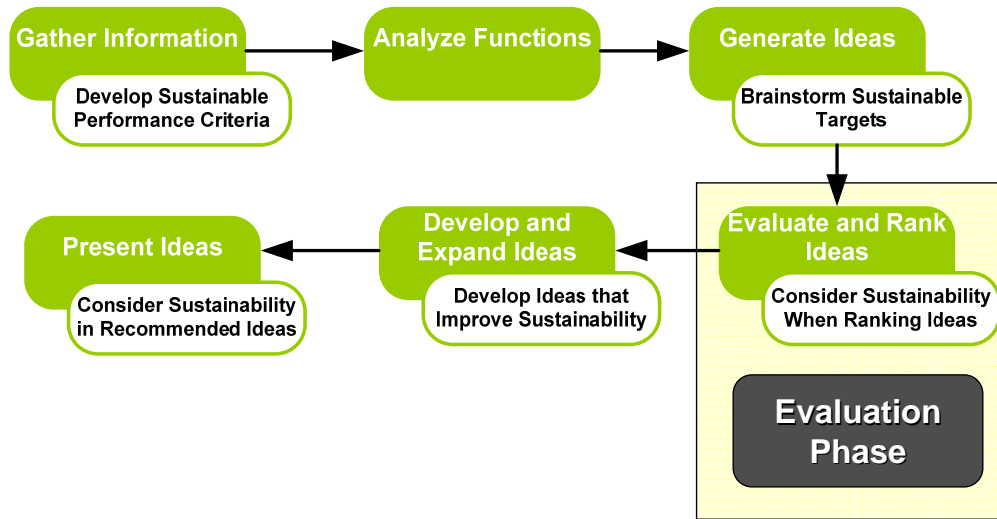
- encourage alternate modes
- reduce waste
- conserve energy

Generate Ideas



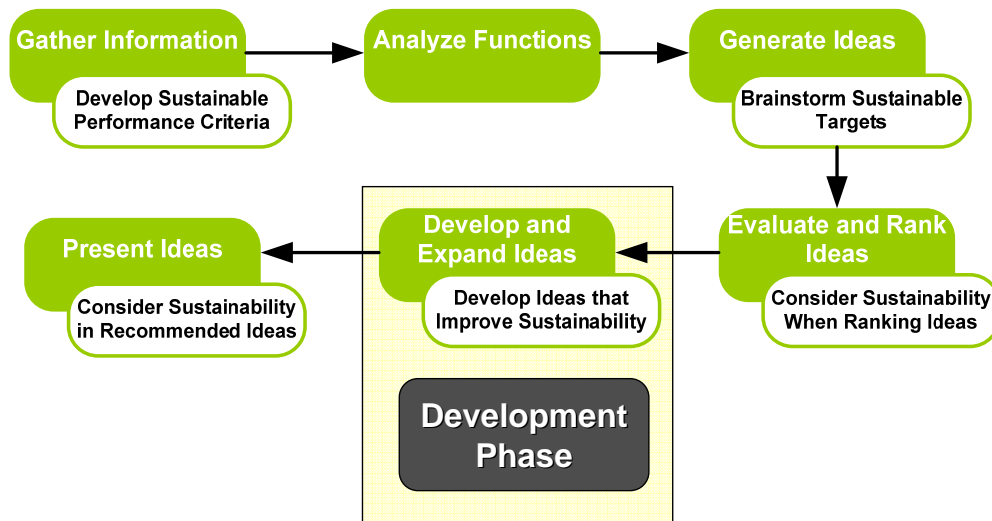
Brainstorm Sustainability Targets
How do we “encourage alternate modes”?

Evaluate and Rank Ideas



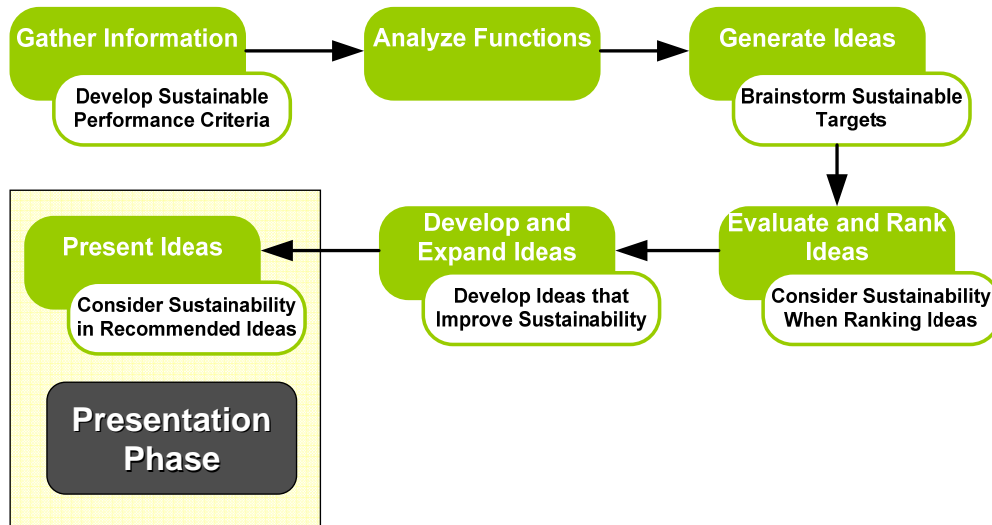
Consider Sustainability When Ranking Ideas
Facilitator ensures some sustainability ideas are
carried forward to development

Develop and Expand Ideas



Develop Ideas that Improve Sustainability
 Evaluate social, economic, environmental benefits (not just capital cost of idea).

Present Ideas



Consider Sustainability in Recommended Ideas
 Integrate sustainability with project goals and objectives.
 Show how Value is improved.

Outcomes

- VE process enables social, economic and environmental values to be considered in developing alternatives.
- VE process does not depend on a single “right answer” for sustainability, or a specific calculation.
- VE report documents how sustainability was specifically address on the project

Find out more!

Visit our website

- <http://www.mto.gov.on.ca/english/transtek/ve/>

Learn more about VE at the Canadian Society of Value Analysis conference www.scav-csva.org, Oct 27, 28, Toronto.

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