

# **Summary of Day 2**

# Q7: Multi-Criteria Decision-Making

- In making a decision, how do you consider both cost and environmental impact?

# Q7: Summary

- Diverse opinions amongst groups
- Weighting is an approach discussed by some groups
- Proposed integration with PMS

# Group 3

# Multi-criteria decision making

- Agency cost is a significant factor
  - Are both variables in play?
- Policy or network level
- Weighted optimization
- No regrets options
- Equity issues
- Communication of goals

# Multi-criteria decision making

- Track GHG has part of PMS/AMMS
- Cities and Counties do not measure IRI
  - Makes no difference because of low speeds
- What are the policies (dots) in the Perato optimal solution
- Bid process and enforcing policies
  - Weighting of bids / Rating systems
  - Different weights for different projects

# Multi-criteria decision making

- Perato optimal for policy level, matrix approach for projects
- Discount rates
  - Based on time in atmosphere

# Group 4



# Multi-criteria selection

- How to implement this strategy into PMS?
- All options should be treated in the same way
  - Time frame
  - Data
  - Boundary condition

# Group 5

# In making a decision how do you consider both costs and environmental impacts?

- Two methodologies:
  - LCA + LCCA + Externalities
  - LCA + Initial Costs + Externalities
- And some process to compare/weight them
  - Analytical (w / different weights)
  - Analytical and externalities

# Group 6

# Multi-Criteria Decision-Making

(Group 6)

Decision Criteria	Init Const.	LCCA	Env Impact	Recycling	Maintainability	Total
<b>Weighting</b>	<b>60%</b>	<b>20%</b>	<b>5%</b>	<b>10%</b>	<b>5%</b>	<b>100%</b>
HMAC	Score Weight	Score Weight	Score Weight	Score Weight	Score Weight	Weighted Score
PCC	...	...	...	...	...	...
Structural	...	...	...	...	...	...
Etc.	...	...	...	...	...	...

Strategies

- A weighting system (see above for *example*) based on different decision criteria. Reduces the subjectivity of the process. Any subjectivity is transparent.
- Candidate decision criteria should be provided by the LCA working group.
  - The decision of which criteria to use and the weighting to those criteria should be made by the owner-agency.
  - Owner-agency committees deciding on the weighting factors should be diverse enough to speak for the competing criteria.
- Alternative pavement options (strategies) should be screened for all applicable constraints, such regulations, first cost, and policies