



The Role of Weather Information in Sustainable Winter Services – ID 31

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- Sustainability in Winter Operations – the heart of it
- Information and sustainable efforts
- Determining sustainability – impacts of weather
- Conclusions

Outline

Sustainable winter operations are utilizing the most appropriate snow and ice control equipment, processes, and materials for the unique objectives and conditions that each agency encounters in a manner that does not compromise the ability of future generations to do likewise.

Sustainable Winter Maintenance

- What is “Most Appropriate?”
- What are the conditions an agency encounters?
- Conditions = weather + roads + traffic + surface condition
- By implication, the “equipment, processes, and methods,” should be a function of the conditions
- Clearly, the accuracy and reliability of weather information has a direct impact on the sustainability of winter operations

Taking it Apart



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- Starts with levels of service
- Builds from there into six areas of operational activity in total
- Four to fourteen questions posed in each area
- Most questions are yes/no
- Points for a question reflect relative importance
- Weights can be assigned by the user as to how much each question contributes to each leg of the triple bottom line
- Now being used by Salt Institute in the “Safe and Sustainable Snowfighting” Award Program

A Checklist Approach

THIS IS A LEVEL 5 ROAD

All of Larimer County's roads are categorized by the level of snow and ice-removal efforts which will be devoted to them. The various levels of service, the roadways which fall within that level and the degree of service which will be devoted to snow and ice removal operations on each level are identified below.

LEVEL ONE: This level includes all county roads (not including sub-division roads) that are school bus routes. During school days, Level One roads will be plowed and sanded to accommodate school bus schedules. Plowing and sanding operations will normally be carried out between the hours of 4:00 A.M. and 6:00 P.M. during school days. On days other than school days, plowing and sanding operations will be completed by 5:00 P.M.

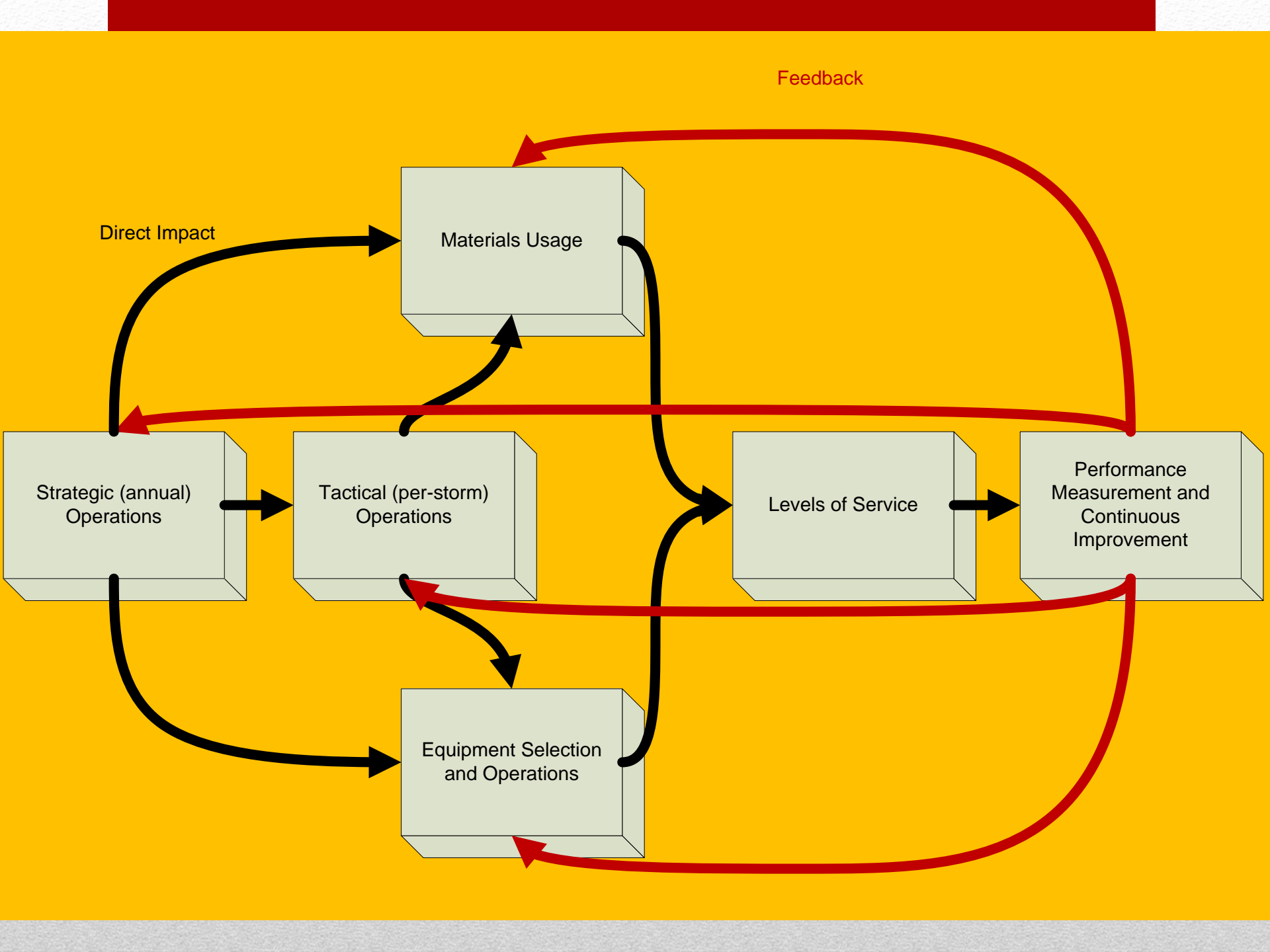
LEVEL TWO: Level Two roads include all county roads (not including subdivision roads) that are U.S. rural mail routes. During mail delivery days, Level Two routes will be opened in time to accommodate mail delivery schedules. Plowing and sanding operations on Level Two routes will normally be carried out between 7:00 A.M. on mail delivery days. On days other than mail delivery days, plowing and sanding operations will be completed by 5:00 P.M.

LEVEL THREE: Level Three roads are the remaining mainline county roads (not including subdivision roads) which are not included in Level One and Level Two above nor in Level Five and Level Six below. Level Three roads will be plowed and/or sanded after the resource requirements for Level One and Level Two roads are met. Plowing and sanding operations on Level Three roads will normally be completed by 5:00 P.M.

LEVEL FOUR: Level Four roads are those roads located within rural subdivisions. Level Four roads will be plowed and/or sanded as needed after the needs of Levels One Two and Three roads are met.

LEVEL FIVE ROADS: Level Five roads are those county roads which will be plowed and/or sanded only after the needs of Level One through Level Four roads have been made and resources are available to open these roads.

LEVEL SIX ROADS: Level Six roads are those county roads which are not plowed or sanded during winter months.



- Do you use some sort of Value Added Meteorological Service to provide forecasts for your winter storms?
- Are these forecasts site specific (i.e. they provide different forecasts for different road segments)?
- Do these forecasts provide pavement temperature forecasts?

Where is the Weather?

- Does the agency have a method to specify application rates as a function of pavement temperature, route cycle time, and storm type?
- Do all agency vehicles have surface temperature measuring equipment attached? Some vehicles? No vehicles at all?
- Do you in some way normalize your performance according to the severity of the winter storm?

How is the Weather Information Used?

- To some degree, no it does not, but...
- It does raise the issues clearly in the context of the new paradigm, and...
- It creates an implicit link between weather information and chemical application, still...
- A checklist does not mean you are sustainable!

Does this Get Beyond Best Practices?

- Regardless of local factors (which should be a driver of winter operations anyway) sustainability requires the use of good, specific, and targeted weather information
- How we get that information is important, but that we use it and how we use it is more important
- The “new paradigm” of sustainability does not fundamentally change the centrality of weather information to winter operations

Conclusions