



DuPage River Salt Creek Workgroup



Chicago Area Waterways  
CHLORIDE WORKGROUP

# Levels of Service and their Impacts on Salt Use

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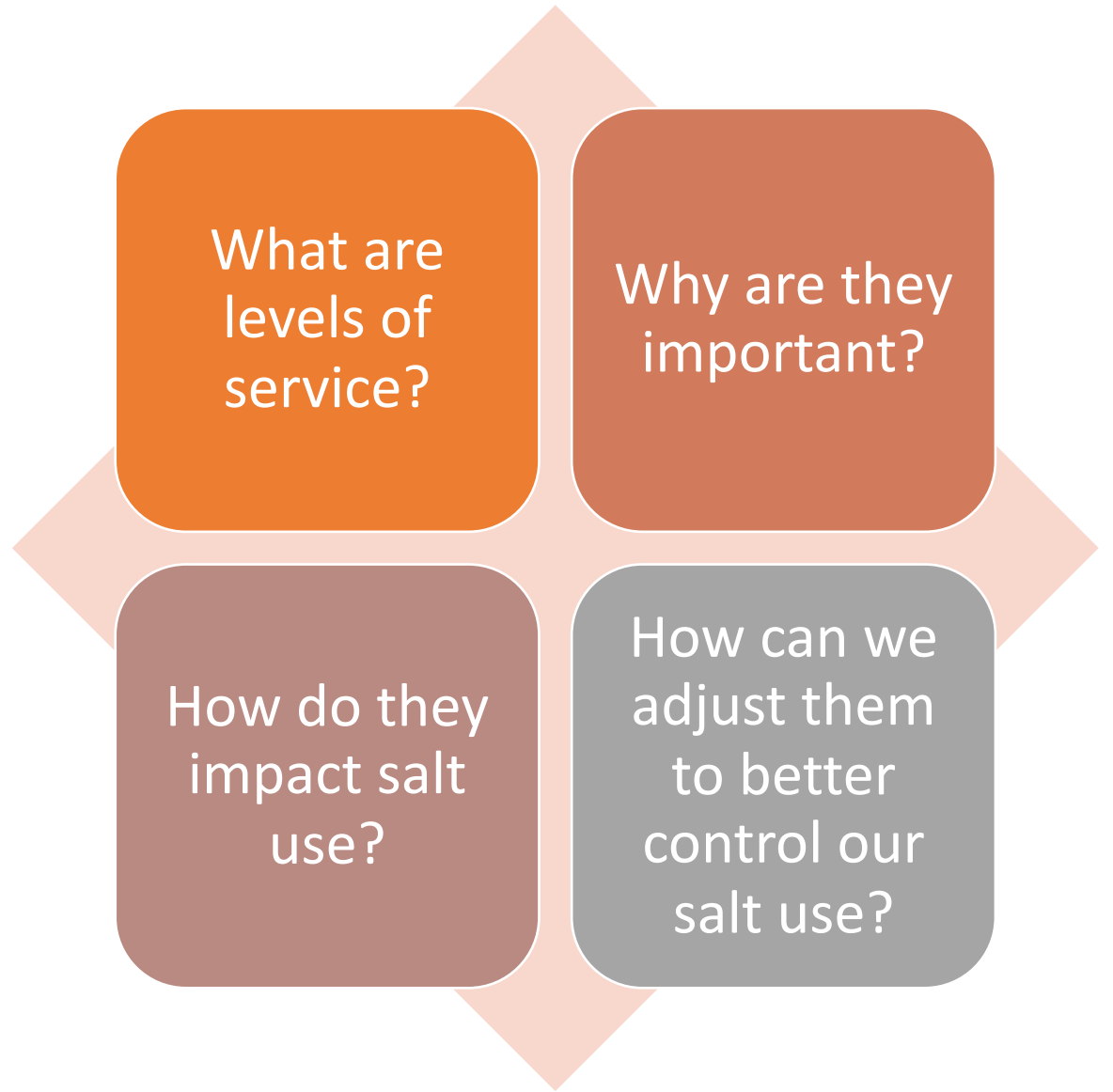
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Wilfrid Nixon

Professional Snowfighters Association



# Outline





CAN WE REALLY USE LESS  
SALT AND ACHIEVE THE  
SAME LEVEL OF SERVICE?

# What Are Levels of Service (LOS)?

- They are our goals
- Answer to the conundrum: If you don't know where you're going, you'll end up somewhere else!
- They need to be clearly specified
  - Can be visual, can be verbal, need to be explicit
- They need to be measured, and to mark an end point
  - Once you have got there, it is time to stop...





# What is acceptable?

Would you (your community) be satisfied in either one of these situations?

# Complexity

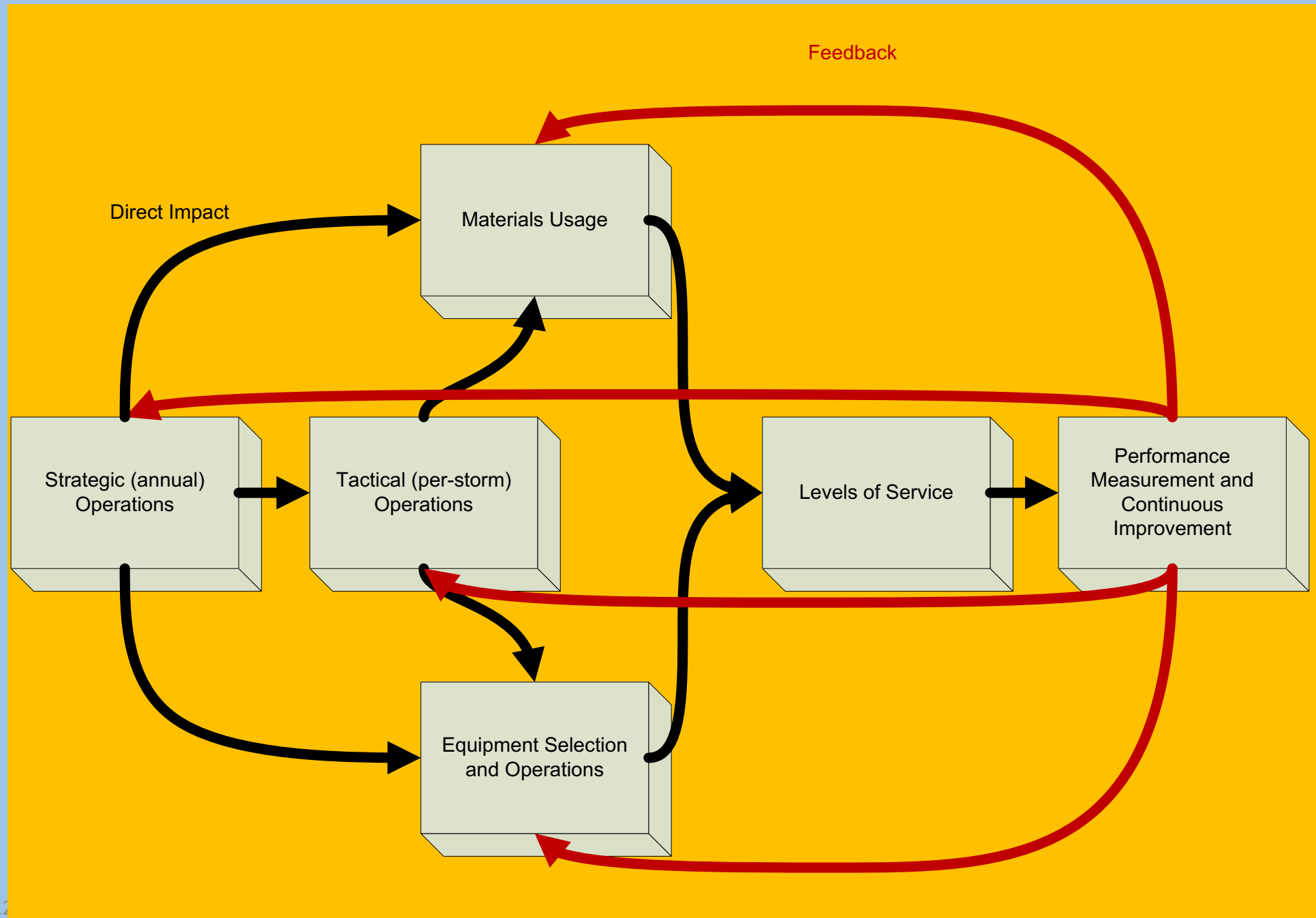
If we want to look at winter maintenance sensibly, we need to consider it as a system

Everything we do impacts (perhaps) everything else we do

Which is a bit daunting!

So, what can we do to break it down a bit and try and get a handle on it?

When in doubt, draw a diagram!



# Level of Service – An Example

| Classification | AADT          | Target Regain Time | Bare Lane Description                                                                                                                                                                                                                   |
|----------------|---------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Super Commuter | Over 30,000   | 1-3 hours          | Bare lanes are defined the same for all classifications as follows:<br><br>All driving lanes are free of snow and ice between the outer edge of the wheel paths and have less than 1 inch of accumulation on the center of the roadway. |
| Urban Commuter | 10,000-30,000 | 2-5 hours          |                                                                                                                                                                                                                                         |
| Rural Commuter | 2,000-10,000  | 4-9 hours          |                                                                                                                                                                                                                                         |
| Primary        | 800-2,000     | 6-12 hours         | The Bare Lane Regained date and time should be logged when this condition is obtained.                                                                                                                                                  |
| Secondary      | Under 800     | 9-36 hours         | Loss of bare pavement is when 5% or more of the pavement is slippery, icy, or snow covered.                                                                                                                                             |





# Suitable Levels of Service

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- Very location specific – what works in Illinois would not work in Georgia!
- Road type specific – residential streets should not receive the same efforts as Interstates
- Possibly time of day specific – major commuter routes should have higher priority in the few hours leading up to rush hour...





# 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.

# A Goal Statement?

- Achieve our desired level of service in a timely manner, with an appropriate use of resources and materials, taking into account the severity of the storm conditions that we are facing...



# LOS and Salt Use?

- If LOS is focused on rapid achievement of bare pavement, it needs a lot of salt (comparatively)
- If we can allow more time, and settle for less bare pavement (e.g. bare wheel tracks) we will need less salt
- How important is the bare pavement?
- How confident are you that you can “make it stick?”



## Steps to Save (Salt, that is!)

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Focus on the bond, not the snow or ice

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Be pro-active – get a layer down prior to the snow (that bond again)

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Use liquids, and use less

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Vary application rates according to the storm

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Measure and calibrate...

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# Conclusions

Levels of Service drive  
our winter maintenance  
operations

We need to ensure our  
LOS are appropriate for  
our community

Different LOS for  
different road types  
(residential, arterials, etc  
– AADT driven) are good  
practice

Having the best LOS in  
the world is not helpful if  
we cannot make them  
stick...

We can use a range of  
strategies to minimize  
our salt application  
regardless of what LOS  
we have selected

