BUCHER
municipal

Bucher Assist

What Is Bucher ASSIST

- Bucher ASSIST is our revolutionary approach to managing salt spreaders
- Developed in conjunction with ESA, it utilises connectivity and cloud based data management to maximise the efficiencies of winter operations

Platinum

All Gold Content +

Fleet Management Portal

Customised Data Reporting

Integration with Weather Sensors & Forecast Data

Automated Spreading…

Gold

All Silver Content +

Cloud Based Data Management

Direct upload of routes to entire fleet or single vehicles

Real Time Fleet Tracking & Historical Data

Silver

Ecosat 20 In Cab Controller

Multifunction device that removes cab clutter

Auto Salting & Route Builder

USB Data Management

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Automated Spreading

Case Study for Bucher ASSIST: City of TURIN

- As part of the real-world validation requirement, Bucher Municipal partnered with the city of Turin
- The experiment was conducted during the winter, from 10th Dec 2020 through to 30th March 2021
- The decision to partner with Turin was based on their varied road and highways requirement
    - A flat city road network with an ancient and cobbled center
    - A river area with high humidity
    - A hilly area with vertical elevations of up to 715 meters
    - Close to BWIT Head office in Revello (NW Italy)

Automated Spreading

Case Study for Bucher ASSIST: City of TURIN

Process Overview

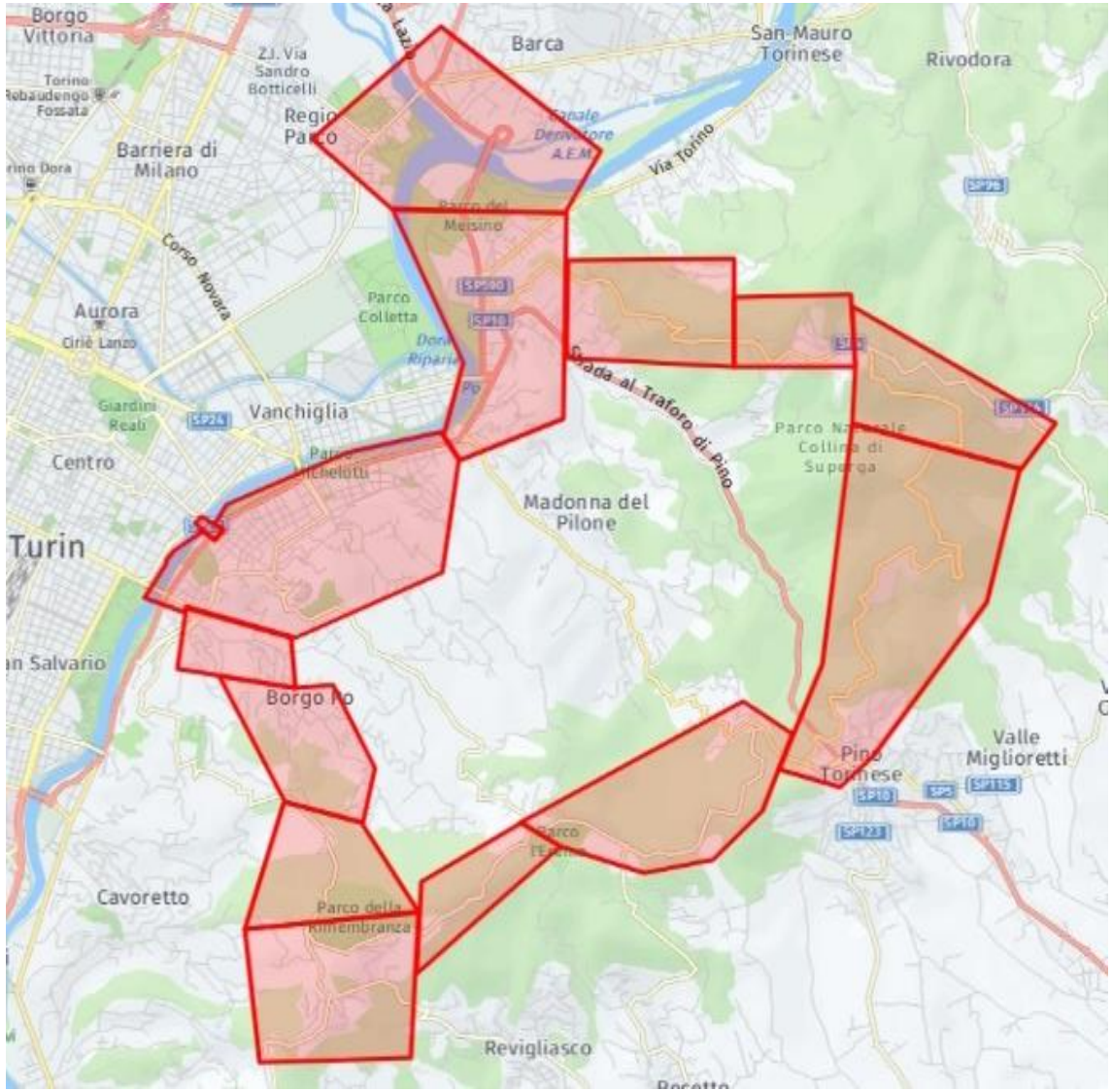
Route selected that covered urban and rural roads. Historical analysis of the route allowed 14 specific zones to be defined

Vaisala sensors were used to collect real-time information on grip, temperature, humidity, water-snow-ice presence, depth, etc.

Salt dosage rates were automatically calculated based on the sensor data input to the ASSIST algorithm.

Cloud-based data communication was delivered to the spreader, with optimised doses for each zone.

The driver followed the satellite navigation instructions, and the spreader automatically dispensed the correct treatment, specific to the zone it was in.



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Automated Spreading

Case Study for Bucher ASSIST: City of TURIN

- Bucher ASSIST calculated the correct parameters monitoring 3 critical values
  - Presence of ice or snow
  - Any grip coefficient below a defined value (Turin operate to 0.45)
  - Plus, critical information provided by the ops manager
- The Margin of safety was set at 30%
  - The applied rate was the calculated dosage +30%
- Time Shift delays could also be accommodated
  - Forecast Data used to anticipate the conditions in advance
  - The advanced data feeds into the algorithm, instead of the live data
  - Important aspect for pre-treatment
- Scope to Incorporate NWSRG treatment guidelines
  - The algorithm parameters are defined by the client

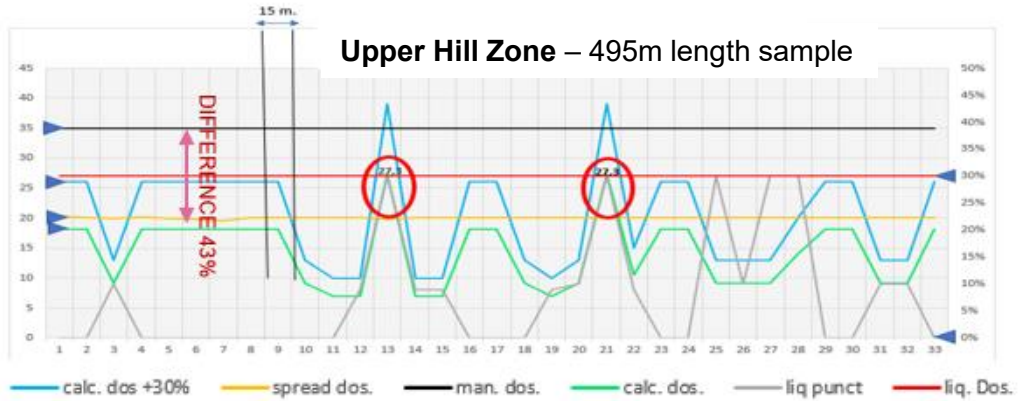
Ice						
Thickness	Dosage Vs asphalt temperature					
	≤ -5°C		- 1°C ÷ -5°C		- 1°C ÷ +1°C	
mm	Sale	Sol. Salina	Sale	Sol. Salina	Sale	Sol. Salina
0	7	0%	5	0%	5	0%
0,1	15	30%	10	30%	10	30%
0,2	15	30%	10	30%	10	30%
0,3	15	30%	10	30%	10	30%
0,4	15	30%	10	30%	10	30%
0,5	15	30%	10	30%	10	30%
0,6	20	30%	20	30%	15	30%
0,7	20	30%	20	30%	15	30%
0,8	20	30%	20	30%	15	30%
0,9	20	30%	20	30%	15	30%
1	30	30%	30	30%	25	30%
1,1	30	30%	30	30%	25	30%
1,2	30	30%	30	30%	25	30%
1,3	30	30%	30	30%	25	30%
1,4	30	30%	30	30%	25	30%
1,5	30	30%	30	30%	25	30%
1,6	30	30%	30	30%	25	30%
1,7	30	30%	30	30%	25	30%
1,8	30	30%	30	30%	25	30%
1,9	30	30%	30	30%	25	30%
2	30	30%	30	30%	25	30%

Automated Spreading

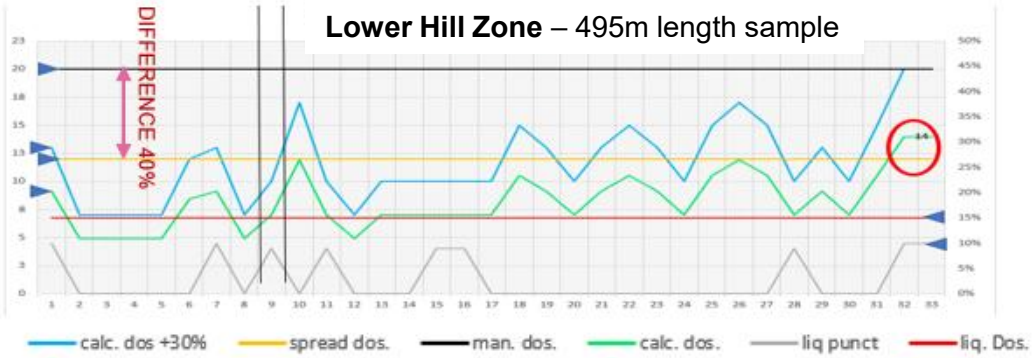
Conclusions of the case study:

- Salt Savings arose between the what would have been the previous manual treatment against the actual delivered treatment (ASSIST treatment)
- i.e. If, historically, a driver was instructed to deliver a 20g/m² treatment, there wouldn't be any scope for them to adjust this down
- The entire route would receive 20g/m² irrespective of the actual or forecast conditions
- Using Assist, the treatment rate would vary from zone to zone, specific to the requirements.

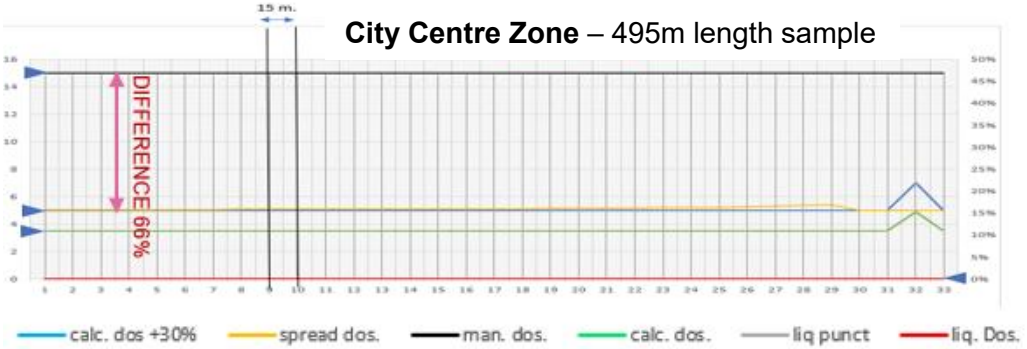
Manually selected dosage
ASSIST Calculated Dosage (+30%)
ASSIST Calculated Dosage
Actual Dosage Spread



Upper Hill Zone – 495m length sample



Lower Hill Zone – 495m length sample



City Centre Zone – 495m length sample

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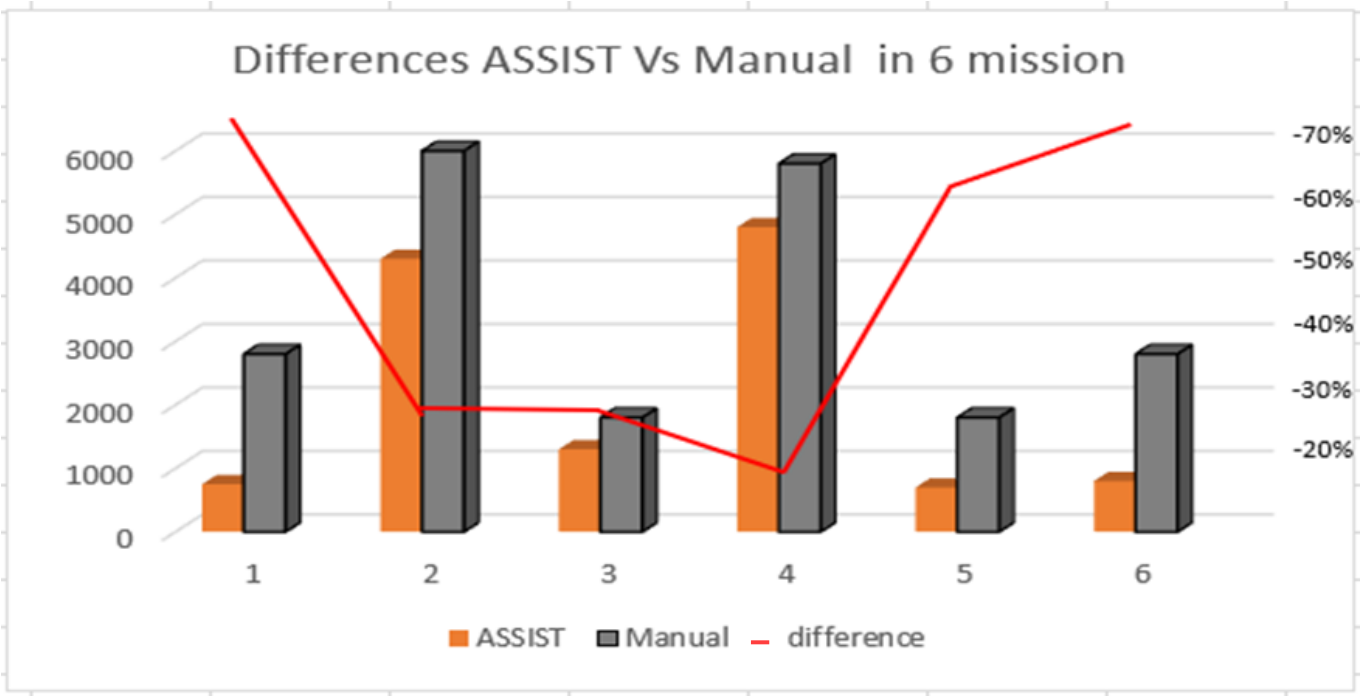
Automated Spreading

Conclusions of the case study:

By embedding an AI and automated dosing system into the spreader, the average reduction of salt across 6 analysed missions was:

53%

- Cost Benefits
  - A large proportion of the savings were on low tonnage treatments in marginal conditions
- Environmental Benefits
  - Both Green & Built Environment
- Safety Benefits
  - Driver focused on route ahead
  - No loss in prior safety.



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Thank you

Andrew Park
UK Sales Manager - Winter