

Data - More! More! And More?

Bert Murillo



The Amtrak Missouri River Runner train leaves Kansas City heading for Chicago at 8:15 am, averaging 53 mph. Another train, Amtrak Southwest Chief, headed in the opposite direction leaves Kansas City at 12:45 pm, averaging 71 mph. To the nearest mile, how far are the two trains from each other at 2:45 pm?

Did this take you back to your school days where and when such problems routinely came up on exams? Did you break out in a bit of a sweat thinking I'd single you out to give me the answer? Fear not, I wouldn't do that to you. But what if I told you all you really need to know is that your buddy is arriving in

Chicago at 4 pm and you need to pick him up at the train station? While a bit of an exaggeration, we all do this, in some variation, in both our work and personal lives. We bring in all sorts of information in the hopes it will be useful but, in reality, we are likely making things more complicated than they need to be. More data is not necessarily better data, especially if it's not helping you to reach your ultimate goal.

Applying this to Winter Maintenance operations, nearly every agency has a published Level of Service (LOS) they've committed to maintain in their winter operations that guides maintenance decisions and activities. A Clear Roads article (http://clearroads.org/wp-content/uploads/dlm_uploads/tsr-levels-of-service.pdf) delved into the different LOS classifications that different agencies were using. There was no "one" benchmark utilized by every agency and in the article many used different analytics to gauge and grade their levels of success. Some city/county agencies strive to return arterials back to "bare pavement" within so many hours after the conclusion of a winter event. Some State Departments of Transportation (DOTs) have a published goal of having clear wheel-tracks within a set amount of time at the end of a winter storm. Others monitor traffic speeds and aim to have traffic speeds return to "normal" within a certain amount of time. Those are all good goals and ways to measure when there has been a level of success getting the road network in shape for the traveling public. And that's just looking at the winter road treatments before beginning to look at salt/material usage, labor hours, and vehicle fleet costs.

Clearly there are many options for LOS and even more ways to measure the successes of this goal. Throughout the years, both private and public sector resources have tried to help snow fighters reach new levels of success. It's an ever-evolving industry, transformed from the most basic insights to computer driven algorithms with automation tools just over the horizon. Historically, when technology was deployed (RWIS, traffic data, forecasting, application rates, etc.) the products/services would bring back raw data that would have to be interpreted by the end-user. Easily imagined, the learning curve could sometimes be steep to turn that information into usable data. Thankfully, the latest innovations create tools that take raw data and turn it into actionable information – "When do I put my treatment plan into effect?", "What is the forecast telling me?" "How successful were we on this event?". Raw data is still driving all of these tools and many agencies are collecting these raw data streams. Raw RWIS data is generally polled every 10-15 minutes and includes a wide variety of parameters. Forecasts are



updated, on average, every hour. Plow data (spreader rate, plow up/down, GPS locations, etc.) is constantly updated. Also, traffic speed, count, and classification information is constantly streaming in. Then, if you want to cross-reference that information with salt usage, price-per-ton of salt, workforce hours, overtime, vehicle depreciation, etc., things get very busy and it's easy to get overloaded. Coming back to the initial story of the

trains leaving Kansas City, it's easy to get lost in the quest for more data and more measurements but be mindful you don't lose sight of your actual goals. There is a great book by John Doerr called "Measure What Matters" (<https://www.whatmatters.com/>) which highlights that you need to start with your goals in mind and then make sure that you're setting objectives and measuring key results that help you achieve these goals. While more data seems comforting because it's available, be careful it doesn't serve as a distraction instead. Don't get buried! For example, if you're collecting material application rates and your LOS is solely dependent on the outcome of your treatments, with bare pavements as the result, and you don't cross reference that data with cost-per-application, (no budget restrictions would be nice, right?) then why are you collecting that data? My recommendation is to ensure you're streamlining workflows and periodically reviewing your goals by what you're measuring and how you view "success". Finally, try to prioritize continuing education so you're aware of advancements and innovative ideas by your peers.

Advancements, and how government agencies are using them, are usually on display during the many worthwhile industry conferences (APWA North American Snow Conference, APWA Western Snow & Ice, and FHWA Stakeholder – to just name a few). Every year I would hear about new products and tools agencies were using to solve problems that have plagued them for years. I would also hear about innovative agencies even using existing technologies and morphing them to solve new problems. Unfortunately, COVID-19 has halted these in-person meetings for the time being but, hopefully, it's not entirely stunting your continuing education. Even in a difficult situation, conferences are doing a great job adapting to the current environment. Recently, there was an exciting announcement about The APWA Western Snow & Ice conference partnering with the Professional Snowfighters Association to move the conference online. Hopefully this trend continues because the information shared at these events is invaluable.

Finally, I suspect that some of you may enjoy math like I do and have worked through the math problem I posted above. If you want to check your work (and mine), the answer is 487 miles. There is now one less unanswered math problem so we're leaving the world a better place than we found it.