



Starting Over with Winter Maintenance





Village of Buffalo Grove, Illinois

Community

- Primarily residential
- 44,000 residents
- 120 center line miles
- 546 plowing miles
- 369 cul de sacs
- Municipal campus
- Train and Bus parking facilities

Public Works

- Streets, Forestry, Building Maint, Fleet, Water, Sewer, Drainage, Engineering
- 47 Full time; 2 Permanent Part time; 4 seasonal staff





Introduction to change

During the winter season of 2014 – 2015 the Buffalo Grove Public Works Department threw away our old Winter Maintenance Plan, and started over with a completely new plan and program.

Despite annual (seasonal) modifications, we determined that “retooling” the old plan would not be enough to drive our program into the future.

Starting over was the only way for our program to be sustainable.





Why change what your doing, and why now?

4

The right reasons make all the difference...

- The old plan was cumbersome, and no longer realistic
- Changes to staffing levels
- Changes in service expectations
- Budget challenges
- Technology advancements
- Equipment replacement schedules





The challenges of change

- Admitting that change is necessary
- Public perception – from the outside looking in
- Internal perception – abandoning the “familiar”
- “The devil you know vs. the devil you don’t know...”
- Expenses / Costs – change usually requires money
- Fear – “change is scary”

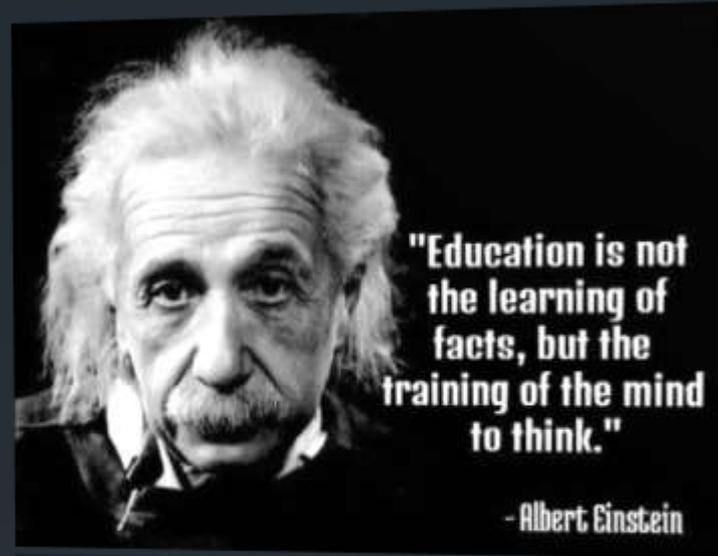




Step 1 of starting over... “get an education”

6

- Researching BMP's
- Municipal surveys
- On site agency visits
- Phone calls...lots of phone calls!!
- Connecting with resources
 - Salt institute
 - APWA
 - Consultants
- APWA North American Snow Conference
 - Winter Maintenance Supervisor Certification
- Vendor meetings





Deciphering all that information and data

7

The first step in “decoding” all that information, is establishing (or determining) what your service level expectations are...otherwise the data is useless.

“Which pieces of the puzzle fit into the program?...and in what sequence?”

- None of us are the same, each of our agencies is unique
- There is no rubber stamp “right answer”...only the right answer for you

Change doesn't happen overnight, so build out short term and long term goals.

- Establish 1, 2, 3, 4, 5 year program goals for change





Tracking and evaluating all of your data

The 4 reasons we change a Winter Maintenance Program

- Service improvement
- Time savings
- Cost savings
- Environmental

Unless we track our data, we don't know where we are.

If we don't know where we are, we don't know if our change is successful.

- Employee costs
- Equipment costs
- Material costs / quantities
- Route cycle times





Where do we go from here?

The goals for our 5 year plan included the following...

- The reduction in route assignments
 - without compromising cycle times or quality of performance
- In house salt brine production
 - Including increased storage for liquid materials
- Anti-Icing program for all Village maintained streets
- Increased liquid application / decreased granular solids application
- Equipment purchases targeted for specific winter maintenance assignments
- Weather forecasting services that included accurate pavement temperatures
- GPS tracking systems w/integrated route mapping capability
- Overall program improvement... **PLUS** reduction in program costs

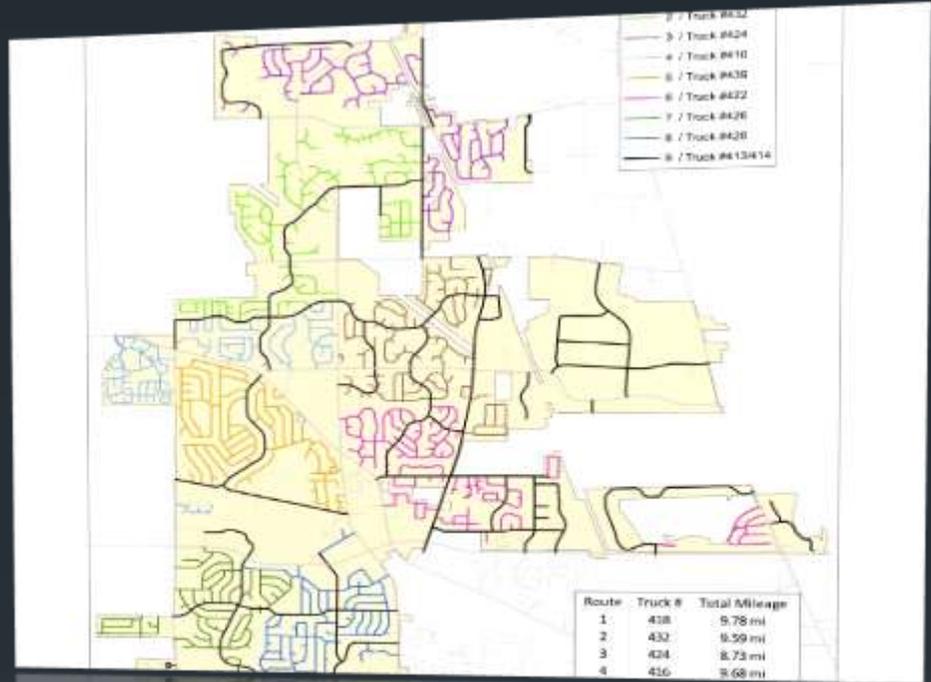


Year 1 Changes – GIS Route Mapping Technology

GIS Route Mapping of all winter maintenance routes created “even” distribution of the workload for our staff and equipment.

Even distribution of workload, created “fair” expectations for completion and grew a culture of accountability between staff.

Necessary for helping establish realistic route cycle times.





Year 1 Changes – Salt Brine Production

11

Salt brine produced in house at a cost of \$0.11 / gallon.

The ability to make salt brine in house drove the cost savings of the anti-icing program, and high capacity liquids initiative.

Can be blended with concentrated chemicals, which allows us to customize liquid materials for “storm specific” applications.

- Using only what is needed saves money





Year 1 Changes – High flow pre-wetting systems

By increasing liquids and decreasing rock salt we've reduced the costs of winter maintenance without compromising road conditions.

Rock Salt = \$75.00/ton

Salt Brine = \$0.11/gallon

300 lbs. salt / lane mile + 10 gallons of brine = **\$11.42** per lane mile

200 lbs. salt / lane mile + 30 gallons of brine = **\$7.83** per lane mile





Year 1 Changes – The right tool for the job

13

Purchased an MT Trackless with snow blower, snow broom, plow blade for the 27 miles of sidewalk maintained as part of our winter maintenance plan.

Improved performance by 450%

What used to take 72 hours is now down to 16 hours.



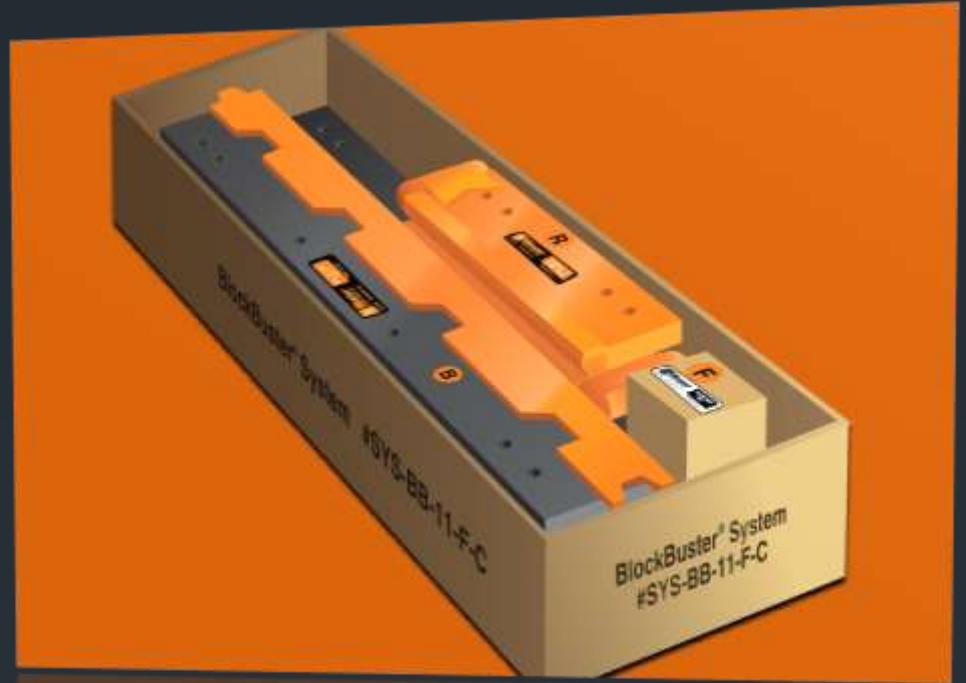


Year 1 Changes – Technology

14

Standardized Carbide cutting edges on all plow equipment

- Eliminated seasonal cutting edge replacement
- Cost savings vs. traditional carbon steel over lifespan
- Eliminated “down time” during snow events





Year 2 Changes – Anti-Icing

15

Purchased 2 anti-icing tank/sprayer for pre-treatment of all Village maintained streets.

- Creates barrier to prevent bonding of snow
- Can be completed in advance of a storm, during normal business hours
- Eliminates call back (at times)





Year 2 Changes – Targeted Equipment Replacement

16

12 ft. nose plow + 10 ft. wing
provides 17 ft. of plow “bite”

33 miles of road @ 32 ft. width
“curb to curb” completed now with
single plow pass in each direction
(66 plowing / driving miles)

vs.

3 plow passes (each direction) at
198 plowing / driving miles with old
equipment

Units were scheduled
replacements, and purpose built
for these routes.





Year 2 Changes – AVL System + Weather Road Data

17

AVL tracking system for primary plow fleet (active & passive reporting)

- Plow up / down
- Material application rates
- Vehicle Speed
- Route status – complete, incomplete

*** Extremely helpful with resident complaint calls. ***

Professional weather service

- Pavement temperature data
- Targeted storm event data & forecast
- Improves response & efficiency
- Assists with storm planning





Our future : in the pipeline...

18

- Finish hydraulic upgrades on fleet: capable of increased liquid flow
- Higher capacity salt brine maker
- Increased liquid storage capacity
- Route Optimization with “in cab” GPS turn by turn directions
- Completion of primary plow fleet replacements
- Training... Training... Training!!!



CONFERENCE



The Process we used for change

19

1. Research
2. Pilot Program Testing
3. Data Collection & Evaluation
4. Cost Benefit Analysis
5. Requests for Equipment/Technology approval
6. Program savings as funding source

Following program changes and implementation, summary reports of program achievement provided to elected officials and senior staff.





Program Performance – the “results”

We track our program efficiency as follows...

Total cost of winter maintenance

/

Total inches of snow

/

Total plowing miles of maintenance

Old Plan = **\$14.67** per inch, per mile

New Plan = **\$13.12** per inch, per mile

\$1.55 per inch per mile less, at an annual savings exceeding \$40,000





What is driving change in your community or agency?

Closing questions and comments

In your community or agency...

- What changes are in progress?
- What challenges are keeping you from making change?
- What drives you to make changes?
- What successes have been driven from changes?
- Are you an agent of change where you are?





Questions?

22

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