Vermont's Experience with AVL in Snow and Ice Control

Snow and ice control is Vermont DOT's highest profile activity

- 250 bright orange plow trucks

- About 100 storm events / year

- More than 1/3 of our Operations budget

Where did all that money and effort go?

(it's a fair question...)

Like many of you, we want to know:

- Where are the trucks?

- Are they plowing?

- How much material (salt) are we putting down in a given spot?

- How much material are we putting down in total? (or on a given road?, or during a given storm?)

- AVL can answer those questions!

- We dabbled a bit, and decided we liked it
- We decided we wanted live (as well as historic) data
  - Although we considered drive-by-download
- We made a three-year plan
  - To do 1/3 of our plow trucks / year
  - Starting with highest priority routes

- Went out to bid
  - We required and tested demo units
  - We required experience integrating with spreader control data
  - We did not want to be tied to one spreader control or chassis vendor
- We got four bids, two more competitive than the others.
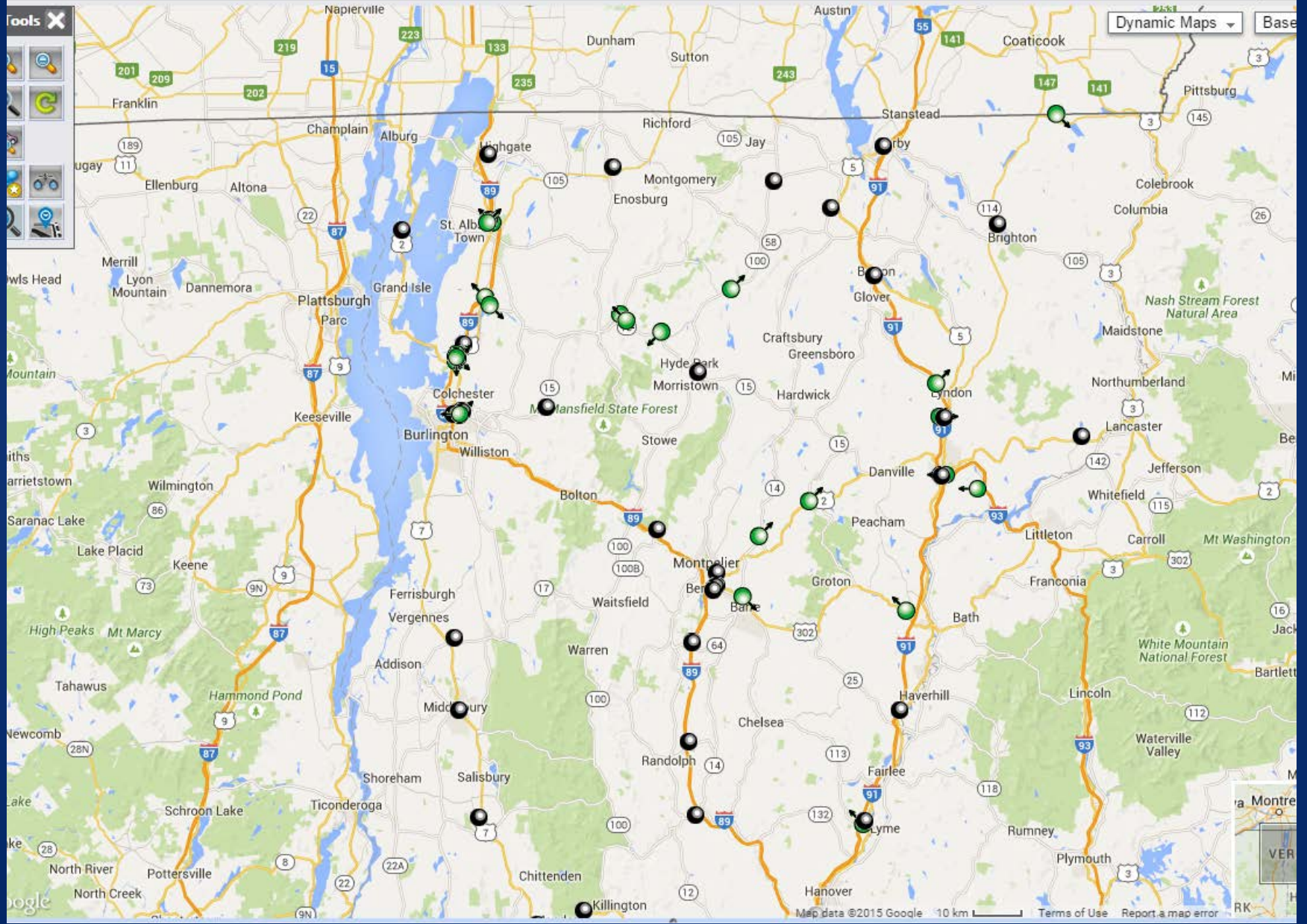- We went with Webtech, with whom we have been very pleased

- We're two years in, and will be doing the remaining installs this summer

- So far, the program has been pretty well received

- Some supervisors are excited about the information (others less so)
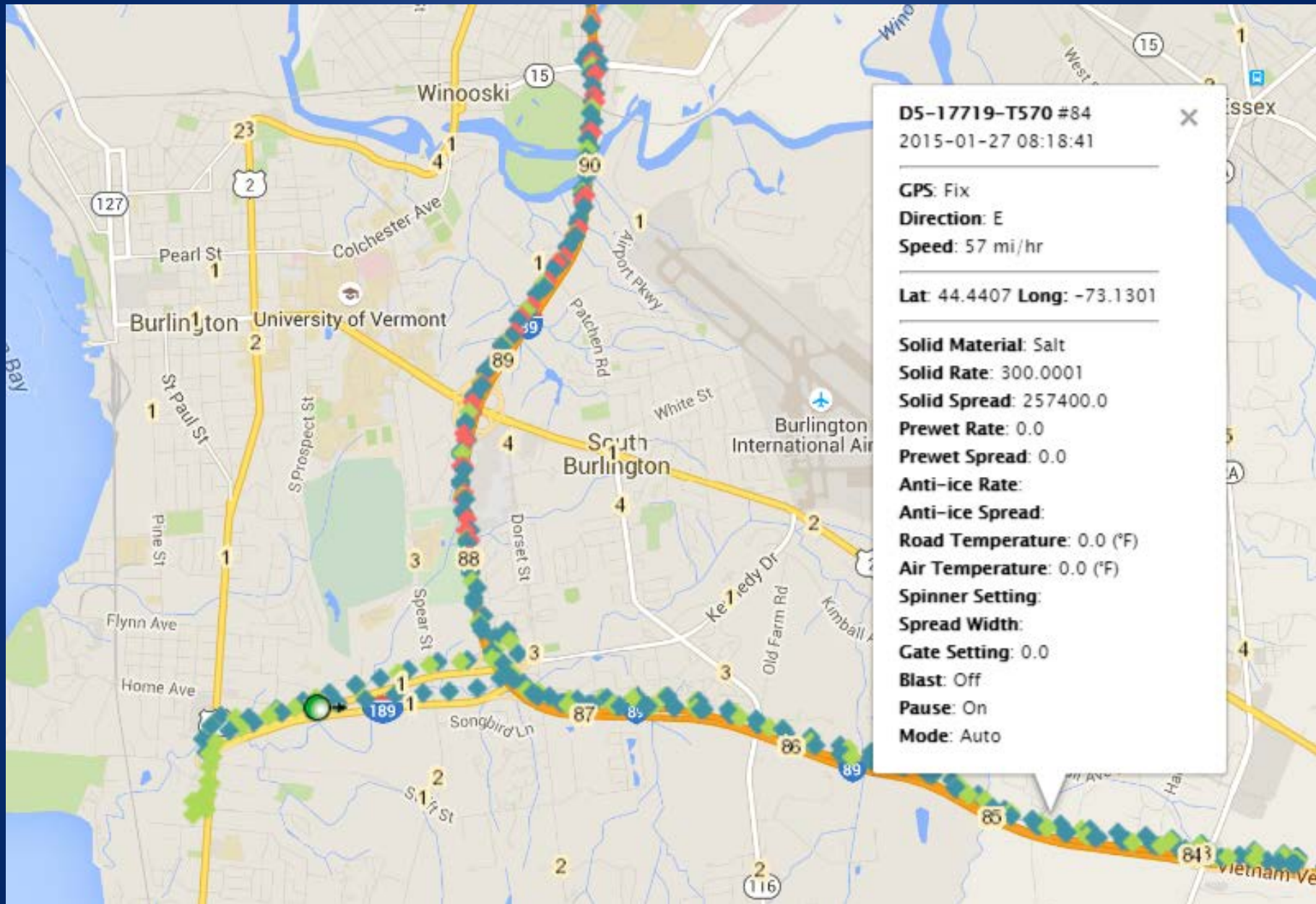
- Little pushback from employees and the union

Costs

- Hardware is about $1100 / truck
  - Including a plow up/down sensor

- $28 / month for data per truck, 10-second updates

Day Based Winter Operations

Vermont

From 01/05/2015 12:00 AM to 01/09/2015 12:00 AM, US/Eastern

| Summary | **Detail** |

Date (MM/DD/YYYY)	Vehicle	Start Time (HH:MM)	End Time (HH:MM)	Material Totals				
				Salt (lbs)	Sand (lbs)	Mix (lbs)	Prewet (Gal)	Anti Ice (Gal)
01/05/2015	D5-16124-T569	12:00 AM	03:15 AM	602	0	0	0	0
01/05/2015	D5-17781_T553	12:00 AM	02:42 PM	0	0	0	0	0
01/05/2015	D8-16095_DJ	12:00 AM	05:33 PM	5,401	0	0	0	0
01/05/2015	D8-17819_CIRUS	12:00 AM	11:20 AM	9,771	0	0	310	0
01/05/2015	D7-17816_St._Johnsbury	12:00 AM	02:20 PM	2,412	0	0	0	0
01/05/2015	D3-17777_DJ	12:00 AM	03:08 PM	13,600	0	0	0	0
01/05/2015	D5-17722-T573	12:01 AM	03:03 PM	8,801	0	0	0	0
01/05/2015	D5-17831_T568	12:01 AM	02:47 AM	0	0	0	0	0
01/05/2015	D5-17847-T559	12:01 AM	02:47 PM	2,361	0	0	0	0
01/05/2015	D1-17803_East_Dorset	12:21 AM	03:55 PM	12,000	0	0	0	0
01/05/2015	D4-16146_Williamstown	01:05 AM	02:07 PM	16,793	0	0	0	0
01/05/2015	D2-17733_I-91_Dummerston	01:27 AM	02:04 PM	13,395	0	0	1	0
01/05/2015	D2-16090_I-91_Dummerston	01:36 AM	02:25 PM	13,001	0	0	0	0
01/05/2015	D2-16140_I-91_Dummerston	01:36 AM	02:11 PM	17,004	0	0	56	0
01/05/2015	D2-17776_DJ	01:40 AM	01:36 PM	5,199	0	0	0	0
01/05/2015	D2-17734_I-91_Dummerston	01:41 AM	01:34 PM	15,399	0	0	0	0
01/05/2015	D2-16154_CIRUS	01:43 AM	03:24 PM	19,515	0	0	0	0
01/05/2015	D2-17839_Rockingham	01:52 AM	01:22 PM	19,286	0	0	0	0
01/05/2015	D1-16155_CIRUS	02:02 AM	03:09 PM	6,863	0	0	50	31
01/05/2015	D2-17793_DJ	02:04 AM	02:44 PM	0	0	0	0	0
01/05/2015	D5-17860_T567	02:17 AM	12:52 PM	862	0	0	2	0
01/05/2015	D1-16139_CIRUS	02:21 AM	05:45 PM	4,310	0	0	0	201
01/05/2015	D1-17790_DJ	02:31 AM	03:15 PM	0	0	0	0	0
01/05/2015	D3-16109_Castleton	02:37 AM	02:10 PM	13,415	0	0	14	0
01/05/2015	D3-16153_CIRUS	02:54 AM	02:49 PM	7,050	0	0	0	0

Legend ✕

Maintenance Activities

- Bridge
- Culvert
- Ditching
- Guardrail
- Litter Picking
- Mowing
- Patching
- Signs
- Tree and Brush
- Winter Maintenance
- Other Activities

Is AVL making our winter operations more efficient?

- The jury is still out --- it has significant potential, but at a non-trivial cost

- I'm still encouraged and believe it is part of the evolution towards effective data-driven management

- Good data is a foundation for many applications, some of which we may not have even considered yet

Questions?

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