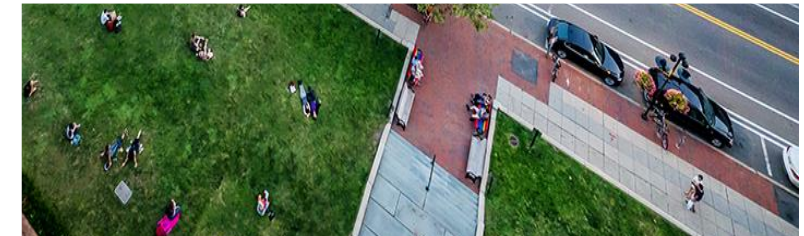


City of Cambridge
Community Development Department

Pedestrian Committee Meeting

October 22, 2020



Meeting Agenda

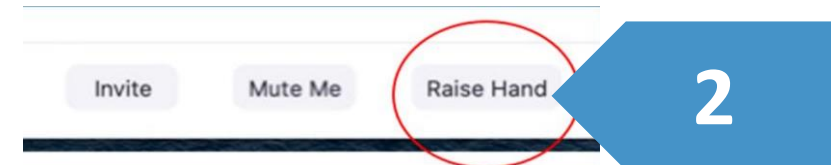
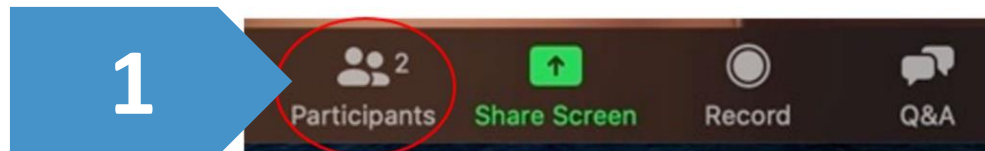
1. Zoom meeting protocols, minutes
2. Snow Operations (DPW)
3. Public Comment
4. Project Updates
5. Development Projects
 1. MIT Volpe Redevelopment
6. Public Comment
7. Subcommittees
8. Other Announcements



Minute taker: Angie Meltsner

Committee Member Instructions

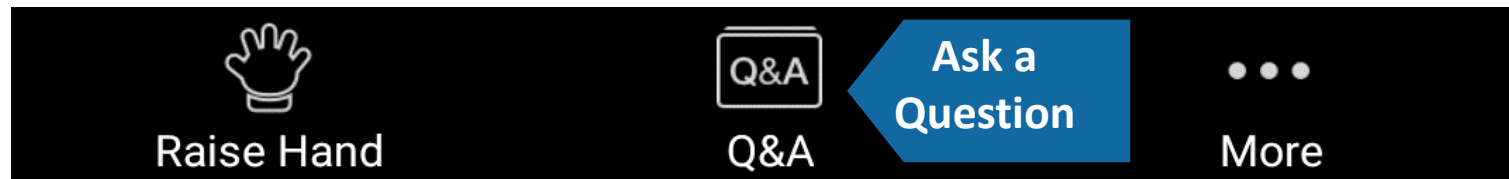
- Committee members may speak and show webcam video
 - Use "Raise Hand" button to help manage discussion
 - *9 to Raise Hand by phone
- Please stay muted unless speaking
 - *6 to mute/unmute by phone



Public Comment Instructions

- Members of the public are muted and cannot show webcam video
- Public can write questions or ask for assistance in Q&A window at any time
 - Questions may be submitted at any time and will be addressed as time allows, during discussion/comment periods
- During the Public Comment period, use the "Raise Hand" button to signal you have a question/comment. A staff member will then enable you to unmute yourself.
 - *9 to Raise Hand by phone
 - *6 to Mute/Unmute by phone
- Please be respectful! Participants will be removed for inappropriate behavior

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Zoom Screen





Minutes



Snow Operations

Brian McLane, *Dept. of Public Works*

A photograph of a snowplow clearing a street in winter. The snowplow is orange and is moving from left to right, pushing a large pile of snow onto the left side of the road. The street is covered in snow, and there are snow-covered trees and bushes in the background. A car is visible in the distance on the right side of the road. The sky is overcast and grey.

Winter Operations

Agenda

- Historic data
- This Years and Past Numbers
- Storm Coordination
- Safety/Accessibility
 - Parking bans
 - School Access
 - Public Transportation
 - Snow Hauling
- Challenges
 - Continuity of Services
 - Dead Ends
 - One-way Streets
 - Handicap Parking
 - Space savers
 - Future snow removal
- Questions

Historical Data

2003	68	6,027		
2004	35	4,774		
2005	87	8,004		
2006	40	5,180		
2007	17	3,162		
2008	51	8,623		
2009	66	10,000		6
2010	36	5,140		2
2011	81	7,889		3
2012	9	1,774		0
2013	63	5,197		1
2014	59	9,075		4
2015	110	9,081		4
2016	38	8,500		0
2017	35	8,750		0
2018	64	8,500		3
2019	46	5,550	11,500	1
2020	22	3,000	0	0
Average	48			

Making a Prediction

- Siberian snow cover (has started to increase already)
- Gulf of Alaska water temperatures
- Arctic Oscillation
- North Atlantic Oscillation
- La Nina/El Nino
- Madden Julian Oscillation (MJO)

The Basics

- Maintain over 210 lane miles of roadway, 23 miles of sidewalks and 2.5 miles of bike lanes
- Fleet consists of
 - 12 Large Salters (5 YD)
 - 2 Large Brine Trucks
 - 1 Small Brine Truck
 - 5 small Salters (2 YD)
 - 8 Holder Tractors
 - 1 Mini Salter (Colorado)
 - 50 Snow Plows
 - 125 Contractor Pieces

Salt Usage

- Use approximately
- 4-8,000 tons of salt a season
- City using treated salt this year
- Salt Brine
 - Brine Usage (estimated.)
 - 100,000 gallons brine
 - 25,000 gallons of carb.

Brine VS. Salt

Brine

- Salt Brine is a mixture of water and salt. The mixture has a salinity of 23.3%
- Brine lowers the freezing point of water.
- Chemical reaction is all ready taking place to breakdown snow and ice.
- Additives can be used to further lower freezing point
- Sticks and coats roadway prior to an event.
- Quicker Melting in a pre-wetting application

Salt

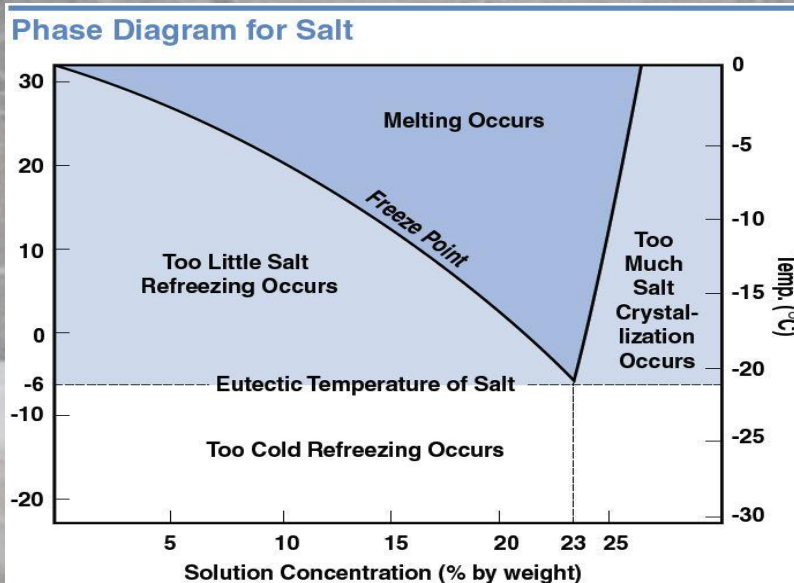
- Typically a granular product that can be treated with an additive
- Chemical reaction can not take place until liquid touches the salt granular.
- Bounces off roadway during pretreatment-post storm activities.
 - A study in Germany found that only 20% of dry material for pre-treatment stayed on the roadway after 100 vehicles passed
 - Nearly 30% of dry material bounced off roadway
- Can be used with brine to achieve less waste from bouncing.
- Uses a top down approach to melt snow pack
 - De-icing can result in a 60-90% increase in Chloride loading in waterways

Trivia-What state was the first to use salt, and what year.

New Hampshire-1941

Prior to that sand and cinders were primarily used.

Basic Brine



- Using additives such as $MgCl_2$ or $CaCl_2$, or carbohydrates will further decrease the freezing point of the brine.

% of NaCl by Weight	Spec. Gravity 15° C - 59° F	Freeze Point °C	Freeze Point °F
0	1.000	0.00	32.0
1	1.007	-0.58	31.0
2	1.014	-1.13	30.0
3	1.021	-1.72	28.9
4	1.028	-2.35	27.8
5	1.035	-2.97	26.7
6	1.043	-3.63	25.5
7	1.051	-4.32	24.2
8	1.069	-5.03	22.9
9	1.027	-5.77	21.6
10	1.074	-6.54	20.2
11	1.082	-7.34	18.8
12	1.089	-8.17	17.3
13	1.097	-9.03	15.7
14	1.104	-9.94	14.1
15	1.112	-10.88	12.4
16	1.119	-11.90	10.6
17	1.127	-12.93	8.7
18	1.135	-14.03	6.7
19	1.143	-15.21	4.6
20	1.152	-16.46	2.4
21	1.159	-17.78	0.0
22	1.168	-19.19	-2.5
23	1.176	-20.69	-5.2
23.3 (E)	1.179	-21.13	-6.0
24	1.184	-17.00	-1.4
25	1.193	-10.40	13.3

Freezing point of salt brine

Storm Coordination

A background image of a snowy street scene. In the foreground, there are large mounds of snow on the sides of the road. Several cars are driving on the snow-covered street, with their headlights on. In the background, there are bare trees and multi-story brick buildings. The overall atmosphere is overcast and wintry.

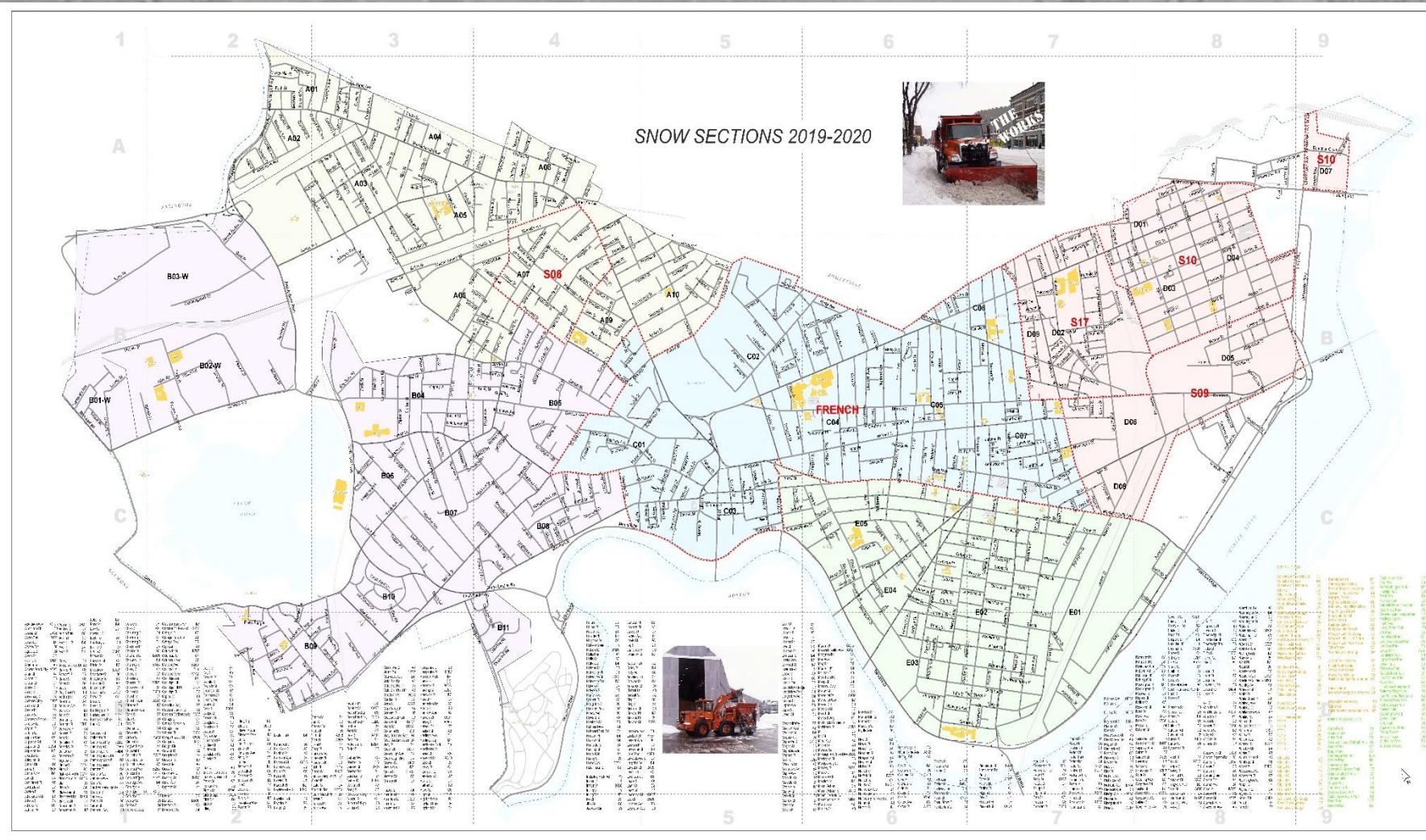
- Public Works
- City Managers Office
- Traffic Parking & Transportation
- Police
- School Department
- Human Services
- Water
- Fire/Emergency Management
- Electrical
- Inspectional Services
- Emergency Communications

Snow Operation

- 210 lane miles
- 2.5 miles of protected bike lanes
- 23 miles of City-Cleared Sidewalks/ Curb Ramps
- Abutting schools, public buildings, public open space
- City-owned parking lots and garages
- Residential exemption program



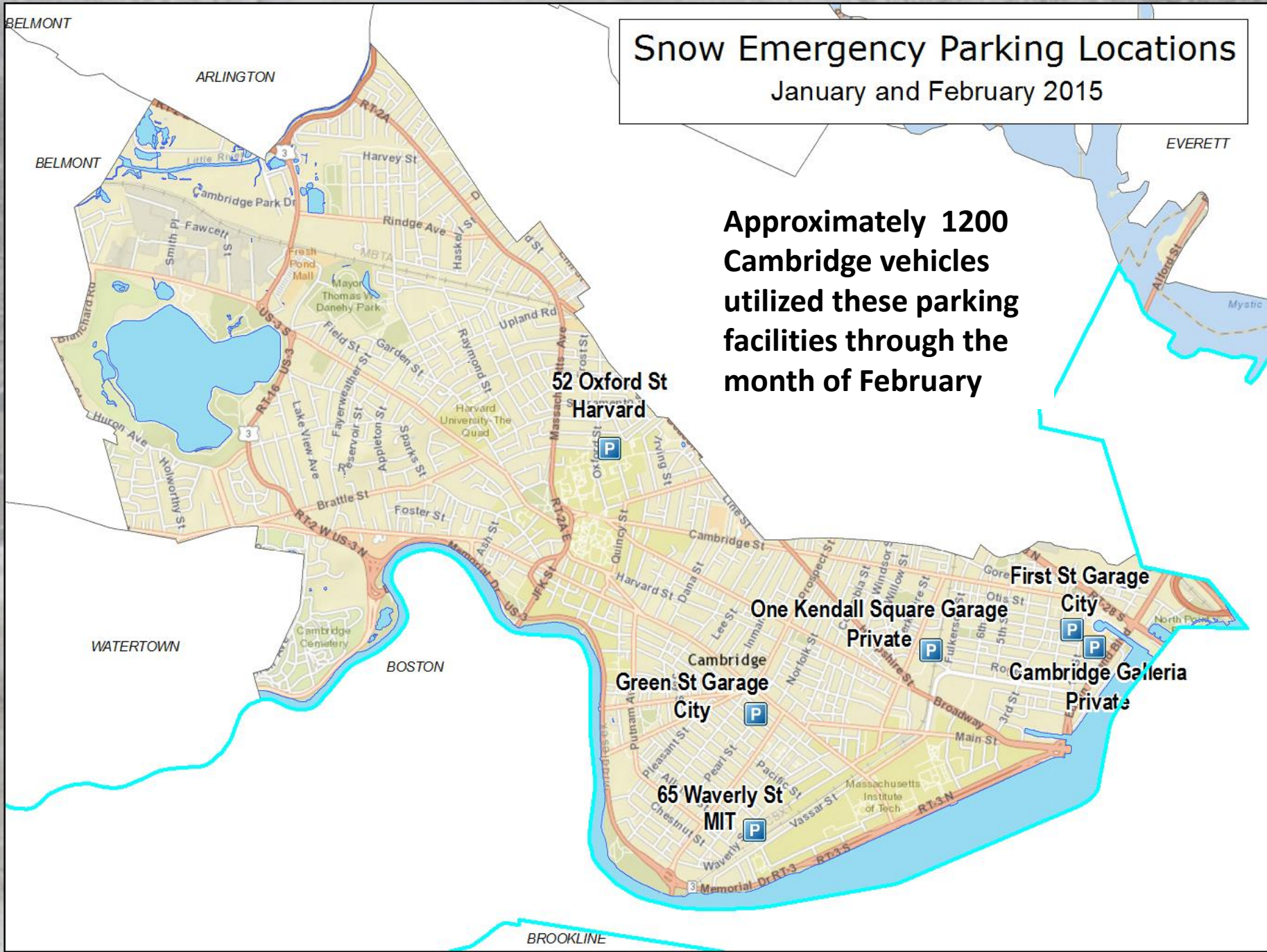
City of Cambridge



Snow Emergency Parking Locations

January and February 2015

**Approximately 1200
Cambridge vehicles
utilized these parking
facilities through the
month of February**



School Accessibility



Bus Stops & Crosswalks Cleared by Cambridge DPW During Significant Snow Events





Snow Hauling



Challenges

- Continuity of Services
- Dead Ends
- One-way Streets
- Handicap Parking
- Space savers
- Future snow removal





Winter 2015

110"

MAJOR EVENTS

- Jan 27-Jan 28 - 24.6"
- Feb 2 –Feb 3 - 16.2"
- Feb 7-Feb 10 - 18.3"
- Feb 14-Feb 15 -16.2"

Almost 75" in a 3 week period

Average Temperature in Jan – 26°

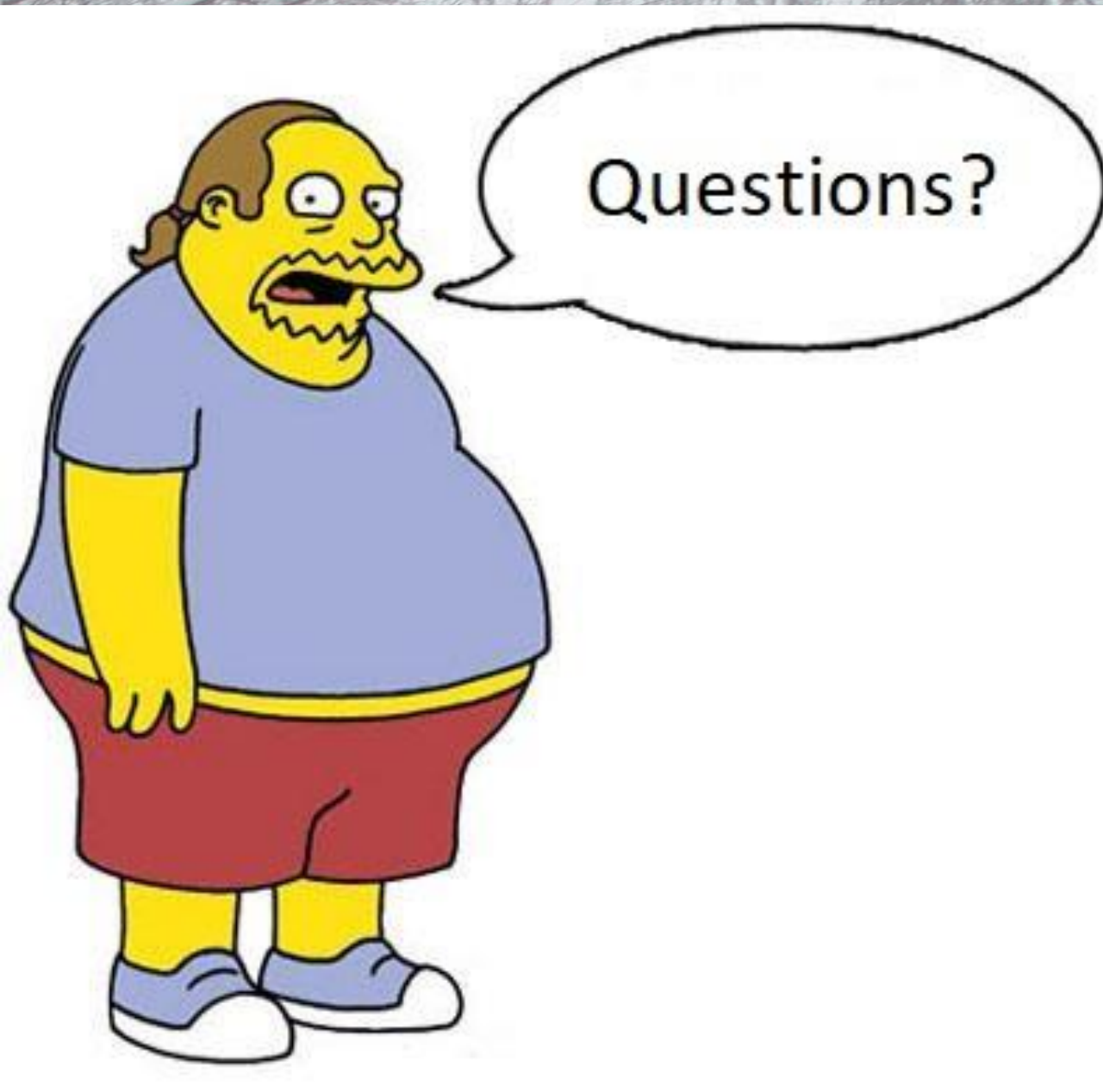
Average Temperature in Feb – 19°

There were **34** Storms in total that DPW responded to this season

4 Emergency Parking Bans

6 No school days

Overtime/Comp Hours worked specific to snow this season: **26,307.75 Hrs**



Questions?

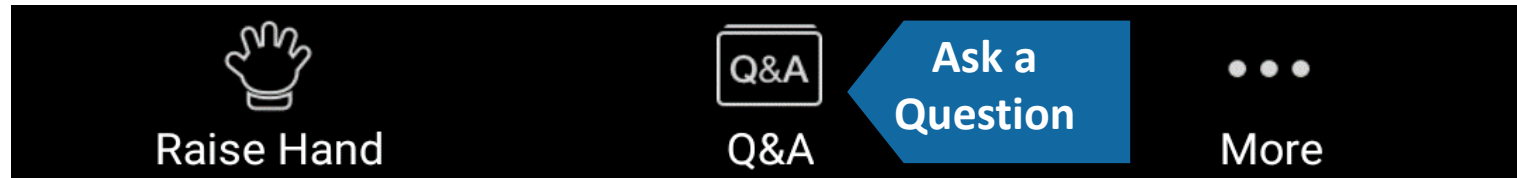


Public comment

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City Project Updates



Development Projects



MIT Volpe Redevelopment

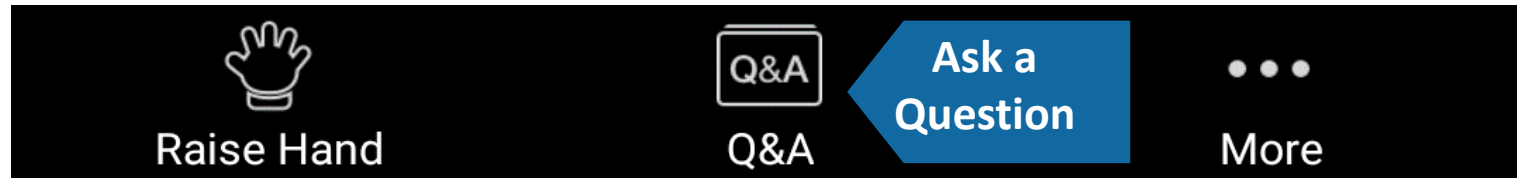


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Subcommittee Work



Other Announcements



Thank You