

CITY OF TORRINGTON

PUBLIC WORKS DEPARTMENT

WINTER OPERATIONS PLAN



This is the first Winter Operations Plan for the City of Torrington

This document is not meant to be read cover to cover, it is a single, all inclusive depository for all Winter Operations information. It is a reference guide for City leaders, supervisors and field staff.

Public Works Superintendent William Mayers

Public Works Assistant Superintendent Timothy Cote

10/01/2020 10:39 AM
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TORRINGTON TOWN CLERK

PURPOSE OF THE WINTER OPERATIONS PLAN

This winter operations plan sets out a policy and procedural framework for ensuring that The City of Torrington continuously improves on the safe and sustainable delivery of winter maintenance services and the effective and efficient use of road salt in their winter maintenance operations. The plan is meant to be dynamic, to allow the City to evaluate and phase-in any changes, new approaches and technologies in winter maintenance activities in a fiscally sound manner. At the same time, any modifications to City winter maintenance activities must ensure that roadway safety is not compromised.

WINTER EXPENSES

Materials	\$460,000
OT Labor	\$240,000
Fuel (Nov –Mar)	\$50,000
Equipment Repairs (Nov-Mar)	<u>\$200,000</u>
Total	\$950,000

* Not including the capitol expense of acquiring the equipment

DEFINITIONS

Road Classification

- **Arterial:** Generally, arterial roads are maintained by the State. They include interstate and major highways.
- **Primary:** Are high traffic municipal roads that connect to Arterial roads. They may also be associated with the location of other municipal first response location such as Fire or Police. Additionally they may be associated with important geographic locations such as major bridges.
- **Secondary:** Are lower traffic roads that connect Local roads to Primary roads.
- **Local:** Are low traffic roads that may or may not have dead ends. These roads bring residential and business districts to Secondary or Primary roads.

DEFINITIONS

Storm accumulation vs storm duration & storm frequency

- ***Accumulation:*** is the amount of precipitation that falls in a given storm
- ***Duration:*** is the amount of time over which precipitation falls
- ***Frequency:*** references the time between storms

THE NETWORK SERVICED

Road Category	Total length of Roads in lane miles
Primary	99
Secondary	178
Local	58
Total Road Length	335

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Total Road Length	335
Total Length of Sidewalks in miles	
Sidewalk	3.5

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Total Acres of Parking Lot	
Parking Lot	12

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- A Nor'easter can last 30 or more hours leading to driver shifts exceeding 36 hours with clean up

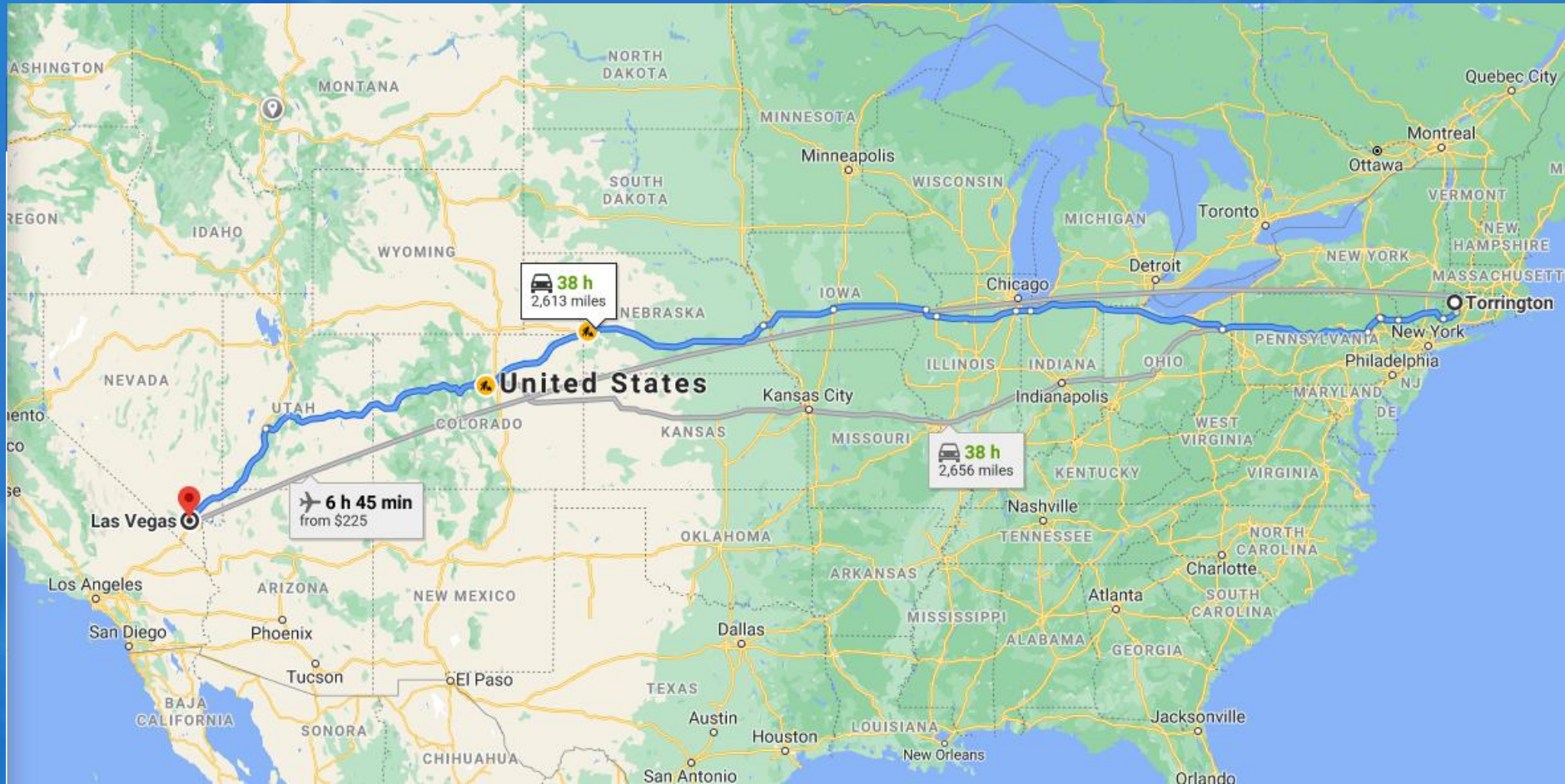
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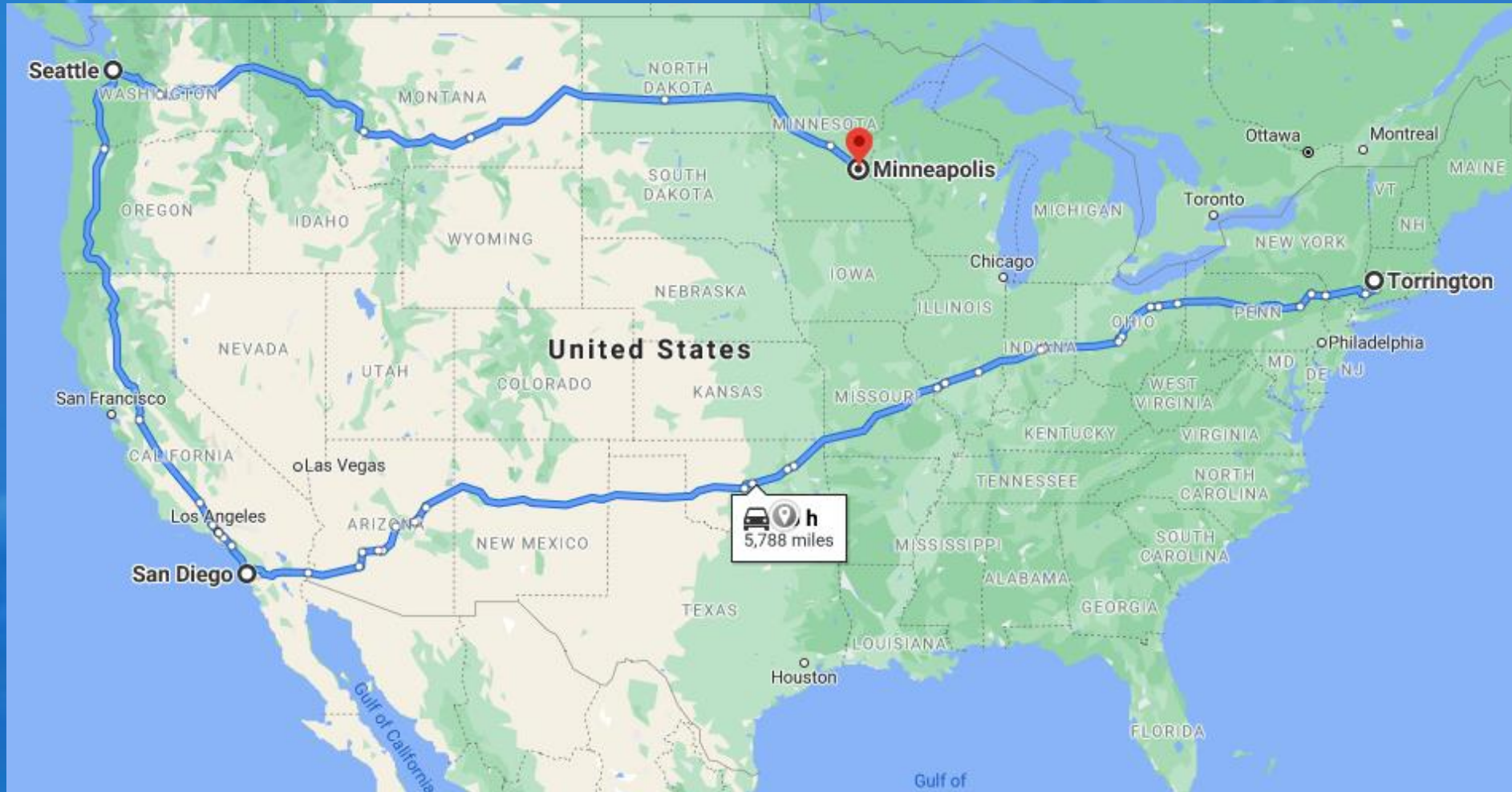
QUICK STATS

Last year our fleet
drove **5,800** miles
during the 12/1 to 12/3
Nor'easter



QUICK STATS

Last year our fleet drove an 5800 miles during the 12/1 to 12/3 Nor'easter



LEVEL OF SERVICE

Total accumulation for Event					
Road Class	-1"	1" to 3"	3" to 4"	4" to 5"	6" plus
Time frame in hours to achieve safe condition after storm ends					
Primary	3 Hrs.	5 Hrs.	5 Hrs.	5 Hrs.	7 Hrs.
Secondary	4 Hrs.	6 Hrs.	7 Hrs.	8 Hrs.	10 Hrs.
Local	5 Hrs.	7 Hrs.	8 Hrs.	9 Hrs.	12 Hrs.

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Parking Lot	1 Hr. After Streets	3 Hrs. After Streets	4 Hrs. After Streets	5 Hrs. After Streets	6 Hrs. After Streets
Sidewalk	3 Hrs. After Streets	6 Hrs. After Streets	9 Hrs. After Streets	12 Hrs. After Streets	12 Hrs. After Streets

List of Equipment

			Spreader Type			Discharge		
Veh. ID	Vehicle Desc.	Year	Man	Spd	Adm	R	F	Assoc. Routes
S003PU	Foreman Truck	2013						Eastside
S005PU	Foreman Truck	2015						Westside
S008LD	Large 6 wheel PT	2017		x		x		Lower Burrville
S009SD	Small 6 wheel PT	2005		x			x	South End
S010LD	Large 6 wheel PT	2010	x				x	Upper Burrville
S011LD	Large 6 wheel PT	2005	x				x	Hospital Hill
S012LD	Large 6 wheel PT	2005	x				x	Torrington E.
S015LD	Large 6 wheel PT	2005	x				x	Red Mt./ E. Main
S016LD	Large 6 wheel PT	2005	x				x	Wind Tree
SO17LD	Large 6 wheel 4X4	2010		x			x	Mt. Road
S019TA	Tandem Axel PT	2012		x			x	Brandy Hill
S022TA	Tandem Axel PT	2013		x			x	Newfield Road
S023LD	Large 6 wheel 4X4	2013		x		x		Highland Av.
S024LD	Large 6 wheel PT	2000	x			x		All
S025SD	Small 6 wheel PT	2006		x			x	North End
S026SD	Small 6 wheel PT	2006		x			x	Downtown

			Spreader Type			Discharge		
Veh. ID	Vehicle Desc.	Year	Man	Spd	Adm	R	F	Assoc. Routes
S028LD	Large 6 wheel PT	2015		x			x	Nutmeg Village
S029LD	Large 6 wheel PT	2019	x			x		Newbury Corners
S030LD	Large 6 wheel PT	2019	x			x		Clearview Av.
S032LD	Large 6 wheel PT	2002	x			x		Riverside Av.
S036LD	Large 6 wheel PT	2002	x			x		Winthrop St
S037LD	Large 6 wheel PT	2002	x			x		Laurel St.
S040PL	Articulate Loader	1999						Arthur Ave Yard
S043PL	Articulate Loader	2017						Arthur Ave Yard
S753BC	Skid Loader	1995						Sidewalks & Parking
P1507SD	Small 6 wheel PT	2019	x			x		Sidewalks & Parking
P1515PU	Pickup PT	2019						Sidewalks & Parking
P001PU	Pickup PT	2009						Sidewalks & Parking
P002MD	Medium 6 wheel PT	2012	x			x		Sidewalks & Parking
P003PU	Pickup PT	2011	x			x		Sidewalks & Parking
P007UT	Holder Utility Veh	2010	x			x		Sidewalks & Parking
P009UT	Kubota Utility Veh	2015						Sidewalks & Parking
Average age of the fleet in years is:		9.47						

STAFFING

- 335 Lane miles of road are broken down into 19 plow routes requires 19 drivers 1 loader operator and 2 Foreman who oversee operations broken down to the East & West Side of the City.
- The Foreman also drive pickups with plows and clean up limited access spots

Employee Description	# Required
Drivers (Street)	19
Loader Operator	1
Foreman (Street)	2

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Welder	1

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- Additionally we use a dispatcher to field the high call volume during storm events.
- A separate, overlapping crew is used to clean up parking lots & sidewalks.

Employee Description	# Required
Drivers (Street)	19
Loader Operator	1
Foreman (Street)	2
Heavy Equipment Mechanics	2
Welder	1
Dispatcher	1
Drivers (Parks)	2
Shovel Laborers (Parks)	3
Foreman (Parks)	1
Total	32

MATERIAL APPLICATION

Minimum and Maximum Ranges (Pounds per lane mile)			
	32.0 to 23.0 Fahrenheit	23.0 to 14.0 Fahrenheit	14.0 to -4.0 Fahrenheit
Frost	75 - 180	180 - 210	210 - 250
Light Snow	120 - 180	180 - 210	210 - 250
Heavy Snow	115 - 230	230 - 300	300 - 350
Freezing Rain	150 - 250	250 - 300	300 - 400

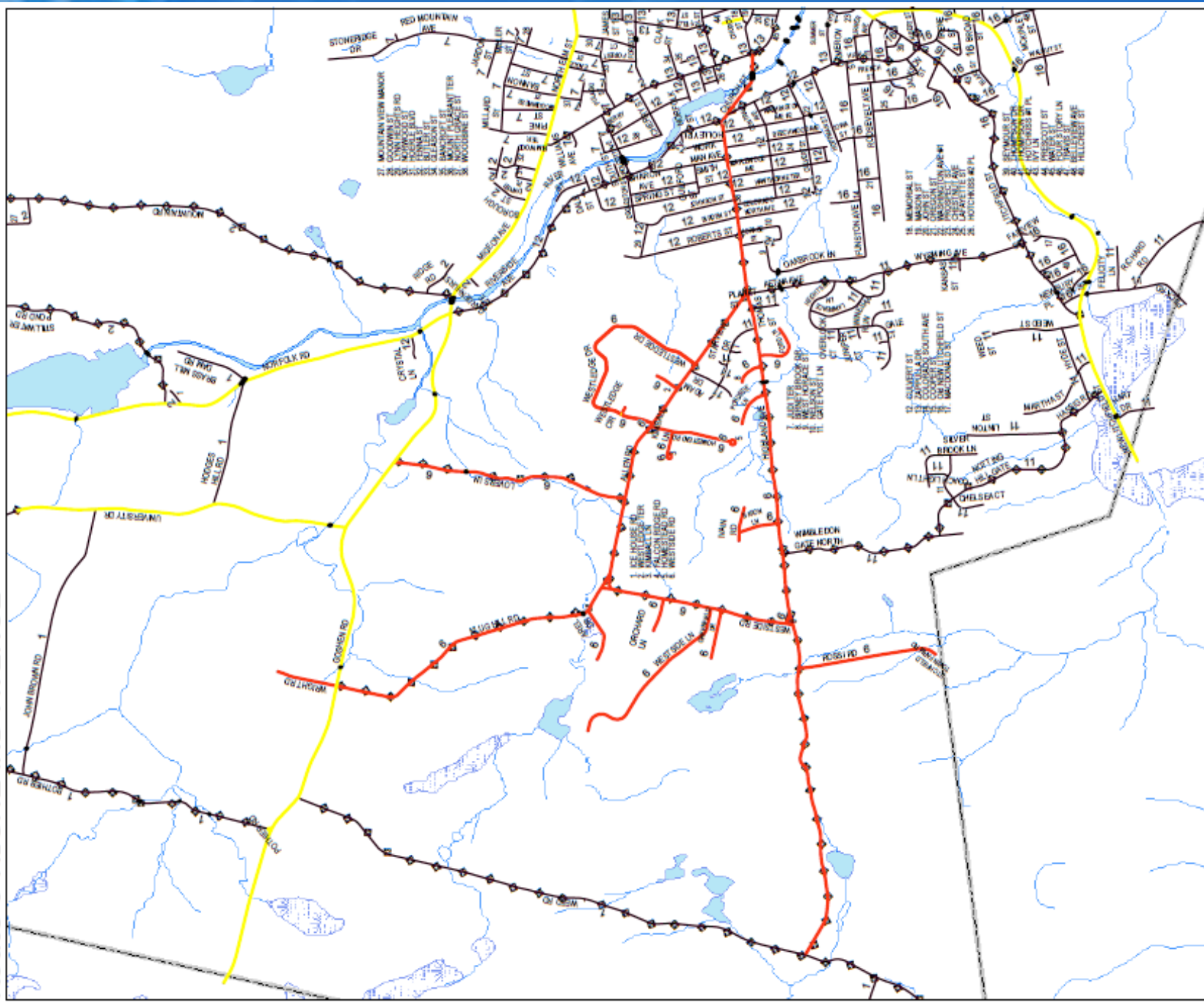
06 Highland Ave. (Truck # 23)

Road	Seq	Miles	Type
CHURCH ST. - FROM WATER ST. TO HIGHLAND AVE.	1	0.3	Primary
HIGHLAND AVE.	2	3.04	Primary
TOWN FARM RD.	3	0.12	Secondary
FORD LA.	4	0.2	Local
GREENFIELD DR.	5	0.2	Local
WESTSIDE LA.	6	0.7	Primary
ORCHARD RD.	7	0.14	Local
BARON LA.	8	0.14	Local
IVAN RD.	9	0.12	Local
BIRNEY BROOK DR.	10	0.11	Local
ALLEN RD.	11	1.18	Primary
WESTLEDGE DR.	12	0.87	Secondary
WESTLEDGE TERR.	13	0.11	Local
HOMESTEAD RD.	14	0.31	Secondary
KIMBALL LA.	15	0.1	Local
LOVERS LANE RD.	16	0.84	Primary
AREL DR.	17	0.19	Local
KLUG HILL RD.	18	1.07	Primary
WRIGHT RD.	19	0.19	Local
PONDSIDE LA.	20	0.16	Local
WESTLEDGE CIRCLE	21	0.05	Local
ROSSI RD.	22	0.51	Secondary
WESTSIDE RD.	23	0.68	Secondary

Winter Street Maintenance

Route 6 HIGHLAND AVENUE

ROUTE 6



3,000
Feet

- State Roads/Highways
- Bridge
- Streets
- Selected Route Maintenance Responsibility
- Primary Roads

City of Torrington Public Works
Street Department

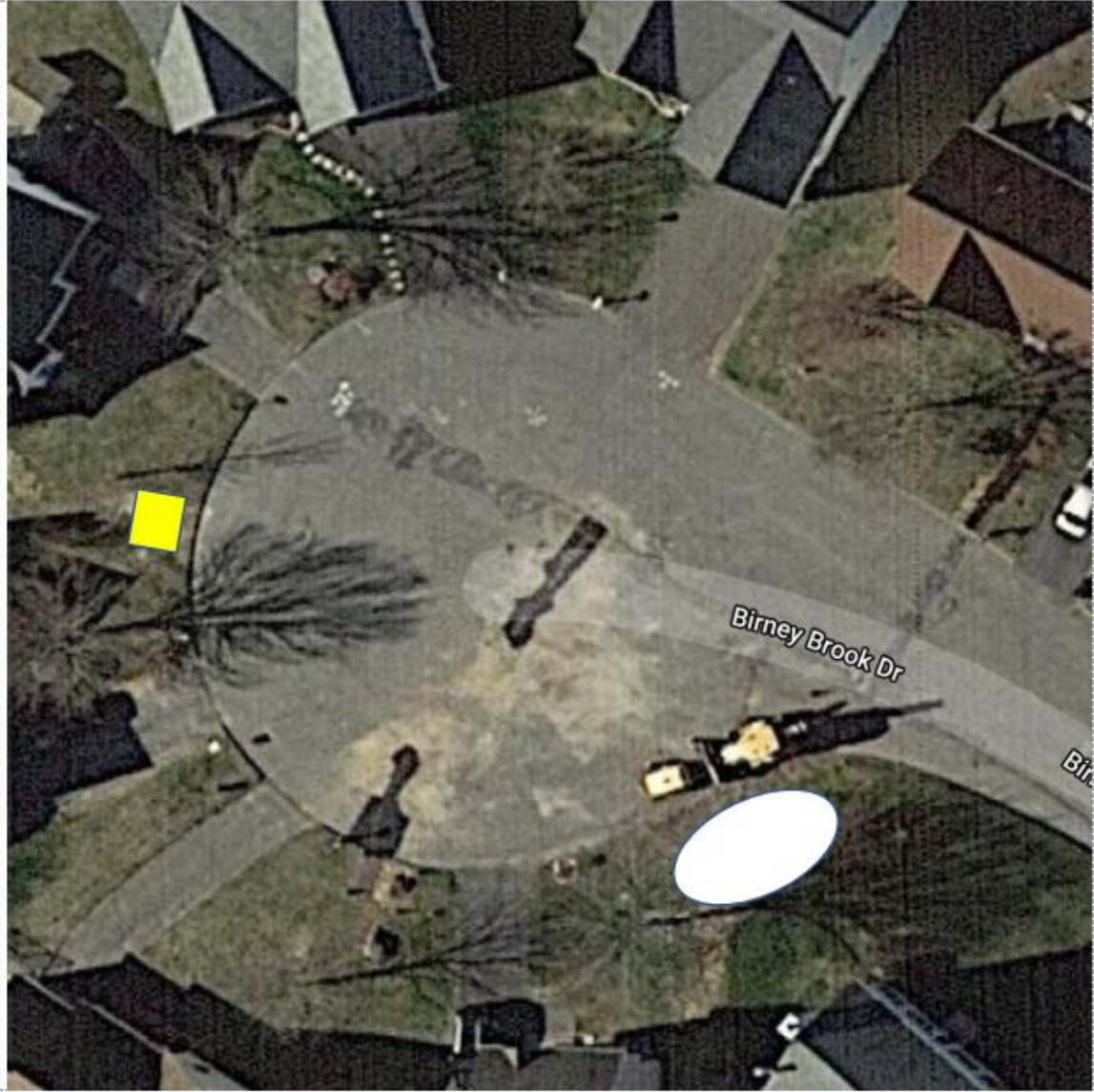
2019



Street End Type	Street Name	Route
Cul-de-sac	BIRNEY BROOK DR	06 - Highland Ave
Cul-de-sac	FORD LN	06 - Highland Ave
Cul-de-sac	GREENFIELD DR	06 - Highland Ave
Cul-de-sac	HOMESTEAD RD	06 - Highland Ave
Cul-de-sac	KIMBALL LN	06 - Highland Ave
Cul-de-sac	PONDSIDE LN	06 - Highland Ave
Cul-de-sac	WESTLEDGE CIR	06 - Highland Ave
Cul-de-sac	WESTLEDGE TER	06 - Highland Ave
Cul-de-sac	WESTSIDE LN	06 - Highland Ave
Dead End	AREL DR	06 - Highland Ave
Dead End	IVAIN RD	06 - Highland Ave
Dead End	ORCHARD LN	06 - Highland Ave
Dead End	WRIGHT RD	06 - Highland Ave

Street Name	Route	End Type
Birney Brook Drive	06 – Highland Ave	Cul-de-Sac

Notes: Stack snow in white area. Caution utilities in yellow area.



Street Name	Route	End Type
Ford Lane	06 – Highland Ave	Cul-de-Sac

Notes: Stack snow in white area. Keep catch basin in red area clear.



Location	Activity	Neighborhood	ID	Equip	Priority
Coe Pl.	Hand	Center	S13	Blowers	A
Franklin Plaza (Future)	Hand	Center	S25	Blowers	A
Armory (Ramps)	Hand	Center	S12	Blowers	A
Winthrop St.(Poles)	Hand	East	S59	Blowers	A
City Hall (Muni. Walks)	Hand	Center	P13	Blowers	A
High St.	Hand	West	B23	Blowers	B
Veterans Building	Hand	Center	S13	Blowers	B
Prospect St. (Poles)	Hand	Center	S32	Blowers	B
Laurel Hill (Guardrail)	Hand	East	B14	Blowers	B
Pearl St.(Traff. Box)	Hand	West	B14	Blowers	B
Church St.(Poles)	Hand	West	S10	Blowers	B
East Pearl (2 bridges)	Hand	North	B15,16	Blowers	B
Willow St. (Pole)	Hand	South	S52	Blowers	B
Forest St.	Hand	West	B38	Blowers	C
Forest St.	Hand	West	B39	Blowers	C
Rec. Hall (Steps)	Hand	Center	P18	Blowers	C
Oak Ave.(School)	Hand	South	S64	Blowers	C
Coe Park (Steps)	Hand	Center	B27	Blowers	C
Franklin Dr. (Pole)	Hand	Center	B20	Blowers	C
Franklin Dr.(Pole)	Hand	South	S66	Blowers	C
Brightwood Ave.	Hand	South	B03	Blowers	C
Brightwood Ave.	Hand	South	B04	Blowers	C
Winthrop St. (Stor. Boxes)	Hand	South	P25	Blowers	D
Amherst St.	Plowing and Salt with Holder	East	S01	Holder	A
City Hall	Plowing and Salt with Holder	Center	S11	Holder	A
East Elm St.(PD)	Plowing and Salt with Holder	East	S16	Holder	A
East Elm St. (Twin Colony)	Plowing and Salt with Holder	East	S21	Holder	B
North Elm (At Muni Lot)	Plowing and Salt with Holder	West	P17	Holder	A
Winthrop St.	Plowing and Salt with Holder	East	S53	Holder	A
Winthrop St.	Plowing and Salt with Holder	East	S54	Holder	A
Winthrop St.	Plowing and Salt with Holder	East	S55	Holder	A
Winthrop St.	Plowing and Salt with Holder	East	S56	Holder	A
Winthrop St.	Plowing and Salt with Holder	East	S57	Holder	A
Winthrop St.	Plowing and Salt with Holder	East	S58	Holder	A
Winthrop St.	Plowing and Salt with Holder	East	S59	Holder	A
Church St.	Plowing and Salt with Holder	West	B09	Holder	B

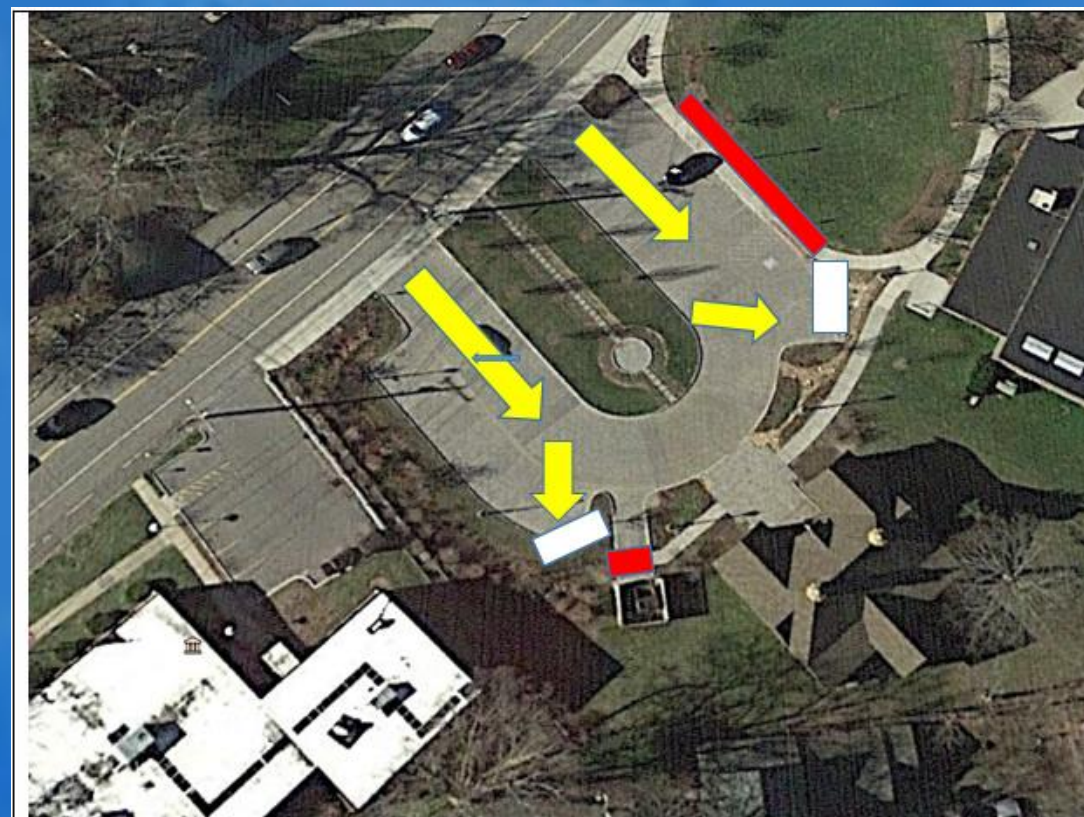
Our crew provides winter operations at over 125 other locations including:

- 3.5 miles of sidewalk
- 12 acres of parking lot at 25 locations
- 40 Bridge Sidewalks



ALWAYS PLOW ALL THE WAY TO CURBS. NEVER PUSH SNOW TOWARDS RED BOXES. TORRINGTON FIRE DEPARTMENT WATER STREET

We have documented the best practice for winter operations on all City parking lots



COE MEMORIAL. PLOW AS MUCH TO THE LOWSIDE AS POSSIBLE. DO NOT PILE TOWARDS RED BOX

OTHER INFORMATION

- Extensive check list of things to be done preparing for the winter
- Personnel roster with associated equipment & route
- Snow disposal locations
- Salt vulnerable areas
- Weather monitoring
- AVL System
- Communications

OTHER INFORMATION

- Call out procedures
- Parking bans
- Crew training & record keeping
- Decommissioning check list for the end of the season
- A large appendix section that includes route maps
- Forms
- Standard replies to common winter issues
- Miscellaneous Standard Operating Procedures

SUMMARY

- We do comprehend the fiscal challenges facing the City of Torrington and the staffing reductions that has caused
- We are adequately prepared for moderate to ordinary winters
- A winter with 3 or 4 events of 30 plus hour durations combined with weekly storm frequency will be challenging
- Services will be prioritized as indicated in the table 2 in the Winter Operations Plan

Total accumulation for Event					
Road Class	-1"	1" to 3"	3" to 4"	4" to 5"	6" plus
Time frame in hours to achieve safe condition after storm ends					
Primary	3 Hrs.	5 Hrs.	5 Hrs.	5 Hrs.	7 Hrs.
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Sidewalk	3 Hrs.	6 Hrs.	9 Hrs.	12 Hrs.	12 Hrs.

Thank You

My contact info

- bill_mayers@torringtonct.org
- (860) 489-2352

Training & Record Keeping	Job Class						
	Admin	Dispatcher	Foreman	Crew Leaders	Operators	Drivers	Mechanics
Equipment Circle Check			x	x	x	x	x
Equipment Calibration			x	x			x
Level of Service – policies, practices and procedures	x	x	x	x	x	x	x
Identification of Plow Routes – including variations for year to year and issues identified on route	x	x	x	x	x	x	x
De-icing chemicals – application procedures, rates, storage and handling	x		x	x	x	x	x
Identification of vulnerable areas	x	x	x	x	x	x	x
Yard and Equipment maintenance			x	x	x		
Accident Procedures	x	x	x	x	x	x	x
Uniform Replies Related to Winter Work	x	x	x	x			
Use of AVL System	x	x	x				
Use of Automated call in system	x	x	x				
Use of work order system	x	x	x	x	x	x	x
City of Torrington General Policies & Procedures	x	x	x	x	x	x	x
Material Count Sheet			x	x	x		
Storm Reports	x	x	x				
Winter Cost Summary Report	x	x					
Spot Events Reports	x	x	x				
Uniform Road Condition Training	x	x	x	x			
After Hours Emergency Service Policy Training	x	x	x	x			
Winter Patrol Policy	x	x	x	x	x	x	
Plow Routes & Patrol Routes	x	x	x	x	x	x	x
Foreman Report		x	x	x	x	x	
Training Sign in Sheet	x						
Truck Wash Tracking	x				x	x	

Road is bare



Bare includes:

1. Bare and dry: most of the road surface is bare.
2. Bare and wet: most of the road surface is moist.

Road is Partly covered



Partly covered includes:

1. Partly covered: the road lane is bare approximately 10 to 12 foot wide with snow or ice on the gutters and or centerline.
2. Partly icy: two wheels on bare surface and other wheels likely on ice.
3. Partly snow covered: two wheels on bare surface and other wheels likely on loose snow.
4. Partly snow packed: two wheels on bare surface and other wheels likely on snow bonded with the road.

Road is covered



Covered includes:

1. Snow covered: all wheels are on loose snow.
2. Snow packed: all wheels are on snow bonded to the road.
3. Icy: all wheels are on ice.

Consistency

Road Condition Reporting

Issue: Driveway and/or Sidewalk Covered with Snow

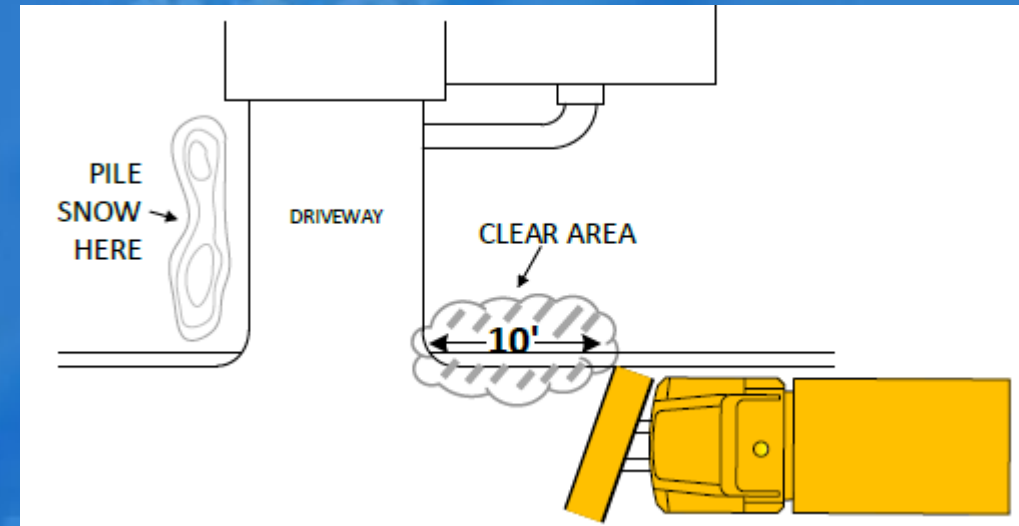
The primary goal of plowing is to remove snow from streets so that the road is open to vehicular traffic. Plowing pushes snow to the side from the middle of the street, and unfortunately, this results in snow piling up in front of driveways and sidewalks. Snowplow operators do not place snow in driveways and sidewalks on purpose. There is no practical way for the snowplow operator to cut off the windrow of snow when crossing a driveway. This problem is especially acute in cul-de-sacs because of the lack of space. In addition, the driver cannot stop or raise the plow at each driveway, as this would leave a pile of snow in the roadway.

One thing you can do to reduce the amount of snow that is plowed in front of your driveway is to place as much of the snow as possible to the right side of your drive as you face the street. (See illustration below) This will place the snow in a spot where the plow will not push it back in on your driveway. It is also best to blow or shovel snow into yard space when available. Unfortunately, in many areas throughout the city, the snow shelf is either nonexistent or not large enough to store the volume of snow that must be discharged off the road. (The snow shelf is defined as the area between the gutter and sidewalk) Snow placed in the road adds to the volume of snow that is pushed toward the gutter, and your driveway and/or sidewalk.

Residents may wish to wait until the plow has been through their road prior to cleaning their driveway, mailbox and sidewalk area. This is generally about 6 hours after the precipitation stops. This practice would help to mitigate the need to re-plow or re-shovel. If drifting or more snow occurs the plows may have to make multiple passes on a road at a later time to keep the road clear. It is also best to not park cars in front of your home, as the plows will eventually plow the excess snow left around them when the car moves. Please remember that the clearing of driveway, mailbox and sidewalk areas is the responsibility of the resident. Elderly or disabled residents may wish to contact their yard maintenance contractor for help.

Consistency

Uniform Replies to common winter issues



Standard Operating Procedures



City of Torrington Mailbox Repair/Replace Procedures

The purpose of this document is to set out the policy and Standard Operating Procedure (SOP) for mailbox repair and replacement issues **within the City of Torrington**. This plan is meant to be dynamic, and allow the City to evaluate and phase-in any changes or new approaches in a fiscally sound manner. It is not meant to address every possible situation. This document is NOT a replacement for the contract between the City and contractor.

Mailbox Repair/Replace Issue Types

- I. Improperly Installed Mailbox
- II. Mailbox in serviceable condition
- III. Mail box struck by plow
 - a. Replace
 - b. Repair
 - i. Weather
- IV. Unfounded

Definitions

Request or Work Order Municipality	A "request" in this document refers to the electronic record created to track individual work locations. Is a Work Order / Inspection / Asset Management software tool used by the City of Torrington at the time of this writing.
Properly installed mailbox	All mailboxes must be installed per the City of Torrington Engineering Department detail to be eligible for repair work by the City.
Serviceable condition mailbox	A serviceable condition mailbox has been maintained and is in good working order. A rotten post or rusty mailbox would not be considered in serviceable condition.
Unfounded	Is the status placed on a Work Order that is not eligible for repair work by the City.

PLAN IMPROVEMENTS

Year of Improvement	Improvement Description	Budget
2020	Add 4 Pavement Temperature Gages to existing trucks	\$4400.
2020	Replace 2 Plow Trucks (1) hook lift (1) in body	\$370,000.
2020	Add 4 Spread Smart Systems to existing trucks	\$34,000.
2020	Add pre-wet equipment to 4 existing trucks	\$6,000.
2020	Replace Skid Loader	\$35,000
2021	Add (2) 980 gallon lift hook tanks for pre-treat	\$20,000.
2021	Replace 2 Plow Trucks	\$380,000.
2021	Add 4 Spread Smart Systems to existing trucks	\$36,000.
2021	Replace 2 3000 gal yard brine storage tank with dbl wall 8000 gal tank	\$40,000.
2021	Add plow blade attachment to Pay-loader	\$10,000.
2021	Add pre-wet equipment to 4 existing trucks	\$6,500.
2022	Replace 2 Plow Trucks	\$390,000.
2022	Add pre-wet equipment to 4 existing trucks	\$7,000.
2022	Add 4 Spread Smart Systems to existing trucks	\$38,000.
2023	Replace 2 Plow Trucks	\$400,000.
2023	Wash Bay Installation at 107 Arthur Street	
2024	Replace 2 Plow Trucks	\$410,000
2024	Add blower attachment to Flail Mower	\$10,000

WINTER PREPARATION

Sometime prior to the winter season the City will:

- Inspect equipment to ensure proper working order. Schedule and complete any and all equipment repairs.
- Arrange for the delivery of materials (salt, sand and liquid solution) and begin filling storage facilities. If liquid solution is mixed on site, begin mixing and filling storage tanks.
- Confirm that all guiderail, catch basin, electric/utility boxes, hazards and fire hydrant markers/delineators are installed.
- Confirm that steep hill, sharp curve ahead warning signs, bridge ice signs, if any, are in place. Any missing markers or signs should be replaced prior to the winter season.
- Arrange for delivery of cold patch asphalt for filling potholes in the winter season.

WINTER PREPARATION

One Month Prior to the Winter Season the City will:

- Assign equipment to staff.
- Calibrate material application equipment. See Appendix for calibration Form.
- Allow operators (staff and contract) time to familiarize themselves with any new equipment, material application rates, material application equipment and their route (driving the route and noting obstacles along the route).
- Assign staff to monitor and record weather forecasts on a daily basis. Upon the forecast of an approaching winter event, schedule a patrol of a route of representative roads. If a winter event is forecast prior to the start of the next scheduled shift, a night and/or weekend patrol(s) of a route of representative roads should be scheduled. If a night or weekend patrol is scheduled the patroller should monitor and record the weather forecast and road conditions. The patrol person should be authorized to initiate a winter event response if conditions warrant a response.
- Have 80 % of the fleet ready to respond to a winter event.
- Have sufficient staff available to operate the fleet if conditions warrant a winter event response.
- Contact land owners in proposed snow fence areas and get permission to install the snow fence.
- Inspect each push back area at intersections and cul-de-sacs. Install marking posts at locations where damage could occur to property hidden under snow.
- Inspect the route for issues that can be repaired prior to the start of winter.
- During the plow route inspection, pay close attention to trees (particularly deciduous trees) which may hang much lower with snow on their branches. Mark and report these trees for trimming.
- Update all need to know people contact info with weather service

WINTER PREPARATION

Two weeks prior to the Winter Season, the City will:

- Have 95 % of the fleet ready to respond to a winter event.
- Have staff available to operate the required complement of the fleet if conditions warrant a winter event response
- Install snow fence per dates arranged with property owners (future)
- Update the afterhours phone number list for all employees.

DEPARTMENT MISSION STATEMENT

It is the Torrington Public Works Department mission to provide valuable, professional services to the community of Torrington in a manner that is consistent with the City ordinances. We do this by focusing on safety, value and maintaining a positive public image.

We promote a culture of good relationships between ourselves, our customers and other Departments. ***We support and enhance a high quality of life for the City's residents, businesses and visitors by providing well planned, environmentally conscious, cost effective infrastructure and public parks that promote public health, personal safety, transportation, economic growth and civic vitality.***

Team Yankee	Position	Team Zulu	Position
Cote	Assistant Super	Mayers	Superintendent
Yankee 1		Zulu 1	
MacDonald	Foreman	Carbone	Foreman
Woodward Jeff	Maintainer 3	Dings	Maintainer 3
Veilleux	Trailer Driver	Martinotti	Mason
Aeschlimann	Maintainer 2	Latulipe Joe	Maintainer 2
Harmon	Maintainer 2	Battistoni	Maintainer 2
Birge	Maintainer 2	Morin	Maintainer 2
Open	Maintainer 2	Diaz	Maintainer 2
Yankee 2		Zulu 2	
Adams	Crew Leader	Downes	Crew Leader
Audia	Maintainer 3	Clark	Maintainer 3
Godenzi	Maintainer 2	Phillips	Maintainer 2
Roy	Maintainer 2	Hiller	Maintainer 2
Robotham	Maintainer 2	Woodward Jim	Maintainer 2
Yurchyk	Maintainer 2	Latulipe Brian	Maintainer 2