

Appendix E
Deicing Material Storage & Application

Road Deicing Material & Storage

These include the use of herbicides in highway rights-of-ways, road salt, road salt anti-caking additives, road salt anticorrosives, and automotive wastes. Sources of contamination in road drainage include wet and dry deposition, soil erosion, street dirt and litter, and animal waste. Rainwater falling on paved surfaces may become contaminated with nutrients, metals, oils and grease, salts and volatile organic compounds that have accumulated there. Numerous studies have shown that metal (lead, copper, cadmium) loadings from paved surfaces are significant pollution sources. Pollution from bridge maintenance is compounded by the fact that, since bridges are generally located over surface-water bodies, there is little opportunity for pollution attenuation to take place before runoff washes into water.

Groundwater and surface water contamination from road deicing application and storage occurs when the salt dissolves in precipitation and either infiltrates through topsoil into the water table or runs off into surface water. This can effect water quality including elevation of chloride levels. Municipal road maintenance and deicing storage operations include storage and spreading. Important storage considerations include type of material, and type of storage. Most of the material used in the watershed is sand and salt. However, some municipalities use other materials such as cinders, IceBan, and calcium chloride. In the Cayuga Lake Watershed 58% (29) of deicing material is stored in enclosed facilities. The rest (42%, 21) is stored in the open. Sixty-two percent (31) of deicing material is stored on concrete, asphalt, shale or pavement. The rest (38%, 19) is stored on the ground. Important spreading considerations include ingredient ratio, amount per road mile, and total amount per season, and total road miles. The average total amount of deicing material spread in the Cayuga Lake Watershed exceeds 30,000 tons per year (Table 3.11.1).

As Table 3.11.1 indicates road maintenance and deicing storage operations are widely dispersed throughout the watershed with the largest pocket of density at the southern end of the lake around the City of Ithaca. Other smaller pockets include the area near the Village of Trumansburg and the area associated with the Village of Freeville and Dryden. All of these are close to tributaries. In the case of the City of Ithaca, road deicing storage is close to the lake itself, however deicing material is stored in enclosed facilities. This is the case in all but one facility in the area around Trumansburg, Freeville, and Dryden. Other storage of concern is in the Village of Aurora, Town of Springport, Town of Covert, and the Town of Danby. These are all open storage piles. The Village of Aurora storage is close to the lake. The others are close to tributaries of the lake including the Town of Danby's storage near the Cayuga Inlet.

See also (in this Appendix)

- Deicing Material Storage Issues in the Cayuga Lake Watershed
- Oxygen Demanding Material Used for Road Deicing in the Cayuga Lake Watershed

Table 3.11.1
Road Dicing & Storage Inventory

Map ID	MUNICIPALITY	COUNTY	DECISION	CONTRACT	INTERVAL		MULTIPLE TYPES	RATIO	MIX	POLICY	MILES DEICED		RATE	TOTAL ANQUANTITY		STORAGE	STORAGE ON	FACILITY AGE (YRS)	FACILITY TYPE	DUST CONTROL MATERIAL	MILES	
					TYPE	OTHER					PAVED	DIRT		WINTER 1996-	WINTER 1996-							
D1	Cayuga County Highway Dept.	Cayuga	Yes	Yes	Sal/Sand		Yes	4:1 by volume	Yes		300	0.00	800 lb Sal/100 lb mix				Enchased	Ground	10	Polished	N/A	0.00
D12	Town Lansing	Tompkins	Yes		Sal/Sand		Yes	1.0 gal/sand, 0.5 gal kaolin/1 ton sand	Yes	Slippery	106	15.00	500-700 lbs./line mi.	Sand only- 1 ton/line mi.	1200	2000	Enchased	Paavert	8	Polished	CaCl	15.00
D13	Village of Dyden	Tompkins	Yes		Sal/Sand		Yes	2:3	Yes	Conditions	13	0.00	Conditions	-	20	280	Enchased	Paavert	4	Polished	None	0.00
D14	Town Verdes	Cayuga	Yes		Sal/Sand		No	1:4	Yes	When cars start covering over	44	25.00	1500-200 ton/yr. sal/ton sand	Verdes only 1 ton/line	475	475	Open	Ground			None	
D17	Village of Transburgh	Tompkins	Yes		Sal/Sand		No	1:1	Yes	f. of snow	11	0.00			145	120	Enchased	Paavert	14	Polished	None	0.00
D20	Clyde Mesa	Tompkins	Yes		Sal/Sand		Yes	1:1	Yes	Conditions	72	0.00	200 lbs./line mi.	N/A	2071	2840	Enchased	Paavert	22	Polished	None	0.00
D24	Town Dyden	Tompkins	Yes		Sal/Sand		No		Yes		112	4.32					Open	Ground			Calcium	0.24
D25	Town Cheel	Seneca	Yes		Sal/Sand		No	1:14	Yes	Slippery	30	14.00	No Calibration	No Calibration	100	150	Open	Ground			Dust Oil Calcium	7.00
D28	Tompkins County Highway Dept.	Tompkins	Yes		Sal/Sand	kaolin (noting only)	Yes	1.19 gal/sand	Yes	Slippery	215	0.00	500 lb/2 1/2 gal mix	N/A	5799	7281	Enchased	Paavert	5		Water	0.00
D29	Village of Aurora	Cayuga	Yes		Sal/Sand		No	1:4	Yes	Slippery	4	0.00	1 gal/mi		5	5	Open	Asphalt	20	Covered	None	0.00
D29	Town Springlet	Cayuga	Yes		Sal/Sand		No	1:3	Yes	Slippery	20	0.70	Hills, Curves, Intersectio	Hills, Curves, Intersectio	171	153	Open	Stone Floor			Sal brine	0.70
D29	Town Ladard	Cayuga	Yes		Sal/Sand		No	1:4	Yes	1.5 - 2 snowplow	42	0.00	500 lbs./mi.	None	99	112	Enchased	Paavert	2	Polished	Sal Brine	10.00
D30	Town Seneca	Cayuga	Yes		Sal/Sand		No	1:4	Yes	First sign that snow is sticking stake cars	32	19.00	works up to 400 lbs. of mix per	Very little	348	387	Open				CaCl	10.00
D30	Village of Cayuga	Cayuga	Yes		Sal		No	100% sal	N/A	Road becomes covered	3	0.00	Very low		85	85	Enchased	Ground	3	Polished	None	0.00
D30	Town Dary	Tompkins	Yes		Sal/Sand	ocean	Yes	1:7	Yes	f snow slippery	30	0.00			200	312	Open	Ground			CaCl	20.00
D30	Town Lysses	Tompkins	Yes		Sal/Sand		Yes	1000-3000	Yes	Road becomes covered	78	0.00	100000 lbs./mi.	N/A	1500	1800	Enchased	Paavert	3	Polished w/ Paavert Floor & Loading Area	None	0.00
D31	Village of Union Springs	Cayuga	Yes		Sal		No	100% sal	No	Conditions	3	0.69			80		Enchased	Paavert	1	Polished	None	0.00
D31	N/S/DOE	Tompkins	Yes	Yes	Sal/CaCl	ocean	Yes	N/A	No		380	0.00	225 lb sal/mi	-	3067	7289	Enchased	Paavert	10	Done	None	0.00
D31	Town Meza	Tompkins	Yes		Sal/Sand		Yes	0.5 gal/ton of Sal	Yes	f snow slippery	30	0.00	500 lbs./mi.	-	1500		Enchased	Paavert	15	Polished	None	0.00
D41	Town Scipio	Cayuga	Yes		Sal/Sand		No	1:5	Yes		21	19.00			500	600	Enchased	Paavert	2	Polished	Sal brine calcium chloride	10.00
D42	Town Spencer	Tipp	Yes		Sal/Sand		No	5:1 sand/sal	Yes	f snow slippery	32	0.00	same	same	380	380	Enchased	Paavert			Calcium chloride	0.00
D44	Village of Cayuga Heights	Tompkins	Yes		Sal/Sand		Yes	95-100% sal	Yes	Police department	21		works		100	100	Enchased	Paavert			Polished	
D47	Town Sumnerhill	Cayuga	Yes		Sal/Sand	N/A Some Sal	No	4:1 sand/sal, M/A, 7:1 stone/sal	Yes	Rain	17	17.00	4:1	7:1 M/A stone	150	200	Open	Ground			Calcium	15.00

Deicing Material Storage

The following municipal deicing material is stored unenclosed near tributaries to Cayuga Lake:

- Town of Covert
- Town of Danby
- Town of Dryden
- Town of Genoa
- Town of Ovid
- Town of Summer Hill
- Town of Venice

The following municipal deicing material is stored unenclosed near the Cayuga Lake shore:

- Village of Aurora

Oxygen Demanding Material Used for Road Deicing

The following have noted the use of IceBan for deicing roads:

- Town of Danby
- Town of Ithaca
- Town of Lansing
- Cayuga County Highway Department
- New York State DOT Region 6
- New York State DOT - Tompkins County