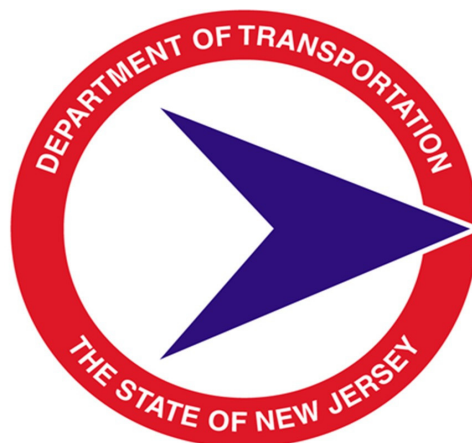


# DRAINAGE MANAGEMENT SYSTEM PROCEDURE

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**PAVEMENT MANAGEMENT**



# AGENDA

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# General Information

## GOAL AND OBJECTIVES

The goal of the DMS is to create a process that would classify flood locations using an impartial, coordinated strategy. Several parameters are used to develop the ranking number for each flood location on an equal basis. The ranking numbers provide a guideline to NJDOT staff to prioritize flooding locations and examine each location. The DMS locations are also input to a GIS system so that they can be identified on maps. The DMS provides a consistent way to rate flooding and drainage problems state wide.

## GENERAL PROVISIONS

The Bureau of Pavement and Drainage management is maintaining a data base for incidents arising from flooding/drainage incidents in the state owned drainage assets within the state ROW and state owned assets in non-state owned ROW with jurisdiction rights. Project management, ROW, access, private companies and other DOT or agencies request information on a particular location. The bureau staff provide flooding/icing issue in a timely fashion to the requesting party.

## **TYPES OF REQUESTS**

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### **DMS Ranking Requests for Information Purpose**

The flooding ranking/ icing incidents information are requested by Government or private entities.

### **DMS Ranking Requests for Design Purpose**

The DMS has been successful in providing NJDOT with an impartial method to rank flood Locations/ icing condition.

### **Excess Parcel Requests**

Local Government or private entities periodically ask the state to acquire state maintained properties for their own use. This requests come to ROW- property management. The ROW sends out information of this location requesting if drainage facilities are present or drainage easement or dedicated to be used as a drainage facility for future.

### **Public Complain about drainage assets**

Phone calls to the main telephone terminal are most of the time directed to this section.

# DMS Ranking Procedures

## FLOODING DMS

1. The data from "Traffic OP-EL15 Reporting Mgr" is a raw data that are not verified. We compile this annually using engineering judgement including but not limited to reviewing the Profiler's videos and contour maps to evaluate the locations of the inlets, low points and evidence of flooding and/or erosion. Using this analysis we establish the site location interval.
2. Group the data for each site interval as identified above
3. For each group of data, count the number of recurrent flooding incidents that have occurred within the previous 5 year period (inclusive - 6 years of data).
4. Compare the new flooding sites against the previous year flooding sites and track all completed drainage projects records. Update the excel spreadsheet accordingly.
5. Fill the blank mile point base on the Route, municipality and road name.
6. Get the updated AADT data.
7. The flooding frequency is multiplied by AADT data to rank locations based on impact to motorist. (DMS Ranking is the product of No of incident (FI) \* AADT. Those with higher values have higher priority. Note that the highest priority (i.e. Rank1)).
  - a.FI (# Flooding Incidents)
  - b.AADT(Annual average daily traffic)
8. Update Ranking table details ( example: DMS year, AADT year,....)

Format by Management System 2018

SOURCE SYSTEM Code	RANKING Year	RANKING TYPE Code 1. Flood Incident 2. icy Condition	RANKING Rank Number	STANDARD ROUTE Identifier	RANKING Begin Milepost Number Measure	RANKING End Milepost Number Measure	DMSRANKING No Of Incident Measure	DMSRANKING Average Daily Traffic in One Direction Quantity	DMSRANKING AdtxFI Number	DMSRANKING Year Added Text	DMSRANKING Year of AADT Number
DMS	2018	1	1	00000017	20.50	20.62	30	53810	1614298	2017	2017
DMS	2018	1	2	00000040	59.70	62.17	111	13898	1542680	2017	2017
DMS	2018	1	3	00000018	36.60	36.70	46	28883	1328609	2017	2017
DMS	2018	1	4	00000080	56.90	58.00	17	71128	1209176	2017	2017
DMS	2018	1	5	00000287	3.00	3.20	20	49779	995582	2017	2017
DMS	2018	1	6	00000017	17.68	17.80	17	54512	926704	2017	2017
DMS	2018	1	7	00000280	9.60	9.64	17	53212	904612	2017	2017
DMS	2018	1	8	00000022	34.50	36.70	17	48694	827798	2017	2017
DMS	2018	1	9	00000017	9.87	9.91	14	56965	797505	2017	2017
DMS	2018	1	10	00000208	5.97	6.00	19	38041	722781	2017	2017
DMS	2018	1	11	00000018	37.06	37.20	25	28883	722070	2017	2017
DMS	2018	1	12	00000080	55.90	56.00	10	71128	711280	2017	2017
DMS	2018	1	13	00000287	1.40	1.80	10	68914	689140	2017	2017
DMS	2018	1	14	00000280	13.90	14.30	15	42316	634738	2017	2017
DMS	2018	1	15	00000023	6.80	7.00	14	43103	603445	2017	2017
DMS	2018	1	16	00000017	19.50	19.58	11	53810	591909	2017	2017
DMS	2018	1	17	00000208	7.87	7.90	17	33659	572205	2017	2017
DMS	2018	1	18	00000080	55.20	55.40	8	71128	569024	2017	2017
DMS	2018	1	19	00000080	56.30	56.50	8	71128	569024	2017	2017
DMS	2018	1	20	00000287	35.70	36.30	11	51159	562745	2017	2017
DMS	2018	1	21	00000046	60.00	60.20	8	64180	513440	2017	2017
DMS	2018	1	22	00000003	1.76	1.78	8	62973	503786	2017	2017
DMS	2018	1	23	00000287	40.00	40.20	6	83681	502086	2017	2017
DMS	2018	1	24	00000208	4.30	4.50	13	38041	494534	2017	2017
DMS	2018	1	25	00000017	18.25	18.60	9	54512	490608	2017	2017
DMS	2018	1	26	00000280	12.80	12.90	8	59473	475785	2017	2017
DMS	2018	1	27	00000280	10.90	11.00	8	58897	471172	2017	2017
DMS	2018	1	28	00000080	60.00	60.20	7	66779	467451	2017	2017
DMS	2018	1	29	00000022	55.20	55.34	10	46569	465690	2017	2017

FIGURE :1 FLOODING DMS RANKING LIST

## ICING DMS

1. Export Data from “Traffic OP-EL15 Reporting Mgr” and DMS files to get updated data.
2. Delete the bad data
3. Count the total incidence (Data from the 10/01/2012 to 12/20/2017) for DMS ranking of 2018.
4. Based on update ranking table to count incidence.
5. Get the updated AADT data
6. Multiply the number of incidences by AADT data to get the ranking. (DMS Ranking= No of incident(II) \* AADT)
7. Update Ranking table details ( example: County, year )
  - II(Icing Incident)

ICING DRAINAGE MANAGEMENT SYSTEM RANKING LIST 2018 - Excel

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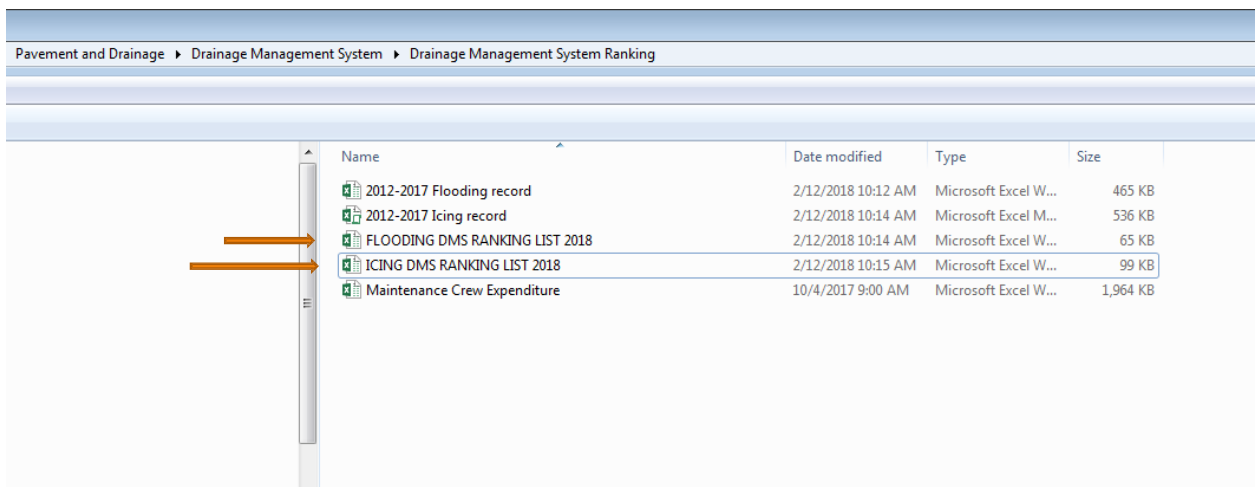
	A	B	C	D	E	F	G	J	N	O	P	Q
1	Format by Management System 2018											
2												
3	SOURCE SYSTEM Code	RANKING Year	RANKING TYPE Code 1. Flood Incident 2. Icy Condition	RANKING Rank Number	STANDARD ROUTE Identifier	RANKING Begin Milepost Measure	RANKING End Milepost Measure	DMSRANKING No Of Incident Measure	DMSRANKING Average Daily Traffic in One Direction Quantity	DMSRANKING Adtbl Number	DMSRANKING Year Added Text	DMSRANKING Year of AADT Number
4	DMS			Rank	SRI	mp_from	mp_to	Icing_incident	AADT	To be calculated	year_added	yr_of_aadt_nu
5	DMS	2018	2	1	00000017	20.5	20.62	26	53810	1399059	2017	2017
6	DMS	2018	2	2	00000287	32.4	32.6	16	49898	798360	2017	2017
7	DMS	2018	2	3	00000287	29.94	30	13	49898	648668	2017	2017
8	DMS	2018	2	4	00000080	57	57.3	9	71128	640152	2017	2017
9	DMS	2018	2	5	00000009	124.2	124.4	15	39075	586125	2017	2017
10	DMS	2018	2	6	00000080	42	42	7	76793	537554	2017	2017
11	DMS	2018	2	7	00000001	8.1	12	14	38071	532996	2017	2017
12	DMS	2018	2	8	00000287	39.4	39.55	6	88018	528108	2017	2017
13	DMS	2018	2	9	00000078	56	56.2	13	39680	515842	2017	2017
14	DMS	2018	2	10	00000080	58.2	58.4	8	64318	514544	2017	2017
15	DMS	2018	2	11	00000080	55	56	7	71128	497896	2017	2017
16	DMS	2018	2	12	00000080	38.81	39	6	78297	469781	2017	2017
17	DMS	2018	2	13	00000017	15.7	15.72	6	73846	443078	2017	2017
18	DMS	2018	2	14	00000017	16.56	16.56	6	73846	443078	2017	2017
19	DMS	2018	2	15	00000018	41.27	41.42	10	43150	431503	2017	2017
20	DMS	2018	2	16	00000024	10	10.2	8	53390	427124	2017	2017
21	DMS	2018	2	17	00000009	122	122.12	13	32355	420609	2017	2017
22	DMS	2018	2	18	00000280	11.9	12.3	7	58897	412276	2017	2017
23	DMS	2018	2	19	00000080	59	59.06	6	66779	400673	2017	2017
24	DMS	2018	2	20	00000287	31.8	32	8	49898	399180	2017	2017
25	DMS	2018	2	21	00000017	12.3	12.33	7	56965	398753	2017	2017

FIGURE :2 ICING DMS RANKING LIST

# Drainage Management Data request

## FOR REQUESTS FOR DESIGN PURPOSE

1. Check the Drainage Management System Ranking list (FLOODING DMS RANKING LIST and ICING DMS RANKING LIST). If it is in the Ranking lists, Include the ranking number on your response record the data in the Memorandum.



Example: Route 17 MP 20.50 rank as No. 1 in Flooding Drainage Management Unit's DMS ranking list

SOURCE SYSTEM Code	RANKING Year	RANKING TYPE Code 1. Flood Incident 2. Icy Condition	RANKING Rank Number	STANDARD ROUTE Identifier	RANKING Begin Milepost Number Measure	RANKING End Milepost Number Measure	DMSRANKING No Of Incident Measure	DMSRANKING Average Daily Traffic in One Direction Quantity	DMSRANKING AdtxFI Number	DMSRANKING Year Added Text	DMSRANKING Year of AADT Number
DMS	2018		2018	SRI	mp_from	mp_to	flood_incident	AA DT	To be calculated	year_added	yr_of_aadt_num
DMS	2018	1	1	00000017	20.50	20.62	30	53810	1614298	2017	2017
DMS	2018	1	2	00000040	59.70	62.17	111	13898	1542680	2017	2017
DMS	2018	1	3	00000018	36.60	36.70	46	28883	1328609	2017	2017
DMS	2018	1	4	00000080	56.90	58.00	17	71128	1209176	2017	2017
DMS	2018	1	5	00000287	3.00	3.20	20	49779	995582	2017	2017



2. Check the last 6 years Flooding, Icing records and Maintenance Crew Expenditure data. Save the related data to the excel sheets.

System > Drainage Management System Ranking

Name	Date modified	Type	Size
2012-2017 Flooding record	2/12/2018 10:12 AM	Microsoft Excel W...	465 KB
2012-2017 Icing record	2/12/2018 10:14 AM	Microsoft Excel M...	536 KB
FLOODING DRAINAGE MANAGEMENT SYSTEM RANKING LIST 2...	2/12/2018 10:14 AM	Microsoft Excel W...	65 KB
ICING DRAINAGE MANAGEMENT SYSTEM RANKING LIST 2018	2/12/2018 10:15 AM	Microsoft Excel W...	99 KB
Maintenance Crew Expenditure	10/4/2017 9:00 AM	Microsoft Excel W...	1,964 KB

Example: Route 17 MP 20.50 2012-2017 Flooding record

2012-2017 Flooding record - Excel

	A	B	C	D	E	F	G	H	I	J	K
1	Date_Of_Incide	Municipality	Rou	Directio	MilePoint	Limits	Lanes_Affected	Description	Notes		
648	11/27/2013	SADDLE BROOK TWP.	17	S	20.5	east allendale rd		Flooding	02:05 - ENROUTE 03:51 DIRECTION ACTUALLY NORTH BOUND AS PER LOCAL PD: EXIT RAMP ALSO CLOSED AT THIS LOCATION. STMC OZ NOTIFIED AT 05:45		
649	10/30/2016	SADDLE BROOK TWP.	17	S	20.5	E allendale ave		Flooding	ER 16:37		
650	5/24/2013	SADDLE RIVER BORO	17	N	20.5	east allendale rd		Clogged Storm Drain/Flooding	drains are clogged creating 4 inches of water in left lane//no water at all on roadway, no hazard 3:18:15 PM (LM)		
651	6/7/2013	SADDLE RIVER BORO	17	N	20.5	Allendale overpassed	Shoulder	Clogged Storm Drain/Flooding			
652	11/27/2013	SADDLE RIVER BORO	17	N	20.5	east allendale exit	None	Flooding	LEFT LANE CLOSED (RM) 10:06		
653	4/15/2014	SADDLE RIVER BORO	17	N	20.5	east Allendale road	None	Flooding	will handle		
654	7/3/2014	SADDLE RIVER BORO	17	N&S	20.5	EAST ALLENDALE RAMPS		Flooding	17S CAMERON RD MAN COVER ON SHOULDER(19.58).		
655	5/27/2015	SADDLE RIVER BORO	17	S	20.5	E Allendale Rd	Right	Flooding	RIGHT LANE FLOODED --STMC PAUL ADV		
656	5/31/2015	SADDLE RIVER BORO	17	N	20.5	E ALLENDALE RD		Flooding			
657	6/27/2016	SADDLE RIVER BORO	17	S	20.5	E ALLENDALE AVE EXIT	None	Clogged Storm Drain/Flooding	2110 enroute (2238) MD		
658	7/7/2017	SADDLE RIVER BORO	17	S	20.5	east allendale ave	Right	Flooding	211 off gave to 213//213 gave to 212- 213 is tied up on rec #209305 8:53:13 AM (LM)		
659	10/29/2017	SADDLE RIVER BORO	17	S	20.5	East Allendale Rd		Flooding	Gave call to #211 @ 14:15 p.m. - CRA NRT-1435 JG		

# Excess Parcel Requests

## FROM ROW / **ACCESS**

1. Check the Drainage Management System Ranking list (FLOODING DRAINAGE MANAGEMENT SYSTEM RANKING LIST and ICING DRAINAGE MANAGEMENT SYSTEM RANKING LIST). If it is in the Ranking list, record the data in the Memorandum.
2. Check the Flooding, Icing, Maintenance Crew Expenditure data. Save the related data to the excel sheets.
3. Review the all related information ( General Property Parcel Map, Straight line, Google overview, tax information, Video)
4. Based on all related information and reply the Memorandum. Attached the details of Flooding, Icing and Maintenance Crew Expenditure.

# Complains about State owned Drainage assets from Citizens

## **FROM CITIZENS / BUSINESS**

1. Phone call received in manager's office.
2. Call back the person who made complain about his/her complain.
3. Obtain the following information:
  - a. Right name and right contact number
  - b. Nature of the problem
  - c. Route, direction, mile post (MP) if available, nearest intersection, any major store or landmark, and so on.
  - d. From the above information and SLD find the MP and try to identify the inlet location where the reported problem.
  - e. Once you make sure about the exact location, call operations and find the crew that responsible for this location and obtain the following information:
    - If the operation crew have received any complaints.
    - If it is an ongoing problem get information of this problem.
    - Provide the citizen contact information and ask if the crew can contact.
    - the citizen and resolve the problem.
    - Ask for feed back.
    - Check PRS for future projects.
    - Check the DMS ranking ; if the ranking is high and it will be considered to be fixed pass this information to the citizen.
    - If the ranking is low contact the citizen and inform that it is documented as issue and could be considered to be addressed.