

Creating a Roadway Drainage Inventory Checklist

A roadway drainage inventory is a record documenting all of the roadway drainage systems in your area. As a maintenance supervisor, you must be familiar with this record and keep it up-to-date. A current roadway drainage inventory is a critical tool in making drainage maintenance decisions.

The first thing you must do is determine if such an inventory currently exists. Don't be surprised if the answer is no. Creating such an inventory is a time-consuming task. If a system already exists, learn to use it. If one does not exist, then you should begin to create one. Below is a checklist for creating a roadway drainage inventory.

Note that some specifications described in the following content may not be the same as the specifications followed by your agency. Always check with your State agency's standards and specifications when using these guidelines.

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Approach

- Establish an inventory for all Interstate and U.S. highways**
- Next, other major State highways**

- Lastly, other minor State highways
- Use a database or spreadsheet

Logistical Data

- For each segment of roadway in your inventory, you need to record a variety of data
- Inventory lengths may be some even fraction of a mile or no longer than a mile in length; a suggestion is quarter-mile inventory lengths
- Record the following data for each segment:
 - Location number
 - Route number
 - Designation (N,S,E,W)
 - Begin milepost
 - End milepost
 - Number of lanes
 - Divided or undivided
 - Median type, if divided
 - County
 - District or division

Unpaved Shoulders, Side or Backslopes, and Blocked Lateral Ditches

- For each segment, record data about unpaved shoulders, side or backslopes, and blocked lateral ditches
- Unpaved shoulders:
 - Low shoulder ≥ 2 inches (amount of ft. length)
 - High shoulder ≥ 1 inch (amount of ft. length)
 - Rutted or eroded (amount of ft. length)
- Side or backslopes:
 - Erosion of surface material (longitudinal length in ft.)
 - Failures ≥ 1 ft. wide and rockslides (longitudinal length in ft.)

Lateral ditches:

- Blocked \geq 50% and not functioning as designed, or eroded \geq 1 ft. (amount of ft. length)

Crossline Pipes, Underdrains, and Cross-Drains **For each segment, record data on crossline pipes, underdrains, and cross-drains** **Crossline pipes:**

- Size, total number blocked \geq 50% (each)
- Size, total number damaged (each)

 Underdrains, cross-drains:

- Total number blocked \geq 25% (each)
- Total number damaged (each)

Culverts, Culvert Headwalls, and Culvert Wingwalls **For each segment, record any data on culverts and culvert headwalls and wingwalls** **Culverts:**

- Type (Box, RCP, CMP, CMP Arch)
- Size and number of openings
- Blocked \geq 25% (each)
- Damaged pipe or box (each)
- Leaking joint (each)

 Culvert headwalls and wingwalls:

- Damaged inlet (each)
- Scour around inlet (each)
- Damaged outlet (each)
- Scour around outlet (each)

Stormwater Collection Systems

- For each segment, record applicable data on stormwater collection systems**
- Size and number of runs between inlets, outlets:**
 - Blocked \geq 25% (number of runs)
 - Leaking joints (each)
 - Damaged (number of runs)
- Number of grate, drain inlets**
 - Blocked \geq 50% (each)
 - Damaged (each)

Gutters and Curb Inlets

- For each segment, record data on gutters and curb inlets**
- Make notes of any repair history, including the date of the repair and the nature of the work done**
- Gutters:**
 - Blocked \geq 2 inches high x 2 feet long (length in ft.)
 - Damaged (length in ft.)
- Curb inlets:**
 - Blocked \geq 50% (each)
 - Damaged or grate problem (each)
- Repair history:**
 - Date of repair
 - Repair activity performed

GPS

- In some cases, your roadway drainage inventory may tie into a geographic information system (GIS) database of your highway system**
- If so, another technique to locate pipe structures is with global positioning system (GPS) equipment**

- ❑ **This equipment can help you record physical features in the field and their precise location in relation to the roadway using GPS coordinates**
- ❑ **If a GIS-based inventory system is used:**
 - You can locate pipe structures with GPS equipment
 - This can help you record physical features in the field and their precise location in relation to the roadway
 - You may also be able to use a PDA device to record your inventory assessment
 - Maps can be printed out showing the drainage structures that are part of the inventory
- ❑ **These maps:**
 - Help to organize repairs
 - Help crew leaders plan their work schedules
 - Can identify the locations for repairs or the locations of drainage structures for inspection