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## Assessing the Condition of Roadside Ditches and their Management in the Hudson Valley

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### Abstract

A decade of research has documented the significant contributions of roadside ditches to stream flooding and pollution. However convincing policy-makers of the need to address these problems has been difficult without evidence of the actual status of practices by town highway staff. A survey was conducted in 2014 to assess the condition of roadside ditches and current ditch management practices in the Hudson Valley and across NYS. There were 63 responses from town highway superintendents located throughout the 10 Hudson River counties. Overall, this survey documented that roadside ditch management is less than ideal, with the majority of ditches routinely scraped, left exposed, and directly contributing sediments to streams. The most frequently reported impediments were insufficient resources (i.e. time, manpower, equipment, money) and disagreement with landowners over the right-of-ways. This assessment provides a critical, and previously missing, piece of evidence needed to demonstrate the importance of improving roadside ditch management throughout the Hudson Valley and across NYS. The findings have already been incorporated into the Recommendations report from a conference “Re-plumbing the Chesapeake: Improving Roadside Ditch Management to Address TMDL Goals” (held Oct. 2014) for the Chesapeake Bay Program. A future product will be a white paper for distribution to, and education of, NYS legislators.

### Summary Points of Interest

- A survey of town highway departments, conducted in 2014, across the Hudson Valley indicates that overall, roadside ditch management is less than ideal, with the majority of ditches routinely scraped, left exposed, and directly contributing sediments to streams.

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- Town highway staff reported that the most significant barriers to improving ditch management practices were insufficient resources (i.e. time, manpower, equipment, money) and disagreement with landowners over the right-of-ways.
- The survey findings, in combination with research documenting the significant contributions of roadside ditches to flooding and pollution in streams, provides a solid framework to engage policy-makers in order to make changes in ditch management practices across the Hudson Valley, NYS and regionally.

Keywords: highway departments, roads, ditches, survey, pollution, management

## Introduction

A decade of research has documented the significant contributions of roadside ditches to flooding and pollution in streams. However it is difficult to extrapolate from biophysically-based research in a 3-county region of central NY to actual management practices conducted throughout NYS. Without substantive, real-world evidence on the state of ditch management practices, it has been challenging to convince policy-makers of the need to address this issue. We conducted a survey to assess the condition of roadside ditches and current ditch management practices.

## Results & Discussion

There were 63 respondents from town highway departments located in the 10 Hudson River counties, representing 15% of the total 403 respondents statewide. Most were experienced professionals, with 47.6% having held their positions for 8 yrs or longer. Each department manages an average of 75.8 miles of ditches (+/- 62.5 SD). Ditch maintenance comprises a significant portion of their effort, with 38.1% reporting that 25-49% of their staff's time is dedicated to ditches. However, certain ditches, located on steep slopes, or adjoining hills or dirt roads, consume the majority of their efforts.

Overall, this survey documented that roadside ditch management is less than ideal, with the majority of ditches routinely scraped, left exposed, and directly contributing sediments to streams. 49.2% reported that the most common method of maintenance was cleaning/ scraping all or parts of the ditch and 62% reported that this occurs once every 1 to 4 years. 44% do not hydroseed immediately, which leaves the bare sediments exposed to erosion during storms. On the other hand, 11.1 % of respondents indicated that more

than 75% of their ditches are hydroseeded immediately and most respondents (i.e. 61% which is 10% higher than the state average) reported that maintaining vegetative cover was a priority. 65% of the respondents indicated that very few of the ditches (<24%) go to infiltration basins or other green infrastructure. Most ditches discharge directly into streams. However 57.1% are willing to redirect ditch water away from streams.

The most common reported impediment to improving ditch management was lack of resources, whether it be manpower, time, equipment or the money needed to access these. 67% agreed that increased rights-of-way (ROW) access would be very helpful as well. Respondents currently rely on (in decreasing order) Cornell Local Roads Program, other town highway staff, and Soil and Water Conservation District staff for assistance with their ditches.

## Policy Implications

This assessment provides a critical, and previously missing, piece of evidence needed to demonstrate the importance of improving roadside ditch management throughout the Hudson Valley and across NYS. Using this information, we are planning to develop a white paper for outreach to NYS policy-makers in the coming year. Additionally, the findings helped guide the development of Recommendations from a region-wide conference, "Re-plumbing the Chesapeake Watershed", which is being distributed to key policy-makers now. These Recommendations directly identify the need for more coherent policies, increasing education to diverse stakeholder groups, and increasing resources to support highway staff with their ditch programs.

## Methods

A survey, sent by mail and electronically, was conducted from March through April 2014 to town highway

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superintendents throughout the ten counties comprising the Hudson River Valley, as a component of a broader NYS survey, to assess the condition of roadside ditches and current ditch management practices. The survey request and two reminders were sent to each town highway department.

**Outreach Comments**

This project was a portion of a broader assessment conducted across NYS. The results were presented at a conference, “Re-plumbing the Chesapeake: Improving Roadside Ditch Management to Meet TMDL Goals”, as key input concerning the status of roadside ditch management in a member state. The conference was held October, 2014 in Easton, MD and sponsored by the Chesapeake Bay Program’s Science and Technical Advisory Committee. The results will also be presented at Cornell Local Roads Program’s Annual Highway

School this summer (attended by ~700 town highway superintendents).

**Student Training**

One graduate student, Anthony Johnson, used this project as his MPS degree thesis.

**References**

Johnson, A. Assessment of roadside ditches and their management across NYS. MPS thesis. Dept. Natural Resources, Cornell. In prep.

**Collaborators**

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