

**New York City**  
**Department of Environmental Protection**

Watershed Forestry Program Evaluation Report  
Five-Year Implementation Status of Forest Management Plans

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# **Watershed Forestry Program Evaluation Report**

## **Five-Year Implementation Status of Forest Management Plans**

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### **1. Introduction**

The 2007 FAD requires DEP to annually evaluate the implementation status of five-year old watershed forest management plans that are adopted by landowners who voluntarily participate in the Watershed Agricultural Council (WAC) Forestry Program. The evaluation strategy includes: written surveys mailed to all landowners immediately following completion of their plans (Year-1 Surveys); written surveys mailed annually to those landowners having five-year old plans (Year-5 Surveys); and a comprehensive database analysis to assess landowner participation in other programs. In previous years, WAC also conducted property site visits in order to interview landowners and visually assess on-the-ground forest management activities, but this portion of the evaluation has been discontinued due to a lack of landowner interest.

This report evaluates the five-year implementation status of 93 WAC forest management plans that were completed during 2005 and reached their five-year status in 2010. In total over the past eight years, DEP and WAC have evaluated the five-year implementation status of 537 WAC forest management plans completed between 1998 and 2005.

### **2. WAC Forest Management Planning Program**

In order to develop a forest management plan through the WAC Forestry Program, landowners must own at least ten acres of watershed forestland and have their plans written by a professional forester trained and approved by WAC. Every WAC plan is required to include a 15-year work schedule of silvicultural prescriptions; a description of current and proposed forest roads; a summary of soil and water resources; a description of riparian management areas; and recommendations for erosion control best management practices (BMPs).

Over the past twelve years, the WAC Forestry Program has periodically revised and enhanced its forest management plan specifications to ensure they include adequate watershed protection information for landowners. In addition, WAC has also revised and expanded the forest management planning opportunities available to landowners to take into account those who already have existing plans that were not developed through WAC as well as those who developed older WAC plans and therefore have plans that are in need of updating.

Figure 1 summarizes the annual forest management planning accomplishments of the WAC Forestry Program to date. A total of 914 plans have been completed since 1998 covering approximately 163,513 watershed acres, of which an estimated 128,121 acres are forestland. These figures include 57 plans (13,333 total acres; 10,292 forested acres) that were originally enrolled in the WAC Forestry Program and have subsequently been updated in some capacity because the plan did not meet current WAC specifications and/or new parcels were added to the original property. When these 57 plan updates are subtracted from the total and only the 857 new or "original" WAC plans are counted, this results in a more accurate tally of approximately 150,180 watershed acres (covering an estimated 117,828 forested acres) that have been enrolled in the WAC Forestry Program during the cumulative period 1998-2010.

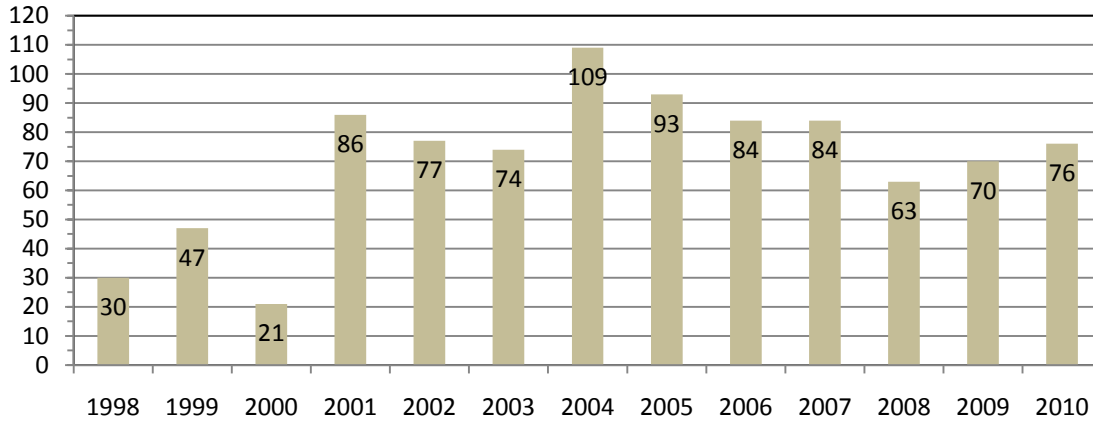


Figure 1. Number of WAC forest management plans completed 1998-2010.

The WAC Forestry Program offers numerous incentives to support the voluntary implementation of forest management plans. Landowners may apply for funding to update their original WAC plans, implement best management practices (BMPs) in conjunction with active logging operations, remediate existing forest roads having erosion problems, properly install forestry stream crossings such as portable bridges, or implement certain silvicultural prescriptions through the Management Assistance Program (MAP).

In addition to the WAC Forestry Program, eligible landowners may enroll their WAC plans in the NYS Forest Tax Law Program, sell their property to the City through DEP’s Land Acquisition Program, enter into a WAC or DEP conservation easement, or apply for federal funding assistance through the Forest Land Enhancement Program (FLEP) or Environmental Quality Incentive Program (EQIP). In general, however, the availability of funding through federal programs has been extremely limited and inconsistent, which is one of the reasons why the WAC Forestry Program developed and launched the MAP in 2005.

### 3. Evaluation Overview

The 93 WAC plans completed during 2005 cover approximately 12,969 total acres, of which an estimated 10,108 acres are forestland. One of these plans (83 total acres; 66 forested acres) represents an updated WAC plan from 1999, whereas the remaining 92 plans are all considered “original” first-time enrollments in the WAC Forestry Program.

Twenty-one different foresters wrote the 93 plans in 2005, with the top three most prolific foresters writing 20 plans (22%), 13 plans (14%) and 12 plans (13%) respectively, for a total of 49% of all plans. It is worth noting that 34 individual foresters are responsible for writing all 537 WAC plans completed during 1998-2005. For these 537 plans, one forester wrote 126 plans (24%), two foresters each wrote 59 plans (11% apiece), and one forester wrote 52 plans (10%). In summary, five foresters wrote 67% of all 537 plans completed during 1998-2004.

The average completion time for the 93 WAC plans completed in 2005 was 7.9 months, which is slightly lower than the cumulative average completion time of 8.2 months for all 537

WAC plans completed during 1998-2005. Pursuant to WAC Forestry Program policies, landowners have up to one year to hire their foresters and submit their completed plans.

Forty-five of the 93 plans completed in 2005 represented Delaware County properties (48%). Fifteen plans were in Greene County (16%), 13 were in Ulster County (14%), nine were in Westchester County (10%), five were in Putnam County (5%), three were in Schoharie County (3%), and two plans each were in Sullivan and Dutchess Counties (2% each). One plan spanned Putnam and Dutchess Counties and was therefore counted toward each county's tally. On a cumulative basis, the geographic distribution of all 537 plans completed during 1998-2005 represents the following watershed counties: Delaware (59%), Greene (17%), Ulster (11%), Schoharie (5%), Sullivan (4%), Westchester (3%), Putnam (2%) and Dutchess (1%). Twelve of these plans spanned two counties which is why the total exceeds 100%.

Since 2001, a number of WAC plans contain enhanced information describing the importance of streamside buffers as well as a "riparian plan" component that prescribes specific management recommendations for forested riparian areas. Of the 93 WAC plans completed in 2005, 39 (42%) contained riparian plans covering 980 riparian acres. A total of 67 riparian plans covering 2,844 riparian acres have been completed during 2001-2005.

Table 1 summarizes the specific forest management recommendations found in the 15-year work schedules of 93 WAC plans completed in 2005. Eighty-two of these plans (88%) contained some type of silvicultural prescription, with commercial thinning, pre-commercial thinning, and timber stand improvement (TSI) representing the most common prescriptions. As mentioned in previous reports, however, many of the prescriptions itemized in Table 1 can be lumped together into fewer, more generalized categories. For example, pre-commercial thinning and non-commercial thinning are essentially the same practice and both are actually a variation of TSI along with other thinning practices. Similarly, commercial thinning, commercial harvest, and timber sale also refer to the same practice. Nevertheless, in order to avoid misinterpreting a forester's prescription and also to illustrate the full range of terminology found in WAC plans, DEP has itemized all forestry recommendations exactly as they are presented in the plan.

Table 1. Summary of forestry recommendations found in 93 WAC plans completed in 2005.

	#	%
Plans without silvicultural prescription recommendations:	11	12%
Plans recommending silvicultural prescriptions:	<u>82</u>	<u>88%</u>
• Commercial Thinning:	35	43%
• Pre-commercial Thinning:	29	35%
• Timber Stand Improvement (TSI):	23	28%
• Commercial Harvest:	6	7%
• Group Selection:	5	6%
• Firewood or Fuelwood Thinning:	4	5%
• Light Thinning / Crop Tree Release (each):	3	4%
• Non-commercial Thinning / Timber Sale (each):	2	2%
• Sawtimber Thinning / Cull Removal (each):	1	1%

Table 2 summarizes the major water quality issues and recommendations found in 93 WAC plans completed in 2005. Seventy-seven plans (83%) identified a stream on the property, of which 34% already had a crossing in place, 57% recommended a future crossing, and 43% required no crossing due to a lack of future harvest or the stream is located outside the harvest area. Similar to previous year evaluations, fords comprised the most common stream crossing already in place (58%). For those plans recommending a future stream crossing, 64% referenced a NYS Department of Environmental Conservation (DEC) stream crossing permit, 55% recommended a portable bridge, 23% recommended a culvert, 30% recommended a ford, and one plan (2%) recommended log corduroy. Although not listed in Table 1, at least 14 plans (15%) indicated the presence of a wetland on the property.

Table 2. Summary of water quality issues and recommendations found in 93 WAC plans completed in 2005.

	#	%
Plans with streams located on property:	<u>77</u>	<u>83%</u>
• Existing stream crossing identified:	26	34%
• New stream crossing recommended:	44	57%
• No stream crossing needed:	33	43%
Plans with existing stream crossing BMP identified:	<u>26</u>	<u>34%</u>
• Ford	15	58%
• Culvert	9	35%
• Bridge	5	19%
• Corduroy	1	4%
Plans with new stream crossing recommended:	<u>44</u>	<u>57%</u>
• New York State DEC permit	28	64%
• Portable bridge	24	55%
• Culvert	10	23%
• Ford	13	30%
• Corduroy	1	2%
Plans with existing forest roads located on property:	<u>75</u>	<u>81%</u>
• Road has erosion problems or needs BMPs installed:	27	36%
• Road exists in good condition or problems not described:	48	64%
Plans recommending new roads to be installed during future harvest:	<u>56</u>	<u>60%</u>
• Property does not currently have an existing forest road:	16	29%
• Property already contains an existing forest road:	40	71%

In addition, approximately 81% of all plans identified an existing forest road on the property, whereas 60% of all plans recommended that a new road be installed during a future timber harvest. Of the 75 plans with existing forest roads identified, 64% were considered to be in good condition (or else problems were not explicitly described in the plan), whereas 36% needed some type of improvements due to a lack of BMPs, visible signs of erosion, or improper layout and construction. These results are consistent with the cumulative results for all 537

WAC plans completed during 1998-2005, in which 64% of existing roads were considered to be in good condition (or problems were not described), and 36% needed some improvement. As mentioned in previous reports, however, the assessment of forest roads remains one of the more subjective components of the evaluation due to the diversity of foresters writing WAC plans.

#### **4. Year-1 Survey Results**

Thirty-six landowners returned a Year-1 Survey upon the initial completion of their WAC plans in 2005, representing a 39% response rate. This percentage is lower than the 50% cumulative response rate (269 returned surveys) for the 537 total WAC plans completed during 1998-2005. Table 3 summarizes the positive responses (landowner responded “yes”) for the 36 respondents who completed a Year-1 Survey in 2005. It is worth noting that a revised Year-1 Survey was utilized in 2005 that resulted in more detailed responses compared to previous years. The Year-1 Survey was revised in part to gather additional data about landowner intentions and also to make the Year-1 Survey more compatible with the Year-5 Survey already in use.

Among the survey’s highlights, 100% of the respondents were satisfied with the forest management planning process and well as the foresters who completed their plans, while 94% felt they had adequate input into the preparation of their plans. These percentages are all roughly in line with prior Year-1 Survey results. When landowners were asked to rank their satisfaction on a scale of 1 to 5 (1=very unsatisfied; 5=very satisfied) – which is one of the new Year-1 Survey questions – respondents indicated a 4.7 satisfaction level with the planning process and a 4.9 satisfaction level with the foresters who wrote their plans. Ninety-four percent of the respondents indicated they would retain the services of their foresters in the future, with timber stand improvement (79%), commercial timber sale (76%), and five-year plan updates (76%) representing the top three activities.

Eighty-three percent of survey respondents indicated that their plans recommended forestry practices during the next five years, of which 90% indicated their intent to complete these practices. By comparison, only 53% of the respondents indicated that their plans recommended watershed protection practices during the next five years, of which 100% indicated their intent to complete these practices. When landowners were asked about specific recommendations they would implement without any additional resources or funding assistance, the top three activities included wildlife enhancements (44%), timber stand improvement (39%), and property line maintenance (39%). Installing forestry stream crossings (6%), installing erosion control devices (8%), and managing riparian areas (11%) were the three least likely plan recommendations to be completed by survey respondents; however all of these practices are eligible for technical and funding assistance through the WAC Forestry Program.

Eighty-one percent of the Year-1 Survey respondents indicated their willingness to use a trained or certified logger when conducting future timber sales (compared to 75% for all Year-1 Survey respondents from 1998-2005), while 83% expressed their interest in participating in other types of voluntary watershed forestry programs (this is the same as the cumulative total). When landowners were asked about three specific program opportunities – also a new survey question – half of the respondent indicated conservation easements, two-thirds indicated educational workshops, and slightly more than three-quarters (77%) indicated roads/trails improvements.

Table 3. Summary of positive landowner responses to selected questions in 36 Year-1 Surveys.

	#	%
Overall, were you satisfied with the forest management planning process?	36	100%
Overall, were you satisfied with the forester who prepared your plan?	36	100%
Do you feel you had adequate input into your plan's preparation?	34	94%
Will you retain the services of a forester for future activities on your land?	<u>34</u>	<u>94%</u>
• Timber Stand Improvement (TSI):	27	79%
• Commercial Timber Sale:	26	76%
• 5-Year Plan Update:	26	76%
• Roads/Trails Improvement:	20	59%
• Wildlife Enhancements:	18	53%
• Property Line Maintenance:	15	44%
• Tree Planting:	13	38%
Do you feel that your plan will improve the stewardship of your property?	36	100%
Does your plan recommend forestry practices in the next 5 years?	<u>30</u>	<u>83%</u>
• Do you intend to complete these practices?	27	90%
Does your plan recommend watershed protection practices in the next 5 years?	<u>19</u>	<u>53%</u>
• Do you intend to complete these practices?	19	100%
Which of the following recommendations are you more likely to complete on your own without additional resources or funding assistance?		
• Wildlife Enhancement:	16	44%
• Timber Stand Improvement (TSI):	14	39%
• Property Line Maintenance:	14	39%
• Tree Planting:	11	31%
• Roads/Trails Improvement:	10	28%
• Commercial Timber Harvest:	9	25%
• 5-Year Plan Update:	7	19%
• Riparian Area Management:	4	11%
• Erosion Control Devices:	3	8%
• Forestry Stream Crossings:	2	6%
Would you prefer to use a trained/certified logger for a future timber sale?	29	81%
Would you be interested in participating in other types of forestry programs?	<u>30</u>	<u>83%</u>
• Roads/Trails Improvements:	23	77%
• Educational Workshops:	20	67%
• Conservation Easements:	15	50%

Finally, one other new question that was included in the Year-1 Survey was whether landowners feel that owning a forest management plan will improve the stewardship of their properties. Every single respondent answered “yes” to this question, which is a promising indication that watershed landowners view their WAC forest management plans as a helpful tool and educational resource for guiding the proper management of their forestland.

## **5. Year-5 Survey Results**

Thirty-eight landowners returned their Year-5 Surveys in 2010, representing a 41% response rate. By comparison, the cumulative response rate for all 537 landowners who completed a WAC plan during 1998-2005 (and returned their Year-5 Surveys during 2003-2010) is 49% (265 returned surveys). WAC follows a three-tiered approach when conducting the Year-5 Survey. First, the survey and cover letter are mailed to all landowners having a five-year old WAC plan. Three weeks later, all non-respondents receive a second mailing. Three weeks after the second mailing, WAC staff attempt to contact all remaining non-respondents via phone.

For the 38 landowners who returned a Year-5 Survey, 35 still own their property (92%) and three landowners (8%) have sold their land or passed away. Table 4 summarizes the positive responses (landowner answered “yes”) for the 35 respondents who still own their land.

Among the survey’s highlights, 66% of the respondents referenced their plans during the past five years, while 80% felt that owning a plan has improved their stewardship. These percentages are all roughly in line with prior Year-5 Survey results. Forty-three percent of the respondents claimed to have retained the services of their foresters during the past five years, with timber stand improvement (TSI) ranking as the top activity. For the nine respondents who conducted a timber sale during the past five years, 78% hired a professional forester and 89% hired a trained/certified logger. Of the 12 respondents who plan to conduct a future timber sale, 67% are planning to hire a professional forester as well as a trained/certified logger. This latter percentage is noticeably lower than prior Year-5 Survey results, in which 85% of all respondents would hire a professional forester and 82% would use hire a trained/certified logger.

One interesting result from the Year-5 Surveys is that 61% of respondents whose plan recommended forest management activities during the past five years indicated they completed these recommendations, compared to 94% who indicated they completed their watershed protection recommendations. In the absence of conducting property site visits to verify on-the-ground practices, it is difficult to know whether landowners are becoming better environmental stewards or whether the Year-5 Survey results reflect a bias on the part of landowners who are responding in a way they feel is the “correct” or “better” answer to these questions.

Finally, the Year-5 Survey asked landowners to numerically rank their reasons for owning a WAC forest management plan, and the results are summarized in Figure 2. Consistent with previous Year-5 Survey results, commercial timber production continues to rank as one of the lowest reasons for landowners adopting a forest management plan, whereas non-timber values such as wildlife, hunting, hiking and recreation continue to rank as more important reasons. These trends are wholly consistent with state and national landowner surveys.



Table 4. Summary of positive landowner responses to selected questions in 35 Year-5 Surveys.

	#	%
Overall, have you been satisfied with your plan during the past five years?	32	91%
Have you consulted your plan since it was completed five years ago?	23	66%
Do you feel that owning a plan has improved your stewardship of your land?	28	80%
Have you enrolled your plan in the NYS Forest Tax Law Program?	10	29%
Have you retained the services of your forester since completing your plan?	<u>15</u>	<u>43%</u>
• Timber Stand Improvement (TSI):	10	67%
• Five-Year Plan Update:	7	47%
• Commercial Timber Sale:	5	33%
• Property Line Maintenance / Wildlife Enhancement (each):	4	27%
• Tree Planting:	3	20%
• Roads/Trails Improvement:	2	13%
Does your plan recommend any forestry activities during the past five years?	<u>18</u>	<u>51%</u>
• If YES, did you complete these recommendations?	11	61%
Does your plan recommend any watershed protection practices during the past five years?	<u>18</u>	<u>51%</u>
• If YES, did you complete these recommendations?	17	94%
Are there recommendations you were planning to complete but have not yet?	<u>16</u>	<u>46%</u>
• Timber Stand Improvement:	9	56%
• Roads/Trails Improvement:	6	38%
• Property Line Maintenance:	5	31%
• Wildlife Enhancement / Commercial Timber Harvest (each):	4	25%
• Forestry Stream Crossings:	3	19%
• Five-Year Plan Update:	2	13%
• Tree Planting / Erosion Control Devices / Riparian Management (each):	1	6%
Have you conducted a timber sale during the past five years?	<u>9</u>	<u>26%</u>
• If YES, did you hire a professional forester?	7	78%
• If YES, did you hire a “trained” or “certified” logger?	8	89%
Are you planning to conduct a timber sale during the next five years?	<u>12</u>	<u>34%</u>
• If YES, are you planning to hire a professional forester?	8	67%
• If YES, are you planning to hire a “trained” or “certified” logger?	8	67%
Have you recommended the Forestry Program to others during the past 5 years?	21	60%
Have you participated in forestry workshops or other educational events during the past 5 years?	8	23%

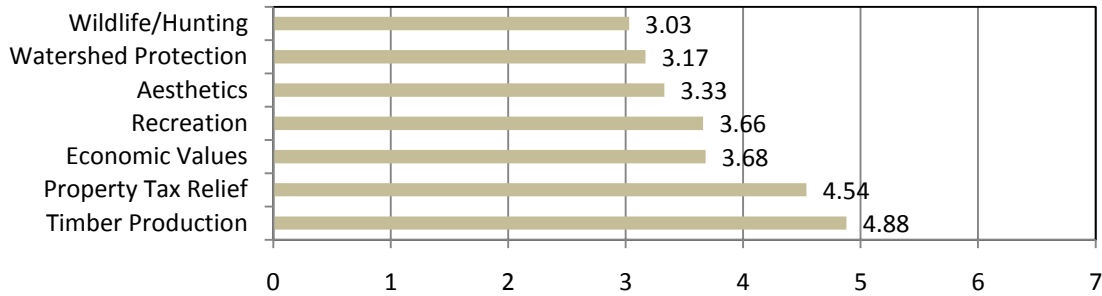


Figure 2. Numerical ranking of landowner reasons for owning a WAC plan for 35 Year-5 Survey respondents (1=most important, 7=least important).

## 6. Landowner Participation in Other Programs

Watershed landowners who adopt WAC forest management plans may choose to participate in several voluntary incentive programs that promote good forest stewardship. These opportunities include the WAC Management Assistance Program (MAP), WAC Forestry BMP Programs, NYS Forest Tax Law Program, federal FLEP or EQIP opportunities, WAC Easement Program, DEP Land Acquisition Program, and others. The following results represent the 93 landowners who completed WAC plans during 2005:

- Forty-nine landowners (53%) were eligible to participate in the NYS Forest Tax Law Program by owning at least 50 acres of forest land. Ten of these landowners (20%) enrolled all or part of their properties in the Forest Tax Law prior to their participation in the WAC Forestry Program in 2005, whereas ten landowners (20%) enrolled in the Forest Tax Law subsequent to completing a WAC plan.
- Nine landowners (10%) have updated their five-year old WAC plans since 2005 while three landowners (3%) are currently approved to have their five-year old WAC plans updated in the future (these plans are pending completion). In addition, one of the 93 WAC plans completed in 2005 represents an updated WAC plan from 1999.
- Sixteen landowners (17%) have received funding through the WAC Forestry Program to implement road BMP projects. Two of these landowners completed road remediation projects prior to the completion of their WAC plans, two landowners completed road remediation projects after the completion of their plans, and 11 landowners completed new timber harvest road projects after the completion of their plans.
- Twenty-two landowners (24%) were approved to receive funding through the WAC Management Assistance Program (MAP) to implement 38 different projects: eight wildlife improvement projects; 22 timber stand improvement (TSI) projects; three tree planting projects; three invasive species control projects; and two riparian improvement projects. Thirty of these projects have been completed, five projects have been cancelled, and three projects are still pending completion.

- Three landowners (3%) sold their land to DEP in fee simple (21.63 acres) while another landowner (1%) currently has an active fee sale in process with DEP's Land Acquisition Program. Seven landowners (8%) entered into a DEP conservation easement (641.87 acres) and three landowners (3%) are currently in the DEP easement pipeline.
- One landowner (1%) entered into a WAC conservation easement (203.44 acres) while another landowner (1%) is currently in the WAC easement pipeline.
- According to the NYS Department of Environmental Conservation, none of the landowners who completed a WAC forestry plan in 2005 received federal funding through either FLEP or EQIP during the period 2005-2010. This is not surprising given that both programs experienced funding shortfalls and the fact that WAC now offers the Management Assistance Program (MAP) as a more viable local alternative.

## **7. Summary**

Forest management planning and implementation remains an important cornerstone of the Watershed Forestry Program, providing a valuable educational resource for landowners and a programmatic gateway for encouraging and supporting voluntary long-term forest stewardship.

This report evaluated 93 WAC forest management plans completed during 2004. In January 2012, DEP will submit a report that evaluates the five-year implementation status of 84 WAC forest management plans completed during 2006.