

Rehabilitation of abandoned aggregate properties in Ontario: An evaluation of the MAAP Program based on landowner satisfaction

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Abstract

The Management of Abandoned Aggregate Properties (MAAP) Program is focused on the rehabilitation of pits and quarries abandoned before January 1, 1990, within areas designated under the Aggregate Resources Act. One of the goals of the MAAP Program is to monitor the completed rehabilitation projects. Evaluation of the program's rehabilitation work was based on landowner satisfaction, and consisted of two stages, a telephone interview with previous participants, followed by a mail survey. Preliminary results indicate that the majority of the landowners are satisfied with the work completed on their property. The results also suggest that landowner satisfaction varies with the proposed after-use of the rehabilitated area. Recommendations for improving the program are also discussed.

INTRODUCTION¹

Aggregate resource extraction has left a legacy of abandoned pits and quarries throughout Ontario. Many of these disturbed landscapes were left in an unsightly, unproductive, or unsafe state because extraction and rehabilitation of aggregate properties was not strictly regulated before 1990. While nature and landowners have reclaimed some of these sites over time, others continue to lack ecological, economic, and social importance. Recently, environmental awareness and industry accountability have spurred the need to rehabilitate these abandoned sites.

In 1990, the Aggregate Resources Act was legislated to ensure sustainable management of this non-renewable resource. In addition to stricter regulations for extraction and rehabilitation, licensed operators are required to pay a six-cent levy on every tonne of aggregate extracted. A portion of this levy is earmarked for the rehabilitation of abandoned pits and quarries, that is, aggregate properties for which there was

no license or permit in force after December 31, 1989.

The Ministry of Natural Resources (MNR) was originally responsible for administering the Abandoned Pits and Quarries Rehabilitation Fund (APQRF). The Ministry surveyed and documented the location and condition of all known abandoned pits and quarries within areas designated under the Act. Approximately 6000 inventories were completed wherein each site was evaluated for the following factors: visual, environmental, economic, and safety hazards. Based on these inventories, the Ministry selected and rehabilitated 52 abandoned aggregate properties between 1992 and 1996.

Provincial government downsizing and streamlining of regulatory processes, resulted in a new partnership between government and the aggregate industry, wherein the industry would have a more proactive role in regulatory compliance and management. In June of 1997, through an amendment of the Aggregate Resources Act, the APQRF was transferred to the newly established Aggregate Resources Trust. Through an agreement with the MNR, the Aggregate Producers' Association of Ontario (APAO) created The Ontario Aggregate

¹ Background information for this paper was obtained from MAAP and TOARC Annual Reports for years 1997 through 2001.

Resources Corporation (TOARC) to act as the Trustee of the Trust. The Management of Abandoned Aggregate Properties (MAAP) Program was established to coordinate the rehabilitation of abandoned pits and quarries in designated areas. The APAO delivers the MAAP Program on behalf of TOARC.

MAAP PROGRAM

The MAAP Program is focused on the rehabilitation and research of abandoned pits and quarries within areas designated under the Aggregate Resources Act of Ontario. Each year, MAAP aims to rehabilitate fifteen to twenty of the 6000 abandoned sites. Different geographic areas are targeted each year to distribute the funding. The original MNR inventories, as well as MAAP inventories of pits and quarries in areas designated under the Act after 1997, are used to select sites. Sites are selected to address environmental, safety, and aesthetic concerns, and are prioritized to deal with the most severe sites in a given area. Landowner interest is also an important factor in determining whether a site will be rehabilitated, because participation in the program is voluntary.

Landowners of the candidate sites are contacted and offered the opportunity to have their site rehabilitated at no cost to themselves. Despite that the rehabilitation work is free, and that it does not place any future restrictions or easements on the property, landowners may choose not to participate for several reasons. In some cases, the landowner feels that the site has been adequately rehabilitated, either through their own efforts or by nature. In other cases, the landowner feels there may be sufficient aggregate remaining, and the landowner is planning to apply for a license or permit to extract more material. Occasionally, the landowner is suspicious and believes that there is a “catch” to the offer. Even though MAAP offers a free service, historically only 10% of landowners contacted ultimately choose to participate.

MAAP follows a few guidelines for rehabilitating abandoned properties. Garbage or debris in the pit or quarry is the responsibility of the landowner, and this material must be removed before rehabilitation work begins. MAAP also does not import fill onto the site. Instead, material

found on the site is used to grade the slopes to a minimum of 3:1 wherever possible. Topsoil is occasionally imported to ensure a depth of 50 millimetres. All rehabilitation work is covered by a one-year warranty period.

Between 1997 and 2001, MAAP rehabilitated 76 abandoned aggregate properties. Approximately 45% of these sites were returned to agriculture (crops or pasture), 49% were returned to natural areas (dryland or wetland), and the remaining 6% were converted to a recreational after-use. In total, 125 hectares were rehabilitated, resulting in 64 hectares of agricultural land, 51 hectares of natural areas, and 10 hectares of recreational areas. The average size of the rehabilitated properties was approximately 1.6 hectares. During this five-year period, over \$1.8 million was spent, of which earthworks accounted for 37%, planting for 23%, fine grading for 21%, and site preparation accounted for 16% of the total costs.

Rehabilitation of abandoned aggregate properties is the primary goal of the MAAP Program. The program has two additional goals, to support research on the rehabilitation of abandoned aggregate properties, and to monitor completed rehabilitation projects. MAAP has participated in several research projects over the last five years, such as a DFO study of aquatic habitat manipulation in pit and quarry ponds. However, MAAP has not had adequate time or resources to fulfill its third goal, to monitor its own completed projects as these landscapes mature.

STUDY GOALS

This study has three goals: 1) to determine the level of landowner awareness of the MAAP Program and landowner reasons for participation, 2) to evaluate the success of completed rehabilitation projects based on landowner opinion, and 3) to identify factors that affect landowner satisfaction with the work completed on their property.

The results of this monitoring study will be used to improve the program, and to determine how landowner participation can be increased. The landowner survey developed for this study will be

used annually as a post-construction evaluation tool.

METHODS

Evaluation of the MAAP Program was conducted in two stages. The first stage consisted of a telephone interview with landowners who participated during the 1997-2001 period, followed by the second stage, a mail questionnaire. Both survey instruments were developed using The Total Design Method as described by Dillman (1978).

Telephone Interviews

Telephone interviews were conducted during November 2002. Seventy-six properties had been rehabilitated between 1997 and 2001. Some sites had more than one landowner, bringing the total number of past participants to 83. Past participants were contacted randomly, to avoid year or geographic area bias. The goal was to contact as many individuals as possible.

The purpose of the telephone interview was to determine satisfaction levels of previous participants, and to establish whether landowners had any concerns since rehabilitation. The interviewer explained to each landowner that MAAP was conducting confidential follow-up calls with all previous participants to ask them about their experience with the program. It was stated that their feedback was important because it would be used to improve the program.

To start the interview, participants were asked whether they knew about the program before MAAP contacted them about the possibility of rehabilitating their site. If so how did they hear about the program, and did they contact MAAP about their abandoned aggregate property once they knew about the program. Landowners were then asked whether they had considered rehabilitating their property before it was selected by MAAP, and if they had, what were the main reasons for not rehabilitating. Next, landowners were asked why they chose to participate in the MAAP Program. To close the interview, they were asked how satisfied they are with the rehabilitation work, whether they have had any

concerns since rehabilitation, and whether the work met their expectations.

Mail Questionnaires

At time of manuscript submission, the second stage of the MAAP Program evaluation, a mail questionnaire, had not yet been completed. All landowners who participated in the telephone interview were told in advance that they would be sent a written questionnaire. The purpose of the mail survey is to better understand landowner preferences and perceptions of their rehabilitated properties.

PRELIMINARY RESULTS & DISCUSSION

This discussion will be limited to the results obtained from the telephone interviews. At time of manuscript submission, 50 of the 83 landowners had been surveyed about 48 of the 76 rehabilitated properties.

Of the landowners contacted, 48% did not know about the program before their property was selected as a candidate site for MAAP rehabilitation. An equal percentage of landowners (48%) said that they knew about the MAAP Program, or that they were aware that a pit and quarry rehabilitation fund existed. The remaining landowners could not remember if they had heard of MAAP prior to contact by program staff.

Landowners who had heard of MAAP stated that they had learned about the program through word-of-mouth, through newspaper articles, or through contact with the Ministry of Natural Resources. Others knew about the program because they had read a MAAP annual report or had seen other sites rehabilitated by MAAP. A few landowners were aware of the pit and quarry rehabilitation fund because they had paid license fees at one time. Of the participants who did know of the program, 56% contacted MAAP to request that their site be considered for rehabilitation.

These results indicate that public awareness of the program is not as high as MAAP staff would like it to be. Ideally, 70 to 80% of participants would have heard of the program before MAAP contact. If more landowners knew about the program, then more landowners might be willing to participate.

Moreover, considering that more than half of those who knew about the program took the initiative to contact MAAP about their property, it is expected that by raising awareness, program staff will need to invest less time recruiting participants. Therefore, promotion of the program must become a more important part MAAP's mandate.

In the second part of the interview, landowners were asked whether they had considered doing rehabilitation work by their own means, either by doing the work themselves, or by hiring a contractor. Forty-two percent of the landowners contacted stated that they had. Landowners who had access to heavy equipment, and who could do the work themselves, were more likely to seriously consider or even begin rehabilitating the site than those who did not. As expected, the major reasons for not doing the rehabilitation work by their own means were cost and/or time. Some of the landowners who knew of the MAAP Program stated that they did not rehabilitate on their own because they wanted to take advantage of the funds available.

Next, landowners were asked what were their main reasons to participate in the program. Of all the reasons provided, concern for safety, and appearance of the abandoned aggregate property were cited the most often, at 30% each. The third most common reason (cited 17% of the time) was that the work provided was free. Increasing agricultural productivity of the land was listed 10% of the time, as was environmental stewardship (e.g. reduce erosion, provide wildlife habitat, stop illegal extraction or dumping). A few landowners mentioned that they chose to participate because the rehabilitation would increase their property value.

Safety and aesthetics were the most compelling reasons for landowners to participate. These results were expected because of liability concerns and public preference for neater, more orderly landscapes. Increase in productivity may not be as important to landowners as MAAP originally thought, possibly because the amount of cropland or pasture to be gained is generally small, (average size of rehabilitated area is 1.6 ha). For some landowners, the fact that the work provided was free was a good incentive to participate.

In the final part of the interview, landowners described how satisfied they were with the rehabilitation work. These responses can be grouped into three categories: very satisfied, mostly satisfied, and not satisfied. Of the landowners contacted, the majority are satisfied with the work completed on their property: 52 % were very satisfied, and 40% were mostly satisfied. The remaining 8% were not satisfied.

Landowner satisfaction seemed to vary with the after-use of the rehabilitated area. One third of the landowners whose sites were converted to cropland, and half of those whose sites were rehabilitated to natural areas, were very satisfied. Landowners whose properties were rehabilitated to pasture seemed to be the most satisfied, with two thirds stating that they were very satisfied.

Landowners whose properties were converted to cropland were the least satisfied of all participants because they had very specific needs. One third of these landowners stated that the fields were left too rough and so more levelling was required, or that the slopes were left too steep to safely operate farm machinery. One individual expressed that although the site is safer for trespassers, it is more dangerous for him because he is now farming on the slopes.

Participants whose properties were rehabilitated to natural areas also had some concerns. Two thirds of these sites were naturalized with planted or transplanted trees and/or shrubs, and in one third of these, most or all of the trees died. Considering that trees were a significant element of the rehabilitation effort, it is understandable that these landowners would be disappointed. Landowners suggested that the poor survival rate was because the trees were planted too late in the fall, or that the trees were so small that the grass choked them out. One landowner, whose trees did survive, stated that he was frustrated that it was taking so long for the trees to grow.

Landowners whose properties were converted to pasture may be more satisfied with the rehabilitation because they experienced fewer problems, and had less requirements, than those whose properties were rehabilitated to other after-uses. Unlike properties rehabilitated to natural

areas or cropland, trees were not a major element, nor was a very gently sloping and smooth landscape required. Only one landowner stated that growth of seeded areas was poor, however he said this could have been the result of drought.

These results suggest that meeting the needs of landowners who requested cropland, or a natural area with trees, is more difficult. MAAP may have to evaluate its policy of grading slopes to 3:1, and invest in providing slopes of 5:1, to increase landowner satisfaction. MAAP should also reconsider its approach to tree planting. It may be worthwhile to plant larger trees, even if it means providing fewer trees in total. Larger trees may have a better chance of out competing the grass, and they will certainly have more of a visual impact, both of which may help raise landowner satisfaction.

Insufficient topsoil and soil erosion were common landowner concerns, regardless of the after-use. Some landowners felt that there was not enough topsoil on the site, even though MAAP's policy is to ensure a depth of at least 50 millimetres. In terms of soil erosion, most landowners reported that it was minimal. Moreover, MAAP did return to rectify erosion problems within the one-year warranty period. Of all the landowners contacted, only a few participants experienced severe erosion resulting in deep gullies. This suggests that grading has been done properly on most sites.

Despite these problems, 74% landowners reported that the work done on their property met their expectations, and 8% percent said that it exceeded their expectations. Twelve percent said that the work done met most of their expectations, and 6% said that it did not meet their expectations.

The mail survey will be completed in January of 2003. Data analysis will continue with a final report expected in April of 2003. The additional results will enhance the defensibility of our preliminary interpretations. The work is intended to help the MAAP Program further focus its resources committed to rehabilitation.

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