

PROGRESS REPORT 3

**THAMES RIVER
IMPLEMENTATION COMMITTEE**

SEPTEMBER 1981

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1.0. Introduction

In 1975 a report on the Thames River Basin Water Management Study (TRBWMS) was issued by the Ministry of the Environment and The Ministry of Natural Resources. This report was based on a detailed study of the Thames River System (see Figure 1) carried out during the period 1972-1975, the objective of which was:

"to develop guidelines for management of the basin's water resources to ensure that adequate quantities of water of satisfactory quality are available for the recognized uses at the lowest possible cost, and that erosion and flood protection are provided consistent with appropriate benefit-cost criteria"

From water quality and flood control modelling results, twenty-two (22) options were defined to meet water management and flood control objectives, based on various combinations involving differing levels of waste treatment, construction and operational alternatives for dams and reservoirs and pipeline concepts to divert London's sewage to Lake Erie. From an evaluation of these options, a total of twenty-nine (29) recommendations (see Appendix A) were advanced in the report, including a number of recommendations focusing on agricultural and other land use practices throughout the basin. Recommendation 23 in the report highlighted the need for a joint committee of government agencies and other appropriate organizations to "overcome communication and co-ordination problems relating to water management in the basin, and to implement planning on a watershed basis". This recommendation resulted in the formation of the Thames River Implementation Committee (TRIC) in the latter part of 1976.

The Thames River Implementation Committee

The Thames River Implementation Committee (TRIC) was formed in October of 1976. It quickly established terms of reference, settled on principal functions and defined those agencies which would be involved in implementation of the recommendations.

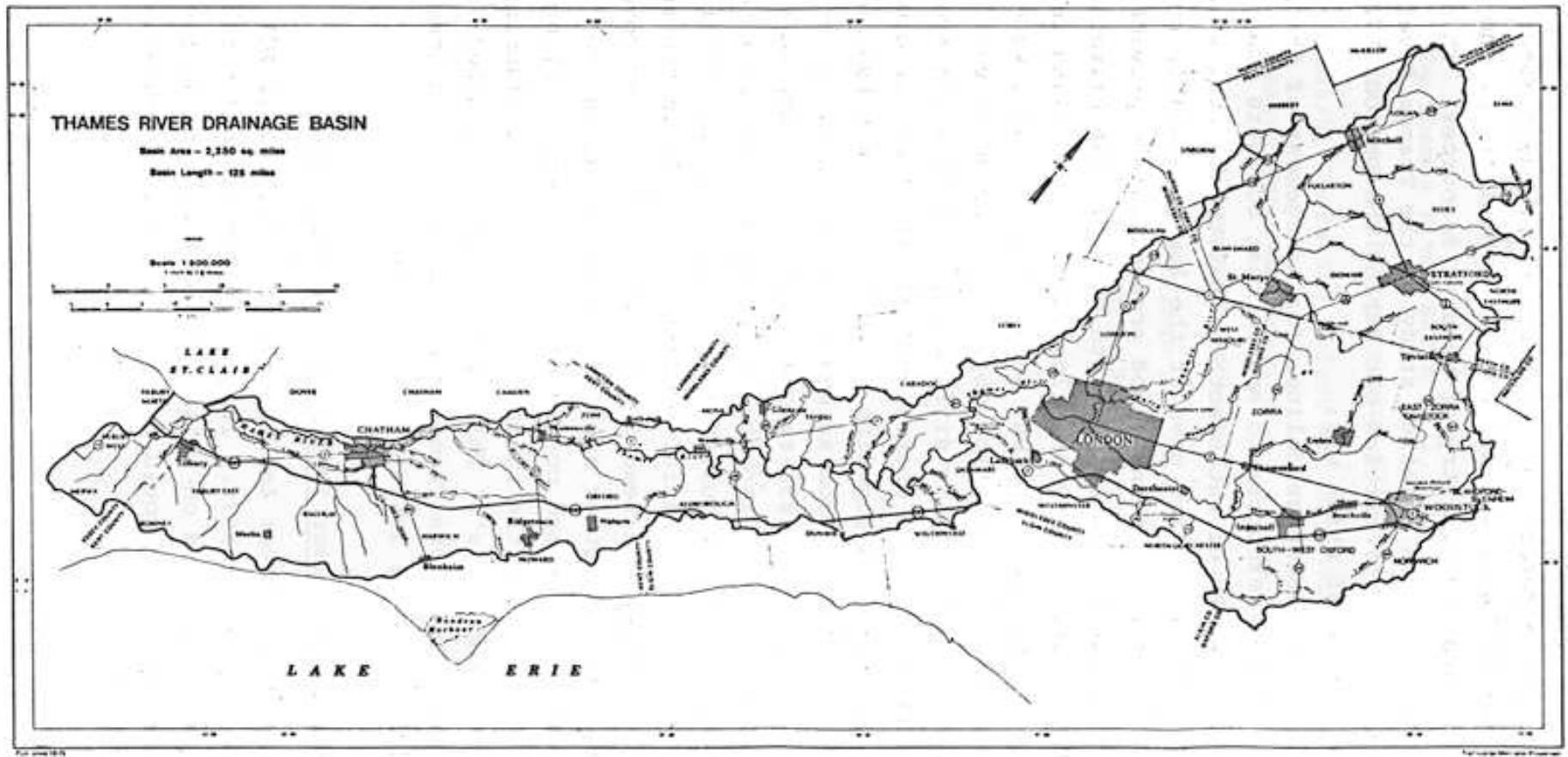


Figure 1: The Thames River Basin

Representation on the Committee included the following agencies:

Ministry of Natural Resources

Ministry of the Environment

Upper Thames River Conservation Authority

Lower Thames Valley Conservation Authority

Ontario Ministry of Agriculture and Food Ministry of Housing

Municipal Engineers Association

Ontario Federation of Agriculture

The representatives on the Thames River Implementation Committee as of August, 1981 are indicated in Appendix C.

In the definition of implementing agencies, the Committee agreed that Basin municipalities should play a key role in the further assessment and implementation of the recommendations in the Thames River Basin Water Management Study. The Committee should maintain effective communication with the municipalities to ensure integration of activities throughout the Basin.

A preliminary assessment of the 29 recommendations in the Thames River Basin Water Management Study (TRBWMS) determined that they fell into three separate categories of responsibility. A subcommittee was formed to deal with each of the three groups: Dams, Reservoirs and Floodplain Management Subcommittee, Municipal Co-ordination Subcommittee; and Agriculture and Land Use Subcommittee. The distribution of the recommendations amongst the three subcommittee's was as follows:

Dams, Reservoirs and Floodplain Management	Municipal Co-ordination	Agriculture and Land Use
1, 2, 3, 4, 5, 14	6, 7, 8, 9, 10	11,12,13,15*
16, 17, 18, 19, 24	15*	20, 21, 22, 27
25, 26		28, 29

*Note overlapping responsibility

Recommendation 23 relating to formation of the Committee has been implemented. From the fall of 1976 until the spring of 1978, the subcommittees and the parent committee reviewed the TRBWM recommendations and the related programs and activities that were implemented by various agencies since the report was issued in 1975.

1.1. TRIC Progress Report 1

In May 1978, the Committee published its first Progress Report. It outlined the status of each of the recommendations with regard to implementation and clarified the future directions that the Committee envisaged it would take in carrying out its mandate. Copies of the report were circulated to municipalities, planning boards, farm organizations, interested government personnel and public interest groups. In December, 1978, the Progress Report and a related Addendum were forwarded to the Ministers of Environment and Natural Resources. It was suggested that copies of the transmittal be forwarded to the Ministers of Agriculture and Food and Housing, as their Ministries could be affected by the proposals and funding arrangements advanced.

The stance adopted by the Committee identified the need to take a more active role in co-ordinating and stimulating the development of an effective river basin management program on the Thames River. After carefully evaluating existing legislation, policies and programs, it was determined that the Committee's terms of reference could be met through a three-year program during which it would serve as a catalyst to initiate action in this regard. It was anticipated that the Committee would cease to function upon completion of this program. The participating agencies would then carry on with the implementation of the program.

Following presentations to the Cabinet Committee on Resources Development in December 1978 and April 1979 the Committee formally approached the Provincial Government for financial assistance. Both the Ministry of Natural Resources and the Ministry of the Environment agreed to support the program of the Thames River Implementation Committee on a cost-shared basis. Funding for the initial year of the program was approved at \$188,000. effective April 1, 1980. Details on the nature of the approved program are provided in Section 3.0, The 1980/81 Work Program. Approval of the program was based on the understanding that the funds would be allocated to the Upper Thames River Conservation Authority and the Lower Thames Valley Conservation Authority who would administer the program and provide office accommodation.

Approval was also based on the understanding that the activities of the Committee would be closely co-ordinated with the investigations being undertaken as part of the Stratford-Avon River Environmental Management Project. The objectives of the two studies are very similar, but given the difference in size between the two basins (5800 km² vs. 150 km²) the work on the Thames River is necessarily of a general, promotional nature while the activities on the Avon River are designed to establish a specific water management strategy to evaluate suitable remedial measures and their cost-effectiveness.

1.2. TRIC Progress Report 2

In September 1980, the Committee published its second Progress Report which outlined the revised status of each of the recommendations since the time of the first Progress Report.

The Report also outlined the proposed Work Plan for 1981/82. Funding, still shared equally by the Ministry of Environment and the Ministry of Natural Resources, was approved at \$290,000 for the second year of the program. Details

on the nature of the approved program are provided in Section 4.0 "The 1981/82 Program-Status to Date".

Approval was based on the same understandings as those mentioned in Section 1.1. "TRIC Progress Report 1".

2.0 Review and Status of Recommendations

Subsequent to the last TRIC progress report, meetings of the Dams, Reservoirs and Floodplain Management Subcommittee and the Municipal Co-ordination Subcommittee have been discontinued. As identified in the Review and Status of Recommendations in Progress Report 2, (See Appendix B), most of the recommendations of these two Subcommittees are being adequately handled through existing channels.

The stance by TRIC on the following issues, Recommendations 1-10, 14, 16-19, 24-26, (in Appendices A and B) remains basically unchanged. Two consultant studies were initiated however, regarding Recommendation 4, "Wardsville Dam" and Recommendations 7 and 8 regarding Municipal Servicing.

The Municipal Servicing Study consisted mainly of a "Compilation of Economic Data on Municipal Sewage Treatment" and details may be found in this report under Section 3.4, "1980/81 Work Program - Results".

A discussion of the "Wardsville Dam Study" may be found in this report under Section 4.4. of the "1981/82 Work Program - Status to Date".

The Agriculture and Land Use Subcommittee has maintained regular meetings and is actively engaged in addressing the relevant recommendations. This circumstance is reflected in the budget which identifies activities mainly concerned with this Subcommittee.

2.1. Agriculture and Land Use Subcommittee

Recommendations 11, 12, 13, 15, 20, 21, 22, 27, 28 and 29, (see Appendix A) were to be addressed by the Agriculture and Land Use Subcommittee. The stance taken under "Review and Status of Recommendations" in Appendix B has not changed. The status has, however, changed and is summarized in Section 3.0 "The 1980/81 Work Program - Results" and Section 4.0, "The 1981/82 Work Program - Status to Date".

3.0. The 1980/81 Work Program - Results

In February of 1980, the Committee was advised that provincial funding in the amount of \$188,000. had been approved for the first year of TRIC's proposed three-year program. The approved work program consisted of essentially four components which will be addressed in more detail below:

- i) Information and Education
- ii) Identification and Mapping of Hydrologically Active Areas and Development of Land Management Demonstration Areas
- iii) Drain Construction and Maintenance Guidelines and Applications
- iv) Compilation of Economic Data on Municipal Sewage Treatment

Following provincial approval, the Committee hired a Program Co-ordinator to organize and oversee the implementation of the various program components. It was agreed that the Program Co-ordinator would provide a similar service to the Stratford-Avon River Environmental Management Project as described previously. The remainder of the staff were hired by June 1980 and a field program initiated shortly thereafter.

3.1. Information and Education

The Information and Education aspect of the program was handled through a number of methods, including:

- i) meetings/presentations
- ii) displays at special events
- iii) media releases
- iv) educational publications and brochures
- v) material loans
- vi) landowner contact
- vii) demonstrations/tours
- viii) staff development

3.1.1. meetings/presentations - Appendix G includes listings of most of the conferences, displays, etc. attended and/or given by TRIC staff during the 1980/81 Work Program. All TRIC staff have been involved in giving presentations at meetings and seminars. Approximately 80 groups were informed of the TRIC program through formal presentations including most Townships, 7 county Soil and Crop Improvement Associations, Ministry of Natural Resources Offices and various other "group" functions. Most Drainage Engineering Firms and Drainage Commissioners in the Basin have also been contacted with respect to conservation drain construction practices.

3.1.2. displays at special events - Several display units were built and used at 7 Special Events including the International Plowing Match, the Western Fair, and the Save Our Soils Conference. Some of the displays were also used during the Presentations and Meetings discussed in Section 3.1.1.

3.1.3. media releases - Media Releases were publicized through at least 5 newspapers, and 3 radio stations throughout the Thames River Basin.

- 3.1.4. educational publications and brochures - The first drafts of a Conservation Land Management Handbook and a Drain Construction Handbook were completed and sent to members and appropriate authorities for review. A slide inventory of approximately 2,500 in number was accumulated and catalogued. Various slide shows were developed including an upgrading of the original TRIC slide/tape show. Articles for the first draft of the proposed "Talk of the Thames" bimonthly newsletter were written. A catalogue of some existing positive land management practices was compiled and distributed to appropriate agencies throughout the Basin.
- 3.1.5. material loans - An average of one request per week was made for loans of slides, technical information, and data by various Ministries, Universities, Conservation Groups and Researchers.
- 3.1.6. direct landowner contact - Approximately 150 individual site meetings were attended by TRIC staff. A number of the meetings were regarding municipal drainage. In all cases, appropriate agencies were invited and either verbal or written site specific recommendations were given including sources of assistance.
- 3.1.7. demonstrations/tours - Several sites at which demonstration projects have begun or are completed were used as points of interest for tours and were and are being documented for presentations, displays and future tours. Demonstrations will be discussed in detail under Section 3.2.
- 3.1.8. staff development - At least 16 tours, conferences and/or seminars were attended by TRIC staff, including a tour of the Honey Creek Watershed Project in Ohio and the Save Our Soils Conference in Toronto.

3.2. Identification and Mapping of Hydrologically Active Areas (H.A.A.s) and Development of Land Management Demonstration Areas.

The Committee became aware early in 1980 that the Lands Directorate of Environment Canada had proposed to do a hydrologically active areas analysis on the Thames River Basin in 1981. In view of this, the Agriculture and Land Use Sub-committee directed most of its effort in 1980-81 toward demonstration of known conservation practices on existing problem areas. The Lands Directorate on the other hand, undertook a similar H.A.A. analysis on the Avon River in 1980, which provided an opportunity to test the methodology for the Thames River.

3.2.1. identification and mapping of contributing areas

Preliminary Plans for the Identification and Mapping of contributing areas were made in 1980/81. Plans were also made to have work done in 1981/82 (see section 4.2.1.)

3.2.2. development of land management demonstration areas

By March 31, 1981, twenty sites associated with either sheet, rill and/or bank erosion were in various stages of planning and/or implementation. See Appendix E entitled "Active Demonstration Site Identification and Status" for details and status as of March 31, 1981.

Figure 2 shows the locations of the various demonstration sites within the Thames River Watershed. Also included on this figure are the locations of "passive" demonstrations(those sites on which positive land management practices were already in place). Appendix F includes a listing of these sites.

To assist the demonstration program, a truck, a mulch tiller and a conservation planter were leased. Four experience '81 students were hired to assist in demonstration work. An Engineering Assistant was also hired on short-term contract to expand the active demonstration program.

Technical and financial involvement by the Conservation Authorities and the Ministry of Agriculture and Food was sought and commitments have been received on several projects.

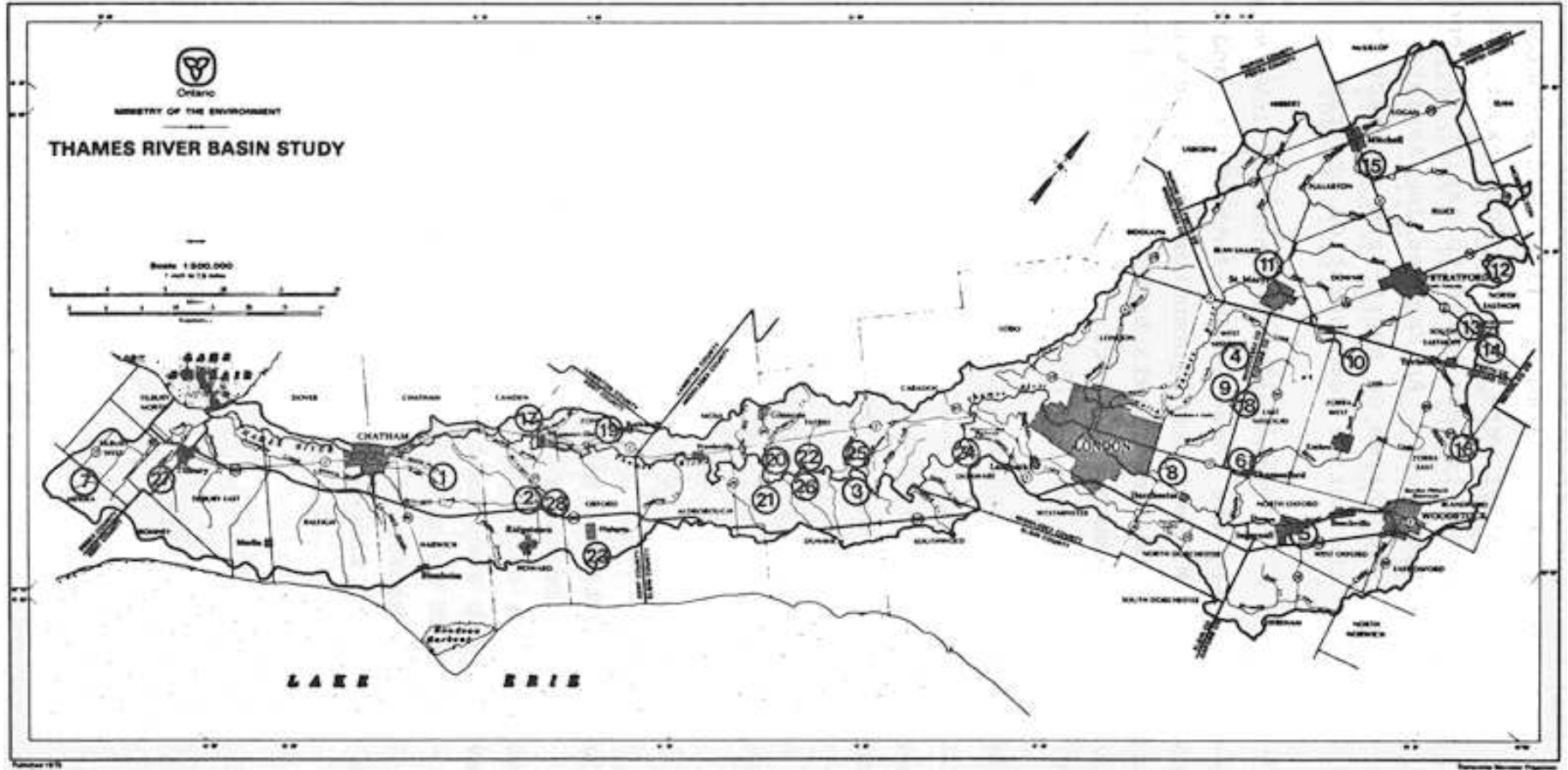


Figure 2 - Location of Demonstration Sites

3.3. Drain Construction and Maintenance Guidelines and Applications

The "Design and Construction Guidelines for Work Under the Drainage Act", recently published by the Ministry of Agriculture and Food was reviewed in detail by staff and found to be useful for Drainage Engineers, but lengthy and complicated for reference by landowners, contractors and councils. By March of 1981, a first draft of a concise, simplified "handbook" was prepared for review by the Agriculture and Land Use Subcommittee. The handbook includes schematic diagrams and colour photographs and is intended for use by landowners, councils, contractors and engineers.

Also, two major drainage projects undertaken in the basin in 1980 were monitored, both visually and through concentration sampling. Results are expected to generate an estimate of the effects of construction on water quality.

Details of several Municipal Drainage Demonstrations can be found in Appendix E entitled "Active Demonstration Site Identification and Status".

Attendance of Municipal Drain "Site Meetings" and review of Municipal Drainage Reports was a major activity of TRIC staff during the 1980/81 budget year. This work supplemented the duties of the Conservation Authorities. The importance of meetings with the engineers, township officials, and the landowners to provide input and site specific ideas regarding erosion control cannot be over-stressed. It is hoped that, when the TRIC Program terminates, Conservation Authorities will continue this activity until attitudes toward erosion control change.

In total, 79 site meetings regarding municipal drains were attended as well as various discussions and tours with Drainage Commissioners and Township Council Meetings, all relating to the public education aspects of TRIC on municipal drains.

Implementation of the UTRCA Reynolds Creek Erosion Control Project was also supplemented directly by the time of TRIC staff.

3.4. Compilation of Economic Data on Municipal Sewage Treatment

As noted in the review of recommendations 7 and 8 of Progress Report 2 (see Appendix B), a variety of studies and related treatment facility upgradings have taken place in the last several years. In order to more fully appreciate the overall affect of these changes on water quality in the river, and to determine the necessary servicing requirements to meet the standards set out in the 1975 Basin Study, a Municipal Servicing Study was undertaken and completed in Feb. 1981. The report has been sent to various Ministries for review before distribution to the affected municipalities.

3.5. The 1980/81 Operating Budget vs. Expenditures

A summary of the 1980/81 Budget vs. Actual Expenditures is included as Figure 3. All components of the TRIC program were cost-shared equally between the Ministries of the Environment and Natural Resources. Whenever appropriate, the cost of specific activities was shared between TRIC and The Stratford-Avon River Environmental Management Project.

The decrease in actual expenditures on Land Management Demonstrations reflects the timing of the project, as well as the importance of municipal drainage which had an actual expenditure in excess of its budget.

Figure 3. 1980/81 Operating Budget vs Expenditures

	<u>Budget</u>	<u>Expenditures</u>
1. <u>Co-ordination and Administration</u>		
- part of Co-ordinator's salary and expenses		
- part of administration expenses (secretarial services, xeroxing, postage, telephone).	\$ 20,000	\$ 19,977
2. <u>Information and Education</u>		
- salary and expenses for Community Relations Technician		
- supplies, materials, professional services, etc.	20,000	22,897
3. <u>Land Management Demonstrations</u>		
- salary and expenses of Agricultural Engineer, Agronomist, and Agricultural Technician (part-time)		
- salary and expenses of Agricultural Specialist (part-time)(shared with SAREMP)		
- equipment, supplies, contract services related to field demonstrations		
- financial assistance to landowners co-operating in demonstration projects.	128,000	114,439
4. <u>Drain Construction and Maintenance Guidelines and Applications</u>		
- salary and expenses of Agricultural Technician (part-time)		
- services and supplies associated with drain monitoring program.	10,000	15,469
5. <u>Compilation of Economic Data On Sewage Treatment</u>		
- contract services of consultants to undertake municipal servicing study.	10,000	11,683
TOTAL APPROVED FUNDING	\$188,000	\$184,465

4.0. The 1981/82 Program - Status to Date

A continuation of the following components of the 1980/81 Program was approved.

- Information and Education
- Identification and Mapping of Contributing Areas and Development of Land Management Demonstration Areas
- Drain Construction and Maintenance Applications

In addition, a consultant study regarding the Proposed Wardsville Dam was approved by the Committee.

4.1. Information and Education

All aspects of this program have been successful and are being continued. The first of a series of issues of a newsletter tabloid entitled, "The Talk of the Thames" has been published and distributed to all rural box holders within the Basin.

Funding for a "Conservation Land Management Handbook" is being sought from external sources.

The review of the "Drain Construction Handbook" has been completed. Revisions were made and the first printing is complete. 3,000 copies are being distributed mainly within the watershed.

Several tours of completed demonstration sites have been hosted by TRIC and a number of additional tours have been held by organizations such as the County Soil and Crop Improvement Associations using TRIC Demonstration Sites as points of interest.

A technical information seminar/tour was held with attendance by 80 individuals from various Ministries and Conservation Authorities.

Conservation Authorities and officials from the Ontario Ministry of Agriculture and Food were also invited to see construction in progress at a major site in Blanshard Township.

Plans for "Tillage Days" and "Drainage Days" are being made. Invitations will go to the Conservation Authorities, O.M.A.F. and general public.

Preparations for the 1982 International Plowing Match are being made with the employment of an Experience 81 "Graphics Technician" who is presently engaged in a number of activities for both the TRIC and the Stratford-Avon River Environmental Management Plan.

The Western Fair, Farm Show and numerous other fairs, conferences and tours will have representation and/or displays by TRIC staff. It is proposed to host bus tours of demonstration sites for each of the 7 County Soil and Crop Improvement Associations.

Media releases will be made as required and information is being contributed to Soil and Crop newsletters and farm papers on a regular basis.

The Information and Education component is aimed primarily at the rural community, promoting best land management practices.

4.2. Identification and Mapping of Contributing Areas and Development of Land Management Demonstration Areas

This program component is still in progress and will continue throughout the 1981/82 term.

4.2.1. identification and mapping of contributing areas

The work by the Lands Directorate of Environment Canada in co-operation with OMAF and TRIC is underway. Raw data has been mapped for a large percentage of the watershed utilizing 18 summer students. A preliminary analysis of eleven prioritized townships is presently being done before input of the data to the Canada Land Data System (CLDS), a computerized overlaying system used by Environment Canada. The computer analysis of that portion of the watershed area completed this summer is expected to be done by February 1982. The remainder

will be completed during the following year.

It has become evident to TRIC, through the work of Dr. W.T. Dickinson at the University of Guelph, that the "delivery ratio" concept is very important in the determination of contributing areas. "Delivery ratio" is defined as that proportion of gross erosion which is transported to a watercourse by the flow of water.

Since the application of this concept involves relatively detailed analysis, simplifications were obviously required for the large scale work being undertaken by the Lands Directorate of Environment Canada.

Dr. Dickinson, on the other hand, has now been engaged by TRIC to determine delivery ratios on two small subwatersheds in addition to the similar studies which he has now successfully completed in the Stratford-Avon watershed under contract to Environment Canada. The varying geography and physical features of these additional sites will provide TRIC with detailed information on the effects of varying physical features, soils and topography on sediment contributions to watercourses. This work should be completed by the end of 1981.

Also proposed is a second phase which would allow predictive analysis of the effects of remedial measures on the sediment contributions. The Preliminary Terms of Reference for both phases may be found in Appendix D.

4.2.2. development of land management demonstration areas

To date, twenty eight Land Management and Drain Demonstrations are in various stages of implementation by the TRIC program. The completed demonstrations are now being visually monitored on a weekly basis. Details of the sites may be found in Appendix E.

An Engineering Assistant, working out of the Lower Thames Valley Conservation Authority, was hired on a six month contract. To assist with demonstrations, monitoring, and installations of signs, four Experience 81 students were hired.

Proposals have been completed for several additional Land Management Demonstration Sites, to date. Some of these will be implemented during the 1981-82 budget year. Figures 4 to 6 are captioned examples of some of the demonstration projects in progress.



Figure 4. Grassed Waterway Grading



Figure 5. Municipal Drainage Work



Figure 6. Conservation Tillage

4.3. Drain Construction and Maintenance Guidelines and Applications

The proposed handbook entitled "Practical Guide for Municipal Drains" has been published in colour. As previously mentioned, copies are being distributed to councils, landowners, contractors, engineers, and various government ministries and agriculturally oriented groups.

Engineers' reports have been completed for two major drain demonstrations in which TRIC is involved. Some drain maintenance work has also recently been completed. Refer to Appendix E for further details of completed and proposed TRIC drain construction demonstrations to date.

Other aspects of this part of the program are to include:

- i) Establishment of additional drain demonstrations particularly in the lower basin.
- ii) Continued attendance at Municipal Drain Site Meetings to publicize extension programs and distribute and promote the "Practical Guide for Municipal Drains.
- iii) Investigation of the feasibility of chemical and mechanical weed control programs in Municipal Drains.
- iv) Comparison of costs of a regular maintenance schedule to major reconstruction.
- v) Undertaking of a drain inventory in Zorra Township utilizing Junior Conservationists.
- vi) Organization of "Drainage Days" together with the Information and Education component of the program to demonstrate types of equipment, materials, and methods for drain construction and maintenance.

4.4. Wardsville Dam Study

An ad-hoc meeting including members of the former Dams, Reservoirs and Floodplain Management Subcommittee was held on August 12, 1981 to define some specific tasks associated with the Wardsville Dam Study in the 1981/ 82 Work Program.

TRIC is to hire a consulting firm to undertake a preliminary evaluation of the available data base and the need for further detailed studies as outlined under "Recommendation 4 - Wardsville Dam" in Appendix B.

4.5. 1981/82 Work Program Budget

The approved budget as of April 1981 is contained in Figure 7.

Other funding sources are being utilized for demonstrations wherever possible such as:

- i) Upper Thames River Conservation Authority Private Lands Assistance Program.
- ii) Lower Thames Valley Conservation Authority Private Lands Assistance Program.
- iii) County Soil and Crop Improvement Demonstration Grants.
- iv) Grants under the Ontario Municipal Drainage Act, 1975.
- v) Ontario Ministry of Agriculture and Food Farm Productivity Incentive Program.

Figure 7. 1981/82 Work Program/Budget - April 1981

1.	<u>Co-ordination and Administration</u>	\$ 35,000
-	Co-ordinator's salary, benefits and travel expenses (½)	
-	Administrative expenses including secretarial services, xeroxing, postage, telephone	
-	Publication of technical & progress reports	
2.	<u>Public Information Program</u>	\$ 35,000
-	Public Relations Technicians salary, benefits and travel expenses	
-	Materials & supplies for displays	
-	Publication of monthly newsletter	
-	Printing of Conservation Handbook	
-	Special promotional days & tours	
-	Summer support staff	
3.	<u>Rural Investigations & Demonstrations</u>	\$135,000
-	Salary, benefits & travel expenses for Agronomist, Agricultural Specialist (2) & Agricultural Engineer	
-	Equipment leasing & transport (2) pieces	
-	Co-operator subsidies (tillage/cropping sites, 5 structural projects)	
-	Tillage days & tillage tours (promotion)	
-	Summer support staff	
-	Support for the work of Environment Canada	
-	Lab support and flow monitoring	
4.	<u>Drainage</u>	\$ 60,000
-	Agriculture Technician's salary, benefits and travel expenses	
-	Proper drain construction demonstrations (2)	
-	Mechanical drain maintenance demonstrations (max. of 10)	
-	Chemical drain maintenance demonstrations (max. of 10)	
-	Summer support staff	
-	Promotion: drainage days, site meetings	
-	Lab support costs	
5.	<u>Wardsville Dam</u>	\$ 25,000
-	Consultant services	
-	Preliminary evaluation of original Wardsville Dam concept	
-	Review stage/damage estimates for Chatham, Thamesville & vicinity	
-	Refine & provide environmental screening of the flow control structure concept	
	TOTAL	<u>\$290,000</u>

4.6. Preliminary Observations

The concern, interest, and requests for assistance in erosion control are increasing. After only the first year of the TRIC program, a number of facts are evident:

TRIC staff are referring requests for erosion control assistance to the Ontario Ministry of Agriculture and Food and/or the Conservation Authorities because of time constraints.

Staff of the Ontario Ministry of Agriculture and Food are receiving an increasing number of requests for erosion control assistance.

Technical staff of the Conservation Authorities are becoming more occupied with erosion control projects.

The determination of Contributing Areas is becoming increasingly important to the efficient operation of the work program in knowing where to concentrate efforts.

Demonstration Projects are much more successful at sites on which a landowner has requested assistance as opposed to those projects initiated by approaching the landowner.

5.0. Proposed 1982/83 Work Program

The work program will be similar to that of 1981/82 although increased importance will be given to report writing and technical publications.

The work program should contain the same basic components,

- 1) Public Information
- 2) Rural Investigation and Demonstration
- 3) Drainage, although more emphasis on Public Information is proposed.

APPENDIX A

RECOMMENDATIONS FROM THAMES RIVER BASIN WATER MANAGEMENT STUDY REPORT

Recommendation No. 1

It is recommended that the Glengowan Dam should be constructed first, for the primary purpose of flow augmentation. Furthermore, a study should be made of what type and level of recreational use, if any, could be provided at the reservoir.

Recommendation No. 2

It is further recommended that the Upper Thames River Conservation Authority and the Ministry of Natural Resources investigate in detail, as soon as possible, the question of the limestone deposit at the Thamesford dam site to determine the opportunity cost associated with its development, so that a decision can be made as to the feasibility of constructing the Thamesford Dam.

Recommendation No. 3

If construction of the Thamesford dam is feasible, then the Thamesford dam should be built primarily for flood control purposes. Furthermore, a study should be made of the desirable level of recreational use of the reservoir, ensuring that such use would not seriously constrain the primary use of the reservoir.

Recommendation No. 4

If construction of the Thamesford dam is not feasible, then the Wardsville dam should be constructed for flood control purposes only. A flow retarding structure rather than a conventional dam should be constructed to minimize the loss of agricultural land and to protect the yellow pickerel runs and spawning grounds. Detailed studies should be undertaken to ensure the design

will permit the safe passage of fish, and to determine on a benefit-cost basis whether a 43,000 acre-foot or a larger retarding structure is the more economical. The environmental effects and the effects on road communications of the larger versus the smaller structure should be considered. There should also be close consultation with Indian bands concerning the effects on reservation lands.

Recommendation No. 5

Prior to construction of any major dam, detailed studies should be undertaken to examine environmental effects, to determine methods of minimizing such effects, and to determine what type of discharge structure and operating practices would best protect both reservoir and downstream water quality.

Recommendation No. 6

The City of London should immediately institute plans to upgrade its sewage treatment facilities to meet the waste loading guidelines outlined in this report. Specifically, this involves providing an effluent from all treatment plants equivalent in quality to the effluent from the Greenway Sewage Treatment Plant as defined in this report.

Recommendation No. 7

At several municipalities in the basin, the waste assimilative capacity of the receiving stream has been reached or exceeded. Accordingly, it is recommended that the municipalities of Mitchell, Stratford, Tavistock, Glencoe, Tilbury and Ridgetown should not increase their waste loadings from all sources to the receiving stream, and in some cases should reduce these loadings, as described in Chapter 8 of this report.

Recommendation No. 8

The municipalities of Woodstock, Beachville, Ingersoll, Lambeth, Dorchester, St. Marys, Bothwell, Thamesville and Chatham should adopt sewage treatment techniques selected from approved options as described in this report, either to provide immediately required upgrading or to

accommodate additional growth if such growth is found to be desirable when other factors are considered.

Recommendation No. 9

All municipalities should immediately undertake studies to determine the significance of existing urban runoff and runoff associated with future development as a source of pollutants, and take steps to control this waste input where it is found to constitute a water quality problem.

Recommendation No. 10

It is recommended that all affected municipalities enact and enforce sewer use bylaws to prevent industrial pollution problems. Industries discharging treated wastes and process waters directly to watercourses in the basin should implement waste treatment necessary to meet water quality objectives as outlined in this report.

Recommendation No. 11

It is therefore recommended that fertilizer application rates be limited to those recommended by the Ontario Ministry of Agriculture and Food, using services such as those at the University of Guelph for determining appropriate rates. Individual and group activity by the agricultural community and the active support of government agencies is important to implement this practice.

Recommendation No. 12

A program of restricting free access of livestock to streams should be commenced. It is recommended that the Ontario Department of Agriculture and Food take the lead role in undertaking a detailed study of the implications of such a program to farmers, of the best methods such as fencing or vegetative barriers, and of the feasibility of provincial subsidies to encourage such a program.

Recommendation No. 13

It is recommended that increased environmental surveillance and enforcement be undertaken by appropriate government agencies to control farm waste discharges, particularly from intensive feedlot operations, and illegal septic tank connections to municipal drains.

Recommendation No. 14

It is recommended that channel protection programs as described in this report be implemented, with initial emphasis on areas of greatest need which should be identified in detail by appropriate government agencies.

Recommendation No. 15

Rural-oriented management practices and conservation practices should be applied with special rigor in headwater areas, and municipalities in these areas must pay special attention to sewage disposal practices to safeguard both local and downstream water uses.

Recommendation No. 16

It is recommended that resolution of water quality problems in existing reservoirs be achieved by the two conservation authorities through appropriate combinations of bottom draw, destratification, algae control, disinfection of swimming areas, or modified operating policies as outlined in this report for each reservoir.

Recommendation No. 17

It is recommended that these reservoirs be operated in such a manner as to ensure the maintenance of the specified minimum flows on a daily basis. It is also recommended that there be close liaison between the Ministry of Natural Resources and the Ministry of the Environment to ascertain if alterations to these operating schedules would optimize the use of existing reservoirs for flow augmentation, without adversely affecting other uses.

Recommendation No. 18

It is recommended that the Upper Thames River Conservation Authority and the Ministry of Natural Resources undertake a detailed computer analysis to determine what modifications of reservoir operating practices would optimize their flood control and flow augmentation use and enhance their recreational use potential.

Recommendation No. 19

It is recommended that a program of corrective action concerning bank erosion from Chatham, upstream as far as Delaware, should be initiated by the Lower Thames Valley Conservation Authority in line with the recommendations in the 1971 report by James F. MacLaren Limited entitled "Flood and Erosion Control Works on the Lower Thames River from Chatham to Delaware".

Recommendation No. 20

Soil erosion control programs including strip cropping, crop rotation, diversion terraces, grassed waterways and vegetative buffer zones or reforestation should be implemented throughout the watershed, with initial emphasis on areas that should be identified by staff of the Ministries of Agriculture and Food, Natural Resources and Environment.

Recommendation No. 21

It is recommended that environmental impact assessments of land drainage proposals be undertaken to screen out or modify proposals which would damage the environment and that selected wetlands of ecological importance, such as the Zorra Swamp, be protected from further drainage.

Recommendation No. 22

Prevention of water supply interference and ground water quality impairment, rather than remedial action after the problem has occurred, should be practised using procedures detailed in Chapter 7 of this report.

Recommendation No. 23

To overcome communication and co-ordination problems relating to water management in the basin, and to implement planning on a watershed basis, a joint committee of government agencies and other appropriate bodies should be established. The committee should include representatives of the Ministries of Agriculture and Food, Environment, Housing, Natural Resources, and Treasury, Economics and Intergovernmental Affairs, the two Conservation Authorities, municipalities, citizen groups and the agricultural community.

Recommendation No. 24

Because of the interrelationships of water resources problems and solutions in the upper and lower watershed, and in order to further the basin-wide approach to water management advocated in this report, it is recommended that consideration be given to the amalgamation of the Upper Thames River Conservation Authority and the Lower Thames Valley Conservation Authority into a single authority.

Recommendation No. 25

It is recommended that further controls of floodplain development under The Planning Act and through regulations administered by the Conservation Authorities be developed.

Recommendation No. 26

It is recommended that the Conservation Authorities Branch and the Conservation Authorities consider the development of an improved flood warning system.

Recommendation No. 27

For long term flood control, flow augmentation and erosion control benefits, it is recommended that sound conservation measures such as reforestation, sound agricultural tillage, use of appropriate ground cover, and preservation of water retaining areas be encouraged and implemented. Reforestation and establishment of shrub cover along streambanks should be

directed to areas where they would specifically aid in erosion control, streambank stabilization, and the improvement of fish habitats.

Recommendation No. 28

It is recommended that municipalities and government agencies encourage and enforce careful construction practices during drainage ditch installations and other construction activities in and along watercourses.

Recommendation No. 29

It is recommended that development in areas of sand and gravel not be permitted to hinder infiltration or to degrade the quality of infiltrating water. This is particularly true of areas of municipal water supply, such as the Woodstock well field. In addition, areas providing significant baseflow such as the Harrington-Lakeside Moraine should be protected.

APPENDIX B
REVIEW AND STATUS OF RECOMMENDATIONS
PROGRESS REPORT 2

II. REVIEW & STATUS OF RECOMMENDATIONS

Each of the TRIC subcommittees have met during the summer following approval of the program to review and update the status of the recommendations in view of the progress which may have taken place since 1978. The parent Committee subsequently met in August 1980 and ratified the reports of the respective subcommittees. In a large number of cases the status of the recommendations and the feelings of the Committee remained unchanged from the 1978 Progress Report. For reference purposes the 1978 Progress Report analysis is included as Appendix D to this report, and Appendix E contains the final stance of the Committee following public review.

Summary of Current Status:

Action Completed	- 5, 16, 22, 23 26
Action Ongoing	- 1, 2, 4, 6, 7, 8, 9, 10,11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 25, 27, 28, 29
No Action Planned	- 3, 24

DAMS, RESERVOIRS AND FLOODPLAIN MANAGEMENT SUBCOMMITTEE

Recommendation No. 1 - Construction of the Glengowan Dam

As identified in our March 1978 Progress Report (see Appendix D), the Glengowan Dam and Reservoir is currently undergoing an Environmental Assessment and the Committee feels that no further action is warranted at this time.

Recommendation No. 2 - Thamesford Limestone Deposits

While recent reports have indicated a very strong possibility of the eventual quarrying of these

deposits, limited additional investigation will take place as part of the Glengowan environmental assessment. No further action is recommended by the Committee.

Recommendation No. 3 - Construction of the Thamesford Dam

In light of the findings with respect to Recommendation No. 2, it was felt that the construction of this dam was no longer feasible and the assessment of recreational potential no longer appropriate.

Recommendation No. 4 - Wardsville Dam

The Committee feels that it would be premature to proceed actively with pre-engineering studies on this project before additional information is made available as part of the Glengowan Environmental Assessment. It was felt, however, that construction of the Wardsville Dam was not directly dependent upon completion of the Glengowan Dam and limited studies to update data would be appropriate. It is proposed that as part of the 1981/82 work program, TRIC hire a consulting firm to undertake a preliminary evaluation of the available data base and the need for further detailed studies of the following nature:

- i) define stage/damage curves for Chatham, Thamesville and vicinity
- ii) determine the effectiveness of a flow retarding structure at Wardsville for reducing damages and develop benefit/cost relationships
- iii) refine concepts for Wardsville Dam and prepare an environmental screening of such concepts
- iv) select most desirable concept(s) and put on paper

The proposed investigation would, in fact, result in the development of Terms of Reference for further studies, should such studies be justified on the basis of the preliminary evaluation. Subsequent studies, if required, would then be undertaken by the Lower Thames Valley Conservation Authority. Costs associated with the above-noted investigation and report are in the order of \$25,000. A Final Terms of Reference has been developed and the contract has been let.

Recommendation No. 5 - Environmental Impact Studies

It was felt by the Committee that this recommendation is already covered by the Environmental Assessment Act.

Recommendation No. 14 - Channel Protection Program

Review of the 1975 Basin Study report has identified that the concern addressed by the recommendation is water quality impairment due to bank erosion. As such, this concern is adequately being addressed by the activities of the Agriculture and Land Use Subcommittee and no further action is required at this time.

Recommendation No. 16 - Water Quality in Existing Reservoirs

Committee members felt that current reservoir operating procedures are adequate to resolve this concern.

Recommendation No. 17 - Flow Augmentation

The Committee felt that current operating procedures and schedules provided for this and that more effort should be made to promote this information.

Recommendation No. 18 - Computer Analysis for Optimization Model

Since the Glengowan E.A. will investigate this area of concern, no further action on the recommendation was required at this time.

Recommendation No. 19 - Thames River Bank Protection Program

As indicated in the previous progress report, the LTVCA is implementing this recommendation as quickly as possible.

Recommendation No. 24 - Amalgamation of Conservation Authorities

The Committee re-affirmed that this recommendation need not be pursued on the basis of arguments presented previously.

Recommendation 'NO. 25 - Floodplain Controls

With the recent approval of the Provincial Floodplain Criteria, both Authorities are proceeding with the establishment of the appropriate floodplain regulations and land use controls.

Recommendation No. 26 - Floodwarning System

With the recent installation of improved monitoring equipment in the two Authorities, the establishment of a Flood Forecast Centre at the C.A.B. and the acquisition of a computerized system at the UTRCA, it was felt that this recommendation was now implemented.

MUNICIPAL CO-ORDINATION SUBCOMMITTEE

Recommendation No. 6 - Sewage Treatment for the City of London

The "master plan" referred to in our previous Progress Report has been received and implementation is currently underway.

Recommendation No. 7 - Sewage Treatment for Mitchell, Stratford, Tavistock, Glencoe, Tilbury and Ridgetown

Servicing options for the Town of Mitchell have been evaluated and expansion to sewage treatment facilities is scheduled to proceed.

The City of Stratford has received a report prepared by M.M. Dillon Ltd. related to sewage treatment options. A final decision on an urban effluent control/management strategy will no doubt await the results of the Stratford-Avon River Environmental Management Project currently underway.

The Township of East Zorra-Tavistock (Tavistock) now has an expansion to their treatment works underway.

The Village of Glencoe's sewage treatment facility, an oxidation pond, has been constructed and is now in operation.

A proposal for dealing with the Town of Tilbury's needs is currently under preparation and this will hopefully result in the necessary works being constructed in the near future.

A "master plan" for long term resolution of the Town of Ridgetown's sewage treatment problems has been prepared and implementation is underway.

Recommendation No. 8 - Sewage Treatment at Woodstock, Beachville, Ingersoll, Lambeth, Dorchester, St.Mary's Bothwell, Thamesville and Chatham

The City of Woodstock's plant upgrading is virtually complete as is that in the Village of Thamesville and the City of Chatham. The Police Village of Dorchester and the Town of Bothwell are currently being considered by the Ministry of the Environment for individual corrections. As indicated in the 1978 Progress Report there are no immediate pressures for advanced sewage treatment in the Police Village of Lambeth, the Township of South-West Oxford (Beachville), the Town of St. Mary's or the Town of Ingersoll.

Recommendation No. 9 - Urban Runoff

A document containing guidelines for urban storm water runoff has recently been prepared by the Urban Drainage Subcommittee. Before reacting to the report's recommendations, the Thames River Implementation Committee will await the results of the recently established "Implementation Committee".

Recommendation No. 10 - Industrial Wastes and Sewer Use By-Laws

The intent of this recommendation is generally being met at this time through industrial waste

surveys by the Ministry of the Environment and follow-up remedial works where necessary.

AGRICULTURE AND LAND-USE SUBCOMMITTEE

Recommendation No. 11 - Fertilizer Use

No specific action is presently being undertaken by the Subcommittee in relation to this recommendation other than to recommend the use of soil tests and proper application rates at TRIC exhibits and in slide tapes, bulletins and brochures. Also, the activities of the Ministry of Agriculture and Food in relation to the use of fertilizers are being monitored. That Ministry has given the use of soil tests and recommended fertilizer application rates a high profile in publicity, exhibits and meetings. A statement stressing that excess fertilizer may decrease yields is to be added to the current recommendation sheets from the Guelph soil testing lab.

For 1981-82, when TRIC staff become actively engaged in field demonstrations, consideration is being given to assisting farmers with soil testing, moisture testing and weighing yields from demonstration plots to demonstrate the value of proper fertilizer application.

Recommendation No. 12 - Cattle Access

Problems related to cattle access have been considered in the current documentation of problem areas by TRIC staff and through efforts being carried out under the Stratford-Avon River Environmental Management Project. Staff have prepared a report using a subjective analysis concept based on weighted criteria to determine the cost-effectiveness of site-specific installations.

A Fact Sheet is currently under development by the Ministry of Agriculture and Food and the Ministry of the Environment to provide guidelines for the use of liquid spray which is becoming increasingly popular as a manure handling technique.

TRIC staff have identified last summer that aerial photos may be used to identify specific sites where farm wastes pose a threat to nearby watercourses. If workable, it will be recommended to the

Ministry of the Environment that student funding be obtained for a basin-wide identification of problem areas in 1981, based on the use of this technique.

It was determined that Agriculture Canada had done and were continuing work in this area.

Recommendation No. 15 - Management of Headwater Areas

This recommendation attaches emphasis to headwater areas in the application of other recommendations presented in the report. The more detailed efforts being undertaken in the Avon basin will reflect the applicability of measures that may be particularly relevant to headwater reaches, properly co-ordinated with additional efforts carried out in other headwater tributaries under the TRIC program.

Recommendations 20 and 27 - Soil Erosion Control and Conservation Measures

Contact has been made by TRIC staff with Soil and Crop Improvement Associations in the seven counties that touch on the Thames River basin. All associations have held meetings to allow a wider understanding of the TRIC program as a basis for stimulating participation in demonstration efforts in 1981-82. Such efforts have reflected both existing good practices and also measures to offset problem conditions. These meetings have provided a basis for ongoing involvement of Association members in the development and monitoring of TRIC-supported demonstration efforts.

Documentation of potential demonstration sites has received considerable attention by staff through contacts with University of Guelph researchers, agricultural representatives, Soil and Crop Improvement Associations, Conservation Authorities, township officials and knowledgeable farmers throughout the basin. The selection of demonstration sites for the 1981-82 program has been based on this effort. A limited number of demonstrations have commenced this year, however, preparatory work is complete.

A request for increased funding for demonstration efforts in 1981-82 was submitted verbally to senior staff of the Ministry of the Environment in August and also to the Ministry of Natural Resources.

Agreement has been reached with Mr. G. Bangay, Regional Director, Lands Directorate, Environment Canada, to identify the major contributing areas for sediments and nutrient inputs throughout the Thames River basin in fiscal year 1981-82.

Although completion has now been delayed to fiscal year 1982-83, this valuable assistance will afford a long-term focus for directing efforts to priority and management areas. Discussions with Dr. W.T. Dickinson have led to the proposal of subwatershed delivery studies in Mersea and Ekfrid Townships. See Section 4.0 "1981/82 Program".

Recommendations 21 and 28 - Land Drainage Projects

A drainage manual entitled "Drain Construction Guidelines and Applications For Work Under the Drainage Act, 1975" which was released by the Ministry of Agriculture and Food to drainage engineers has been reviewed by the Agriculture and Land Use Subcommittee. It was decided to proceed with a more popularized publication highlighting the need for environmental protection measures as an integral facet of drain construction and clean-out projects. It was also to be geared to a variety of readers.

Water samples, photographs and recorded observations of "before and after" conditions associated with two drain clean-out projects have been obtained to illustrate the problems associated with current drainage practices.

Proper drain protection techniques were incorporated into the demonstration program developed for 1981-82. Arrangements have been made with the Upper and Lower Thames Conservation Authorities to have any drainage proposals passed to TRIC staff so that these can be considered for inclusion in our demonstration program. Contacts and planning for such efforts have concluded over the winter months to permit the placement of demonstration controls in 1981 for one major site and several smaller sites.

It is hoped that one additional major drain demonstration can be included in the 1982/83 fiscal year. See Section 3.0 entitled "The 1980/81 Work Program" for more details.

Recommendation 29 - Groundwater Infiltration

Protection of "recharge" or high infiltration areas is considered by M.O.E. in the review of official plans and specific development proposals. In regard to protecting areas which provide significant baseflows, a mapping program which includes the identification of surficial deposits which supply significant base flows to adjacent streams is now being finalized. A sum of \$15,000 has been allocated by M.O.E. to publish these maps within 1981. It is felt that the provision of these maps will afford a satisfactory basis for future land use decisions to meet the requirements of this recommendation.

APPENDIX C

MEMBERS OF THAMES RIVER IMPLEMENTATION COMMITTEE

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APPENDIX D

PROPOSED PRELIMINARY TERMS OF REFERENCE FOR SUBWATERSHED DELIVERY RATIO DETERMINATION

Phase 1: Application and verification of a sediment delivery model to 2 small agricultural subwatersheds in the Lower Thames River Watershed.

- i) 3500 ha. headwater area of Big Creek in Mersea Township
- ii) 2500 ha. headwater area of Newbiggen Creek in Ekfrid Township

Purpose: To develop typical delivery ratios in these areas and to develop remedial scenarios.

Phase 2: To provide guidance for delivery determination throughout the Thames River Basin to be integrated with existing data on gross erosion. This would be based on the above studies as well as the studies contracted by Environment Canada in the Avon River Basin.

APPENDIX E
ACTIVE DEMONSTRATION SITE
IDENTIFICATION AND STATUS

CONSERVATION TILLAGE

- 1) Co-operator(s) Mr. Gary Houston
T.R.I.C.
- Demonstration Location: County: Kent
Township: Harwich
Lot: 18-North
Concession: 6
- Soil Type: sandy loam
Treatments: number of treatments - 2
area of treatment plots - 3 acres each
Treatment 1: fall - mulch till once
spring - cultivate/harrow twice
Treatment 2: fall - no tillage
spring - mulch till once
cultivate/harrow once (subject to soil condition)
Status (Mar. 31/81) primary tillage complete
Status (July 31/81) secondary tillage and planting complete monitoring in progress
- 2) Co-operator(s) Mr. Wayne Balmer
Lower Thames Valley Conservation Authority T.R.I.C.
- Demonstration Location: Lower Thames Valley Conservation Authority Conservation Farm
County: Kent
Township: Howard
Lot: 12
Concession: 6
- Soil Type: sandy loam
Treatments: number of treatments - 4
area of treatment plots - 6 acres each
Treatment 1: fall - no tillage
spring - tandem disc with harrows
Treatment 2: fall - moldboard plow
spring - tandem disc with harrows
Treatment 3: fall - tandem disc with harrows

spring - tandem disc with harrows
Treatment 4: fall - no tillage
spring - mulch till
- tandem disc with harrows
Status (Mar. 31/81) primary tillage complete
Status (July 31/81) secondary tillage and planting complete
monitoring in progress

3) Co-operator(s) Mr. & Mrs. Don Campbell & Wayne Campbell
T.R.I.C.

Demonstration Location: County: Elgin
Township: Dunwich
Lot: 19
Concession: 2

Soil Type: silty clay

Treatments: number of treatments - 3
area of treatments - Tr1= 2.3 ac.
Tr2= 2.7 ac.
Tr3= 4.0 ac.

Treatment 1: fall - moldboard plow
spring - cultivate/harrow three times

Treatment 2: fall - moldboard plow without trashboards
spring - cultivate/harrow two times (subject to soil conditions)

Treatment 3: fall - mulch till
spring - cultivate/harrow two times

Status (Mar. 31/81) primary tillage complete
Status (July 31/81) secondary tillage and planting complete
monitoring in progress

4) Co-operator(s) Mr. Joe Facey
T.R.I.C.

Demonstration Location: County: Middlesex
Township: West Nissouri
Lot: 26
Concession: 6

Soil Type: silt loam

Treatments: number of treatments - 3
area of treatment plots - 2.7 acres each

Treatment 1: fall - moldboard plow
spring - cultivate/harrow two times (subject to soil conditions)
Treatment 2: fall - mulch till
spring - cultivate/harrow two times (subject to soil conditions)
Treatment 3: fall - moldboard plow without trashboards
spring - cultivate/harrow two times (subject to soil conditions)
Status (Mar. 31/81) primary tillage complete
Status (July 31/81) secondary tillage and planting complete
monitoring in progress

5) Co-operator(s): York Farms, c/o Felix McGaghran
T.R.I.C.

Demonstration Location: County: Oxford
Township: South West Oxford
Lot: 15 West
Concession: 2

Soil Type: silt loam

Treatments: number of treatments - 2
area of treatment plots - 21.5 ac. each

Treatment 1: fall - mulch till
spring - cultivate/harrow two times (subject to soil conditions)

Treatment 2: fall - no tillage
spring - mulch till once
- cultivate/harrow once or twice
(subject to soil conditions)

Status (Mar. 31/81) primary tillage complete
Status (July 31/81) secondary tillage and planting complete
monitoring in progress

6) Co-operator(s): Mr. Terry Boniface
T.R.I.C.

Demonstration Location: County: Oxford
Township: Zorra
Lot: 3 (E1/2)
Concession: 8

Soil Type:

Treatments: number of treatments - 2
area of treatments - 24 acres each N.B. rest of 50 acre field is also in zero till

Treatment 1: fall - no tillage
 spring - no tillage
Treatment 2: fall - no tillage
 spring - moldboard plow
 - cultivate/harrow/pack
Status (Mar. 31/81) N/A
Status (July 31/81) tillage and planting are complete
 monitoring in progress

PRIVATE and MUNICIPAL DRAINAGE

- 7) Co-operator(s): Township of Mersea
 Lower Thames Valley Conservation Authority T.R.I.C.
Mode: Municipal Drainage
Demonstration Location: County: Essex
 Township: Mersea
 Lot: 16-20 i.e.Scott Municipal Drain
 Concession: 11
Proposed Measures: to determine the effectiveness of various seed mixtures and application rates in conjunction with fertilization and non-fertilization, ditchbank stabilization, proper bank grading and tile outlet protection
 total length = 13,000 ft.
 hydroseeding to be done
Status (Mar. 31/81) all meetings were attended the report is being prepared, including the proposed measures for Fall/81 construction
Status (July 31/81) Engineer's Report completed and tendered
- 8) Co-operator(s): Martin Vandenbosch
 Township of North Dorchester Bartlett and Associates
 T.R.I.C.
Mode: Municipal Drainage
Demonstration Location: County: Middlesex
 Township: Dorchester
 Lot: 5
 Concession: 3
Proposed Measures: upgrading of existing grassed waterway late fall seeding (1980) drop inlet

catchbasins and new header tile installation upgrading of existing rock chute
Status (Mar. 31/81) Engineer's Report was authorized as well as T.R.I.C. Funding on the project
Status (July 31/81) Engineer's Report was completed. Construction is scheduled for September 1981.

9) Co-operator(s): Ted Donkers
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Middlesex
Township: West Nissouri
Lot: 12 (E ½)
Concession: 4

Proposed Measures: install grassed waterway and drop inlets protect streambanks at inlet to drain protect natural draw in fall '80 by not plowing natural drain

Status (Mar. 31/81) all surveys, plans, and reports are complete and construction has been scheduled

Status (July 31/81) complete being monitored weekly

10) Co-operator (s) : John Alderman
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Oxford
Township: Zorra
Lot: 33 (W ½)
Concession: 1

Proposed Measures: installation of grassed waterway use of an existing fence row for installation of a drop inlet catchbasin and reservoir

Status (Mar. 31/81) all plans and specifications were complete work was scheduled

Status (July 31/81) work completed weekly monitoring

11) Co-operator(s): Robert De Brabandere
Perth County Soil and Crop Improvement Association
Township of Blanshard
T.R.I.C.

Mode: Municipal and Private Drainage-52-

Demonstration Location: County: Perth
Township: Blanshard
Lot: 12

Concession: 14

Proposed Measures: grassed waterway through main, scoured rill rock chute outlet into Barnett Drain repair tile outlets into Barnett Drain surface water drop inlet catch basins and new tile terracing

Status (Mar. 31/81) all surveys, plans, and reports complete, funding arranged and work scheduled

Status (July 31/81) construction complete weekly monitoring

12) Co-operator(s): Township of North Easthope
T.R.I.C.

Mode: Municipal Drainage

Demonstration Location: County: Perth
Township: North Easthope
Lot: 33-39 i.e. Siep Municipal Drain
Concession: 8-9

Proposed Measures: use of rotary excavation for ditch cleanout bank seeding and stabilization work drain cleanout adjacent to Upper Thames River Conservation Authority's wetland holding

Status (Mar. 31/81) all meetings were attended Engineer's Report was completed and Fall Construction is planned

Status (July 31/81) O.M.B. hearings have slowed progress

13) Co-operator(s): Ronald Hyde
Stratford Avon River Environmental Management Project (SAREMP)
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Perth
Township: North Easthope
Lot: 16 i.e. Avon Municipal Drain
Concession: 2

Proposed Measures: proper drain cleanout
bank stabilization
tile outlet protection
controlled livestock access to watercourse (spring 81)
buffer strips (spring 81)
sediment basin

Status (Mar. 31/81) all work except controlled livestock access and buffer strips is complete

Status (July 31/81) sediment basin has been cleaned out work has been monitored hydrologic

data and samples are being taken

- 14) Co-operator(s): Laverne Lichti and John Lichti of Avon Head Farms
S.A.R.E.M.P.
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Perth
Township: North Easthope
Lot: 15 i.e. Avon Municipal Drain
Concession: 2

Proposed Measures: proper drain cleanout
tile outlet protection
buffer strips (spring 81)
contour cropping (forage acting as breaker strips in corn field to reduce erosion) (spring 81)

Status (Mar. 31/81) all except contour cropping and buffer strips has been completed

Status (July 31/81) complete monitoring is being done

- 15) Co-operator(s): Jeff Timmerman
Upper Thames River Conservation Authority
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Perth
Township: Ellice
Lot: 34 i.e. Whirl Creek
Concession: 3

Proposed Measures: seeding of drain banks and buffer strips planting of trees

Status (Mar. 31/81) surveyed property and advised on municipal drain installation

Status (July 31/81) seeded banks and buffer strips installed demonstration sign monitoring is being done

- 16) Co-operator(s): Township of East Zorra Tavistock
U.T.R.C.A.
T.R.I.C.
Landowners

Mode: Municipal Drainage

Demonstration Location: County: Oxford
Township: East Zorra Tavistock

Lot: The Meisner Drain (Phelan Cr.)

Concession:

Proposed Measures: proper drain cleanout
tile outlet protection
bank stabilization
seeding
sediment basin
controlled livestock access
Conservation construction practices

Status (Mar. 31/81) preliminary field work was done a drainage petition was initiated after landowner meetings

Status (July 31/81) the Engineer's Report is being prepared a subsidy on this major project was authorized by the subcommittee in view of a TRIC proposal by staff two phase construction has been scheduled to accommodate timing and budgeting

17) Co-operator(s): Edgar Vanabaey
The Thamesville Stockyards
Ontario Ministry of Agriculture and Food
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Kent
Municipality: Thamesville
(The Cruikshank Creek)

Proposed Measures: drain channelization
limited livestock access
alternate watering facilities bank stabilization
drop inlet catch basins
surface runoff control/berming sediment basin

Status (Mar. 31/81) plans and specifications are being done by the Ontario Ministry of Agriculture and Food

Status (July 31/81) work is scheduled to proceed in early August 1981

18) Co-operator(s): Gary Stevens
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Middlesex
Township: West Nissouri

Lot:

Concession:

Proposed Measures: drain stabilization
limited livestock access
tile outlet protection

Status (Mar. 31/81) survey and plans are being completed some materials are on site

Status (July 31/81) plans are complete scheduled to proceed in 1981

19) Co-operator(s): Zone Township
T.R.I.C.

Mode: Municipal Drainage

Demonstration Location: County: Kent
Township: Zone
Lot: 10 (Sussex Drain)
Concession: 6th-7th Road

Proposed Measures: drain stabilization (riprapping 60 m. of municipal drain)
proper drain cleanout

Status (Mar. 31/81) N/A

Status (July 31/81) proposal is presently being considered for approval by Zone Township.
Work schedule is prepared for early fall 1981

20) Co-operator(s): Nico De Regt
T.R.I.C.
L.T.V.C.A.

Mode: Private Drainage

Demonstration Location: County: Middlesex
Township: Ekfrid
Lot: 24
Concession: II & III

Proposed Measures: grassed waterway(s) and outlet structures
gully stabilization
berms
buffer strip

Status (Mar. 31/81) landowner approached T.R.I.C. for technical assistance

Status (July 31/81) work is scheduled for fall of 1981

- 21) Co-operator(s): Jim Hay
T.R.I.C.
O.M.A.F.
L.T.V.C.A.
- Mode: Private Drainage
- Demonstration Location: County: Elgin
Township: Dunwich
Lot: 1
Concession: B.F.
- Proposed Measures: gulley stabilization
grassed waterway
- Status (Mar. 31/81) N/A
Status (July 31/81) Proposal submitted to landowner and work schedule tentative for fall 1981
- 22) Co-operator(s): Larry Cowan
T.R.I.C.
L.T.V.C.A.
- Mode: Private Drainage
- Demonstration Location: County: Middlesex
Township: Ekfrid
Lot: 12
Concession: Range 1 South
- Proposed Measures: grassed water and outlet control structure
- Status (Mar. 31/81) N/A
Status (July 31/81) proposal approved by landowner. Work schedule tentative for fall 1981 upon results of acceptable atrazine levels
- 23) Co-operator(s): Albert Clarke
L.T.V.C.A.
T.R.I.C.
- Mode: Private Drainage
- Demonstration Location: County: Kent
Township: Oxford
Lot: 9
Concession: 2nd
- Proposed Measures: grassed waterway(s) with retaining dam structures and outlet control
- Status (Mar.31/81) N/A
Status (July 31/81) proposal presented to landowner. Further design scheduled to commence

upon approval of landowner

- 24) Co-operator(s): Mr. Dave McNamara
L.T.V.C.A.
T.R.I.C.
Mode: Private Drainage
Demonstration Location: County: Middlesex
Township: Delaware
Lot: 11-13
Concession: D
Proposed Measures: chute spillway
grassed waterway extension
Status (Mar. 31/81) N/A
Status (July 31/81) proposal approved by landowner. Work scheduled to commence summer 1981
- 25) Co-operator(s): Clarence Beaty
L.T.V.C.A.
T.R.I.C.
O.M.A.F.
Mode: Private Drainage
Cattle Access
Demonstration Location: County: Middlesex
Township: Ekfrid
Lot: 3
Concession: County Rd. # 9
Proposed Measures: fencing for protection of drain cattle access crossing (3) drop inlets
Status (Mar. 31/81) N/A
Status (July 31/81) proposal submitted to landowner. Work schedule to commence upon approval of landowner
- 26) Co-operator(s): Fred Simpson
T.R.I.C.
L.T.V.C.A.
Mode: Private Drainage
Demonstration Location: County: Elgin
Township: Dunwich
Lot:

Concession: B.F.

Proposed Measures: grassed waterway
drop structures (weirs)

Status (Mar. 31/81) landowner approached T.R.I.C. technical assistance

Status (July 31/81) proposal submitted to landowner. Work tentatively scheduled to commence early fall 1981

27) Co-operator(s): Henry Pearson
T.R.I.C.

Mode: Private Drainage

Demonstration Location: County: Kent
Township: Tilbury West

Lot:

Concession: 8

Proposed Measures: 5 outlet control structure
grassed water extension

Status (Mar. 31/81) N/A

Status (July 31/81) work scheduled for completion summer of 1981

28) Co-operator(s): Ministry of Transportation & Communications
T.R.I.C.

Mode: Municipal Drainage

Demonstration Location: County: Kent
Township: Howard
Lot: (corner of Hwy.21 & 401)

Concession:

Proposed Measures: comparison of 1:1 and 2:1 side slopes for bank stability
grass seeding

Status (July 31/81) construction completed mid August 1981

APPENDIX F

LISTING OF "PASSIVE" DEMONSTRATION SITES

1 ELGIN COUNTY

1.1 DUNWICH TOWNSHIP

(a) Buffer Zone

Landowner: James Ford

Lot: 9

Concession: 5

2 ESSEX COUNTY

2.1 TILBURY NORTH TOWNSHIP

Buffer Zone

Landowner: Clarence Duquette

Lot: 18

Concession: 18

Windbreak

Landowner: Paul Courey

Lot: 19

Concession: 6 (Middle Road South)

2.2 TILBURY WEST TOWNSHIP

(a) Windbreak

Landowner: Norman Masse

Lot: 5

Concession: 4

3 HURON COUNTY

3.1 USBORNE TOWNSHIP

(a) Grassed Waterway

Landowner: Walter Creery

Lot: 12

Concession: 10

Landowner: David Marshall

Lot: 9

Concession: 13

4 KENT COUNTY

4.1 DOVER TOWNSHIP

(a) Windbreak

Landowner: Lloyd Braithwaite

Lot: 20

Concession: 2

4.2 HARWICH TOWNSHIP

(a) Windbreak

Landowner: Ian Maynard

Lot: 6 and 7 Concession: 5

Landowner: Andrew Kluka

Lot: 19

Concession: 9 L.E.S.

4.3 HOWARD TOWNSHIP

(a) Windbreak

Landowner: John Gillespie

Lot: 12

Concession: 3

4.4 RALEIGH TOWNSHIP

(a) Windbreak

Landowner: Earl Flook

Lot: 19

Concession: 8

Landowner: Leonard Harwood

Lot: 22

Concession: A

Landowner: James Chittim

Lot: 22

Concession: 8

4.5 TILBURY EAST TOWNSHIP

(a) Buffer Zone

Landowner: James Van de Wynckel

Lot: 9

Concession: 12

5 MIDDLESEX COUNTY

5.1 CARADOC TOWNSHIP

(a) Windbreak

Landowner: Albert Ferket

Lot: 8

Concession: Muncey Survey

5.2 DELAWARE TOWNSHIP

(a) Controlled Cattle Access

Landowner: John Roks

Lot: 2

Concession: D

5.3 LONDON TOWNSHIP

(a) Buffer Zone

Landowner: Barbara Blackwell

Lot: 23

Concession: 10

(b) Drain Outlet

Landowner: John Den Otter

Lot: 3

Concession: 11

(c) Grassed Waterway

Landowner: C. Thomas Jenken

Lot: 13

Concession: 16

5.4 MOSA TOWNSHIP
(a) Grassed Waterway
Landowner: Robert Simpson
Lot: 2
Concession: Range 1 South

5.5 NORTH DORCHESTER TOWNSHIP
(a) Grassed Waterway
Landowner: William Irwin
Lot: 7
Concession: 2

5.6 WESTMINSTER TOWNSHIP
(a) Grassed Waterway
Landowner: Kennether Laidlaw
Lot: 10
Concession: 4

5.7 WEST NISSOURI TOWNSHIP
(a) Buffer Zone
Landowner: Allan Leitch
Lot: 3
Concession: 5

(b) Grassed Waterway
Landowner: Gary Stevens
Lot: 16
Concession: 7

(c) Windbreak
Landowner: Gary Stevens
Lot: 16
Concession: 7

6 OXFORD COUNTY

6.1 BLANDFORD-BLENHEIM TOWNSHIP (
a) Controlled Cattle Access
Landowner: Paul Bayer
Lot: 8
Concession: 3

6.2 EAST ZORRA - TAVISTOCK TOWNSHIP

(a) Buffer Zone

Landowner: Wayne Smith

Lot: 16

Concession: 16

(b) Controlled Cattle Access

Landowner: Glen Garner

Lot: 20

Concession: 14

(c) Grassed Waterway

Landowner: Ken Thomson

Lot: 17

Concession: 14

6.3 NORWICH TOWNSHIP

(a) Windbreak

Landowner: Calvin Taylor

Lot: 21

Concession:

Landowner: Woodstock Public Utility Commission

Lot: 21

Concession: 5

6.4 SOUTH-WEST OXFORD TOWNSHIP

(a) Grassed Waterway

Landowner: William Mitchell

Lot: 8

Concession: 3

Landowner: Dirk van Dixhorn

Lot: 9

Concession: 3

6.5 ZORRA TOWNSHIP

(a) Grassed Waterway

Landowner: Richard Hiscocks

Lot: 15

Concession: 2

7

PERTH COUNTY

7.1 DOWNIE TOWNSHIP

(a) Conservation Tillage

Landowner: Jack Brown

Lot: 20

Concession: 11

Landowner: Howard Ballantyne

Lot: 6

Concession: 2

7.2 FULLARTON TOWNSHIP

(a) Grassed Waterway

Landowner: Dennis W. Dow

Lot: 9

Concession: 10

7.3 LOGAN TOWNSHIP

(a) Controlled Cattle Access

Landowner: Carl Neubrand

Lot: 24

Concession: 8

(b) Windbreak

Landowner: Joe Vandenberg

Lot: 32 and 33

Concession: 12

7.4 NORTH EASTHOPE TOWNSHIP

(a) Controlled Cattle Access

Landowner: Laverne Pletsh

Lot: 31

Concession: 1

Landowner: Roger Cook

Lot: 35

Concession: 4

**APPENDIX G
FACTS AND FIGURES
OF 1980/81 WORK PROGRAM**

1. PRIVATE LANDS ASSISTANCE - 1980/81

- Staff visited, at least once, approximately 150 sites and advised on erosion control procedures in terms of methods and available subsidies
- Many site visits included the invitation and attendance of representatives of appropriate organizations such as
 - (i) township officials
 - (ii) drainage commissioners
 - iii) municipal engineers
 - iv) OMAF staff
 - (v) S & CIA representatives
 - (vi) Conservation Authorities representatives
 - vii) the farming community

2. DISPLAYS @ SPECIAL EVENTS - 1980/81

- International Plowing Match - Built Electric Display Unit
- Elgin Co. Plowing Match
- Farm Show
- Western Fair
- Save our Soils Conference
- Ontario Farm Drainage Association Conference
- Canadian/American Association of Geographers Conference
- And various others

3. COURSES, TOURS ATTENDED 1980/81

- Staff Development Conference
- Honey Cr. Watershed Project, Ohio
- MVCA Watershed Tour
- Lower TVCA Boat/Bus Tour
- EPW Erosion Control Workshop - Toronto
- Diffuse Source Pollution Seminar - MacMaster, Hamilton
- Drainage Engineers Conference - London
- S.O.S. Conference - Toronto
- OFDA Drainage Contractors Conference - London
- Erosion Control Seminar - Comber
- Conservation Authority Conference
- RCAT Twilight Tour
- Ontario I. A. meeting

- LTVCA and UTRCA Annual Meetings
- Ontario Farm Drainage Association - Drainage Day
- Canadian/American Association of Geographers Conference

4. PUBLICATIONS 1980/81

- Drainage Handbook - Script and photos are complete
 - Was published in June 1981
- Positive Land Management Practices
- 42 sites of PLMP have been documented and signed throughout the TRB.
- The report has been printed.
- TRIC Newsletter - articles written (Talk of Thames)
- TRIC Slide/Tape Show
- Slide Inventory - 2500 slides

5. MEDIA RELEASES 1980/81

- Farm and Country
- Middlesex Farmer
- London Free Press
- Voice of Kent County Farmer
- Western Ontario Farmer
- CBC Radio
- 6X FM Radio
- CKNX Radio

6. PRESENTATIONS/MEETINGS 1980/81

- Aldborough Township Officials
- Dunwich Township Officials - Tilbury East Township Officials
- East Zorra Tavistock Township Officials
- East Zorra Tavistock Township Landowner Group
- 7 County Soil and Crop Improvement Associations
- Southwold Township Officials
- MNR - District Offices
- Hibbert Township Officials
- LTVCA Boat-Bus Tour
- Erosion Control Seminar - Comber
- Irregular meetings with some townships
- Ellice Township
- 36 informal meetings with townships
- Fanshawe College
- Ontario Federation of Agriculture Branch meetings
- Ontario Institute of Agrologists Branch meetings

- Oxford Group of concerned farmers

7. PERSONS/AGENCIES CONTACTED WITH COOPERATION - 1980/81

- OMAF staff - Middlesex County
- Perth County
- Elgin County
- Kent County
- Essex County
- Oxford County
- Huron County
- Queens Park
- Guelph
- University of Guelph
 - School of Engineering
 - Crop Science Dept.
 - Land Resource Science Dept.
 - Soil Testing & Plant Analysis Laboratory
- Soil & Crop Improvement Associations
- LTVCA
- UTRCA
- Environment Canada - Lands Dir.
- Most Townships & Drainage Commissioners
- R.C.A.T.
- Adjacent conservation authorities
- The farming community
- Farm Organizations
 - OFA
 - OIA
 - 4H
- Most Engineering Farms
 - Spriet
 - Smart
 - Todgham & Case
 - Dawson & Johnson
 - Bartlett & Associates
 - Armstrong
 - Colbey
 - Don McGeorge
 - Dave McGeorge
 - J.P. McIntyre
 - W.J. Settingington

8. MISCELLANEOUS ACTIVITIES 1980/81

- Reynolds Creek Project - Assisted in UTRCA project by walking drain ahead of contractor indicating required areas of work
- Municipal Drain Projects - attended numerous selected site meetings for municipal drain proposals
- Cost-Effectiveness of Controlled Livestock Access - a subjective analysis methodology was proposed including considerations of parameters involved. Much discussion was raised by the proposal although it was generally agreed that controlled access is not always feasible
- Signs - manufactured and installed for both "passive" and "active" sites
 - some inventory of materials
- Irregular Grab Sampling- 5 sites including Thamesville Stockyards