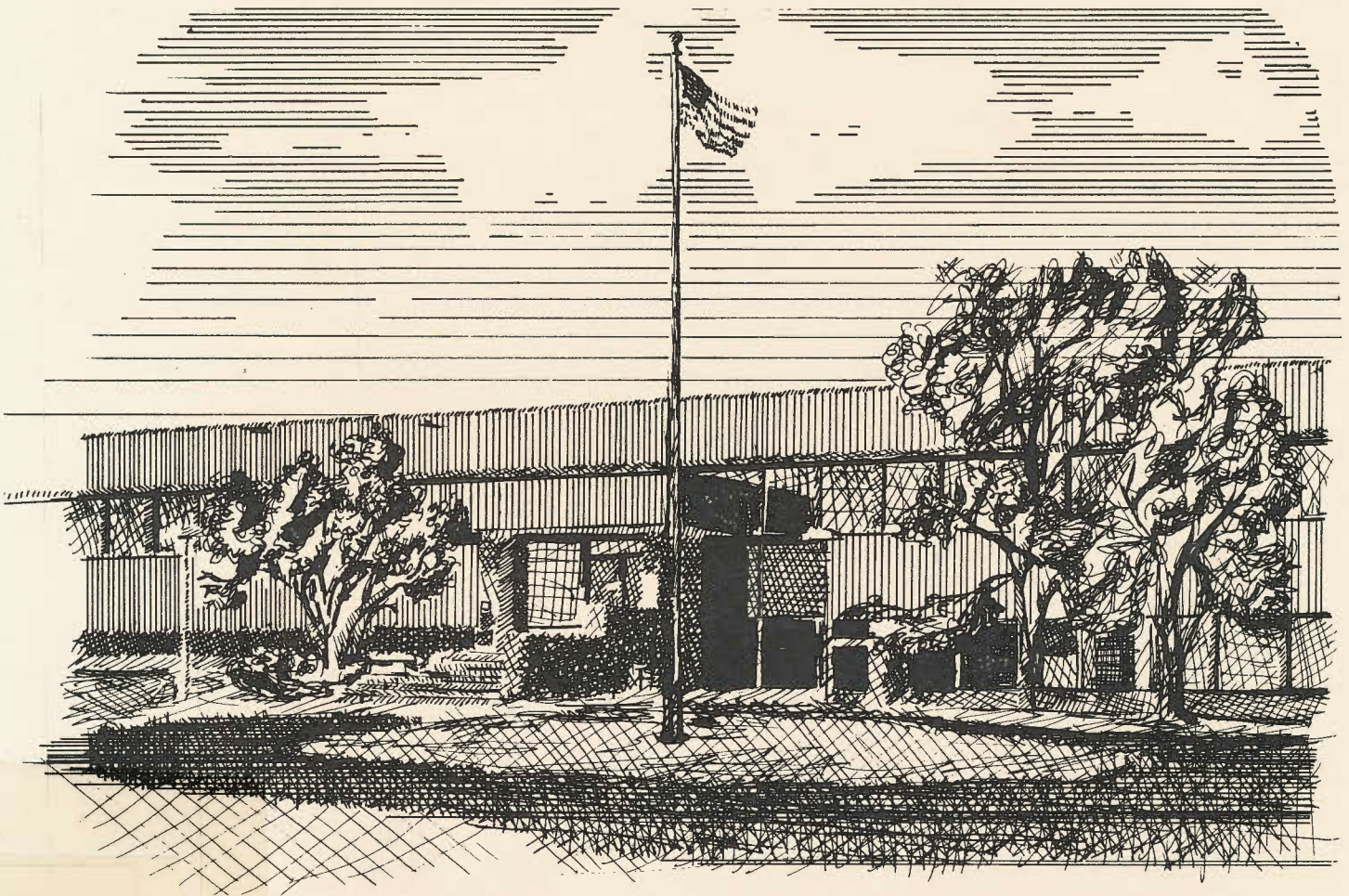


1990 ANNUAL REPORT



GEORGE W. KUHN
DRAIN COMMISSIONER
OAKLAND COUNTY, MICHIGAN
V O L U M E I

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ROBERT H. FREDERICKS
Chief Deputy Commissioner
858-0970

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OAKLAND COUNTY DRAIN COMMISSIONER
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April 1, 1991

Honorable Board of Commissioners
County of Oakland
1200 North Telegraph Road
Pontiac, Michigan 48341

APR 1 1991
1200 NORTH TELEGRAPH ROAD
PONTIAC, MICHIGAN 48341

Mr. Chairman, Ladies & Gentleman:

As required by the Michigan Drain Code, I enclose the Annual Report of the operations of the Drain Commissioner's Office during the period January 1, 1990 through December 31, 1990.

This office has experienced a substantial increase in project activity. Our workload demands have continued unabated by the general economic slowdown because of the expanding need for basic services in Oakland County. The budgeted amount of projects currently under construction is \$145 million. Of that amount, \$66 million has been completed, leaving work in progress of \$79 million. Additionally we have \$50 million in projects that have been requested by Oakland County Municipalities, contracted for, and in varying stages of design.

The enclosed report will give you an indication of the current and proposed construction activity that will continue to place heavy demands on this office in the near term future.

I wish to extend my thanks and appreciation to all the members of the Board of Commissioners for the excellent cooperation and assistance extended to this office during the past year.

Most sincerely,


George W. Kuhn

OAKLAND COUNTY DRAINAGE BOARD



George W. Kuhn
Drain Commissioner



Roy Rewold
*Chairman
Board of Commissioner*



G. William Caddell
*Chairman
Finance Committee*

DRAIN DEPARTMENT MANAGEMENT STAFF



Robert H. Fredericks
Chief Deputy Drain Commissioner



Glen Yrjanainen
Deputy/Chief Engineer
Drain & Lakes



William E. Klockow
Chief Engineer
Water & Sewer



Phil Sanzica Joseph Kozma Donald Mills
Assistant Chief Engineers

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ORGANIZATION CHART

ADMINISTRATION

- 1 DRAIN COMMISSIONER
- 1 CHIEF DEPUTY DRAIN COMMISSIONER
- 1 FINANCIAL ASSISTANT
- 1 ADMINISTRATIVE ASSISTANT
- 1 SECRETARY II
- 5 TOTAL POSITIONS

DRAIN & LAKES ENGINEERING

- 1 CHIEF ENGINEER/DEPUTY
- 1 ASSISTANT CHIEF ENGINEER
- 4 CIVIL ENGINEER III
- 1 CIVIL ENGINEER II
- 2 ENGINEERING TECHNICIAN
- 1 SECRETARY I
- 1 ADAPT
- 1 STUDENT ENGINEER
- 12 TOTAL POSITIONS

WATER & SEWER ENGINEERING

- 1 CHIEF ENGINEER
- 1 ASSISTANT CHIEF ENGINEER
- 3 CIVIL ENGINEER III
- 1 CIVIL ENGINEER II
- 1 ENGR. SYSTEMS COORDINATOR
- 1 ENGINEERING TECHNICIAN
- 1 ENGINEERING AIDE I
- 1 ACCOUNT CLERK
- 1 TYPIST II
- 1 STUDENT ENGINEER
- 12 TOTAL POSITIONS

INSPECTION

- 1 SUPERVOR INSPECTION SVCS
- 5 CONSTRUCTION INSPECTOR IV
- 2 CONSTRUCTION INSPECTOR III
- 6 CONSTRUCTION INSPECTOR II
- 16 CONSTRUCTION INSPECTOR I
- 30 TOTAL POSITIONS

RIGHT OF WAY

- 1 SUPERVISOR RIGHT OF WAY
- 1 SURVEY PARTY CREW LEADER
- 2 RIGHT OF WAY TECHNICIAN
- 3 ENGINEERING TECHNICIAN
- 2 ENGINEERING AIDE II
- 1 ENGINEERING AIDE I
- 10 TOTAL POSITIONS

MAINTENANCE

- 1 CIVIL ENGINEER II
- 1 MAINTENANCE SUPERVISOR
- 1 LAKE LEVEL TECHNICIAN
- 5 GENERAL MAINTENANCE MECH
- 2 MAINTENANCE MECH I
- 6 MAINTENANCE LABORER
- 16 TOTAL POSITIONS

S.O.C.S.D.S

- 1 ASSISTANT CHIEF ENGINEER
- 1 CHIEF - POL CONTROL FAC
- 1 MAINTENANCE SUPERVISOR
- 3 PUMP MAINT MECH II
- 1 PUMP MAINT MECH I
- 1 CHEMIST ASSISTANT
- 1 LAB TECHNICIAN II
- 2 ENGINEERING AIDE I
- 1 TYPIST II
- 12 TOTAL POSITIONS

ENGINEERING UNITS

THE COUNTY DRAIN COMMISSIONER

The County Drain Commissioner has broad powers and responsibilities under several state laws. His primary duties are described in the Michigan Drain Code, Act 40 of 1956. Additional powers and duties of the Drain Commissioner derive from the provisions of two public works acts, Act 342 of 1939 and Act 185 of 1957; the Inland Lake Level Control Act, Act 146 of 1961; the Inland Lake Improvement Act, Act 345 of 1966; the Subdivision Control Act, Act 288 of 1967; the Soil Erosion and Sedimentation Control Act, Act 347 of 1972; and various other statutes.

For purposes of organization, the functions of the Drain Commissioner as a part of Oakland County government are delegated to six operating units: Drain and Lakes Engineering, Water and Sewer Engineering, Right of Way, Inspection, Maintenance and S.O.C.S.D.S. The employees in each of these units perform a multitude of tasks necessary for the office of the County Drain Commissioner to construct and maintain a variety of public works facilities for the use of residents in all parts of Oakland County.

ENGINEERING UNITS

The staff of engineers and other technical personnel in these two units are responsible for the design and construction of public works facilities of various kinds including storm drains, sanitary sewers, water mains and lake level control structures. Two Chief Engineers, Glen Yrjanainen, and William Klockow, supervise the engineering functions of these units. At the end of 1990 there were 24 employees in these units. The following specific activities are performed in the Engineering Units.

New Project Construction

Engineers and other support personnel administer the construction activity on new storm drains, sanitary sewers, water mains, and lake level control structures. This activity includes close cooperation with local units of government, state and federal agencies, consulting engineers, contractors and other interested parties. A summary of specific projects completed or under construction during 1990 is provided later in this report.

Plat Review

Under the provisions of the Subdivision Control Act, Act 288 of 1967, the Drain Commissioner reviews and approves all new subdivision plats in Oakland County. The review by the Drain Commissioner is made to ensure that adequate storm drainage facilities have been included in the engineering plans for the proposed plat. In addition, the Mobile Home Commission Act, Act 419 of 1976, requires the Drain Commissioner to review and approve the outlet drainage for new mobile home developments.

In 1990, 37 preliminary plats, 63 sets of subdivision construction plans, 64 final subdivision plats, and the outlet drainage for five mobile home developments were reviewed by the engineering staff of the Drain Commissioner. A total of 22 Oakland County communities were represented in the projects reviewed. The final subdivision plats contained 81 commercial lots and 2,130 residential lots. The mobile home parks contained 685 sites. Total revenue generated from plat review fees in 1990 was \$23,675.97. The Drain Office engineer in charge of plat review is Joseph P. Kozma, P.E.

Lake Level Program

Under the provisions of Act 146 of 1961, the Drain Commissioner's office participates in legal proceedings to establish and build lake level control structures for lakes in Oakland County.

Oakland County is approximately 30 miles from east to west, and 30 miles from north to south, with an area of approximately 900 square miles. For water management purposes, portions of the County are located within the basins of six rivers, the Clinton, Huron, Rouge, Flint, Shiawassee and Belle Rivers. There are 50 lakes in the County where levels have been established and assigned to the Drain Commissioner for control. The 50 lakes are in four river basins; 33 in the Clinton, 13 in the Huron, two in the Rouge, and two in the Shiawassee.

In some cases the level of more than one lake can be controlled from a single lake level control structure. A summary containing basic information about lakes under the jurisdiction of the Drain Commissioner in Oakland County appears on the two following pages of this report.

Ronald R. Karttunen, P.E. is responsible for the lake level program, which involves the operation and maintenance of 32 lake level control structures, and six lake level augmentation pumps.

Regular inspections of lake level control structures are made on a weekly basis, or more often as weather conditions may dictate. The level of each lake is read and recorded, and adjustments to the structures are made throughout the year. Every effort is made to maintain the established legal level. A good illustration of this is shown on page 7 of this report in the form of Sylvan-Otter Lake's 1990 hydrograph. These hydrographs are available for each lake level system.

Regular inspection also ensures that the structures are in good operating condition, and permits scheduled maintenance and repairs when needed. In order to effectively operate and maintain the lake level structures, two Lake Level Control Technicians are assigned to monitor the lake levels.

Special assessment districts were established by the Circuit Court for each project and, as necessary, annual assessment rolls are prepared to reimburse the cost of necessary maintenance expenditures. During 1990, maintenance work was performed on 32 lake level projects, and the Board of Commissioners approved assessments in the amount of \$234,499.19 to assess property for the maintenance costs on these Lake Level Control Projects. In addition to these

**SUMMARY OF OAKLAND COUNTY LAKES
WITH COURT ESTABLISHED LEGAL LEVELS**

LAKE	AREA (ACRES)	YEAR ESTABLISHED	LOCATION	
<u>CLINTON RIVER BASIN</u>				
Lakeville Lake	Lakeville*	492	1961	Addison Twp
Oxford Multi-Lakes	Mickelson	61	1973	Oxford Twp
	Squaw	29		
	Clear	32		
	Long	33		
	Cedar	15		
	Tan	58		
	Mill Pond*	2		
Waterford Multi-Lakes	Cemetery	28	1966	Independence & Waterford Twps
	Dollar*	6		
	Greens	101		
	Maceday	234		
	Lotus	169		
	Lester	22		
	Van Norman*	27		
	Upper Silver	41		
	Silver	108		
	Mohawk	35		
	Wormer	38		
	Schoolhouse	40		
	Loon*	265		
	Williams*	175		
Oakland-Woodhull Lakes	Woodhull	135	1958	Waterford Twp
	Oakland*	235		
Watkins Lake	Watkins* (pump)	229	1960	Waterford Twp
Cass Lake	Cass*	1280	1969	Waterford Twp & Keego Harbor
Orchard Lake	Orchard* (pump)	850	1966	Orchard Lake & W Blmfld Twp
Indianwood	Indianwood*	122	1986	Orion Twp
Sylvan-Otter	Otter	81	1986	Waterford Twp,
	Sylvan	458		Pontiac,
	Dawson Mill Pond*	8		Sylvan Lake & Keego Harbor
Crystal Lake	Crystal*	51	1989	Pontiac
Bunny Run Lake	Bunny Run*	11	1990	Orion Twp

* Lake level structures are located at the outlet of the lakes marked with an asterisk

**SUMMARY OF OAKLAND COUNTY LAKES
WITH COURT ESTABLISHED LEGAL LEVELS**

LAKE	AREA (ACRES)	YEAR ESTABLISHED	LOCATION	
<u>HURON RIVER BASIN</u>				
Big Lake	Big*	220	1967	Springfield Twp
White Lake	White* (pump)	540	1965	White Lake & Highland Twps
Duck Lake	Duck* (pump)	307	1962	Highland Twp
Pontiac Lake	Pontiac*	615	1944	White Lake Twp
Oxbow Lake	Oxbow*	286	1963	White Lake Twp
Cedar Island Lake	Cedar Island*	169	1964	White Lake Twp
Fox Lake	Fox*	39	1963	Commerce Twp
Union Lake	Union*	465	1949	Commerce Twp
Long Lake	Long* (pump)	175	1964	Commerce Twp
Upper Straits Lake	Upper Straits*	378	1964	W. Blmfld Twp
Middle & Lower Straits Lake	Middle Straits Lower Straits* (pump)	194 220	1963	Commerce Twp
Commerce Lake	Commerce*	262	1964	Commerce Twp
<u>ROUGE RIVER BASIN</u>				
Walled & Shawood Lakes	Shawood Walled*	45 670	1984	Novi & Walled Lake
<u>SHIAWASSEE RIVER BASIN</u>				
Bevins Lake	Bevins*	31	1964	Holly Twp
Tipsico Lake	Tipsico	301	1954	Rose Twp

* Lake level structures are located at the outlet of the lakes
marked with an asterisk

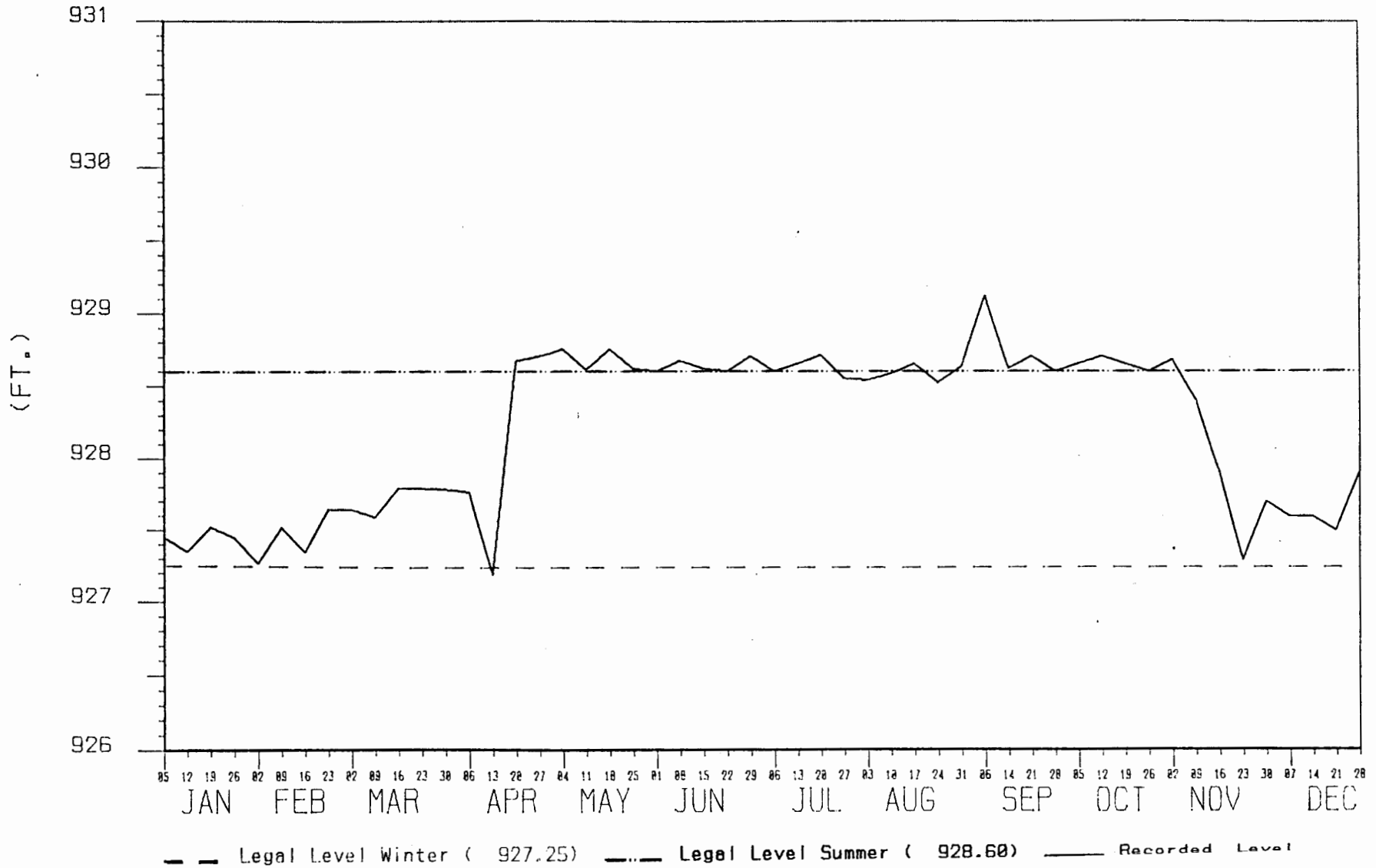
LAKE LEVEL EXPENDITURE SUMMARY
FOR THE YEAR 1990

Lake Level	Salaries & Fringes	Material & Supplies	Misc Charges	Mileage Charges	Insurance	Electrical Service	Contracted Services	Total Expenditures
Bevins Lake	\$2,964.94	\$0.00	\$95.40	\$2,179.61	\$107.55	\$0.00	\$756.00	\$6,103.50
Big Lake	\$3,378.22	\$0.00	\$90.18	\$1,731.97	\$139.41	\$0.00	\$798.00	\$6,137.78
Bunny Run Lake	\$17,285.21	\$398.54	\$2,410.01	\$968.47	\$0.00	\$0.00	\$164,138.47	\$185,200.70
Cass Lake	\$10,001.67	\$170.04	\$60.32	\$2,029.84	\$975.92	\$0.00	\$801.50	\$14,039.29
Cedar Island Lake	\$8,363.87	\$257.51	\$39.20	\$2,389.75	\$290.78	\$0.00	\$510.00	\$11,851.11
Commerce Lake	\$3,739.55	\$168.29	\$67.53	\$1,668.40	\$394.36	\$0.00	\$456.00	\$6,494.13
Crystal Lake	\$5,541.54	\$207.41	\$158.46	\$780.06	\$497.93	\$243.65	\$26,034.36	\$33,463.41
Duck Lake	\$4,477.04	\$150.18	\$100.49	\$1,544.37	\$657.27	\$1,317.40	\$456.00	\$8,702.75
Fox Lake	\$6,935.12	\$183.84	\$200.98	\$2,339.05	\$231.03	\$0.00	\$672.00	\$10,562.02
Indianwood Lake	\$5,682.73	\$440.60	\$489.05	\$2,282.32	\$478.01	\$0.00	\$0.00	\$9,372.71
Lake Louise	\$9,152.49	\$104.46	\$22.00	\$581.45	\$0.00	\$0.00	\$3,200.00	\$13,060.40
Lakeville Lake	\$2,461.31	\$42.40	\$110.92	\$2,026.91	\$155.36	\$0.00	\$0.00	\$4,796.90
Long Lake	\$2,174.49	\$26.00	\$139.00	\$1,629.83	\$282.82	\$308.56	\$456.00	\$5,016.70
Middle & Lower Lake	\$4,746.70	\$102.41	\$0.00	\$1,474.89	\$493.92	\$3,192.50	\$888.00	\$10,898.42
Oakland-Woodhull Lake	\$10,328.64	\$380.64	\$463.75	\$2,054.12	\$1,195.01	\$0.00	\$533.75	\$14,955.91
Orchard Lake	\$7,599.77	\$68.04	\$28.98	\$1,301.04	\$426.22	\$805.67	\$746.45	\$10,976.17
Oxbow Lake	\$6,372.96	\$0.00	\$0.00	\$1,752.71	\$330.63	\$0.00	\$912.00	\$9,368.30
Oxford Multi Lake	\$8,513.37	\$599.83	\$253.08	\$3,403.49	\$948.05	\$0.00	\$0.00	\$13,717.82
Pontiac Lake	\$7,497.66	\$12.42	\$405.43	\$1,365.43	\$1,187.03	\$0.00	\$1,520.00	\$11,987.97
Scott Lake Level	\$92.12	\$0.00	\$398.00	\$0.00	\$0.00	\$0.00	\$0.00	\$490.12
Sylvan Otter Lake	\$10,552.87	\$698.52	\$27.56	\$1,317.38	\$1,394.18	\$0.00	\$923.75	\$14,914.26
Tipsico Lake	\$878.87	\$0.00	\$0.00	\$1,651.51	\$31.86	\$0.00	\$0.00	\$2,562.24
Union Lake	\$3,037.89	\$93.82	\$45.75	\$1,075.78	\$227.04	\$0.00	\$540.00	\$5,020.28
Upper Straits Lake	\$1,579.40	\$2.01	\$0.00	\$881.35	\$59.75	\$0.00	\$270.00	\$2,792.51
Walled & Shawood Lake	\$1,865.91	\$0.00	\$0.00	\$1,489.56	\$386.39	\$0.00	\$0.00	\$3,741.86
Waterford Multi Lake	\$23,257.23	\$178.71	\$11.47	\$2,996.30	\$3,242.47	\$0.00	\$3,952.00	\$33,638.18
Watkins Lake	\$1,640.97	\$142.08	\$0.00	\$366.51	\$159.34	\$646.38	\$648.00	\$3,603.28
White Lake	\$4,352.49	\$14.53	\$64.68	\$1,910.85	\$1,063.57	\$6,413.64	\$446.50	\$14,266.26
TOTALS	\$174,475.03	\$4,442.28	\$5,682.24	\$45,192.95	\$15,355.90	\$12,927.80	\$209,658.78	\$467,734.98

Note: Hydrograph derived
from lake level elevation
record readings, U.S.G.S.
datum.

SYLVAN LAKE

HYDROGRAPH for 1990



assessments, two lake level districts were assessed in the amount of \$39,147.62 for a portion of the cost of construction of the Price Dam, and the Indianwood Dam.

Soil Erosion and Sedimentation Control

For the past 16 years, the Drain Commissioner's Office has operated as the designated enforcing agency in Oakland County for the Soil Erosion & Sedimentation Control Act, Act 347 of 1972. The program is designed to protect the environment without placing an undue burden on property owners or contractors.

In 1990, 666 applications for soil erosion permits were received by this office. The total revenue received in 1990 from soil erosion permit fees was \$162,747.47.

As in the past, the Soil Erosion Division continued its informal instructional meetings with builders, developers, property owners, engineers, architects, contractors, etc. Also in 1990, one Inspector successfully completed the course and examination given by the DNR and received his State Certification to administer the Soil Erosion & Sedimentation Control Act.

The Erosion Control Manual was updated, and distributed in February, 1990. This is the 3rd edition of the manual. Three-hundred and twenty (320) copies of the new manual and fifty-four (54) copies of the new Standard Detail Sheet were sold to consultants, developers, municipalities and contractors in 1990.

Douglas D. Smith, P.E. was in charge of the Drain Commissioner's Soil Erosion & Sedimentation Control program in 1990.

Construction Permits

The Drain Commissioner, under provisions of the Drain Code, requires that a permit be obtained before making connections to, or doing work affecting, a County drain. The permit program is under the direction of Donald L. Mills P.E., Assistant Chief Engineer.

During 1990 a total of 114 permits were issued for work items affecting County and Inter-County Drains. The number of permits does not directly reflect the extent of construction or modification of the affected drains. A single permit may involve only a single connection to a drain or many different direct points of connection or other involvements.

In most cases before a permit is issued, two sets of construction plans are submitted for review. Requests for a connection to a drain may be submitted by public agencies, engineering firms, private property owners or contractors retained by others to construct particular facilities. All plans submitted for review must conform to the engineering design standards which have been developed by the Drain Commissioner's office to protect the integrity and usefulness of existing facilities.

At the time of construction of any work for which a permit has been issued, an inspection is made to assure that the job is done properly and in accordance with the approved engineering plans. A fee, or fee and deposit is charged to offset the cost of this inspection.

Review of Lateral Connections to the S.O.C.S.D.S.

All connections into any sewer that is tributary to the Southeastern Oakland County Sewage Disposal System are required to be first reviewed by the Drain Commissioner prior to being submitted to the Michigan Department of Natural Resources. This review helps protect established Drainage Districts and allows a record to be kept of all facilities outletting into County trunk lines, as well as assuring that proper and approved construction standards are used on new connections.

The Drain Commissioner works closely with local units of government. All plans sent to the Drain Office for review are transmitted through the municipality's engineer or Engineering Department. This is done to ensure that sewer lines conform to the local community master plan for sewer service. During 1990 the Engineering Unit received and reviewed 25 sets of sanitary and combined sewer plans for facilities that will outlet into the Southeastern Oakland County Sewage Disposal System.

RIGHT OF WAY

RIGHT OF WAY

The Oakland County Drain Commissioner employs a trained and experienced staff of ten full time people, plus several part time people in this unit supervised by James W. Isaacs, Jr., R.L.S.

The primary purpose of this unit is the acquisition of easements for the construction of storm drains, sanitary sewer systems and water supply systems. The easements for these projects are obtained by contacting individual property owners. In order to obtain an easement, it is necessary to negotiate an acceptable agreement with the property owner. This process can be slow and difficult. It may be necessary to make several contacts with each owner, or in some cases with multiple owners. Easements are either permanent (land upon which facilities are located) or temporary (land required for use during construction only). Upon completion of a project, temporary easements revert to the owner, while permanent easements remain under the control of the County or the Drainage District.

Besides easement acquisition, the Right-of-Way Unit is responsible for verifying signatures on petitions to establish lake level controls and researching requests and/or lawsuits for plat easement vacations or amendments. We have also been working with the Drain Inspection Unit to acquire new easements needed for Drain relocations due to industrial or residential development.

Another important function of the Right-of-Way Unit is to purchase property, in fee, for such things as pump station sites, retention ponds or other areas where large easements are required. Property may also be purchased for additional road right-of-way and later deeded to the local municipality.

The Right-of-Way Staff becomes involved early in the planning stage of projects. This is necessary to accommodate possible route changes, land and soil conditions, landscaping, and the desires of the public. Any or all of these factors may affect the cost of a project. Staff members work closely with the engineer assigned to each project and make recommendations to help control or reduce costs.

Once the route and basic design of a project are determined, easement documents must be prepared to cover the area required for construction. A title search is necessary to determine the legal owners of record and all parties having an interest in the land, i.e., mortgage holders, land contract purchasers, etc. In many cases old records have to be researched, which can be both difficult and time consuming.

The easement description is written by calculating the exact location of the facility which will be constructed on private land. The description must be precise as it will become part of a recorded title document. After the easement documents are prepared, they are assigned to a Right-of-Way Field Agent who will contact the property owner. All signed easement documents are recorded at the Oakland County Register of Deeds.

When an easement cannot be obtained from a property owner, it is necessary to file a condemnation action in Circuit Court under the Uniform Condemnation Act, Act 87 of 1980. Right-of-Way Staff works closely with the Oakland County Corporation Counsel or outside legal counsel in filing a condemnation action. In a condemnation proceeding, the Court, with the assistance of expert appraisers, awards the requested easement to the County and awards the property owners a sum of money deemed to represent the diminution in value to the property caused by the easement.

During 1990, approximately 1500 easement parcels were title searched, written and appraised by the Right-of-Way staff. A total of 701 easement parcels were acquired.

During 1990, the Right-of-Way Unit was involved with 47 major projects in various stages of development. These projects included 25 drains, 13 sanitary systems, 8 water systems, and 1 dam site.

Our biggest project for 1990 was the \$48 million federally funded Evergreen-Farmington Sanitary Sewer Relief Project. There were over 300 easements required for the various sections. This project was very interesting yet difficult because of the strict Federal Guidelines that had to be followed regarding easement acquisition.

Our next two largest projects were the Lueders Drain, with 159 easements, and the Waterford Sanitary Sewer and Water System, with 172 easements.

These three large projects and others are scheduled for construction in 1991. The Right-of-Way Staff has worked diligently throughout the year to ensure that all projects can proceed on schedule.

INSPECTION UNIT

INSPECTION UNIT

The Oakland County Drain Commissioner employs trained inspection personnel to inspect drain, sewer and water projects. At the end of 1990 there were nineteen employees in the Inspection Unit. The supervisor of the Inspection Unit is Edward T. Micol who schedules and coordinates all activities of the unit, and provides in-the-field assistance to individual inspectors. During each project assignment the individual inspector reports directly to the engineer responsible for the project.

The inspector insures that each facility is constructed in accordance with the plans and specifications, with particular attention paid to backfill material, proper compaction, and workmanship. Careful observation of the quality and proper placement of construction materials such as pipe, concrete and reinforcing steel in underground lines, pump stations and other structures are also important duties of the inspector.

The Drain Commissioner also strives to maintain good public relations with members of the public affected by the construction of various projects. Necessary services, such as mail delivery and garbage collection, and prompt restoration of access to private property during and after construction are expedited to reduce the inconvenience to the public.

Inspectors use radio and telephone communication with the office and local communities during working hours so that any complaints, inquiries, or construction-related problems can be handled as quickly as possible.

Daily inspection reports and a log of the progress of construction are maintained by the inspector on each project. Daily records permit proper restoration of the construction site, and also assure that correct payment will be made to the contractors on the project.

Inspection staff also videotapes future construction sites and routes. Particular care is taken with easement areas where possible problems can be anticipated or where difficult types of restoration work will be needed. After construction, the video tapes are available as needed during restoration work, and can be used to resolve differences regarding the actual conditions which existed before construction. The video record is valuable to discourage litigation because a visual review of the prior condition of all property is possible.

An important responsibility of the inspector on each project is the preparation of an "as-built" plan, which is a plan that shows exactly how the project was constructed in the field, with dimensions identifying the location of all underground structures. Future surface access for additional installations or service is thereby enhanced at a lower cost with a minimum of disturbance to the existing facility.

The Inspection Unit is responsible for the field inspection portion of the Soil Erosion and Sedimentation Control program, and meets with municipalities and private citizens to promote

a reasonable and effective soil erosion policy in an effort to reduce the pollution of lakes and streams in Oakland County. The soil erosion inspection program is supervised by Dan MacLennan.

Inspection Staff is also responsible for inspecting connections and other involvements with county drains throughout Oakland County. The inspector is present to insure that the integrity of the existing system is maintained, and that proper compliance with state and local regulations are observed.

MAINTENANCE UNIT

MAINTENANCE UNIT

The Oakland County Drain Commissioner's Maintenance Unit, under the direction of Michael J. Lamb, P.E., is responsible for the operation and maintenance of approximately 600 miles of legally established county drains, 32 lake level control structures and related facilities.

Description of Unit

The Maintenance Unit consists of an Operations & Maintenance Engineer, a Maintenance Supervisor and an operational staff of 14 maintenance workers. Operations require that the Maintenance Unit maintain seven pickup trucks, a bulldozer, a backhoe, a jet vactor truck, a dump truck, skid loader, trailers and a variety of other equipment such as compressors, pumps, and power tools.

Operational Description

Through a procedure of routine inspection and response to complaints, the County drains are inspected on a regular basis for maintenance needs and routine repairs. Often during these inspections it is possible to identify potential problems or violations associated with the proper operation of the drains. The majority of the work performed by the Maintenance Unit is the general upkeep of the drains and correcting problems identified by these inspections.

Response to drainage complaints from citizens and local municipalities is also a major function of the Maintenance Unit. In most cases complaints are answered on the same day that they are submitted to this office. The departmental policy of prompt response to complaints has been instrumental in preventing property damage and personal injury associated with flooding and failure of drainage facilities under this office's jurisdiction.

Additional Operations

The Maintenance Unit is also responsible for maintenance of lake level control structures, U.S. Department of Agriculture Weather Service Office rain gauge stations, and numerous pump stations related to maintaining lake levels and stream flow.

During 1990 the Maintenance Unit completed repair and routine maintenance on all lake level control structures under this office's jurisdiction as identified by triennial inspections performed by the engineering staff. These repairs included painting, replacement of deteriorated structural elements and modifications as required for more efficient and maintenance free operation.

Rain gauge stations under our operational control consist of twenty four units located throughout Oakland County. Trained maintenance personnel monitor these stations to insure that they operate in a reliable fashion in order to provide accurate and reliable data for use by national and local organizations. Frequent repairs are required on these units due to the sensitivity of their mechanisms and exposed location.

Operational Expenses

Operational funding for the Maintenance Unit staff and equipment is provided by direct assessment to responsible municipal governments and special assessment districts.

Inter-Departmental Services

In cooperation with other County governmental units, the Maintenance Unit provides services and equipment, at a minimal rate, to the Oakland County Road Commission, DPW, FM&O, Oakland-Pontiac Airport and others in their operations and maintenance work in order to assist them in reducing the cost of their specific maintenance responsibilities.

**SOUTHEASTERN OAKLAND COUNTY
SEWAGE DISPOSAL SYSTEM**

SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM

The District

The Southeastern Oakland County Sewage Disposal System (S.O.C.S.D.S.) serves a district of approximately 46,000 acres and provides sewer service to all of the areas within the Cities of Berkley, Clawson, Ferndale, Hazel Park, Huntington Woods, Madison Heights, Oak Park, Pleasant Ridge, Royal Oak, and the Township of Royal Oak. Part of the area within the Cities of Birmingham, Southfield, Troy, and the Village of Beverly Hills also receive sewer service from the S.O.C.S.D.S. Of the 46,000 acres served, approximately 24,385 acres are served by combined sewers, and the remaining 21,615 acres, primarily in the Cities of Troy and Madison Heights, are served by a separated sewer system.

The Pollution Control Facility - Background

Prior to 1974 the Twelve Towns Relief Drains system collected combined sewage from the district and delivered it to the Dequindre Interceptor at the rate of 118 cubic feet per second. When the total flow exceeded 118 cubic feet per second, the excess was stored in the Twelve Towns system up to a retention capacity of 90 acre/feet. When a storm event occurred of such magnitude that the storage capacity of the Twelve Towns Relief system was exceeded, the excess combined sewage would spill into the Red Run Drain. Overflows occurred approximately 25 times every year and were causing pollution of the Red Run Drain. The Red Run Drain is a large, open inter-county Chapter 21 drain, over eight miles in length, flowing east from Twelve Mile and Stephenson Highway through Macomb County until it outlets into the Clinton River.

To mitigate this pollution of the Red Run Drain and the Clinton River, the Drain Commissioner as agent for the County of Oakland constructed the Pollution Control Facility, a storage facility 65 feet wide, 20 feet high and approximately two miles long with a capacity of 190 acre/feet, which now receives overflows from the Twelve Towns Relief System. With this additional facility the storage capacity of the district has been increased to 280 acre/feet of combined sewage.

After a storm event, flows of combined sewage retained in the storage basin are pumped into the Dequindre Interceptor up to a capacity of 260 cubic feet per second. Only when the storage capacity of both the Twelve Towns Drain and the Pollution Control Facility are exceeded will a spill occur to the Red Run Drain. Operators of the Pollution Control Facility can anticipate when such a spill is going to occur. With this knowledge, chlorine is pumped into the combined sewage spilling into the Pollution Control Facility to kill bacteria so that the quality of effluent spilling into the Red Run Drain meets standards established by the Michigan Water Resources Commission.

Operations - 1990

The Drain Commissioner currently employs eleven people to maintain and operate the S.O.C.S.D.S. under the direction of Joseph P. Kozma, P.E.

Laboratory staff collect and test samples to continually monitor contributors to the sewer system. The purpose of the monitoring program is to test sewage effluent from industries at designated locations so as to limit the users of the system to specific parameters of sewage strengths. The City of Detroit is notified of the results of these tests, and if a violation occurs the industry violating the sewage ordinance is notified. During 1990 approximately 45,000 analyses were performed on more than 9,000 samples collected within the district. Through these efforts the district has been able to control the strength of the effluent entering the system and later treated by the City of Detroit.

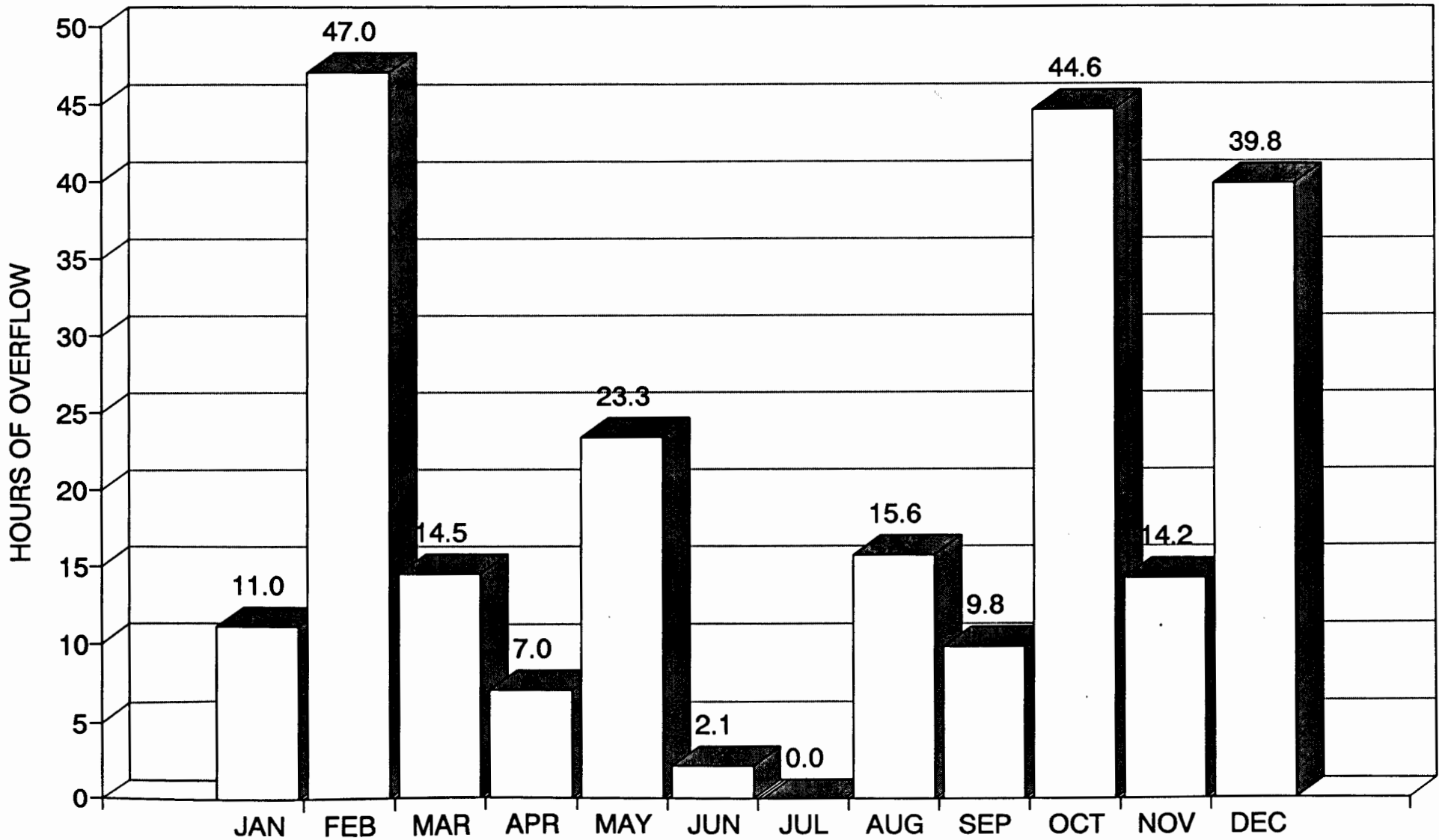
Field staff maintain and operate the Pollution Control Facility. Responsibilities include the operation of the pump station housing six dewatering pumps which pump combined sewage from the Pollution Control Facility into the Dequindre Interceptor. Once the Pollution Control Facility has been pumped dry, a flushing system is activated to wash down the walls and floor of the Pollution Control Basin. After flushing, employees enter the Pollution Control Basin and remove any remaining debris.

During all of 1990 there were only 27 spills from the Twelve Towns system to the Pollution Control Facility, of which 14 were retained in the basin with no spill to the Red Run Drain. The remaining 13 spills were chlorinated before spilling to the Red Run Drain. The total overflows to the Red Run Drain were limited to a total period of 228 hours and 53 minutes for the year. The total volume of flow spilled was approximately 420,000,000 cubic feet or approximately 3,141 million gallons.

S.O.C.S.D.S. employees also operate and maintain the Red Run Drain, the outlet water course for the Pollution Control Facility, which begins at Thirteen Mile and Dequindre Road and runs northeasterly through Macomb County for over eight miles where it outlets into the Clinton River. This open water course is subject to erosion and shoaling. Funding for maintenance activities on the Red Run Drain is provided by assessments against the Chapter 21 inter-county drainage district for the Red Run Drain.

TOTAL OVERFLOW FOR 1990

228 HOURS 53 MINUTES



SOUTEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM
JANUARY 1, 1990 THRU DECEMBER 31, 1990

DRAIN CONSTRUCTION COMPLETED IN 1990

DRAINS COMPLETED IN 1990

Nelson Drain - Phase II

A petition for certain drain improvements along the existing Gibson and Renshaw Drains in the northeastern part of the City of Troy was filed with the Drain Commissioner on May 7, 1984. At the first Drainage Board meeting held May 23, 1984, the project was named the Nelson Drain, and the public hearing on necessity was scheduled for July 11, 1984. No objections were received at the hearing, and as a result, the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted. Mr. Donald L. Mills, P.E. was designated as the project engineer for the Nelson Drain, and Hubbell, Roth & Clark, Inc. was employed as consulting engineer.

Phase I of the Nelson Drain, consisting of a 25 acre retention basin on the east side of Rochester Road between Long Lake and Square Lake Roads, was completed in 1986.

Phase II of the project consists of channel improvements and widening from Dequindre Road westerly, and also immediately north and south of Long Lake Road. Construction bids were received on February 25, 1988, and the contract was awarded to the low bidder, L. D'Agostini & Sons, Inc., in the amount of \$642,198.00. Actual construction began in May 1988 and was completed in the Fall of 1988.

During 1989 and 1990, additional channel improvements behind the Larson Middle School and at the John R. and Rochester Road crossing of the Nelson Drain, were completed by L. D'Agostini & Sons, Inc. at a total cost of approximately \$70,000.00.

The Nelson Drain was financed with surplus construction funds from completed drain projects under the provisions of Act No. 165 of the Public Acts of 1984.

DRAINS UNDER CONSTRUCTION

DRAINS UNDER CONSTRUCTION

Johnson Drain

A petition for certain drain improvements along Featherstone Road and Auburn Road east of Opdyke and west of I-75, in the City of Auburn Hills was filed with the Drain Commissioner on July 14, 1986. At the first drainage board meeting held on August 18, 1986, the project was named the Johnson Drain, and the public hearing was scheduled for October 7, 1986. No objections were received at the hearing, and as a result, the project was determined practicable and necessary for the public health and the First Order of Determination was adopted. Mr. Philip Sanzica, P.E., was designated as the project engineer for the Johnson Drain, Orchard, Hiltz & McCliment was employed as consulting engineering and Dickinson, Wright, Moon, Van Dusen and Freeman was named Bond Counsel for the project.

On August 29, 1989, plans and specifications for the project were received, adopted and approved. The cost estimate submitted with the plans totaled \$3,725,000. The project was advertised and construction bids were received with the contract being awarded to the low bidder, Dan's Excavating, Inc. of Utica, Michigan.

The cost of the project was financed by the sale of Oakland County Bonds in the amount of \$2,675,000.00, for which the City of Auburn Hills pledged its full faith and credit for repayment. The bonds were sold on July 26, 1990, at an average effective interest rate of 6.56% over 10 years.

Construction began in the summer of 1990, and 86% of the Johnson Drain had been completed by the end of 1990. The balance of the construction including the open trapezoidal ditch along Auburn Road, transition structures and final restoration will be completed in the spring of 1991.

Jensen Drain

Petitions and resolutions for the construction of the Jensen Drain were received from the City of Rochester Hills on December 30, 1987. In February of 1988 the Engineering Firm of Hubbell, Roth & Clark, Inc. was employed as the consulting engineer for the Jensen Drain.

The Jensen Drain project was sought by the City of Rochester Hills to alleviate flooding problems being experienced in the Southeast quadrant of Section 33 which also contributed to flooding in the City of Troy. The project consists of storm sewer along portions of South Boulevard, Grace, Ruby, Dearborn, Cone, and Mildred Streets in addition to a retention facility located between South Boulevard and Grace Street.

On July 31, 1990, the final apportionment percentages were established and bids were received

for the construction of the Jensen Drain. The low bidder was A.V.S. Construction Specialties (\$540,647.50) who was subsequently awarded the contract subject to the sale of bonds. Bonds in the amount of \$995,000.00 were sold on November 8, 1990 and construction of the Jensen Drain commenced in December of 1990. The anticipated completion date of the Jensen Drain is August 6, 1991.

Cranberry Lake Drain

The Charter Township of Independence petitioned the construction of the Cranberry Lake Drain on June 20, 1989. The Cranberry Lake Drain actually functions as an overflow for the Lake and is intended to reduce damage to private property and roads in the area due to high water levels recently being experienced on the lake.

Giffels-Webster Engineers were employed as consulting engineers for the Cranberry Lake Drain on August 29, 1989.

On October 30, 1990 the Final Order of Apportionment was adopted and an agreement was executed between the Cranberry Lake Drainage District and Independence Township which allowed the Township to construct the Drain utilizing their contractor, Pi-Con, Inc., to construct the improvements.

Construction of the Cranberry Lake Drain commenced in November of 1990 and was completed in December of 1990 including all restoration. The total construction cost of the Cranberry Lake Drain improvements was \$32,784.31.

Barnard Drain Improvements

The Barnard Drain consists of mostly open ditches in Sections 35 & 36 of the City of Troy. In one particular area between Chicago and John R. Roads (north of Oakland Mall) the drain makes a sudden change in direction and severe erosion problems were occurring in the open ditch at this location.

In August of 1989, the Barnard Drain District contracted with the engineering consulting firm of Professional Engineering Associates to design erosion control improvements to this area of the Barnard Drain. On August 14, 1990, bids were received for the open ditch improvements and Saturn Construction Company was awarded the construction contract in the amount of \$84,400.00.

Construction of the Barnard Drain Improvement commenced in September of 1990 and the improvements were completed, except for minor restoration, in December of 1990. Final restoration and completion of the Barnard Drain Improvements is expected in the Spring of 1991.

SEWER & WATER COMPLETED IN 1990

SEWER & WATER PROJECTS COMPLETED IN 1990

West Bloomfield Water Supply System - Section XII - Contract 1

West Bloomfield Township requested the County of Oakland to construct approximately 4,850 lineal feet of 30" and 24" diameter water transmission main in Commerce Road from Green Lake Road easterly to Hiller Road.

An agreement between West Bloomfield Township and the County of Oakland was approved by the Township Board on April 4, 1988 and by the Oakland County Board of Commissioners on April 28, 1988.

Construction bids for Contract No. 1 of Section XII consisting of the 4,850 lineal feet of 30" and 24" diameter water transmission main in Commerce Road from Green Lake Road easterly to Hiller Road were received on November 21, 1989. The contract was awarded to the low bidder, L. D'Agostini & Son's, Inc. in the amount of \$384,422.88. Actual construction began in the Spring of 1990 and was completed in the Fall of 1990.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth and Clark, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.
Project To Be Financed By	Available Local Funds

SEWER & WATER PROJECTS UNDER CONSTRUCTION

SEWER & WATER PROJECTS UNDER CONSTRUCTION

Evergreen-Farmington Pollution Control Facilities

The Evergreen-Farmington Sewage Disposal District is an area of approximately 130 square miles within southern Oakland County which serves all or part of fifteen communities.

Due to population growth over the years, the regional interceptors and local sanitary sewage collection systems within the Evergreen-Farmington District have been subject to excessive infiltration/inflow, and lack the necessary capacity to collect and transport peak wastewater flows. Early in 1976, the fifteen communities requested Oakland County to apply for a Facilities Planning Grant, and provided the local share as an advance to finance the studies. The Facilities Plan studies were completed in October of 1982 and approved by the member communities of the District and submitted to the M.D.N.R. and U.S. E.P.A. with an application for a grant to construct the proposed facilities. This application led to a M.D.N.R. request for additional studies and reports.

By mid-1988 all the necessary environmental issues, sewer system evaluation studies and flow routing concerns had been addressed. In the fall of 1988 the County of Oakland and each of the fifteen member communities entered into Final Orders of Abatement which mandated schedules for constructing the various improvements to the Evergreen-Farmington Sanitary System.

These schedules called for the improvements to be constructed in two phases or segments.

Segment I

Work in Segment I consists of the construction of a 2.26 million gallon retention facility (Contract No. 1); improvements to the existing Muirwood Pumping Station (Contract No. 2); and construction of approximately 6,300 lineal feet of 54" diameter tunnel sewer and 7,400 lineal feet of 30" force main to relieve the existing Eight Mile Road Interceptor (Contract No. 3).

Bids were received for this work in May of 1989 and work will be completed by mid-1991. A short summary of other pertinent information follows:

Consulting Engineer - Hubbell, Roth & Clark, Inc.

Cont. No.	General Contractor	Project Engineer
1	Barton-Malow Company	Gary R. Aho. P.E.
2	Lerner Linden, Inc.	Gary R. Aho. P.E.
3	M & M Contracting of Michigan, Inc.	Gary R. Aho. P.E.

Existing Population Served - 310,000

Ultimate Population Served - 494,000

Total Project Cost \$16.4 Million
 E.P.A. Construction Grant \$ 5.3 Million
 Local Share Cost \$11.1 Million

Segment II

Work on Segment II consists of the construction of approximately; 24,000 lineal feet of 8" to 12" sewer, 21,000 lineal feet of 15" to 21" sewer, 21,000 lineal feet of 24" to 36" sewer, 3,000 lineal feet of 6" to 12" force main, 5,000 lineal feet of 42" tunnel sewer, construction of a 3.0 million gallon Retention Facility, repairs to 4,000 existing Manholes, Joint Grouting for 46,000 lineal feet of existing 8" to 24" sewer, in place relining of approximately 14,000 lineal feet of 8" to 24" sanitary sewer and the installation of 65 Permanent Flow Meters throughout the Evergreen-Farmington District.

The above work is being performed under seventeen different contracts of which 16 were bid in July 1990 and awarded in December 1990. The one remaining contract is scheduled for bid in April of 1991.

A short summary of other pertinent information follows:

Consulting Engineer - Hubbell, Roth & Clark, Inc.

Cont. No.	General Contractor	Project Engineer
4	Ric-Man Construction, Inc.	Gary R. Aho, P.E.
5	Dan's Excavating, Inc.	Gary R. Aho, P.E.
6	Lanzo Construction	Gary R. Aho, P.E.
7	SBG Construction, Inc.	Gary R. Aho, P.E.
8	Giannetti Contracting Corporation	Phillip Sanzica, P.E.
9	L. D'Agostini & Sons, Inc.	Gary R. Aho, P.E.
10	Giannetti Contracting Corporation	Phillip Sanzica, P.E.
11	Barton-Malow Company	George A. Bondi
13	Ric-Man Construction, Inc.	George A. Bondi
14	Ric-Man Construction, Inc.	George A. Bondi
15	Lanzo Construction	George A. Bondi
16	Lanzo Construction	George A. Bondi
17	Inland Waters Pollution Control, Inc.	George A. Bondi
18	Inland Waters Pollution Control, Inc.	George A. Bondi
19	National Power Rodding, Inc.	George A. Bondi
20	Insituform North, Inc.	George A. Bondi
21	Scheduled for bid: April 1991	Gary R. Aho, P.E.

Total Project Cost \$31.8 Million
 E.P.A. Construction Grant \$ 9.9 Million
 Local Share Cost \$21.9 Million

Wixom Sewage Disposal System - Extension No. 2

An agreement between the City of Wixom and the County of Oakland to construct an activated sludge wastewater treatment plant to treat an average of 3.0 million gallons per day was approved by the City Council on March 8, 1988. The County Board of Commissioners approved the agreement and authorized the sale of bonds to finance the local share cost on August 4, 1988. Project development and construction was assigned to the Drain Commissioner as County Agency under the provisions of Act 342 of 1939.

The firm of Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan designed the entire project, prepared construction plans and specifications, and assisted in obtaining federal funding under the Public Law 92-500 Grant Program. Hubbell, Roth & Clark, Inc. will also provide Resident Engineer Inspection Services at the treatment plant site. Philip Sanzica, P.E. was designated as Project Engineer for the Wixom Sewage Disposal System - Extension No. 2 project.

Federal Funds for 55% of the grant eligible portions, plus an additional 20% for innovative technology and 20% for alternative technology will total approximately \$9.5 million. Oakland County Bonds were sold on December 15, 1988, in the amount of \$5.7 million, at an effective interest rate of 7.30% over 20 years. The balance of the project funds -- \$4.5 million -- was forwarded by the City of Wixom.

The project consists of an influent pumping station to lift the waste water to an aerated grit chamber and then through a Parshall Flume Flow Meter. The waste water then flows to two 1.5 million gallon aeration channels for biological treatment. The waste water will receive clarification in three 60 foot diameter circular clarifiers, and then is stored in two equalization tanks totaling 850,000 gallons. Extensive chemical treatment consists of alum feed equipment followed by parallel plate separators and sand filters to meet the stringent phosphorous limitation for this facility.

Biological solids will be thickened by Rotary Drum Thickeners before stabilization in two aerobic digesters. The digested sludge will then be stored in two 850,000 gallon above ground storage tanks. The chemical sludge may be dewatered in a Plate and Frame Filter Press if necessary for disposal to a landfill.

Three buildings will be included in the Wastewater Treatment Plant project. An approximately 4,000 sq. ft. Administration Building will provide personnel offices and a fully equipped laboratory. A 30,000 sq. ft. two-story Treatment Building will be provided for the advanced chemical treatment and biological and chemical sludge dewatering equipment. And a 4,800 sq. ft. Utility Building will be provided for grit removal, ultraviolet disinfection, a 750 k.w. generator, electrical equipment and for maintenance facilities.

The construction contract was awarded in October, 1988 to Lerner-Linden, Inc. and C. A. Hull, a joint venture, in the amount of \$15,942,000.

Approximately 99% of the project, including mechanical, electrical, building finishes, and site work will be substantially completed and ready for service in early 1991.

Huron-Rouge Sewage Disposal System - Walled Lake-Nov
Wastewater Treatment Plant 1989 Enlargement

An agreement between the Cities of Walled Lake and Novi and the County of Oakland to increase the capacity of the existing treatment plant to an average flow of 3.50 MGD was approved by the City Councils on February 21 and 27, 1989, respectively. The County Board of Commissioners approved the agreement and authorized the sale of bonds to finance the project on June 28, 1990. Project development and construction was assigned to the Drain Commissioner as County Agency under the provisions of Act 342 of 1939.

The firm of McNamee, Porter & Seeley, Inc. of Ann Arbor, Michigan designed the entire project and prepared construction plans and specifications. McNamee, Porter & Seeley, Inc. will also provide Resident Engineer Inspection Services at the treatment plant site. Philip Sanzica, P.E. was designated as project engineer for the Walled Lake-Nov 1989 Enlargement project.

The project was financed by Oakland County bonds sold on August 22, 1990 in the amount of \$2.6 million, at an effective rate of interest of 7.05% over 15 years. The balance of the financing, \$5,820,690, was forwarded by the City of Novi.

The project consists of the construction of a new activated sludge treatment unit, a new administration building and new blower building to house the process blowers, sludge pump and rotary sludge thickener. The proposed improvements also include necessary site revisions to accommodate these additions and a sludge storage tank for stabilization of sludge.

The construction contract was awarded on June 12, 1990 to Clark Construction Co. of Lansing, Michigan in the amount of \$6,998,000.

Approximately 20% of the project, including the site grading, underground piping and major building construction was completed in 1990. The remainder of the project, including existing building demolition, mechanical, electrical, building facilities and site work will be substantially completed and ready for service in February, 1992.

West Bloomfield Water Supply System - Section XI

West Bloomfield Township has requested Oakland County to proceed with the development of a project to complete the construction of the water transmission main along Haggerty Road northerly from Maple Road to Pontiac Trail, and easterly along Pontiac Trail to Green Lake Road in Sections 19 and 30 of the Township.

In addition to approximately 13,000 lineal feet of 20" diameter transmission main along Haggerty Road and Pontiac Trail, the project consists of a 400,000 gallon elevated storage tank

to be constructed on Commerce Road east of Keith Road and a metered connection to the existing D.W.S.D. main to be built at the intersection of 14 Mile Road and Haggerty Road.

An agreement between West Bloomfield Township and the County of Oakland was approved by the Township Board on June 15, 1987, and by the Oakland County Board of Commissioners on July 23, 1987.

The Township is paying the entire cost of the project, currently estimated to be \$1,819,000.00, by advancing cash installments to the County.

The firm of Hubbell, Roth & Clark, Inc. was retained to design the system and prepare construction plans and specifications. Donald L. Mills, P.E. was selected as the Drain Office project engineer.

Contract No. 1 involved the construction of a 400,000 gallon elevated storage tank. Construction bids were received on October 4, 1988 and the contract was awarded to the low bidder, CBI Na-Con, Inc. in the amount of \$597,500.00. Actual erection of the tank began in the Spring of 1989 and was completed in the Fall of 1989. Final payment was made in December of 1990.

Contract No. 2 consists of the construction of the metered connection to the existing D.W.S.D. main. Construction plans and easement acquisition for this contract have been completed. Estimated construction cost is \$125,000.00 with construction bids expected to be received in the Spring of 1991. Completion is scheduled for the Fall of 1991.

Contract No. 3 involved the construction of 13,000 lineal feet of 20" diameter transmission main along Haggerty Road and Pontiac Trail. Construction bids were received on May 17, 1989 and the Contract was awarded to the low bidder, Mago Construction Co., in the amount of \$787,394.00. Actual construction began in the Fall of 1989 and was completed in the Spring of 1990. Final payment was made in August of 1990.

North Huron Valley - Rouge Valley Wastewater Control System

The North Huron Valley-Rouge Valley Wastewater Control System is a sanitary interceptor project designed to serve the existing and future needs of eleven communities in Wayne County and the City of Novi in Oakland County. All wastewater accepted by the system will be treated by the City of Detroit Wastewater Treatment Plant.

Wayne County and City of Detroit facilities are to be constructed in 3 segments, starting in mid-year 1989 with a target completion date in June of 1993. No construction will take place in Oakland County. William E. Klockow, Chief Engineer, will serve as project engineer.

The present discharge capacity of the City of Novi into the Wayne County Interceptor is 4.00 cfs; as the result of construction of this project, the ultimate discharge capacity of the City of Novi into the Wayne County Interceptor will be increased to 20.48 cfs. The following table

identifies the estimated project cost for each segment which has been allocated to the City of Novi.

<u>Project Cost</u>	
Segment 1	\$ 8,214,000
Segment 2	1,446,000
Segment 3	<u>638,000</u>
Total	\$10,298,000

Included within these figures are approximately \$200,000 in Oakland County costs for the sale of bonds to finance the City of Novi's share in the project. The total cost of the North Huron Valley-Rouge Valley Wastewater Control System improvements is approximately \$57,000,000, with approximately 19% of that cost allocated to the City of Novi.

OAKLAND COUNTY WATER SUPPLY AND SEWAGE DISPOSAL SYSTEM FOR ROCHESTER HILLS - 1988 EXTENSION

The City of Rochester Hills has requested Oakland County to proceed with acquiring right-of-way, construction and financing for this project. The total project cost is estimated at \$12 million in several contracts, which will be bid when plans and specifications are prepared by the consulting engineers, Hubbell, Roth & Clark, Inc. The following is a summary of the contracts to date.

Contract 1

Bid April 27, 1989 at a cost of \$521,263. Adamo Contracting Corporation was the successful bidder. This contract was scheduled to be completed in 1989; however, supplies necessary were not delivered on time to allow the contractor to complete the work on schedule. The work was completed in early 1990, including restoration.

Contract 2

Bid November 10, 1988 at a cost of \$1,570,630. Adamo Contracting Corporation was the successful bidder. This contract was completed in 1989 with only minor restoration items completed in 1990.

Northwest Transmission Water Main

Construction bids were received April 27, 1989, and the contract was awarded to the low bidder, D'Alessandro Construction, Inc., in the amount of \$1,904,065. Actual construction began on October 30, 1989 and was completed and placed into service on September 28, 1990. Minor cleanup and restoration remain to be completed in the spring of 1991.

Tienken Road Water Booster Station

Construction bids were received July 20, 1989, and the contract was awarded to the low bidder, L. D'Agostini and Sons, Inc., in the amount of \$516,810. Actual construction began on July

13, 1990 and was completed and placed into service on September 21, 1990. Minor landscaping, cleanup and restoration remain to be completed in the spring of 1991.

Contract 3

Bid November 17, 1990 at a cost of \$1,863,098. The successful bidder was A.V.S. Construction Specialties, Inc. This project is scheduled to be constructed in the spring and early summer of 1991 with restoration to follow in the fall of 1991.

Contract 4

Bid September 6, 1990 at a cost of \$455,567. Pacitto & Forest Construction Company was the successful bidder. The water main on this project was completed and is now in service. Only restoration remains to be completed in the spring of 1991.

Contracts 5,6 & 7

The plans for these projects are complete and permits are being sought. Easements for the construction of these projects are presently being pursued. Upon receipt of permits and easements, these projects will be prepared for bidding during 1991.

This project was financed by surplus funds held by Oakland County from prior water and sewer construction projects in Rochester Hills. When the existing surplus is exhausted, bonds will be sold to finance the remaining work.

PROJECT EXPENDITURE SUMMARY

**OAKLAND COUNTY DRAIN COMMISSIONER
PROJECT EXPENDITURE SUMMARY FOR CALENDAR YEAR 1990
BY PROJECT**

DRAINS

JOHNSON DRAIN	\$1,771,790.59
LUEDERS DRAIN	\$685,829.89
JENSEN DRAIN	\$214,139.90
KING DRAIN	\$195,909.21
BROTHERTON DRAIN	\$56,103.66
KEEGO HARBOR DRAIN	\$55,234.42
NELSON DRAIN	\$54,228.85
CRAKE DRAIN	\$29,188.11
FREDERICKS DRAIN	\$26,634.65
KARAS DRAIN	\$22,882.00
BEECHMONT DRAIN	\$12,297.36
PONTIAC CLINTON RIVER #3	\$11,724.00
DOROTHY WEBB DRAIN	\$7,918.40
M-15 DRAIN	\$7,338.36
PEBBLE CREEK DRAIN	\$5,730.00
TWELVE TOWNS DRAIN	\$3,520.62
BARNARD DRAIN	\$2,278.60
ROWLAND DRAIN	\$1,582.80
MAINLAND DRAIN	\$925.00
BORDEN DRAIN	\$741.00

TOTAL DRAINS

\$3,165,997.42

WATER

W. BLMFLD WSS SEC XII	\$384,168.95
W. BLMFLD WSS SEC IX	\$115,241.73
W. BLMFLD WSS SEC XI	\$73,244.15
WATERFORD WSS EXT 9	\$30,887.28
AUBURN HILLS WSS No. 3	\$18,998.08
WATERFORD WSS #3	\$11,523.53
WALLED LK WSS EXT 1	\$1,961.86

TOTAL WATER

\$636,025.58

SEWER

EFSDS FARM/SFLD SEG I	\$8,432,841.85
WIXOM SDS EXT. 2	\$4,302,911.62
ROCH HILLS OCWS & SDS	\$1,722,380.64
WALLED LK NOVI WWTP	\$1,589,228.24
EFSDS SEG I	\$918,914.47
AMY RELIEF SEWER	\$230,753.49
EFSDS	\$198,310.40
WATERFORD SEWER PHASE VI	\$120,347.71
FARM/EVGRN SDS WALNUT LK	\$83,297.00
MILFORD SDS EXT 2	\$57,235.53
HURON VALLEY WCS ARM	\$35,083.88
ORCHARD LK VILLAGE SSC & DS	\$34,476.22
AUBURN HILLS OCSDS EXT 2	\$23,206.24
EFSDS SEG II	\$15,418.75
EFSDS LATHRUP VILLAGE	\$8,540.00
LATHRUP VILLAGE EXT 1	\$7,316.56
N. HURON/ROUGE WWCS	\$2,515.50
W BLMFLD COSDS EXT 2	\$1,368.77

TOTAL SEWER

\$17,784,146.87

BUNNY RUN LAKE LEVEL

\$104,103.38

GRAND TOTAL

\$21,690,273.25

PROJECTS UNDER DEVELOPMENT

DRAINS UNDER DEVELOPMENT

Hampton Drain Improvement

A request for certain drain improvements to the Hampton Drain was filed by the City of Rochester Hills with the Drain Commissioner on May 22, 1990. A resolution was approved by the drainage board on July 31, 1990 to proceed with the miscellaneous improvements to the Hampton Drain.

The project consists of enlarging the retention volume of Lake No. 5 by removing the sediment and increasing the size, cleaning and removing silt from existing underground storm drain systems and repair of an existing erosion problem from a manhole to Lake No. 1.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth & Clark, Inc.
Drain Office Project Eng.	Philip Sanzica, P.E.
Estimated Project Cost	\$1,650,000

Project To Be Financed By	Bond Sale and Local Funds
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Heritage Park Drain

A petition for certain drain improvements in the vicinity of Heritage Park located between Farmington and Drake Roads in Section 21, City of Farmington Hills, was filed with the Drain Commissioner on January 22, 1990. At the first drainage board meeting held February 27, 1990, the project was named the Heritage Park Drain and the public hearing on necessity was scheduled for April 10, 1990. No objections were received at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of constructing a storm water detention facility to control the discharge of storm water to the downstream reaches of the Upper Rouge River.

The City of Farmington Hills is presently evaluating engineering alternatives for constructing the drain, and will prioritize the scheduling of the project after an alternative has been selected.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth & Clark, Inc.
Drain Office Project Eng.	Ronald R. Karttunen, P.E.
Estimated Project Cost	\$540,000.00
Estimated Construction	
Start Date	To be determined.
Financing	To be determined.

Huntoon Drain

A petition for certain drain improvements along Auburn Road from the Clinton River westerly approximately 700 feet, was filed by the City of Auburn Hills with the Drain Commissioner's Office on July 16, 1990. At the first drainage board meeting, held August 14, 1990, the project was named the Huntoon Drain, and the public hearing on necessity was scheduled for September 25, 1990. No objections were received at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 700 lineal feet of 48" diameter storm sewer and miscellaneous appurtenances. Construction of this project will provide storm drainage improvements and reduce flooding conditions located in the Southwest 1/4 of Section 25. The City of Auburn Hills has authorized the consulting engineer to proceed with the preliminary engineering report. The report is scheduled for completion by July 1, 1991.

A short summary of other pertinent project information follows:

Consulting Engineer	Orchard, Hiltz & McCliment, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.
Estimated Project Cost	\$110,000
Estimated Construction	
Start Date	1992

King Drain

A petition for certain drain improvements along Square Lake Road from the existing open drain crossing approximately 2,500 feet east of Livernois Road, westerly to just east of Crooks Road, was filed by the City of Troy with the Drain Commissioner on August 23, 1988. At the first drainage board meeting held September 7, 1988, the project was named the King Drain, and the public hearing on necessity was scheduled for October 25, 1988. No objections were received

at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 7,500 lineal feet of 12" through 60" diameter storm sewer and miscellaneous appurtenances. Construction of this project will provide storm drainage for future widening and improvements to be made to Square Lake Road, and also to the Crooks Road and I-75 overpass which is to be reconstructed at Square Lake Road by the Michigan Department of Transportation. Construction plans have been completed with easement and permit acquisition currently underway.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth & Clark, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.
Estimated Project Cost	\$1,400,000

Estimated Construction Start Date	Spring 1992
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The King Drain is being financed with surplus construction funds from completed drain projects under the provisions of Act No. 165 of the Public Acts of 1984.

Lueders Drain

A petition for certain drain improvements in the vicinity of the existing Sprague and Taylor Drains in Sections 28, 29, 32 and 33, City of Rochester Hills, was filed with the Drain Commissioner on January 19, 1984. At the first drainage board meeting held February 8, 1984, the project was named the Moore Drain (renamed the Lueders Drain on October 25, 1988) and the public hearing on necessity was scheduled for March 21, 1984. No objections were received at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 44,000 lineal feet of 12" through 96" diameter storm sewer, channel improvements to approximately 3,500 lineal feet of open storm drain, and modifications and enlargement of an existing storm water retention facility, along with the construction of miscellaneous appurtenances. The construction of this project will provide storm drainage improvements and reduce flooding in Sections 28, 29, 32 and 33. Construction plans have been completed with easement and permit acquisition currently underway.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth & Clark, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.

Estimated Project Cost \$6,880,000

Estimated Construction
Start Date Spring 1991

The Lueders Drain will be financed with the proceeds from the sale of bonds.

Maplehurst Drain

A petition for certain drain extensions and improvements consisting of the replacement and renovation of existing pipe installations along the route of the existing Chapter 4 Maplehurst Drain was filed by the City of Auburn Hills with the Drain Commissioner's Office on July 16, 1990. At the first drainage board meeting, held August 14, 1990, the project was named the Maplehurst Drain, and the public hearing on necessity was scheduled for September 25, 1990. No objections were received at the hearing, and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 8,800 lineal feet of 12" through 72" diameter storm sewer and miscellaneous appurtenances. Construction of this project will provide storm drainage improvements and reduce flooding conditions located in the Southeast 1/4 of Section 25, and the East 1/2 of Section 36. The City of Auburn Hills has authorized the consulting engineer to proceed with the preliminary engineering report. The report is scheduled for completion by July 1, 1991.

A short summary of other pertinent project information follows:

Consulting Engineer Orchard, Hiltz & McCliment, Inc.
Drain Office Project Eng. Donald L. Mills, P.E.
Estimated Project Cost \$1,200,000

Estimated Construction
Start Date 1992

McPherson Drain

A petition for certain drain improvements consisting of the enclosure of an existing drainage course from Squirrel Road westerly approximately 2,700 feet to Dexter Road, was filed by the City of Auburn Hills with the Drain Commissioner's Office on July 16, 1990. At the first drainage board meeting, held August 14, 1990, the project was named the McPherson Drain, and the public hearing on necessity was scheduled for September 25, 1990. No objections were received at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 2,700 lineal feet of 66" through 84" diameter storm sewer and miscellaneous appurtenances. Construction of this project will provide storm drainage improvements and reduce flooding in the Southeast 1/4 of Section 11 and the South 1/2 of Section 12. The City of Auburn Hills has authorized the consulting engineer to proceed with the preliminary engineering report. The report is scheduled for completion by July 1, 1991.

A short summary of other pertinent project information follows:

Consulting Engineer	Orchard, Hiltz & McCliment, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.
Estimated Project Cost	\$1,300,000
Estimated Construction	
Start Date	1992

Minnow Pond Drain

A petition for certain drain improvements in the vicinity of the existing Minnow Pond Drain between 12 and 13 Mile Roads in Section 10, City of Farmington Hills, was filed with the Drain Commissioner on June 7, 1990. At the first drainage board meeting held June 12, 1990, the project was named the Minnow Pond Drain and the public hearing on necessity was scheduled for July 31, 1990. No objections were received at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 7,000 lineal feet of 30" through 120" diameter storm sewer including a 102" diameter Pass Storm Water Relief Sewer to be built down Kendallwood Drive. Included also is a 17 acre Storm Water Storage Facility to be constructed at the southeast corner of 13 Mile and Farmington Roads, along with miscellaneous diversion structures and appurtenances. The construction of this project will provide storm drainage improvements and reduce flooding in Section 10. Construction plans have been completed with easement and permit acquisition currently underway.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth & Clark, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.
Estimated Project Cost	\$12,600,000
Estimated Construction	
Start Date	Summer 1991

The Minnow Pond Drain will be financed with the proceeds from the sale of bonds.

Oaks Drain

A petition for certain drain improvements along the existing Clinton River channel in the southwestern part of the City of Pontiac was filed with the Drain Commissioner on June 6, 1990. At the first Drainage Board meeting held June 12, 1990, the project was named the Oaks Drain, and the public hearing on necessity was scheduled for July 31, 1990. No objections were received at the hearing, and as a result, the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of selectively clearing, regrading and improving the existing Clinton River channel from the Cucksey Dam, located near Bagley Street, to an area upstream near the Grand Trunk Western Railroad trestle for a distance of approximately 1,800 lineal feet.

Also, the Walter Moore Dam which is located at the outlet to Crystal Lake and the Cucksey Dam will be modified to allow increased water flow within the Oaks Drain. This increased flow is intended to enhance the aesthetic appearance and qualities of the former river channel.

The City of Pontiac authorized the consulting engineer for the project to proceed with a preliminary study for the work. This study was subsequently completed in February, 1990, and submitted to the Michigan Department of Natural Resources for evaluation and permit determination.

A short summary of other pertinent project information follows:

Consulting Engineer	Hampton Engineering Assoc., Inc.
Drain Office Project Eng.	Ronald R. Karttunen, P.E.
Estimated Project Cost	\$380,000.00

Estimated Construction Start Date	Summer 1991
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The Oaks Drain is being financed with surplus construction funds from completed drain projects under the provisions of Act No. 165 of the Public Acts of 1984.

Pebble Creek Drain

On June 7, 1990, a petition was filed with the Drain Commissioner's Office by the City of Farmington Hills for drainage improvements to be undertaken in several areas of the Pebble Creek drainage basin. In accordance with the City's Master Storm Drainage Plan, drainage relief was intended to be provided in an area bounded approximately by Fourteen Mile Road to the north, Thirteen Mile Road to the south, Orchard Lake Road to the west and Middlebelt Road to the east. The project was named the Pebble Creek Drain and a public hearing on necessity was scheduled for July 31, 1990. No objections were received at the hearing, and therefore the

project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of ditching and storm sewer improvements within the Franklin Knolls Subdivision; open ditching from the existing Pebble Creek watercourse easterly to the Tri-Atria Development located north of the Glen Oaks Golf Course; culvert improvements at Orchard Lake Road near Ravine Drive; and construction of a storm water detention dam on line within Pebble Creek at the easterly boundary of the Glen Oaks Golf Course.

In May, 1990, a permit application was submitted to the Michigan Department of Natural Resources for the construction of the retention dam to be located within the golf course. Subsequently, public hearings were held in the Fall, 1990, and it was anticipated, with advertisement for bidding underway, that the retention dam could be constructed during the fall and winter of 1990. This schedule would allow construction within the golf course to begin with the least detriment to the golf course operation. Also, completion of the dam would allow the other urgent Pebble Creek drainage projects to begin upstream of the dam and, in addition, would lessen the magnitude of stream flow in the lower reaches of Pebble Creek.

However, due to the lack of commitment in 1990 from the MDNR to issue the necessary permit within the prescribed construction timeframe, it became necessary to withdraw the advertisement for bids for the project and subsequently all contractors holding construction documents were notified of the cancellation of bids.

It is now anticipated that the project will be constructed during 1991, pending receipt of MDNR permits.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth & Clark, Inc.
Drain Office Project Eng.	Ronald R. Karttunen, P.E.
Estimated Project Cost	\$3,163,000

Estimated Construction Start Date	Fall 1991
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The Pebble Creek Drain will be financed with the proceeds from the sale of bonds.

Rewold Drain

A request for certain drain improvements to the existing Rewold Drain along the route of the existing Honeywell Ditch between John R. and Dequindre Roads was received from the City of

Rochester Hills. On July 12, 1989 the Drainage Board authorized design of the proposed improvements.

The originally proposed improvements included Storm Water Detention Facilities west of John R. Road at the Honeywell Drain crossing (John R. Road Detention Facility) and west of Dequindre Road again at the Drain crossing (Dequindre Road Basin), as identified in the Rochester Hills Master Storm Water Management Plan.

The basins, however, were located in wetland areas which required a M.D.N.R. permit. Based upon anticipated problems with obtaining the necessary wetland permits, several alternative designs were considered. The current plan calls for elimination of both detention basins, and redesign of the Rewold Drain as a storm drain without retention. The project consists of approximately 3,700 lineal feet of 90" diameter storm sewer, 130 lineal feet of 114" diameter storm drain, 1,900 lineal feet of open channel storm drain plus appurtenant structures.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth & Clark, Inc.
Drain Office Project Engr.	Gary R. Aho, P.E.
Estimated Project Cost	\$1.9 Million

Vinewood Drain

A petition for certain drain improvements consisting of the enclosure of portions of the existing Chapter 4 Vinewood Drain along with the construction of a retention pond, was filed by the City of Auburn Hills with the Drain Commissioner's Office on July 4, 1990. At the first drainage board meeting, held August 14, 1990, the project was named the Vinewood Drain, and the public hearing on necessity was scheduled for September 25, 1990. No objections were received at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 9,500 lineal feet of 12" through 72" diameter storm sewer and miscellaneous appurtenances. The construction of this project will provide storm drainage improvements and reduce flooding in the Northeast 1/4 of Section 9, the Northwest 1/4 of Section 10, and the Southwest 1/4 of Section 3. The City of Auburn Hills has authorized the consulting engineer to proceed with the preliminary engineering report. The report is scheduled for completion by July 1, 1991.

A short summary of other pertinent project information follows:

Consulting Engineer	Orchard, Hiltz & McCliment, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.
Estimated Project Cost	\$1,700,000

Estimated Construction
Start Date 1992

Wixom Drain

A petition for certain drain improvements along the route of the existing Wixom Drain was filed by the City of Wixom with the Drain Commissioner on February 20, 1990. At the first drainage board meeting held March 13, 1990, the project was named the Wixom Drain, and the public hearing on necessity was scheduled for April 24, 1990. No objections were received at the hearing and therefore the project was determined practicable and necessary for the public health and the Final Order of Determination was adopted.

The project consists of approximately 2,300 lineal feet of 18" through 48" diameter storm sewer and miscellaneous appurtenances. Construction of this project will replace the existing Wixom Drain, and provide storm drainage for a future road improvement within the City of Wixom known as the Wixom Road Bypass. Preliminary construction plans are currently being prepared.

A short summary of other pertinent project information follows:

Consulting Engineer	Pate, Hirn and Bogue, Inc.
Drain Office Project Engr.	Gary R. Aho, P.E.
Estimated Project Cost	\$400,000

Estimated Construction Start Date	Fall, 1991
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SEWER AND WATER PROJECTS UNDER DEVELOPMENT

Evergreen-Farmington S.D.S. Amy Relief Sewer

This project is being developed under a contractual agreement between the Drain Commissioner and the Township of Bloomfield, the City of Bloomfield Hills and the City of Auburn Hills.

The project consists of approximately 17,000 lineal feet of 10" through 24" diameter sanitary sewer, a 4,500 g.p.m. pumping station and miscellaneous appurtenances. The project is designed to provide sanitary relief for the North Evergreen Interceptor within the above communities.

The firm of Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan designed the entire project, prepared construction plans and specifications and will provide Resident Engineer Inspection Services at the Pumping Station. Philip Sanzica, P.E. was designated as project engineer for the Amy Relief Sewer project.

The project is to be financed by the sale of Oakland County Bonds for which the City of Bloomfield Hills and the Township of Bloomfield have pledged their full faith and credit. The bonds were sold on December 4, 1990 in the amount of \$3,425,000 at an effective net interest rate of 6.73% over 19 years.

Construction bids were received on July 12, 1990 and the low bidders were: Contract 1 - Adamo Contracting Corporation of Detroit in the amount of \$1,354,572.65; Contract 2 - O'Laughlin Construction Co. of Wixom in the amount of \$1,092,081.00. Actual construction will begin in January of 1991 and will be completed in the July of 1992.

Orchard Lake Village Sanitary Sewer

The City of Orchard Lake Village has requested the Oakland County Drain Commissioner to proceed with the development of a project to provide sanitary sewer service to the entire community. An agreement between the City and the County was approved by the City Council on September 20, 1989, and was ratified by a majority vote of the electorate on November 7, 1989. Approval by the Oakland County Board of Commissioners was granted on February 8, 1990.

The project consists of approximately 96,600 lineal feet of 6" to 10" diameter sanitary sewer along with the construction of eleven sewage lift stations. Construction of this project will eliminate existing and potential sources of pollution from individual on-site septic systems, into Orchard, Upper Straits, and Cass Lakes. When completed, the entire system will outlet into the

Evergreen-Farmington Sewage Disposal System which in turn is tributary to the Wayne County Sewage Disposal System.

Preliminary plans are currently being developed by the Consulting Engineer with easement acquisition scheduled to begin in the Fall of 1991.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth and Clark, Inc.
Drain Office Project Eng.	Donald L. Mills, P.E.
Estimated Project Cost	\$ 8,400,000

Estimated Construction Start Date	1992
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Waterford Township Extensions - Phase VI

The Charter Township of Waterford has requested the County of Oakland to construct approximately 58,000 lineal feet of 8" through 24" sanitary sewer, modifications to the existing Cooley Lake Road Pump Station and miscellaneous appurtenances. Construction of this project will eliminate existing and potential sources of pollution from individual on-site septic systems into Pleasant Lake and ground water.

A short summary of other pertinent project information follows:

Consulting Engineer	Johnson & Anderson, Inc.
Drain Office Project Eng.	Philip Sanzica, P.E.
Estimated Project Cost	\$6,329,000

Project To Be Financed By	Transfer of Surplus Funds from prior sewer construction projects.
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Estimated Construction Start Date	Spring 1991
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Waterford Water Supply Extension No. 9

The Charter Township of Waterford has requested the County of Oakland to construct 24,000 lineal feet of 8" through 12" diameter water main. The proposed water main was to be constructed in conjunction with the Waterford Township Extensions Phase VI Sewage Disposal

Project to provide a potable water supply during construction dewatering operations due to the existing shallow wells, and to provide potable water and fire protection to the area.

A short summary of other pertinent information concerning the project follows:

Consulting Engineer	Johnson & Anderson, Inc.
Drain Office Project Eng.	Philip Sanzica, P.E.
Estimated Project Cost	\$1,101,000

Project To Be Financed By	Available Local Funds
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Estimated Construction Start Date	Spring 1991
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West Bloomfield Water Supply System - Contract 2, Section XII

West Bloomfield Township has requested the County of Oakland to construct approximately 14,300 lineal feet of 20" diameter water transmission main along Green Lake Road northerly from Pontiac Trail to Commerce Road and then westerly to the 400,000 gallon elevated storage tank located east of Keith Road near the Westacres Subdivision. Also, 3,300 lineal feet of 16" diameter water transmission main in Willow Road from east of Keith Road easterly to Arneth Road and 515 lineal feet of 8" water main on Warner Drive north from Commerce Road.

An agreement between West Bloomfield Township and the County of Oakland was approved by the Township Board on April 4, 1988 and by the Oakland County Board of Commissioners on April 28, 1988. A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth and Clark, Inc.
Drain Office Project Eng.	Ronald R. Karttunen, P.E.
Project To Be Financed By	Available Local Funds & Bond Sale

Estimated Project Cost	\$2,590,000
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Anticipated Construction Start Date:	Summer 1991
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West Bloomfield Water Supply System - Section XIII

West Bloomfield Township has requested Oakland County to proceed with the development of a project to complete the construction of the water transmission main along Willow Road and Hiller Road extending from Lochaven Road to Commerce Road.

The project consists of 1,100 lineal feet of 24" diameter water main in Hiller Road from Commerce Road north to Willow Road and 5,000 lineal feet of 20" diameter water main on Willow Road from Hiller Road westerly to Lochaven Road.

An agreement between West Bloomfield Township and the County of Oakland was approved by the Township Board on June 18, 1990, and by the Oakland County Board of Commissioners on June 28, 1990.

A short summary of other pertinent project information follows:

Consulting Engineer	Hubbell, Roth and Clark, Inc.
Drain Office Project Eng.	Ronald R. Karttunen, P.E.
Project To Be Financed By	Available Local Funds and Bond Sale
Estimated Project Cost	\$680,000.00

LAKE LEVEL PROJECTS

Under the provisions of the Inland Lake Level Act, Act No. 146 of 1961, the Drain Commissioner's Office participates in legal proceedings to establish lake levels, and build lake level control structures for lakes in Oakland County. During 1990, one new lake level project was under construction and one new lake level project was under development.

Bunny Run Lake Dam

On August 30, 1988, petitions were received by the Drain Commissioner requesting that a legal level be established for Bunny Run Lake. The petitions also requested that a new dam be constructed, to replace the existing deteriorated structure, at the outlet of Bunny Run Lake sufficient to maintain the level of the lake at its current elevation. Bunny Run Lake is located in Section 1 of Orion Township and has a surface area of approximately 11.0 acres.

On May 25, 1989, the Oakland County Board of Commissioners approved a resolution authorizing the establishment of a lake level for Bunny Run Lake. On July 9, 1990 the Honorable John M. O'Brien, Circuit Court Judge, established a legal level for Bunny Run Lake. Subsequently Hampton Engineering Associates, Inc., was retained to prepare the construction plans and specifications for the new dam. Mr. Ronald R. Karttunen, P.E. was assigned as the Drain Office project engineer for the construction of the Bunny Run Lake Dam.

On August 22, 1990 Construction bids were received for the Bunny Run Lake Dam, and a contract was awarded to Dan's Excavating of Shelby Township, Michigan for their low bid of \$192,759.90. Construction of the new dam began in October 1990 and is approximately 80% complete. It is anticipated that the Bunny Run Lake Dam will be completed in Spring 1991.

Lake Louise Dam

On May 18, 1990, petitions were received by the Oakland County Drain Commissioner to establish a legal level for Lake Louise and Huff Lake. The petitions also requested that a dam be constructed at the outlet of Lake Louise sufficient to keep and maintain the level of the respective lakes at their normal elevations. Lake Louise and Huff Lake are located in Sections 19, 20, 29 and 30 of Brandon Township. Lake Louise has a surface area of approximately 103 acres and Huff Lake approximately 11 acres.

Conceptual plans for the new dam were prepared by Glen Yrjanainen, P.E. and Joseph P. Kozma, P.E. of the Drain Office engineering staff. Joseph P. Kozma, P.E. was also designated the project engineer for the Lake Louise Dam project.

It is anticipated that the legal level for Lake Louise and Huff Lake will be established in Circuit Court in May of 1991 with construction of the dam to follow shortly thereafter.

LAKE IMPROVEMENT BOARDS

LAKE IMPROVEMENT BOARDS

There has been a substantial increase in the number of Lake Improvement Boards in Oakland County during the last several years. Presently there are 34 Lake Improvement Boards operating in 12 townships and the City of Troy. Ten members of the Board of Commissioners serve on one or more Lake Improvement Boards. C. Hugh Dohany, the Oakland County Treasurer, serves as the Treasurer for 20 of the Lake Improvement Boards. The Township Treasurers of Bloomfield, Waterford and White Lake Townships serve as the Treasurer for 14 Lake Improvement Boards.

Each Lake Improvement Board may decide to pursue one or more lake improvement projects on a lake. Most frequently, the Lake Improvement Board project will be designed to improve water quality and clarity by mechanical harvesting, chemical treatment, aeration or dredging, to eliminate aquatic weeds in the lake. During 1990, Lake Improvement Boards on 17 lakes were involved in the mechanical harvesting of weeds from their lake. Lake Improvement Boards on 15 lakes used a program of chemical treatment to kill aquatic weed growth. On 10 lakes, both mechanical weed harvesting and chemical treatment were used. The process of aeration was used on one lake, and two lakes completed dredging projects. Data on Lake Improvement Board expenditures for 1990, where Oakland County is the Treasurer, has been summarized on the following page.

All Lake Improvement Board programs are financed by special assessment rolls against real property abutting the lake or having access to the lake. The total amount of the special assessment rolls spread in 1990 on the 20 lakes for which Oakland County is the Treasurer was \$479,539.11.

**LAKE IMPROVEMENT EXPENDITURE SUMMARY
FOR THE YEAR OF 1990**

<u>PROJECT</u>	<u>ENGINEER SERVICES</u>	<u>HARVEST SERVICES</u>	<u>TREATMENT SERVICES</u>	<u>DREDGING</u>	<u>PUB/LEGAL NOTICES</u>	<u>DETROIT EDISON</u>	<u>MISC CHARGES</u>	<u>TOTAL EXPENDITURES</u>
Big Lake	\$31.50	\$53,500.00	\$0.00	\$0.00	\$505.57	\$0.00	\$125.14	\$54,162.21
Charlick Lake	\$0.00	\$0.00	\$4,000.00	\$0.00	\$139.27	\$0.00	\$324.26	\$4,463.53
Dixie Lake	\$10,987.00	\$27,500.00	\$20,200.00	\$0.00	\$0.00	\$0.00	\$0.00	\$58,687.00
Duck Lake	\$0.00	\$13,675.00	\$22,365.00	\$0.00	\$91.94	\$0.00	\$2,934.23	\$39,066.17
Indianwood Lake	\$5,500.00	\$14,900.00	\$11,982.00	\$0.00	\$807.64	\$0.00	\$6,610.28	\$39,799.92
Lake Charnwood	\$1,724.96	\$40,266.70	\$0.00	\$8,709.30	\$846.92	\$26.07	\$27,173.59	\$78,747.54
Lake Louise	\$3,651.63	\$0.00	\$7,380.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11,031.63
Lakeville Lake	\$0.00	\$49,850.00	\$0.00	\$0.00	\$91.00	\$0.00	\$610.31	\$50,551.31
Pontiac Lake	\$0.00	\$56,235.61	\$16,869.00	\$0.00	\$0.00	\$0.00	\$12,353.82	\$85,458.43
Tomahawk Lake	\$0.00	\$0.00	\$700.00	\$0.00	\$139.27	\$0.00	\$750.00	\$1,589.27
Van Norman Lake	\$6,918.62	\$7,369.00	\$6,500.00	\$0.00	\$0.00	\$0.00	\$76.12	\$20,863.74
Walters Lake	\$3,400.00	\$0.00	\$17,475.00	\$0.00	\$0.00	\$0.00	\$8,231.01	\$29,106.01
White Lake	\$3,677.50	\$6,995.00	\$44,405.00	\$7,380.00	\$139.91	\$0.00	\$1,023.90	\$63,621.31
Woodruff Lake	\$0.00	\$0.00	\$4,139.37	\$0.00	\$0.00	\$501.80	\$2,203.76	\$6,844.93
Total	<u>\$35,891.21</u>	<u>\$270,291.31</u>	<u>\$156,015.37</u>	<u>\$16,089.30</u>	<u>\$2,761.52</u>	<u>\$527.87</u>	<u>\$62,416.42</u>	<u>\$543,993.00</u>

NOTE - Miscellaneous Charges Include:

Copier Charges, Photo Copy Expenses, Postage Expenses, Equipment Rental Charges, And Mileage Charges

- Indianwood Lake Includes \$5,000 lease Payment For Launch Site
- Lake Charnwood Includes A Payment of \$27,173 On Loan From Oakland County
- Pontiac Lake Includes \$3,000 In Management Fees and \$5,803 In Equipment Rentals
- Walters Lake Includes \$7,850 For Construction Of Seawall
- Woodruff Lake Includes \$2,203 For Repair To Lake Level Well Pump

FINANCIAL STATEMENTS

FINANCIAL STATEMENTS

Summary financial statements for the Southeastern Oakland County Sewage Disposal System and for major current projects discussed in the Annual Report are included in this volume. Volumes II and III of this report contains complete financial statements for every County drainage district, and itemized statements of all of the various accounts maintained in connection with the construction, operation, and maintenance of all of the projects under the jurisdiction of the Oakland County Drain Commissioner.

Reference should be made to the Table of Contents of the Financial Statements Volumes (II and III) for information on any specific project or fund account not included in these summary statements.

OAKLAND COUNTY DRAIN COMMISSIONER
SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM
COMBINED BALANCE SHEET, DECEMBER 31, 1990

ASSETS	87700 SEWAGE DISPOSAL	87710 POLLUTION CONTROL	TOTAL
CURRENT ASSETS:			
CASH - OPERATING	\$ 344,375.60	\$ 276,628.42	\$ 621,004.02
CASH - INVESTMENTS	2,258,457.90	1,707,001.90	3,965,459.80
DUE FROM MUNICIPALITIES	1,108,852.72	961,933.10	2,070,785.82
DUE FROM CITY OF DETROIT	0.00	786,359.25	786,359.25
DUE FROM OTHER FUNDS	40,150.13	52,659.00	92,809.13
PREPAID EXPENSES	11,223.58	3,717.90	14,941.48
ACCOUNTS RECEIVABLE	0.00	0.00	
ACCRUED INTEREST RECEIVABLE	13,470.72	10,617.35	24,088.07
TOTAL CURRENT ASSETS	3,776,530.65	3,798,916.92	7,575,447.57
PROPERTY AND EQUIPMENT AT COST:			
DRAINS AND INTERCEPTORS	53,888,410.08	19,830,235.17	73,718,645.25
FLOWAGE RIGHTS	1,132,889.68	1,363,307.92	2,496,197.60
BUILDINGS AND IMPROVEMENTS	87,038.46	2,741,693.98	2,828,732.44
EQUIPMENT	139,611.16	306,417.35	446,028.51
LAND AND IMPROVEMENTS	1,533.25	624,465.22	625,998.47
	55,249,482.63	24,866,119.64	80,115,602.27
LESS: ALLOWANCE FOR DEPRECIATION	31,951,377.31	10,579,786.49	42,531,163.80
PROPERTY AND EQUIPMENT - NET	23,298,105.32	14,286,333.15	37,584,438.47
TOTAL ASSETS	\$27,074,635.97	\$18,085,250.07	\$45,159,886.04

LIABILITIES AND FUND EQUITY

CURRENT LIABILITIES:			
DUE TO CITY OF DETROIT	\$ 2,035,829.17	\$ 1,463,453.16	\$ 3,499,282.33
DUE TO MUNICIPALITIES	42,471.30	786,430.08	828,901.38
DUE TO OTHER FUNDS	39,268.77	11,263.99	50,532.76
VOUCHERS & ACCOUNTS PAYABLE	133,755.48	31,653.56	165,409.04
ACCRUED PAYROLL	871.82	768.93	1,640.75
UNDISTRIBUTED FUNDS	26,813.54	0.00	26,813.54
TOTAL CURRENT LIABILITIES	2,279,010.08	2,293,569.72	4,572,579.80

OAKLAND COUNTY DRAIN COMMISSIONER
 SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM
 COMBINED BALANCE SHEET, DECEMBER 31, 1990

PAGE 2

	87700 SEWAGE DISPOSAL	87710 POLLUTION CONTROL	TOTAL
FUND EQUITY:			
CONTRIBUTED CAPITAL	\$23,243,508.37	\$14,135,063.61	\$37,378,571.98
RETAINED EARNINGS:			
RESERVED FOR:			
OPERATIONS AND MAINTENANCE	1,025,000.00	0.00	1,025,000.00
REPLACEMENT	25,000.00	0.00	25,000.00
MAINTENANCE AND REPLACEMENT	0.00	700,000.00	700,000.00
	1,050,000.00	700,000.00	1,750,000.00
UNDESIGNATED EARNINGS	502,117.52	956,616.74	1,458,734.26
TOTAL RETAINED EARNINGS	1,552,117.52	1,656,616.74	3,208,734.26
TOTAL FUND EQUITY	24,795,625.89	15,791,680.35	40,587,306.24
TOTAL LIABILITIES & FUND EQUITY	\$27,074,635.97	\$18,085,250.07	\$45,159,886.04

OAKLAND COUNTY DRAIN COMMISSIONER
SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM
COMBINED STATEMENT OF REVENUES, EXPENSES AND CHANGES IN RETAINED EARNINGS
FOR THE YEAR ENDED DECEMBER 31, 1990

	87700 SEWAGE DISPOSAL	87710 POLLUTION CONTROL	TOTAL
REVENUE FROM SERVICE SALES	\$ 9,317,398.06	\$ 6,199,999.98	\$15,517,398.04
LESS: TREATMENT COSTS	9,053,475.23	5,731,635.84	14,785,111.07
GROSS GAIN ON SALES	263,922.83	468,364.14	732,286.97
LESS: OPERATING EXPENSES	709,833.47	606,667.59	1,316,501.06
GAIN OR (LOSS) ON OPERATIONS	(445,910.64)	(138,303.45)	(584,214.09)
OTHER REVENUE (EXPENSES):			
GAIN ON SALE OF EQUIPMENT	3,355.00	0.00	3,355.00
REIMBURSEMENT-SALARIES	9,694.96	0.00	9,694.96
INCOME ON INVESTMENTS	200,876.25	143,186.20	344,062.45
DISPOSAL PERMITS	10,102.00	0.00	10,102.00
MISCELLANEOUS	0.00	29.82	29.82
TRANSFER TO UNDISTRIBUTED FUNDS	(13,287.06)	0.00	(13,287.06)
RENTAL - EQUIPMENT	5,100.00	0.00	5,100.00
REIMBURSEMENT-ACCOUNTING SERVICES	23,848.37	23,848.40	47,696.77
TOTAL OTHER REVENUE (EXPENSES)	239,689.52	167,064.42	406,753.94
OPERATING TRANSFERS OUT	(25,000.00)	0.00	(25,000.00)
NET GAIN OR (LOSS) BEFORE DEPRECIATION ON ASSETS ACQUIRED FROM CONTRIBUTED CAPITAL	(231,221.12)	28,760.97	(202,460.15)
DEPRECIATION ON ASSETS ACQUIRED FROM CONTRIBUTED CAPITAL	1,019,396.40	610,897.80	1,630,294.20
NET GAIN OR (LOSS) AFTER DEPRECIATION ON ASSETS ACQUIRED FROM CONTRIBUTED CAPITAL	(1,250,617.52)	(582,136.83)	(1,832,754.35)
ADD BACK DEPRECIATION ON ASSETS ACQUIRED FROM CONTRIBUTED CAPITAL	1,019,396.40	610,897.80	1,630,294.20
NET GAIN OR (LOSS)	(231,221.12)	28,760.97	(202,460.15)
RETAINED EARNINGS AT 01/01/90	1,783,338.64	1,627,855.77	3,411,194.41
RETAINED EARNINGS AT 12/31/90	\$ 1,552,117.52	\$ 1,656,616.74	\$ 3,208,734.26

OAKLAND COUNTY DRAIN COMMISSIONER
 SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM
 COMBINED SCHEDULE OF OPERATING EXPENSES
 FOR THE YEAR ENDED DECEMBER 31, 1990

	87700 SEWAGE DISPOSAL	87710 POLLUTION CONTROL	TOTAL
	-----	-----	-----
SALARIES	\$208,179.15	\$170,922.93	\$379,102.08
	-----	-----	-----
FRINGE BENEFITS	81,489.73	69,704.70	151,194.43
	-----	-----	-----
CONTRACTUAL SERVICES:			
ACCOUNTING SERVICES	47,028.92	47,028.99	94,057.91
AUCTION EXPENSE	232.38	0.00	232.38
AUDITING SERVICES	5,185.00	5,185.00	10,370.00
BUILDING MAINTENANCE	1,501.10	2,828.13	4,329.23
DEPRECIATION-OPERATING EQUIPMENT	6,914.18	19,126.05	26,040.23
EQUIPMENT REPAIR - OPERATIONS	1,324.28	7,991.96	9,316.24
EQUIPMENT REPAIR - MOTOR VEHICLES	76.38	1,464.12	1,540.50
ENGINEERING AND SURVEY	39.50	65,863.61	65,903.11
EQUIPMENT RENTAL	0.00	450.00	450.00
EQUIPMENT REPAIRS AND MAINTENANCE	333.91	2,633.15	2,967.06
GARBAGE AND RUBBISH DISPOSAL	0.00	299.00	299.00
GAS - NATURAL	2,259.95	3,275.58	5,535.53
INSURANCE	5,578.31	4,752.42	10,330.73
INVESTMENT FEES	315.15	235.73	550.88
LANDS AND GROUNDS MAINTENANCE	795.55	1,722.78	2,518.33
LAUNDRY AND CLEANING	992.94	1,991.13	2,984.07
LEGAL EXPENSE	305,546.43	1,563.32	307,109.75
LIGHT AND POWER	6,872.02	28,071.36	34,943.38
MAINTENANCE CONTRACTS	5,288.76	2,161.95	7,450.71
MAINTENANCE EQUIPMENT RENTAL	0.00	348.80	348.80
MEMBERSHIP, DUES AND PUBLICATIONS	99.00	127.50	226.50
PROTECTIVE CLOTHING AND EQUIPMENT	595.25	1,171.72	1,766.97
SEWER MAINTENANCE	12,480.00	0.00	12,480.00
TRAVEL AND CONFERENCE	949.36	2,291.80	3,241.16
WATER PURCHASES	0.00	10,253.99	10,253.99
WATER AND SEWER UTILITIES	2,193.93	2,382.44	4,576.37
	-----	-----	-----
TOTAL CONTRACTUAL SERVICES	406,602.30	213,220.53	619,822.83
	-----	-----	-----
COMMODITIES:			
CHLORINATION SUPPLIES	0.00	135,708.00	135,708.00
FILM AND PROCESSING	0.00	110.62	110.62
LABORATORY SUPPLIES	3,961.42	0.00	3,961.42
OFFICE SUPPLIES	267.06	757.11	1,024.17
POSTAGE	112.00	16.14	128.14
SHOP SUPPLIES	0.00	3,801.14	3,801.14
	-----	-----	-----
TOTAL COMMODITIES	4,340.48	140,393.01	144,733.49
	-----	-----	-----

OAKLAND COUNTY DRAIN COMMISSIONER
SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM
COMBINED SCHEDULE OF OPERATING EXPENSES
FOR THE YEAR ENDED DECEMBER 31, 1990
PAGE 2

	87700 SEWAGE DISPOSAL	87710 POLLUTION CONTROL	TOTAL
	-----	-----	-----
INTERNAL SERVICES:			
DPW WATER & SEWER EQUIPMENT	\$ 58.84	\$ 58.83	\$ 117.67
MICROFILM & REPRODUCTIONS	1,319.15	0.00	1,319.15
RADIO COMMUNICATIONS	1,375.56	1,920.36	3,295.92
MOTOR POOL	3,186.68	6,530.05	9,716.73
EQUIPMENT RENTAL - OFFICE	120.00	120.00	240.00
STORES - STOCK	17.09	364.23	381.32
TELEPHONE COMMUNICATIONS	1,148.76	1,396.73	2,545.49
DRAIN EQUIPMENT	1,995.73	2,036.22	4,031.95
	-----	-----	-----
TOTAL INTERNAL SERVICES	9,221.81	12,426.42	21,648.23
	-----	-----	-----
TOTAL OPERATING EXPENSES	\$709,833.47	\$606,667.59	\$1,316,501.06
	=====	=====	=====

OAKLAND COUNTY
 CHAPTER 20 CONSTRUCTION FUNDS
 BALANCE SHEET
 NELSON DRAINAGE DISTRICT

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 81605

ASSETS

CASH	\$	3,273.99
INVESTMENTS		935,500.00
ACCRUED INTEREST RECEIVABLE		9,552.33
FIXED ASSETS		2,761,949.35

TOTAL ASSETS	\$	3,710,275.67
		=====

LIABILITIES

DEPOSITS	\$	500.00
DUE TO OTHER FUNDS		1,355.38

TOTAL LIABILITIES		1,855.38

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		2,761,949.35
UNDESIGNATED		946,470.94
DESIGNATED		4,509.50

		3,712,929.79

UNDESIGNATED	(	4,509.50)

TOTAL FUND BALANCE	(	4,509.50)

TOTAL LIABILITIES & FUND BALANCE	\$	3,710,275.67
		=====

OAKLAND COUNTY
 CHAPTER 20 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 NELSON DRAINAGE DISTRICT

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 81605

REVENUES

INCOME FROM INVESTMENTS	\$	73,931.15
PERMITS		50.00

TOTAL REVENUES		73,981.15

EXPENDITURES

SALARIES - REGULAR		7,019.33
PER DIEM		225.00
FRINGE BENEFITS		4,249.02
INVESTMENT FEES		448.68
LEGAL EXPENSE		7,227.85
CONTRACTED SERVICES		47,206.50
TRANSPORTATION		92.32
MATERIAL & SUPPLIES		25.56
DRAIN EQUIPMENT		1,832.37

TOTAL EXPENDITURES		68,326.63

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- 5,654.52 -----
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EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$	5,654.52 =====
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OAKLAND COUNTY
CHAPTER 20 CONSTRUCTION FUNDS
BALANCE SHEET
JOHNSON DRAIN

DECEMBER 31, 1990

CONSTRUCTION
FUND NO
81636

ASSETS

CASH	\$	.00
INVESTMENTS		657,395.22
ACCRUED INTEREST RECEIVABLE		2,493.21
FIXED ASSETS		2,591,070.47

TOTAL ASSETS	\$	3,250,958.90
		=====

LIABILITIES

DUE TO MUNICIPALITIES	\$	200,000.00
DUE TO OTHER FUNDS		24,820.42

TOTAL LIABILITIES		224,820.42

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		2,591,070.47
UNDESIGNATED		435,068.01
DESIGNATED		320,885.40

		3,347,023.88

UNDESIGNATED	(	320,885.40)

TOTAL FUND BALANCE	(	320,885.40)

TOTAL LIABILITIES & FUND BALANCE	\$	3,250,958.90
		=====

OAKLAND COUNTY
 CHAPTER 20 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 JOHNSON DRAIN

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 81636

REVENUES

INCOME FROM INVESTMENTS	\$	72,397.11
PRINCIPAL FROM MUNICIPALITIES		262,276.30
SALE OF BONDS		2,675,000.00

TOTAL REVENUES		3,009,673.41

EXPENDITURES

SALARIES - REGULAR		67,435.63
PER DIEM		700.00
FRINGE BENEFITS		40,849.98
BOND ATTORNEY FEES		17,864.36
BOND PRINTING EXPENSE		7,334.25
BOND RATING EXPENSE		7,800.00
INVESTMENT FEES		64.75
LEGAL EXPENSE		8,427.34
CONTRACTED SERVICES		96,352.34
DISCOUNT ON BONDS		40,125.00
FINANCIAL CONSULTANT FEES		12,000.00
LICENSES AND PERMITS		3,136.67
OTHER ENGINEERING SERVICES		177,878.75
PUBLISHING LEGAL NOTICES		225.26
RECORDING FEES		28.00
SOIL TEST BORINGS		7,071.32
TRANSPORTATION		60.25
MATERIAL & SUPPLIES		933.07
OFFICE SUPPLIES		44.50
DRAIN EQUIPMENT		8,638.30
PROJECT CONST. & IMPROVEMENTS		2,004,299.21

TOTAL EXPENDITURES		2,501,268.98

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- 508,404.43 -----

DAKLAND COUNTY
 CHAPTER 20 CONSTRUCTION FUNDS
 BALANCE SHEET
 JENSEN DRAIN

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 81664

ASSETS

CASH	\$	.00
INVESTMENTS		843,593.61
FIXED ASSETS		315,134.19

TOTAL ASSETS	\$	1,158,727.80
		=====

LIABILITIES

ACCOUNTS PAYABLE	\$	150,000.00
DUE TO OTHER FUNDS		11,240.67

TOTAL LIABILITIES		161,240.67

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		315,134.19
UNDESIGNATED		291,705.44
DESIGNATED		390,647.50

		997,487.13

TOTAL LIABILITIES & FUND BALANCE	\$	1,158,727.80
		=====

OAKLAND COUNTY
 CHAPTER 20 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 JENSEN DRAIN

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 81664

REVENUES

INCOME FROM INVESTMENTS	\$	1,564.10
SALE OF BONDS		995,000.00

TOTAL REVENUES		996,564.10

EXPENDITURES

SALARIES - REGULAR	17,820.25
PER DIEM	625.00
FRINGE BENEFITS	10,771.31
BOND PRINTING EXPENSE	974.00
BOND RATING EXPENSE	8,065.38
INVESTMENT FEES	11.49
LEGAL EXPENSE	3,159.22
APPRAISAL FEES	4,850.00
CONTRACTED SERVICES	138.46
DISCOUNT ON BONDS	7,363.00
LICENSES AND PERMITS	1,694.91
OTHER ENGINEERING SERVICES	24,532.00
PUBLISHING LEGAL NOTICES	1,520.20
PURCHASE OF LAND & EASEMENT	43,108.37
RECORDING FEES	189.40
TRANSPORTATION	34.25
ENGINEERING SUPPLIES	32.00
OFFICE SUPPLIES	29.00
MICROFILM & REPRODUCTIONS	89.70
DRAIN EQUIPMENT	1,985.60
PROJECT CONST. & IMPROVEMENTS	150,000.00

TOTAL EXPENDITURES	276,993.54

EXCESS (DEFICIENCY) OF REVENUES		
OVER EXPENDITURES		719,570.56

EXCESS (DEFICIENCY) OF REVENUES		
AND OTHER SOURCES OVER	\$	719,570.56

OAKLAND COUNTY
 CHAPTER 20 CONSTRUCTION FUNDS
 BALANCE SHEET
 CRANBERRY LAKE DRAIN

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 81681

ASSETS

CASH	\$	3,440.11
INVESTMENTS		35,000.00
ACCRUED INTEREST RECEIVABLE		195.56
FIXED ASSETS		43,673.43

TOTAL ASSETS	\$	82,309.10
		=====

LIABILITIES

ACCOUNTS PAYABLE	\$	32,784.31
DUE TO OTHER FUNDS		5,018.94

TOTAL LIABILITIES		37,803.25

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		43,673.43
UNDESIGNATED		832.42

TOTAL FUND BALANCE		44,505.85

TOTAL LIABILITIES & FUND BALANCE	\$	82,309.10
		=====

OAKLAND COUNTY
 CHAPTER 20 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 CRANBERRY LAKE DRAIN

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 81681

REVENUES

INCOME FROM INVESTMENTS	\$	195.56

TOTAL REVENUES		195.56

EXPENDITURES

SALARIES - REGULAR		4,688.87
PER DIEM		150.00
FRINGE BENEFITS		2,841.43
LICENSES AND PERMITS		100.00
PUBLISHING LEGAL NOTICES		675.10
RECORDING FEES		42.00
TRANSPORTATION		43.75
FILM & PROCESSING		7.44
MATERIAL & SUPPLIES		6.82
DRAIN EQUIPMENT		735.45
PROJECT CONST. & IMPROVEMENTS		32,784.31

TOTAL EXPENDITURES		42,075.17

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		(41,879.61)

OTHER FINANCING SOURCES(USES)

OPERATING TRANSFERS IN		44,310.29

TOTAL OTHER FINANCING SOURCES(USES)		44,310.29

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER	\$	2,430.68
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OAKLAND COUNTY
 CHAPTER 20 DEBT FUNDS
 BALANCE SHEET
 BARNARD DRAINAGE DISTRICT

DECEMBER 31, 1990

DEBT
 FUND NO
 31505

ASSETS

CASH	\$	43.33
INVESTMENTS		18,000.00
ASSESSMENTS RECEIVABLE		670,000.00
ACCRUED INTEREST RECEIVABLE		76.13

TOTAL ASSETS	\$	688,119.46
		=====

LIABILITIES

DEFERRED INCOME	\$	670,000.00

TOTAL LIABILITIES		670,000.00

FUND-BALANCE

UNDESIGNATED		18,119.46

TOTAL FUND BALANCE		18,119.46

TOTAL LIABILITIES & FUND BALANCE	\$	688,119.46
		=====

OAKLAND COUNTY
 CHAPTER 20 MAINTENANCE FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 BARNARD DRAINAGE DISTRICT

DECEMBER 31, 1990

MAINTENANCE
 FUND NO
 89505

REVENUES

DEPOSITS - ENG PLANS & SPECS	\$	295.00
INCOME FROM INVESTMENTS		1,996.89

TOTAL REVENUES		2,291.89

EXPENDITURES

SALARIES - REGULAR		14,157.01
PER DIEM		150.00
FRINGE BENEFITS		8,567.56
INVESTMENT FEES		3.00
CONTRACTED SERVICES		76,510.00
ENGINEERING AND SURVEY		2,216.10
LEGAL EXPENSE		267.00
LICENSES AND PERMITS		254.97
PURCHASE OF LAND & EASEMENT		601.00
RECORDING FEES		23.10
TRANSPORTATION		140.25
MAINTENANCE SUPPLIES		64.82
MICROFILM & REPRODUCTIONS		42.90
DRAIN EQUIPMENT		1,569.54

TOTAL EXPENDITURES		104,567.25

EXCESS (DEFICIENCY) OF REVENUES		-----
OVER EXPENDITURES	(	102,275.36)

EXCESS (DEFICIENCY) OF REVENUES		
AND OTHER SOURCES OVER	\$(	102,275.36)
EXPENDITURES AND OTHER USES		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 W. BLOOMFIELD W.S.S. SEC. XII

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87407

ASSETS

CASH	\$	31,665.13
INVESTMENTS		135,000.00
ACCRUED INTEREST RECEIVABLE		459.00
FIXED ASSETS		565,934.63

TOTAL ASSETS	\$	733,058.76
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	3,329.34
VOUCHERS PAYABLE		82.75

TOTAL LIABILITIES		3,412.09

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		565,934.63
UNDESIGNATED		160,112.04
DESIGNATED		3,600.00

		729,646.67

TOTAL LIABILITIES & FUND BALANCE	\$	733,058.76
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 W. BLOOMFIELD W.S.S. SEC. XII

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87407

REVENUES

INCOME FROM INVESTMENTS	\$	19,646.67
PRINCIPAL FROM MUNICIPALITIES		710,000.00

TOTAL REVENUES		729,646.67

EXPENDITURES

SALARIES - REGULAR		35,286.15
FRINGE BENEFITS		20,987.10
INVESTMENT FEES		41.04
CONTRACT ADMINISTRATION		2,755.21
CONTRACTED SERVICES		381,205.38
DESIGN FEES		2,689.98
LICENSES AND PERMITS		1,460.00
PERSONAL MILEAGE		90.50
PHOTOCOPY EXPENSE		10.00
PURCHASE OF LAND & EASEMENT		2,250.00
RECORDING FEES		169.75
SOIL TEST BORINGS		8,520.25
MATERIAL & SUPPLIES		119.25
OFFICE SUPPLIES		29.00
MICROFILM & REPRODUCTIONS		433.50
DRAIN EQUIPMENT		3,465.20

TOTAL EXPENDITURES		459,512.31

EXCESS (DEFICIENCY) OF REVENUES		
OVER EXPENDITURES		270,134.36

EXCESS (DEFICIENCY) OF REVENUES		
AND OTHER SOURCES OVER		
EXPENDITURES AND OTHER USES	\$	270,134.36
		=====

DAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 EFSOS FARM HLS-SFLD SEGMENT I

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87271

ASSETS

CASH	\$	.00
INVESTMENTS		888,889.65
DUE FROM FEDERAL GOVERNMENT		3,446,106.00
FIXED ASSETS		12,426,858.94

TOTAL ASSETS	\$	16,761,854.59
		=====

LIABILITIES

ACCOUNTS PAYABLE	\$	1,119,889.86
DUE TO OTHER FUNDS		59,092.05
VOUCHERS PAYABLE		1,958.00
DEFERRED INCOME		3,446,106.00

TOTAL LIABILITIES		4,627,045.91

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		12,426,858.94
UNDESIGNATED	(	1,465,761.61)
DESIGNATED		1,173,711.35

		12,134,808.68

TOTAL LIABILITIES & FUND BALANCE	\$	16,761,854.59
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 EFSOS FARM HLS-SFLD SEGMENT I

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87271

REVENUES

GRANTS	\$ 2,245,074.00
INCOME FROM INVESTMENTS	434,227.42
RENT-HOUSE	500.00
SALE OF BONDS	185,953.50
SALE OF LAND & BUILDINGS	24,972.94

TOTAL REVENUES	2,890,727.86

EXPENDITURES

SALARIES - REGULAR	119,492.23
FRINGE BENEFITS	67,669.61
BOND ATTORNEY FEES	6,647.00
BOND PRINTING EXPENSE	254.00
BOND PROSPECTUS EXPENSE	1,704.00
BOND RATING EXPENSE	816.00
LEGAL EXPENSE	19,079.22
ARCHITECT FEES-D & M MANUEL	3,332.41
CONTRACT ADMINISTRATION	727,940.23
CONTRACTED SERVICES	1,631.25
DISCOUNT ON BONDS	221,897.50
INSURANCE	189.00
INSPECTION	197,698.49
MEMBERSHIP DUES & PUBLICATIONS	480.00
MISCELLANEOUS	88.14
PERSONAL MILEAGE	29.98
PUBLISHING LEGAL NOTICES	109.00
PURCHASE OF LAND & EASEMENT	4,232.70
RECORDING FEES	20.90
ENGINEERING SUPPLIES	21.73
MATERIAL & SUPPLIES	80.45
OFFICE SUPPLIES	29.00
POSTAGE	15.50
COMPUTER SERVICES-OPERATIONS	63.00
MICROFILM & REPRODUCTIONS	26.00
DRAIN EQUIPMENT	17,994.65
PROJECT CONST. & IMPROVEMENTS	9,108,920.50

DAKLAND COUNTY
ACT 342 CONSTRUCTION FUNDS
STATEMENT OF REVENUE & EXPENDITURES
EFSOS FARM HLS-SFLD SEGMENT I

DECEMBER 31, 1990

CONSTRUCTION
FUND NO
87271

EXCESS (DEFICIENCY) OF REVENUES
OVER EXPENDITURES

(7,609,734.63)

EXCESS (DEFICIENCY) OF REVENUES
AND OTHER SOURCES OVER
EXPENDITURES AND OTHER USES

\$(7,609,734.63)
=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 EFSDS PCF SEG. II CONST.

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87265

ASSETS

CASH	\$	1,970.00
INVESTMENTS		12,343,102.60
DUE FROM FEDERAL GOVERNMENT		14,831,135.00
DUE FROM MUNICIPALITIES		537,006.00
DUE FROM OTHER FUNDS		5,989,444.00
FIXED ASSETS		1,744,944.44

TOTAL ASSETS	\$	35,447,602.04
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	1,046,759.19
VOUCHERS PAYABLE		5,818.60
DEFERRED INCOME		14,831,135.00

TOTAL LIABILITIES		15,883,712.79

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		1,744,944.44
UNDESIGNATED		17,818,944.81

TOTAL FUND BALANCE		19,563,889.25

TOTAL LIABILITIES & FUND BALANCE	\$	35,447,602.04
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 EFSDS PCF SEG. II CONST.

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87265

REVENUES

DEPOSITS - ENG PLANS & SPECS	\$	2,495.00
PRINCIPAL FROM MUNICIPALITIES		845,951.00
SALE OF BONDS		18,725,000.00

TOTAL REVENUES		19,573,446.00

EXPENDITURES

SALARIES - REGULAR		112,116.35
FRINGE BENEFITS		66,971.17
BOND ATTORNEY FEES		63,781.34
BOND PRINTING EXPENSE		3,152.00
BOND PROSPECTUS EXPENSE		1,451.00
BOND RATING EXPENSE		8,485.00
LEGAL EXPENSE		139,248.72
APPRAISAL FEES		12,400.75
CONTRACT ADMINISTRATION		137,580.11
CONTRACTED SERVICES		27,681.00
DESIGN FEES		486,294.74
DISCOUNT ON BONDS		338,556.00
LICENSES AND PERMITS		333.33
PERSONAL MILEAGE		808.25
PHOTOCOPY EXPENSE		57.00
PUBLISHING LEGAL NOTICES		5,837.30
PURCHASE OF LAND & EASEMENT		313,443.24
RECORDING FEES		2,277.40
SOIL TEST BORINGS		17,531.50
TRAVEL & CONFERENCE		1,420.03
FILM & PROCESSING		3.98
MATERIAL & SUPPLIES		3,090.55
OFFICE SUPPLIES		261.00
MICROFILM & REPRODUCTIONS		660.53
DRAIN EQUIPMENT		11,058.90

TOTAL EXPENDITURES		1,754,501.19

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- 17,818,944.81 -----
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EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER	\$	----- 17,818,944.81 -----
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OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 WIXOM S.D.S. - EXT. NO. 2

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87430

ASSETS

CASH	\$	60,326.00
INVESTMENTS		1,400,000.00
DUE FROM FEDERAL GOVERNMENT		626,097.00
ACCRUED INTEREST RECEIVABLE		14,466.67
FIXED ASSETS		18,464,420.78

TOTAL ASSETS	\$	20,565,310.45
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	36,875.99
VOUCHERS PAYABLE		89,968.00
DEFERRED INCOME		485,508.00

TOTAL LIABILITIES		612,351.99

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		18,464,420.78
UNDESIGNATED		1,396,169.68
DESIGNATED		92,368.00

		19,952,958.46

TOTAL LIABILITIES & FUND BALANCE	\$	20,565,310.45
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 WIXOM S.D.S. - EXT. NO. 2

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87430

REVENUES

GRANTS	\$	2,212,129.00
INCOME FROM INVESTMENTS		152,576.36

TOTAL REVENUES		2,364,705.36

EXPENDITURES

SALARIES - REGULAR		12,347.48
FRINGE BENEFITS		5,323.94
INVESTMENT FEES		413.48
ARCHITECT FEES-O & M MANUEL		85,582.57
ARCHITECTURAL TRADES		4,978.81
CONTRACT ADMINISTRATION		226,343.31
INSPECTION		173,739.57
OTHER ENGINEERING SERVICES		35,384.87
OFFICE SUPPLIES		29.00
DPW WATER & SEWER EQUIPMENT		50,776.25
DRAIN EQUIPMENT		3,089.75
PROJECT CONST. & IMPROVEMENTS		3,866,504.98

TOTAL EXPENDITURES		4,464,514.01

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- (2,099,808.65) -----
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EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES		\$ (2,099,808.65) =====
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DAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 HRSDS-WALLED LK-NOVI WWTP ENLG

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87500

ASSETS

CASH	\$	.00
INVESTMENTS		6,941,283.99
DUE FROM OTHER FUNDS		96.03
ACCRUED INTEREST RECEIVABLE		35,974.77
FIXED ASSETS		2,014,812.19

TOTAL ASSETS	\$	8,992,166.98
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	8,348.98
VOUCHERS PAYABLE		364,602.71

TOTAL LIABILITIES		372,951.69

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		2,014,812.19
UNDESIGNATED		1,018,689.02
DESIGNATED		5,585,714.08

		8,619,215.29

TOTAL LIABILITIES & FUND BALANCE	\$	8,992,166.98
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 HRSOS-WALLED LK-NOVI WTP ENLG

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 8.7500

REVENUES

INCOME FROM INVESTMENTS	\$	190,525.29
PRINCIPAL FROM MUNICIPALITIES		5,828,690.00
SALE OF BONDS		2,600,000.00

TOTAL REVENUES		8,619,215.29

EXPENDITURES

SALARIES - REGULAR		9,006.10
FRINGE BENEFITS		5,177.36
BOND ATTORNEY FEES		22,288.02
BOND PRINTING EXPENSE		1,413.00
BOND PROSPECTUS EXPENSE		9,182.48
BOND RATING EXPENSE		6,800.00
INVESTMENT FEES		20.96
LEGAL EXPENSE		9,288.22
ARCHITECT FEES-D & M MANUEL		1,214.06
CONTRACT ADMINISTRATION		54,341.81
CONTRACTED SERVICES		765.00
DESIGN FEES		210,641.00
DISCOUNT ON BONDS		52,000.00
LICENSES AND PERMITS		400.00
PUBLISHING LEGAL NOTICES		977.00
SOIL TEST BORINGS		2,212.32
OFFICE SUPPLIES		29.00
POSTAGE		15.50
DPW WATER & SEWER EQUIPMENT		9,178.27
DRAIN EQUIPMENT		1,024.10
PROJECT CONST. & IMPROVEMENTS		1,412,285.92

TOTAL EXPENDITURES		1,808,260.12

EXCESS (DEFICIENCY) OF REVENUES		-----
OVER EXPENDITURES		6,810,955.17

EXCESS (DEFICIENCY) OF REVENUES

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 WEST BLOOMFIELD WSS - SEC. XI

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87406

ASSETS

CASH	\$	20,609.15
INVESTMENTS		160,000.00
ACCRUED INTEREST RECEIVABLE		849.33
FIXED ASSETS		1,690,492.00

TOTAL ASSETS	\$	1,871,950.48
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	609.39

TOTAL LIABILITIES		609.39

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		1,690,492.00
UNDESIGNATED		180,849.09

		1,871,341.09

TOTAL LIABILITIES & FUND BALANCE	\$	1,871,950.48
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 WEST BLOOMFIELD WSS - SEC. XI

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87406

REVENUES

INCOME FROM INVESTMENTS	\$	13,530.66

TOTAL REVENUES		13,530.66

EXPENDITURES

SALARIES - REGULAR		8,139.66
FRINGE BENEFITS		4,912.00
INVESTMENT FEES		27.22
LEGAL EXPENSE		24,454.15
APPRAISAL FEES		1,052.50
CONTRACT ADMINISTRATION		466.19
CONTRACTED SERVICES		21,313.40
DESIGN FEES		6,797.49
LICENSES AND PERMITS		416.66
PURCHASE OF LAND & EASEMENT		21,645.00
SOIL TEST BORINGS		1,255.20
DRAIN EQUIPMENT		1,771.65

TOTAL EXPENDITURES		92,251.12

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		-----
	(	78,720.46)

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES		-----
	\$(	78,720.46)
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 HURON VAL. W.C.S. NOR. ARM REL

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87400

ASSETS

CASH	\$	17,747.88
FIXED ASSETS		10,365,993.48

TOTAL ASSETS	\$	10,383,741.36
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	129.06
VOUCHERS PAYABLE		177.25

TOTAL LIABILITIES		306.31

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		10,365,993.48
UNDESIGNATED		17,441.57

TOTAL FUND BALANCE		10,383,435.05

TOTAL LIABILITIES & FUND BALANCE	\$	10,383,741.36
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 HURON VAL. W.C.S. NOR. ARM REL

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87400

REVENUES

SALE OF BONDS	\$	1,625,000.00

TOTAL REVENUES		1,625,000.00

EXPENDITURES

SALARIES - REGULAR		2,759.69
FRINGE BENEFITS		1,672.39
BOND ATTORNEY FEES		12,177.23
BOND PRINTING EXPENSE		1,043.00
BOND PROSPECTUS EXPENSE		5,765.96
BOND RATING EXPENSE		7,800.00
CONTRACTED SERVICES		1,420,504.00
DISCOUNT ON BONDS		32,500.00
FINANCIAL CONSULTANT FEES		7,517.69
LICENSES AND PERMITS		400.00
PUBLISHING LEGAL NOTICES		780.00
DRAIN EQUIPMENT		441.15

TOTAL EXPENDITURES		1,493,361.11

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- 131,638.89 -----
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OTHER FINANCING SOURCES(USES)

TRANSFERS TO MUNICIPALITIES	(123,000.00)

TOTAL OTHER FINANCING SOURCES(USES)	(123,000.00)

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER	\$	8,638.89
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DAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 BALANCE SHEET
 OCWS & SDS-ROCHSTR HL 1988 EXT

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87435

ASSETS

CASH	\$	39,949.46
INVESTMENTS		5,975,000.00
ADVANCES & LOANS RECEIVABLE		700,000.00
ACCRUED INTEREST RECEIVABLE		64,408.16
FIXED ASSETS		5,599,332.24

TOTAL ASSETS	\$	12,378,689.86
		=====

LIABILITIES

ACCOUNTS PAYABLE	\$	231,028.75
DUE TO OTHER FUNDS		30,890.50
VOUCHERS PAYABLE		144.40

TOTAL LIABILITIES		262,063.65

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		5,599,332.24
UNDESIGNATED		6,433,167.67
DESIGNATED		84,126.30

		12,116,626.21

TOTAL LIABILITIES & FUND BALANCE	\$	12,378,689.86
		=====

OAKLAND COUNTY
 ACT 342 CONSTRUCTION FUNDS
 STATEMENT OF REVENUE & EXPENDITURES
 OCWS & SDS-ROCHSTR HL 1988 EXT

DECEMBER 31, 1990

CONSTRUCTION
 FUND NO
 87435

REVENUES

INCOME FROM INVESTMENTS	\$	560,555.58

TOTAL REVENUES		560,555.58

EXPENDITURES

SALARIES - REGULAR	119,653.32
FRINGE BENEFITS	70,184.28
BOND ATTORNEY FEES	2,000.00
INVESTMENT FEES	1,050.40
LEGAL EXPENSE	321.50
APPRAISAL FEES	5,757.50
CONTRACTED SERVICES	1,963,160.56
DESIGN FEES	83,297.00
LICENSES AND PERMITS	9,548.74
PERSONAL MILEAGE	274.25
PHOTOCOPY EXPENSE	32.00
PUBLISHING LEGAL NOTICES	391.02
PURCHASE OF LAND & EASEMENT	2,456.74
RECORDING FEES	222.20
SOIL TEST BORINGS	16,432.08
MATERIAL & SUPPLIES	377.14
OFFICE SUPPLIES	29.00
MICROFILM & REPRODUCTIONS	522.60
DRAIN EQUIPMENT	13,165.85

TOTAL EXPENDITURES	2,288,876.18

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		(1,728,320.60)

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$	(1,728,320.60)
		=====