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*Flint Park Lake
Citizens District Council
Redevelopment Plan*

City of Flint, Michigan

Adopted May 13, 2002

TABLE OF CONTENTS

ACKNOWLEDGMENTS

CDC LETTERS AND COUNCIL RESOLUTION

DESCRIPTION OF PROJECT	1
Background	1
Boundaries	1
Plan objectives	1
PLANNING PROCESS	3
Formation of the Citizens District Council	3
Role of the City of Flint	3
Role of Consultants	3
A Note on Census Information	3
COMMUNITY INPUT	6
CDC Meetings	6
Public Workshops	6
Visual Preference Survey	6
Summary of Proposed Improvements	7
Other Issues	9
EXISTING LAND USE	10
Zoning	10
HOUSING CHARACTERISTICS	13
Ownership	15
Type and size	16
Housing quality	16
Miscellaneous features	16
POPULATION CHARACTERISTICS	18
Race	18
Income	18
Age	18

INFRASTRUCTURE	23
Storm Sewers	23
Water System	24
Sewer	24
Streets	24
Cost	24
NATURAL FEATURES	29
ECT Study	30
PARKS AND RECREATION	48
FUTURE LAND USE PLAN	50
Key issues	50
Plan Policies	51
Financing	53

APPENDIX A (Visual Preference Survey)

APPENDIX B (Infrastructure Cost Detail)

LIST OF MAPS

Project Location / Boundary Map	2
Census Tract Map	5
Existing Land Use Map	11
Zoning Map	12
Housing Map	17
Storm Sewer Map	25
Water System Map	26
Sewer Map	27
Street Map	28
Parks Plan	49
Conceptual Development Plan	52

Acknowledgments

The preparation of this plan was financed through a grant provided under the Community Development Block Grant Program. The grant was administered by the City of Flint Community and Economic Development Department and the Flint Area Enterprise Communities Inc.

The Flint Park Lake Citizens District Council is comprised of the following community members:

Rev Willie Allen
Malcolm Banks
Emelda Channel
Lucille Channel
Sharon Cheatham
Michael Davis
Allen Dubose
Karen Dubose
Edward Elam
Derryl Evans
Adel Johnson
Patsy A. Johnson

Rev James Kennedy
Sally Kragerer
Clyde W. Lee Jr.
Colonel Lee
Lawrence E. Moon
Janice McNabb
Ray Neal
Allen Rea
Rosie Richmond
Patrick Ryals Sr., Chairperson
John Summers
David Taylor
Willis Weymon

*CDC
LETTERS
AND
RESOLUTIONS*

Flint Park Lake Citizens District Council

May 21, 2002



Councilman Edward Taylor
1101 S. Saginaw St.
Flint, Michigan 48502

Dear Councilman Taylor:

In accordance to the Rehabilitation Act 344 of 1945 states, 10 days after the completion of the public hearing, the Flint Park Lake Citizens' District Council must notify the local legislative body in writing whether the CDC approves or disapproves the development plan.

The Flint Park Lake Citizens' District Council thanks Acting Mayor Darnell Earley and the City Council for voting on our redevelopment plan in our development district. The FPL CDC is happy to go forward with the redevelopment plan that we presented to you May 13, 2002 at our Public Hearing.

If you have any question, comments or concerns please feel free to contact me at my home at (810) 789-3413 or through Gloria Shavers at the Flint Area Enterprise Community, Inc. at (810) 341-1499.

Sincerely,

Patrick Ryals, Sr.
Chairperson
Flint Park Lake CDC

Ray Neal, Secretary
Flint Park Lake CDC

Cc. Acting Mayor Darnell Earley
Melanie Purcell, Budget Director
Karen Polk, City Attorney
City Council

**Flint Park Lake
Citizens District Council**



May 22, 2002

Mr. Kevin Briski
Parks and Recreation Director
City of Flint
Department of Parks and Recreation
1101 North Saginaw Street
Flint, Michigan 48502

Re: Phase II Recreation Development in Flint Park Lake Development District

Dear Mr. Briski:

The Flint Park Citizens' District Council is pleased to accept the final draft of phase II of the Parks & Recreation Concept Plan in our redevelopment area.

If you have any questions, comments or concerns please feel free to contact me at my home at (810) 789-3413 or through Gloria Shavers at the Flint Area Enterprise Community, Inc. at (810) 341-1499.

Sincerely,

Patrick Ryals, Sr.
Chairperson
Flint Park Lake CDC

Ray Neal
Secretary
Flint Park Lake CDC

Cc: Acting Mayor Darnell Earley
Melanie Purcell, Budget Director
Karen Folk, City Attorney
City Council

020446

Presented: MAY 13 2002

Adopted: MAY 13 2002

RESOLUTION

To adopt the Development Plan for the Flint Park Lake Neighborhood, a Development Area established in the city of Flint in accordance to Michigan Blighted Area Rehabilitation Act, Michigan Public Act 344 of 1945

BY THE MAYOR:

The Michigan Blighted Area Rehabilitation Act 344 of 1945, as amended, authorizes the city to establish development districts, adopt plans to prevent blight, approve the rehabilitation of blighted areas, provides for the establishment of Citizens' District Council to review proposed development plans, and make recommendations to the Flint City Council regarding the development plan and further provides for the acquisition and improvement of real property, using the power of eminent domain, where necessary, to complete the redevelopment plan objectives.

A development plan has been completed for the Flint Park Lake Development District. This development area is bounded by Pierson Road on the north, Dupont Street on the east, Fleming Road on the west and Stewart Street on the south. City officials have periodically consulted and advised the Flint Park Lake Neighborhood Citizens' District Council, a 25-member resident council on all aspects of the plan.

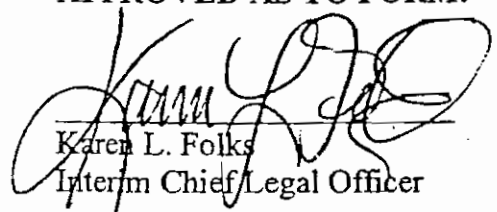
The Act requires the local legislative body to adopt a development plan after consultation with the Citizens' District Council, if required, and after a public hearing is held on the development plan.

The Act requires the local legislative body at the time set for the public hearing, to provide an opportunity for all persons interested to make public comment and allow for communications in writing to be received with reference to the development plan.

The hearing provided the fullest opportunity for expression of opinion, or argument on the merits of the development plan and for documentary evidence pertinent to the development plan

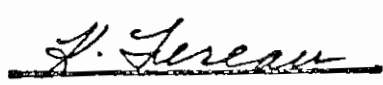
RESOLVED, that this Flint City Council adopt the development plan for the Flint Park Lake Neighborhood Development District.

APPROVED AS TO FORM:


Karen L. Folks
Interim Chief Legal Officer

APPROVED BY
CITY COUNCIL

MAY 13 2002



*DESCRIPTION
OF
PROJECT*

DESCRIPTION OF PROJECT

The following section describes the issues and events that have contributed to the formation of the Citizens District Council, the need and goals of this document. It also defines the limits of the project area and level of detail included in the plan.

Background

The Flint Park Lake redevelopment area was established by the City of Flint as one of six redevelopment areas in the City. Community Development Block Grant funds were allocated through the City's Department of Community and Economic Development to assist in the preparation of redevelopment plans for each area. To provide direction and local input a Citizen's District Council was formed under the authority of the Blighted Area Rehabilitation Act, PA 344 of 1945. This plan is the result of Flint Lake Park CDC with assistance from the Department of Community and Economic Development, the Flint Enterprises Communities, ECT Environmental Consultants and Rowe Incorporated.

Boundaries

The project area was defined by the City of Flint to identify the area in need of rehabilitation and redevelopment. The total area is approximately 130 acres bounded by Pierson Road (north), Stewart Road (south), Dupont Street (east) and Fleming Drive (west). The neighborhood along Woodhall and Berger Drive is excluded since the plan is focusing on areas of greatest need. Refer to the project location map on the following page.

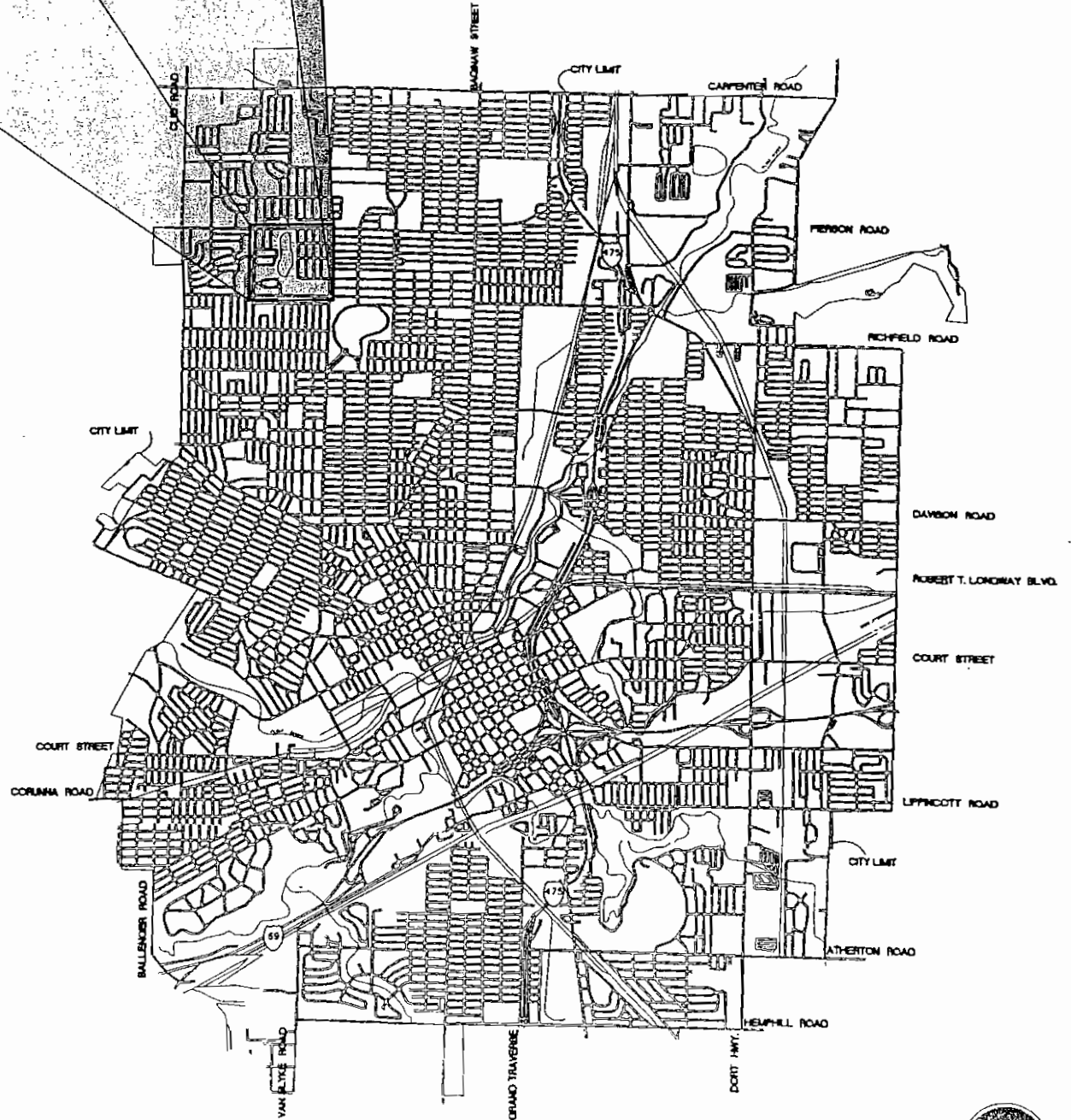
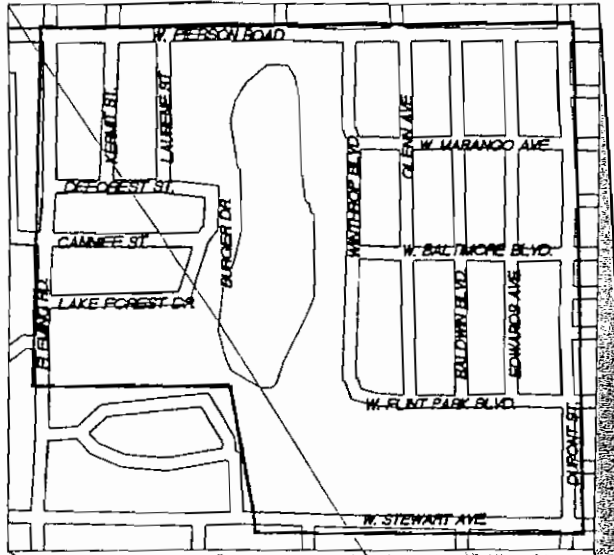
Plan objectives

The objective of the Redevelopment Plan for Flint Park Lake is to provide a general roadmap for revitalization of the neighborhood.

The plan will also document the process and reasoning for decisions which may be questioned or modified over time. This documentation will also assist the CDC in pursuing the necessary funding, legislation or other actions needed to maintain progress.

A preliminary list of action items has been identified which should be viewed as a starting point. This list will change and grow as the CDC continues with this process.

FLINT PARK LAKE COMMUNITY



PLANNING PROCESS

PLANNING PROCESS

The following section describes the sequence of events that were used to develop this plan. The efforts to solicit community input and the results thereof are included

Formation of the Citizens District Council

In 2000, the City of Flint began working with area residents and business owners in the development of Citizen District Council (CDC) through its Department of Community and Economic Development. The intent of the CDC was to develop a sense of ownership and long-term commitment to implementing the plan's recommendations for community improvements. The CDC provides a bottom-up approach to identifying and prioritizing issues within a defined area.

The Flint Park Lake CDC was officially established in November 2000 with the appointment of its original members by the Mayor and approval by the City Council. The CDC is currently at 25 members. The CDC has held standing monthly meetings to address community input and direct the efforts of the improvement plan. The CDC currently has one subcommittee, which has been working directly with staff and the city's consultants to prepare the plan.

Role of the City of Flint

The City of Flint, Community and Economic Development Department has staff assigned to assist the CDC in the pursuits that the CDC members identify. This assistance is coordinated through the Flint Area Enterprise Community Corporation. The agenda for the CDC is autonomous from the City except for the common goal of overall community improvement. City staff administers consultant efforts; the direction for these consultants is provided through the CDC.

Role of Consultants

Rowe Incorporated (ROWE) was hired by the City of Flint to assist the CDC in soliciting community input and developing an improvement plan for Flint Park Lake. They assisted the CDC in performing surveys, community workshops, presentations, technical analysis and the preparation of documents including this report.

A separate water quality analysis was determined to be a priority as part of making recommendations for Flint Park Lake itself. Environmental Consulting and Technology, Inc. (ECT) were hired to complete this work.

A Note on Census Information

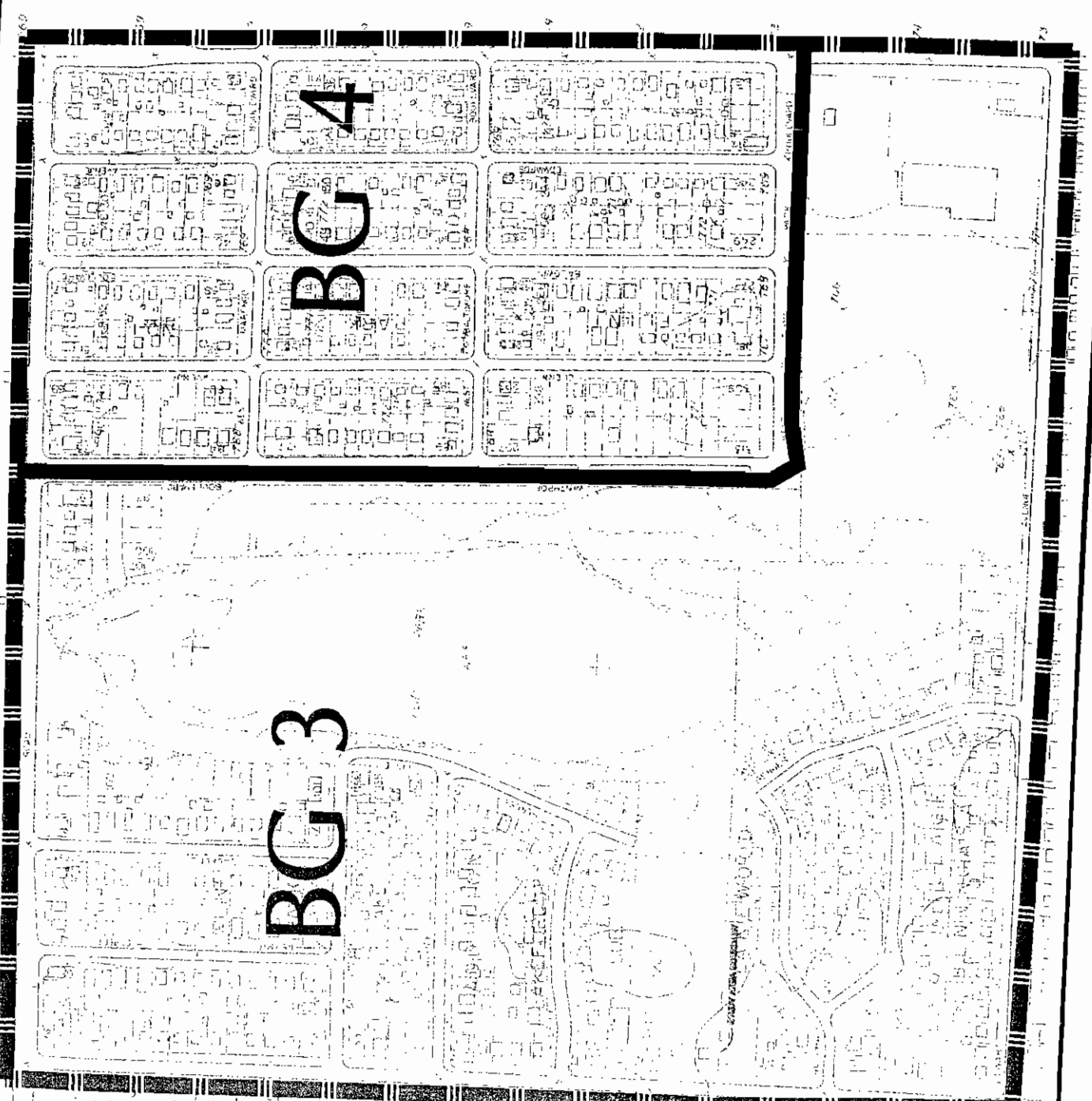
The Flint Park Lake is covered by two census block groups. Census block groups are the smallest geographic area for which substantial demographic information is available, and is composed of several blocks. Block group three includes the residential neighborhood on Woodhull Drive and Brent Drive which are not part of the CDC area but there is no way to separate out the data. The census information that was collected in April 2000 is still being analyzed and released. Information from the "sample census" was not available at

the time of this report. Information that was available was used. In other instances the 1990 figures were used because the comparable 2000 census information has not been released. The year of the data is noted in the title of each table.

CENSUS TRACT BLOCK GROUPS



ROWE INCORPORATED
4811 TAYLOR DRIVE, PLANT, LA 70077
PREPARED FOR THE CITY OF PLANT CANNON DEPT.



BG 4

BG 3

BG 3

BG 3

COMMUNITY INPUT

COMMUNITY INPUT

Due to the nature of the CDC as a "grass-roots" initiative, the need for community input was a priority. This input provided the basis for developing the character, priorities and guidelines for future improvements within the Flint Park Lake district. The following methods were used to gather public participation.

CDC Meetings

Standing monthly meetings of the CDC are held at Mt. Carmal Kennedy Activity Center, located adjacent to the project area. The public is welcome and encouraged to attend. Meetings of the CDC are intended to be on-going through implementation and maintenance of this plan.

Public Workshops

A series of public workshops were held at the Hasslebring Community Center, near the project area. Two daytime and two evening sessions were advertised in local newspapers and announced on local television news programs. Each property owner within the project area received an invitation to these meetings through direct mail and door to door in person requests by CDC members on the day of the sessions. A copy of the announcement for these workshops is located in Appendix A.

Almost 50 community members attended the sessions. Each participant was informed of the CDC and its goals and was asked to identify issues which they felt needed to be addressed. Base maps had been generated for the project area including individual housing units, topography, roads, storm and sanitary systems. Each comment was identified specifically on base maps. These comments and maps were used later by the CDC to develop and prioritize issues.

Visual Preference Survey

A visual preference survey was included as part of the workshop sessions. This was used to document actual images of the positive and negative issues that were being described by community members. This information provided an accurate depiction of what the CDC would hope to both eliminate and emulate in proposed improvements.

Each workshop participant and member of the CDC was provided a disposable camera. A written outline was provided and described to each person as to the intent and directions on how to participate in the survey. In general, they were asked to take pictures of images in the community of design elements that they liked or disliked. Examples were provided such as features of buildings, streets and neighborhood character. An additional form was included for individual comments on each picture. The film was collected and processed, at no charge to the participant, by the Flint Area Enterprise Community, Inc.

Responses to the survey were reviewed by ROWE and included in a presentation / public meeting at the community center. This meeting was also heavily promoted to the general public. Attendants clarified the intent of many of the photos received and added additional issues. Each issue was listed and voted on by each participant to determine priority. Comments from this public meeting were used to develop a preliminary list of Visual Preference Survey Results. These results and copies of the Visual Preference Survey forms are included in Appendix A.

The survey results were presented at the following CDC meeting and verified with additional comments and detailed description. Additional public input will be within the CDC review and comment on this document.

Summary of Proposed Improvements

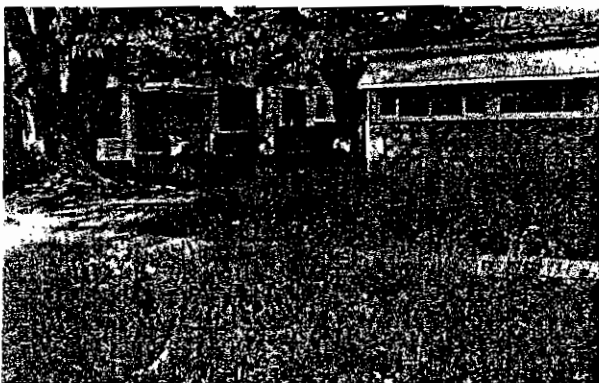
The following issues need to be addressed; listed in priority as determined by the CDC.



Priority 1 Flooding, storm sewers and drainage

Recommend:

- ◆ Better maintenance by City
- ◆ Local system improvements
- ◆ Regional system / watershed improvements



Priority 2 Vacant buildings (existing)

Recommend:

- ◆ Demolish vacant and hazardous structures as necessary



Priority 3 Dumping and trash (existing)

Recommend:

- ◆ Clean up
- ◆ Better collection service
- ◆ Neighborhood watch program for dump areas
- ◆ Clear vegetation, open visibility of potential dump sites



Priority 4 Housing (proposed)

Recommend:

- ◆ Home ownership, new and upgrades
- ◆ Mixture of ranch and 2 story single family
- ◆ 1,100-1,500sft on 0.1 to 0.25 acre lots
- ◆ 20-25' setback off street
- ◆ Attached and separate garages
- ◆ Porches with completed landscaping
- ◆ Miscellaneous features regulated by Homeowners Association:
 - privacy fencing
 - limited rental property
 - quality materials
 - property maintenance and upkeep
- ◆ **No** multi-family housing
- ◆ Premium, first priority housing should be located along the lake. The CDC desires homes along the shore to add value to the development and minimize common areas used for dumping, etc.



Priority 5 Road conditions (proposed)

Recommend:

- ◆ Improve existing roads first
- ◆ New pavement, 2 lanes of traffic and 1 lane of parallel on-street parking
- ◆ Sidewalks part of development
- ◆ Paved driveways, no alleys
- ◆ Cul-de-sacs are acceptable



Priority 6 Shoreline (existing)

Recommend:

- ◆ Clear vegetation
- ◆ Implement summer work program to maintain
- ◆ Limit public access along shore and to lake
- ◆ Locate housing along lake
- ◆ Create a park and trails along flooded portions of Winthrop Blvd where existing houses are



Priority 7 Street amenities (proposed)

Recommend:

- ◆ Replace existing wood pole "cobra-head" lights with ornamental poles and fixtures

Other Issues

Additional items, not covered in priority listing included stocking the lake with fish and future land uses. The CDC would like to attract a supper club, bait shop, skill center and neighborhood school as part of the rehabilitation or infill.

These priority items and recommendations will be addressed in more detail within separate sections of this report.

EXISTING LAND USE

EXISTING LAND USE

The dominant land use in the Flint Park Lake area is single family residences. The homes are located on relatively narrow lots laid in a “grid iron” pattern. Residences predominate not only along the local streets in the interior of the neighborhood, but also along the major streets that serve as the boundary for the project area.

Another major land use is the lake and recreational land associated with it, which are part of the City of Flint’s Parks and Recreation system. Flint Park Lake is located in the southeast portion of the redevelopment area. A discussion of the City’s plans for redevelopment of the park is contained later in this plan.

Commercial development represents the third major land use in the area, although it takes up a significantly lower amount of land than the first two uses. Most of the commercial uses are located in clusters along the edge of the area, with frontage along one of the major border streets with single family residences separating the clusters. The principal exception is Moon’s Funeral Home, which is located in the interior of the development area.





Vacant land is the fourth major category in the Flint Park Lake Area. It is primarily the result of the demolition of deteriorated homes in the community by the City as a defense against blight in the community. The vacant lots are scattered throughout the neighborhood.

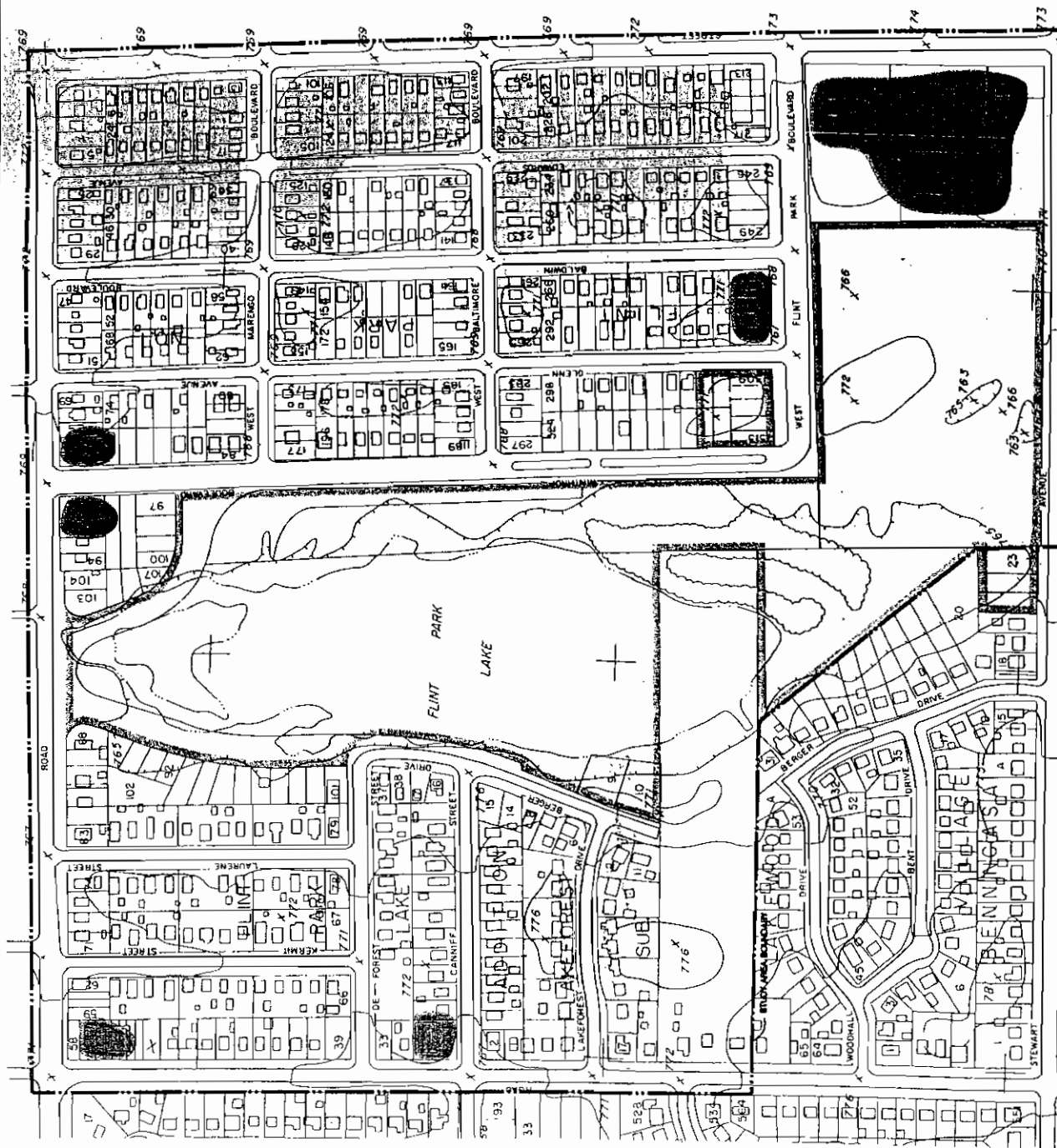
Zoning

The City’s zoning follows the current land use. Zoning in the area include:

- A-2, Single Family Medium Density District - Covers most of the area
- B, Two Family District - Two small areas Located near the corner of Pierson Road and Winthrop Street and just north of West Flint Park Blvd and Baldwin Street.
- C-1, Multi-Family Walk-up Apartment District - In the area of Moon Funeral Home
- D-2, Neighborhood Business District - The major intersections at the edge of the project area

FLINT PARK LAKE STUDY AREA EXISTING CONDITIONS

-  Concentration of Buildings in Good or Fair Condition
-  Commercial Building
-  City Owned Land
-  Study Area Boundary



HOUSING

HOUSING CHARACTERISTICS

A housing quality survey was conducted as part of the existing land use survey performed in late 1999. The survey was a "windshield" type, where the structure was evaluated solely on the condition of the exterior. Conditions considered were condition of the siding, porches and windows, signs of sagging roof lines or missing roof shingles and failing or deteriorating foundations.

The information was plotted over a base map of the city prepared in 1965. The Homes Demolished Map shows homes that have been torn down in the past 34 years and the existing homes that should be removed. In addition, the map shows where there are concentrations of homes that are in poor condition. Table one shows the age of the existing housing as of 1990 census. While older homes are not necessarily in worse shape than newer homes, there is generally a correlation between age and housing quality. The Flint Park Lake CDC has a higher concentration of older homes than the city as a whole.

Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Year structure built					
1989 to March 1990	438	0	0	0	0
1985 - 1988	536	0	15	15	2.80
1980 - 1984	862	0	0	0	0
1970 - 1979	4,664	27	8	35	0.17
1960 - 1969	10,615	38	66	104	0.62
1950 - 1959	16,553	60	28	88	0.17
1940 - 1949	9,817	57	37	94	0.38
1939 or earlier	15,239	36	99	135	0.65

The value of housing is also a reflection of housing quality, although other factors, including the quality of the neighborhood and the general size of homes in a particular area also impact their value. Table A shows that the value of homes in the Flint Park Lake project area is considerably below the median value of housing in the City of Flint

Table B 1990 Census Data Value of Housing					
Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Value of owner occupied housing unit (in dollars)					
Less than 15,000	1,828	20	31	51	1.70
15 - 19,999	2,208	7	32	39	1.45
20 - 24,999	2,969	16	24	40	0.81
25 - 29,999	3,938	24	0	24	0
30 - 34,999	4,616	13	0	13	0
35 - 39,999	4,060	13	0	13	0
40 - 44,999	2,644	0	0	0	0
45 - 49,999	1,788	0	0	0	0
50 - 59,999	2,058	8	0	8	0
60 - 74,999	1,476	0	0	0	0
75 - 99,999	779	0	0	0	0
100 - 124,999	279	0	0	0	0
125 - 149,999	60	0	0	0	0
150 - 174,999	43	0	0	0	0
175 - 199,999	20	0	0	0	0
200 - 249,999	29	0	0	0	0
250 - 299,999	18	0	0	0	0
300 - 399,999	19	0	0	0	0
400 - 499,999	0	0	0	0	0
500,000 +	5	0	0	0	0
Median Value	33,800	26,600	17,600	N/A	N/A

Table B shows the breakdown of housing types in the area according to the 1990 census, the most recent year this data is currently available. It shows that the vast majority of the dwelling units in the area are single family detached units. The census indicates that there are also 31 attached units in the area. These were not identified in the housing survey, but may primarily consist of apartments inside existing single family residences rather than duplexes or townhouses and so were difficult to identify. The information shows that there are currently no multi family residences in the project area.

Table C 1990 Census Data Housing Types					
Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Type of units					
1, detached	42,381	218	222	440	0.52
1, attached	1,160	0	31	31	2.67
2	3,982	0	0	0	0
3 or 4	2,756	0	0	0	0
5 to 9	2,169	0	0	0	0
10 - 19	1,816	0	0	0	0
20 - 49	635	0	0	0	0
50 or more	1,465	0	0	0	0
Mobile home or trailer	1,726	0	0	0	0
Other	634	0	0	0	0
Total dwelling units	58,724	218	253	471	0.43

In considering strategies for revitalization of the Flint Park area, these conditions were considered. The CDC's policy was to recommend the minimum disruption to the existing community. In portions of the community where the houses were in good or fair condition, it may be possible to address the deterioration by rehabilitation of existing homes, construction of new homes as infill on vacant lots and spot removal of vacant homes as needed. In areas where there is a considerable concentration of vacant lots and homes in poor condition, it may be more appropriate to redevelop that portion of the neighborhood by clearing the remaining homes and building new.

Ownership

Slightly over half the homes in the Flint Park Lake project area are rental units. This compares with the City as a whole, in which almost 59% of all dwelling units. There are no public housing developments in the area, so all of the current rental housing is provided by the private sector, possibly with support from the Section 8 rental assistance program. Impact on existing renters may include incentives for either the landlord or renter to enter option to buy clauses. The desire of the CDC is to encourage owner occupied dwellings. A limited amount of rental property may be included as determined by the CDC. In light of limiting rental property, the inclusion of multi-family housing or even cluster development will be discouraged.

Table D 2000 Census Data Housing Occupancy and Tenure					
Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Housing Units	55,464	174	187	361	0.6%
Occupancy					
Occupied	48,744	148	150	298	0.6%
Vacant	6,720	26	37	63	0.9%
Tenure					
Owner Occupied	28,679	88	59	147	0.5%
Renter Occupied	20,065	60	91	151	0.7%

Type and Size

The CDC proposed a mixture of single family residences house styles, both single and two-story. The sizes will range from 1,100 to 1,500 square feet. Some housing will be infill on existing lots where vacant structures were demolished. They proposed that new development areas should include lots that are from 0.1 acre to 0.25 acres. This provides a minimum lot of approximately 100' x 50' to 140' x 80'. The CDC felt that homes should include a minimum front setback of 40' from the curb to establish the desired neighborhood character.

Housing Quality

Quality materials and construction methods shall be used to insure the long term sustainability of the community. Development will follow standards per the State Building Code.

Miscellaneous Features

Additional features for new housing will include a mixture of attached and separate garages and porches to provide variety. Landscaping will be completed by the developer. The CDC proposes that new street trees should be installed, to be selected by home owners from a pre-approved list per the City of Flint.

FLINT PARK LAKE STUDY AREA HOMES DEMOLISHED 1965-2000

- Existing Structures (Residential)
- Commercial Structures (Residential)
- Demolished Homes (Residential)



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6211 TAYLOR DRIVE, FLINT, MI 48807
PREPARED FOR THE CITY OF FLINT CREC DEPT



POPULATION

POPULATION CHARACTERISTICS

The 2000 census showed 996 persons in block groups 3 and 4, which represented 0.8% of the population of the city. This is down from 1,338 in 1990. These residents formed 298 households which represented only 0.6% of all households indicating that the average household size in the district was somewhat larger than the city on average.

Race

The racial distribution of the population in the Flint Park Lake neighborhood was 88.8% black and 6.4% white according to the 1990 census. This compared to 53.3% black and 41.4% white for the city as a whole.

Income

More of the residents in Flint Park Lake tended to be poor in comparison with the City of Flint as a whole. The median income in 1989 in block group 3 was \$15,625 and the median income in block group 4 was \$9,334 compared with a median income city-wide of \$20,176.

Over 44.7% of the people living in the Flint Park Lake area fell below the poverty line in 1989 compared with 30.6% in the city as a whole.

Age

The residents of the Flint Park Lake tend to be younger than the residents of the city as a whole. According to the 2000 census there were a higher percentage of residents in the age groups from 1 to 24 in the Flint Park Lake area than the City of Flint. The median age is dramatically lower in the project area in comparison with the city as a whole

Table E
2000 Census Data
Population/Race

Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Population	124,943	482	514	996	0.8%
Households	48,744	148	150	298	0.6%
Race					
White	51,710	47	17	64	0.1%
Black	66,560	429	455	884	1.3%
American Indian, Eskimo, or Aleut	798	1	15	16	2.0%
Asian or Pacific Islander	566	0	0	0	0
Other Race	1,384	0	0	0	0
Two or more races	3,925	5	17	22	0.5%

Table F
2000 Census Data
Age

Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Age (in years)					
Under 5	11,202	60	65	125	1.1%
5-9	11,871	64	69	133	1.1%
10 -14	10,036	50	78	128	1.3%
15 -19	9,014	46	45	91	1.0%
20 - 24	9,048	35	42	77	0.9%
25 - 29	9,728	24	37	61	0.6%
30 - 34	9,102	31	34	65	0.7%
35 - 39	8,860	27	28	55	0.6%
40 - 44	9,052	26	40	66	0.7%
45 - 49	8,029	33	24	57	0.7%
50 - 54	6,873	21	15	36	0.5%
55 - 59	5,004	15	12	27	0.5%
60 - 64	4,060	11	8	19	0.5%
65 - 69	3,846	11	5	16	0.4%
70 - 74	3,427	9	4	13	0.4%
75 - 79	2,731	5	6	11	0.4%
80 - 84	1,719	3	3	6	0.3%
85+	1,361	1	3	4	0.3%
Median Age	30.8	22.9	20.3	N/A	N/A

Table G 2000 Census Data Households					
Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Household Composition					
1 person	15,532	22	26	48	0.3%
Married-couple families	14,125	41	35	76	0.5%
Other families, male head of household	2,725	16	7	23	0.8%
Other families, female head of household	13,408	67	76	143	1.1%
Non-family households	2,954	2	6	8	0.3%
TOTAL HOUSEHOLDS	48,744	148	150	298	0.6%
Average Household Size	2.51	3.26	3.43	N/A	N/A

Table H 1990 Census Data Housing Types					
Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Type of units					
1, detached	42,381	218	222	440	0.52
1, attached	1,160	0	31	31	2.67
2	3,982	0	0	0	0
3 or 4	2,756	0	0	0	0
5 to 9	2,169	0	0	0	0
10 - 19	1,816	0	0	0	0
20 - 49	635	0	0	0	0
50 or more	1,465	0	0	0	0
Mobile home or trailer	1,726	0	0	0	0
Other	634	0	0	0	0
Total dwelling units	58,724	218	253	471	0.43

Table I
1990 Census Data
Household Income

Census Data	City of Flint	Block 3	Block 4	Total	% of City Total
Income in 1989 (in dollars)					
Less than 5,000	7,086	42	60	102	0.85
5,000 - 9,999	9,112	19	55	74	0.60
10,000 - 14,999	5,988	33	6	39	0.10
15,000 - 24,999	8,312	20	36	56	0.43
25,000 - 34,999	6,549	16	15	31	0.23
35,000 - 49,999	8,534	8	21	29	0.25
50,000 - 74,999	5,991	46	22	68	0.37
75,000 - 99,999	1,776	8	6	14	0.34
100,000 - 149,000	389	0	0	0	0
150,000 +	145	0	0	0	0
Median Income	20,176	15,625	9,334	N/A	N/A
# persons living below poverty level	42,218 (based on population of 138,058)	246	353 (based on population 698)	599	1.42

INFRA- STRUCTURE

INFRASTRUCTURE

The infrastructure within the Flint Park Lake redevelopment area consist primarily of water, sewer, storm sewer, streets and street lighting. As part of the investigation of the condition of utilities ROWE staff conducted interviews with city DPW staff, reviewed as-builts of utilities in the area, conducted site visits and discussed residents' concerns during the community visioning session conducted as part of this process.

Storm Sewers

Flooding of residences along Flint Park Lake was by far the major concern of residents in the neighborhood. Any significant rainfall results in ponding along Winthrop Blvd. and one abandoned home had flooding in its basement up to the top step. Several major storm events over the past 30 years have resulted in flooding of many homes along the east side of Flint Park Lake.

The storm sewer system that serves the Flint Park Lake area is part of Flint's city-wide system. Four major storm lines, draining portions of the city east, west and south of the area, drain into Flint Park Lake. These include a 54" sewer along Marengo Avenue, a 53"x83" sewer along Baltimore Boulevard, a 60" sewer off of Burger Drive, and a 30" sewer off of Defreest Street (see composite map of storm sewer districts). The lake serves as a storm water detention basin for this part of the city's system. The lake, in turn, is drained through a 48" tube at the north end of the lake that crosses under Pierson Road into a 72" storm line that travels north along Fleming Road to the Brent Run Creek Drain. There are several possible reasons for the flooding problems in the Flint Park Lake area.

1. The catch basins within the neighborhood are not adequately maintained, and blockage of these catch basins are causing local flooding. Visual inspection by ROWE, comments to residents by DPW staff and comments to ROWE staff by residents all indicate that this is at least a portion of the problem. A regular maintenance schedule of catch basin cleaning, along with yearly reports to the Flint Park CDC on the status of that maintenance is recommended.
2. The flow into Flint Park Lake during a storm event exceeds the capacity of the lake, causing overflow of the lake banks and backups to the catch basins. Because the lake is part of a much larger storm drainage system, study of this issue is beyond the scope of this report. It is possible that a study of the drainage area flowing into the lake was conducted when the outlet across Pierson Road was engineered. If so, that study should be reviewed to determine if, under current circumstances, the size and depth of the outlet is appropriate.
3. The outlet across Pierson Road and the drain leading north to the Brent Run Creek Drain are blocked with debris, reducing their capacity. There is anecdotal evidence from DPW staff interviews and from DPW staff working on cleaning out the outlet indicating that both the outlet and the drain are blocked, reducing their capacity to drain water from the lake during a storm event. A regular maintenance schedule of catch basin cleaning, along with yearly reports to the Flint Park CDC on the status of that maintenance is recommended.

4. The storm drain sewers north of Flint Lake Park are undersized for the flows coming from Flint Park Lake and the other drainage areas to the north, causing the outlet at Pierson Road to back up. Study of this issue is beyond the scope of this report, but should be investigated by the city.

Water System

The water system is characterized primarily by six and eight inch water lines that provide service to the individual residences, commercial uses and to fire hydrants (see map). Most of these lines were installed in the 1920's and are over 80 years old. Because the future land use plan does not propose a significant increase in density or commercial development, there does not appear to be a need to increase the size of lines servicing the area, except for the 6" lines. Because it is recommended that the streets be reconstructed, the water lines should be replaced at the same time.

Sewer

The sanitary sewer system consists primarily of eight, ten and twelve inch lines that provide service to the individual residences and businesses (see map). Most of these lines were installed in the 1920's and are over 80 years old. Because the future land use plan does not propose a significant increase in density or commercial development, there does not appear to be a need to increase the size of lines servicing the area. However, due to their age and location under the road, the sanitary should be replaced at the same time the roads are reconstructed.

Streets

The streets within the Flint Park redevelopment area are primarily concrete with an asphalt overlay and concrete curb and gutter. A survey of the streets was conducted in the spring of 2000. The results are shown on the road quality map. Most of the streets are rated in bad or moderate condition. Efforts have been made recently to address some of the more severely deteriorated streets by recapping the existing asphalt surface. These are only interim solutions. With the failure of the subbase and underlying concrete surface, the new asphalt will suffer from reflective cracking and will deteriorate prematurely. It is therefore recommended that the local streets in the area be reconstructed, and the opportunity be taken to repair the underground utilities and relocate them as appropriate.

Some of the streets that are adjacent to the lake have been blocked off to reduce the opportunity for illegal dumping along and into the lake.

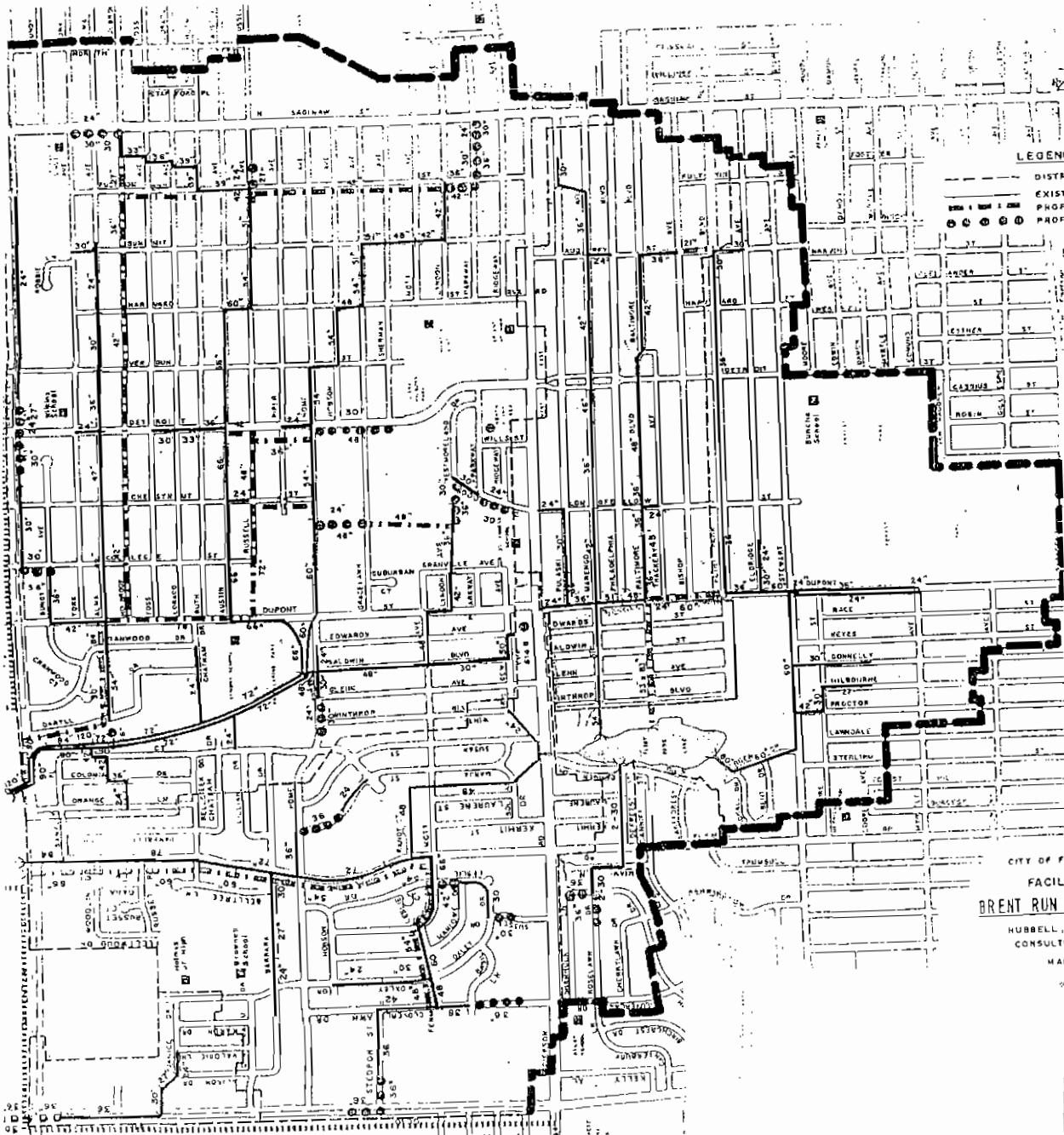
Cost

The cost of repair or replacing the existing infrastructure is \$6,870,526. The cost details are in Appendix C.

FLINT PARK LAKE STUDY AREA STORM SEWER MAP



ROWE INCORPORATED
8201 PATRICK DRIVE, FLINT, MI 48807
PREPARED FOR THE CITY OF FLINT GRAD DEPT



LEGEND
 DIST
 EXIST
 PROP

CITY OF
FLINT
 HUBBELL,
 CONSULTING
 ENGINEERS

FLINT PARK LAKE STUDY AREA WATER MAIN MAP

Water Use



ROWE INCORPORATED
8111 LAKE DRIVE, FLINT, MI 48807
PREPARED FOR THE CITY OF FLINT, MI DEPT



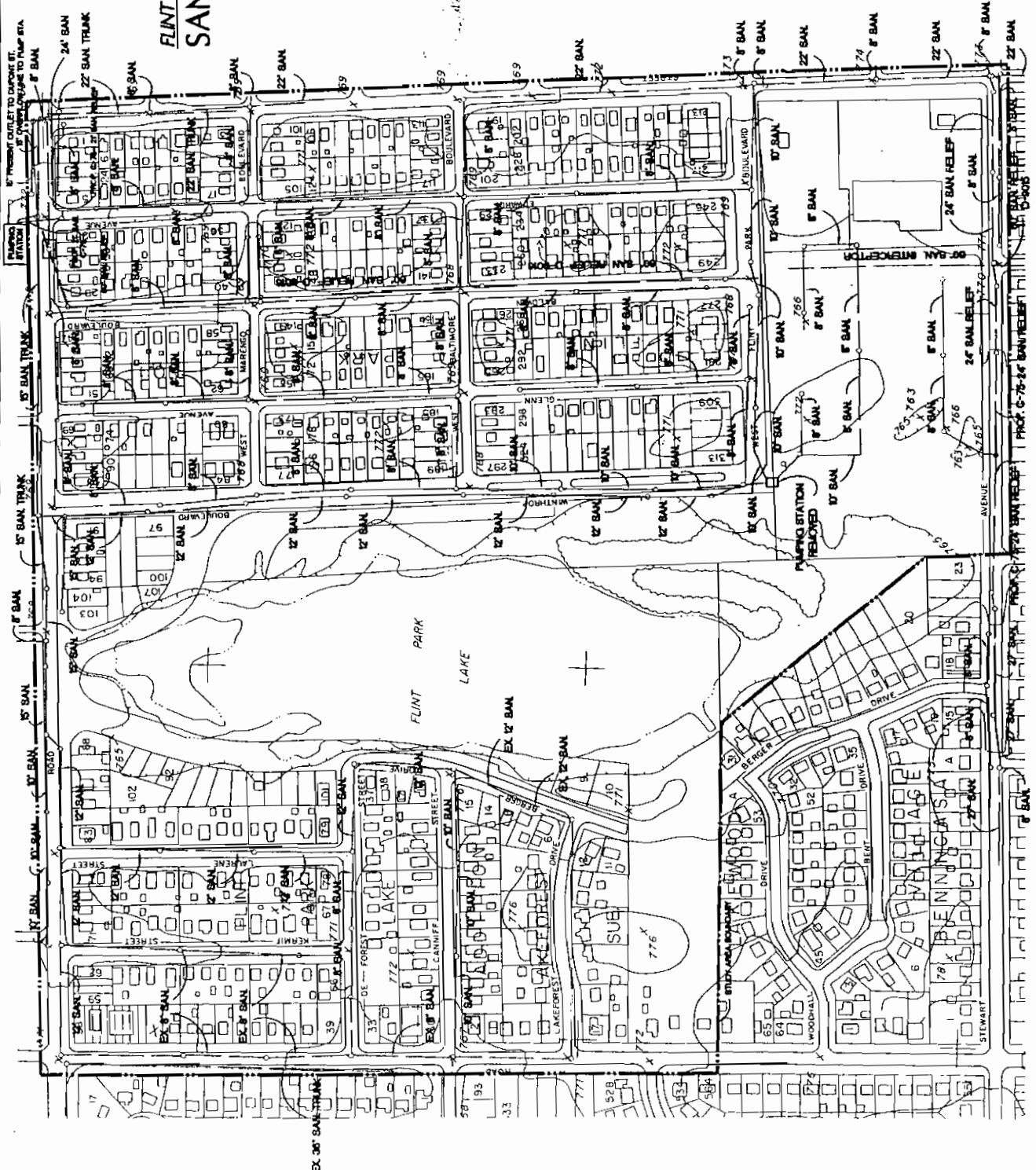
FLINT PARK LAKE STUDY AREA SANITARY SEWER MAP

Sanitary Sewer Line

Sanitary Sewer Line



ROWE INCORPORATED
611 HANCOCK BLVD. FLINT, MI 48830
PREPARED FOR THE CITY OF FLINT FIELD DEPT.

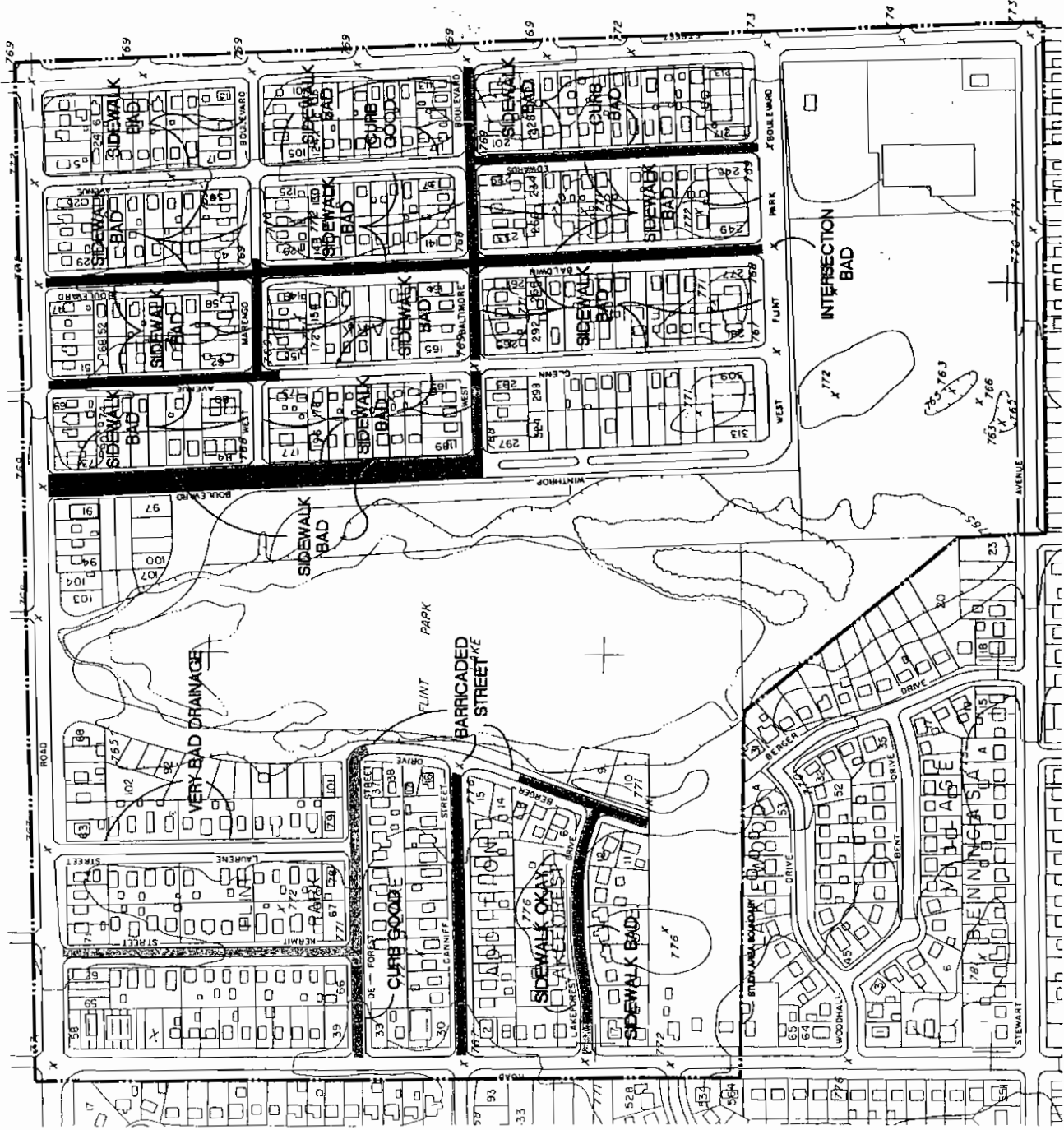


FLINT PARK LAKE STUDY AREA ROAD QUALITY MAP

- Good Condition (Asphalt)
- Moderate Condition (Asphalt)
- Bad Condition (Asphalt)
- Good Condition (Concrete)
- Moderate Condition (Concrete)
- Bad Condition (Concrete)



ROWE INCORPORATED
 6311 TAYLOR DRIVE, FLINT, MI 48307
 PREPARED FOR THE CITY OF FLINT CARD DEPT.



NATURAL FEATURES

NATURAL FEATURES

The Flint Park Lake was studied by ECT to determine current water quality, the condition of the current lake bottom and the potential for increasing the recreational opportunities in using the lake and in improving overall lake quality. The complete lake study begins on the next page.

FLINT PARK LAKE STUDY PREPARED BY ECT

Flint Park Lake sediment and water sampling was completed on October 31 and November 1, 2001. Sample sites were selected to 1) give a wide spatial profile of the lake, 2) sample suspected depositional zones within the lake, and 3) look at localized impacts from the major storm sewer outfalls to the lake. Sample locations were established by use of a Global Positioning System (GPS).

Eight locations were sampled in the lake for water quality as shown on Figure 1 and eight locations for sediment quality as shown in Figure 4. Sediment thickness, referred to as "push" in the data tables, was evaluated at 11 locations throughout the lake as shown in Figure 2. In addition, a series of water depth to sediment measurements were taken throughout the lake. These depth measurements were utilized to determine the lake depth contours shown in Figure 3.

The following sampling was done at each of the water quality/sediment locations:

- Sediment samples were analyzed for metals, petroleum hydrocarbons (oils), phosphorus, and nitrogen.
- PCB analysis was conducted on two sediment samples (FPL-S3 and FPL-S5)
- Bathymetry: including water depth and sediment thickness.
- Vertical water column water quality profiling for dissolved oxygen, pH, conductivity, Oxidation/Reduction Potential, and temperature at all eight water quality locations using an automatic water quality probe.
- One discrete depth water quality laboratory sample for total suspended solids, total phosphorus, ammonia, nitrate, and total nitrogen.

The discrete depth water quality profile samples were collected at mid-depth in the water column at each station.

Laboratory water samples were sent by overnight shipment to Kar Laboratories in Kalamazoo, Michigan in accordance with a contract between the City of Flint and Kar Laboratories. All samples were collected, stored, shipped, and analyzed in accordance with EPA approved techniques and methods.

Sediment samples were transported to the AAC Trinity, Inc. laboratory in Farmington Hills, Michigan in accordance with standard ECT procedures. All samples were collected, stored, shipped, and analyzed in accordance with EPA approved techniques and methods.

Tables 1–3 present a summary of the analytical results of the water and sediment samples. Table 4 shows the results of sediment depth "push" measurements as well as observations at the near shore manholes in each of the storm sewers tributary to Flint Park Lake.

The analytical results indicate the following:

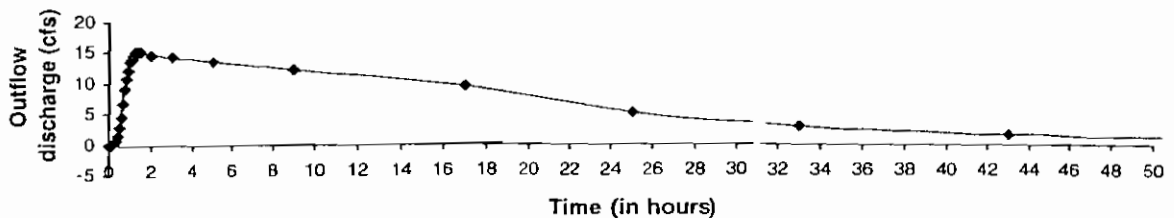
1. Ammonia-nitrogen concentrations in the water are elevated above Water Quality Standard toxicity levels. Ammonia nitrogen concentrations were generally in the 1.1 mg/l range and the ammonia toxicity concentration is generally considered to be approximately 0.2 mg/l.

2. Dissolved oxygen concentrations are consistently below the 5 mg/l Water Quality Standard for warm water fish.
3. The lake is basically homogeneous with respect to water quality with some possible stratification at the 14 to 16 foot depth.
4. Water depths range from 1.5 feet to 20 feet based on extrapolation of the depths at the measured locations.
5. Sediment thickness ranged from 4 feet to greater than 13 feet at the measured locations.
6. Total nitrogen concentrations in the sediment samples are slightly elevated.
7. Concentrations of metals at all sediment sampling locations exceed the Michigan Department of Environmental Quality (MDEQ) groundwater/surface water interface (GSI) criteria. It is possible that the metals in the sediment would not leach into the water from the sediment and the sediment would therefore not be subject to the criteria. However, the only way to determine this for sure is to conduct leachability analysis on the sediment to determine if the metals would in fact leach out of the sediment and into the water column. If metals leach out of the sediment, vertical sampling would be required to determine the depth of the potential sediment contamination and therefore the volume to be removed. MDEQ would most likely request this type of information.

Estimated Peak Flows

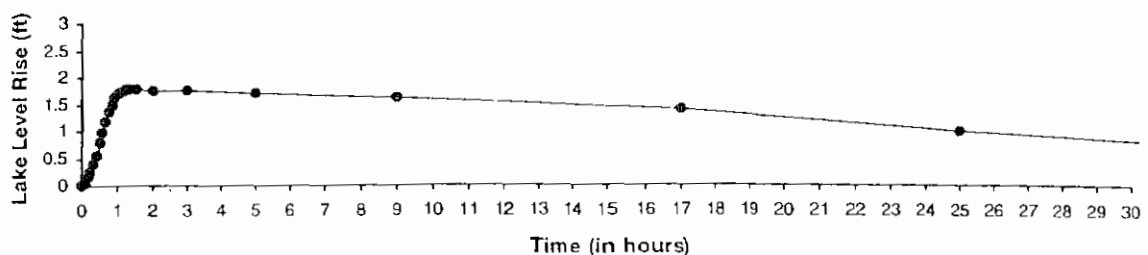
Based upon a 1975 Hubbell Roth & Clark (HRC) study, Flint Park Lake had a peak outflow of 15 cubic feet per second (cfs) at a ten-year storm frequency.

10 Year Flood Outflow Hydrograph Based on Hubbell Roth and Clark Study in 1975



The influent to Flint Park Lake from the tributary storm sewer areas for the same ten-year storm frequency was calculated to result in a rise in the lake level of 1.84 feet.

Lake Level Rise Based on Hubbell Roth and Clark Study in 1975



The Brent Run district outlet at Mott Street has a capacity of 36 cfs based on the following measurements and calculations:

Invert at 48" pipe at Mott = $761.80 + 3.20 = 765$ ft

- ⇒ Grade differential over 1386 feet = 0.84 feet
- ⇒ Slope of 48" pipe = $0.84 / 1386 = 0.06\%$
- ⇒ Capacity of 48" pipe @ 0.06% = 36 cfs

Based on these calculations, it appears that there should be sufficient capacity within the Brent Run outlet to handle the discharge from Flint Park Lake during a ten-year frequency storm. However, this storm frequency will result in an increased lake surface elevation of approximately 1.84 feet. Higher frequency storms would result in greater discharges to the lake and the lake level would rise even higher, possibly resulting in localized flooding.

There are a few general hydraulic issues that need to be addressed to aid in the selection of flood control or water quality control alternatives. They include, but are not limited to:

- In HRC's report the water surface elevation was 764 feet. In the HRC report a rise of 1.84 feet in the lake level was anticipated for a 10-year storm, based on this 764 surface elevation. If the surface elevation is different today, the elevation resulting from the same storm intensity might result in a different lake level rise. Confirmation of this information is necessary to make management decisions with respect to flood control measures and in the selection of potential best management practices to address this issue. The surface elevation should be resurveyed and a staff gauge installed at the outlet to determine present "dry weather" static lake elevation and have a method for determining "wet weather" surface elevations.
- Based on HRC's study and recent field observations, the outlet structure's inlet is below the water surface and the lake surface water level is not dropping to the outlet elevation. This observation implies that one of the following scenarios must be occurring: 1) the water coming into the lake on a "dry weather" basis from the storm sewers is equal to the lake out flow, or 2) the groundwater elevation in the area is that of the lake surface elevation, or 3) the lake is spring fed, or 4) there is a downstream restriction from the outlet, or 5) a combination of these factors. This needs to be answered in order to determine what the surface water elevation would be under different flooding scenarios, how different best management practices could potentially be installed, and what effect dredging would have on the different management options. Installation of piezometers in the area would provide data on the water levels. Additionally, inspection of the Flint Park Lake and Mott Street outlet structures, and possibly the line from the lake to the Mott outlet, would aid in determining if there is a restriction in the line.
- Is there sufficient capacity available in the Brent Run Drain outlet line, considering additional inputs downstream from Flint Park Lake, to allow for a greater discharge from Flint Park Lake during "wet weather" conditions if a larger outfall structure were to be installed in the lake?

Lake Restoration Recommendations

Flint Park Lake has the potential to be a positive asset to the Flint Park Lake area. A major issue that needs to be addressed in conjunction with recommendations arising from the lake study is that the trash evident all along the shoreline of the lake needs to be removed and educational and administrative measures need to be instituted to assure that the lake remains trash free.

Fisheries Recommendations

The dissolved oxygen (DO) in the lake needs to be maintained above 5 mg/l to sustain/maintain a fishery in the lake. Tolerant species could survive with the present water quality but with increased dissolved oxygen, more desirable "pan fish" type species could be introduced. Sediment removal and aeration of the water would aid in increasing the DO in the lake. The influent storm water should also be "treated" to reduce the nutrients, suspended materials, and ammonia nitrogen entering the lake.

Sediment Removal / Recontouring

The need for sediment removal and therefore a recontouring of the lake is dependent on a variety of issues:

- Do the sediment metal contamination levels require sediment removal? How deep is the sediment that needs to be removed? Leachability testing would provide the necessary data for leachability determination and sediment core sampling and analysis would provide the answer to the depth question.
- The sediment oxygen demand is typically fairly high in lakes of this type. This partially accounts for the very low DO in the lake near the sediment/water interface. Removal of the sediment would aid in increasing the DO concentrations in the deeper portions of the lake.
- Do areas of the lake require sediment removal as part of a storm water quality control best management practice structure? If some areas were to have sediment fore bays or wetland filters, some sediment removal would be required in order to properly construct the structures.
- The need for additional water storage under wet weather conditions to alleviate/eliminate flooding in the local neighborhood areas may possibly be accomplished by removal of some sediment. The potential success of this option would depend on the results of a study to determine the "dry weather" inputs to the lake.
- Sediment removal would be done by dredging (mechanical or hydraulic dredge). Cost for dredging alone can range from \$3 - \$9 a cubic foot depending on the volume, depth, and physical characteristics. For example, based on the basic information obtained, the sediment ranges in thickness from 4 feet to >13 feet. If you use an average depth of 8 feet over 12 acres, there is approximately 155,000 cubic feet of sediment that would have to be removed, which would cost \$930,000 (using \$6/cubic foot). The sediment would most likely have to be hauled to a landfill and these disposal costs would be in addition to the removal expense.

Recommendation for Addressing Storm Water Inputs to the Lake

1. No action (this is not a reasonable alternative for lake restoration)
2. Construct wetlands at the south and east sides of the lake (Figure 5). Discharge the storm water into the wetlands areas for ammonia reduction and sediment/floatable removal. Construct the overflow from the wetland to increase dissolved oxygen or install physical aeration.
3. Construct an interceptor along the east and west sides of the lake and transport the storm water to a "fore bay" area at the south end of the lake (Figure 6). The fore bay would allow for sedimentation/skimming and possible aeration through the overflow structure or physical aeration.
4. Combination of wetland construction along the east side of the lake, an interceptor sewer to divert the west side storm water to the south end and a fore bay or wetland construction at the south end (Figure 7).
5. Cutting some if not all of the storm sewer outlets back to allow for more positive drainage out of the sewers so that they do not contribute to flooding by becoming a restriction.
6. Removing soil and cutting back the outlet on the east side where flooding of the park area and road occurs. This would include the installation of small sediment fore bay and wetland system. Benefits as described in 2 above.
7. Construction of small sediment fore bay/wetland polishing systems on each of the inlet structures. Benefits as described in 2.

As with any restoration plans the public and officials priority of needs becomes one of the necessary inputs, since different plans strike differing balances between flood control, water quality, sediment quality, and fishery management. Based on the limited data gathered in this study the above options and conclusion can provide the CDC with a starting place for future planning for the lake. However, there is also a great need for additional basic information on the above issues in order to decide on the best restoration options, develop engineering plans for implementation, and estimate costs.

Funding Options

The following is a list of potential funding sources. Funds may be available through some or all of these sources depending on the proposed use of the funds (additional investigation, design, or implementation):

- Michigan Clean Michigan Initiative Funds
- Block Grant Money
- Michigan 319 Funds
- Private Foundations such as the Mott, Kellogg, and Beldon Fund

Summary

Flint Park Lake has a high potential to be an asset to the local community. The lake is capable of supporting a sports fishery if measures are implemented to improve the water quality that currently exists in the lake. Additional studies need to be completed to

determine the "dry weather" inputs to the lake and the leachability of sediment contaminants prior to determining the desirability of sediment removal in the lake and the best option for treatment/control of the storm water inputs to the lake. Once the input issues are resolved and decisions made regarding sediment removal and storm water treatment/control, a fisheries management program for the lake can be developed in conjunction with the Michigan Department of Natural Resources. These additional studies, and implementation of the resultant management alternative(s), may be fundable under various private and public funding sources.

Table 1: Flint Park Lake
Hydro Lab Water Quality Data
October 31, 2001

Date: 10/31/01 11:00am Total Depth: 7.0 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-1	2.0	8.52	4.8	609	7.27	290
FPL-W-1	4.0	8.52	4.7	610	7.27	293
FPL-W-1	6.0	8.50	3.0	605	7.26	302

Sample at 3.0 Feet

Date: 10/31/01 11:20am Total Depth: 12.5 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-2	2.0	8.49	4.8	610	7.27	316
FPL-W-2	4.0	8.44	4.2	612	7.27	321
FPL-W-2	6.0	8.42	4.2	612	7.26	324
FPL-W-2	8.0	8.42	4.2	612	7.25	327
FPL-W-2	10.0	8.44	4.2	611	7.23	330
FPL-W-2	12.0	8.44	4.2	612	7.24	335

Sample at 6.0 Feet

Date: 10/31/01 11:30 Total Depth: 11.0 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-3	2.0	8.42	4.2	610	7.23	269
FPL-W-3	4.0	8.44	4.1	609	7.24	275
FPL-W-3	6.0	8.44	4.2	610	7.24	280
FPL-W-3	8.0	8.44	4.3	607	7.23	258
FPL-W-3	10.0	8.42	4.0	609	7.22	241

Sample at 5.0 Feet

Date: 10/31/01 11:45 Total Depth: 6.0 Feet

Date: 10/31/01 12:15 Total Depth: 17.5 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-6	2.0	8.49	4.2	611	7.25	322
FPL-W-6	4.0	8.45	4.1	612	7.25	324
FPL-W-6	6.0	8.45	3.9	612	7.23	326
FPL-W-6	8.0	8.42	4	613	7.23	327
FPL-W-6	10.0	8.42	4	613	7.23	328
FPL-W-6	12.0	8.40	3.9	614	7.19	329
FPL-W-6	14.0	8.40	3.8	614	7.17	306
FPL-W-6	16.0	8.44	1	769	7.03	184

Sample at 8.0 Feet

Date: 10/31/01 12:25 Total Depth: 5.0 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-7	2.0	8.55	4.3	61	7.18	302
FPL-W-7	4.0	8.52	4.4	611	7.19	306

Sample at 3.0 Feet

Date: 10/31/01 12:40 Total Depth: 18.3 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-8	2.0	8.54	4.4	611	7.2	296
FPL-W-8	4.0	8.49	4.3	612	7.2	299
FPL-W-8	6.0	8.47	4.2	613	7.19	307
FPL-W-8	8.0	8.49	4.2	613	7.19	309
FPL-W-8	10.0	8.49	4.2	613	7.19	310
FPL-W-8	12.0	8.44	4.1	611	7.10	111

Table 1: Flint Park Lake
Hydro Lab Water Quality Data
October 31, 2001

Date: 10/31/01 11:00am Total Depth: 7.0 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-1	2.0	8.52	4.8	609	7.27	290
FPL-W-1	4.0	8.52	4.7	610	7.27	293
FPL-W-1	6.0	8.50	3.0	605	7.26	302

Sample at 3.0 Feet

Date: 10/31/01 11:20am Total Depth: 12.5 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-2	2.0	8.49	4.8	610	7.27	316
FPL-W-2	4.0	8.44	4.2	612	7.27	321
FPL-W-2	6.0	8.42	4.2	612	7.26	324
FPL-W-2	8.0	8.42	4.2	612	7.25	327
FPL-W-2	10.0	8.44	4.2	611	7.23	330
FPL-W-2	12.0	8.44	4.2	612	7.24	335

Sample at 6.0 Feet

Date: 10/31/01 11:30 Total Depth: 11.0 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-3	2.0	8.42	4.2	610	7.23	269
FPL-W-3	4.0	8.44	4.1	609	7.24	275
FPL-W-3	6.0	8.44	4.2	610	7.24	280
FPL-W-3	8.0	8.44	4.3	607	7.23	258
FPL-W-3	10.0	8.42	4.0	609	7.22	241

Sample at 5.0 Feet

Date: 10/31/01 11:45 Total Depth: 6.0 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-4	2.0	8.45	3.8	613	7.24	306
FPL-W-4	4.0	8.47	3.9	613	7.24	308

Sample at 2.0 Feet

Date: 10/31/01 12:00 Total Depth: 11.5 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-5	2.0	8.42	4.2	611	7.24	285
FPL-W-5	4.0	8.4	3.9	613	7.24	397
FPL-W-5	6.0	8.40	3.9	613	7.24	301
FPL-W-5	8.0	8.39	3.8	615	7.23	303
FPL-W-5	10.0	8.39	3.2	632	7.2	301

Sample at 5.0 Feet

Date: 10/31/01 12:15 Total Depth: 17.5 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-6	2.0	8.49	4.2	611	7.25	322
FPL-W-6	4.0	8.45	4.1	612	7.25	324
FPL-W-6	6.0	8.45	3.9	612	7.23	326
FPL-W-6	8.0	8.42	4	613	7.23	327
FPL-W-6	10.0	8.42	4	613	7.23	328
FPL-W-6	12.0	8.40	3.9	614	7.19	329
FPL-W-6	14.0	8.40	3.8	614	7.17	306
FPL-W-6	16.0	8.44	1	769	7.03	184

Sample at 8.0 Feet

Date: 10/31/01 12:25 Total Depth: 5.0 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-7	2.0	8.55	4.3	61	7.18	302
FPL-W-7	4.0	8.52	4.4	611	7.19	306

Sample at 3.0 Feet

Date: 10/31/01 12:40 Total Depth: 18.3 Feet

Location	Depth (ft)	Temp (C)	DO (mg/L)	SpCond (us/cm)	ph	ORP (mV)
FPL-W-8	2.0	8.54	4.4	611	7.2	296
FPL-W-8	4.0	8.49	4.3	612	7.2	299
FPL-W-8	6.0	8.47	4.2	613	7.19	307
FPL-W-8	8.0	8.49	4.2	613	7.19	309
FPL-W-8	10.0	8.49	4.2	613	7.19	310
FPL-W-8	12.0	8.44	4.1	613	7.16	313
FPL-W-8	14.0	8.45	4.1	614	7.15	312
FPL-W-8	16.0	8.45	3.6	620	7.09	221
FPL-W-8	18.0	8.52	0.2	2030	6.52	127

Sample at 9.0 Feet

Table 2 Flint Park Lake
 Water Quality Data
 Sample Date: 10/31/2001
 Units: mg/L

Test	Sample Identification							
	FPLW-1	FPLW-2	FPLW-3	FPLW-4	FPLW-5	FPLW-6	FPLW-7	FPLW-8
Nitrogen, ammonia	1.1	1.1	1.1	1.1	1.2	1.1	1.1	1
Nitrogen, nitrate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nitrogen, Total	2.20	2.2	2.2	2.3	2.1	2.5	2.4	2.4
Phosphorus, total (as P)	0.24	0.23	0.24	0.21	0.22	0.26	0.24	0.24
Suspended Solids, total	9	9	7	6	10	8	9	7

Table 3: Flint Park Lake
 Lake Sediment Data
 November 1, 2001

Parameters	Units	Sample ID							
		FPL-S1- 11/1/01	FPL-S2- 11/1/01	FPL-S3- 11/1/01	FPL-S4- 11/1/01	FPL-S5- 11/1/01	FPL-S6- 11/1/01	FPL-S7- 11/1/01	FPL-S8- 11/1/01
Phosphorus	mg/kg-dry	330	490	110	51	20	310	87	16
<i>ICP Metals</i>	ug/Kg-dry								
Arsenic	ug/Kg-dry	15,000	24,000	15,000	29,000	14,000	24,000	4,100	24,000
Barium	ug/Kg-dry	82,000	120,000	100,000	85,000	110,000	140,000	25,000	220,000
Cadmium	ug/Kg-dry	800	3,300	3,200	2,600	1,800	3,000	710	4,200
Chromium	ug/Kg-dry	28,000	38,000	38,000	30,000	45,000	37,000	6,200	50,000
Copper	ug/Kg-dry	54,000	68,000	68,000	53,000	82,000	60,000	11,000	86,000
Lead	ug/Kg-dry	300,000	340,000	390,000	590,000	260,000	840,000	110,000	64,000
Selenium	ug/Kg-dry	8,500	5,900	5,400	4,800	1,300	1,200	1,200	2,800
Silver	ug/Kg-dry	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	ug/Kg-dry	450,000	840,000	600,000	520,000	530,000	530,000	110,000	690,000
Mercury	ug/Kg-dry	ND	ND	ND	ND	ND	ND	ND	ND
Percent Moisture	wt %	89	90	84	84	75	74	73	79
Total Kjeldahl Nitrogen	ug/Kg-dry	7,600	10,000	6,600	5,400	4,600	3,300	6,500	6,200
Hexane Extractables Oil and Grease	mg/Kg-dry	NA	NA	NA	NA	2,800	NA	NA	NA
PCBs	ug/Kg-dry	NA	NA	NA	NA	ND	NA	NA	NA
Total Organic Carbon	mg/Kg-dry	NA	NA	140,000	NA	NA	NA	NA	NA

NA - Not Analyzed

ND - Not Detected

Table 3 (continued) Flint Park Lake
Vertical Sediment Data
November 1, 2001

Parameters	Units	Sample ID			
		FPL-3T- 11/1/01	FPL-3B- 11/1/01	FPL-5T- 11/1/01	FPL-5B- 11/1/01
Phosphorus	mg/kg-dry	320	45	180	56
<i>ICP Metals</i>					
Arsenic	ug/Kg-dry	13,000	1,800	2,600	2,400
Barium	ug/Kg-dry	76,000	18,000	52,000	31,000
Cadmium	ug/Kg-dry	1,500	330	630	460
Chromium	ug/Kg-dry	16,000	2,900	5,200	4,000
Copper	ug/Kg-dry	47,000	9,400	21,000	14,000
Lead	ug/Kg-dry	170,000	7,800	2,100	2,100
Selenium	ug/Kg-dry	3,500	1,100	1,900	1,900
Silver	ug/Kg-dry	ND	ND	ND	ND
Zinc	ug/Kg-dry	240,000	42,000	56,000	50,000
Mercury	ug/Kg-dry	ND	ND	ND	ND
Percent Moisture	wt %	93	75	86	84
Total KJELDAHL Nitrogen	ug/Kg-dry	8,600	4,300	8,300	10,000
Hexane Extractables Oil and Grease	mg/Kg-dry	NA	NA	2,500	1,800
PCBs	ug/Kg-dry	NA	NA	ND	ND
Total Organic Carbon	mg/Kg-dry	330,000	100,000	NA	NA

NA - Not Analyzed

ND - Not Detected

Table 4 Flint Park Lake
November 9, 2001

Manhole Inspection Information		Date: 11/09/01	Time: 2:30 PM
Location	Invert (ft)	Water Depth (ft)	Size (in)
End of Defrest	5.2	0.5	24
End of Canniff	2.7	0	18
Woodhäll and Berger	9.6	2.10	66
Winthrop and Baltimore	5.3	0.3	30
Marengo and Winthrop	5.6	0.9	54

Sediment Thickness Data (Push Depth)		Date: 11/09/01
Location	Water Depth (ft)	Push (ft)
P-1	2.1	4.0
P-2	1.5	> 13
P-3	1.0	10.0
P-4	2.0	10.5
P-5	1.25	12.0
P-6	0.9	11.5
P-7	0.5	4.0
P-8	3.0	0.0
P-9	1.5	12.0
C-7	6	> 13
K-1	1.25	10

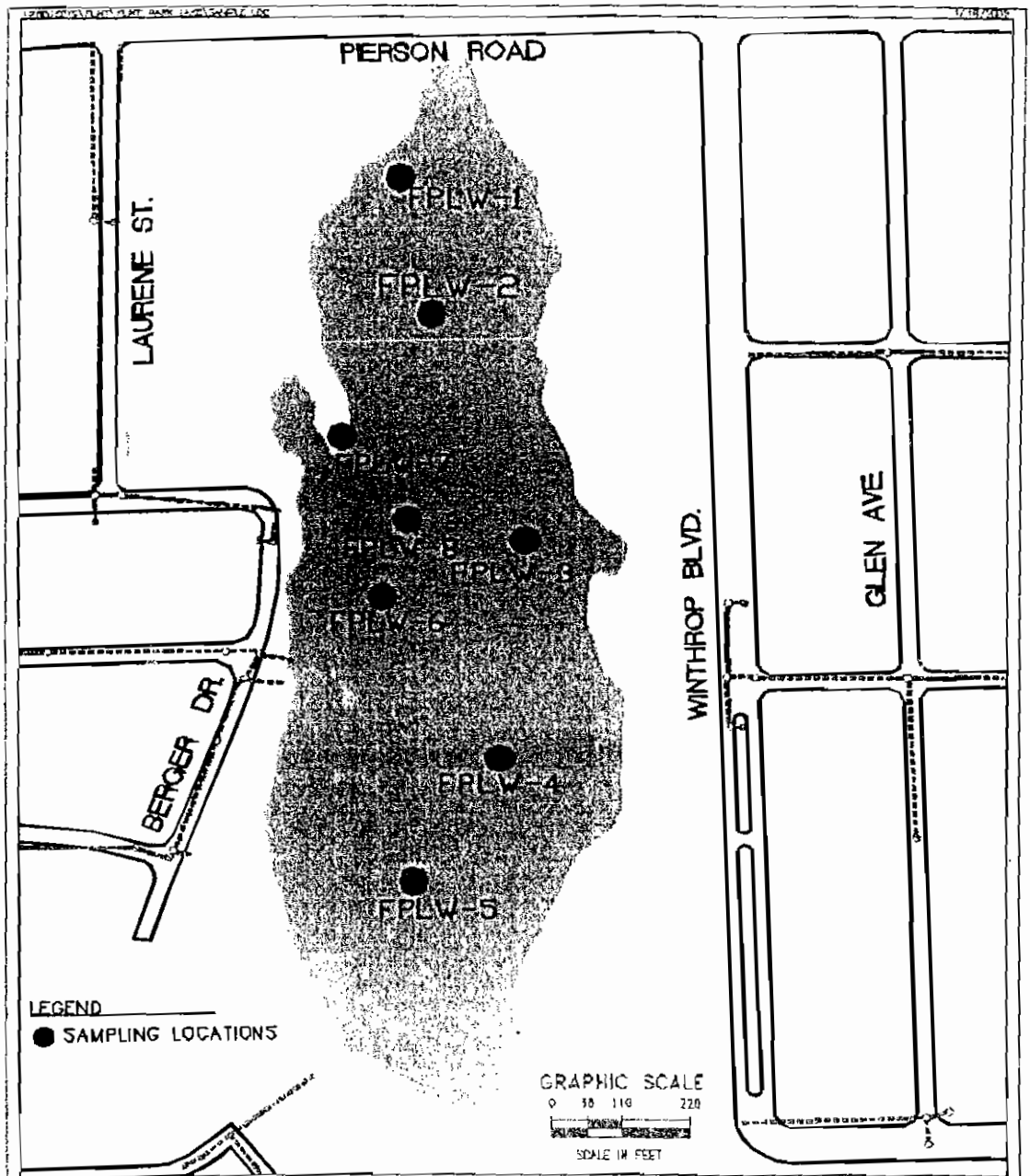


FIGURE 1
FLINT PARK LAKE
SAMPLING LOCATIONS
 Source: ECT, 2002.

FLINT PARK LAKE
FLINT, MICHIGAN

ECT
 Environmental Consulting & Technology, Inc.
 The Bank Tower
 1248 Washington Boulevard, Suite 3500
 Detroit, Michigan 48226
 Phone: (313) 463-8800 Fax: (313) 463-0707

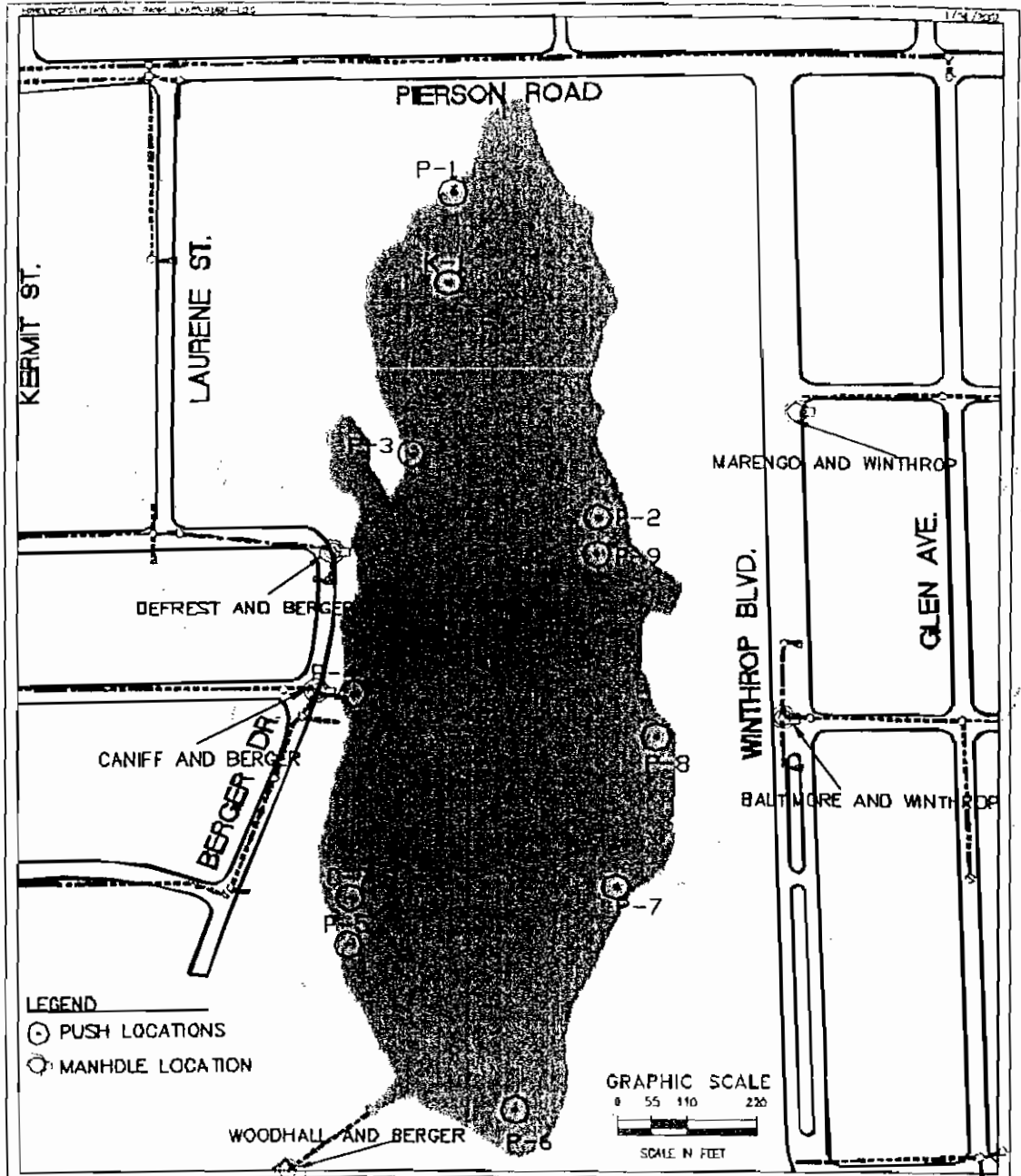


FIGURE 2.
FLINT PARK LAKE
PUSH LOCATIONS

Source: ECT, 2012

FLINT PARK LAKE
FLINT, MICHIGAN

ECT
 Environmental Consulting & Technology, Inc.
 The Bank Tower
 1248 Washington Boulevard, Suite 3300
 Detroit, Michigan 48226
 Phone (734) 963-8600 Fax (734) 963-1707

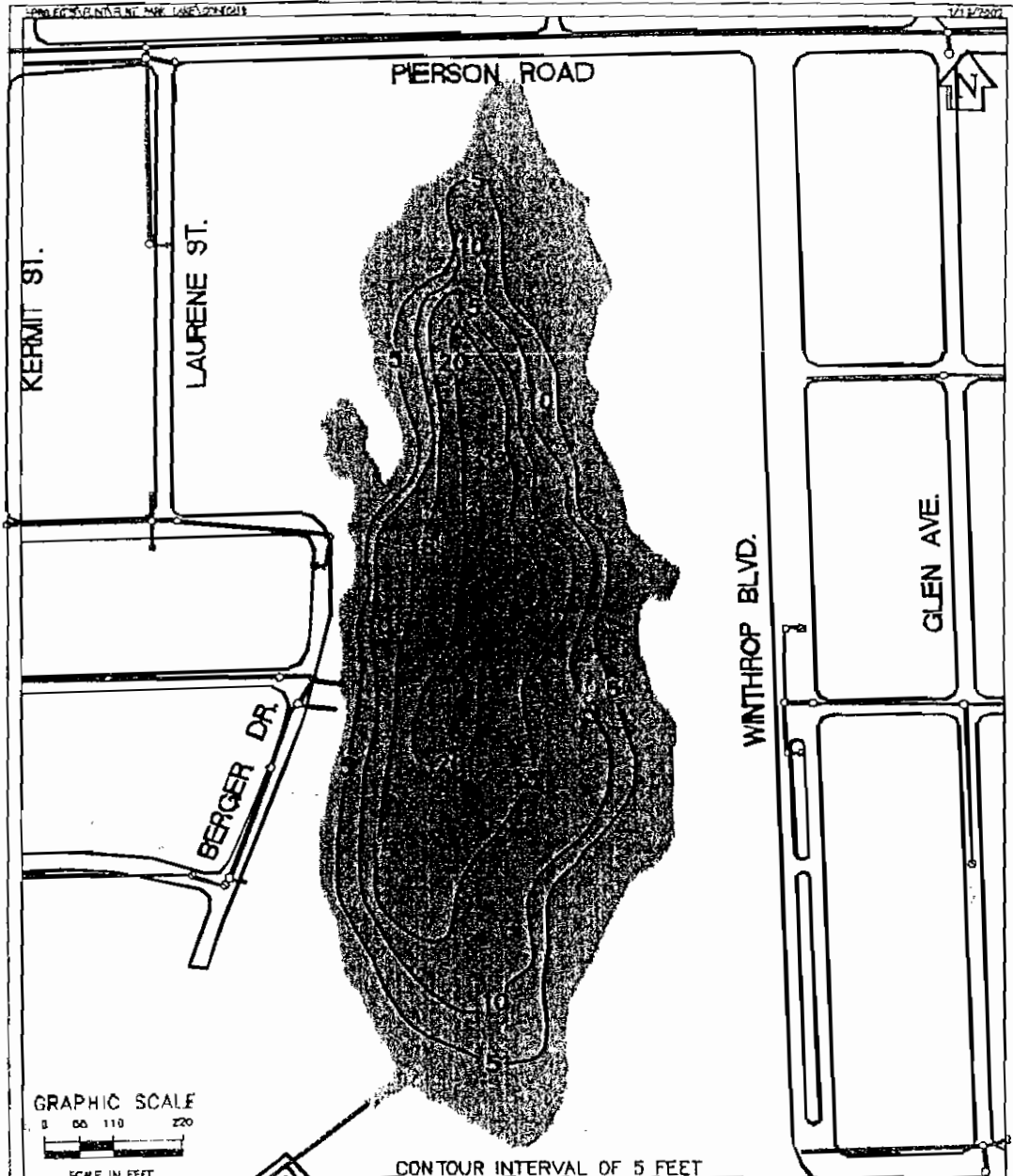


FIGURE 3.
FLINT PARK LAKE
CONTOUR MAP

Source: ECT, 2008.

FLINT PARK LAKE

FLINT, MICHIGAN

ECT
Environmental Consulting & Technology, Inc.
The Best Team
1840 Woodward Boulevard, Suite 3000
Detroit, Michigan 48226
Phone: (313) 263-8800 Fax: (313) 263-1707

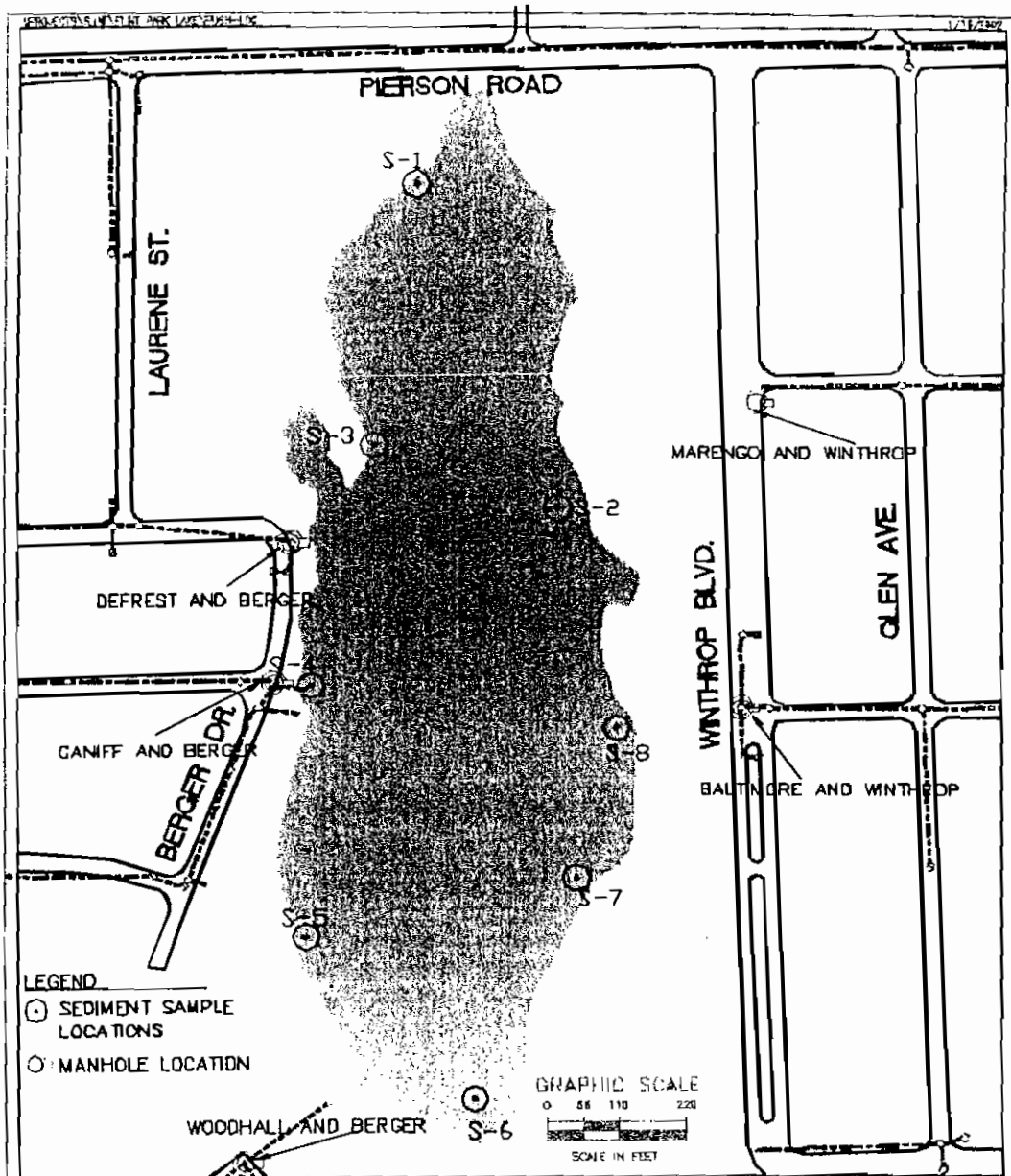


FIGURE 4.- FLINT PARK LAKE-SEDIMENT SAMPLE LOCATIONS

Source: ECT, 2002

**FLINT PARK LAKE
FLINT, MICHIGAN**

ECT
Environmental Consulting & Technology, Inc.
The Great Tower
2415 Washington Boulevard, Suite 3800
Detroit, Michigan 48226
Phone (313) 963-6800 Fax (313) 963-9707

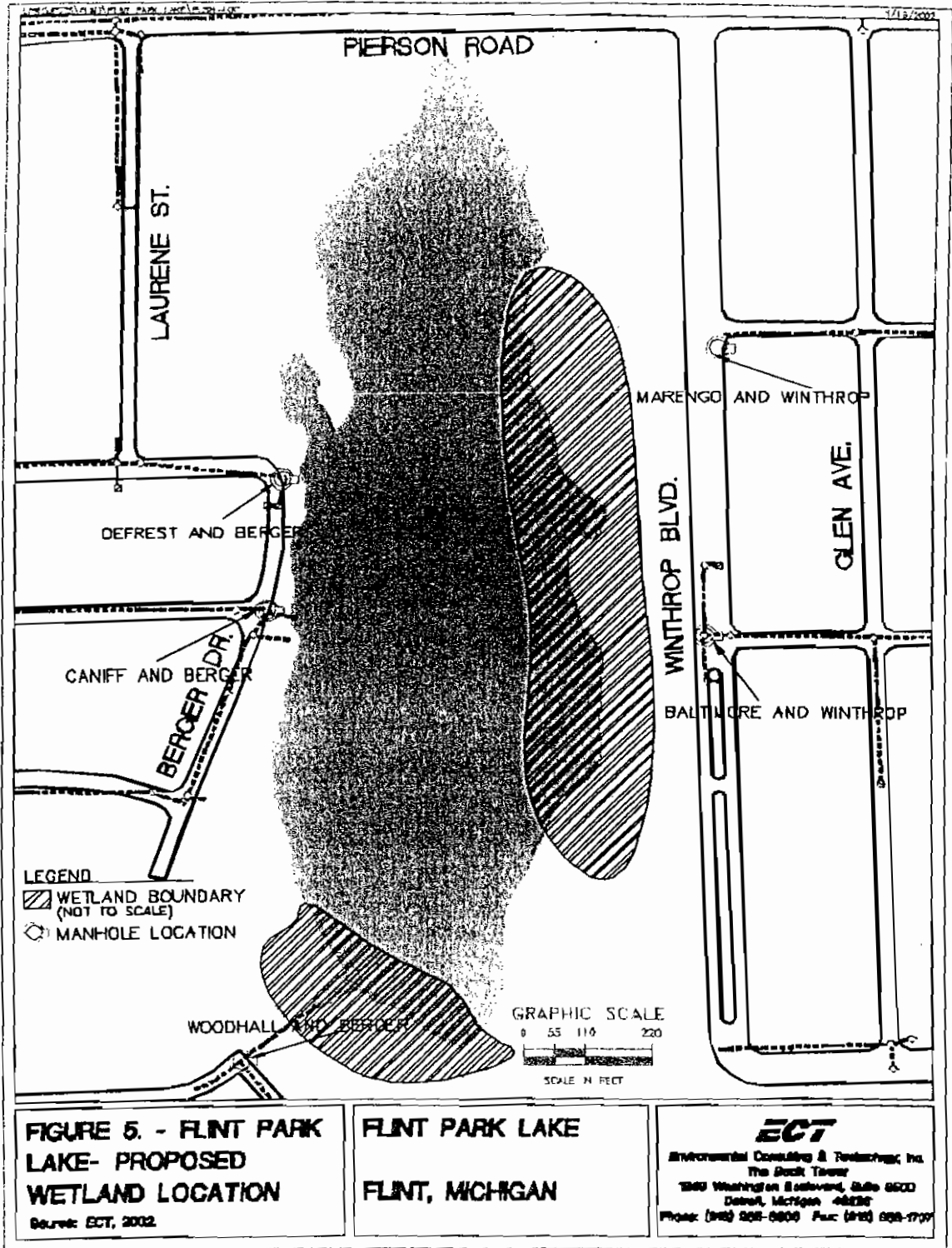


FIGURE 5. - FLINT PARK LAKE- PROPOSED WETLAND LOCATION

Source: ECT, 2002.

**FLINT PARK LAKE
FLINT, MICHIGAN**

ECT
Environmental Consulting & Technology, Inc.
The Stock Tower
1900 Washington Boulevard, Suite 6000
Detroit, Michigan 48226
Phone: (313) 828-8800 Fax: (313) 828-1777

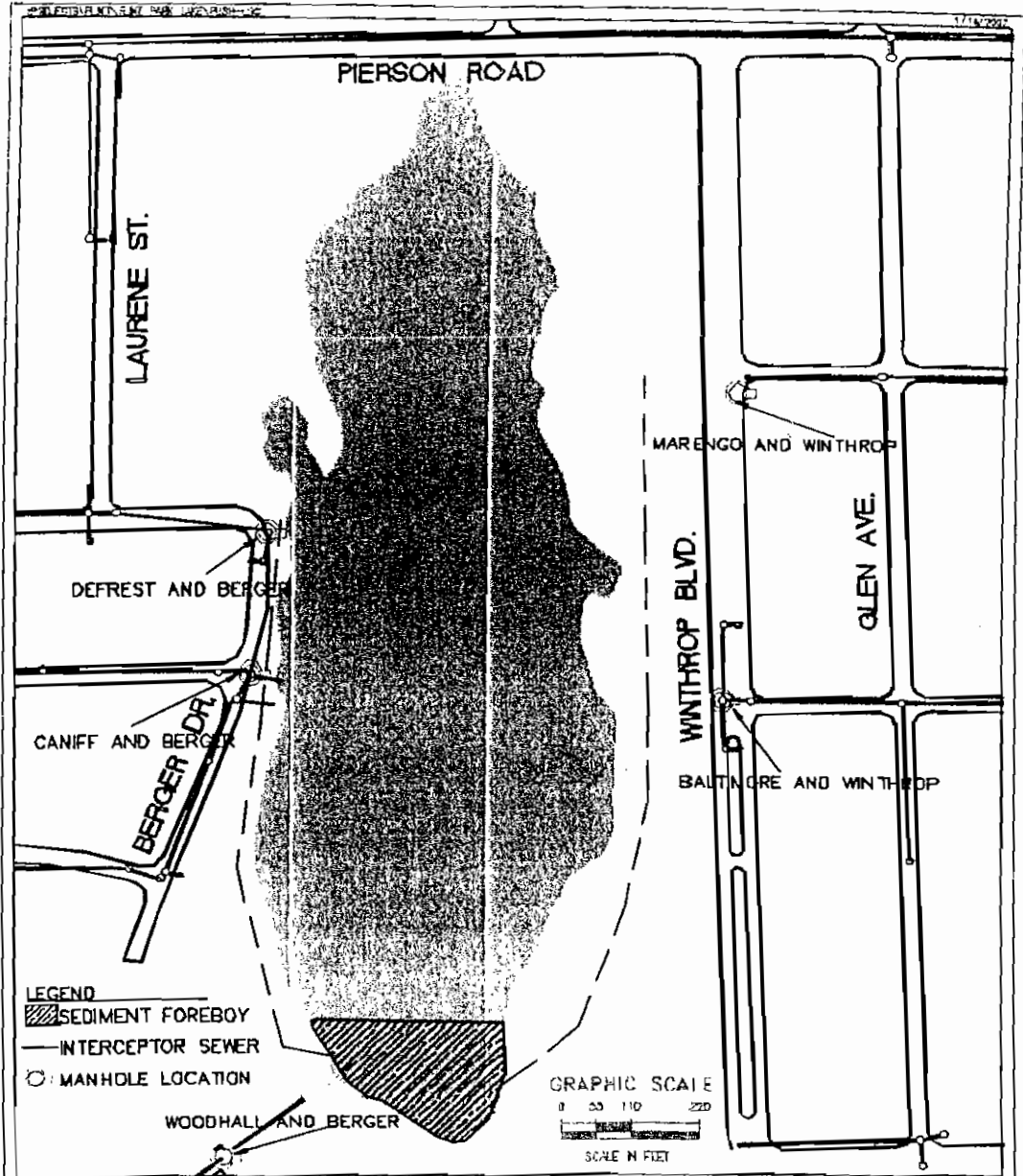
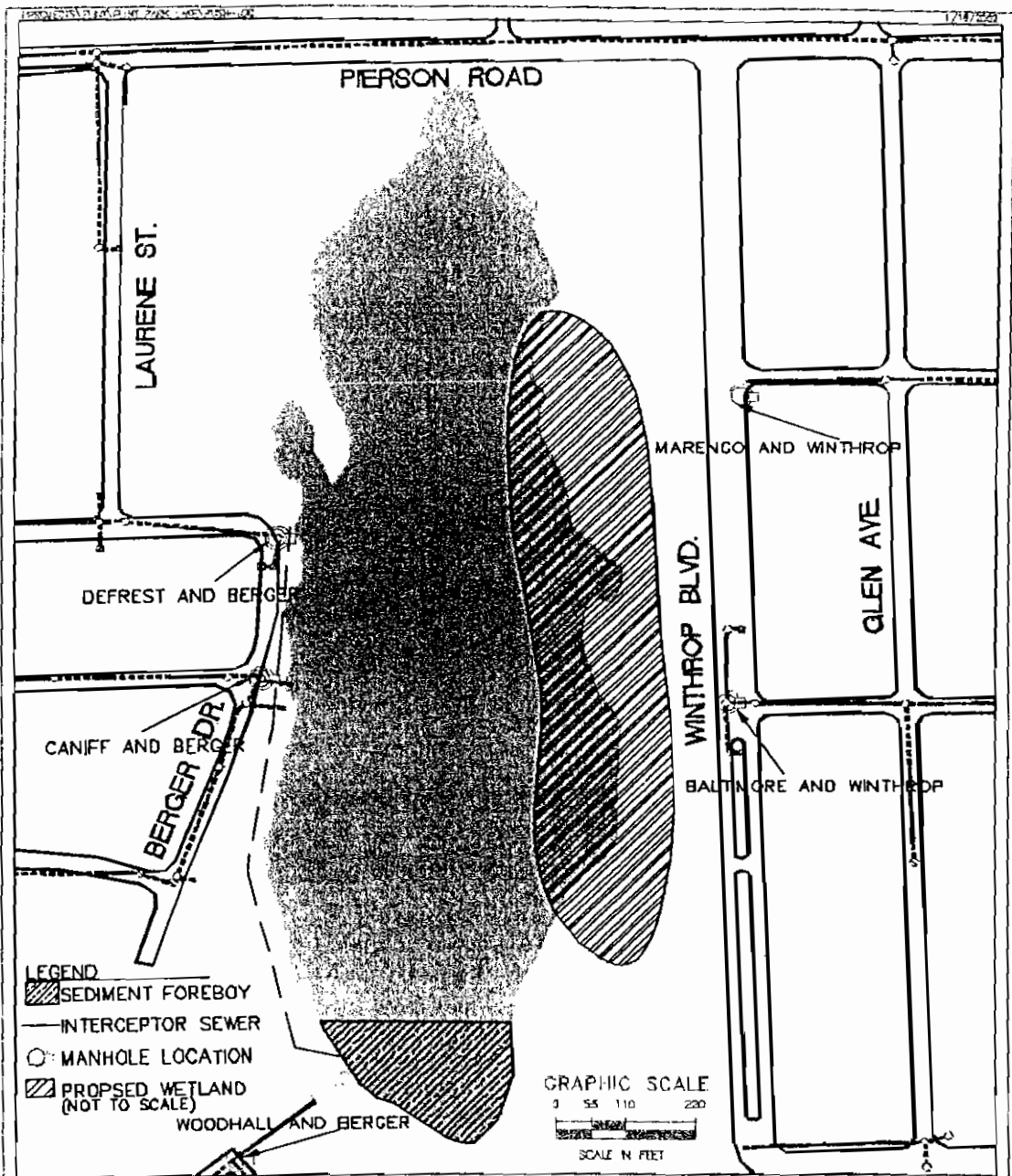


FIGURE 6 - FLINT PARK LAKE- PROPOSED SEDIMENT FOREBOY
 Source: DOT, 2006.

**FLINT PARK LAKE
 FLINT, MICHIGAN**

ECT
 Environmental Consulting & Technology, Inc.
 The South Tower
 2540 Washington Boulevard, Suite 2000
 Detroit, Michigan 48226
 Phone (313) 966-8800 Fax (313) 966-1707



**FIGURE 7 - PROPOSED
SEDIMENT FOREBAY AND
WETLAND LOCATIONS**

Source: ECT, 2002.

**FLINT PARK LAKE
FLINT, MICHIGAN**

ECT
Environmental Consulting & Technology, Inc.
The Bank Tower
1942 W. Larned Street, Suite 2000
Detroit, Michigan 48226
Phone: (313) 963-8800 Fax: (313) 963-1707

*PARKS
AND
RECREATION*

PARKS AND RECREATION

In 1999, the City of Flint adopted a Five Year Parks and Recreation Plan. The plan includes work proposed for the park in Flint Park Lake neighborhood. On page 56 of the plan is discussion of those development plans. They note that "City officials believe that Flint Park Lake should be developed into a water based recreational facility, which includes boating, fishing and picnicking because it would service not only the residents in the surrounding neighborhoods, but would also service those residents of the Flint Area that are unable to travel to similar recreational facilities in the northern parts of the state. The City proposes to dredge the lake so that boating and fishing opportunities will be improved. When the dredging is completed, the city also intends to restock the lake with fish"

The plan for development of the park includes Phase I, which was paid for through Recreation Bond monies, included a baseball diamond, parking lot and basketball court. Phase II, which is proposed to be funded through state grant funding, includes development along the east side of the lake. The improvements include a parking area, combination fishing pier and boat ramp and a picnic area.

The implications of this development include the fact that if the city plans to use the property adjacent to the lake for park development it will not be available for private development of residential lots, nor may much of it become available for the wetland filter area proposed in ECT's report. The City Parks and Recreation Department is working with the Flint Park Lake to determine the appropriate level of development around the lake.

A copy of the city's development plan for the park is shown on the following page.

*FUTURE
LAND
USE
PLAN*

FUTURE LAND USE PLAN

The future land use of the Flint Park Lake area has not been established by the CDC. As noted in the discussion of existing land use the area is currently dominated by single family residences, with some commercial, recreational and vacant land.

Key Issues

How should the lake front be integrated into future development?

Most of the lake frontage is currently adjacent to street right of way, although much of it has been blocked off to reduce dumping. This current arrangement keeps most of the lake open to the public to enjoy. However, lake frontage is an very valuable residential housing asset. If new residential lots were configured to provide them with direct lake frontage it may increase the value of the lots and promote the redevelopment of the community, but at the loss of some public access. This issue is tied in part to the improvements to the City Parks portion of the lake. To the extent that the park increases access to the lake from park land, it may be able to "trade" that for reduced access along other portions of the lake.

Areas where access could be moved to private ownership include residential development along the north western shore of the lake where previous platting provides the city with right of way along the lake but the roadway has never been built and the central west shore where Berger Drive has been closed off. Winthrop Boulevard runs along the central east shore. This is an area of substantial flooding, and one suggestion made at the area visioning sessions was to remove the homes on the east side of Winthrop Boulevard and extend the lots on the west side of Glenn Avenue all the way to lake. Another suggestion made at the visioning meetings was promoting a restaurant at the north end of the lake that was oriented to the lake. One problem in this area would be the muck soils on the area that might make construction of a commercial building there a problem.

As noted previously, commercial development is currently confined to the perimeter of the neighborhood at intersections and a few spots in between. Much of the land along these major streets is still residential should the plan support the continuation of these residences or support redevelopment to commercial uses. The argument can be made that due to high traffic counts on these roads, they are more suitable for commercial than residential uses. However, expansion of commercial uses in the area at this time may not be supported by the market, and spot zoning of commercial along these roads could damage attempts to maintain a residential atmosphere on interior lots.

The response from the public during the visioning sessions indicated a preference for single family residences vs. multifamily housing. Does this include "single family attached" housing such as duplexes and townhouses? In urban areas like Flint, housing demand generally includes a wider range of housing types than suburban and rural communities. Would it be appropriate to incorporate single family attached housing as one housing option for parts of the redevelopment area?

Plan Policies

Following review of the public input and the data on the community in this report, the Flint Park Lake is proposing the following plan policies:

- ▶ The principle future land use in the area should remain single family residential, with commercial development focusing on redevelopment of existing commercial areas. Multi-family development is not a preferred land use in this area.
- ▶ Redevelopment of the single family residential areas should be by spot infill of existing vacant lots and rehabilitation of those homes that can be rehabed. Acquisition of property should be by purchase of tax delinquent parcels and through negotiation. Condemnation should be used as the last resort, and there should be no condemnation of occupied structures. This policy will eliminate the need to relocate existing residents displaced as part of this process.
- ▶ The density of development should be equivalent to the density permitted as the area is currently
- ▶ The work should be undertaken in phases, with developers selected to undertake the infill housing and assist in the rehabilitation work in each phase. The CDC should participate in the selection of these developers. The phases would begin with areas adjacent to the lake because the lake is the areas biggest potential asset.
- ▶ The existing infrastructure, except the utilities along the boundary streets, should be replaced rather than repaired. This work should be undertaken in the same phases as the rehabilitation and infill housing work.
- ▶ Land along the lake should remain in public control rather than be used for potential lake front lots. This is to ensure public access to the lake and as recognition that the soils surrounding the lake are not optimal to build on, with wetlands, floodplains and muck soils. Development of the park along the lake should be in conformance to a future agreement between the City Parks and Recreation Department and the CDC. Consideration should be given to construction of the wetland areas recommend by ECT as a way of filter the storm water as it flows into the lake.
- ▶ Additional study of the lake should be undertaken as recommended in the ECT report. This should include monitoring the lake level and the condition of the outlet to the Brent Run Creek Drain.

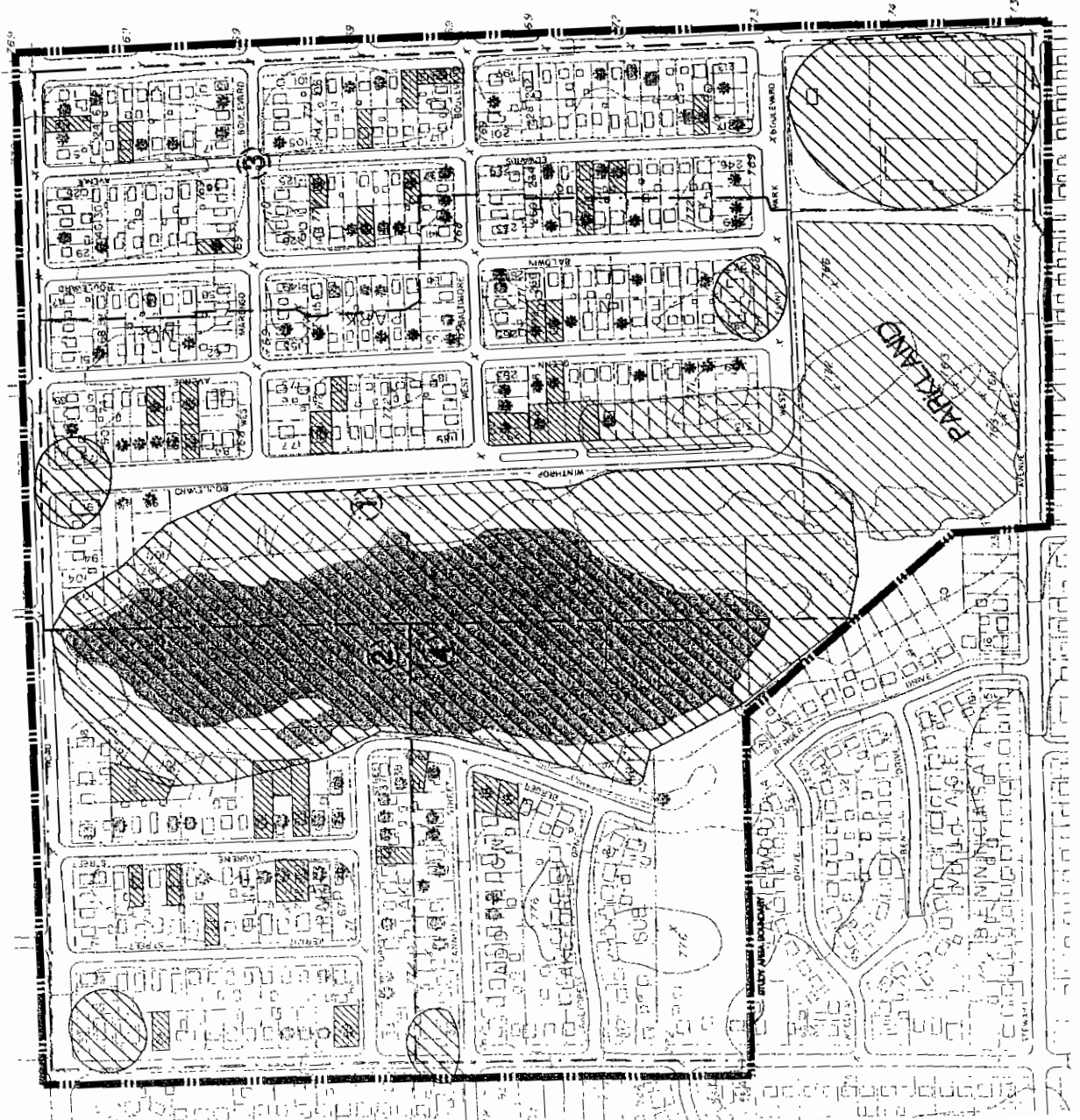
The Conceptual Development Plan Map outlines the proposed phases of the redevelopment of the Flint Park Lake area.

**FLINT PARK LAKE STUDY AREA
REDEVELOPMENT
PLAN CONCEPT**

- AREA OF SINGLE FAMILY DEVELOPMENT (SFBAB, DEMO, NRELL)
- ▨ PASSIVE RECREATIONAL AREA
- ▨ COMMERCIAL DEVELOPMENT
- ▨ ACTIVE RECREATIONAL AREA
- TAX REVERTED PROPERTY
- PHASE BOUNDARY LINE



ROWE INCORPORATED
4311 MAYLOW DRIVE, FLINT, MI 48507
PREPARED FOR THE CITY OF FLINT, MI, DEPT.



Financing

Financing for the project is intended to come from a range of sources, based on availability.

Infrastructure - These costs can be provided for by a combination of:

- ▶ Assessment to property owners
- ▶ Act 51 funds
- ▶ State Revolving Loan Funds
- ▶ CDBG Block Grant Entitlement Funds
- ▶ Municipal Bonds
- ▶ HOME funds

Housing Construction\Rehab -

- ▶ Private financing
- ▶ CDBG Block Grant Entitlement Funds
- ▶ Home Funds

Parks and Recreation and Lake Improvements -

- ▶ Clean Michigan Initiative Funds
- ▶ CDBG Block Grant Entitlement Funds
- ▶ Michigan 319 Funds
- ▶ Private Foundations such as Mott, Kellogg, and Beldon Fund

APPENDIX

APPENDIX A

Visual Preference Survey

Visual Preference Survey

Flint Park Lake Citizens District Council

May, 2001

The Flint Park Lake Citizens District Council (CDC) is preparing a plan for the redevelopment and improvement of the Flint Park Neighborhood. As part of that, we want to know what design characteristics residents wish to retain and those that should be changed.

The first step is for residents to provide images of community characteristics which they like or dislike. You have been given a camera for the purpose of gathering images that demonstrate your opinions. These pictures can be within or outside Flint Park Lake Neighborhood. **We encourage your participation...**you are the expert on your neighborhood.

The pictures you take can either show what you like or dislike (things you wish to include or exclude in your neighborhood). Here are a few of the community design characteristics we are looking for information on:

Buildings

Close to the street or farther back?

Width of the lots (are they close together or are there more side yards?)

Driveways off the street or a back alley?

Streets

Are they wide or narrow?

Parking on-street? One or both sides?

Do the streets have curb and gutter?

Type of lighting?

Traffic control (signs, speed bumps.)

Miscellaneous

Street trees? (Type and location)

Signs, banners, planter beds?

Types of fencing in neighborhoods

Sidewalk? How wide?

Neighborhood parks?

Record the following information for each picture on the attached sheets. Please return the film and your comments (name optional) by **Wednesday, June 6**

Return to: Karen Morris (810) 341-1499 x203
RE: Flint Park Lake CDC
Flint Area Enterprise Community Inc.
805 Welch Blvd
Flint, MI 48504

Once we receive your film we will process it and review the information at a Visual

Visual Preference Survey

Flint Park Lake Citizens District Council

Name

Phone

Photo #1

Location

What is it of?

Comments (like / dislike)

Photo #2

Location

What is it of?

Comments (like / dislike)

Photo #3

Location

What is it of?

Comments (like / dislike)

Photo #4

Location

What is it of?

Comments (like / dislike)

Photo #5

Location

What is it of?

Comments (like / dislike)

Photo #6

Location

What is it of?

Comments (like / dislike)

Photo #7

Location

What is it of?

Comments (like / dislike)

Photo #8

Location

What is it of?

Comments (like / dislike)

Photo #9

Location

What is it of?

Comments (like / dislike)

Visual Preference Survey
Flint Park Lake Citizens District Council

Name

Phone

Photo #10 Location

What is it of?

Comments (like / dislike)

Photo #11 Location

What is it of?

Comments (like / dislike)

Photo #12 Location

What is it of?

Comments (like / dislike)

Photo #13 Location

What is it of?

Comments (like / dislike)

Photo #14 Location

What is it of?

Comments (like / dislike)

Photo #15 Location

What is it of?

Comments (like / dislike)

General comments:

APPENDIX B

Infrastructure Cost Detail

FLINT PARK LAKE

PRELIMINARY CONSTRUCTION ESTIMATE - PHASE 1

EAST SIDE OF FLINT PARK LAKE - WITHROP BLVD., GLENN AVE., BALDWIN BLVD. SOUTH OF BALTIMORE BLVD., BALTIMORE BLVD. WEST OF BALDWIN BLVD., FLINT PARK BLVD. WEST OF BALDWIN BLVD., AND MARENGO BLVD. WEST OF GLENN AVE.

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Sanitary Sewer & Watermain				
12" PVC-SDR 26 Sanitary Sewer, TDB	2000		\$60.00	\$120,000.00
10" PVC-SDR 26 Sanitary Sewer, TDB	800	LFT	\$55.00	\$44,000.00
8" PVC-SDR 26 Sanitary Sewer, TDB	4000	LFT	\$50.00	\$200,000.00
6" PVC-SDR 26 Sewer lead	4000	LFT	\$25.00	\$100,000.00
4' Dia. Sanitary Manhole	18	EA	\$200.00	\$3,600.00
5' Dia. Valve Manhole	2	EA	\$2,250.00	\$4,500.00
Adjust Existing Sanitary Manhole	2	EA	\$250.00	\$500.00
8" DI (CL53) Watermain TDA	4100	LFT	\$30.00	\$123,000.00
8" DI (CL53) Watermain TDB	400	LFT	\$35.00	\$14,000.00
6" DI (CL53) Watermain TDA	54	LFT	\$25.00	\$1,350.00
1" Copper Water Service	4000	LFT	\$12.00	\$48,000.00
Pavement Repair	500	SYD	\$65.00	\$32,500.00
Traffic Control	1	LSUM	\$15,000.00	\$15,000.00
8" Valve & Box	12	EA	\$600.00	\$7,200.00
6" Hydrant & Valve Assembly	10	EA	\$2,250.00	\$22,500.00
Pressure Testing & Chlorination	1	LSUM	\$12,000.00	\$12,000.00
Sanitary Sewer Tap	2	EA	\$500.00	\$1,000.00
Subtotal				\$629,150.00
Storm Sewer				
24" C76-III Storm Sewer, TDA	800	LFT	\$45.00	\$36,000.00
18" C76-III. Storm Sewer, TDA	1200	LFT	\$35.00	\$42,000.00
15" C76-III Storm Sewer, TDA	1200	LFT	\$30.00	\$36,000.00
12" C76-III Storm Sewer, TDB	600	LFT	\$28.00	\$16,800.00
4' Dia Drainage Structure w/ 2' Sump	22	EA	\$1,500.00	\$33,000.00
Drainage Structure Cover	12100	LBS	\$1.10	\$13,310.00
Storm Tap	1	EA	\$300.00	\$300.00
Pavement Repair	500	SYD	\$65.00	\$32,500.00
Subtotal				\$209,910.00
Pavement				
Machine Grading Modified	52.8	STA	\$1,500.00	\$79,200.00
Curb & Gutter	10560	LFT	\$10.00	\$105,600.00
Bit Mix 13A Wearing (165 lbs/SYD)	1225	TON	\$35.00	\$42,875.00
Bit Mix 13A Leveling (165 lbs/SYD)	1225	TON	\$35.00	\$42,875.00
Bit Mix 11A Base (660 lbs/SYD)	4900	TON	\$30.00	\$147,000.00
Subgrade Undercutting Type I	2000	CYD	\$8.00	\$16,000.00
Subgrade Undercutting Type II	750	CYD	\$12.00	\$9,000.00
Soil Erosion & Sedimentation	1	LSUM	\$15,000.00	\$15,000.00
4" Concrete Sidewalk	58500	SFT	\$2.00	\$117,000.00
6" Edge drain	1000	LFT	\$8.00	\$8,000.00
MDOT 23A Limestone	4000	TON	\$15.00	\$60,000.00
Subtotal				\$642,550.00

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Removals & Site Cleanup				
Pavement Removal	23000	SYD	\$5.00	\$115,000.00
Curb & Gutter Removal	14000	LFT	\$4.00	\$56,000.00
Sidewalk Removal	7800	SYD	\$3.00	\$23,400.00
Remove Sanitary Manhole	31	EA	\$400.00	\$12,400.00
Remove Drainage Structures	20	EA	\$200.00	\$4,000.00
Remove Valve Stem & Box	10	EA	\$100.00	\$1,000.00
Mobilization, 5% Max.	1	LSUM	\$100,000.00	\$100,000.00
Site Grading	1	LSUM	\$50,000.00	\$50,000.00
Cleanup and Restoration	1	LSUM	\$20,000.00	\$20,000.00
Topsoil	26000	SYD	\$1.50	\$39,000.00
Seeding	26000	SYD	\$0.50	\$13,000.00
Subtotal				\$433,800.00

Contingencies (10%)
TOTAL PHASE 1 CONSTRUCTION COST

\$191,541.00
\$2,106,951.00

FLINT PARK LAKE

PRELIMINARY CONSTRUCTION ESTIMATE - PHASE 2

WEST OF FLINT LAKE PARK - KERMIT STREET, LAURENE STREET, AND DE FOREST STREET

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Sanitary Sewer & Watermain				
12" PVC-SDR 26 Sanitary Sewer, TDB	1150	LFT	\$60.00	\$69,000.00
8" PVC-SDR 26 Sanitary Sewer, TDB	1100	LFT	\$50.00	\$55,000.00
6" PVC-SDR 26 Sewer lead	3300	LFT	\$25.00	\$82,500.00
4' Dia. Sanitary Manhole	9	EA	\$200.00	\$1,800.00
5' Dia. Valve Manhole	2	EA	\$2,250.00	\$4,500.00
Adjust Existing Sanitary Manhole	5	EA	\$250.00	\$1,250.00
8" DI (CL53) Watermain TDA	2800	LFT	\$30.00	\$84,000.00
8" DI (CL53) Watermain TDB	100	LFT	\$35.00	\$3,500.00
6" DI (CL53) Watermain TDA	36	LFT	\$25.00	\$900.00
1" Copper Water Service	3000	LFT	\$12.00	\$36,000.00
Pavement Repair	100	SYD	\$65.00	\$6,500.00
Traffic Control	1	LSUM	\$10,000.00	\$10,000.00
8" Valve & Box	5	EA	\$600.00	\$3,000.00
6" Hydrant & Valve Assembly	6	EA	\$2,250.00	\$13,500.00
Pressure Testing & Chlorination	1	LSUM	\$7,500.00	\$7,500.00
Sanitary Sewer Tap	2	EA	\$500.00	\$1,000.00
Subtotal				\$310,950.00

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Storm Sewer				
12" C76-III Storm Sewer, TDA	1600	LFT	\$25.00	\$40,000.00
12" C76-III Storm Sewer, TDB	360	LFT	\$30.00	\$10,800.00
4' Dia Drainage Structure w/ 2' Sump	15	EA	\$1,500.00	\$22,500.00
Drainage Structure Cover	8250	LBS	\$1.10	\$9,075.00
Storm Tap	1	EA	\$300.00	\$300.00
Pavement Repair	100	SYD	\$65.00	\$6,500.00
Subtotal				\$167,175.00
Pavement				
Machine Grading Modified	25	STA	\$1,500.00	\$37,500.00
Curb & Gutter	5000	LFT	\$10.00	\$50,000.00
Bit Mix 13A Wearing (165 lbs/SYD)	555	TON	\$35.00	\$19,425.00
Bit Mix 13A Leveling (165 lbs/SYD)	555	TON	\$35.00	\$19,425.00
Bit Mix 11A Base (660 lbs/SYD)	2220	TON	\$30.00	\$66,600.00
Subgrade Undercutting Type I	1000	CYD	\$8.00	\$8,000.00
Subgrade Undercutting Type II	500	CYD	\$12.00	\$6,000.00
Soil Erosion & Sedimentation	1	LSUM	\$10,000.00	\$10,000.00
4" Concrete Sidewalk	25000	SFT	\$2.00	\$50,000.00
6" Edge drain	300	LFT	\$8.00	\$2,400.00
MDOT 23A Limestone	1900	TON	\$15.00	\$28,500.00
Subtotal				\$297,850.00

Removals & Site Cleanup				
Pavement Removal	9200	SYD	\$5.00	\$46,000.00
Curb & Gutter Removal	5000	LFT	\$4.00	\$20,000.00
Sidewalk Removal	3000	SYD	\$3.00	\$9,000.00
Remove Sanitary Manhole	14	EA	\$400.00	\$5,600.00
Remove Drainage Structures	28	EA	\$200.00	\$5,600.00
Remove Valve Stem & Box	10	EA	\$100.00	\$1,000.00
Mobilization, 5% Max.	1	LSUM	\$47,000.00	\$47,000.00
Site Grading	1	LSUM	\$30,000.00	\$30,000.00
Cleanup and Restoration	1	LSUM	\$15,000.00	\$15,000.00
Topsoil	13000	SYD	\$1.50	\$19,500.00
Seeding	13000	SYD	\$0.50	\$6,500.00
Subtotal				\$205,200.00

Contingencies (10%)
TOTAL PHASE 2 CONSTRUCTION COST

\$98,117.50
\$1,079,292.50

FLINT PARK LAKE

PRELIMINARY CONSTRUCTION ESTIMATE - PHASE 3

EAST SIDE OF FLINT PARK LAKE - EDWARDS AVE., BALDWIN BLVD. NORTH OF BALTIMORE BLVD., BALTIMORE BLVD. EAST OF BALDWIN BLVD., FLINT PARK BLVD. EAST OF BALDWIN BLVD., AND MARENGO BLVD. EAST OF GLENN AVE.

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Sanitary Sewer & Watermain				
10" PVC-SDR 26 Sanitary Sewer, TDB	300	LFT	\$55.00	\$16,500.00
8" PVC-SDR 26 Sanitary Sewer, TDB	3800	LFT	\$50.00	\$190,000.00
6" PVC-SDR 26 Sewer lead	4800	LFT	\$25.00	\$120,000.00
4' Dia. Sanitary Manhole	8	EA	\$200.00	\$1,600.00
5' Dia. Valve Manhole	2	EA	\$2,250.00	\$4,500.00
Adjust Existing Sanitary Manhole	3	EA	\$250.00	\$750.00
8" DI (CL53) Watermain TDA	4800	LFT	\$30.00	\$144,000.00
8" DI (CL53) Watermain TDB	100	LFT	\$35.00	\$3,500.00
6" DI (CL53) Watermain TDA	60	LFT	\$25.00	\$1,500.00
1" Copper Water Service	4500	LFT	\$12.00	\$54,000.00
Pavement Repair	200	SYD	\$65.00	\$13,000.00
Traffic Control	1	LSUM	\$15,000.00	\$15,000.00
8" Valve & Box	8	EA	\$600.00	\$4,800.00
6" Hydrant & Valve Assembly	10	EA	\$2,250.00	\$22,500.00
Pressure Testing & Chlorination	1	LSUM	\$10,000.00	\$10,000.00
Sanitary Sewer Tap	2	EA	\$500.00	\$1,000.00
Subtotal				\$586,150.00
Storm Sewer				
12" C76-III Storm Sewer, TDA	2500	LFT	\$25.00	\$62,500.00
18" C76-III. Storm Sewer, TDA	800	LFT	\$35.00	\$28,000.00
12" C76-III Storm Sewer, TDB	360	LFT	\$30.00	\$10,800.00
4' Dia Drainage Structure w/ 2' Sump	12	EA	\$1,500.00	\$18,000.00
Drainage Structure Cover	6600	LBS	\$1.10	\$7,260.00
Storm Tap	2	EA	\$300.00	\$600.00
Pavement Repair	200	SYD	\$65.00	\$13,000.00
Subtotal				\$140,160.00
Pavement				
Machine Grading Modified	48	STA	\$1,500.00	\$72,000.00
Curb & Gutter	9600	LFT	\$10.00	\$96,000.00
Bit Mix 13A Wearing (165 lbs/SYD)	1100	TON	\$35.00	\$38,500.00
Bit Mix 13A Leveling (165 lbs/SYD)	1100	TON	\$35.00	\$38,500.00
Bit Mix 11A Base (660 lbs/SYD)	4400	TON	\$30.00	\$132,000.00
Subgrade Undercutting Type I	1500	CYD	\$8.00	\$12,000.00
Subgrade Undercutting Type II	1000	CYD	\$12.00	\$12,000.00
Soil Erosion & Sedimentation	1	LSUM	\$15,000.00	\$15,000.00
4" Concrete Sidewalk	48000	SFT	\$2.00	\$96,000.00
6" Edge drain	300	LFT	\$8.00	\$2,400.00
MDOT 23A Limestone	3600	TON	\$15.00	\$54,000.00
Subtotal				\$568,400.00

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Removals & Site Cleanup				
Pavement Removal	17500	SYD	\$5.00	\$87,500.00
Curb & Gutter Removal	9600	LFT	\$4.00	\$38,400.00
Sidewalk Removal	5800	SYD	\$3.00	\$17,400.00
Remove Sanitary Manhole	14	EA	\$400.00	\$5,600.00
Remove Drainage Structures	12	EA	\$200.00	\$2,400.00
Remove Valve Stem & Box	10	EA	\$100.00	\$1,000.00
Mobilization, 5% Max.	1	LSUM	\$77,000.00	\$77,000.00
Site Grading	1	LSUM	\$40,000.00	\$40,000.00
Cleanup and Restoration	1	LSUM	\$17,500.00	\$17,500.00
Topsoil	23000	SYD	\$1.50	\$34,500.00
Seeding	23000	SYD	\$0.50	\$11,500.00
Subtotal				\$332,800.00

Contingencies (10%)

\$162,751.00

TOTAL PHASE 2 CONSTRUCTION COST

\$1,790,261.00

FLINT PARK LAKE

PRELIMINARY CONSTRUCTION ESTIMATE - PHASE 4

WEST OF FLINT LAKE PARK - CANNIFF STREET, LAKEFOREST DRIVE, AND BERGER DRIVE

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Sanitary Sewer & Watermain				
12" PVC-SDR 26 Sanitary Sewer, TDB	1100	LFT	\$60.00	\$66,000.00
10" PVC-SDR 26 Sanitary Sewer, TDB	850	LFT	\$50.00	\$42,500.00
6" PVC-SDR 26 Sewer lead	2100	LFT	\$25.00	\$52,500.00
4' Dia. Sanitary Manhole	7	EA	\$200.00	\$1,400.00
5' Dia. Valve Manhole	2	EA	\$2,250.00	\$4,500.00
Adjust Existing Sanitary Manhole	2	EA	\$250.00	\$500.00
8" DI (CL53) Watermain TDA	2300	LFT	\$30.00	\$69,000.00
8" DI (CL53) Watermain TDB	100	LFT	\$35.00	\$3,500.00
6" DI (CL53) Watermain TDA	30	LFT	\$25.00	\$750.00
1" Copper Water Service	2300	LFT	\$12.00	\$27,600.00
Pavement Repair	100	SYD	\$65.00	\$6,500.00
Traffic Control	1	LSUM	\$10,000.00	\$10,000.00
8" Valve & Box	5	EA	\$600.00	\$3,000.00
6" Hydrant & Valve Assembly	5	EA	\$2,250.00	\$11,250.00
Pressure Testing & Chlorination	1	LSUM	\$7,500.00	\$7,500.00
Sanitary Sewer Tap	2	EA	\$500.00	\$1,000.00
Subtotal				\$241,500.00

Storm Sewer				
12" C76-III Storm Sewer, TDA	1300	LFT	\$25.00	\$32,500.00
15" C76-III Storm Sewer, TDA	880	LFT	\$30.00	\$26,400.00
12" C76-III Storm Sewer, TDB	300	LFT	\$30.00	\$9,000.00
4' Dia Drainage Structure w/ 2' Sump	14	EA	\$1,500.00	\$21,000.00
Drainage Structure Cover.	7700	LBS	\$1.10	\$8,470.00
Storm Tap	2	EA	\$300.00	\$600.00
Pavement Repair	100	SYD	\$65.00	\$6,500.00
Subtotal				\$104,470.00

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Pavement				
Machine Grading Modified	23	STA	\$1,500.00	\$34,500.00
Curb & Gutter	4500	LFT	\$10.00	\$45,000.00
Bit Mix 13A Wearing (165 lbs/SYD)	500	TON	\$35.00	\$17,500.00
Bit Mix 13A Leveling (165 lbs/SYD)	500	TON	\$35.00	\$17,500.00
Bit Mix 11A Base (660 lbs/SYD)	2000	TON	\$30.00	\$60,000.00
Subgrade Undercutting Type I	1000	CYD	\$8.00	\$8,000.00
Subgrade Undercutting Type II	500	CYD	\$12.00	\$6,000.00
Soil Erosion & Sedimentation	1	LSUM	\$10,000.00	\$10,000.00
4" Concrete Sidewalk	22500	SFT	\$2.00	\$45,000.00
6" Edge drain	300	LFT	\$8.00	\$2,400.00
MDOT 23A Limestone	1700	TON	\$15.00	\$25,500.00
Subtotal				\$271,400.00

Removals & Site Cleanup				
Pavement Removal	8250	SYD	\$5.00	\$41,250.00
Curb & Gutter Removal	4500	LFT	\$4.00	\$18,000.00
Sidewalk Removal	2500	SYD	\$3.00	\$7,500.00
Remove Sanitary Manhole	6	EA	\$400.00	\$2,400.00
Remove Drainage Structures	10	EA	\$200.00	\$2,000.00
Remove Valve Stem & Box	5	EA	\$100.00	\$500.00
Mobilization, 5% Max.	1	LSUM	\$38,000.00	\$38,000.00
Site Grading	1	LSUM	\$25,000.00	\$25,000.00
Cleanup and Restoration	1	LSUM	\$15,000.00	\$15,000.00
Topsoil	11500	SYD	\$1.50	\$17,250.00
Seeding	11500	SYD	\$0.50	\$5,750.00
Subtotal				\$172,650.00

Contingencies (10%)
TOTAL PHASE 4 CONSTRUCTION COST

\$79,002.00
\$869,022.00

FLINT PARK LAKE
PRELIMINARY CONSTRUCTION ESTIMATE - PHASE 1
 FEBRUARY 15, 2002

PHASE 1:

Sanitary Sewer & Watermain	\$629,150.00
Storm Sewer	\$209,910.00
Pavement	\$642,550.00
Removals & Site Cleanup	\$433,800.00
Contingencies (10%)	\$191,541.00
Construction Subtotal	<u>\$2,106,951.00</u>
*Construction Engineering	\$250,000.00
**Consumers Energy	<u>\$150,000.00</u>

TOTAL ESTIMATED PROJECT COST FOR PHASE 1: **\$2,506,951.00**

PHASE 2:

Sanitary Sewer & Watermain	\$310,950.00
Storm Sewer	\$167,175.00
Pavement	\$297,850.00
Removals & Site Cleanup	\$205,200.00
Contingencies (10%)	\$98,117.50
Construction Subtotal	<u>\$1,079,292.50</u>
*Construction Engineering	\$130,000.00
**Consumers Energy	<u>\$50,000.00</u>

TOTAL ESTIMATED PROJECT COST FOR PHASE 2: **\$1,259,292.50**

PHASE 3:

Sanitary Sewer & Watermain	\$586,150.00
Storm Sewer	\$140,160.00
Pavement	\$568,400.00
Removals & Site Cleanup	\$332,800.00
Contingencies (10%)	\$162,751.00
Construction Subtotal	<u>\$1,790,261.00</u>
*Construction Engineering	\$215,000.00
**Consumers Energy	<u>\$75,000.00</u>

TOTAL ESTIMATED PROJECT COST FOR PHASE 3: **\$2,080,261.00**

PHASE 4:

Sanitary Sewer & Watermain	\$241,500.00
Storm Sewer	\$104,470.00
Pavement	\$271,400.00
Removals & Site Cleanup	\$172,650.00
Contingencies (10%)	\$79,002.00
Construction Subtotal	<u>\$869,022.00</u>
*Construction Engineering	\$105,000.00
**Consumers Energy	<u>\$50,000.00</u>

TOTAL ESTIMATED PROJECT COST FOR PHASE 4: **\$1,024,022.00**

TOTAL ESTIMATED PROJECT COST FOR ALL 4 PHASES: **\$6,870,526.50**

* Estimated. Includes construction management, construction observation, construction & material testing, and construction staking. ** Estimated cost for local electric service, gas service, and light poles