REPORT BY THE

Comptroller General

OF THE UNITED STATES

Combined Sewer Flooding And Pollution -- A National Problem. The Search For Solutions In Chicago: A Synopsis Of The Flooding Problems For Each Of The 54 Chicago Area Communities

Volume 6 Of Six Volumes

Limited information is available on flooding in the Chicago area. GAO visited each of the 54 communities and talked to officials to obtain their views on flooding in their community. The community summaries and maps in this volume represent the flooding situation as perceived by these officials; actions planned or taken by the communities and residents to alleviate or mitigate the problem; and the anticipated impact of the Tunnel and Reservoir Plan.

CED-79-77
MAY 15, 1979

PREFACE

At the request of Senator Charles H. Percy, GAO has reviewed the pollution and flooding problems in the Chicago metropolitan area served by combined sewers. This volume contains summaries of the flooding experienced by each of the 54 Chicago area communities (descriptive maps are included if the community experienced flooding and officials could identify where flooding occurred); actions planned or taken by the communities and residents to alleviate or mitigate the problem; and anticipated impact of the Tunnel and Reservoir Plan.

Only sketchy information is available on flooding in the Chicago area. Federal, State, and local agencies had limited information on sewer backup flooding and only a few communities had conducted "post card" surveys to identify the severity of the problem.

We visited each of the 54 communities and talked to local officials to obtain their views on flooding in their community. Officials in many of these communities had no concrete information; merely mental impressions of local problems. The community summaries in this volume, therefore, represent the flooding situation as perceived by these officials.

Each summary was mailed to the principal elected community official to determine from them if it accurately portrayed the situation in their community. Changes requested by these officials were incorporated into the summaries. In the few cases where this could not be easily done, we added the caption "Community Comments" at the end of the summary.

In addition to this volume, our report includes five other volumes which address the following areas:

Volume	
1	An Executive Summary - includes an introductory section on the flooding and pollution problem in the Chicago metropolitan area and background information on the Tunnel and Reservoir Plan; synopsizes information in the other volumes; and contains our conclusions and recommendations.
2	The Tunnel and Reservoir Plan: Its Status and Impact - describes the plan's current construction and funding status; its impact on

Volume

pollution and flooding in the combined sewer area; and the environmental concerns expressed about the plan.

3 A Profile of Urban Flooding in the Chicago Metropolitan Area--describes the flooding problem in the combined sewer area, including the extent of the problem (flooding of basements, streets, viaducts, etc.); estimated flood damages; and injuries, deaths, and health problems.

4 Funding for Local Flooding Problems is Extremely Limited--summarizes the availability of Federal, State and local funds for projects to alleviate flooding.

5 What Can Be Done To Minimize Or Eliminate Urban Flooding? --describes the actions local communities and homeowners can take to prevent flooding.

ABBREVIATIONS

EPA	U.S. Environmental Protection Agency
GAO	General Accounting Office
HUD	Department of Housing and Urban Development
loop	The downtown business district of Chicago
MSD	The Metropolitan Sanitary District of Greater Chicago
TARP	Tunnel and Reservoir Plan

GLOSSARY

Catchbasin	A chamber or well, usually built at the curbline of a street, for the admission of surface water to a sewer or subdrain, having at its base a pit designed to retain grit and debris below the point of overflow. The entrance to the catchbasin is through a grate and/or a curb opening. The purpose is to prevent sewer clogging by trapping coarse debris and to prevent odor emanations from the sewers by providing a water seal.
Check valve	A device installed in the sewer line between the house and street or in the house sewer line under the basement to prevent water from backing into the basement. Some valves close automatically when the flow through the sewer line reverses. Some are mechanically operated by control devices and some are manually operated.
Combined sewers	A sewer system composed of sewers which receive both municipal sewage and stormwater runoff from roofs, streets, ground, etc.
Drain plug	A device installed in floor drains to prevent water from backing up from the drain.
Infiltration	The water entering a sewer system and service connections from the ground, through such means as defective pipes, pipe joints, connections, or manhole walls.
Instream aeration	The circulation of oxygen in water to aid in purification.
Interceptor sewers	The collection system that connects main and trunk sewers with wastewater treatment plants.
Overbank flooding	Flooding that occurs when a river, stream, etc., overflows its banks.

Overhead sewers	A system in which all wastewater from above the street level in the house flows by gravity to the street sewer, but all wastewater and seepage collected in the basement is pumped up to the overhead sewer. The force of gravity and, ultimately, a check valve between the basement and the sewer system prevent backup from the street sewer system.
Outfall	The place where an effluent is discharged into receiving water.
Restrictor	A device placed in catchbasins to limit the rate of flow of water into the sewer system.
Separate sewers	A sewer system composed of sanitary sewers which carry only domestic and industrial sewage and storm sewers which carry only storm runoff.
Sludge	The solid matter removed from wastewater through treatment. Sludge handling involves the processes that remove solids and make them ready for disposal.
Standpipe	An open-ended pipe inserted tightly into a drain which serves as a reservoir to capture minor backups.
Sump pump	A device which pumps out water that accumulates in a basement sump pit.

SECTION 1

ARLINGTON HEIGHTS

BACKGROUND

Arlington Heights comprises 15 square miles of flat terrain, northwest of Chicago. It is 90 percent developed and primarily residential, with 15,564 single-family and 656 multiple family residences. There are also 350 light industrial and retail businesses. The village has a population of 71,000, whose 1977 median family income was $29,990.

Arlington Heights has a partially combined sewer system. Combined sewers in the older, central section account for an estimated 50 percent of the village's sewer lines. Considering that some sections were installed during the 1920s, a village engineer believes the system is in fair to good condition.

EXTENT OF FLOODING

A serious flooding problem results from an inadequate local sewer system and extensive development on low, level terrain. (See maps, p. 3 and 5.) A village official estimated that widespread flooding occurs once or twice a year.

Sewer backup, combined with door and window seepage creates severe basement flooding. Village officials anticipate sewer backup after any intense rain; one estimated it happens three to four times per year. Since 1967, at least three deaths have been attributed to electrocution in flooded basements.

Street flooding is also a severe problem, with repetitive flooding reported in many areas. Overbank flooding is infrequent.

The village distributed a post card survey to 15,000 residents in 1972. Thirteen percent responded, reporting $627,419 in damaged goods and $212,545 in structural damages resulting from an August 25, 1972, storm (a 25-year storm). The flood survey responses, considered reliable by village officials, also indicate repetitive sewer backup and street flooding from combined sewers in the central section.

ACTIONS TAKEN BY COMMUNITY

According to village officials, Arlington Heights has taken various actions to alleviate flooding problems.

For example:

--The village funded three engineering studies from 1973-75 at a total cost of $40,000. The studies recommended construction of detention basins and sewer projects. To implement these recommendations, the village board issued three general obligation bonds totaling $14.5 million which it funded by increasing individual property taxes by $40 per year. As of August 1978, $5.3 million had been expended.

--The use of retention/detention basins has been emphasized. About 28 basins have been completed or proposed by the village or private developers. According to a village official, these basins are effective in reducing flooding--problems and complaints have decreased since their construction. In addition, many of the basins provide recreational benefits, such as boating and fishing, or are part of multi-use facilities, including tennis courts and football fields.

--The village design manual for new construction requires storm water facilities, such as separate sewers; storage facilities to compensate for flood plain construction; and 100-year-frequency storm runoff as well as ground water drainage.

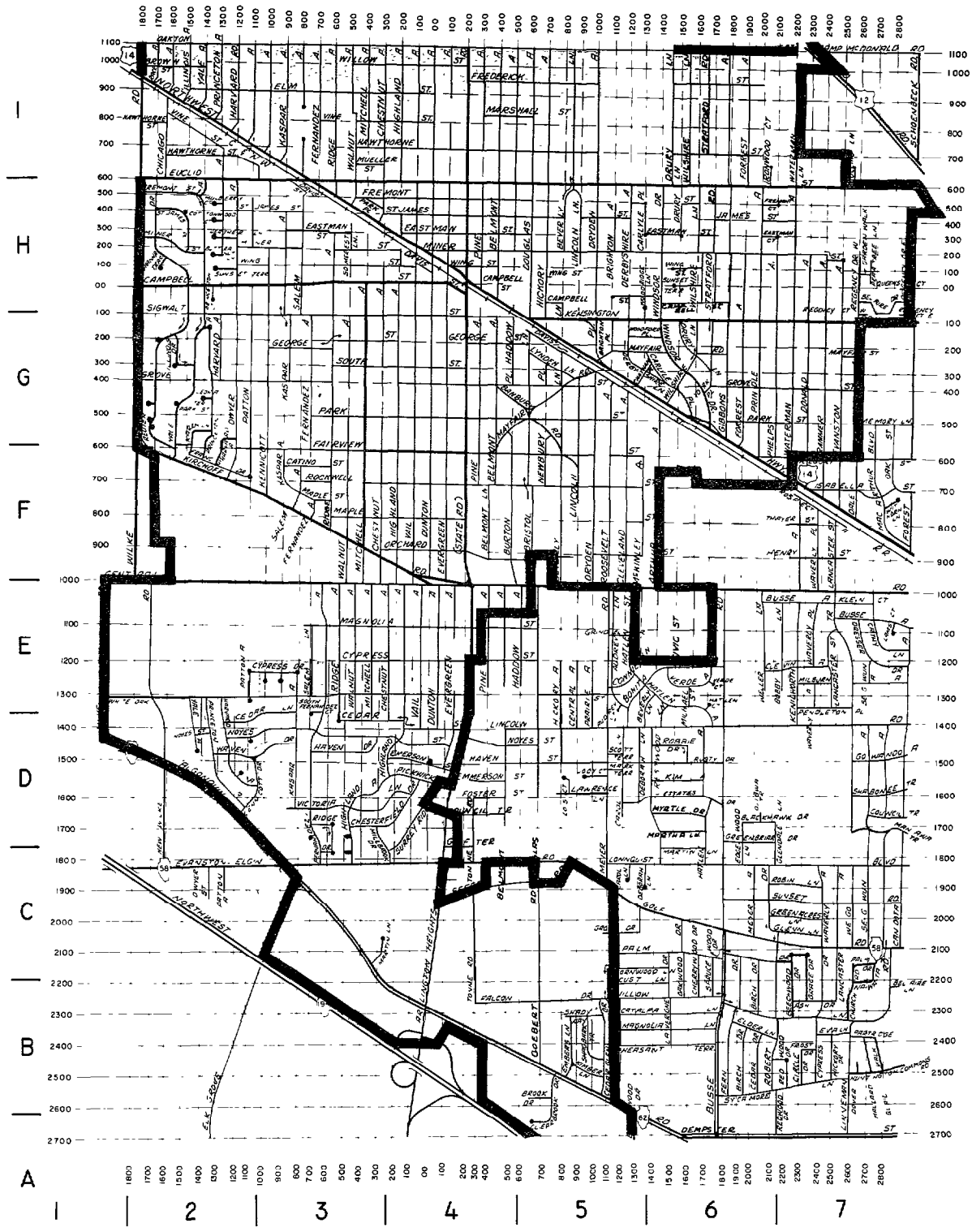
--Arlington Heights passed a flood control ordinance in 1963 which requires downspout disconnection for all new construction. In addition, the village requires downspout disconnection for all structures in problem areas identified by village inspections.

--The village has a routine maintenance program with 30 percent of the village's 4,500 catch basins and 50 percent of the village's sewer lines (combined and sanitary) cleaned annually. Television monitoring is also done as needed. According to a village official, sewer maintenance activities have helped alleviate flooding problems.

--Streets are cleaned throughout the city every 30 days and every 6 days in the business district.

ACTIONS TAKEN BY RESIDENTS

Village officials had no information on flood control measures taken by residents. According to one official,

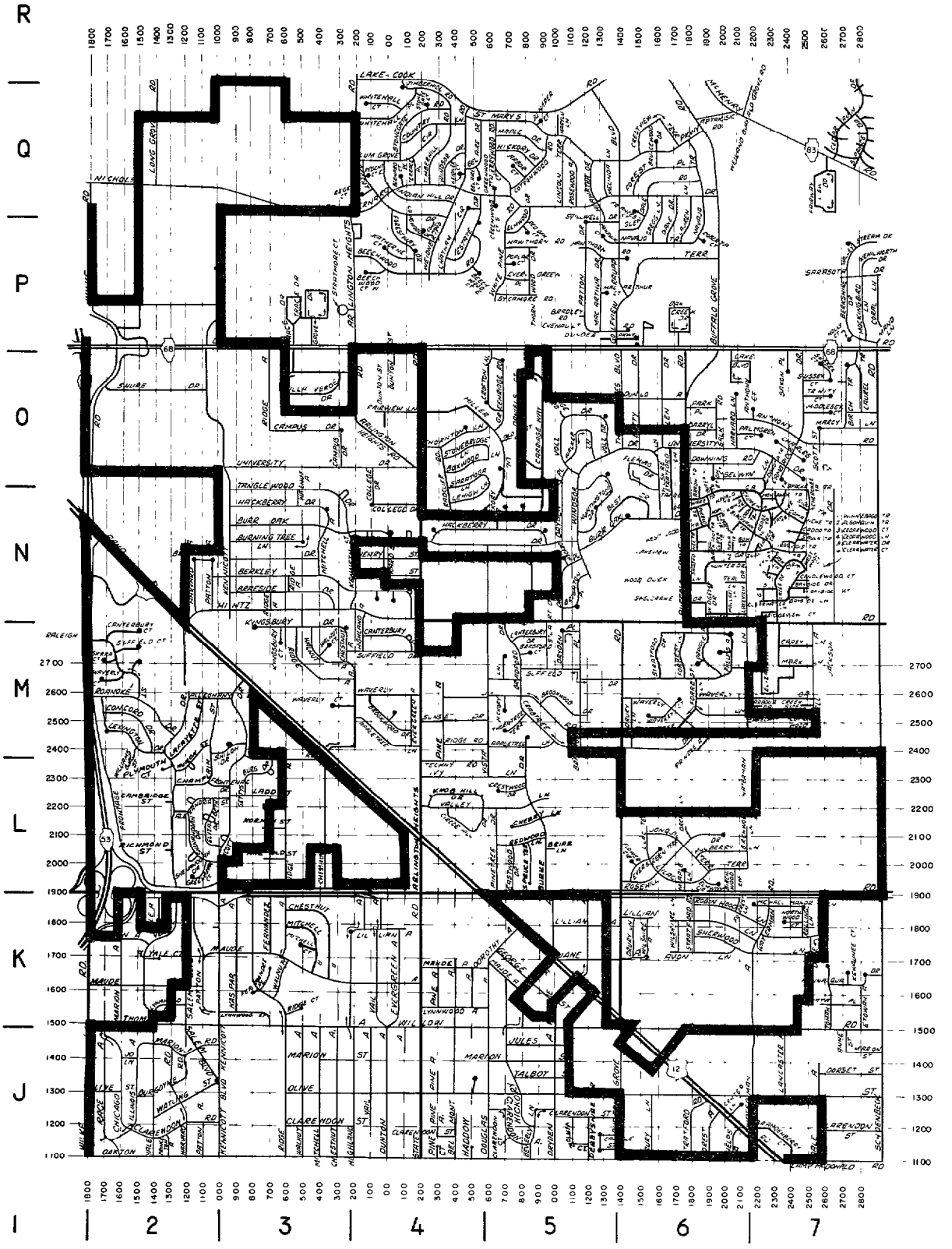


Severe Sewer Backup

City Limits

Combined Sewer Area

ARLINGTON HEIGHTS



ARLINGTON HEIGHTS

many residents accept personal responsibility for basement flood control and do not contact the government.

IMPACT OF TARP

Village officials estimate that unless their local sewer system is upgraded, their flooding problems will receive little benefit from TARP. An engineer reported that, while phase I will eliminate overflow pollution into Weller Creek, it will do nothing to help reduce the flooding caused by backup of the combined sewer system into hundreds of homes within the village. Officials estimate that $5 million will be needed to upgrade the sewer system to maximize the benefits of phases I and II. They say these funds will probably be obtained through a local bond issue.

COMMUNITY PLANS

The village is currently applying for an EPA grant to study its sewer problem. It anticipates spending approximately $14 million for flood control including $10 million for a multi-use flood control project known as Lake Arlington. Also, of the $5 million needed for sewer upgrading, $4 million will be spent for upgrading sewers in the east-central section of the community to connect to the deep tunnel project.

SECTION 2

BEDFORD PARK

BACKGROUND

Bedford Park covers about 6 square miles in southern Cook County and has a population of around 600. The community has a strong industrial base--up to 60,000 people work there. The residential area covers approximately 4 square blocks with about 200 single-family homes. Thirty percent of the community is undeveloped.

Bedford Park's combined and separate sewer systems serve 70 and 20 percent of the village, respectively. The remaining 10 percent of the village is unsewered. The combined system is about 60 years old, but the separate system was built in the late 1960s. The local system is in good condition because Bedford Park has a routine sewer repair and cleaning program. Approximately $150,000 was spent on sewer maintenance in 1977.

EXTENT OF FLOODING

Except for some minor street flooding (see map, p. 9.) the village does not have flooding problems. The community's residences have no sewer backup into basements.

ACTIONS TAKEN BY COMMUNITY

According to village officials, Bedford Park has acted to avert flooding. As examples, the village

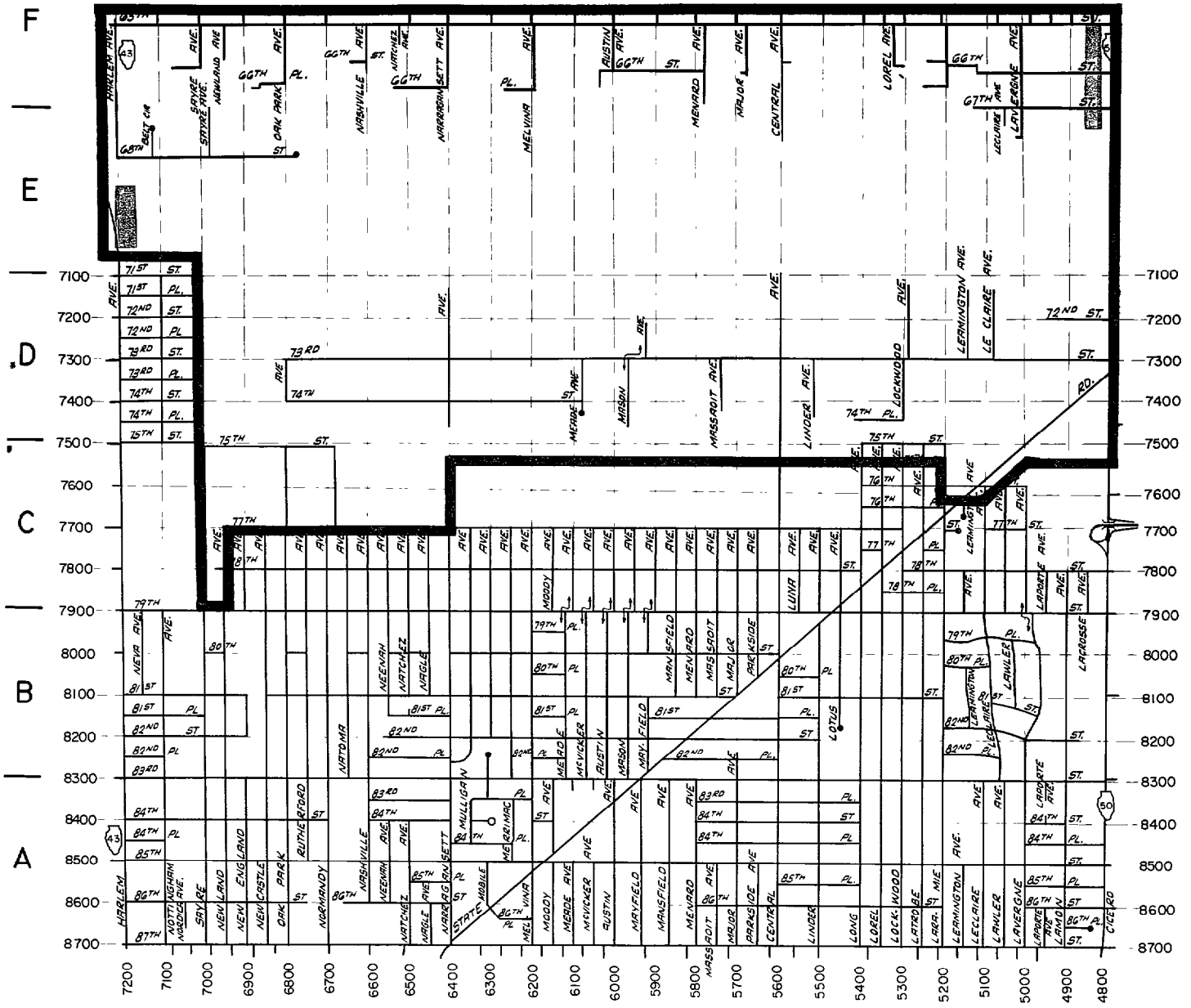
--examines its sewer system twice a year for obstructions and debris,

--rods out sewer lines between homes and streets at no cost to residents,

--constructed relief sewers in the early 1970s costing about $350,000, and

--built several reservoirs in the separate sewer area--one as large as 22-1/2 acres.

The village has not passed an ordinance requiring that downspouts be disconnected in existing homes because they do not have flooding problems and residents would dislike it.



Street Flooding

Combined Sewer Area

City Limits

BEDFORD PARK

ACTIONS TAKEN BY RESIDENTS

Village officials did not have records on flood control measures taken by residents. However, they estimated that some homeowners have added flood control devices to protect their basements from possible combined sewer backup.

IMPACT OF TARP

According to officials, TARP will have no real flood reduction impact. They believe TARP's main impact in Bedford Park will be to reduce pollution. Overflows of sanitary and storm water into the Little Calumet River will be reduced. No sewer upgrading will be needed to tie into TARP.

COMMUNITY PLANS

Because village officials see no real need, they do not plan to apply for an EPA grant to study and upgrade their sewers. Further, they currently have no plans for other flood control measures.

SECTION 3

BERWYN

BACKGROUND

Berwyn, in western Cook County, is a community of 52,000 people covering 3.8 square miles. This highly developed city has 15,000 residential dwellings and 1,400 commercial structures. The 1977 median family income was $18,720.

Berwyn has a totally combined sewer system which officials estimate was primarily built in 1905. The sewers are badly deteriorated because of little or no maintenance work other than periodic cleaning.

EXTENT OF FLOODING

Flooding is a moderate problem in Berwyn, Basement flooding, due to deteriorated sewers and root intrusion, occurs randomly throughout the community. City officials did not know the frequency of flooding or the storm intensity which would cause flooding to occur. Flooding also occurs at one viaduct due to an inadequate drain rather than the local sewer conditions. Overbank flooding is not a problem.

ACTIONS TAKEN BY COMMUNITY

Berwyn has taken various actions to alleviate flooding problems. For example:

--Berwyn constructed storm relief sewers in the 1950s and 1960s which reduced flooding caused by backup from the MSD interceptor.

--Sewer maintenance is performed on the basis of complaints from residents rather than under a program of preventative measures. The city has its contractor remove debris when sewer blockages are identified. There have been no inspections of the sewer system during the last 10 years.

According to Berwyn officials, no flood-related ordinances have been instituted.

ACTIONS TAKEN BY RESIDENTS

Berwyn officials had little or no knowledge regarding actions taken by residents to alleviate flooding. They did,

however, note that most homes in Berwyn are older, so sump pumps and overhead plumbing would be uneconomical to install.

IMPACT OF TARP

Officials did not know what effect TARP would have on Berwyn's flooding problem if local sewers were not upgraded. TARP will hopefully help alleviate sewer backup from the MSD interceptor and therefore provide some benefit. Berwyn officials believe, however, that flooding will not be eliminated until their sewer system is rehabilitated.

COMMUNITY PLANS

In 1978 Berwyn received a $53,000 EPA grant to study its sewer system. The funds are part of a $400,000 project application ($100,000 local share) Berwyn submitted to finance manhole and catch basin renovation.

Future work in Berwyn will be aimed at the sewer system deterioration problem. The city must reconstruct deteriorated sewers and catch basins so the system will continue to accommodate sanitary and storm flows without excessive maintenance.

SECTION 4

BLUE ISLAND

BACKGROUND

Blue Island, in southern Cook County, comprises 4 square miles of basically flat terrain except for a narrow hill which divides the area. The city has a population of 23,000 and includes 6,000 residences, of which about 80 percent are single-family and 20 percent are multiple-family. Blue Island also has a variety of industry. About 95 percent of the community area is developed. The 1977 median family income was $18,340.

Blue Island's sewer system is about 95 percent combined and 5 percent separate. Most of the combined sewers were built in the 1920s while the separate sewers were built after 1955.

While sections of the sewer system are in good condition, other sections are gradually deteriorating because of age. According to city officials, the sewer system has an insufficient capacity to convey wastewater during rainstorms greater than 1 to 2 inches an hour.

EXTENT OF FLOODING

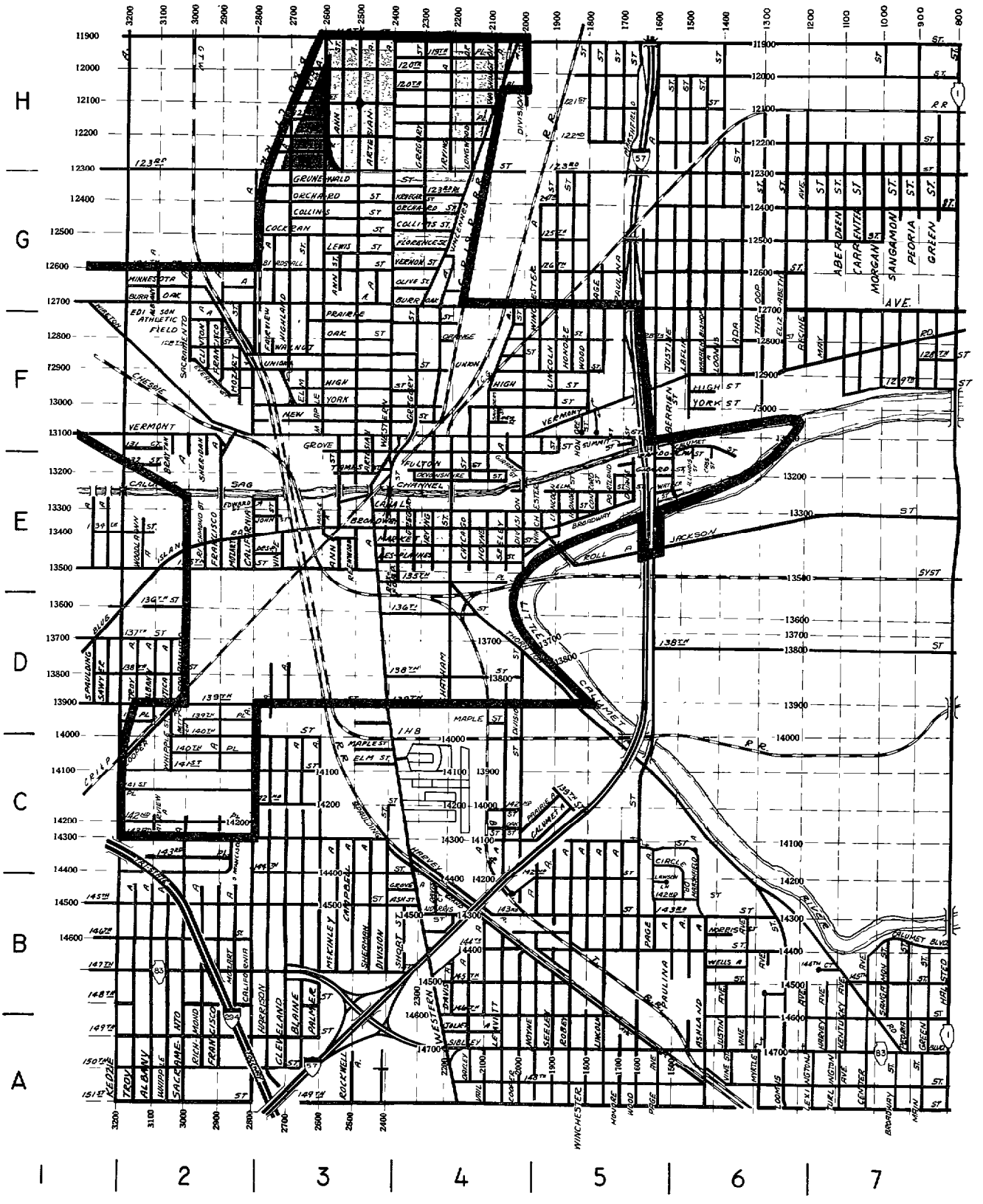
According to a city official, basement sewers back up in certain areas when it rains 1 to 2 inches an hour, because the combined system cannot handle the increased flow and some homes are near the bottom of a hill. (See map, p. 15.) Officials did not know the frequency nor the severity of this flooding. Not everyone in the identified areas has flooding because not everyone has basements and some people have installed flood-reducing devices. Most of the basement flooding occurs in older homes.

Rainstorms greater than 2 inches an hour cause widespread sewer backup in the entire community. Again, officials did not know the flooding frequency or severity.

Blue Island does not have viaduct, street, or expressway flooding problems.

ACTIONS TAKEN BY COMMUNITY

Blue Island has taken some actions to alleviate flooding problems. In 1973 a house-to-house survey was conducted to obtain information on sewer backup. The survey indicated that some homes in all neighborhoods within the city experience varying degrees of basement flooding during heavy rains.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Severe Sewer Backup
Sewer Backup
City Limits
Combined Sewer Area

BLUE ISLAND

Blue Island's major program has been to install relief sewers where people have flooding problems. However, in 1974 Blue Island residents voted against a $4 million bond issue to construct additional relief sewers. According to a city official, the measure's supporters were narrowly outvoted by people who either had no flooding problems or had already spent their own money to alleviate flooding.

Public Works records indicate the city has been expending approximately $50,000 annually for minor sewer repairs and routine maintenance. However, in the last 2 years, there were major sewer failures of old brick main drain sewers, for which repair costs exceeded $200,000. These failures are not a result of negligent maintenance, but caused by the age of the sewers which were constructed in the early 1900s and are in a deteriorating condition.

According to officials, the city has awarded sewer cleaning contracts to neighborhoods where severity of backups were experienced in minor rainfalls. In this matter, the entire system was cleaned in 1968 and thereafter, as required, on an annual basis as previously mentioned.

In some flood areas, restrictors have been installed in street curb inlets to flood the street and keep the rainwater out of the system.

Officials also told us downspouts cannot be disconnected since discharging downspouts at grade would result in flooding adjoining residences due to the narrow lots and improper grading for surface water runoff.

ACTIONS TAKEN BY RESIDENTS

While city officials believe some residents have installed overhead sewers and gate valve devices (a manually operated valve to prevent backups) to reduce flooding, they were unable to tell us the number installed.

IMPACT OF TARP

According to officials, the proposed TARP shaft locations in the city of Blue Island were placed to receive the extraneous overflows resulting from abnormal rainfalls; thereby alleviating the pollution of the Cal Sag Channel where extraneous overflows presently discharge. There are three such locations at present. While the TARP plan will not relieve the flooding or backups experienced in certain neighborhoods,

as indicated on the attached map, TARP junction chambers were designed at shaft locations to receive the additional storm water discharging at these points. The relief sewers had alreay been designed, and this information was provided to the TARP design engineers as a part of future planning that the city will, when funding is available, contruct the storm relief sewer system. For this reason, the city is in support of the TARP plan.

COMMUNITY PLANS

Blue Island has received a $20,000 EPA grant, which provides for the study and evaluation of the existing sewer system. It is anticipated that after the study has been completed it will reveal the need for a Step 2 Grant which will provide the funds for cleaning and televising the entire sewer system. This study would reveal the need for repairs to the existing sewer system and thus provide the qualifications needed for a Step 3 Grant.

SECTION 5

BROADVIEW

BACKGROUND

Broadview, in central Cook County, covers about 1.8 square miles of flat terrain and has a population of 9,623. Almost totally developed, the village has 2,455 single-family residences, 167 multiple-family dwellings, and 288 industrial and commercial buildings. The 1977 median family income was $18,390.

Broadview has a partially combined sewer system. The combined system accounts for approximately 80 percent (77,073 ft.) of the sewer lines in Broadview and serves most of the residential and commercial sections of the village. This system was constructed around 1915 and, according to village officials, is in fairly good condition. The separate sewer system (26,655 ft. of sanitary sewers and 23,407 ft. of storm sewers) serves the industrial section and a few scattered residential and commercial areas.

According to village officials, the sewer system can handle storm and sanitary flows, except during severe (3 inches of rain in 1 hour) or prolonged (7 inches of rain in 24 hours) rainfalls.

EXTENT OF FLOODING

Broadview officials categorized flooding as infrequent (once every 2 to 3 years). They noted the following flooding conditions in the combined sewer area after severe or prolonged rainfalls. (See map, p. 21.)

--Some homes in the northwest corner of the village experience basement backup.

--Street flooding occurs at various locations in the east-central part of the community.

Overbank flooding, which affects some homes, occurs every 2 to 3 years in the separate sewer area at the junction of Addison and Salt Creeks.

ACTIONS TAKEN BY COMMUNITY

Broadview has taken various actions to alleviate flooding problems. For example:

--The village passed an ordinance prohibiting the discharge of stormwater, surface water, or ground water into sanitary sewers in the separate sewer system area. This ordinance applies to new as well as old construction.

--The roofs of all new industrial buildings must be constructed to detain water, and industries covering more than 5 acres must provide onsite retention ponds. (There are two such retention ponds in Broadview.) All parking lots in Broadview are constructed to detain water.

--The village has an active public maintenance program. The Public Works department flushes and rods the entire sewer system annually and applies chemicals to kill tree roots which infiltrate the system. Approximately one-third of the catchbasins are cleaned annually, and streets are swept weekly.

--Village officials, in a monthly bulletin, encourage homeowners to disconnect downspouts (80 percent have done so) and to keep their sewer connections in good working order through regular maintenance.

Village officials consider all of the above actions very effective in alleviating flooding.

ACTIONS TAKEN BY RESIDENTS

According to village officials, Broadview residents have taken the following actions to alleviate their flooding problems.

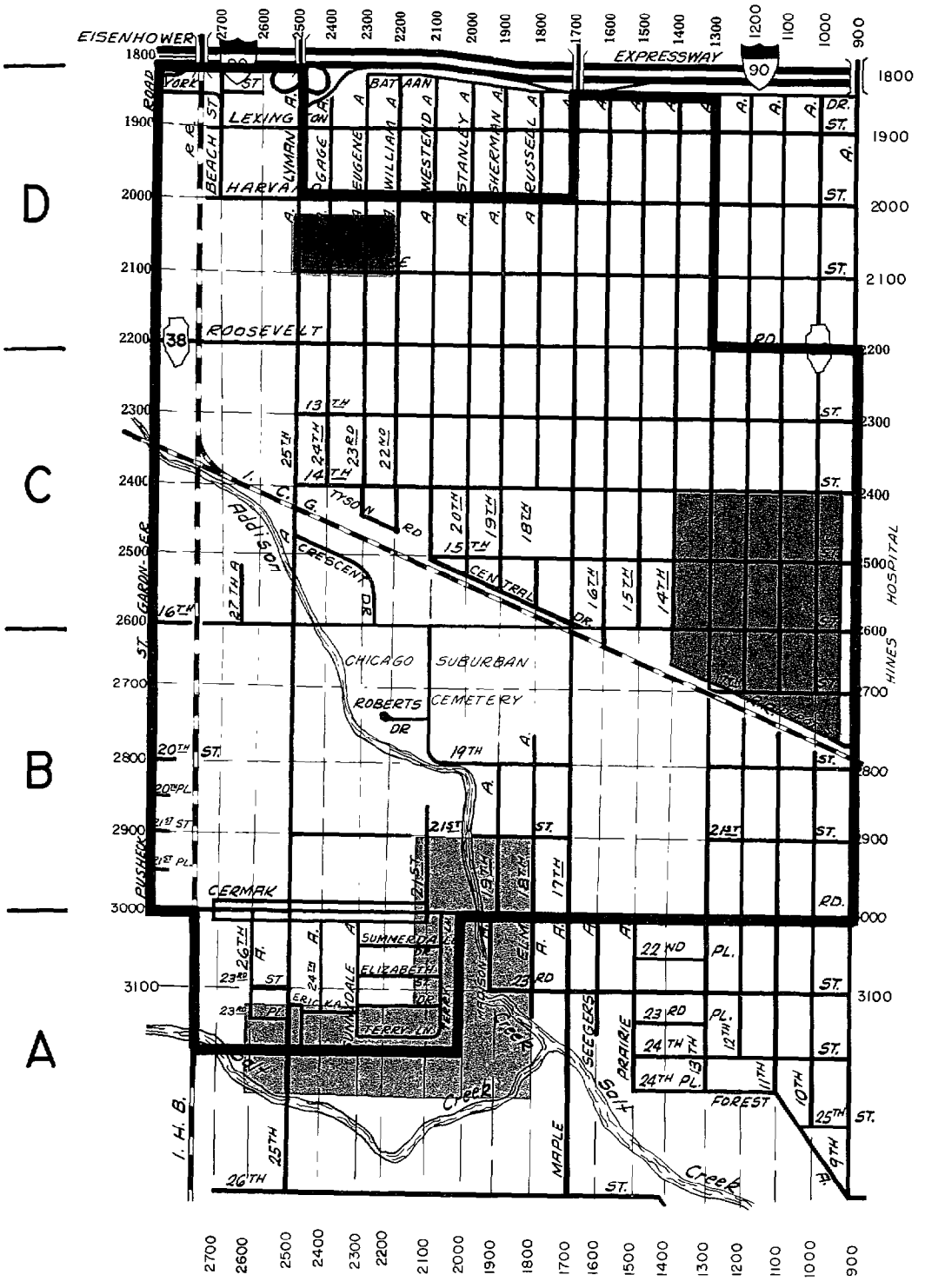
--20 percent have rodded out sewers.

--30 to 40 percent have installed standpipes.

--20 percent have installed check valves in basements.

--33 percent have connected sump pumps to their sewers and a few have also installed auxiliary generators.

--5 homeowners have installed check valves between their homes and the street.



Overbank Flooding

Street Flooding

City Limits

Sewer Backup

Combined Sewer Area

BROADVIEW

IMPACT OF TARP

Broadview officials believe the TARP project will effectively reduce flooding, even if the local sewer system is not upgraded.

COMMUNITY PLANS

Broadview received a $46,725 EPA grant for a sewer system study, which is underway. Currently, the village has no other flood-related plans.

SECTION 6

BROOKFIELD

BACKGROUND

Brookfield is a small village southwest of Chicago. The village has a population of 20,248 and covers 3 square miles. Brookfield is 98 percent developed with 5,725 single- and 690 multiple-family residences and 310 businesses. The 1977 median family income was $21,080.

Brookfield's 47.07 miles of sewers are primarily combined sewer lines. Approximately 50 square blocks in a southeastern section have only sanitary sewers with no storm water lines. The sewer lines have an average age of 50 years and are filled to capacity when 1-1/2 inches of rain falls over a short duration (flash flooding).

EXTENT OF FLOODING

Brookfield experiences moderate sewer basement backup and street flooding in the combined sewer area. Severe street and yard flooding and basement seepage problems occur in the southeast section due to the lack of storm sewers. Overbank flooding is not a problem. (See map, p. 25.)

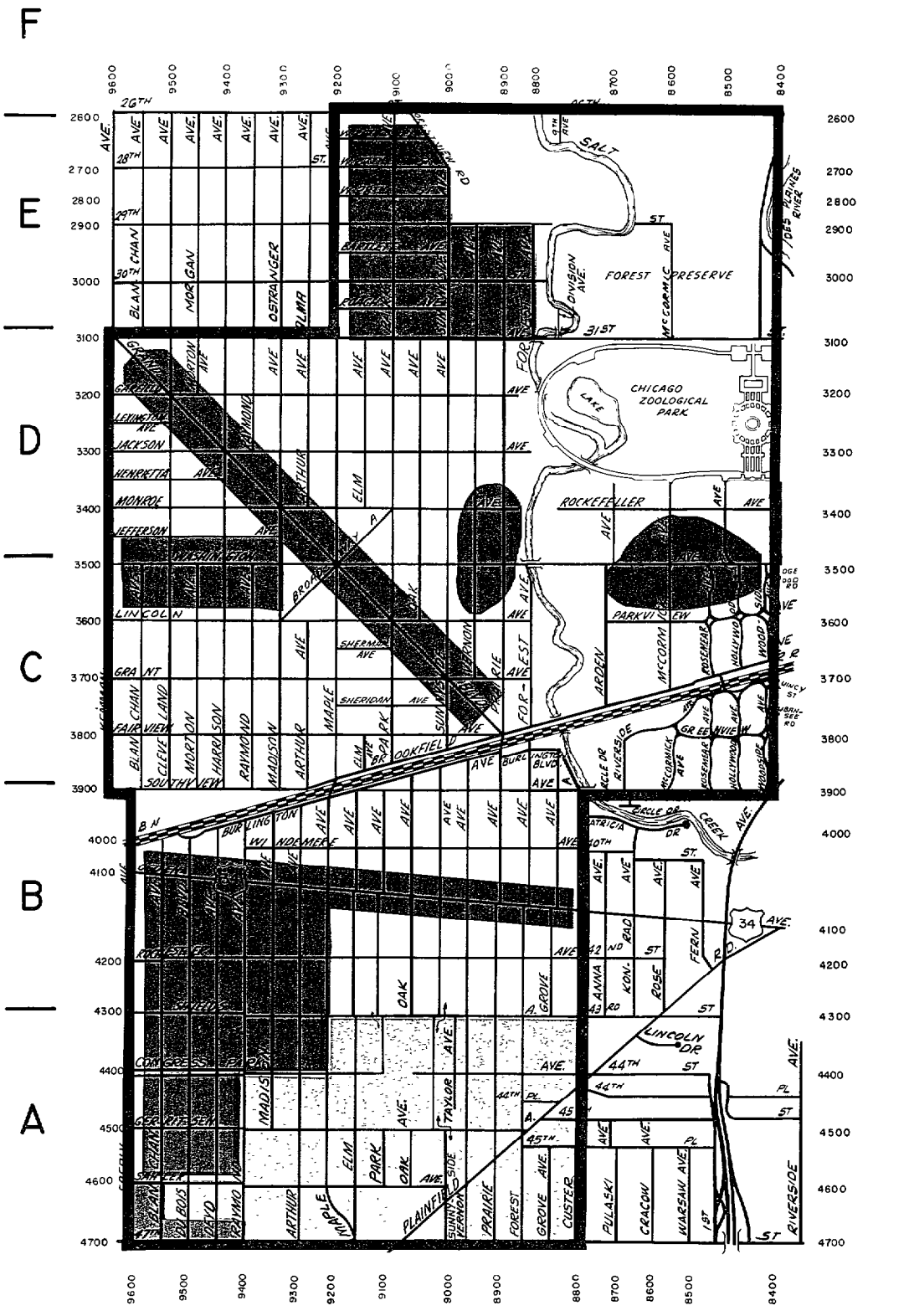
Sewer backup reportedly occurs once or twice a year in the combined area, while street flooding occurs throughout the community with the same frequency. During a recent flash flood rainfall, main sewers along stretches of several streets were filled to capacity and flooding was reported curb to curb.

Severe street flooding and storm water ponding is reported in south Brookfield, where rainwater accumulates rapidly due to the lack of storm sewers and hard-rock formations several feet below the ground. Basement flood-ong due to seepage may result from yard and street flooding. Flooding frequency in the southeast section ranges from more than three times to six times each year.

According to a village official, flooding has occurred more frequently over the years with even the best and deepest sewers having problems.

ACTIONS TAKEN BY THE COMMUNITY

Brookfield has taken various actions to alleviate flood problems. For example: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CHICAGO ZOOLOGICAL PARK
FOREST PRESERVE
ROCKEFELLER
Sewer Backup
Severe Sewer Backup
City Limits
Combined Sewer Area

BROOKFIELD

--In 1976 Brookfield contracted with engineers for a study of its sewer system and development of relief programs. The study recommended installation of storm water sewers for a 50 block area in the southern section costing an estimated $4.8 million. The project was abandoned when residents vigorously protested a special assessment and many attempted to sell their south Brookfield homes.

--Through building permits, the village enforces MSD requirements for new construction including sump pumps discharging to yards, overhead sewers, and disconnection of downspouts. Village personnel also have requested downspout disconnection in areas where flooding is a problem. Village officials noted that the above ordinances do not apply to existing buildings because retrofitting would be costly to residents and politically unwise.

--The village has changed the ground elevation around some parks and open land to prevent runoff from entering sewers.

Brookfield has no ongoing sewer maintenance program. The village has a 2-year program to clean all sewers, but the last cleaning was done in 1975-76 after which the program was abandoned due to a personnel shortage. The sewers are currently cleaned as needed. A village official recalled five programs to clean the entire system since 1951. Currently, 900 of 1,562 catch basins are cleaned annually and streets are cleaned periodically.

ACTIONS TAKEN BY RESIDENTS

Village officials estimated that 75 percent of all buildings in Brookfield are equipped with at least one of the following:

--Sump pumps.

--Standpipes.

--Check valves.

--Overhead sewers.

In addition, officials reported that some residents have disconnected downspouts and placed rugs or other objects over manhole covers to prevent basement flooding in combined areas.

In 1976 Brookfield residents successfully protested rezoning of four vacant areas for new construction in the southern section citing the problems of increased runoff and sewer use in an already flood-prone area.

IMPACT OF TARP

Brookfield officials anticipate that TARP alone will not reduce or eliminate flooding as the village needs to upgrade its combined sewer system. TARP will not benefit the southeastern section of Brookfield as flood problems are due to the lack of storm sewers.

COMMUNITY PLANS

In 1978 Brookfield received $57,000 through an EPA grant for an engineering study of its sewer system.

Engineers estimated the planned Brookfield-La Grange trunk sewer line (to connect with TARP) will cost $1.7 million and that this cost will be funded equally between the two villages.

The village is also seeking funding for the 1976 recommended sewer improvements since officials anticipate that the village will not be able to afford the full cost of upgrading or installing necessary sewer lines. Village officials anticipate Federal funds as one source, with the local share financed by a bond issue.

SECTION 7

BURNHAM

BACKGROUND

Burnham, in southern Cook County, has a population of 3,935 and comprises 2 square miles of flat terrain. An unsewered Cook County Forest Preserve golf course occupies about 33 percent of the land area. The village is about 66 percent developed, having 970 single-family homes, 57 multiple-family dwellings, and 32 businesses. Approximately 25 percent of the land area can still be developed and will probably be rezoned for residential use. The 1977 median family income of Burnham residents was $19,680.

Burnham has a totally combined sewer system. The oldest sewers, located in the northeast section of the village and servicing about 33 percent of the homes, were constructed around 1930. The newest sewers are located in the western part of the village and were constructed between 1950 and 1960. These sewers service about 66 percent of Burnham's population.

According to village officials, the sewers in the older northeast section are inadequate to handle flows from heavy rainfalls because of their small size and the fact that they are placed just below street level.

EXTENT OF FLOODING

Overall, Burnham has severe flooding problems. Severe basement backup flooding occurs about 4 to 6 times per year in about 20 to 25 of the homes in the older northeast section of the village due to inadequate local sewers. (See map, p. 31.)

Street flooding occurs only in the newer western section of the village. Water ponds in the streets for about 1/2 to 1 hour approximately 4 to 6 times per year. Officials noted that this type of flooding is more tolerable than sewer backup in basements.

No overbank flooding occurs in the village. Officials knew of no flood related deaths or injuries occurring during the last 20 years.

ACTIONS TAKEN BY COMMUNITY

According to village officials, Burnham has taken various actions to alleviate flooding. For example:

--In 1971 an ordinance was passed amending the building code to comply with MSD's sewer use ordinance. The village requires disconnection of downspouts on new structures.

--A 1972 ordinance regulates the filling, grading, and excavating of land to insure that flooding conditions do not increase.

--Burnham's main sewers are cleaned on a 3-year cycle, with remaining sewers cleaned on an as-needed basis. One-third of all catchbasins are cleaned every year. Also, an engineering company recently completed an inspection of a segment of the sewer system.

ACTIONS TAKEN BY RESIDENTS

Burnham officials estimate that residents have taken the following actions to alleviate their flooding problems.

--50 percent have overhead sewers with sump pumps.

--25 residents use standpipes.

IMPACT OF TARP

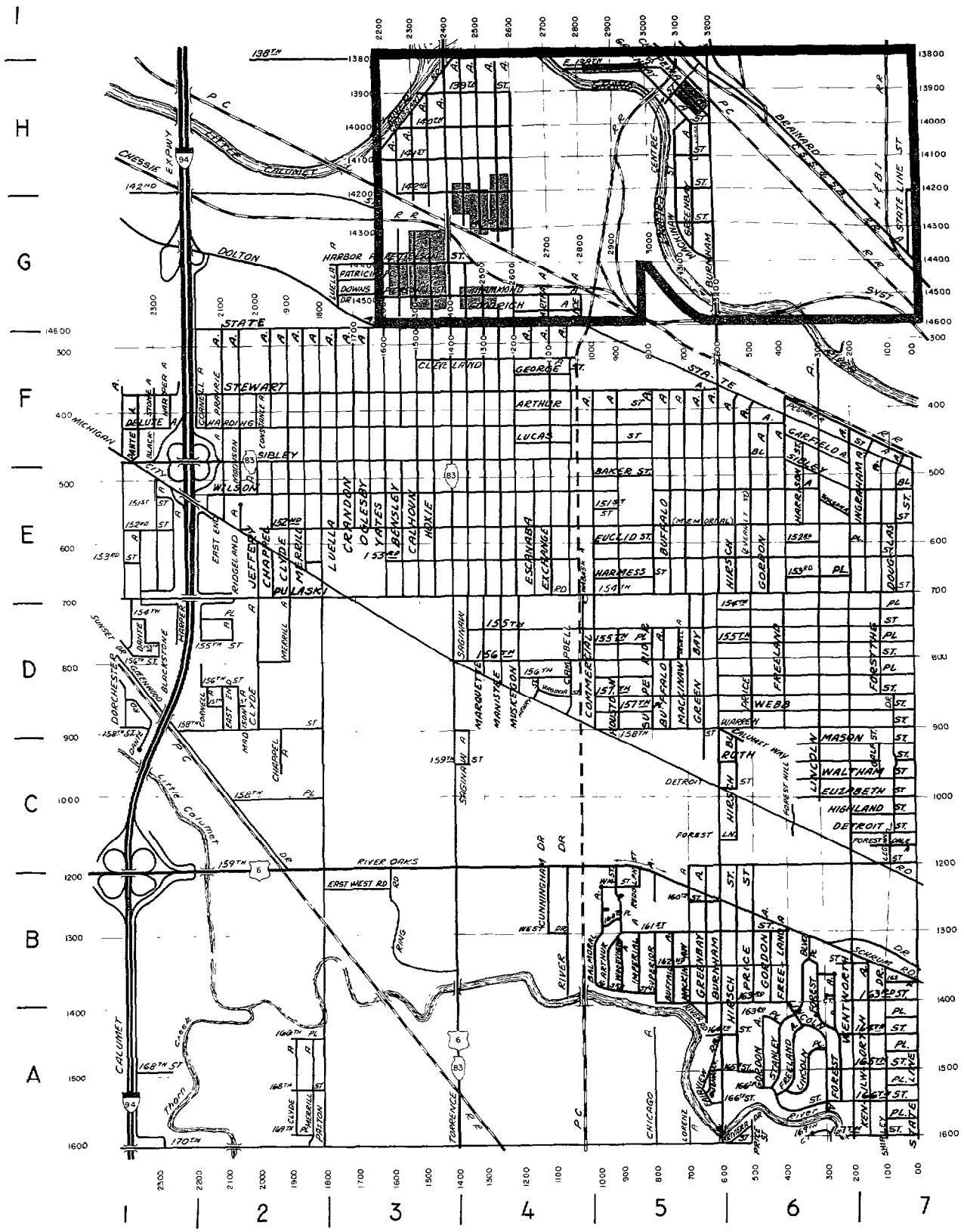
The TARP project will have no effect on street or basement backup flooding in Burnham because the flooding problems stem from inadequate local sewers. Officials did not know if the village would have to expend funds to connect to TARP. They do know, however, that to eliminate or minimize their flooding problems, local sewers need to be upgraded.

COMMUNITY PLANS

According to local officials, the village plans to pass an ordinance requiring disconnection of downspouts on all homes.

A limited 1975 engineering report noted that about $3 million would be needed for upgrading the sewer system. A more thorough sewer study will be necessary to obtain reliable estimates.

On three occasions, Burnham applied for an EPA grant to study its sewer system but has not received approval. Village officials are presently rewriting their application for submission in 1979.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Sewer Backup
Viaduct Flooding
Street Flooding
City Limits
Combined Sewer Area

BURNHAM

Officials stated that, at present, there are no prospects for sewer upgrading projects because of the lack of a sewer study and insufficient local funding. They plan to contact Federal, State, and county sources for potential funding.

The village has no other current plans for flood-related actions.

SECTION 8

CALUMET CITY

BACKGROUND

Calumet City, in southern Cook County, covers 11.7 square miles of flat terrain and has a population of about 38,600. The 1977 median family income was $20,870.

The city is 95 percent developed and includes 7,507 single-family and 9,097 multiple-family dwellings and 623 businesses.

Although there are some separate storm and sanitary sewers on the southwest side, a city official said the system is considered combined because the storm and sanitary sewers flow into combined sewers. The first sewers were built in the early 1900s; additional sewers were installed as the community developed. The newest sewers were installed 10 to 15 years ago.

According to a city official, the overall system is in fair condition. The condition of individual sewers varies from good to very bad depending on their age. Some older sewers on the east side need to be replaced. Because of its low level (slightly above the level of Lake Michigan), Calumet City uses four pumps to move the sewage through the sewer system. Only the south side is served by gravity feed sewers.

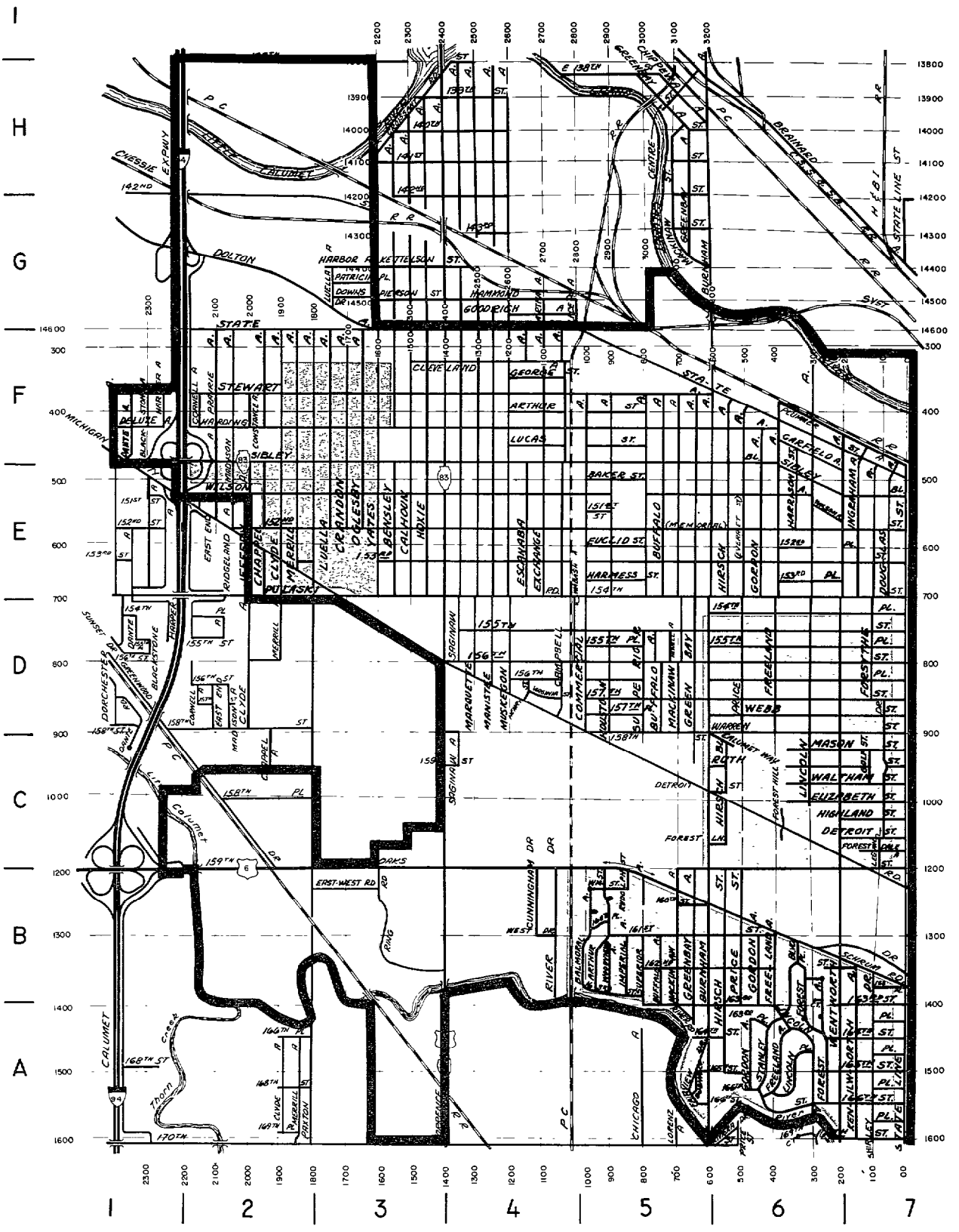
EXTENT OF FLOODING

Calumet City has severe flooding problems in three locations. (See map, p. 35.) According to an official, this flooding is caused by inadequate local sewers and by back-up from closed outfalls when the river level rises above the openings. The following flooding conditions exist.

--Basement backup occurs eight times a year on the central east side. Some sewers in this area need to be replaced.

--Street and basement flooding occur 12 times a year in 60 percent of the southeast side. This is a residential area of 2,000 newer homes. (Four outfalls on the Little Calumet River are located in this area.)

--Street flooding occurs 6 times a year in 95 percent of the lower northwest side, usually extending over the curb. Basement flooding is rare in this area.



CALUMET CITY

Calumet City does not experience highway, viaduct, or overbank flooding. There have been no deaths or major injuries due to flooding in the last 20 years.

ACTIONS TAKEN BY COMMUNITY

City officials have taken various actions to alleviate flooding. For example:

--The city passed an ordinace in 1965 requiring the installation of overhead sewers and sump pumps on new construction.

--The city passed an ordinance in 1971 prohibiting the connection of downspouts to sanitary sewers. When residents report basement flooding, officials encourage them to disconnect downspouts.

--In 1973 the city constructed a retention pond on the north side. According to city officials, this has alleviated 90 percent of the flooding in this area.

--In 1974 the city proposed a $13 million referendum to fund a project to build three lift stations. The referendum was defeated. The city has hired a consultant to seek funding sources for this project.

--In 1978 the city purchased a $70,000 hydraulic jetter/vacuum. To date, half the catchbasins and street drains have been cleaned and the city plans to incorporate a yearly cleaning program. The city hires contractors to clean and repair sewers as needed. All streets are swept at least once during the summer.

ACTIONS TAKEN BY RESIDENTS

According to city officials, residents have taken the following actions to alleviate their flooding problems.

--Approximately 33 percent disconnected downspouts.

--Many (no estimate) have also installed overhead sewers, sump pumps, standpipes, and check valves.

--During rainstorms, some residents block street drains with rugs to prevent stormwater from flooding basements.

IMPACT OF TARP

According to a city official, the TARP project will alleviate 90 percent of the flooding in Calumet City even if local sewers are not upgraded. The additional storm-water storage provided by TARP will give relief to local sewers.

COMMUNITY PLANS

Calumet City has received a $39,750 EPA grant to study its sewers. This study is now in process.

The city has hired a consultant to seek outside funding sources for the $13 million lift station project. Adding new sewers will also be a part of this project. In addition, one city official plans to ask the city council to pass an ordinance requiring the disconnection of all downspouts.

The city has no current plans for other flood related actions.

COMMUNITY COMMENTS

According to a city official, the Metropolitan Sanitary District (MSD) takes all of the city's flow during no-rainfall periods; however, during rainfalls much of the sanitary flow has to be pumped out through a sewer storm pump station.

Inasmuch as the MSD interceptor lines to the treatment plant are reduced to alleviate Chicago's flooding problems and because the city's trunk lines to its pump station are not adequate, the city suffers widespread flooding problems. The natural retention fields are rapidly being built-up, causing rainwater to enter the city's sewer system immediately, thus adding to the flooding problem.

SECTION 9

CALUMET PARK

BACKGROUND

Calumet Park, in southern Cook County, has a population of 11,514 and comprises 1.5 square miles of flat terrain. The village is about 95 percent developed with approximately 2,500 residences and 200 small businesses. About 10 percent of the village is zoned for industrial use. The 1977 median family income was $19,490.

Calumet Park has a totally combined sewer system, most of which was constructed in 1930. The commissioner of Public Works believes that virtually all of the main sewers are inadequate.

EXTENT OF FLOODING

Severe basement and street flooding occurs in various locations due to inadequate local sewers and the inability of MSD interceptors to convey storm water flows. (See map, p. 41.) The following flooding conditions exist in Calument Park.

--Basement flooding occurs in about half the residences throughout the village from time to time. (Officials could not estimate the number of times.) However, basement flooding occurs 10 to 15 times a year in two locations in the northwest section.

--Street flooding occurs 10 to 15 times a year in three locations in the northwest section and occurs occasionally in one location in the southwest section. The most serious street flooding occurs on part of a road along the north section of the Dan Ryan Expressway. According to an official, the road is in danger of washing out onto the expressway. Neither the State of Illinois, Cook County, nor the bordering communities (Blue Island and Calumet Park) will admit ownership or maintenance responsibility for this road.

No overbank flooding occurs in Calumet Park. Officials noted that there have been no flood-related deaths or injuries in the last 20 years.

ACTIONS TAKEN BY COMMUNITY

According to a village official, Calumet Park has taken various actions to alleviate flooding problems. For example:

--Through discussions with homeowners, the village recommends that downspouts be disconnected.

--The village will soon be accepting contractor bids for a television inspection of the main sewer lines.

--All streets are cleaned three times a year, one-fifth of the sewer system is cleaned annually and catchbasins are cleaned as needed.

The commissioner of Public Works knew of no flood control ordinances presently in effect. One official said the village has an "out of sight, out of mind" policy which probably accounts for the gradual disintegration of the sewer system. Also, the very small commercial tax base of this community does not allow for an adequate public works budget.

ACTIONS TAKEN BY RESIDENTS

A village official estimates that residents have taken the following actions to relieve their flooding problems.

--20 percent have installed overhead sewers.

--20 percent have installed sump pumps.

--5 to 10 percent have installed check valves.

IMPACT OF TARP

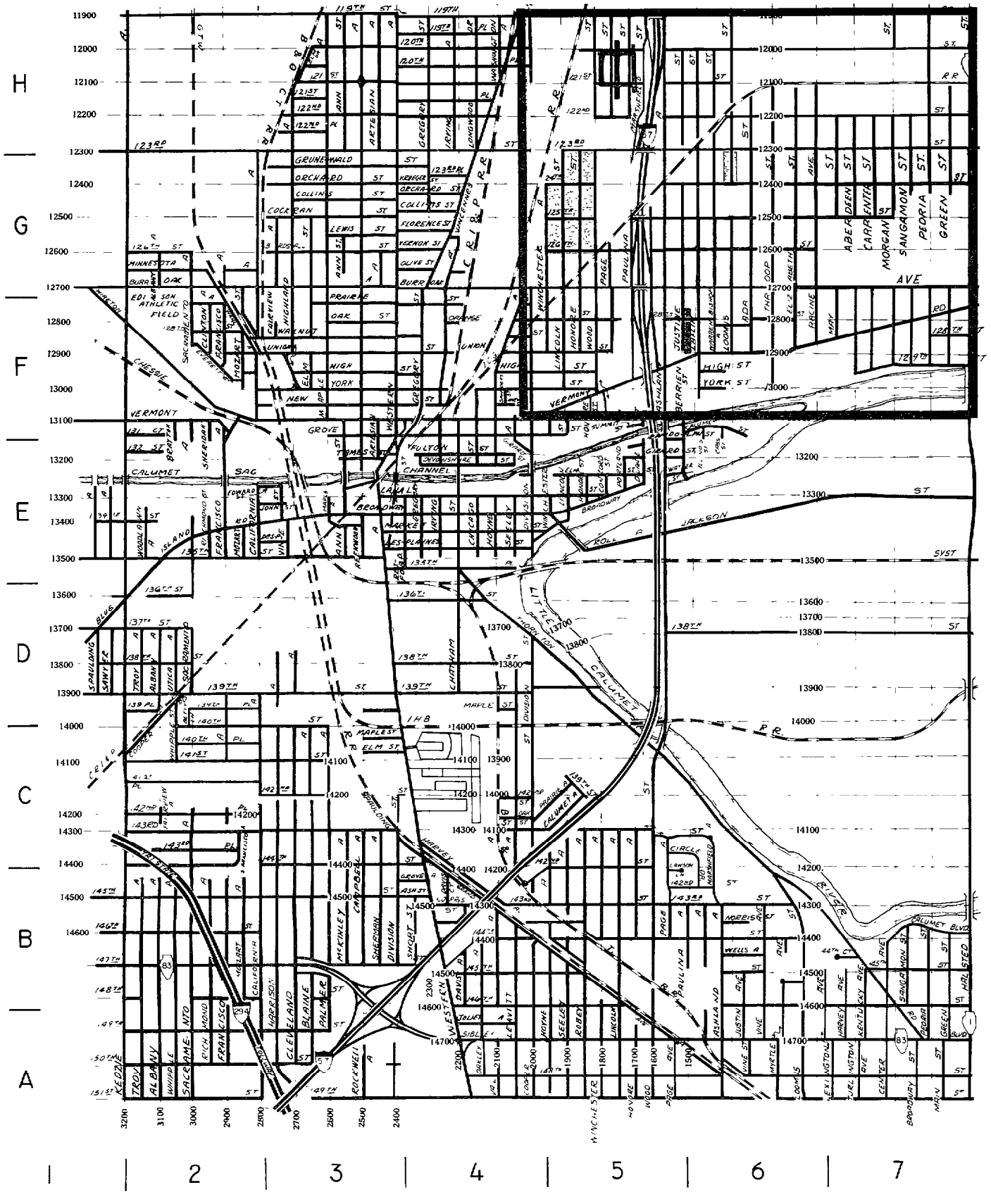
According to a village official, TARP will alleviate the flooding caused by inadequate MSD interceptors, but will not reduce flooding caused by inadequate local sewers. TARP is planned to run along the southern boundary of Calumet Park and probably will have no effect on the serious flooding that occurs in the northwest section.

COMMUNITY PLANS

A village official noted that the community is planning to enact an ordinance requiring disconnection of all downspouts.

Due to the lack of local funds, the village has no plans for engineering studies of the sewer system.

The community has no current plans for other flood-related actions.



CALUMET PARK

SECTION 10

CHICAGO

BACKGROUND

Chicago, one of the Nation's largest cities, has a population of 3.1 million and encompasses 228 square miles in Cook County. The city has flat terrain, with some areas only slightly above the level of Lake Michigan.

According to the 1970 census, the city has 1.2 million housing units. About 396,000 units are owner-occupied, 741,000 are renter-occupied, and 70,000 are vacant. The 1977 median family income was $10,242.

Chicago has a totally combined sewer system. The Department of Public Works is responsible for planning, designing, and constructing the sewers as well as securing financing for the construction activities. The Department of Water and Sewers is responsible for operating and maintaining the sewers after construction is completed.

City sewers collect and transport sanitary and industrial wastes and surface water drainage to interceptor sewers owned and operated by MSD.

According to city officials, all of Chicago's 4,200 miles of combined sewers are adequate to handle the city's sanitary needs, with most of the sewers being adequate to accommodate up to a 5 year frequency storm (1.75 inches of rain in 1 hour). Officials believe that it is not cost effective to go beyond this level of protection; costs may run into the billions of dollars if protection from a 10 to 15 year frequency storm is desired. Storms which exceed the 5 year design capacity are likely to cause sewer backups in basements and viaducts.

EXTENT OF FLOODING

The severity of flooding in Chicago has lessened over the years due to the city's sewer improvement projects and actions taken by residents to install flood control devices. Although the flooding has now been characterized as a moderate problem, city officials caution that any time a homeowner's basement floods, it is a severe problem for the homeowner and is considered a high priority matter by the City.

Since 1957 when insurance companies ceased selling flood insurance, few records of flooding instances have

been kept. City records did not readily identify the frequency, severity, and location of flooding other than for viaducts. Likewise, no records on property damage or the numnber of deaths or injuries resulting from flooding were available.

According to city officials, Chicago experiences little or no street flooding except at viaducts because water seeks its own level and either drains into viaducts or basements.

Officials noted that most Chicago residents are reluctant to admit they have basement flooding because of the effect on property values. While officials could not characterize the frequency or severity of basement flooding for the entire city, they did comment that the area bounded by east 87th Street, South State Street, and the south and east city limits is most susceptible to basement flooding. This is known as the Lake Calumet area and has a topography which at one time was mostly marshland. This results in the water table near the ground surface leaving little capacity to absorb or detain additional water. The flat topography does not permit construction of relief sewers of sufficient depth and slope to deliver flows to existing intercepting sewers or to the waterways by gravity. Several pumping stations are located in this area to handle sanitary or stormwater flows as required.

Generally, city officials categorized viaduct (underpass) flooding as widespread and severe but with a decreasing frequency and duration. City officials attributed this improvement to the Auxiliary Outlet Sewer Construction Program. (See p. 45.) Chicago has over 825 viaducts, of which 13 are below grade level and require pumping stations. Flooding information is only maintained on about 120 viaducts which are on Chicago Transit Authority (CTA) bus service routes. According to the CTA, 64 viaducts are flood-prone, including 2 that flood very frequently, 3 that flood frequently, and 59 that flood occasionally.

Overbank flooding is confined primarily to forest preserve land. During occasional severe rainstorms when the capacity of the waterways is exceeded, polluted water is released into Lake Michigan to avoid serious flooding. Backflows of this sort have occurred 6 times in the last 3 years and 20 times in the last 24 years.

ACTIONS TAKEN BY COMMUNITY

Chicago has taken various actions to alleviate flooding problems. For example:

--Since 1946 some 233 miles of large trunk sewers have been built at a cost of $204 million under the city's Auxiliary Outlet Sewer Construction Program. This program has increased the capacity of the sewer system and reduced basement and viaduct flooding.

--The city has an ongoing sewer replacement program. Through this program, funded by Community Development Grants from the Department of Housing and Urban Development, 17,500 feet of old 2-foot brick sewers have been replaced with 36 and 30 inch concrete pipes.

--The Bureau of Sewers maintains over 4,200 miles of combined sewers, 216,500 catchbasins and 150,100 manholes. In 1977, 9.3 million feet of sewers were scraped and more than 275,000 catchbasins were cleaned (some basins in heavily traveled areas were cleaned more than once) at a cost of $9.3 million.

--The city relies on complaints from the public to isolate breakdowns, blockages, and other malfunctions. Field crews investigate all complaints as expeditiously as possible to determine the cause of the problem. In 1977 the city spent $6.7 million to repair 932 main sewer breaks, 10,353 catch basins, 2,289 manholes, and 504 inlets.

--The Department of Streets and Sanitation sweeps main arterial streets on an average of twice-weekly, while residential streets are cleaned on the average of once each month. Areas of exceptionally high pedestrian and vehicular traffic are cleaned daily. In 1977, 200,000 curb miles of streets were cleaned resulting in removal of 19,000 tons of dirt and debris before it could enter the sewer system.

ACTIONS TAKEN BY RESIDENTS

According to the city officials, an increasing number of residents have installed flood control devices in their basements to prevent sewer backup. No records were available, however, on the number of residents who have taken this action or the type of devices installed.

IMPACT OF TARP

Over the years, the amount of undeveloped land to absorb rainfall has decreased. Storm water runoff into sewers has therefore increased. Although the city has an ongoing sewer upgrading program, the sewers cannot accommodate the increased runoff.

According to city officials, TARP will not solve all basement flooding problems but it offers a much more effective solution than the various low-cost, small-scale alternatives frequently proposed. TARP will reduce basement flooding and minimize pollution by treating the wastewater before its controlled release into the waterways.

COMMUNITY PLANS

Regardless of TARP, the city will continue its sewer replacement and upgrading programs. City officials estimate that it will cost $500 million (in 1978 dollars) to upgrade Chicago sewers. According to the 5 year Capital Improvement Program (through 1981), the City of Chicago plans 56 sewer replacement and upgrading projects estimated to cost $185 million.

SECTION 11

CICERO

BACKGROUND

Cicero, in western Cook County, covers about 6 square miles of level, highly developed land. The town has a large industrial base--some 150 establishments--and an old established residential section. Less than 1 percent of the land is vacant. In 1977 Cicero's population was 67,058 and the median family income was $17,260.

The Cicero sewer system is totally combined. Consultants' reports have described the system as generally adequate, though some sewers could be overloaded.

EXTENT OF FLOODING

Basement sewer backup is considered a severe problem in large areas of Cicero. (See map, p. 49.) Sewer backups occur in:

--The northwest section, which is primarily an industrial area. A town official believes that 5 to 10 percent of the homes within this area suffer sewer backup.

--The central and southern sections bounded by Cermak Road, 39th Street, Cicero Avenue, and Austin Blvd. A town official estimated that 20 to 25 percent of the homes within this area suffer from sewer backup.

Sewer backups during intense rainfalls occur as much as six times per year.

Street flooding occurs in the same general area as basement flooding. There is also flooding at two viaducts. One, located at 33d Street and the Illinois Central Railroad, floods as much as six times per year. The other, at Laramie and the Illinois Central, will sometimes flood twice a year.

ACTIONS TAKEN BY COMMUNITY

Cicero has taken various actions in dealing with flooding problems. For example:

--All downspouts are required to be connected, primarily because lots are small and disconnected downspouts could cause flooding on a neighbor's

property. However, many homeowners have disconnected their downspouts as the ordinance is enforced only when a complaint is received.

--An ordinance requires that any fixture below curb grade must have a basement drain.

--Rooftop and parking lot ponding are encouraged, though not required. A few large factories have rooftop ponding. However, the age and design of most buildings preclude such use.

The town has a regular sewer maintenance program. Catchbasins are cleaned on an as-needed basis and sewer lines are rodded when blockages occur. Sewer clean-up and repair work is contracted out yearly. In fiscal year 1977, approximately $100,000 was spent on sewer cleaning and repair. In addition, the 1977 budget provided $37,000 for sewer maintenance.

ACTIONS TAKEN BY RESIDENTS

A town official said that homeowners, though he could not provide an estimate of numbers, have taken various actions including:

--Installation of overhead sewers.

--Use of standpipes.

--Installation of check valves.

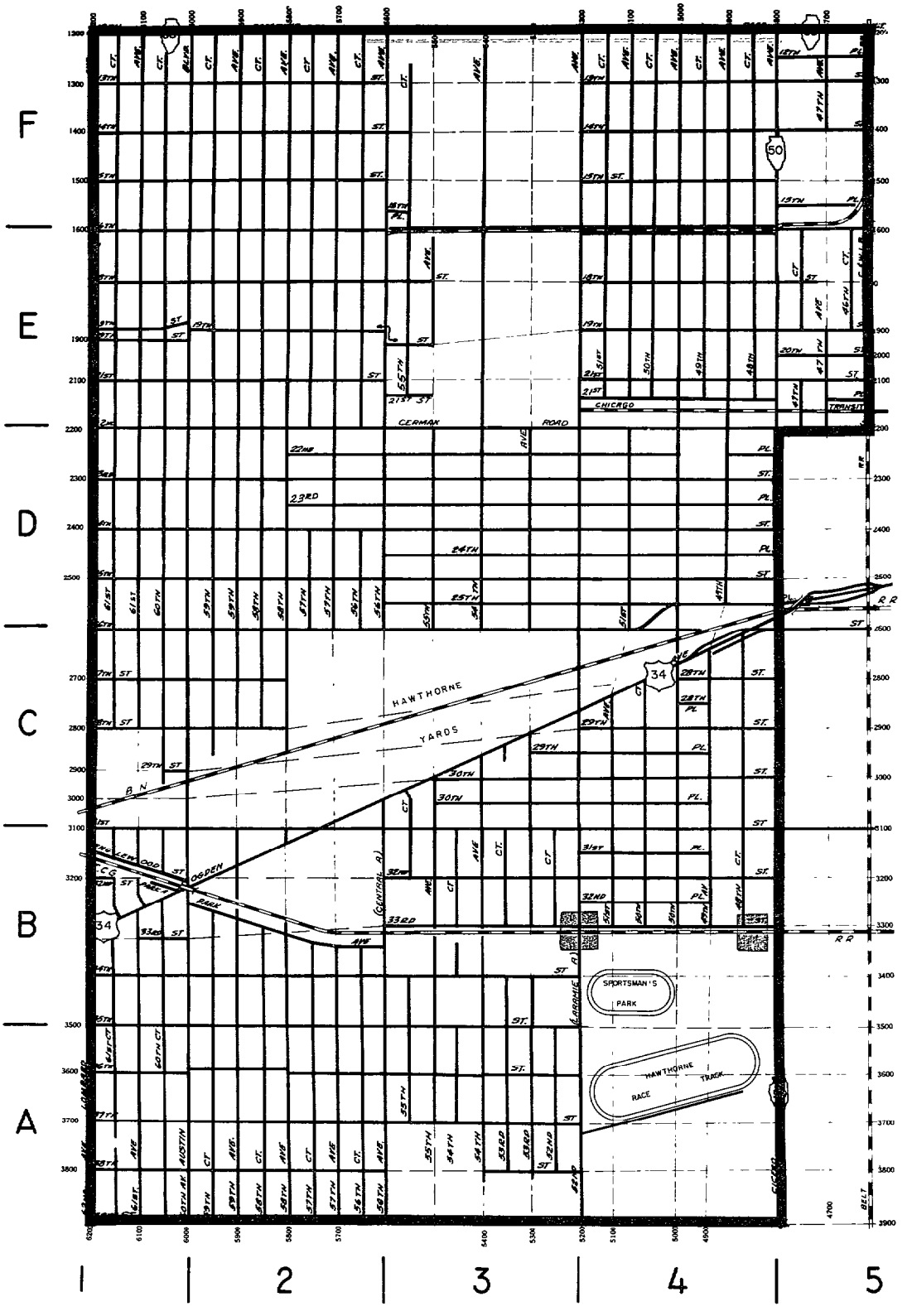
This official felt that homeowners who really want to solve their problems should install overhead sewers or some sort of flood control system, though they are expensive.

IMPACT OF TARP

The town water superintendent felt that TARP would eliminate 75 percent of the flooding problems experienced by Cicero. He said that most of Cicero's backup problems are caused by inadequate MSD interceptors and that TARP will solve this problem. As some local sewers may not be up to the demand placed on them, backups will occur even with TARP.

COMMUNITY PLANS

Cicero has no current plans to apply for an EPA grant, nor are there other plans for flood control actions.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CERMAK ROAD
CHICAGO
HAWTHORNE YARDS
SPORTSMAN'S PARK
HAWTHORNE RACE TRACK
CICERO
Viaduct Flooding
City Limits
Severe Sewer Backup
Combined Sewer Area

SECTION 12

DES PLAINES

BACKGROUND

Des Plaines is a city of 58,650 located on approximately 15 square miles in northwest Cook County. The city has 13,267 single-family dwellings and 146 multiple-family structures. Businesses occupy about 23 percent of the land, while about 7 percent is vacant. Median family income was $22,820 in 1977.

Approximately 20 percent of the Des Plaines sewer system is combined, and there is no direct connection between the combined and separate systems. However, city officials believe that some infiltration between the sanitary and storm sewers could be occurring because these conduits are no more than than 10 feet apart in many locations.

According to city officials, the combined and separate sewer systems are in generally good condition and can handle runoff from most rainstorms.

EXTENT OF FLOODING

Street flooding caused by inadequate MSD interceptor sewers is a severe problem (see map, p. 53.) and occurs about 30 times a year. At times, floodwaters containing unprocessed sanitary waste have risen to depths of 1-1/2 feet in local streets.

In addition, Des Plaines has some overbank flooding from Willow Creek and the Des Plaines River. Willow Creek's overflows flood one viaduct, while most of the flooding from the Des Plaines River is confined to forest preserve land and causes no property damage.

As discussed below, flood control measures by Des Plaines have eliminated most sewer backup flooding in basements.

ACTION TAKEN BY COMMUNITY

Flood control measures taken by the city include:

--Installation of check valves between MSD interceptor sewers and the city sewer system. This has prevented backup of water from interceptors into basements, however, in some cases, it has transferred flooding from basements to streets.

--Improvement of the city's detention pond which increased water storage capacity and eliminated undesirable health and safety problems. City officials noted that they would like to make greater use of detention ponds since they are effective in reducing flooding problems. However, they do not have sufficient funds to purchase needed land.

--Implementation of flood control ordinances. One ordinance forbids connection of downspouts to sanitary sewers. The city attorney began legal action against 48 residents who have not disconnected illegal hookups. However, approximately 23 cases have since been resolved. Another ordinance requires overhead sewers in future buildings.

--Development of a flood information handbook which includes information on ways to prevent sewer backup in basements. Through notices in local libraries, the community advises the public of the availability of this handbook at City Hall.

Des Plaines also has an extensive sewer maintenance program. Sewer maintenance is scheduled around quarterly inspections, and all complaints are responded to by priority. Maintenance activities include rodding and cleaning of sewers and catchbasins. About 75,000 to 80,000 feet of sewers are cleaned each year. In 1977, 200 feet of sanitary sewers were replaced.

ACTION TAKEN BY RESIDENTS

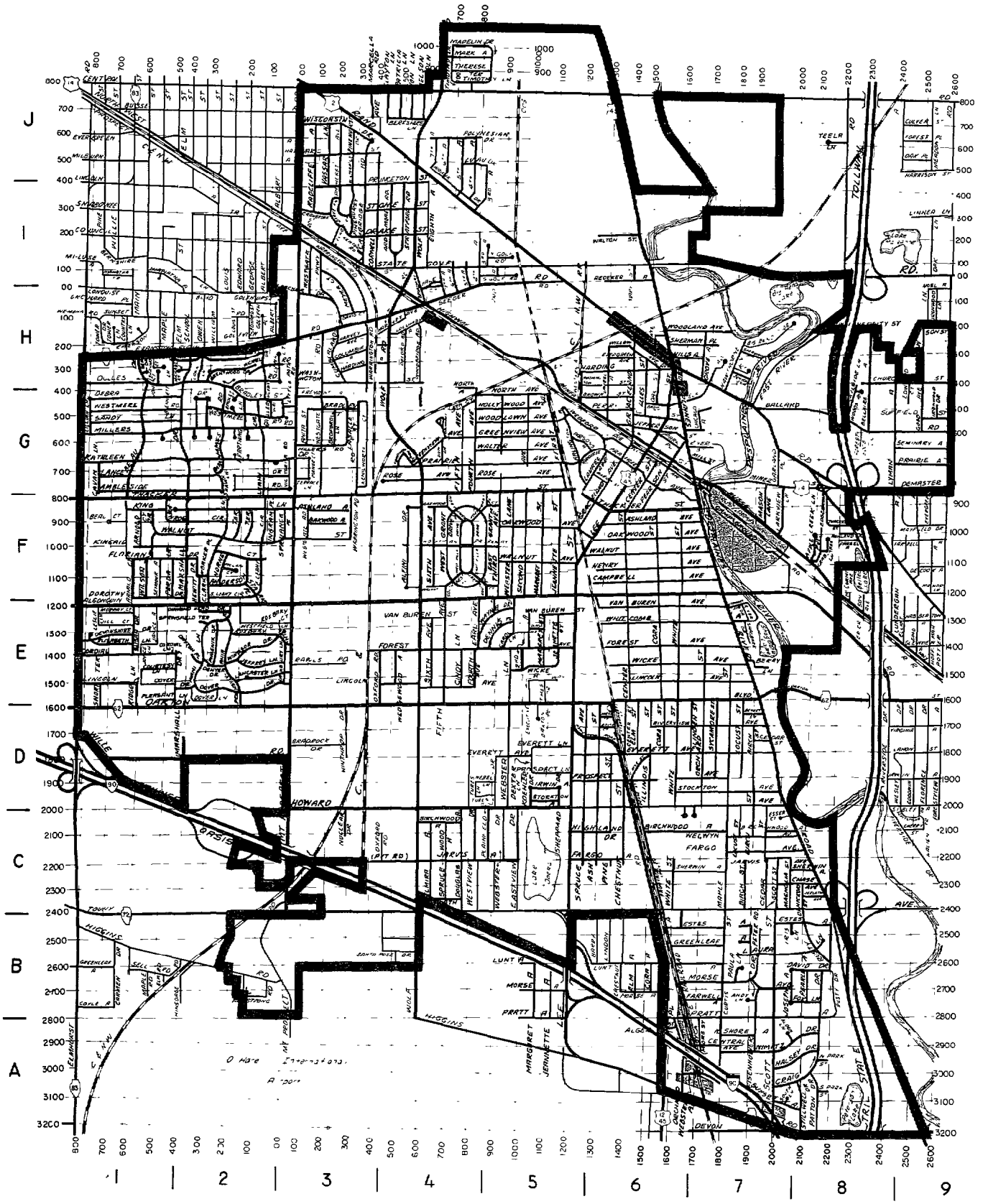
City officials had no ready information on residents' flood control measures.

IMPACT OF TARP

According to city officials, TARP will substantially benefit the city by increasing MSD interceptor capacity to reduce street flooding. Some basement backup problems have occurred and TARP will help in this area also.

COMMUNITY PLANS

While city officials believe street and basement flooding results from inadequate MSD interceptor sewers, they recognize that the local system will have to be upgraded as part of the city's normal sewer maintenance program.


Sewer Backup
Overbank Flooding
Combined Sewer Area
City Limits

DES PLAINES

Des Plaines has applied for, but not received, EPA approval for a $308,562 grant to study the sewer system. The study is scheduled for completion in February 1980.

The city continuously studies flooding problems. Each annual budget will provide funds for flood relief in various areas of the city. The city recently retained the service of a consulting engineer to study flooding problems within the northwest section of the city.

The 1979 budget will provide funds for the clearing of brush in Willow Creek to increase flow now impeded by brush. This will be an interim action until the U.S. Soil Conservation Service project of widening the Creek commences in approximately 1981.

SECTION 13

DIXMOOR

BACKGROUND

Dixmoor is a village of about 5,000 in southern Cook County. The community covers 1-1/3 square miles and is relatively flat and 60 percent developed. About 90 percent of the area is residential and 10 percent is industrial. Median family income in 1977 was $16,400.

The village is served entirely by combined sewers which have had little upgrading since they were built in 1925. Dixmoor also has only a few streets with curbs or gutters; instead drainage ditches are used to carry storm-water runoff.

According to the village engineer, the local sewer system is in poor condition as most of the old clay sewers are disintegrating. We were told a quarter-mile section of sewers is in serious disrepair and could cave-in.

In its current condition, the sewer system could handle a 2-year storm. However, the system is inadequate for rainfalls heavier than 1 inch within an hour.

EXTENT OF FLOODING

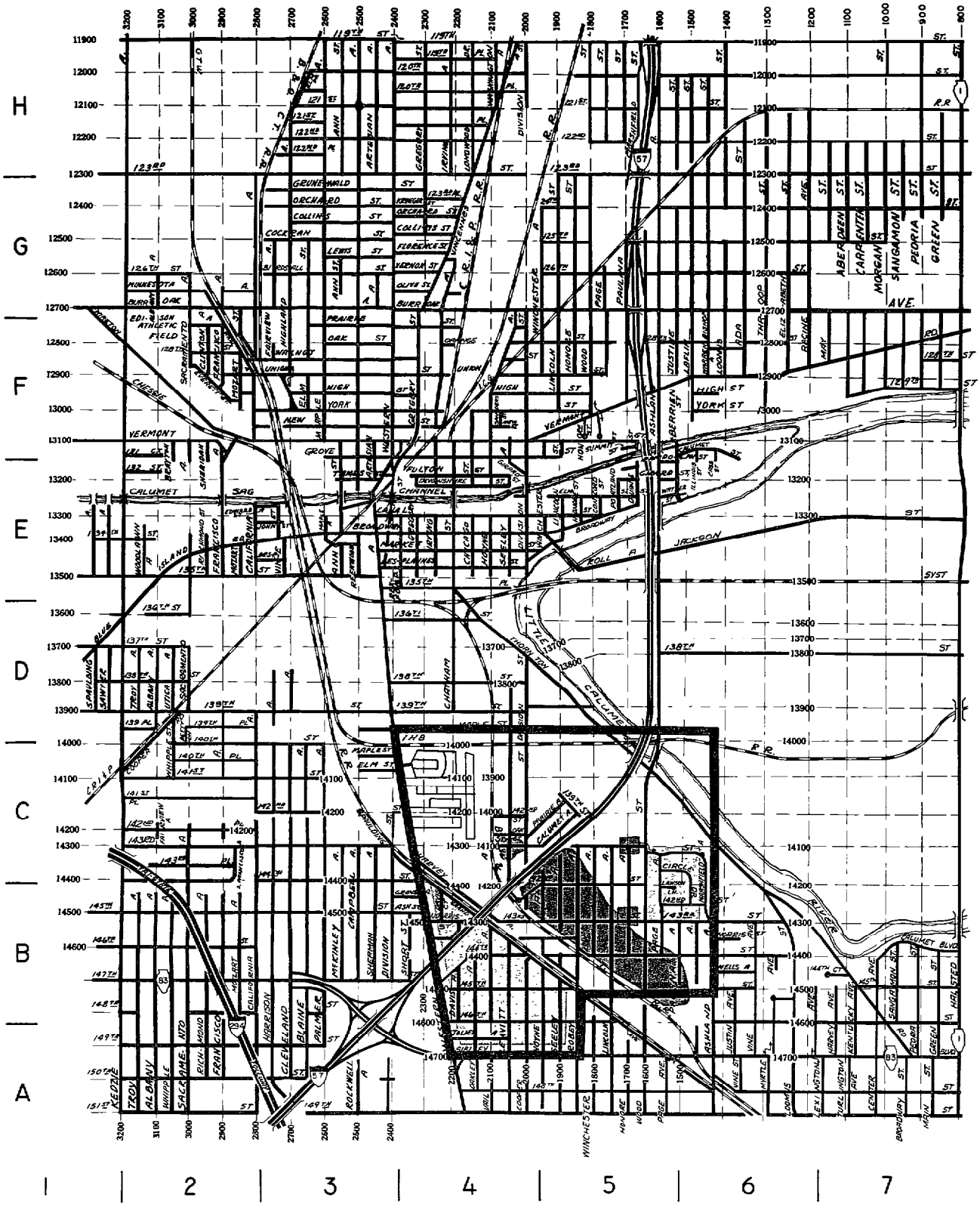
We were unable to obtain solid evidence as to the flooding problems in Dixmoor. However, village officials stated that in heavy rains (2 inches an hour or more) severe basement flooding occurs. (See map, p. 57.) Older homes with deep basements and no overhead sewers suffer severe backup. Also, during extremely heavy rains, (3 inches an hour) roadside ditches may fill-up and overflow through basement windows. The village does not have major problems with expressway, street, or viaduct flooding.

ACTIONS TAKEN BY COMMUNTIY

Dixmoor has done little to reduce flooding, primarily because of limited funds. For example, the annual sewer maintenance budget is only $5,000, so maintenance is generally confined to crises.

ACTIONS TAKEN BY RESIDENTS

Residents have taken some steps to reduce their flooding problems. Village officials estimate that about 10 percent



Severe Sewer Backup

Sewer Backup

Street Flooding

City Limits

Combined Sewer Area

DIXMOOR

have installed standpipes and almost all have disconnected their downspouts. A few residents have installed check valves.

IMPACT OF TARP

Village officials strongly support the Tunnel and Reservoir Plan. While they do not know for sure, they hope that TARP will reduce waterway pollution and prevent basement flooding, thus eliminating the need to upgrade their sewers. Specifically, they expect TARP's phase I to reduce pollution, flooding, and sewer backup and phase II to eliminate these problems.

COMMUNITY PLANS

Dixmoor has taken no steps to study or survey the village to determine the specific type, location, and extent of flooding and sewer backup. Also, they have not applied for an EPA grant to identify potential pollution and flooding alternatives because the village does not have the needed matching funds.

The village is, however, on an Illinois priority list for Federal funds to repair the quarter mile of sewers that are in poor condition. Funds for this work would come from a Department of Housing and Urban Development Community Development Grant.

Dixmoor has no other plans for flood control actions at the present time.

SECTION 14

DOLTON

BACKGROUND

Dolton, in southeast Cook County, has a population of 28,000 and covers 5 square miles. The village is about 95 percent developed with 6,933 single-family homes, 303 multiple-family residences, 261 light industrial and retail businesses, and 30 public buildings and schools. The 1977 median family income was $22,820.

Dolton has both a combined and separate sewer system. The combined sewers represent 90 percent of the system and cover all areas except portions of the west-central and southern sections of the village. The sewer system is about 30 years old and in good condition.

EXTENT OF FLOODING

Dolton experiences moderate basement sewer backup and street flooding due to inadequate local sewers, submerged outlets, and excessive runoff from surrounding areas of higher elevation. This flooding occurs once yearly and is experienced in two isolated areas. (See map, p. 61.)

Basement sewer backup and street flooding occur in a small southeastern section whereas only street flooding is experienced in a two block area in the northwestern section of the community.

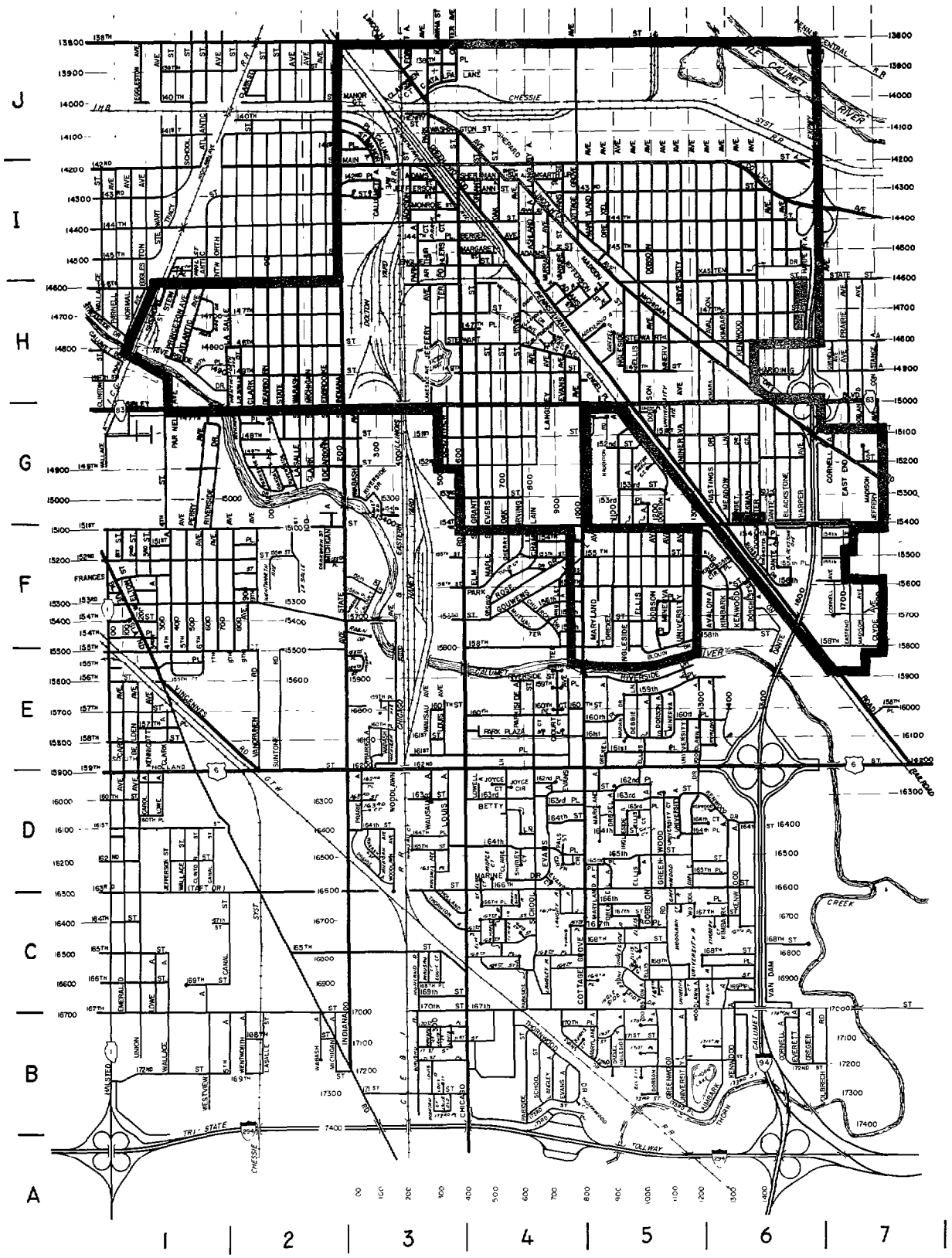
Expressway flooding occurs rarely along a two block section of the Calumet Expressway (between 146th and 148th streets) during storm intensities of 2-1/2 to 3 inches of rain in a 1-hour period. This flooding occurs on the average of once yearly.

Overbank flooding occurs along the Little Calumet River but is confined to undeveloped land owned by the U.S. Steel Company and therefore does not cause property damage.

ACTIONS TAKEN BY THE COMMUNITY

The village of Dolton has taken various actions to alleviate flood problems and maintain current sewer system capacity. For example:

--Dolton cleans all street catchbasins and jets all sewer lines annually. Streets are cleaned every 2 weeks.



Overbank Flooding

Sewer Backup

Street Flooding

City Limits

Combined Sewer Area

VILLAGE OF DOLTON

--Through articles in the local paper and by word of mouth, village officials recommend that residents disconnect downspouts. Officials noted downspout disconnection is an effective flood control measure only if all homes on an entire block are disconnected.

--There are six private underground cisterns and two retention ponds located throughout the village.

ACTIONS TAKEN BY RESIDENTS

Village officials estimate that residents use the following flood control measures:

--80 percent have disconnected downspouts.

--50 percent have installed standpipes.

--35 percent have overhead plumbing.

--30 percent installed sump pumps discharging into yards.

--25 percent have rodded out sewers.

IMPACT OF TARP

Village officials anticipate that without local sewer upgrading, TARP phase I or phase II will only reduce flooding caused by submerged overflow points. An official estimates that with local sewer improvements, TARP phase I and phase II will eliminate 40 and 60 percent of flooding, respectively.

COMMUNITY PLANS

Dolton has received an EPA grant to fund an $83,297 study of the village sewer system. This study is scheduled to be completed in the summer of 1979. The village officials are awaiting the results of this study to determine the cost of local sewer upgrading. Funding for this upgrading is uncertain, since an official noted that Dolton cannot afford any costly undertaking.

No other flood related plans are currently contemplated by the village.

SECTION 15

ELMWOOD PARK

BACKGROUND

Elmwood Park, in northwest Cook County, comprises 1.7 square miles of flat terrain. The village, which is 99 percent developed, has a population of 26,130 and includes 5,630 one- or two-unit and 2,496 multiple-unit residences and 364 businesses. The 1977 median family income was $20,560.

The village contains 43 miles of totally combined sewer lines. The system, which has capacity for a 5-year storm frequency, was constructed in the 1920s and suffers from cave-ins, root infiltration, and leakage.

EXTENT OF FLOODING

Elmwood Park has a moderate flooding problem. (See map, p. 65.) The most severe basement backup problems are experienced by residents in the northwestern section of the village where sewer backups occur two to four times per year. Sewer backups are also a serious problem in the northeastern section where residents experience backups two to three times each year. The southwestern section of the village lies partially in a flood plain of the Des Plaines River and a number of residents experience sewer backup an estimated one to two times per year.

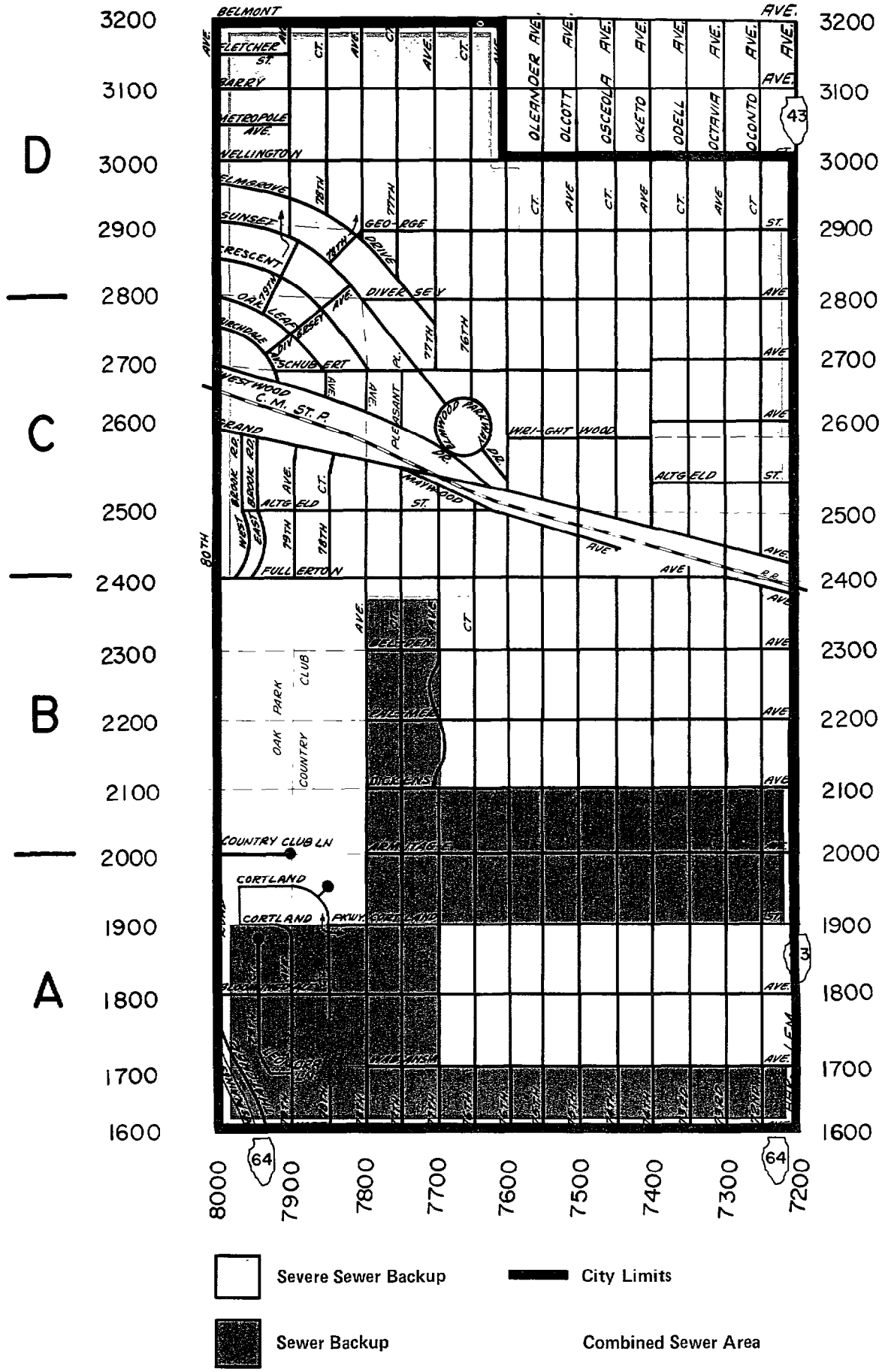
Street flooding, in limited areas, occurs one to two times a year and is not considered to be a major problem. No overbank flooding was reported.

In 1975 the village of Elmwood Park distributed a flooding survey to 1,481 homes and businesses. Of the 18 percent responding, 74 percent indicated flooded basements primarily during 1972-74.

ACTIONS TAKEN BY THE COMMUNITY

The village of Elmwood Park has initiated the following flood relief actions:

--Catchbasins are cleaned and all sewer lines are rodded and flushed annually. The village had problems with sewer equipment in 1978 and was unable to do the normal amount of maintenance that year. Every 6 or 7 years the village hires a power rodding company



Severe Sewer Backup

City Limits

Sewer Backup

Combined Sewer Area

ELMWOOD PARK

to clean and inspect sewer lines. Streets are cleaned every 10 days.

--Ordinances regulate catchbasin and sewer cleaning on private land and the disinfection and disposal of sewer wastes. The village recommended downspout disconnection through the local newspaper but there has been no promotional program or ordinance.

ACTIONS TAKEN BY RESIDENTS

According to the 1975 flood survey results, 11 percent of village residents have installed overhead sewers, 11 percent use automatic check valves, 9 percent have manual check valves, and 21 percent use other unspecified flood control measures. Also, 49 percent reported downspouts discharging water to yards and 56 percent reported power-rodding in the last 5 years.

Village officials also noted that some residents place mattresses and other material over stormwater drainage holes in streets to relieve sewer lines and alleviate sewer backups in basements.

IMPACT OF TARP

Village officials anticipate that TARP will reduce flooding 50 percent by relieving the inadequate North Avenue interceptor. TARP will not relieve severe flooding problems in the northern section of the village. Officials estimate the village would have to spend $10 million to replace all sewers in the northern section to make effective use of a connection to TARP. Officials indicated that Federal funding would be necessary for this construction although the village could probably raise $2 million of local share through a bond issue. Such a bond issue would probably cost residents $220 for each home over a 20 to 30 year-period.

COMMUNITY PLANS

Using an EPA grant of $76,000, the village funded an engineering study of the sewer system. The study indicated that the village needs all new sewers in the northern section and a new interceptor to relieve the current North Avenue interceptor which is inadequate to handle sewer flow from the surrounding communities. The village funded an engineering study in 1973 which also indicated necessary sewer system improvements; however, the village had no funds to finance this upgrading.

The village is seeking funding for the sewer improvements recommended in the 1977 engineering report. No other flood control plans are anticipated.

SECTION 16

EVANSTON

BACKGROUND

Evanston, in northern Cook County, is a residential community of about 8.4 square miles and 79,500 people. Almost totally developed, it has 9,984 single-family homes, 2,538 multiple-family dwellings, more than 2,000 condominiums and 15,000 to 17,000 apartments. The Evanston Chamber of Commerce reports 560 retail businesses and 150 small industrial firms. In 1977 median family income was $20,100.

Evanston's sewer system, which is virtually 100 percent combined, includes 138 miles of conduits and 5,000 catch basins. The system was constructed around the turn of the century. Although Evanston is mostly level, a sloping ridge runs northeast through the community along Ridge Avenue. Before 1967 sewers to the east of this ridge overflowed into Lake Michigan. Overflow points have been sealed and overflows are now channeled through a single pumping station to the west side.

City officials and engineers describe Evanston's sewer system as antiquated, badly deteriorating, and composed of a disproportionate amount of small pipes. Some sections are estimated to be over 100 years old--complaints about sewer inadequacy date back to 1902.

More specifically, engineering studies show:

--Sewer lines have been infiltrated by tree roots and suffer serious leakages from 90 percent of the pipe joints.

--4,000 of the 5,000 catchbasins need repairs.

--Many brick basins are caving in.

--The pumping station in east Evanston is adequate but the discharge lines to the sanitary channel lack the capacity to remove storm water.

--The sewer system is completely inadequate to convey storm water.

EXTENT OF FLOODING

According to an Evanston official, "Everytime it rains, it floods somewhere in Evanston." Engineering studies show that a minor rain (0.2 inches per hour) will cause flooding in some sections of the city, rains of 0.6 inches in an hour will flood 72 percent of the service area on three occasions each year, and a 1-year storm (1.3 inches in an hour) will inundate Evanston's system.

Basement and street flooding are severe problems throughout Evanston, with concentrations in the northwest, northeast, and south-central sections. These sections have dense residential developments with heavy runoff and sewer system usage. Overbank flooding is not a problem due to the depth of the North Shore Channel. (See map, p. 71.)

In 1976 Evanston sent a flooding survey to all homeowners. About 40 percent of the 8 percent responding suffered sewer backup, with the majority reporting 3 to 4 occurences during 1976. About 73 percent of respondents reported street flooding and 31 percent reported alley and yard flooding.

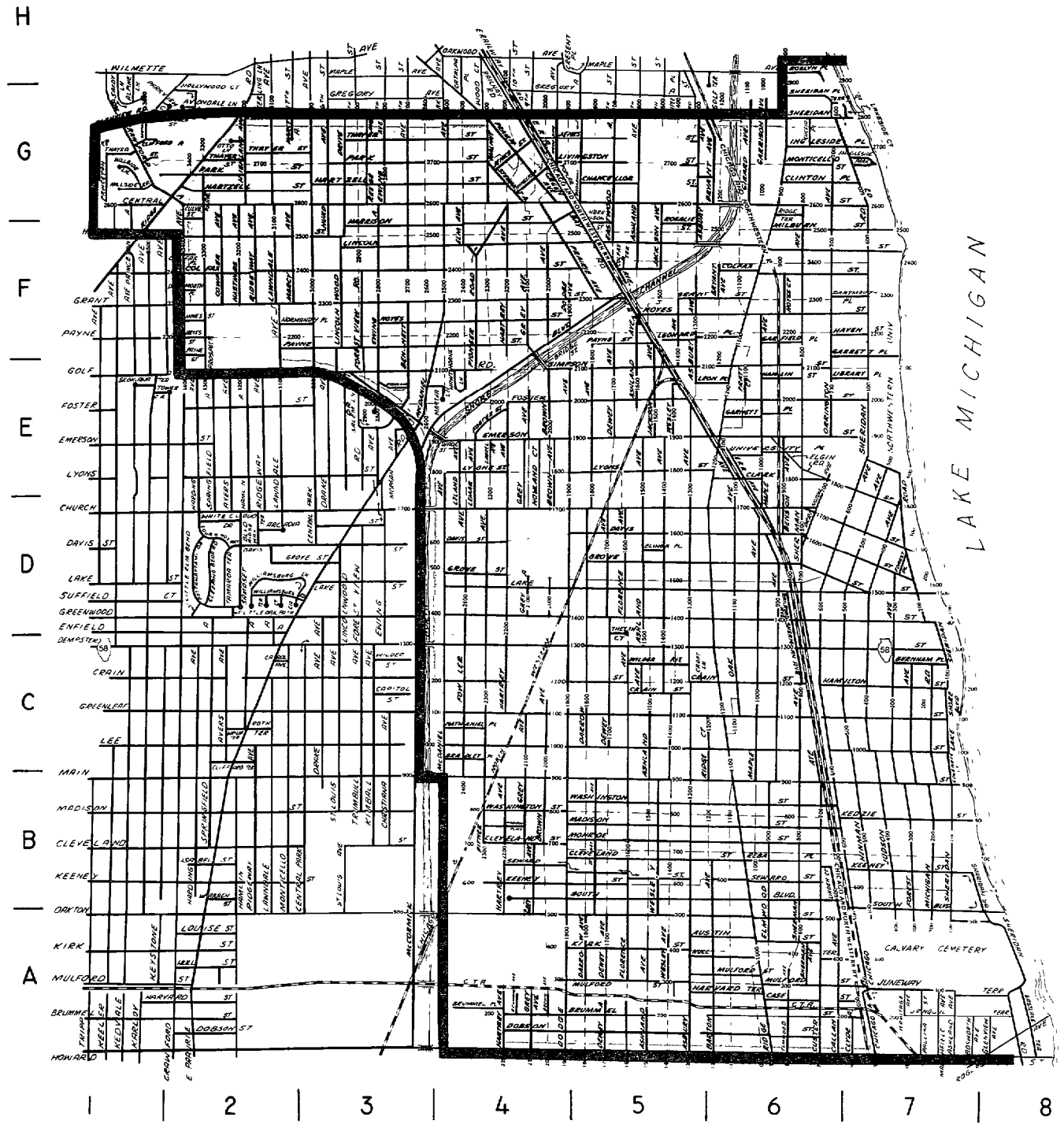
City officials and engineers attribute Evanston's flooding problems to the inability of community sewers and MSD interceptors to convey minimal storm runoffs. Although flooding was a problem before 1967, its severity increased when Lake Michigan overflow points were sealed and all flows were routed from the east side through the west sewer lines and into MSD interceptors on Green Bay Road.

ACTIONS BY COMMUNITY

Evanston has taken various actions to alleviate flooding problems. For example:

--In 1975 the city council established a flood and pollution control commission to develop and implement a plan of action to deal with Evanston's severe flooding and pollution problem. The commission has been evaluating various engineering studies and recommendations.

--In 1975 and 1977 Evanston hired an engineering firm to study its sewer system. As a result of these studies, Evanston instituted in 1977 a $4.5 million program to inspect, clean, rod, and repair 17 miles of sewer lines in the most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Combined Sewer Area

EVANSTON

severely affected areas. This program was financed by a 10-year general obligation bond, which is being repaid through an average annual increase in sewer charges of $38 for each homeowner.

--In 1976, Evanston distributed a pamphlet, entitled "Evanston's Flooding and Pollution Problem--The Long Range Plans and Steps Homeowners Can Take Now," to all residents. The pamphlet described TARP and evaluated home flood control equipment.

--Evanston has an active catch basin restrictor program. While these restrictors cause water to pond in streets, they relieve basement flooding. Each year approximately 150 catchbasins are cleaned, repaired, and restricted to reduce storm water influx into the sewers. At present, about 10 percent of the catchbasins in Evanston are restricted. Overall, the response to Evanston's restrictor program has been favorable; most residents prefer street ponding to sewer backup.

All sewer maintenance is done as-needed. There has been no construction to increase sewer capacity. Maintenance activities have been primarily concerned with preventing existing sewers from collapsing and increasing their capacity to design limits through a cleaning and rodding program.

In 1976 Evanston began an experimental downspout disconnection program in three areas with a history of basement flooding. As part of the program, Evanston offered to pay a portion of the cost of disconnections. However, the program failed for a lack of public cooperation. Of 79 letters inviting residents to participate, only 5 elicited responses. The Evanston City Council believes it is politically and legally infeasible to force disconnection.

ACTIONS TAKEN BY RESIDENTS

Evanston officials estimated that residents have taken the following flood control measures:

--20 percent have disconnected downspouts.

--80 percent have rodded out sewers.

--20 percent have installed removable drain plugs and/or standpipes.

--15 percent use check valves in basements.

--5 percent have check valves between homes and streets.

--20 percent have installed sump pumps connected to sewers.

--5 percent use sump pumps which discharge water to yards.

--10 percent have overhead plumbing.

Some residents have also raised items off basement floors, refrained from using basements as storage or living space, or waterproofed basements.

IMPACT OF TARP

According to Evanston's consulting engineers, while TARP will enable existing interceptors to operate without surcharging, it will have only minimal effect on Evanston's flooding problems unless local interceptor lines are enlarged. It is anticipated that the completion of TARP along with proposed local improvements will provide substantial relief from community-wide flooding which presently occurs.

COMMUNITY PLANS

As a result of studies in 1975 and 1977 (partially funded by EPA), engineers recommended a $45.7 million relief sewer construction project to tie into TARP. City officials noted that this improvement project would be reevaluated if only phase I of TARP is completed. A $4.5 million interim 5-year project to upgrade the most severely affected sewer lines is underway.

Currently, the community has no other plans for flood-related actions.

SECTION 17

FOREST PARK

BACKGROUND

Forest Park is a residential village covering 2.25 square miles of flat terrain west of Chicago. Cemeteries occupy most of the western and extreme southern sections of the village (about 50 percent of the land area). The village has a population of 15,500.

Forest Park is almost totally developed with approximately 2,400 single-family homes, 500 multiple-family dwellings, and 350 to 400 small businesses. The 1977 median family income was $19,990.

The village has a combined sewer system with some storm relief sewers (handling street drainage only) scattered in the north and south sections of the village. Most of the sewers were constructed in the 1920s and are considered to be in fair condition.

EXTENT OF FLOODING

Forest Park experiences moderate basement and street flooding due to inadequate local sewers. Overbank flooding is not a significant problem since only forest preserve and cemetery land is affected.

According to officials, the following flooding conditions exist in the community:

--Basement backup flooding occurs on an average of two to three times a year in the northeast, northwest, and southeast sections of the village. (See map, p. 77.)

--Street flooding occurs on an average of two to three times a year in a small area in the lower, northeast section of the village.

ACTIONS TAKEN BY COMMUNITY

Forest Park has taken various actions to alleviate flooding. For example:

--The village follows MSD's standard flood control requirements for new construction and has also passed an ordinance promoting water conservation.

--New apartments must be constructed with two service connections; one to the combined sewer for sanitary needs and one (for storm water) for eventual connection to storm sewers when constructed.

--Owners of new single-family dwellings have the option to disconnect downspouts.

--In 1977 the village began a 3-year program to clean its sewer system. After this effort is completed a continuous program will be instituted.

--Television inspections are made of problem sewer sections.

--Manholes are repaired or rebuilt on an as-needed basis, and catchbasins are cleaned regularly.

--Every 2 weeks all streets are cleaned. Main streets and streets in the business district are cleaned more often.

The village has not passed an overall requirement for downspout disconnection because discharged storm waters might flood adjoining properties.

ACTIONS TAKEN BY RESIDENTS

Officials estimate that residents have taken the following actions to alleviate their flooding problems.

--Most have rodded out their sewers.

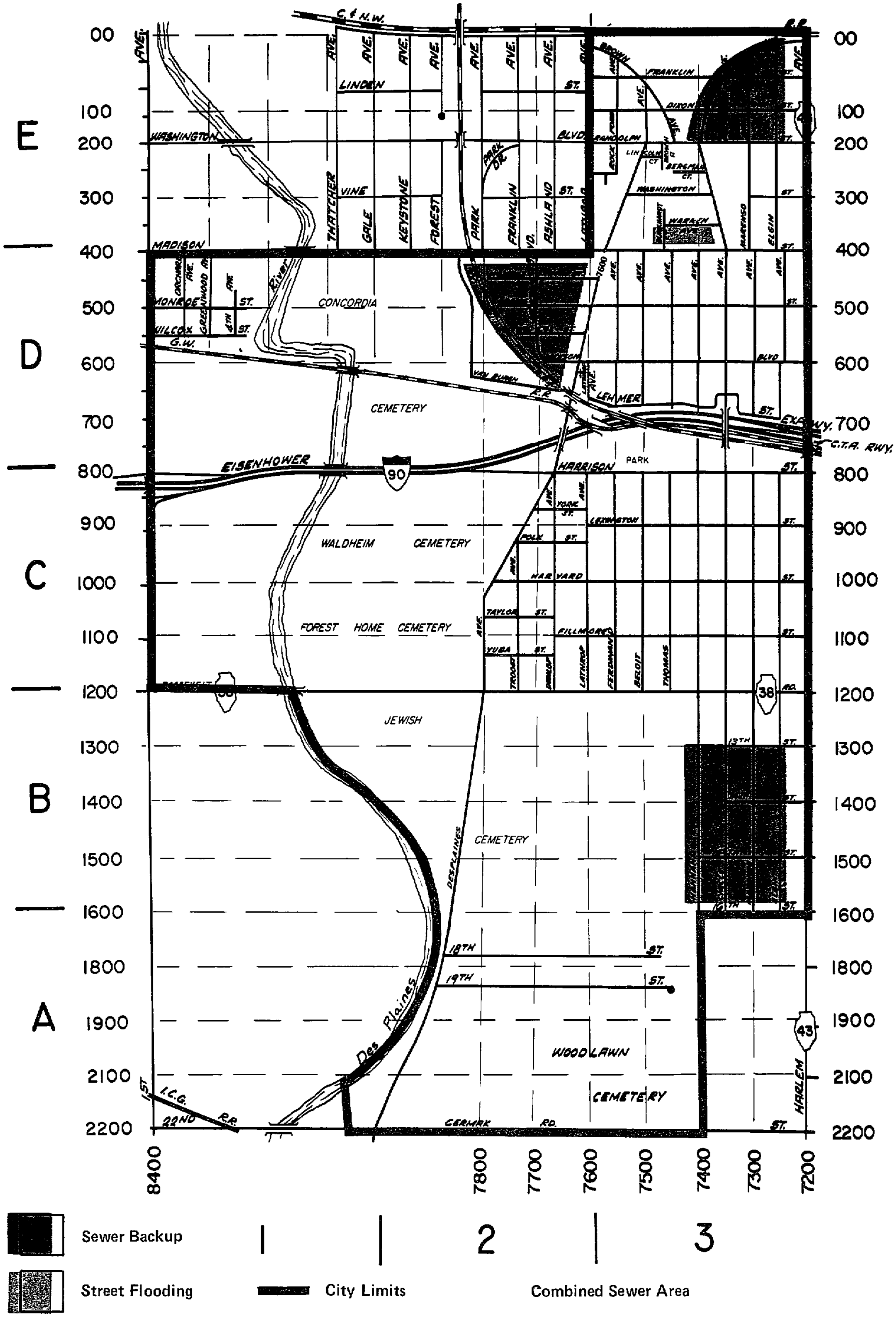
--50 percent have installed removable drain plugs or standpipes.

--20 percent have installed some form of check valve.

--20 percent have installed sump pumps.

--20 percent have disconnected downspouts.

--Less than 5 percent have waterproofed their basements.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Sewer Backup
Street Flooding
City Limits
Combined Sewer Area

FOREST PARK

IMPACT OF TARP

Village officials said TARP would relieve MSD interceptors and thereby reduce flooding, but sewer improvements costing $1 million would still be needed in some areas of their community.

COMMUNITY PLANS

Officials anticipate that, until TARP is constructed, no engineering study will be made to determine the nature of needed sewer improvements. The study would be funded through an EPA grant.

SECTION 18

FOREST VIEW

BACKGROUND

Forest View is a small village of 950 people in central Cook County along the Chicago Sanitary and Ship Canal. A substantial portion of the village's 2.5 square miles is zoned for industrial purposes and is about 50 percent developed. The village has 265 residential structures and 26 industrial structures. The village's residential area is almost totally developed and was built during the period 1945-55. The 1974 per capita income of Forest View residents was $5,826.

About 90 percent of Forest View's residential area is served by separate sewers. However, 60 percent of the storm sewers in the residential area discharge into combined sewers. The remaining storm sewers discharge into drainage ditches and then flow into the Chicago Sanitary and Ship Canal.

The industrial area is served by separate sewers which discharge either directly into the MSD interceptor or to sewers in adjoining Chicago and south Stickney.

Although the village's sewer system is subject to infiltration, it handles combined waste on a more than adequate basis.

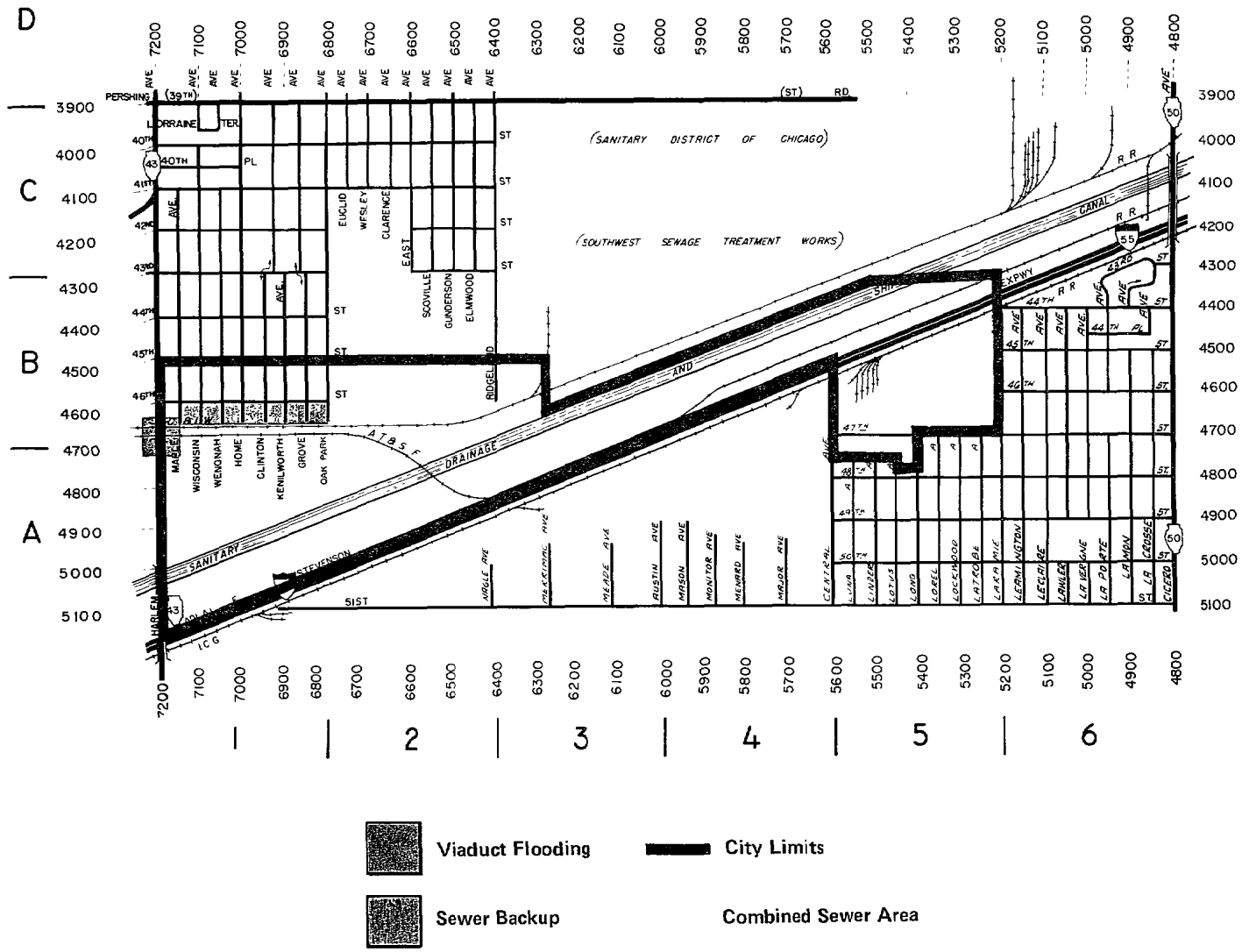
EXTENT OF FLOODING

Flooding in Forest View occurs infrequently. Basement and street flooding is primarily experienced when overflow points in the Ship Canal become submerged during a 10 year rainstorm (2 inches or more during a short period). Basement flooding is limited to the northwest residential area and occurs once in 10 years. (See map, p. 81.)

Street flooding in the residential area occurs once every 5 years. Also, the community's only viaduct floods 10 times a year causing traffic congestion. No overbank flooding is experienced.

ACTIONS TAKEN BY COMMUNITY

Forest View has taken various actions to alleviate flooding. For example:



Viaduct Flooding

City Limits

Sewer Backup

Combined Sewer Area

FOREST VIEW

--A storm relief sewer was constructed in the 1960s at a cost of about $300,000 which partially separated their system. The effect of this action on flooding has been diminished since this sewer connects with the combined sewers.

--Sewer maintenance is based on complaints from residents and problems identified through quarterly inspections. The sewers have also been inspected through television monitoring and have been found to be functioning adequately.

--The village has implemented ordinances for new construction that MSD recommended, but this action will not have significant effects since all residential land is currently developed.

The village has not made any notable effort to encourage residents to take voluntary flood control measures since flooding results from the village's sewer system and officials believe that sewer separation is the final solution.

ACTIONS TAKEN BY RESIDENTS

No information is available on flood control measures taken by residents.

IMPACT OF TARP

TARP will provide a direct outlet for the village's combined sewers and for the storm relief sewer after it is separated from the combined system. This should minimize flooding which occurs when water from the Ship Canal submerges the combined and storm sewer outlets causing sewer backup.

COMMUNITY PLANS

Forest View's only plan under current consideration is completion of the sewer separation which was abandoned due to funding limitations. Consulting engineers estimate that $453,000 will be needed to complete the separation and connect the sewers to TARP. Action on this project will depend on the final decision regarding construction of TARP.

The village has chosen not to apply for Federal assistance to study its sewer system. However, it would be interested in obtaining a Federal grant to help fund the separation of sanitary and storm sewers and the connection to TARP.

No further flood-related actions are currently contemplated.

SECTION 19

FRANKLIN PARK

BACKGROUND

Franklin Park, in northwestern Cook County, has a population of 21,500 and covers about 5 square miles of flat terrain. The village is about 98 percent developed and includes 4,640 single-family homes, 105 multiple-family residences, and 714 commercial and industrial businesses. The 1977 median family income was $20,510.

Franklin Park has a partially combined sewer system. The combined sewers comprise 80 percent of the sewer system and are mainly located in the eastern section of the village.

Most of the combined sewer system was constructed around 1900 whereas the separate sewers were primarily constructed after 1940. According to village consultants, the total sewer system is in very poor condition. For example, most sewers are about 80 years old and are too small. Also, portions of most of the combined intercepting sewers have deteriorated and are bottomless.

EXTENT OF FLOODING

Franklin Park experiences severe basement and street flooding (see map, p. 85) due to inadequate local sewers. Basement and street flooding in the eastern section of the village and street flooding in the western areas occur on the average of three to four times a year.

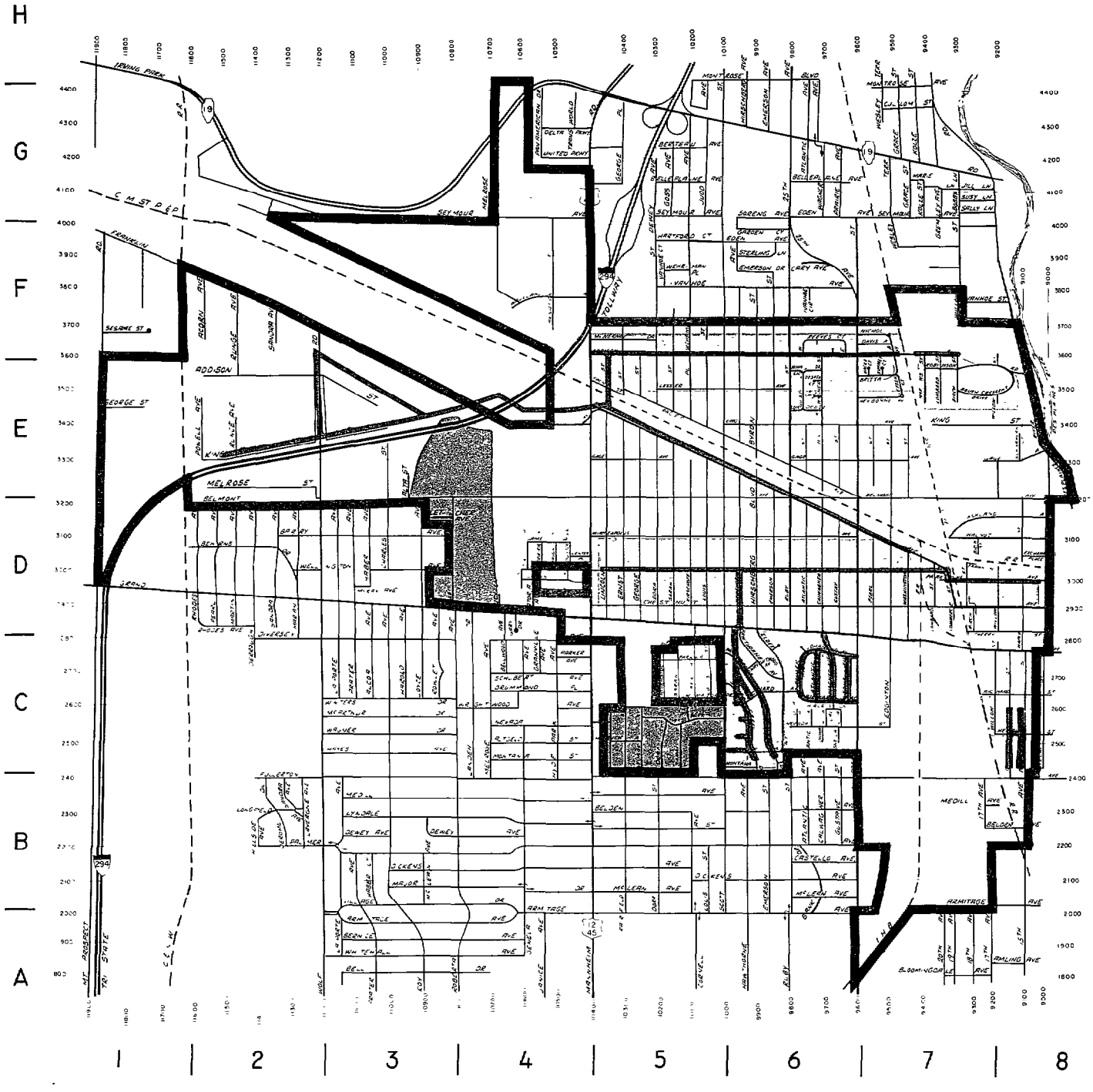
In addition, serious overbank flooding occurs in the southern section of the village (twice yearly) along Silver Creek.

ACTIONS TAKEN BY COMMUNITY

Franklin Park has taken various actions to upgrade sewer capacity and alleviate flood problems. For example:

--The village funded a sewer study in 1975 to identify sewer problems. Village action on the results of this study were delayed pending the outcome of a subsequent EPA funded study.

--In 1972 Franklin Park adopted a storm water detention ordinance more stringent than MSD's requirement.



Severe Sewer Backup

Overbank Flooding

Street Flooding

City Limits

Combined Sewer Area

FRANKLIN PARK

Franklin Park's ordinance requires storage and controlled release of runoff for any commercial, industrial, or residential development exceeding 10,000 square feet (0.23 acres) in area. This ordinance requires detention for a 100-year storm and provides that the release rate shall not exceed the runoff rate from the area in its natural state. This ordinance has been very effective in controlling stormwater runoff in new developments.

--The village has a regular sewer maintenance program for catchbasin cleaning and street sweeping. Sewers are also bucketed (a method of cleaning using a standard or specially designed bucket to lift debris, etc.) and monitored by television in emergency situations. These maintenance measures help control the severity of flooding in that they provide maximum sewer capacity.

--Restrictors are placed in new construction areas, remodeled areas, and in parking lots. This measure caused some sewers to collapse and its use has received less emphasis than in the past.

ACTIONS TAKEN BY RESIDENTS

Franklin Park consultants estimate that 5 percent of village residents have installed some type of flood control device, though the specific types could not be identified.

IMPACT OF TARP

Village consultants anticipate that TARP, without local sewer upgrading, will only have a minimal effect in reducing flooding. They estimate that $11.5 million of sewer upgrading would be needed in addition to TARP (Phase I and II) in reduce about 90 percent of flooding now experienced. According to village consultants, Franklin Park is not financially able to undertake this massive sewer upgrading and would be dependent upon Federal funding.

COMMUNITY PLANS

In November 1976, the village received a $323,100 EPA grant to identify sewer problems. The engineering study is currently being conducted.

Franklin Park is waiting for the results of the study before committing themselves to any plan of action.

The village has no other current plans for flood-related actions.

SECTION 20

GOLF

BACKGOUND

Golf is a small residential villiage situated in the northeastern part of Cook County. The village has a population of 492 and comprises 287 acres of relatively flat terrain including 180 acres in the Glenview County Club golf course.

The village has 92 single-family residences, 2 businesses; the golf course, and Western Golf Association. Only a few undeveloped lots remain in the vilage. The 1974 per capita income of Golf residents was $12,888.

Golf has a totally combined sewer system. Most of the sewers were constructed between 1920 and 1936 with some additional development in the 1950s.

According to village officials, the sewer system has insufficient capacity to convey sewage and rainwater during severe storms. Also, the system is in need of repair; some sections could collapse at any time. A recent engineering study noted that the system suffered from root infiltration, deposits, and structural failure.

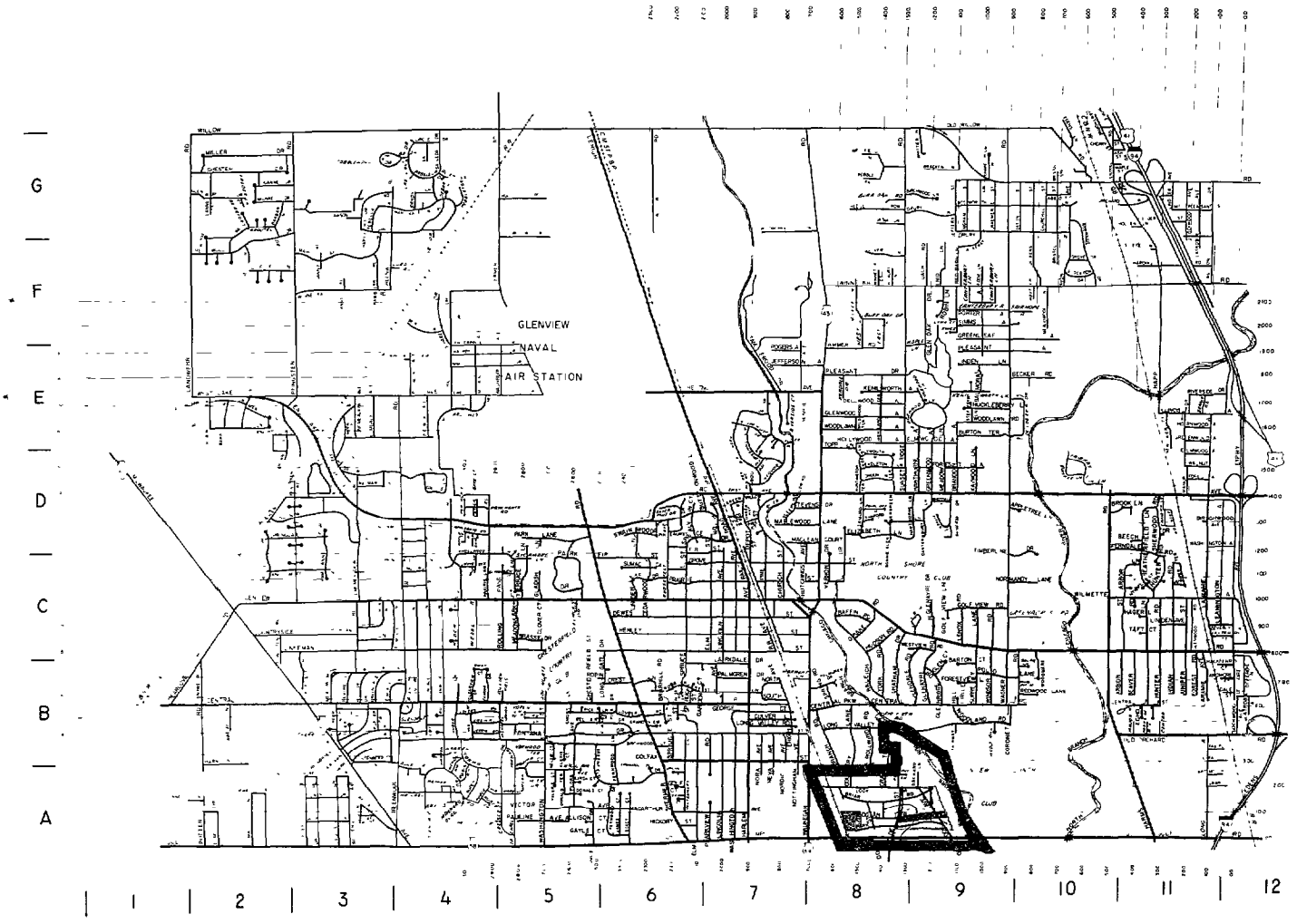
EXTENT OF FLOODING

Village officials, believe that the village's inadequate sewer system has caused severe flooding problems. More specifically, they noted the following flooding conditions in the community. (See map, p. 89.)

--Sewer backup in basements occurs on the average of six times per year. This flooding is basically confined to about 20 homes in the eastern half of the village.

--Street flooding occurs about six times per year at four locations in the village. Three of these locations are in the area having sewer backup problems.

In addition, the officials stated that one viaduct adjoining the community floods from 6 to 12 times per year. The official noted that flooding of this State-controlled viaduct is caused by an inadequate pumping system.



Severe Sewer Backup

Street Flooding

Viaduct Flooding

City Limits

Combined Sewer Area

GOLF

ACTIONS TAKEN BY COMMUNITY

Golf has taken various actions to alleviate flooding problems. These include:

--Replacing 250 feet of sewers and 3 manholes in 1975.

--Passing a 1976 ordinance prohibiting connection of downspouts on new construction. Residents are also encouraged to disconnect downspouts on existing homes and about 50 percent of the residents have done so.

--Cleaning and rebuilding all catchbasins where needed in 1977.

--Instituting, in 1978, a program to clean and repair its entire sewer system.

A village official believed that the maintenance procedures described above were effective in maintaining the sewer system at its current capacity, which they believe is inadequate. Golf has not passed an ordinance requiring disconnection of downspouts on existing homes because it would be unreasonable and inequitable to retroactively require residents to take this action. Furthermore, the village does not consider restrictors in catchbasins as an appropriate flood control measure for a small residential community like Golf.

Golf does not have a street cleaning program because the streets are basically free of debris and residents pride themselves on maintaining a clean environment.

ACTIONS TAKEN BY RESIDENTS

Village officials estimate that residents have taken the following actions to alleviate their flooding problems:

--20 percent have installed overhead sewers and sump pumps.

--8 to 10 percent have installed check valves in their basements or between their homes and streets.

--10 percent use drain plugs or standpipes.

IMPACT OF TARP

According to a village official, TARP's impact in Golf will be minimal since the community's flooding is caused by an inadequate local sewer system. They feel that overall, TARP will be beneficial for the MSD service area since it provides for greater water storage and should reduce flooding problems.

COMMUNITY PLANS

A recent engineering report on the condition of Golf's sewer system funded by EPA, recommended in part that the sewer system be inspected, cleaned, and repaired where necessary.

Although the village is implementing this recommendation, village officials still believe that the sewer system is inadequate and must eventually be replaced. Until this happens, Golf will continue to have basement backup problems. They believe that Golf has two options:

--Spend $500,000 for a new system of separate sanitary and storm sewers.

--Spend $300,000 for a new combined sewer system.

The option selected would be funded in part by an EPA grant and from a local bond issue. The bonds would be repaid through a property tax increase.

Golf applied for an EPA grant in 1976 for design of a new sewer system but has not as yet received EPA approval.

COMMUNITY COMMENTS

The village president commented that this summary did not adequately portray the situation in Golf with respect to the need for an EPA grant. According to the president, the village is facing imminent malfunction and collapse of its entire existing system and rightly feels that its EPA application must be granted immediately.

While the president agrees with virtually all of the information in the summary, he emphasized that the inadequacy of Golf's sewer system is the root cause of nearly all of the flooding problems. He further noted the need for U.S. Federal Flood Insurance, and requested our support of Golf's application to the EPA. Furthermore, he requested that we forward copies of any communication regarding Golf to EPA.

SECTION 21

HARVEY

BACKGROUND

Harvey is a suburb of about 6.5 square miles and 40,000 people in southern Cook County. The city has 11,300 dwelling units including 7,896 single-family and 507 two-family residences. About 95 percent of the city is developed. A new industrial park will utilize the remaining undeveloped land. The 1977 median family income was $16,110.

Harvey has a partially combined sewer system. Combined sewers, which comprise about 75 percent of the system, serve the heavily populated northern section of the city. There are numerous connections between the separate sewer area's sanitary sewers and the combined sewer system. The separate storm sewers, however, discharge directly into the Little Calumet River.

Harvey officials said the combined and separate sewer system is more than adequate and can handle a 5-year storm (1-3/4 inches in an hour). The city had no specific information on the system's condition since it has not made any sewer study.

EXTENT OF FLOODING

Since construction of a relief sewer in the late 1940s, no notable flooding has occurred in Harvey. Flooding has been limited to minor problems on some streets, in one viaduct, and along the Little Calumet River. Harvey has almost no basement sewer backup. There have been no deaths, injuries, or illnesses due to flooding and little property damage.

Most homes in Harvey were built in the 1950s with overhead plumbing to prevent sewer backup. According to city officials, the few instances of basement flooding are usually the fault of individual homeowners who fail to keep the lines between their houses and streets free of obstructions.

Street flooding occurs only when leaves clog catch-basin openings and prevent storm water from entering sewers. One State-controlled viaduct on Sibley Boulevard floods because its drain is inadequate to convey the water.

Overbank flooding occurs along the Little Calumet River, but city officials believe the problem is not significant since residents seldom complain.

ACTIONS TAKEN BY COMMUNITY

Harvey has taken various actions to alleviate flood problems. For example:

--In the late 1940s the city installed an 8-foot-diameter flood relief sewer in the downtown area to alleviate major flooding which had occurred in 1945 and 1947. This relief sewer, along with several other sewer lines, helps drain the combined sewer area and directs the follow into the Little Calumet River.

--The city maintains sewers on an as-needed basis. A private firm rods out and cleans sewers when obstructions are identified. Catchbasins are cleaned every fourth year.

--Harvey has implemented a flood damage prevention ordinance which sets standards for construction on flood plains. The city also has ordinances which require overhead plumbing and prohibit connections of downspouts to sanitary sewers.

ACTIONS TAKEN BY RESIDENTS

Besides the flood-related measures required by ordinances, Harvey officials had no specific information on flood control actions taken by residents.

IMPACT OF TARP

City officials did not know whether TARP would provide any direct benefit to the community, since flooding problems are insignificant. One benefit, according to city officials, would be a change in the Department of Housing and Urban Development's Flood Plain Map, so that additional land along the Little Calumet River could be rezoned for development.

COMMUNITY PLANS

Harvey has no plans to study its sewer system because it cannot afford to pay the 25 percent matching funds required by EPA grants.

The city has no other current plans for flood-related actions.

SECTION 22

HARWOOD HEIGHTS

BACKGROUND

Harwood Heights, in northwest Cook County, has a population of 9,060 and comprises a 1 square mile area. The village is about 99 percent developed and includes 1,797 single- and 225 multiple-family residences, 52 businesses, and 61 industrial plants. The 1977 median family income was $21,180.

Harwood Heights basically has a combined sewer system. However, some areas have separate sewers which connect to the combined sewers. The sewer system ranges between 20 and 50 years old and is considered to be in very good condition.

EXTENT OF FLOODING

Harwood Heights has a severe flooding problem due to an inadequate sewer outlet. Village sewers connect with Chicago's sewer system which cannot adequately handle Harwood Heights combined sewer flows during storms. When this occurs, Harwood Heights sewers back up causing some street flooding in the western section of town; both street and basement sewer backup flooding in the eastern section of the village. (See map, p. 97.) This flooding occurs on the average of three times a year. Overbank flooding does not occur in the village.

ACTIONS TAKEN BY COMMUNITY

In 1974 Harwood Heights adopted an ordinance requiring downspout disconnection on newer buildings. Village officials have also asked residents of older structures to disconnect downspouts.

The village cleans 50 percent of their catchbasins yearly and sweeps all streets monthly. The village cleans and televises sewers on an as needed basis.

According to a village official, the downspout ordinance and maintenance programs have been very effective in reducing flooding.

ACTIONS TAKEN BY RESIDENTS

A village official estimated that residents have taken the following actions to alleviate their flooding problems:

--100 percent have disconnected downspouts.

--70 percent have overhead plumbing.

--70 percent have installed sump pumps connected to the sewers.

--25 percent rodded out sewers.

--10 percent use standpipes.

--10 percent have installed check valves either in the basement or between the buildings and the street.

--5 percent have waterproofed their basements.

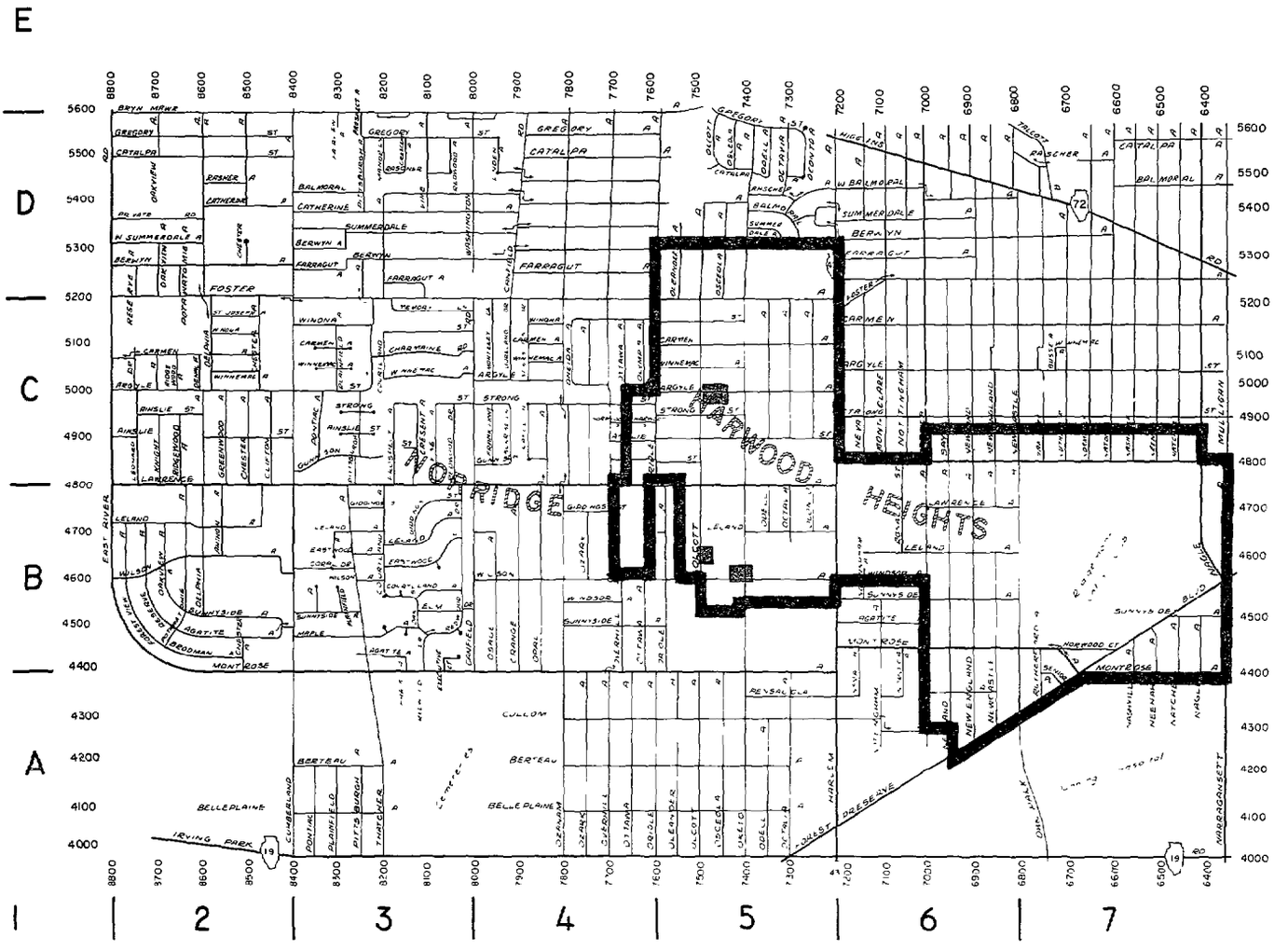
IMPACT OF TARP

According to a village official, TARP will alleviate all of the flooding now experienced because TARP will provide the increased capacity which would allow Chicago's sewer system to handle Harwood Heights combined sewer flow. No local sewer upgrading will be necessary.

COMMUNITY PLANS

Harwood Heights has not applied for an EPA grant. The village has taken the position that it will not spend any money on sewer studies until TARP or some similar project is completed.

If any sewer upgrading or additional sewers are needed to connect to TARP, Harwood Heights will seek Federal funding. In the event these funds are not available, the village would be forced to impose a sewer tax.



HARWOOD HEIGHTS

SECTION 23

HOMETOWN

BACKGROUND

Hometown is located in south-central Cook County, covers about 1/2 square mile, and has approximately 6,700 residents. The area is essentially flat and is 90 to 95 percent built-up. Hometown has only 8 single-family homes, 1,600 multiple-family buildings, and 26 businesses. The 1977 median family income was about $18,400.

The sewer system is totally combined and was built during 1949-51. It is considered adequate and in generally good condition, except for the catchbasins, which are deteriorating.

EXTENT OF FLOODING

City officials do not consider flooding a problem. Basement flooding has occurred only twice in the last 25 years. Even then, the effect was limited, since most buildings are built on slabs or have crawl spaces. Officials estimate that only 20 buildings in the city have basements.

In the two worst rainstorms--1957 and 1976--the city had widespread street flooding and ponding because sewers could not handle the load. Normally, however, street flooding is confined to sporadic instances caused by sewer inlets clogging with leaves or other debris.

ACTIONS TAKEN BY COMMUNITY

Since flooding is not considered a problem, the city has taken no special flood control actions. Hometown does not permit downspouts to be connected to the sewer system.

The city performs the following operations and maintenance activities that could deter flooding:

--As part of an ongoing program, Hometown plans to replace 10 to 20 catchbasins each year. About 80 of the 430 basins in Hometown have already been replaced.

--Catchbasins are cleaned on a cyclical basis about every 3 years.

--Debris is removed from the sewers whenever a problem is reported.

--Streets are cleaned seven times a year.

ACTIONS TAKEN BY RESIDENTS

City officials did not know what individual residents have done to reduce flooding problems, but they estimated that:

--Of the 20 property owners with basements, 4 have installed sump pumps discharging to their yards.

--Most of the property owners do not have their downspouts connected to the sewer system.

IMPACT OF TARP

City officials could not say how construction of the TARP project would affect their community. Since they do not have a flooding problem, they assume TARP will have limited impact.

COMMUNITY PLANS

City officials plan to apply for an EPA grant to study their water and sewer system.

The city has no plans for other flood-related actions.

SECTION 24

KENILWORTH

BACKGROUND

Kenilworth, in northern Cook County, has a population of about 3,000 in its 1 square mile area of level, highly developed land. Within the village there are 850 single- and multiple-family dwellings and 50 businesses. The 1977 median family income of $42,950 is the highest in the Chicago metropolitan area.

Approximately two-thirds of Kenilworth is served by combined sewers built in 1900. The separate system that serves the western third of the village was built in 1920. The west system empties into the Green Bay Road interceptor, and the east system empties into the Sheridan Road interceptor. Engineering reports show that blockage and cave-ins--present in three-fourths of the combined sewer lines--prevent the system from handling its designed capacity of a 2-year frequency storm. Smoke and light tests show some connections between separate and combined sewers and blockage in lines.

EXTENT OF FLOODING

Basement sewer backup and street flooding are severe problems throughout the village. (See map, p. 103.) On the other hand, overbank flooding from the Skokie drainage ditch has occurred only once since its construction in the 1860s.

Sewer backup into basements reportedly occurs along almost all streets, with three-fourths of village residences affected. Village officials estimate that more than half of Kenilworth's homes have suffered sewer backup on one or more occasions during 1974-78 while some homes have flooding as often as four times a year.

Widespread flooding occurs sporadically on the average of every 2 years. For example, there were four floods in 1975 and then no general flooding until June 17, 1978, when 3-1/2 inches of rain fell in 2 hours. Street flooding followed that storm, with water reportedly standing curb deep or deeper on Sheridan Road. Similar flooding also occurred on both September 13 and 17 of 1978.

Localized flooding is said to occur more frequently, although specific data was unavailable. A 1976 post card

survey sent to all residents showed 45 percent of respondents (25 percent of total population) had periodic flooding.

ACTIONS TAKEN BY COMMUNITY

The village has passed various water conservation ordinances for new construction. The village board also recommended that residents disconnect downspouts, but few have complied. Officials have, however, enforced disconnection of illegal downspouts in the separate sewer area.

The village has no ongoing inspection or maintenance program, instead sewers are repaired as needed by village and contract crews. The sewers were cleaned in 1975 at a cost of $18,000.

Engineers suggest that sewer capacity could be increased if Kenilworth's system were cleaned again. This would provide minimal flood relief to some residents. Village officials believe that even at full capacity the sewer system is inadequate for major storms. This situation, according to village officials and consulting engineers, is compounded by the inability of MSD interceptor sewers to convey sanitary and storm water from Kenilworth and surrounding suburbs.

ACTIONS TAKEN BY RESIDENTS

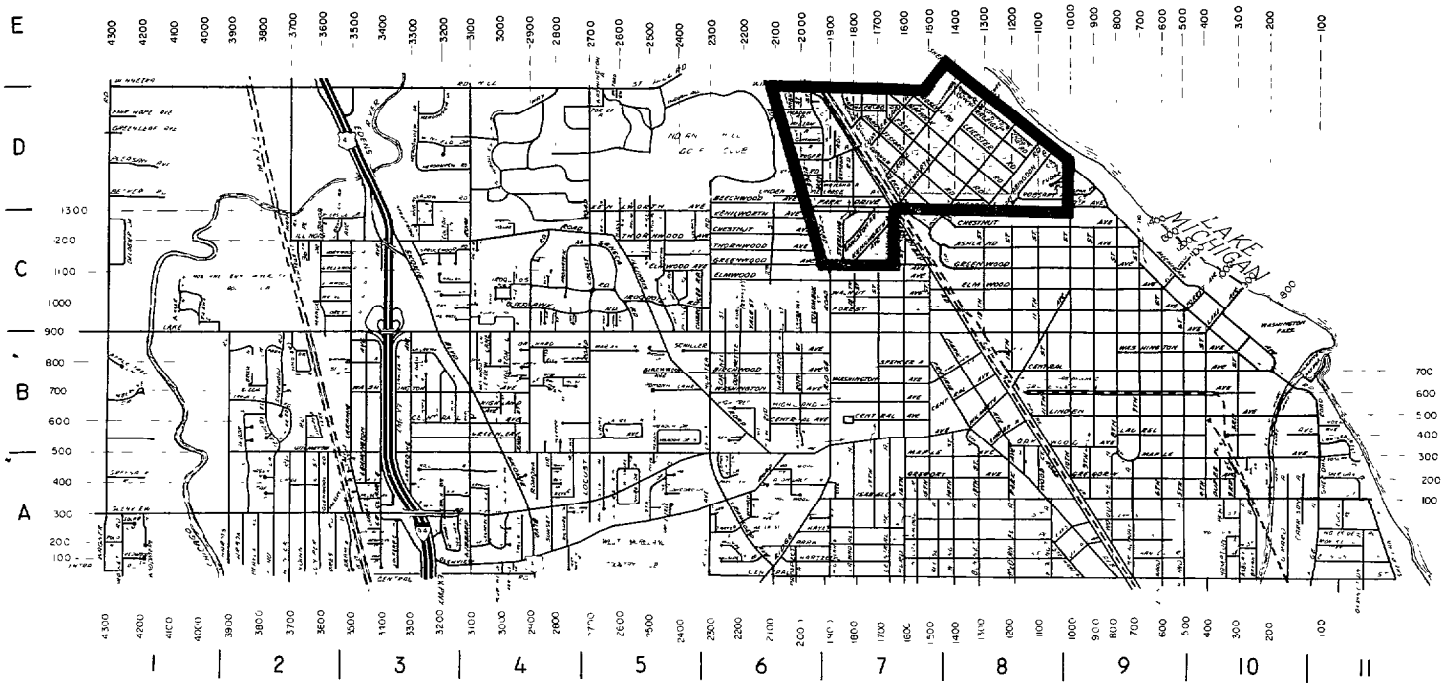
An estimated 25 percent of Kenilworth homes do not experience flooding due to control measures. At least 20 homes installed check valves, a practice village officials discourage since it increases flooding elsewhere in the community.

IMPACT OF TARP

Engineering studies show that even with TARP, Kenilworth's sewer system cannot adequately handle its design capacity of a 2-year storm. Engineers estimate that TARP phase I may provide some relief with the additional storage capacity of the Wilmette dropshaft.

COMMUNITY PLANS

A study of Kenilworth's combined sewer system, funded by EPA, was completed in March 1978. A similar study of the separate system is in progress. Engineers have recommended construction of relief sewers costing from $1.5 million for a 5-year storm capacity to $1.7 million for a 10-year storm



Severe Sewer Backup

City Limits

Combined Sewer Area

KENILWORTH

capacity (costs include connection to TARP). Village officials speculate that the most probable source of funding for recommended capital improvements would be general obligation bonds.

The village has no other plans for flood control actions at the present time.

SECTION 25

LA GRANGE

BACKGROUND

La Grange, in western Cook County, has a population of 17,814 and comprises 2.4 square miles. La Grange is 99 percent developed, consisting of about 5,000 single-family homes, 1,400 multiple-family dwellings, and 300 industrial and business units. The village contains 70 acres of city parks. The 1977 median family income was $26,600.

The sewer system has 94 percent combined sewer lines and 6 percent separate sewer lines which discharge into the combined sewer. The system is designed to handle a 10-year frequency storm. A village official reported sewer lines in poor to fair condition with 75 percent of the lines constructed in 1920. An engineering examination of village catchbasins indicated badly needed repairs. A section of a 78 inch diameter sewer line running under Ogden Avenue is near collapse. Estimated cost of repair is $1.7 million, which includes rehabilitation of approximately 60 percent of the outfall sewer line on Ogden Avenue. The estimated total cost for La Grange to upgrade all its local sewers ranges between $4.8 to $6.8 million.

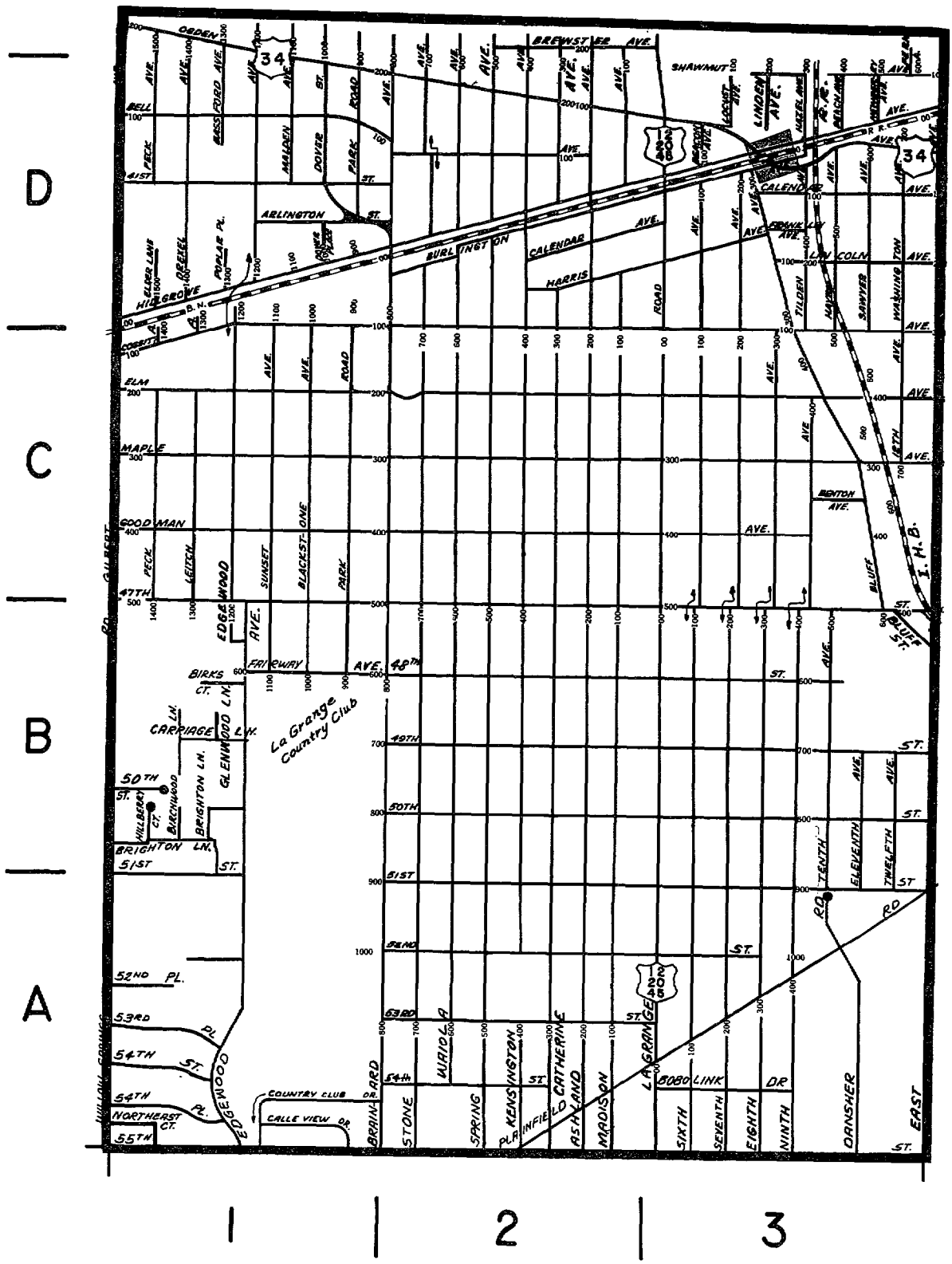
EXTENT OF FLOODING

The overall flooding condition in La Grange is considered infrequent with isolated areas having serious problems. (See map, p. 107.)

Village consultant engineers distributed a post card survey to 5,000 single-family residences in 1977 to identify flooding problems. Sixty percent of the surveys were returned with only 7 percent indicating serious basement backup flooding problems. Based on these results, engineers estimated that 4 percent of the total village has flooding problems. Respondents to the survey claimed that flood damages in 1977 were in excess of $86,000.

Village officials reported that sewer backups are a problem only in the most severe storms. Basement flooding is generally limited to a few homes where inspections have identified seepage as the cause of flooding. Village officials and engineers stated that it was not possible to determine the frequency and severity of flooding occurrences.

Minor surface flooding occurs in yards and a few garages in the southeastern section of the village.


A
B
C
D
E
1
2
3
OGDEN
BREWSTER AVE.
SHAWMUT
LINDEN AVE.
BELL
FECK
61ST
BOSWORTH AVE.
MALDEN
DOVER
PARK ROAD
ARLINGTON ST.
ELDER LANE
REXELL
PRAIRIE PL.
HIGHGROVE
B. R.
CORBITT
BURLINGTON
CALENDAR AVE.
HARRIS ROAD
CALENDAR
LINCOLN AVE.
TILDEN
SANITER
WASHINGTON AVE.
ELM
MAPLE
GOODMAN
PECK
LEITCH
EDGEWOOD
SUNSET
BLACKSTONE
PARK
47TH
BENTON AVE.
BLUFF
I. H. B.
BIRKS CT.
FAIRWAY AVE.
48TH
La Grange Country Club
CARRIAGE LN.
GLENWOOD LN.
49TH
50TH ST.
WILBERT CT.
BIRCHWOOD
BRIGHTON LN.
51ST ST.
52ND PL.
53RD PL.
54TH ST.
54TH PL.
NORTHERST CT.
55TH
WILLOW SPRINGS RD.
EDGEWOOD
COUNTRY CLUB DR.
CALLE VIEW DR.
BRAINARD
STONE
SPRING
KENSINGTON PL.
INFIELD
CATHERINE
ASHLAND
MADISON
LAGRANGE
WARIOLA
54th ST.
63RD ST.
BOBOLINK DR.
SIXTH
SEVENTH
EIGHTH
NINTH
TENTH
ELEVENTH
TWELFTH
DANSHER
EAST
RD.
Severe Sewer Backup
Viaduct Flooding
City Limits
Combined Sewer Area

LAGRANGE

Viaduct flooding is also reported on Ogden Avenue where floodwater stands for 20 to 30 minutes after a heavy rain on the average of six times per year (based on storm frequencies during the last 2 years).

There was no serious street or overbank flooding identified by village officials.

ACTIONS TAKEN BY COMMUNITY

The village of La Grange has taken various actions to alleviate flood problems and deteriorating sewer lines. For example:

--In 1976 the village received a $32,700 EPA grant to study its sewer system. The grant was increased to $47,600 in 1978 for inclusion of an overflow study.

--La Grange performs sewer line maintenance and repairs as needed. Outside contractors are hired to perform necessary work to clean sewers and maintain capacity. All catchbasins are cleaned annually. Streets are swept biweekly with busy streets swept more often.

--La Grange has some measures to restrict storm water runoff from entering sewer lines. Occasionally, village residents plug up catchbasins with various obstructions during severe storms or these inlets will become plugged by themselves with leaves, twigs, and grass to cause street ponding. This situation is allowed by the village, and public works personnel will refrain from opening these catchbasins until water levels in the area have receded. Some parking lots have restrictors, and some playgrounds have green areas to detain runoff.

--La Grange implements MSD recommended floodwater detention measures on new construction.

--Village officials recommended water conservation to all residents and backflow regulators or standpipes to those residents reporting flooding.

ACTIONS TAKEN BY RESIDENTS

Few actions have been taken by residents to alleviate flooding as the problem is not severe. Village officials estimated that 1 percent of residents have rodded their sewers while less than 1 percent use or need drain plugs, standpipes, check valves, or sump pumps. The majority of the residents have disconnected downspouts.

IMPACT OF TARP

Village officials anticipate some flooding relief from TARP, but local sewer upgrading is needed to maximize its effect. The source of funding for this construction is uncertain. Village officials believe the upgrading of sewers along the Ogden Avenue Trunk Line sewer to be a more immediate concern than the local additional tie-in to TARP.

COMMUNITY PLANS

Village officials have been seeking funding for the repair of the Ogden Avenue Trunk Line sewer. The officials anticipate 50 percent funding from the village of Brookfield, as Brookfield also uses this sewer line. La Grange has applied to MSD and the State environmental agency, as well as other Federal and State sources. Officials anticipate difficulties in funding the total rehabilitation cost locally as the necessary general obligation bond referendum would probably be defeated by the residents.

La Grange received EPA grants in 1976 and 1978 to study its sewer system.

Future plans depend on the outcome of this study as the most cost-effective method has yet to be established.

SECTION 26

LA GRANGE PARK

BACKGROUND

La Grange Park, in western Cook County, has an estimated population of 14,310 and covers 2.3 square miles. The village is highly developed with 3,932 single- and multiple-family residences and 47 businesses. The 1977 median family income was $24,200.

Basically, La Grange Park has a combined sewer system. Approximately 186 homes in a new housing development are serviced by separate sanitary and storm sewers; however, these lines connect with combined sewers before emptying into the MSD interceptor and thus the system is effectively 100 percent combined.

A village consulting engineer noted that the majority of the village's sewer lines are in fairly good shape. However, approximately one-fourth of the sewers are inadequate--their capacity should be increased by 33 percent. Beyond this problem, village officials consider inadequate MSD interceptors to be a major cause of flooding. An estimated one-tenth of an inch of rainfall will cause interceptor overflow points to discharge.

EXTENT OF FLOODING

According to a village consulting engineer, La Grange Park has a moderate flooding problem with a few isolated areas experiencing serious problems. In 1977 the engineers distributed post card surveys to 4,500 single-family residences and received responses from 47 percent. The results showed 78 percent of those responding had some flooding problem, while 24 percent reported serious flooding. Based on these results, an engineer estimated that 6 percent of the entire village has serious basement flooding. Respondents to the survey claimed that flood damages in 1977 were in excess of $77,000.

Village officials noted that sewer backup is considered the most serious flooding problem in La Grange Park. However, village officials noted that few complaints were received indicating that residents "learn to live with it" and realize the village can do little to alleviate flooding in older homes with no overhead sewers. Village officials and consulting engineers stated that it was not possible to determine accurately the frequency and severity of flooding occurrences. An engineer noted however, that 30 percent of the residents responding to the 1977 survey reported that

it took a very heavy rainfall to cause basement backup and that this type of rainfall is equivalent to a 10-year storm (2 inches in 1 hour).

Although street flooding occurs, village officials could not identify the frequency, severity, nor location. There is overbank flooding in La Grange Park.

ACTIONS TAKEN BY THE COMMUNITY

Village officials reported that La Grange Park has taken various actions to alleviate flooding and maintain sewer capacity. For example:

--Through the efforts of contract crews and village employees, La Grange Park is replacing 35 catchbasins at a cost of $30,000. An estimated 400 of the 1,600 catchbasins are cleaned annually.

--La Grange Park rods its sewer lines as needed and when labor is available. Village officials estimated it will take 6 to 8 years to rod the entire system.

--La Grange park has ordinances requiring downspout disconnection in the separate sewer area.

--New buildings must have separate storm and sanitary service connections.

--The village has passed flood plain ordinances including MSD requirements that new construction must be elevated above the flood line. Officials anticipate little impact of these ordinances as overland flooding is confined to forest preserve land.

--Parking lot restrictors were required in the recent construction of a large food store.

ACTIONS TAKEN BY RESIDENTS

Village officials estimated that many La Grange Park residents have installed sump pumps. Officials estimated that 33 to 50 percent use some type of standpipe. Check valves are used in only a few homes.

IMPACT OF TARP

Village officials anticipate that TARP will relieve some, but not all, of La Grange Park's flooding problems. TARP, either phase I or phase I and II, will alleviate flooding

problems due to surcharging from inadequate MSD interceptors, but it will not relieve flooding due to inadequate local sewer lines. To make full use of TARP, the village must upgrade one-fourth (9 miles) of its sewer lines at an estimated cost of $10 million.

COMMUNITY PLANS

In June 1977 the village received a $25,275 EPA grant to study its sewer system.

The upgrading of village sewer lines has not been considered in the last 5 years due to the high costs and lack of adequate local funding. Upgrading of the 9 miles of sewer lines will require massive Federal assistance. Officials noted that even with the 75 percent Federal share, the village has insufficient resources for the matching funds.

The village has no current plans for other flood-related actions.

SECTION 27

LANSING

BACKGROUND

Lansing is a suburban community in southeastern Cook County. The village covers 6.5 square miles and has a population of about 30,000. The area is 75 percent developed with 7,000 single-family and 2,000 multiple-family residences. Lansing also has a variety of businesses and industries. Median family income in 1977 was $22,650.

In 1975 Lansing decided to have its sanitary waste treated by MSD, and subsequently, abandoned its own treatment plant.

Lansing's local sewer system is about 50 percent combined and 50 percent separate. It is in relatively good condition even though the combined system was built in the 1920s. Generally, the sewer system has sufficient capacity to handle the rainwater from most storms.

EXTENT OF FLOODING

According to village officials, Lansing does not have a flooding problem. Basement, street, expressway, and viaduct flooding are rare occurrences in the village. Officials stated it would take at least 4 inches of rain in an hour before any significant flooding would occur.

ACTIONS TAKEN BY COMMUNITY

Lansing has taken several steps to reduce flooding problems in the village. Besides the passage of flood control ordinances recommended by MSD, the village constructed a new separate storm sewer system in 1977, costing about $340,000.

ACTIONS TAKEN BY RESIDENTS

According to village officials, residents have installed various devices to reduce flooding from sewer backup. However, details on the number of residents and type of devices installed are not available.

IMPACT OF TARP

Village officials did not know the impact of TARP on their community. However, the village consultants stated

that in general, TARP will do nothing to eliminate basement backup or street flooding caused by inadequate local sewers. Many communities may need to upgrade their systems before TARP's flood reduction benefits will be realized.

COMMUNITY PLANS

Lansing has applied for and received an EPA grant to study its sewer system. As part of the study, consultants will be sending questionnaires to village residents to obtain flooding information.

The village also plans to construct separate sewers in part of the combined sewer area but details on the magnitude and cost of this effort are not yet available.

The village has no current plans for other flood-related actions.

SECTION 28

LEMONT

BACKGROUND

Lemont, in southwest Cook County, comprises 1.75 square miles of hilly terrain. The village includes 1,500 single-family and 40 multiple-family residences, and 137 business and industrial establishments. Lemont's population of 5,300 had a 1977 median family income of $18,600.

About 50 percent of Lemont's 13 miles of sewer lines are combined and were constructed in 1924. The separate system was built during the last 20 years. However, the combined and separate systems are connected within the village.

Village officials described the village's overall sewer system as in good condition with repairs needed in three or four locations.

EXTENT OF FLOODING

Lemont has a flooding problem. In certain areas severe sewer backup in basements, street flooding, and overbank flooding occur about three to four times each year after major rainstorms. (See map, p. 117.)

Severe basement flooding occurs in about 35 homes located in 6 sections of the village. While the village has street flooding in two or three locations, officials believe that the inconvenience is far more tolerable than the health hazard resulting from sewage in basements.

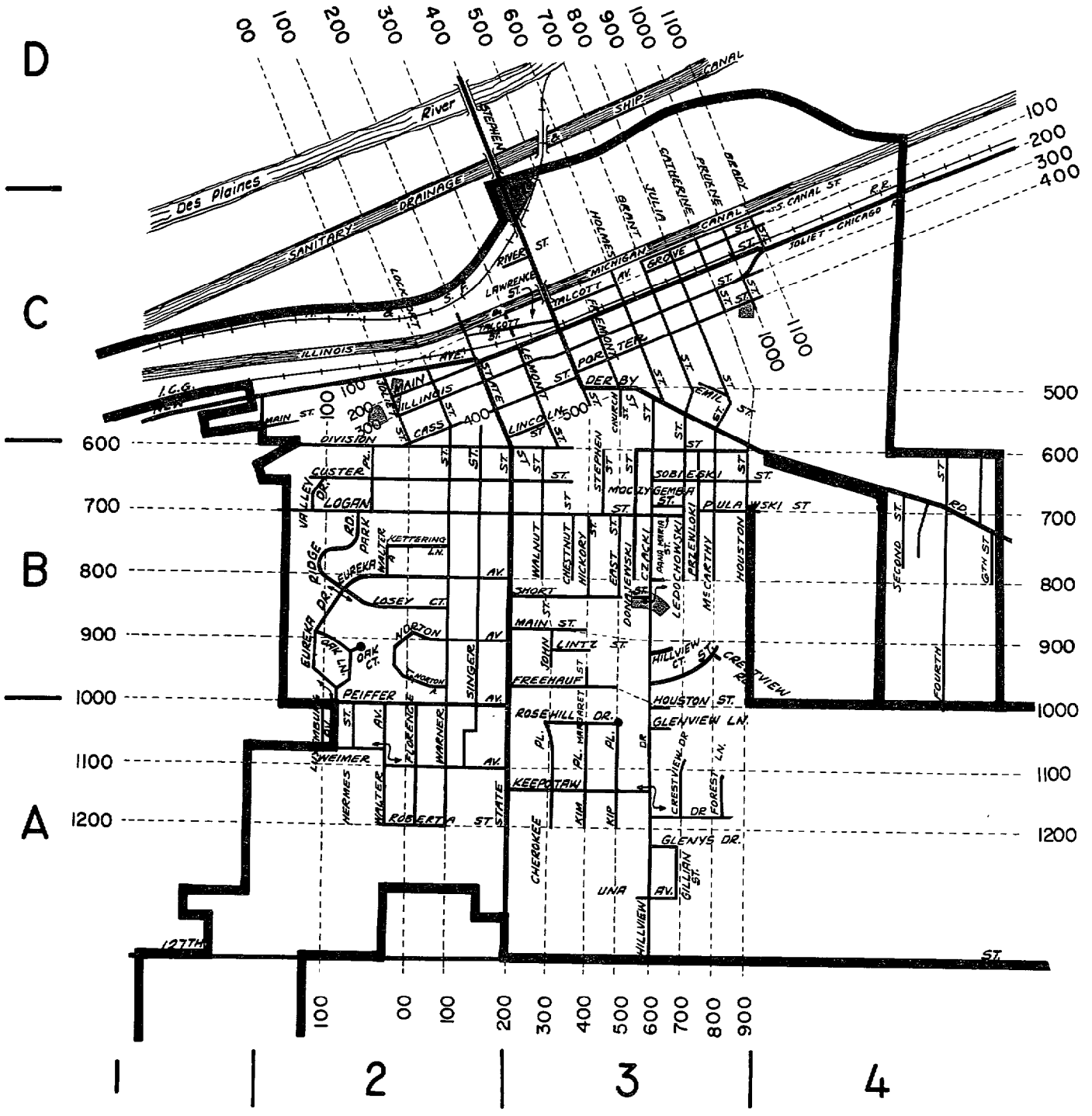
Overbank flooding from various creeks in the village causes street flooding in three locations and basement flooding in one business establishment.

Officials noted that no deaths or injuries have resulted from flooding during the last 20 years.

ACTIONS TAKEN BY COMMUNITY

Lemont has taken various actions to alleviate flooding problems. For example:

--Under its sewer maintenance program, the village power rods about 9,000 feet of sewers each year. In addition, sewer inspections are made and catchbasins are cleaned as needed. In addition, the village has an ongoing street cleaning program.



Overbank Flooding

Viaduct Flooding

Severe Sewer Backup

City Limits

Combined Sewer Area

LEMONT

--In 1958 the village installed drain tile in a two-block area to alleviate street flooding caused by inadequate drainage.

--In 1968 the village installed storm relief sewers in a 9-1/2 block area.

--In 1973 Lemont passed MSD's recommended ordinance requiring that new construction include separate sewers with overhead sewers, and disconnection of downspouts to sanitary sewers.

--In 1976 the village's Public Works Department visually inspected all 600 homes in the separate sewer area and identified 50 homes with illegal connections of storm water to sanitary sewers. Letters were sent to homeowners, followed by two inspections to ensure disconnections. Through these efforts, homeowners' compliance has been achieved in all cases.

--Over the years, the village has also constructed four storm water detention basins.

ACTIONS TAKEN BY RESIDENTS

Officials estimated that about 5 percent of the residences have overhead sewers. No other information was available on actions taken by residents.

IMPACT OF TARP

TARP will have no effect on Lemont's flooding problems, since the village is not within the projects' service area. According to the village's superintendent of Streets and Sewers, at one time MSD considered including Lemont in one of TARP's sub-projects, but later decided it would not be cost effective to do so.

COMMUNITY PLANS

In 1976 the village applied for an EPA grant to study its sewer system. This application has not as yet been approved and the village is presently updating their application for resubmission.

Lemont is currently planning a $50,000 storm relief sewer project to be funded by motor fuel tax receipts, revenue sharing, and water connection fees for new customers.

According to the village's consulting engineer, Lemont would have to spend about $5 million to upgrade the sewer

system and minimize flooding and pollution. This represents a one-time tax assessment of $2,829 for each family. Without external financing, Lemont's officials stated that no sewer projects other than normal maintenance will be planned or undertaken. To do so would cause an undue financial burden to the village's older residents who have fixed incomes.

The village has no current plans for other flood-related actions.

SECTION 29

LINCOLNWOOD

BACKGROUND

Lincolnwood, in northern Cook County, has a population of 13,500 and covers 4 square miles. The village is about 95 percent developed with 3,500 single-family and 400 multiple-family residences and 300 businesses. The 1977 median family income was $32,560.

Lincolnwood has a totally combined sewer system. Although the sewer system is 50 years old, it is adequate and in good structural condition.

EXTENT OF FLOODING

Lincolnwood experiences infrequent flooding problems. Basement sewer backup flooding occurs when rainstorms cause the water level in the North Shore Channel to rise above Lincolnwood's two overflow pipes, thereby, restricting flow. This flooding occurs randomly in the village about once every 3 years.

Lincolnwood does not experience any street flooding. However, the village's use of restrictors in catchbasins causes temporary street ponding. Overbank flooding does not occur in Lincolnwood. Village officials vaguely recalled one flood-related death as a result of electrocution.

ACTIONS TAKEN BY COMMUNITY

Lincolnwood has passed the following ordinances to upgrade sewer capacity and alleviate flooding problems:

--Effective in 1978, all commercial buildings must provide greenery for absorption and/or retention of storm water.

--A 1975 ordinance requires that all downspouts be disconnected from the sewer system. The village reimburses citizens $15 for each disconnection.

--As of 1962, all air conditioning units of certain capacity must be equipped with water conservation devices.

--A 1961 ordinance specifies that natural drainage areas such as parks and golf courses cannot be connected to the sewer system.

Lincolnwood also has several flood-related regulations. One regulation requires all businesses to restrict the flow of storm water from rooftops and parking lots, while another requires all new homes built after 1970 to have sump pumps which eject water to yards.

The village uses restrictors to create street and parking lot ponding. These restrictors are placed in all catchbasins and parking lot drains thereby delaying about 80 percent of the storm water from entering the sewer system.

Lincolnwood cleans all street catchbasins yearly and all streets are swept biweekly. In regard to sewer maintenance, there is no regular program for rodding, jetting, and bucketing sewers, since Lincolnwood does not experience any problems with debris accumulation.

ACTIONS TAKEN BY RESIDENTS

According to village officials, about 55 percent of Lincolnwood residents have installed flood control devices. These devices include overhead sewers, check valves, sump pumps, and standpipes. Village officials estimate that 50 percent of the residents have disconnected downspouts.

IMPACT OF TARP

Lincolnwood officials noted that TARP, without any local sewer upgrading, will eliminate the problem of submerged overflow outlets and thereby minimize basement flooding.

COMMUNITY PLANS

Lincolnwood has not applied for an EPA grant to study the sewer system since inadequate sewers are not considered a problem. The village has no current plans for other flood-related actions.

SECTION 30

LYONS

BACKGROUND

Lyons, in western Cook County, is a small, highly developed village covering 1.5 square miles of flat terrain. The village contains 1,960 single- and 560 multiple-family residences and 280 businesses. Lyons has a population of 11,700 and a 1977 median family income of $19,620.

The village's sewer system is totally combined. No details on the age or condition of the system were available.

EXTENT OF FLOODING

Lyons has few flooding problems. When sewer backup in basements occur it results from tree roots or debris blocking sewer lines between homes and streets. Village officials estimated that fewer than 200 residents have had sewer backups.

ACTIONS TAKEN BY COMMUNITY

Because flooding is not considered a problem, village actions have been limited to

--cleaning of all catchbasins annually,

--rodding of sewers when complaints are received, and

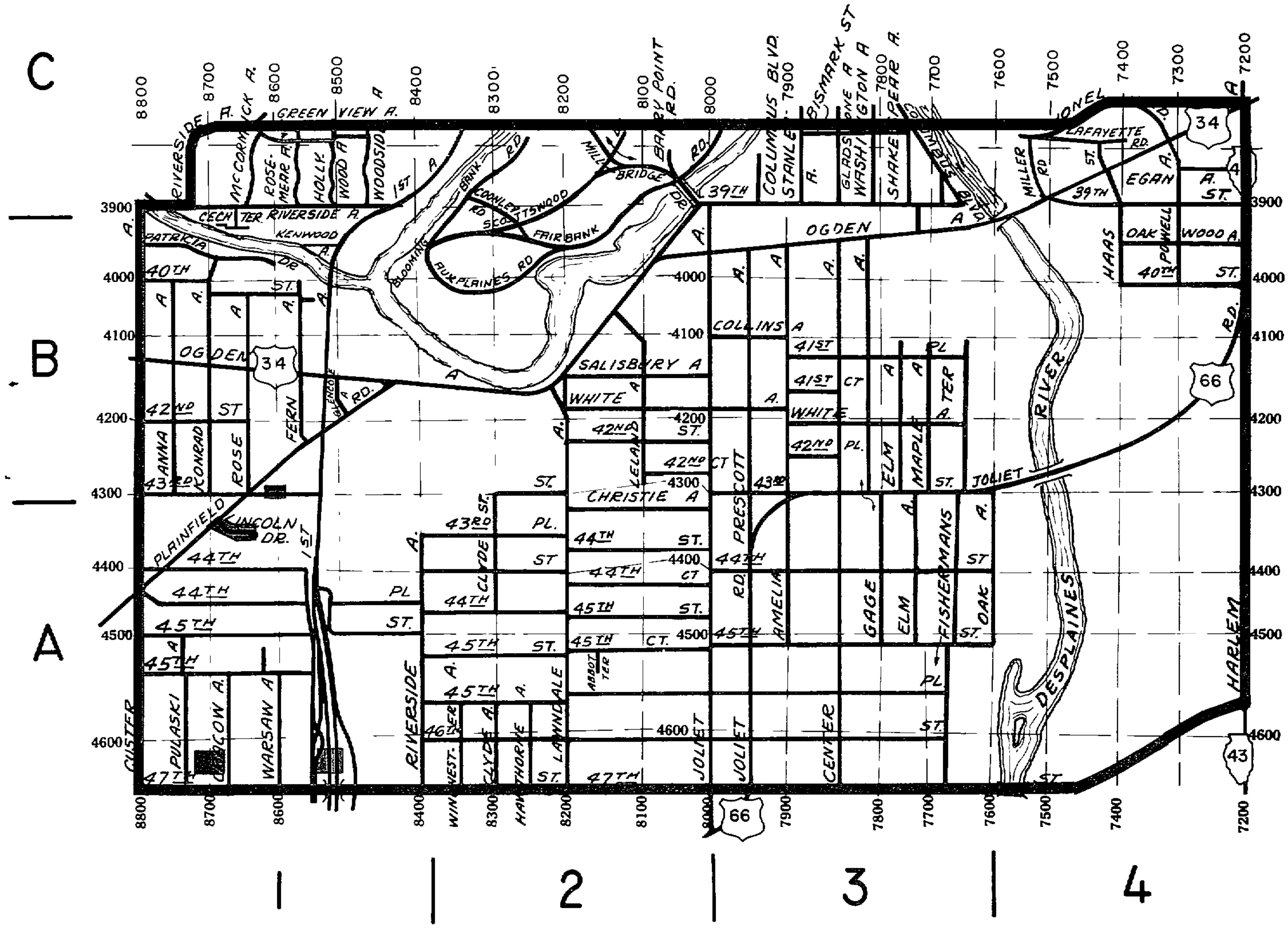
--passing ordinances requiring flood control measures on new construction, in accordance with MSD recommendations.

IMPACT OF TARP

Village officials anticipate that TARP will have little effect on the few flooding problems experienced as these are caused by obstructions in local sewer lines.

COMMUNITY PLANS

In 1977 the village applied for a $69,750 EPA grant to study its sewer system. The village has not as yet received EPA approval. No additional studies of the sewer system or flood-related projects are contemplated.



■ Street Flooding

■ Sewer Backup

▬ City Limits

Combined Sewer Area

LYONS

SECTION 31

MARKHAM

BACKGROUND

Markham, in south-central Cook County, is a city of 16,000 people and 5.2 square miles. The area is generally flat and is estimated to be about 55 percent built-up. Markham has 3,700 single-family homes, 3 multiple-family buildings, and 111 businesses. Most of the buildings are built on slabs or crawl spaces. Officials estimate that about 30 percent have basements. The 1977 median family income was $18,700.

The Markham sewer system is a mixture of approximately

--40 percent sanitary sewers with storm water drainage ditches,

--30 percent separate sanitary and storm sewers,

--15 percent combined sewers, and

--15 percent unsewered.

The sewer system was generally built in the 1930s. Officials characterized the combined sewer system as adequately sized and in fair condition.

EXTENT OF FLOODING

City officials believe that there are serious flooding problems in Markham. The primary cause is overbank flooding from the Calumet Stormwater Drainage Ditch. (See map, p. 129.)

The most severe flooding occurs in the combined sewer area. The flooding in this area is the result of overflow from the Calumet Drainage Ditch (which runs parallel to 161st Street) and combined sewer backup. In heavy rains, the drainage ditch overflows and begins to flood the northern tier of blocks. Some of the water enters basements directly through window wells or other openings. Other water enters the sewer system through the street inlets, eventually causing surcharging in sewers and backup in some of the basements. As the severity of the rain increases, adjoining blocks are affected.

City officials did not know the level of rainfall that causes such flooding or the specific homes affected. They estimated that from 20 to 40 homes in the northern tier of

the combined sewer area suffer basement flooding about 3 to 4 times a year. In the areas further from the drainage ditch, an estimated 15 to 40 homes experience basement flooding 2 to 3 times a year.

All of the streets in the northern half of the combined sewer area are prone to flooding in heavy rains. In very heavy rains the most northerly streets can become impassable.

Flooding also occurs in one small area served by sanitary sewers and storm water drainage ditches. Five homes suffer basement flooding about three to four times a year when the ditch on Central Park Avenue overflows.

ACTIONS TAKEN BY COMMUNITY

According to officials, Markham does not have sufficient resources to solve its flooding problem.

While the city has not taken specific actions to prevent flooding, it performs the following operations and maintenance activities that could lessen the problem:

--Catchbasins are cleaned twice a year.

--All sewers are inspected for unrestricted flow at least once a year, and problem area sewers are inspected each week.

--Streets are cleaned once a week.

According to officials the city allows downspouts to be connected to the combined sewers since the water eventually ends up in the combined sewers anyway.

ACTIONS TAKEN BY RESIDENTS

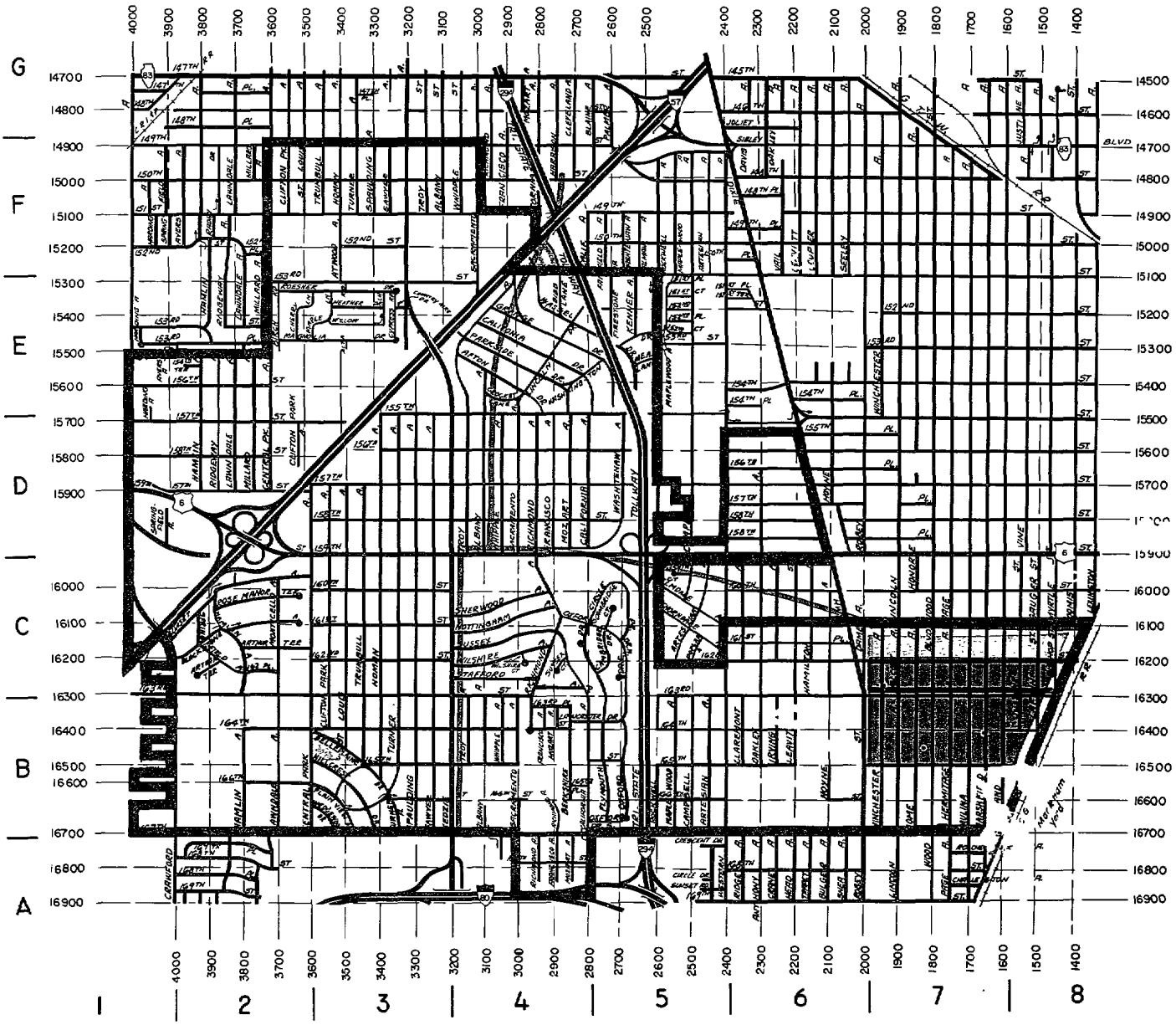
Officials believe that some residents have installed flood control devices, but they did not have specific data to estimate the number.

IMPACT OF TARP

City officials do not know what effect TARP will have on their flooding problems.

COMMUNITY PLANS

City officials recognize that their sewers should be upgraded. The city has applied for an EPA grant to study the sewer system, but the application has not yet been approved.



Sewer Backup

Severe Sewer Backup

Overbank Flooding

City Limits

Combined Sewer Area

Street Flooding

MARKHAM

SECTION 32

MAYWOOD

BACKGROUND

Maywood, in west-central Cook County, is a village of about 2.5 square miles and 31,000 people. The area is generally flat and is estimated to be about 90 percent built-up. The village includes 5,500 single-family homes, 3,300 multiple-family buildings, and 400 businesses. The 1977 median family income was $16,650.

Maywood has a combined sewer system. The area north of Madison Street also has relief storm sewers which are interconnected with the combined sewers. Most of the present sewer system was built in the 1930s. The combined sewers south of Madison Street are undersized for the present runoff conditions.

EXTENT OF FLOODING

Village officials believe that inadequate sewers cause severe sewer backup south of Madison Street. There is no basement flooding north of Madison Street where relief storm sewers have been installed. (See map p. 133.)

According to village officials, broad sections south of Madison Street would likely have some basement flooding in rainfalls greater than one-half inch per hour. Flooding from such storms would occur about 5 to 12 times each year depending on the location. In 1958 an engineering firm conducted a house-to-house survey of that area and determined that over 72 percent of the basements had been flooded one or more times in the preceding 12-month period. The engineers concluded that none of the sewers in south Maywood had sufficient capacity to handle storm runoff from severe storms and recommended that relief storm sewers be built. The estimated cost for relief sewers in 1958 ranged from $5 million to $6 million depending on the level of protection selected. Village officials declined action because of the high cost.

The only street flooding that impedes traffic occurs after one-half inch or more of rain in an hour on Madison Street between Greenwood Street and the Des Plaines River Bridge. This flooding is caused by some collapsed sewer sections which the village plans to replace in the spring of 1979. Overbank flooding does not occur in Maywood.

ACTIONS TAKEN BY COMMUNITY

Operations and maintenance activities that could impact on flooding include the following:

--Every manhole cover is pulled at least twice a year to inspect sewer flow for obstructions. Known trouble spots are inspected frequently.

--All catchbasins were cleaned in 1979. The last previous complete cleaning was in 1970. The village would like to go on a cyclical basis to clean each catch basin every 2 years.

--Streets are cleaned at least once a week.

In May 1975, the village passed an ordinance prohibiting connection of downspouts to the sewer system and specifically requiring disconnection of all downspouts that were already connected. Officials stated that this ordinance eliminated more than 80 percent of the known violations. However, the village initiated a moratorium on enforcement of the ordinance after MSD advised that the TARP project might eliminate Maywood's flooding problem. Officials were of the opinion that disconnecting downspouts would reduce flooding to some extent, but would not be a total solution to the problem.

ACTIONS TAKEN BY RESIDENTS

Officials estimate that residents have taken the following flood control measures:

--About 20 percent have installed some form of removable drain plug.

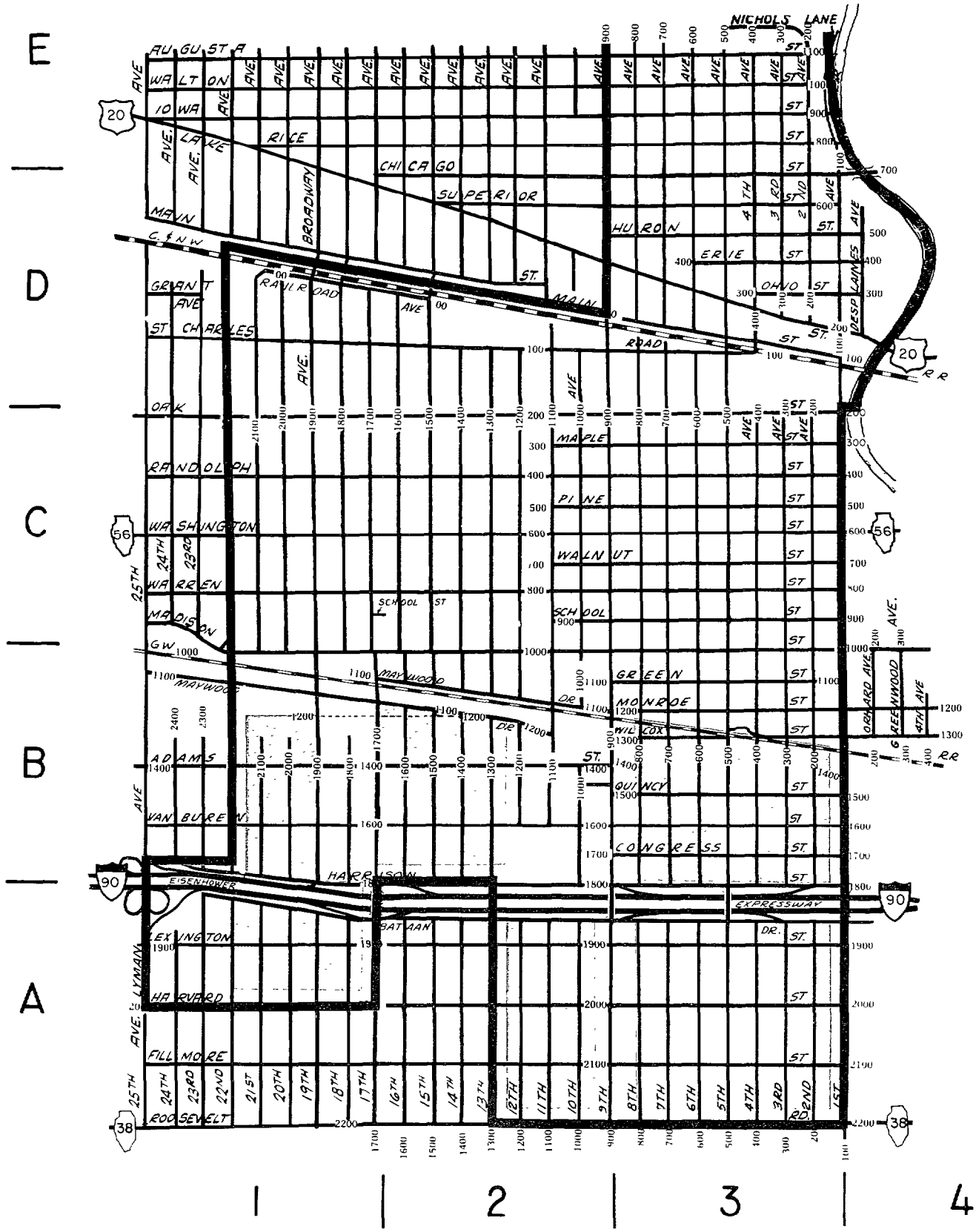
--About 20 percent have installed standpipes.

--About 60 percent have disconnected their downspouts from the sewer system.

--About 25 percent have installed a sump pump connected to the sewer.

IMPACT OF TARP

Officials did not have any specific knowledge about TARP. Based on what they have heard, they assume that TARP would help reduce the flooding in Maywood but they do not know how much.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HURON
ERIE
OHIO
GRANT AVE
ST CHARLES
OAK
RANDOLPH
WASHINGTON
WARREN
MADISON
MAYWOOD
ADAMS
VAN BUREN
HARRISON
EISENHOWER
EXPRESSWAY
LEXINGTON
HARVARD
FILLMORE
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MAPLE
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38
Severe Sewer Backup
City Limits
Combined Sewer Area

MAYWOOD

COMMUNITY PLANS

Maywood officials have received an EPA grant to study their local sewer system. They recognize that the sewer system is currently inadequate to handle runoff in the south, but they will probably wait until TARP is finished and its effects are known before they determine what they should do locally. There are no plans for further flood-related actions at present.

SECTION 33

MELROSE PARK

BACKGROUND

Melrose Park covers 4.5 square miles of flat terrain in western Cook County and has a population of 22,280. The village is 96 percent developed and includes about 4,300 single- and 1,800 multiple-family dwellings and 560 businesses. The 1977 median family income was $18,760.

The village has both combined and separate sewer systems with a mixture of both systems in the central and northeast sections of the community. The combined system serves about 66 percent of the village. The combined sewer system was constructed around 1907 and the separate system in the 1940s with additional construction done on both systems in later years. According to a village official, both systems are in good condition due to regular maintenance. The two systems do not connect except for a combined area on the south and a separate area on the east side which empty into the same outflow pipe on the Des Plaines River.

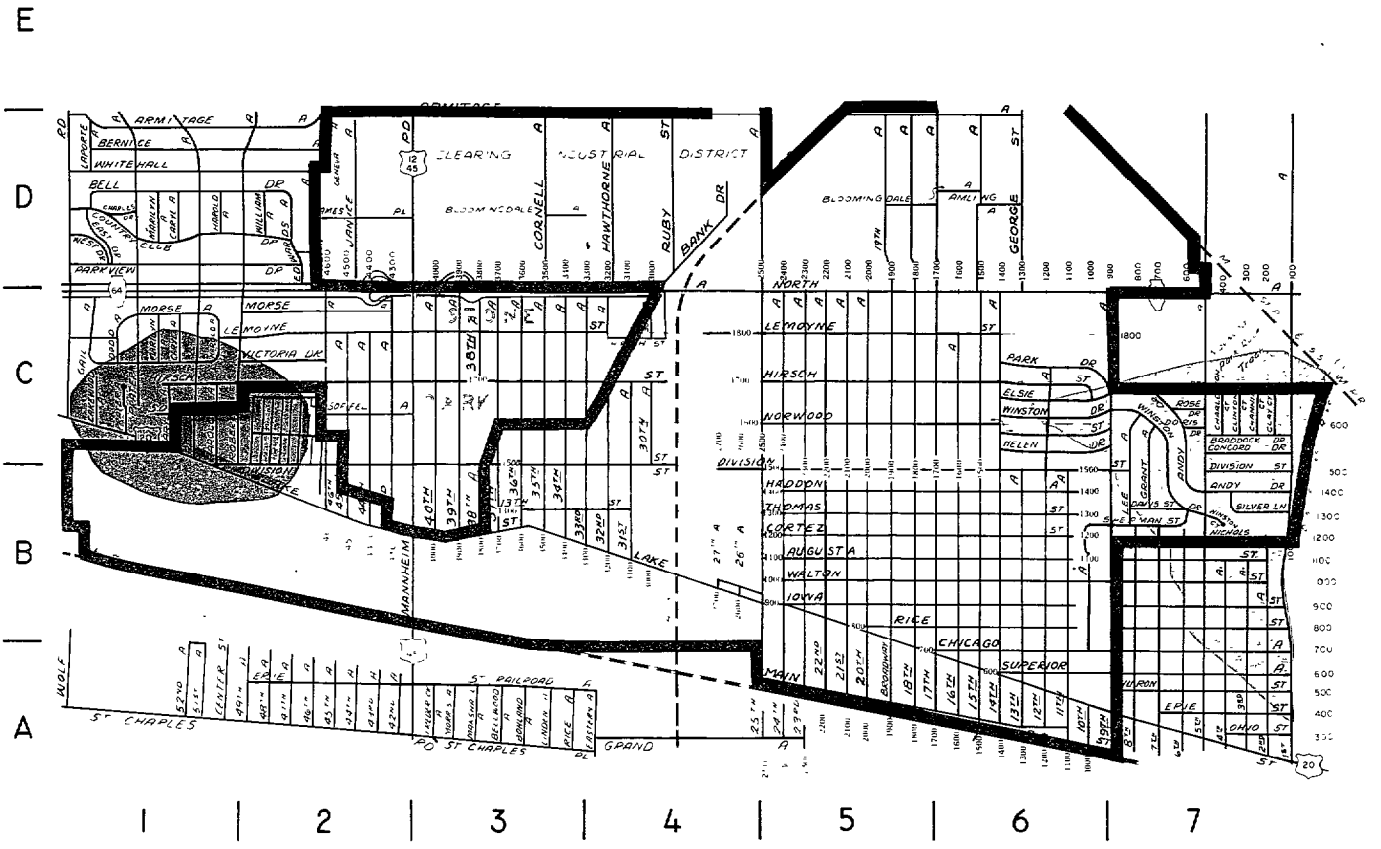
EXTENT OF FLOODING

Melrose Park has severe flooding problems in two locations when rainfall measures 1 to 2 inches in 24 hours. (See map, p. 137.) Inadequate MSD interceptors cause street flooding on the west side of the village. On the east side, basement and street flooding occurs when discharge from overloaded MSD interceptors and other area runoff raise the level of the Des Plaines River. The river then covers village outfall pipes causing backups in the local system. Flooding also occurs when it rains north of the village causing the river to rise and cover the outfall pipes. The following flooding conditions exist in this community.

--Basement backup flooding occurs 7 to 8 times a year, and street flooding 10 to 14 times a year in a separate sewer area on the east side near the Des Plaines River.

--Street flooding occurs 10 to 14 times a year in a combined sewer area on the west side. Most homes in this area are built on slabs.

--Severe flooding occurs at a viaduct south of Melrose Park. Flooding occurs 6 to 12 times a year with depths up to 1-1/2 feet. Infrequent flooding occurs



MELROSE PARK

at two viaducts on the north side and one viaduct east of Melrose Park.

--No overbank flooding occurs in this village because creeks have been widened and are cleaned regularly.

ACTIONS BY THE COMMUNITY

According to a village official, Melrose Park has taken the following actions to alleviate flooding.

--The village has adopted MSD's ordinances requiring onsite retention of storm water on new construction sites in the separate sewer area. Village officials monitor these retention areas.

--The village has updated an ordinance requiring disconnection of downspouts to include the combined sewer area.

--About 7 years ago the village floated a bond issue to fund the construction of a $180,000 storm sewer lift station to drain water from a low area in central Melrose Park. The lift station has solved the flooding problem in this area.

--The village limits construction in flood-prone areas. It also regulates the size of sewer connections on new construction to ensure that the connections to sewer pipes are not too large. For instance, with a 10-inch sewer line, they would allow a maximum 4-inch connection from a new construction site.

--This community has a regular sewer maintenance program. All sewers and catchbasins are cleaned on a 3-year cycle and repairs are done on an as needed basis. The village owns two sweepers and all streets are swept weekly.

ACTIONS BY RESIDENTS

A village official gave the following estimates on residents' actions to alleviate their flooding problems.

--70 percent disconnected downspouts,

--90 percent installed standpipes,

--3 percent installed check valves,

--20 to 30 percent installed overhead sewers and sump pumps (at a cost of about $5,000 per home).

IMPACT OF TARP

According to a village official, the TARP project will solve 99 percent of the flooding problems in this community. No local sewer upgrading will be necessary because the local sewer system is adequate.

COMMUNITY PLANS

Melrose Park has not applied for an EPA grant to study the sewer system. A village official said the local sewer system is adequate and that the community's flooding problem would be solved with the construction of TARP.

SECTION 34

MORTON GROVE

BACKGROUND

Morton Grove, in northern Cook County, has a population of 26,240 and comprises 5 square miles of flat terrain. An estimated 30 percent of the village is forest preserve and more than 50 percent is residential. There are 6,960 residential buildings, 2,684 of which are located in the combined sewer area. The 1977 median family income was $27,370.

The sewer system is 40 percent combined and 60 percent separate. The combined sewers are the oldest. Some of those on the east side of the village were constructed in the 1920s. The sewers are considered to be in fair condition.

EXTENT OF FLOODING

According to village officials, both street and basement flooding occur in Morton Grove. Village officials did not have any information on the frequency and severity of flooding or the number of homes affected, although most homes without flood control measures would experience basement backup.

Basement backup occurs in the east area served by combined sewers, whereas most street flooding is experienced in the west area served by separate sewers. Flooding also occurs in one viaduct on a main street. There is virtually no overbank flooding except into forest preserve areas.

ACTIONS TAKEN BY COMMUNITY

Morton Grove has taken various actions to alleviate flood problems. For example, the village:

--Installed restrictors on one-third of the storm water inlets in the combined sewer area. This has alleviated the basement backup problem, but has caused street flooding.

--Has a regular program on a daily basis to clean catchbasins. All basins in town are cleaned at least once every 5 years.

--Rods out and/or cleans sewers on a daily basis, and chemicals are used in restaurant areas to breakup grease deposits.

--Has sealed manholes to prevent storm water infiltration into sanitary sewers.

--Sweeps streets on a daily basis. All streets are swept at least once per week.

In addition, the Illinois Department of Transportation installed a storm sewer on the west side of town to reduce flooding on Golf Road. By agreement, Morton Grove also installed a local storm relief sewer, which was connected to the Department's storm sewer. Morton Grove paid the additional cost for some oversizing of the Department's storm sewer. These actions alleviated some street flooding in the village.

ACTIONS TAKEN BY RESIDENTS

Village officials did not have any data on what flood control measures residents have taken. However, they were aware that some residents have installed overhead sewers, standpipes, or check valves to alleviate basement backup problems.

IMPACT OF TARP

Village officials do not know what the impact of TARP will be. However, since Morton Grove has a flooding problem, it is assumed the MSD tunnel project could only improve the situation.

COMMUNITY PLANS

Morton Grove has applied for a $136,000 EPA grant to determine what sewer improvements are needed. Morton Grove has no current plans for any other flood-related actions.

SECTION 35

MOUNT PROSPECT

BACKGROUND

Mount Prospect occupies more than 11 square miles of flat, highly developed terrain 22 miles northwest of Chicago's loop. Its population of 52,000 had a median family income of $27,490 in 1977. The village has 11,258 single-family and 423 multiple-family residences, 850 businesses, and 150 professional offices.

Mount Prospect's sewer system is owned by four organizations: the village of Mount Prospect, MSD, Prospect Meadows (an independent sanitary district owned and managed by a 175-home development), and Citizens Utility (a national firm providing utility services to Mount Prospect). Prospect Meadows and Citizens Utility operate separate sewer systems and were not included in our review. Mount Prospect deeded its combined sewer section to MSD (retaining its separate system) when the district underwrote a bond issue for sewer upgrading in the late 1950s.

The Mount Prospect and MSD-owned systems, which account for 70 percent of the sewers, include 290,000 feet of combined sewers and 310,000 feet of separate sewers, both emptying into common MSD interceptors in the village. The combined sewers, which are from 20 to 60 years old, are in the central section of the village.

According to a village official, Mount Prospect's combined and separate sewers systems are in fair condition and can handle runoff from a 10-year storm (2 inches in an hour).

EXTENT OF FLOODING

Mount Prospect has serious basement and street flooding and less frequent but severe overbank flooding. (See map, p. 145.) A village official estimated that sewer backup and street flooding occurs one to two times per year. Moderate overbank flooding occurs about every 2 years, while heavy rains cause severe flooding about once every 3-1/2 years. Officials noted that flooding has been less frequent in recent years.

Village officials attribute sewer backup problems to MSD interceptors, not local sewer system inadequacy. Backups occur in areas surrounding the interceptor first and spread throughout the village due to the flat terrain.

Village officials consider overbank flooding from Weller Creek, a limited-capacity open drainage ditch, to be a major flood problem. Overflows from the inadequate MSD interceptors, combined with storm runoff from neighboring Arlington Heights, causes Weller Creek to overflow into neighboring streets and basements. A recent engineering report identified 20 flood-prone areas--17 of which are in Weller Creek's watershed.

ACTIONS TAKEN BY COMMUNITY

Mount Prospect has taken various actions to increase sewer capacity and alleviate flood problems. For example:

--The village has a regular maintenance program for cleaning, flushing, rodding, and rooting sewers as well as street cleaning. Inspections and repairs of sewers and catchbasins are made as needed.

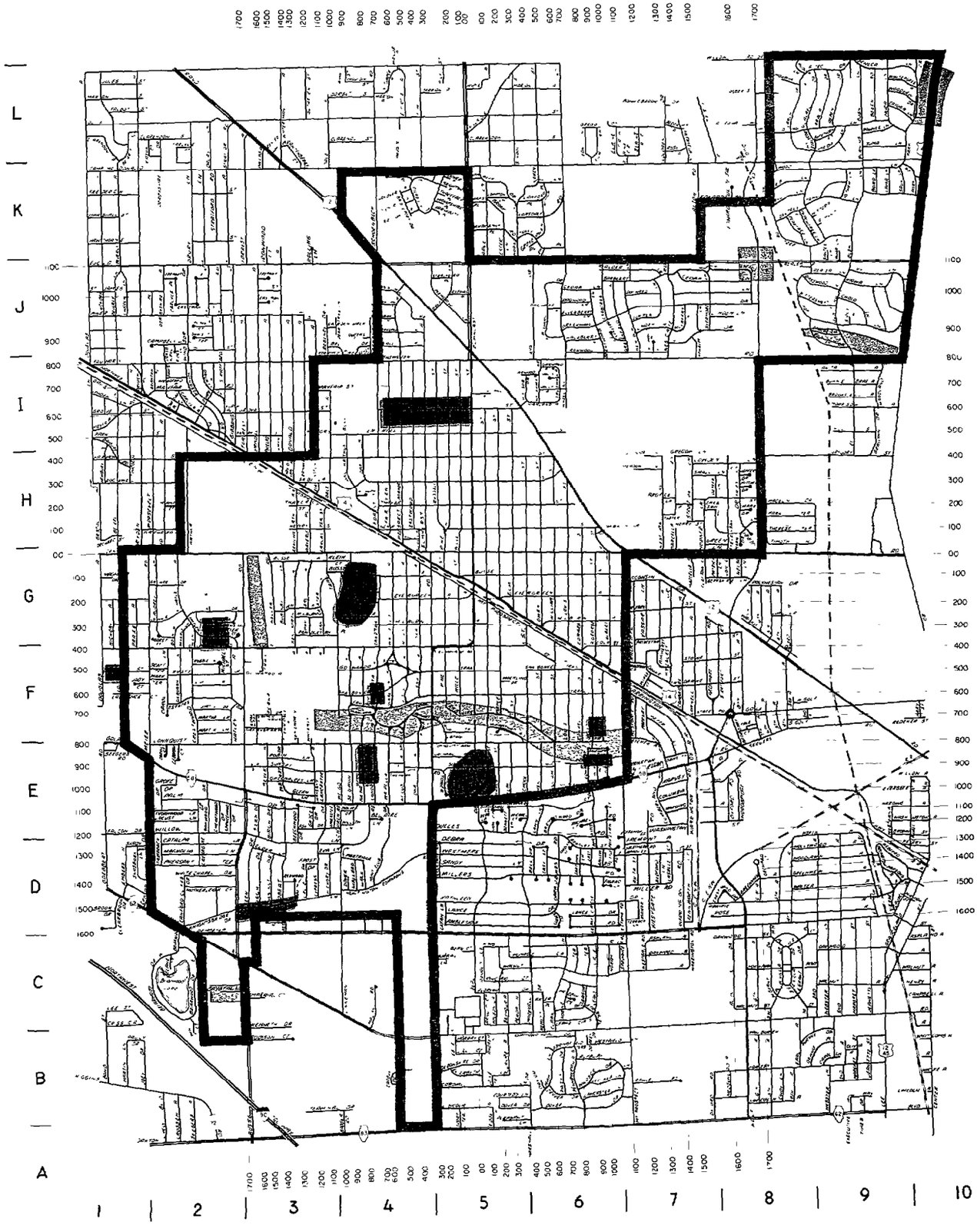
--Mount Prospect spent $1.5 million on flood control projects in recent years. Projects included retention reservoirs to store over 200 acre-feet of storm water (such as a 165 acre-foot multi-use retention basin shared with Arlington Heights) and storm sewer lines. Funding for projects came from a $2 million bond issue in December 1973.

--To detain storm water runoff, Mount Prospect uses berms and swales along Weller Creek and in Cleanwater Park. The village also has 14 retention basins and 3 parking lot reservoirs. Village officials consider these actions effective in controlling storm water runoff.

--With funding from the Illinois Department of Transportation, the village has had Weller Creek partially cleaned and widened. Work has not been completed, due to lack of available easements and funding. Village officials noted that while this measure relieves local overbank flooding, it increases the problem downstream.

--Because of residential flooding near Weller Creek, the village passed an ordinance in 1976 to block future construction on flood plains. The village is also attempting to buy up available land along Weller Creek to deter construction.

--A Mount Prospect engineer developed a pumping system which keeps water in sewers and out of basements until interceptor sewers can handle the volume. Four such systems operate in the flood-prone eastern section of



MOUNT PROSPECT

the community. A village official noted the system effectively operates as an overhead sewer for surrounding residences.

--The community's use of restricted manhole covers to detain water in streets has also helped prevent backup.

--The village began a program a few years ago to disconnect downspouts without charge for all willing residents. A village official estimated only 20 to 30 percent of all downspouts in Mount Prospect are now connected. Also, through a program of house-to-house inspections, the village has identified numerous illegal connections to sanitary sewers in separate sewer areas. The village will take action to require that these connections be eliminated.

--Mount Prospect has passed ordinances requiring flood control measures on new construction in accordance with MSD requirements (i.e., overhead plumbing and storm water retention).

According to village officials, these actions will hopefully reduce flooding during severe storms and minimize surcharging from MSD interceptors.

ACTION TAKEN BY RESIDENTS

According to village officials, residents in flood-prone areas use measures such as backflow regulators, standpipes, sump pumps, and overhead plumbing to alleviate flooding problems. No estimates of usage were available.

IMPACT OF TARP

Village officials stated that while TARP will eliminate overflows into Weller Creek, some basement and street flooding will still occur until the village improves its sewer maintenance. Village officials noted that the benefits from TARP would also depend on actions taken by neighboring Arlington Heights to relieve flood runoffs. They do not anticipate a need to upgrade local sewers to connect to TARP.

COMMUNITY PLANS

Through an ongoing EPA-funded engineering study of combined and separate sewer lines, village consultants will develop a complete video tape library of Mount Prospect's

sewer system as well as a recommended maintenance program in 1979. The $409,000 study was three-fourths funded by EPA. Village officials estimated that up to $2 million in sewer improvements may be recommended when the ongoing engineering study is completed.

The village has no other current plans for flood-related actions.

SECTION 36

NILES

BACKGROUND

Niles, in northwestern Cook County, has a population of 33,000 and comprises 5.5 square miles. The village is 95 percent developed and includes 6,500 single-family homes, 3,500 multiple-family units, and 875 businesses. The 1977 median family income was $23,020.

Niles has a partially combined sewer system. The combined sewers comprise 60 percent of the sewer system and are located in the southern part of the village. The sewer system is 30 years old, and is considered to be in good condition.

EXTENT OF FLOODING

Niles has a severe flooding problem due to inadequate local sewers and insuffient overflow capacity when overflow points are submerged. (See map, p. 151.) The following flooding conditions occur when three-fourths of an inch of rain falls within a short duration (flash flooding):

--Severe basement sewer backup occurs throughout the village on the average of two times a year.

--Severe street flooding is concentrated in the central and southern portions of the village and occurs on the average of twice a year.

Overbank flooding along the North Branch of the Chicago River is limited to golf course and forest preserve land.

ACTIONS TAKEN BY COMMUNITY

Niles has initiated various actions to alleviate flooding problems. For example:

--The village has passed MSD suggested sewer and water control ordinances. A village ordinance also requires owners of certain older buildings and all buildings built after 1957 to disconnect downspouts.

--The village has an ongoing sewer maintenance program which includes cleaning about 20 percent of catchbasins and sewers annually. The village conducts weekly sewer inspections to check for proper water flow and

obstructions. All village streets are cleaned monthly and main streets are cleaned weekly.

--Niles uses restrictors to limit the amount of water flowing into the main sewers. While this causes ponding in the streets and parking lots, it reduces basement sewer backup.

--The village has a program to separate existing sewers wherever possible to alleviate flooding. Street drains are sealed off and the combined sewers function as sanitary sewers, then storm sewers are added.

According to village officials, ordinances are enforced through the issuance of building permits. They added that older buildings are usually not covered by ordinances since they are hard to enforce, may prove costly to the owner, and could be unpopular politically. Village officials do, however, recommend that all residents disconnect downspouts. Water meter readers usually convey this advice to homeowners. According to a Niles official, these actions have been very effective in reducing flood problems. Overall, flooding has been reduced by an estimated 50 percent and complaints from residents have decreased drastically.

ACTIONS TAKEN BY RESIDENTS

Village officials estimated that residents have taken the following actions to alleviate their flooding problems

--50 percent have rodded out their sewers,

--25 percent have disconnected downspouts,

--20 percent have sump pumps connected to sewers,

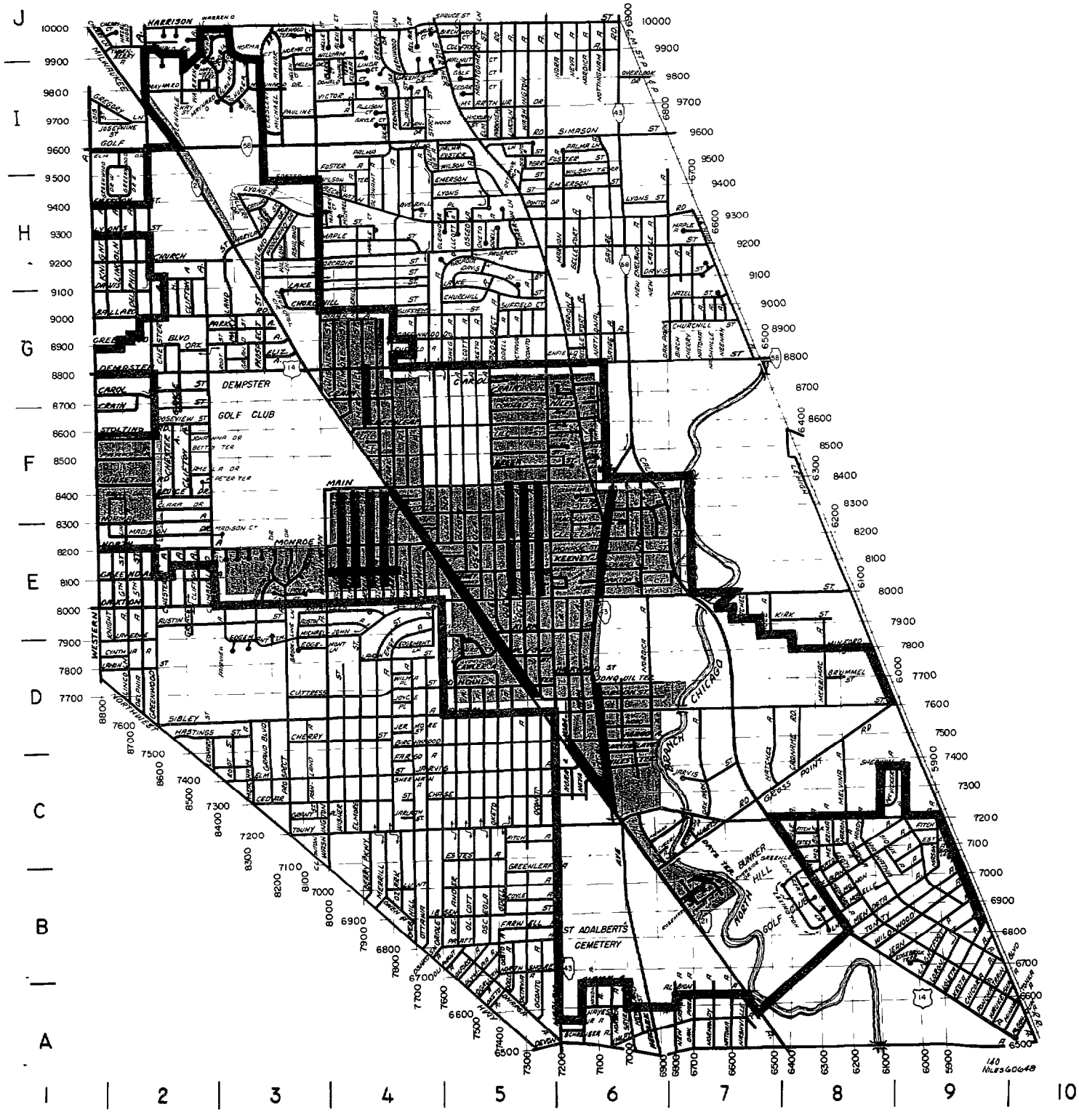
--15 percent have installed check valves either in the basement or between the building and the street,

--10 percent have installed standpipes, and

--5 percent have overhead plumbing.

IMPACT OF TARP

According to village officials, TARP, without local sewer upgrading, will only alleviate some flooding. Officials anticipate that local sewer upgrading will be needed to fully utilize TARP and alleviate flooding problems. Specific



Sewer Backup

Street Flooding

Severe Sewer Backup

Combined Sewer Area

Village Limits

NILES

information on the impact of TARP and the cost of sewer upgrading will be known when the current EPA-funded sewer study is completed.

COMMUNITY PLANS

In 1977 the village received a $100,650 EPA grant to study its sewer system.

Village officials are uncertain of the funding source for sewer upgrading. The village cannot afford any massive undertaking and officials believe that funds are not currently available from either HUD or EPA. Niles officials plan to explore the availability of other Federal funds for sewer upgrading. The village has no other current plans for flood-related actions.

SECTION 37

NORRIDGE

BACKGROUND

Norridge, in northwest Cook County, has a population of 18,043 and covers two square miles of highly developed land. The village contains 4,645 single- and 38 multiple-family residences and 292 businesses. The 1977 median family income was $24,040.

The village sewer system, constructed approximately 30 years ago, includes 10 percent combined sewer lines in the eastern section, which empty into an interceptor under Forest Preserve Boulevard, and 90 percent separated sewer lines with storm sewers generally draining west into the Des Plaines River. However, the separate sewers located in the southeastern section of the village (south of Montrose Avenue and west of Octavia Avenue) are connected to combined sewer lines. Inspection and testing of the separate system in 1976-77 indicated excessive infiltration of storm water to sanitary sewers through defective manhole covers and connections between sanitary and storm lines.

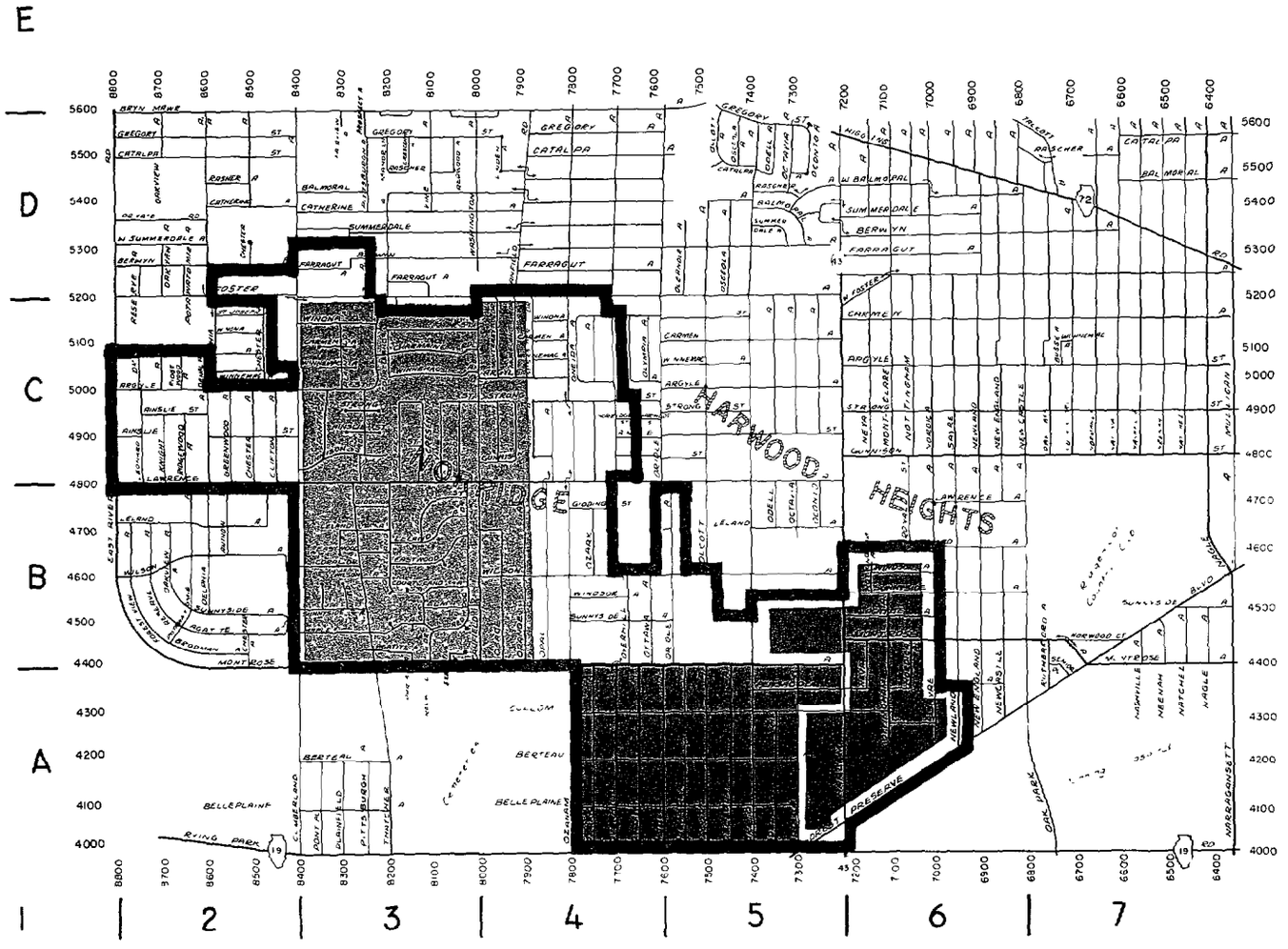
Village consulting engineers reported sewer inadequacies including problems with broken pipes, tree roots, and leaking joints.

EXTENT OF FLOODING

In 1976 a village official characterized area flooding caused by intense rains as the major community problem. Areas affected differ in severity and flood problems range from street flooding to costly basement flooding. (See map, p. 155.)

After a half inch of rainfall in 1 hour, the Des Plaines River rises and submerges storm water outflow points. This situation, compounded by inadequate storm sewers and a 19-foot drop in elevation from the eastern section, causes frequent and severe widespread street and basement flooding in the western separate sewer area.

Widespread street flooding and basement sewer backup in the eastern combined and separate sewer areas occurs after an inch of rainfall in one hour. This flooding results primarily from inadequate sewers in Chicago, which receive Norridge's combined wastewater, and also from inadequate local sewers.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HARWOOD HEIGHTS
NORRIDGE
Street Flooding
Sewer Backup
City Limits
Combined Sewer Area

NORRIDGE

In 1973 the village distributed a post card survey to all residences. Slightly less that 25 percent were returned, with 67 percent reporting prior flooding problems and 63 percent reporting flooding during severe August to September 1972 storms with $309,000 in reported flood damages. Of the survey respondents that indicated some flooding, 38 percent specified sewer backup, 30 percent cited seepage problems, 21 percent reported overland flow and the remaining 11 percent did not specify the type of flood problem.

ACTIONS TAKEN BY COMMUNITY

According to village officials, Norridge initiated the following actions to improve sewer condition and alleviate flood problems:

--The village currently has two parking lot retention ponds and another is under construction. A village official noted retention ponds were effective in relieving some of the flood problems.

--Norridge has passed ordinances requiring onsite storm water detention and overhead plumbing in new construction, disconnection of downspouts from sanitary sewers, and regulation of construction on flood plains.

--Downspouts in the community had been disconnected on a gradual basis since 1958, and in 1974 the village requested disconnection of all downspouts. According to a village official, the disconnection of all downspouts has been effective in reducing some sewer backup problems.

--The village has added new sewer lines and upgraded exsiting lines to reduce flooding problems.

--The village has an ongoing maintenance program. One-half of all catchbasins are cleaned and a section of sewers are rodded and cleaned annually. The village cleaned all sewer lines in a program from 1973 to 1976. In addition, all streets are cleaned weekly.

The village attempted to use rooftop reservoirs to retain storm water but found them unacceptable due to limited storage capacity. Norridge has also tried dutch drains--alleys with gravel beds and channels on both sides to reduce the rate of runoff--but they were difficult to maintain and only temporarily effective.

ACTIONS BY RESIDENTS

Results of a 1973 flood survey showed that about 27 percent of respondents used sump pumps, 18 percent used overhead plumbing, and 16 percent had standpipes. No other information on individual actions was available.

IMPACT OF TARP

Village officials anticipate that TARP, without sewer upgrading, will considerably reduce flooding in some areas of Norridge.

COMMUNITY PLANS

In 1976 Norridge received a $52,950 EPA grant for a two phase sewer study. Under this grant, Norridge's sewers will be inspected and evaluated. In 1978 EPA increased the grant by $67,350 to provide for sewer cleaning and additional sewer inspections. Norridge consulting engineers are currently evaluating inspection results to locate defective sections and recommend corrective actions.

The village plans to relieve flooding in the western section by construction of an underground water detention facility on forest preserve land.

Village officials estimate that $6.5 million will be needed to upgrade the local sewer system and connect to TARP. The upgrading projects include installation of storm sewers, construction of retention basins, and rehabilitation of sanitary sewers.

To fund the upgrading of the separate sewer system, the village in 1977 authorized the issuance of up to $2.7 million of general obligation bonds. The community has also applied for $4.27 million in EPA funds to pay for the remaining sewer upgrading projects.

SECTION 38

NORTH RIVERSIDE

BACKGROUND

North Riverside, in central Cook County, has a population of 8,029 and covers 2.5 square miles. The village is 99 percent developed with 2,200 single- and 89 multiple-family residences and 119 businesses. The 1977 median family income was $22,280.

North Riverside has a totally combined sewer system containing 19.7 miles of lines discharging into an MSD interceptor on First Avenue. Most sections of sewer lines are 55 years old. A recent inspection disclosed that the sewers were operating at design capacity.

EXTENT OF FLOODING

According to village officials, North Riverside experiences moderate basement flooding. However, some residents in the southern section of the village have serious basement flooding problems. (See map, p. 161.) In 1973 North Riverside officials mailed a flood survey to 50 residents in this section. Of the 25 residents responding, 24 reported sewer backups with depths ranging from 2 to 3 inches and 18 reported seepage problems.

Village officials noted that sewer backup in basements occurs once or twice a year in southern residential areas after 2 inches of rainfall in 2-1/2 hours. Less sewer backup flooding occurs in central sections of the village after a similar rainfall. Flooding problems are generally attributed to submergence of sewer overflow points along the Des Plaines River, although a few backups are reportedly caused by blockage in local sewer lines.

Street flooding in one major street occurs after every moderate rainfall due to poor drainage and the recent resurfacing.

Overbank flooding along the Des Plaines River is confined to forest preserve land.

ACTIONS TAKEN BY COMMUNITY

North Riverside has taken various actions to alleviate flooding and improve sewer conditions. For example:

--As a result of the 1973 flood survey, the village cleaned all sewers along Des Plaines Avenue and subsequently, throughout the community. The village rodded and cleaned 99 percent of all sewer lines between 1975-76, and sewer lines are currently cleaned as needed.

--North Riverside cleans all catchbasins yearly and streets are cleaned weekly during 9 months of the year.

--The village enforces MSD's sewer and water control requirements through building and plumbing permits. In addition, village officials encourage downspout disconnection in flood-affected areas.

--North Riverside has two interconnected shopping centers which provide onsite retention in a large open reservoir. These shopping centers also have depressed areas in their parking lots for water ponding and detention. Current plans for a new store in the village include an underground cistern for retaining storm water.

--In 1967 North Riverside installed relief storm sewers along eight residential streets in the northeastern section to alleviate street and alley flooding attributed to increased runoff from repaving.

ACTIONS TAKEN BY RESIDENTS

A village official estimated that residents have taken the following actions to alleviate flooding;

--60 percent have homes with overhead plumbing,

--60 percent have homes with sump pumps connected to sewers,

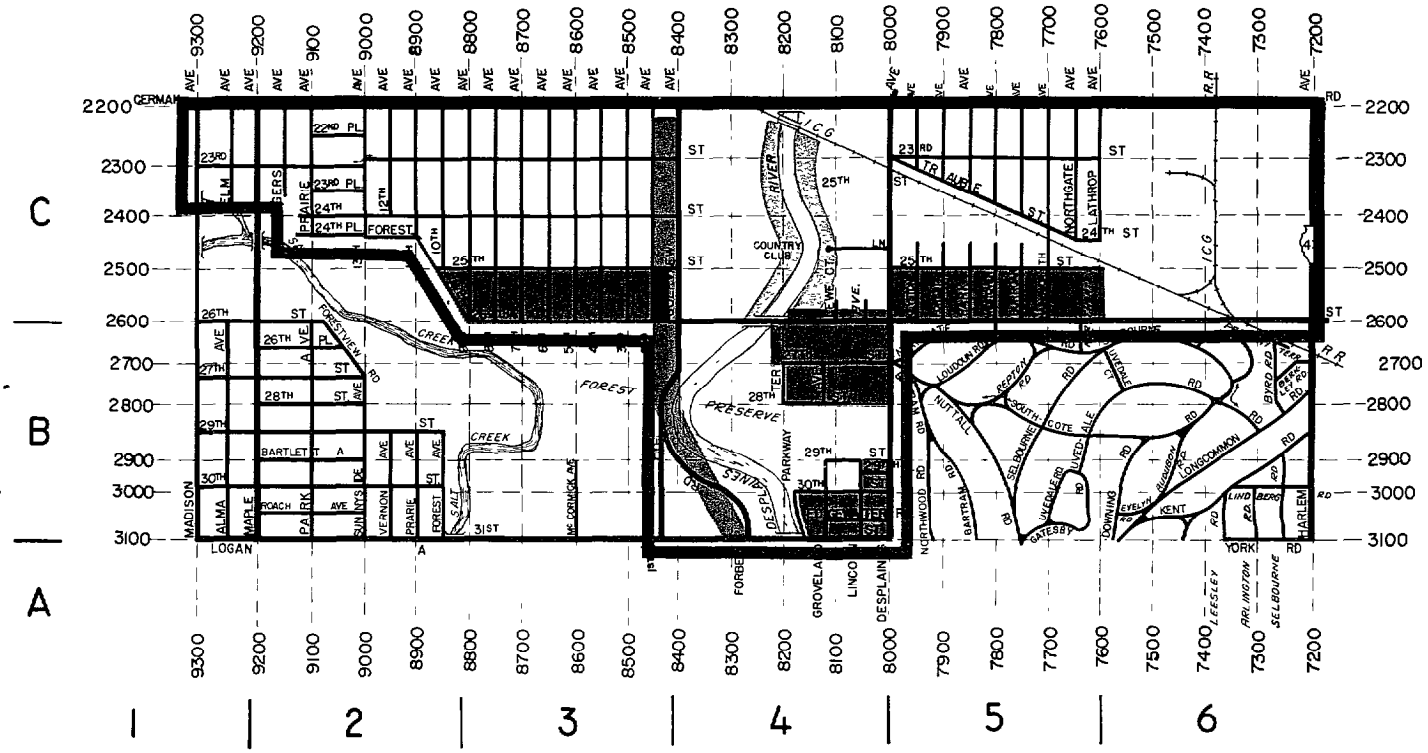
--50 percent have installed standpipes,

--25 percent have disconnected downspouts,

--25 percent have raised items off the basement floors,

--5 percent have rodded out sewers,

--2 percent have installed check valves in basements or between the residence and street,



Overbank Flooding

Sewer Backup

Street Flooding

City Limits

Combined Sewer Area

NORTH RIVERSIDE

--1 percent have installed sump pumps discharging to yards, and

--1 percent have waterproofed their basements.

Of the 25 residents responding to the 1973 flood survey, 24 had installed standpipes, 16 had rodded their sewers and 1 had installed overhead plumbing.

IMPACT OF TARP

A village official estimated that, without local sewer upgrading, TARP (phase I or phases I and II) would probably eliminate all of North Riverside's sewer backup problems.

COMMUNITY PLANS

In March 1978 North Riverside applied for an EPA grant to study its sewer system but has not yet received EPA approval. Further village actions will be developed following approval and completion of this study.

SECTION 39

OAK PARK

BACKGROUND

Oak Park, in central Cook County, is a residential village of about 4.5 square miles and a population of 62,511. The village is almost totally developed, with 10,572 single-family homes, 12,056 multiple-family residences, 507 commercial establishments, and 46 manufacturing concerns. The 1977 median family income was $19,830.

Oak Park has a totally combined sewer system. Although some parts of the system are 78 years old, there are no problem areas and village officials consider the system quite adequate. According to village officials, sewer system deficiencies have been corrected through capital improvements and regular maintenance. The sewer system has the capacity to handle a 10-year rainstorm (2 inches in an hour).

EXTENT OF FLOODING

Oak Park has no street or overbank flooding problems. The only flooding experienced is occasional basement sewer backup which results from inadequate sewer maintenance by the homeowners.

ACTIONS TAKEN BY COMMUNITY

Oak Park has taken various actions to increase sewer capacity and avert potential flooding. For example:

--In 1967 the village passed a $7.5 million bond issue to install relief sewers connecting with MSD's interceptor system. This system eliminated previously experienced sewer backup flooding problems.

--The village annually cleans 20 percent of its sewers and catchbasins.

--All village streets are swept weekly.

Oak Park ordinances basically follow MSD's sewer and water control requirements. The village does not have an ordinance requiring disconnection of downspouts since there are no flooding problems.

ACTIONS TAKEN BY RESIDENTS

A village official estimated that residents have taken the following actions to prevent flooding:

--20 percent have installed sump pumps connected to sewers.

--20 percent have disconnected downspouts.

--20 percent have rodded out their sewers.

--5 percent have installed check valves in their basements.

IMPACT OF TARP

According to village officials, the TARP project will not directly benefit Oak Park, since the MSD interceptors already handle its storm and sanitary water.

COMMUNITY PLANS

The village does not have a flooding problem and, therefore, has no plans to undertake actions aimed at alleviating flooding. Therefore, Oak Park has not applied for an EPA grant to study its system.

of the residents reported sewer backup at some time. The most notable street flooding occurs in the central combined sewer area, where regular flooding causes water to stand for several blocks along two streets. Overall, street flooding is limited and causes no traffic obstruction.

Overbank flooding is an infrequent problem and occurs along Salt Creek on an average of once every 4 years with the most recent occurrence in July 1978.

ACTIONS TAKEN BY COMMUNITY

Village officials reported the following actions to alleviate flood problems.

--The village currently performs sewer maintenance activities to the extent the budget will allow. Catchbasins are flushed annually and Palatine attempts to flush all sewers every 2 years. Televising, rodding, and routing of sewers are done on an as-needed basis. The village spends $35,000 to $40,000 each year to perform maintenance to reduce flooding particularly along Salt Creek. This maintenance includes the dredging of Salt Creek as required.

--Palatine contains numerous large retention basins, which officials credit for a reduction in flood problems since 1974. Large property developers are required to pay a fee per acre of new development to fund construction of retention ponds. Village officials believe temporary retention of storm runoff is the solution to sewer flood problems and consider detention ponds and parking lot reservoirs to be Palatine's major flood control alternatives.

--The village passed an ordinance in 1964 requiring all storm sewer construction to be adequate to convey runoff from a 5-year frequency storm. Other ordinances follow MSD requirements for new construction and do not require retrofitting of older construction.

--The village plumbing code encourages water conservation.

Although downspouts and sump pump connection to sanitary lines is illegal, village officials have experienced difficulty preventing these connections, as homeowners will reconnect the plumbing as soon as the inspector leaves.

The village currently has a limited promotional program aimed at voluntary flood control measures in that the Jaycees annually hold a sandbag distribution sale.

The village prepared a booklet on flood control and distributed it to residents a few years ago but there has been no notable impact.

ACTIONS TAKEN BY RESIDENTS

Village officials estimated that residents have taken the following flood control measures,

--25 percent have rodded out sewers,

--5 percent use removable drain plugs,

--15 percent have installed standpipes,

--5 percent use check valves in basements,

--10 percent have installed sump pumps connected to sewers,

--90 percent use sump pumps which discharge water to yards, and

--3 percent have disconnected downspouts.

IMPACT OF TARP

Palatine is not included in TARP's service area and, therefore, TARP will have no direct impact on the community. MSD engineering studies indicated that extending TARP to Palatine was not cost effective and that flooding problems could be controlled through sewer upgrading to a 10-year storm frequency capacity and through retention ponds.

Village officials protested MSD's decision to exclude Palatine and believe that their plans were not given adequate consideration. The village's major complaint was that financial assistance to control flooding would not be proportional to that provided to communities included in TARP.

COMMUNITY PLANS

Palatine received an EPA grant for an extensive study of the sewer system. This study is currently in process. Earlier studies were limited to Palatine's relationship to the MSD deep tunnel proposal.

Village consultant engineers are considering three alternatives to improve Palatine's combined sewer lines:

--Installation of sanitary sewers alongside existing lines which would then handle storm runoff.

--Installation of new separate storm sewers installed with existing pipe utilized for sanitary flow.

--Construction of large detention basins and pipelines where backup problems occur.

Engineers favor the first alternative as it is the most cost-effective measure.

In a 1972 report, the Soil Conservation Service proposed to build six retention lakes in the Salt Creek watershed, two of which would be upstream and two downstream of Palatine, thereby offering limited flood protection. None of the retention lakes would be within the combined sewer area. The net effect of these lakes would reportedly be to lower the peak water levels of Salt Creek during flood times. A village official was aware of two such retention structures scheduled for construction in the next 3 years. The basins, after the 2-year construction period, are expected to provide some relief from overbank flooding along the Salt Creek. Other retention basins have been proposed but are currently not funded.

SECTION 41

PARK RIDGE

BACKGROUND

Park Ridge comprises 8 square miles of highly developed, flat terrain in northwest Cook County. The city has an estimated 10,734 single-family residences, 3,164 multiple-family units, and 500 businesses. Park Ridge has a population of 42,466 with a 1977 median family income of $26,540.

The city contains 126 miles of sewer lines, 99 percent of which are combined sewers. Separate sewer lines serve 30 acres in the northwest corner of the community. Much of Park Ridge's sewer system was built over 50 years ago, and design capacity is inadequate to handle current runoff. Capacity varies throughout the city with some lines having only the ability to handle a 2-1/2 year frequency storm.

EXTENT OF FLOODING

Park Ridge's inadequate sewers cause severe flooding problems in some areas. (See map, p. 171.) City officials report that 0.9 inches of rainfall in 1 hour will cause flooding. Officials attribute flooding problems to inadequate local sewer lines. Basement and street flooding are noted most frequently (3 to 4 times per year) in the south-central section of the city along Devon Avenue and in a 2 square-block area in the northwest section.

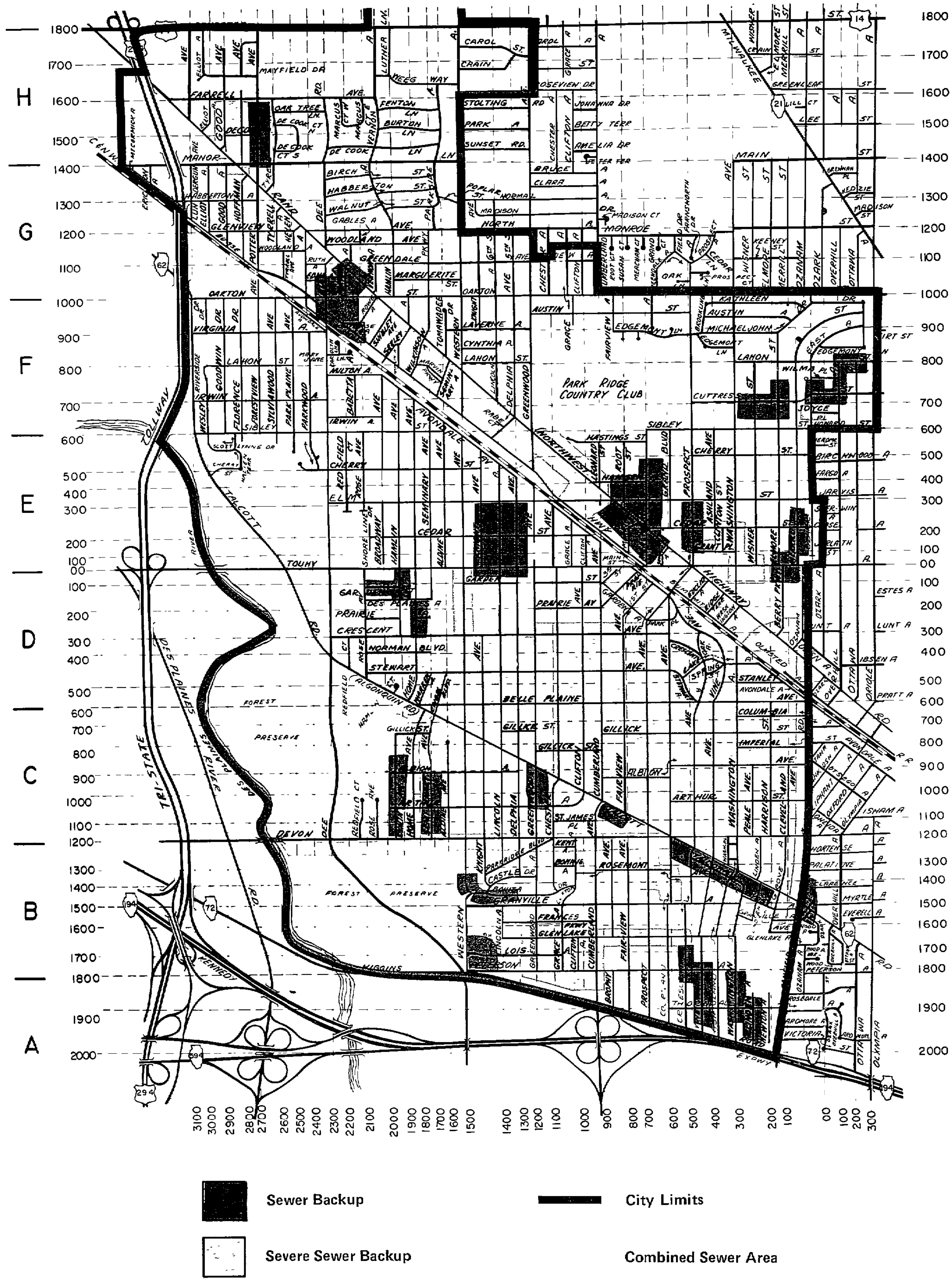
Overbank flooding in Park Ridge is limited to forest preserve land, and consequently, causes no damage to streets or basements.

In 1977 a door-to-door survey of 2,665 homes--roughly 25 percent of the city--disclosed that 27 percent of residents, mainly in the southern section of the community, had sewer backup.

ACTIONS TAKEN BY COMMUNITY

Park Ridge has taken various actions to upgrade sewer capacity and alleviate flood problems. For example:

--Since 1961 the city has spent $5.5 million for four relief sewer projects funded by general obligation bonds.


Sewer Backup
City Limits
Severe Sewer Backup
Combined Sewer Area

PARK RIDGE

--In 1974 the city published a booklet entitled "Basic Information on Basement Flooding" which includes recommended flood control measures. The city advised residents that booklets were available at the city hall.

--Park Ridge has an ongoing sewer maintenance program which includes cleaning one-third of its 2,800 catchbasins and flushing one-fourth of its sewer lines annually. Through television monitoring, 4,000 feet of sewers are inspected yearly and additional sewers are monitored as needed. All residential streets are cleaned monthly and business district streets are cleaned weekly.

--Park Ridge passed an ordinance in 1968 requiring downspout disconnection on new construction in certain areas. A 1977 study of 10,734 homes showed that 33 percent of downspouts are still connected and that other problems would be caused if disconnections were made on two-thirds of these connected downspouts. City officials believe downspout disconnection is not enforceable on older structures because of drainage problems and cost to residents.

--Park Ridge has ordinances requiring plaza ponding, overhead plumbing, and sump pumps on all new construction. An additional ordinance sets standards for construction on flood plains.

--The city attempted to use restrictors to create street or parking lot ponding; however, this action was frustrated by clogging restrictors and maintenance problems.

ACTIONS TAKEN BY RESIDENTS

Park Ridge officials provided the following estimates of flood control measures by residents;

--20 percent have rodded sewers,

--5 percent use removable drain plugs,

--10 percent use standpipes,

--2 percent have installed check valves in basements,

--2 percent have installed check valves between homes and streets,

--3 percent use sump pumps connected to a sewer,

--40 percent have sump pumps which discharge water to yards, and

--12 percent have raised items off basement floor.

IMPACT OF TARP

City officials anticipate that TARP will not alleviate any community flood problems without local sewer upgrading. Officials estimate that about $20 million will be needed to provide sufficient sewer capacity to control the most serious flooding situations. This action combined with TARP will alleviate 30 to 50 percent of Park Ridge's flooding problems. According to EPA, Federal funds are not available for this type of local sewer construction. City officials believe the community could fund $5 million of construction cost through a bond issue which would increase property taxes by an estimated $24 annually for the average homeowner.

COMMUNITY PLANS

In 1976 the city received a $49,413 EPA grant to study its sewer system.

Park Ridge's objective is to upgrade the sewer system to handle a 10-year frequency storm; however, work on this program has been deferred due to the lack of sufficient funding. The city has no other plans for flood control actions at the present time.

SECTION 42

PHOENIX

BACKGROUND

Phoenix, in southern Cook County, covers 1 square mile of area and has a population of 3,820. About 75 percent of the land is developed. Phoenix has around 900 single-family homes, 20 multiple-family dwellings, and 35 small commercial establishments. The 1977 median family income was $15,420.

The village has a totally combined sewer system which was built mostly in the 1920s. Phoenix officials did not know the condition of the sewers since they had not been inspected in recent years.

EXTENT OF FLOODING

Flooding in Phoenix is not considered a major problem. Basement flooding, while it occurs, is insignificant since most homes have overhead plumbing. Overbank flooding does not exist since there are no waterways flowing through the village. (See map, p. 177.)

Phoenix does have moderate street flooding. About twice each year when 3 inches of rain falls within 2 hours, sanitary and storm water backs up on streets, which remain flooded for approximately 3 hours after the rain.

According to a village official, a primary cause of the street flooding is storm runoff from neighboring communities' industrial parks. The official believes that these new parks are being developed without sufficient water detention. This situation is further complicated by the fact that two of the streets which flood are State controlled and the village is powerless to alter their sewer inlets.

ACTIONS TAKEN BY COMMUNITY

Phoenix's flood control measures have been primarily in the form of ordinances. For example, the village has passed ordinances requiring overhead plumbing, sump pumps which discharge water to yards, and construction of homes above street level. About 85 percent of the homes comply with these requirements. A more recent ordinance required residents to disconnect downspouts from sewers. Village tests of compliance with this ordinance have shown that residents are cooperating. Village officials believe that while these ordinances have significantly increased construction costs, they have eliminated basement flooding.

Sewer maintenance is done on an as-needed basis rather than routinely. Replacement of sewers has been limited to incidents of structural failure.

According to a village official, flooding problems have been periodically discussed during council meetings and the village has given priority to correcting them. Flood control measures will be implemented if Federal or State funding can be attained. In this regard, the official noted that the State plans to resurface one of the highways that flood in Phoenix and is expected to improve the underlying sewers and drainage system.

ACTIONS TAKEN BY RESIDENTS

A village official was unaware of flood control measures taken by residents, beyond those required by ordinances.

IMPACT OF TARP

Village officials believe TARP will provide some benefits to street flooding problems since MSD interceptor sewers should have greater capacity and therefore move sanitary and storm water faster. However, the village will still have to implement two local sewer projects to end most of its street flooding.

COMMUNITY PLANS

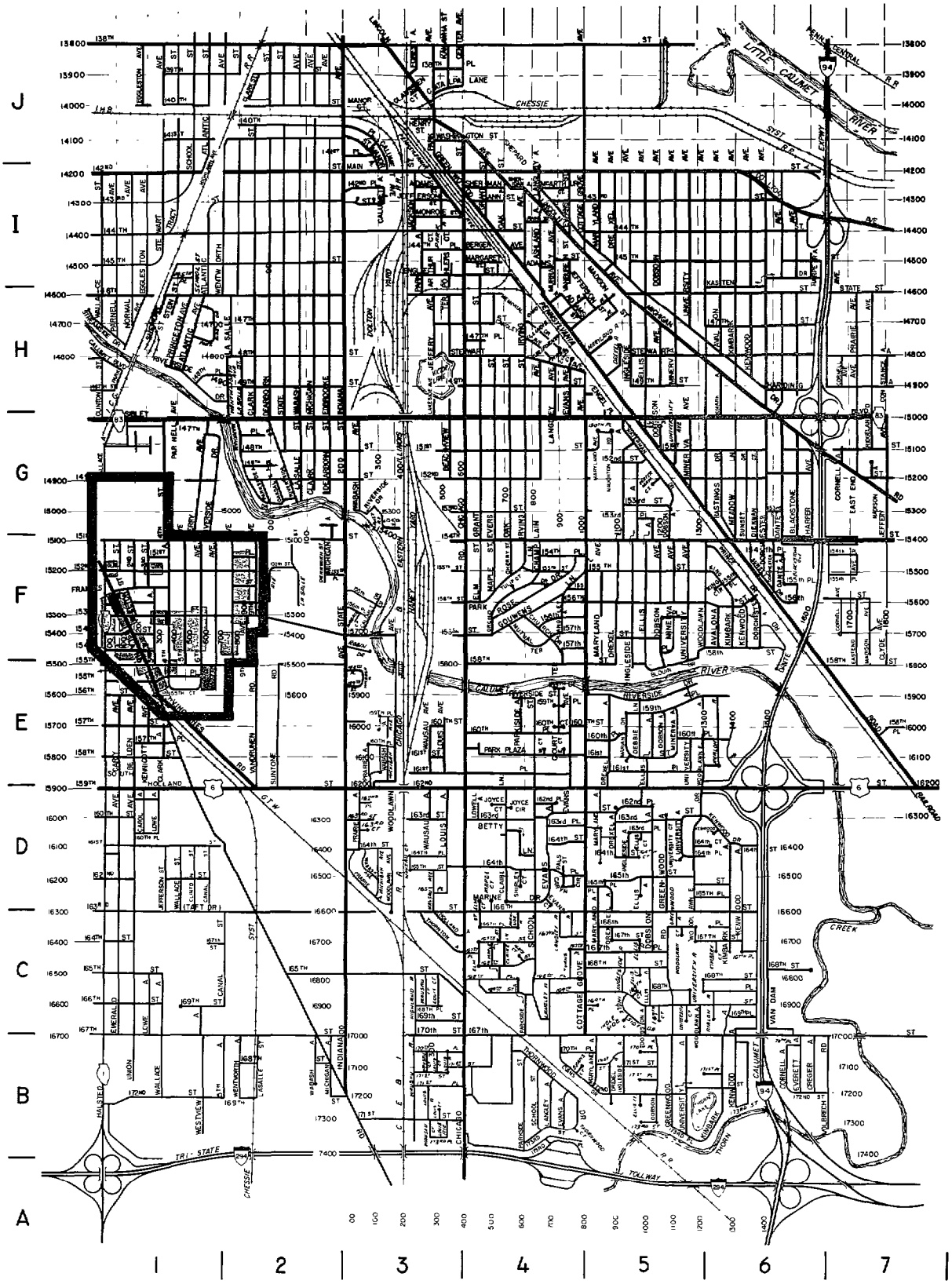
The village has not made a formal study of its sewer system and flooding problems, primarily because of insufficient financial and administrative resources. However, they have proposed three projects under the Federal Community Development Grant Program to solve flooding problems. These include:

--Modification of existing sewers at an estimated cost of $75,000.

--Construction of a new storm relief sewer costing an estimated $176,000.

--removal of 150 cottonwood trees which are damaging sewers, waterlines, and sidewalks. The estimated cost to remove these trees is $45,000.

According to a village official, approval has been received for the tree removal project and is expected shortly for the sewer projects.



PHOENIX, ILLINOIS

As a result of our discussions, the village became aware of the availability of EPA grants for sewer studies and an official indicated interest in applying for this financial assistance.

The village has no other current plans for flood-related actions.

SECTION 43

POSEN

BACKGROUND

Posen, in south-central Cook County, has a population of about 6,000 and covers about 1 square mile. The area is essentially flat and is approximately 75 percent built up. The village has 1,242 single-family homes, 24 multiple-family buildings, and 97 businesses. Village officials estimate that 90 percent of the buildings have basements. The 1977 median family income was about $19,830.

The sewer system is totally combined and was built between 1926 and 1931. The sewer system is considered to be adequately sized and in good condition.

EXTENT OF FLOODING

Village officials do not consider flooding a significant problem. They could not recall any basement flooding complaints in the last 2 or 3 years.

The only street flooding occurs between 141st and 143d Streets on Harrison Avenue. Such flooding occurs during very heavy rains about twice a year and disrupts traffic until the water recedes. This street flooding is caused by runoff from an unincorporated, unsewered area west of Posen that has inadequate drainage. (See map, p. 181.)

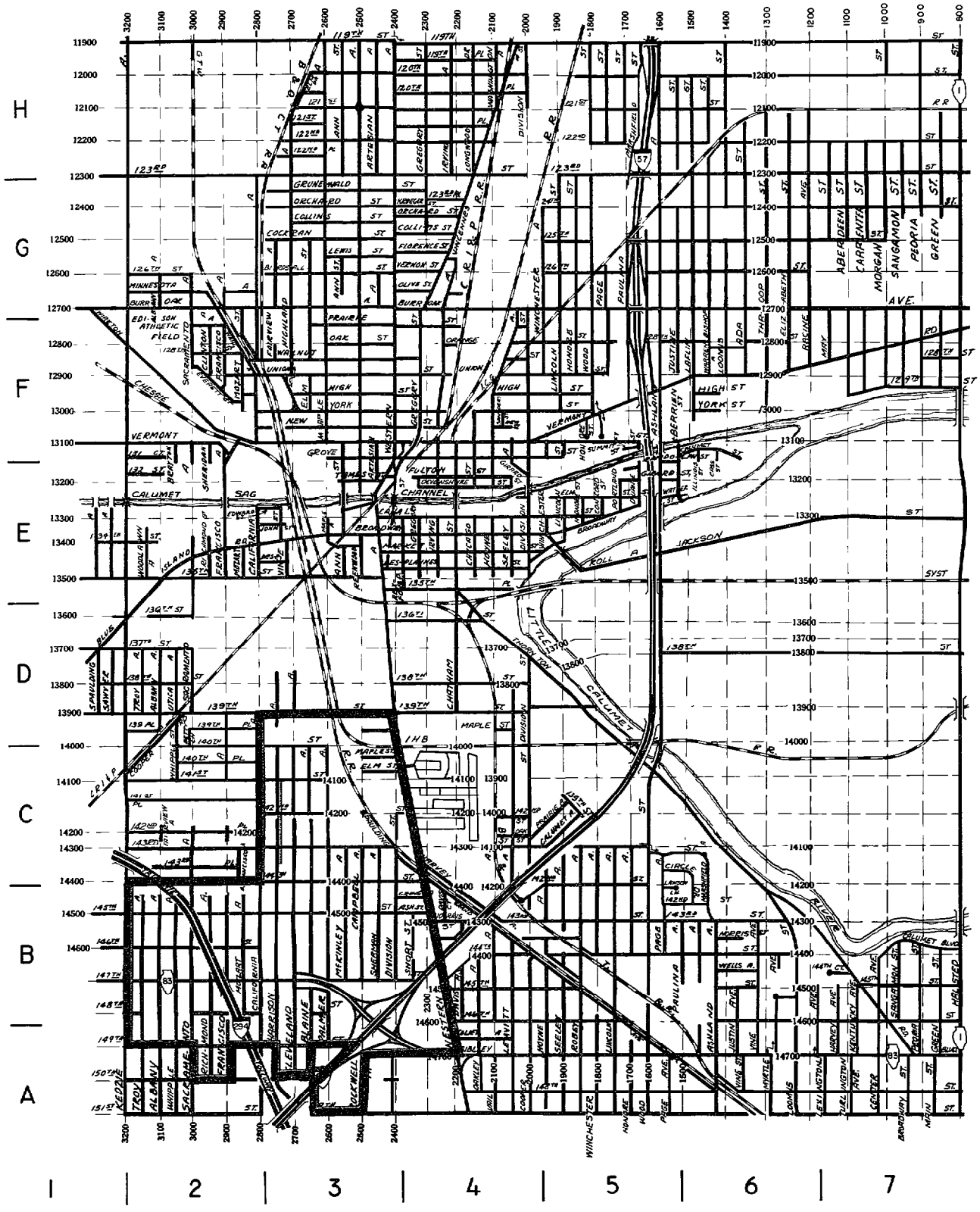
ACTIONS TAKEN BY THE COMMUNITY

Village officials said that some earlier flooding problems were resolved when large storm sewers were installed when the interstate highway was constructed through Posen in the 1960s.

The village also has restricted the sewer flow in one flood-prone area by bricking up the catchbasins. This relieves the sewers by ponding some water in the streets, but does not impede traffic. In that same area, some residents cover the sewer inlets with rugs during heavy rainstorms to further relieve the sewer system.

The village has an ordinance which prohibits residents from connecting downspouts to the combined sewer system.

The village's operation and maintenance activities which could have an impact on flooding include: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City Limits
Combined Sewer Area
Street Flooding

POSEN

--Cleaning all catchbasins twice each year.

--Inspecting sewer flow every 2 or 3 months and cleaning manholes as needed.

--Cleaning streets three times each year.

ACTIONS TAKEN BY RESIDENTS

Village officials said the most significant basement flood control measure taken in Posen was the installation of overhead sewers. They estimate that 95 percent of the buildings with basements have overhead sewers. About 70 percent of these are newer homes where overhead sewer systems were included in the initial construction. Conversions of older homes, recommended by the village, took place over a period of years when residents saw their neighbor's success with the new systems. Officials estimated that the conversion costs each homeowner about $1,200. Officials estimate that a few residents have installed standpipes or check valves in their basements and that all residents have disconnected their downspouts from the sewer system.

IMPACT OF TARP

Village officials did not know how construction of the TARP project would affect their community. They do not have a significant problem now, but in their opinion, any relief the tunnel project would give to surrounding communities could only help Posen, since it might reduce runoff from neighboring communities.

COMMUNITY PLANS

Village officials have not applied for an EPA grant to study their sewer system and have no plans to do so, since flooding is not perceived as a significant problem. They have no specific plans for other flood-related actions at this time.

SECTION 44

RIVERDALE

BACKGROUND

Riverdale, in southeast Cook County, has a population of 16,000 and covers a 3.7 square mile area. This village is almost completely developed and includes 3,287 single-family homes, 366 multiple-family residences, 136 businesses, and 32 light and heavy industrial plants. In addition, the village has 34 schools, churches, or municipal structures. The 1977 median family income was $19,800.

Riverdale has both combined (90 percent) and separate (10 percent) sewers. The separate sewers are located in the central section of the village. The separate and combined systems are about 20 and 50 years old, respectively. Both sewer systems are in good condition with the exception of some inadequate combined sewers in the northeast section of the village.

EXTENT OF FLOODING

Riverdale experiences moderate basement and street sewers backup flooding mainly due to inadequate local sewers. This flooding, in the northeast section of town, is random and occurs on the average of once yearly. (See map, p. 185.)

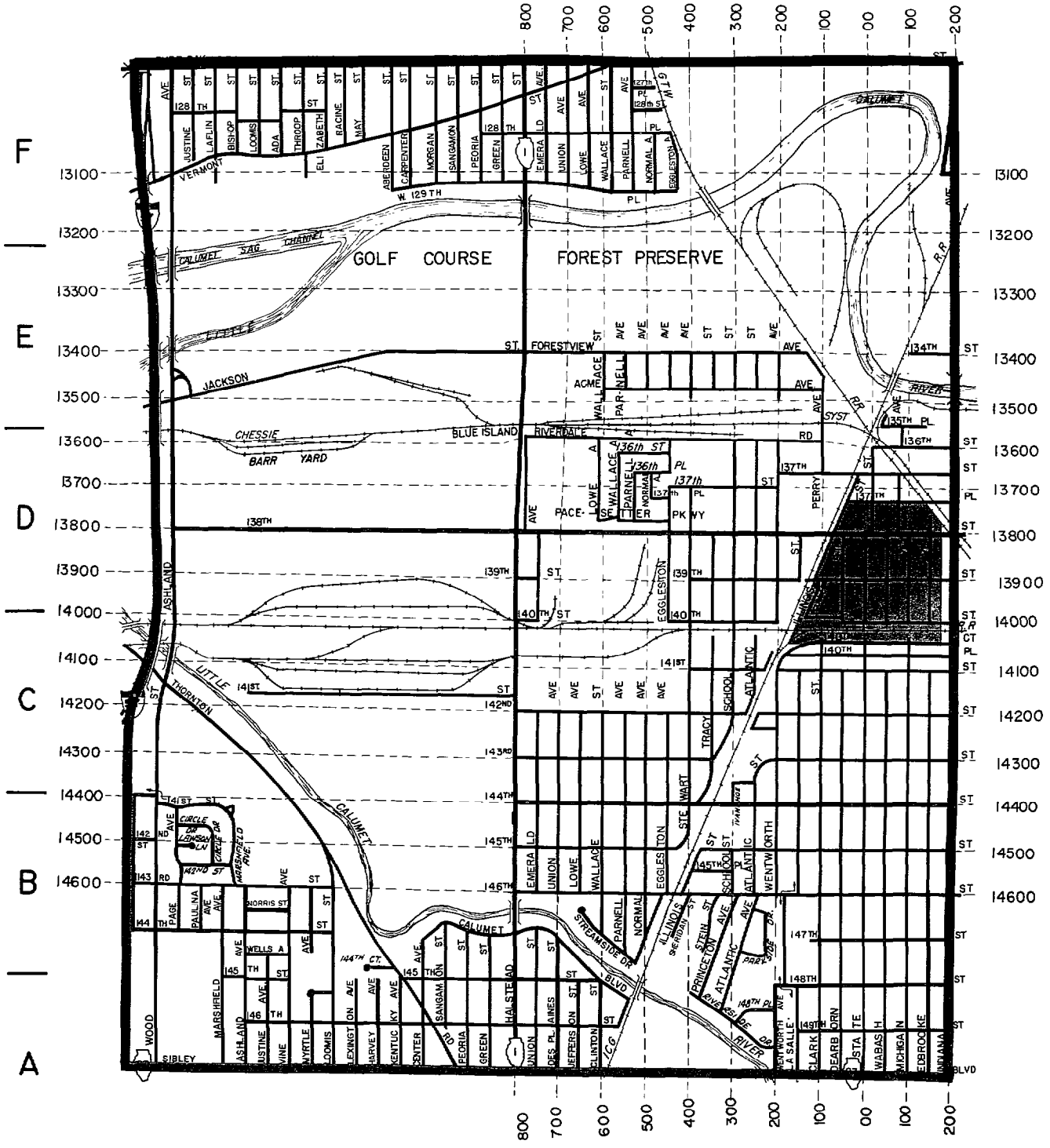
Riverdale does not experience overbank flooding.

ACTIONS TAKEN BY COMMUNITY

The village of Riverdale has taken various actions to alleviate flood problems and maintain current sewer system capacity. For example:

--The village cleans all street catchbasins and all sewers annually. All village streets are cleaned weekly.

--In 1961 the village installed storm sewers in the southern section of town to alleviate street and basement flooding. The street drains leading into combined sewers were sealed off and these sewers function as sanitary sewers. This undertaking was funded by special assessments to residents in the affected area. Village officials feel that the above improvement has been very effective in alleviating flooding.



Sewer Backup

City Limits

Combined Sewer Area

RIVERDALE

--The village funded a sewer study in 1976 to determine the causes and solutions of flooding problems in the northeast section of the village. The study concluded that village sewers were inadequate and should be upgraded. However, funding for this project is uncertain.

ACTIONS TAKEN BY RESIDENTS

Village officials could not estimate the number and types of flood control measures taken by residents.

IMPACT OF TARP

According to village officials, TARP will reduce about 10 percent of the sewer backup floodings now occurring. The main flooding problem in Riverdale stems from an inadequate sewer system, so if sewers were upgraded, about 90 percent of the flooding would be alleviated even without TARP. The cost of upgrading sewers in the northeast section of the village is estimated at $1 million (1978 dollars). Funding for sewer upgrading is uncertain. The residents in this northeastern area are opposed to any special assessment and residents in the southern areas would be opposed to any overall tax increase since their 1961 sewer improvements were financed through a special assessment to area homeowners.

COMMUNITY PLANS

Riverdale has not applied for a Step 1 Grant from EPA to identify sewer problems. The village does not currently see a need for such a study and is waiting for TARP to be constructed.

SECTION 45

RIVER FOREST

BACKGROUND

River Forest, in western Cook County, has a population of 13,400 and covers 2.6 square miles of flat terrain. The village is 99 percent developed and includes 2,760 single- and 60 multiple-family dwellings and 120 businesses. The 1977 median family income was $31,070.

River Forest has a totally combined sewer system constructed between 1889 and 1900. According to a village official, the system is in fair condition.

EXTENT OF FLOODING

Flooding in River Forest occurs infrequently. A village official noted that prior flooding problems have diminished; however, he could not pinpoint the reason for this change. One official thought that reduced rainfalls in recent years may account for the improved conditions.

Basement backup flooding caused by inadequate MSD interceptors occurs infrequently (once every 2 to 3 years) during severe rainfalls in the southern, northeastern, and western sections of the community. (See map, p. 189.) Officials had no information on the severity of basement backup flooding or the number of homes and businesses affected.

Street flooding occurs infrequently in various locations during severe rainfalls.

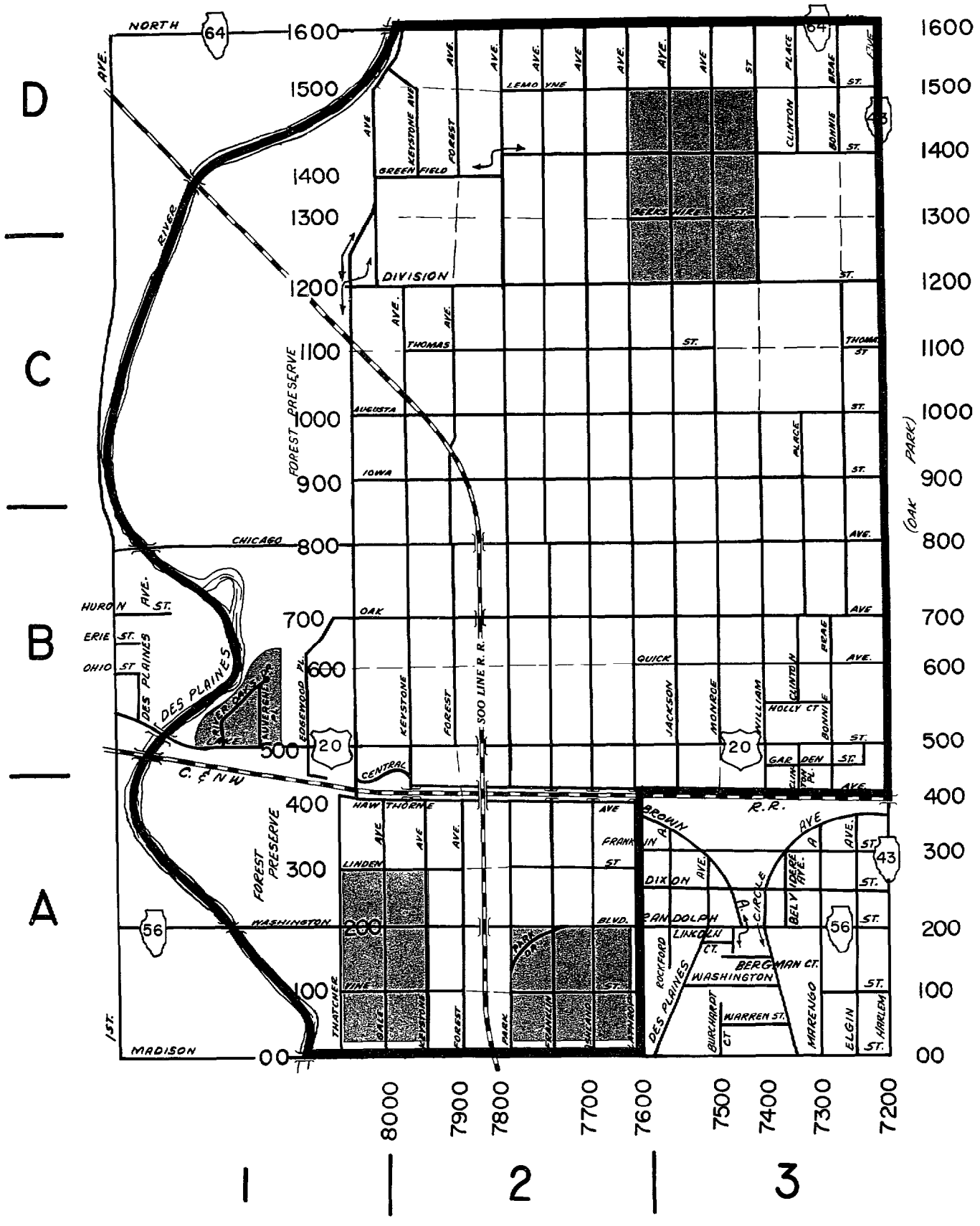
All overbank flooding is confined to forest preserve land in the area along the Des Plaines River.

ACTIONS TAKEN BY COMMUNITY

According to village officials, River Forest has taken the following actions to alleviate flooding in the community.

--In 1977 the village passed an ordinance regulating construction in flood hazard areas.

--Through articles in local newspapers, village officials encourage disconnection of downspouts if there is no danger that such action will flood neighboring properties. Also, village officials suggested that homeowners contact plumbing contractors for information on backflow regulators.



Sewer Backup

City Limits

Combined Sewer Area

RIVER FOREST

--Sewer maintenance is done on an as-needed basis and one-third of the catchbasins are cleaned each year. Streets are cleaned weekly from March to October and less often, as weather permits, during the winter months.

ACTIONS TAKEN BY RESIDENTS

Village officials estimate that residents have taken the following actions to alleviate their flooding problems;

--20 percent installed removable drain plugs,

--20 percent use standpipes,

--10 percent installed check valves in basements,

--2 percent have check valves between buildings and streets,

--25 percent use sump pumps connected to sewers,

--30 percent have disconnected downspouts, and

--5 percent have waterproofed basements.

IMPACT OF TARP

According to River Forest officials, TARP will be beneficial to their community by relieving MSD interceptors and thereby preventing backups. Upgrading the local sewer system without TARP will not alleviate the flooding caused by inadequate MSD interceptors.

COMMUNITY PLANS

River Forest has applied for an EPA grant of $12,000 as reimbursement for a 1973 engineering study. The study concluded that the village's sewers were generally only 10 percent adequate for carrying large storm runoffs and recommended sewer improvements costing approximately $8.8 million (predicated on construction of TARP).

If EPA approves the grant, the community plans to apply for additional funding to develop design plans for the sewer system.

SECTION 46

RIVER GROVE

BACKGROUND

River Grove covers 2.3 square miles of flat terrain northwest of Chicago. Its population of 11,800 had a 1977 median family income of $20,870. The village is predominantly residential, with 2,150 single-family residences, 326 multiple-family residences, and 145 light industrial and retail businesses.

River Grove has 17.4 miles of combined sewers that serve 90 percent of the community and 1.8 miles of separate sewers that serve a new development in the northeast section. The two systems do not connect within River Grove. Sewer capacity is reached after 1 inch of rainfall in 2 hours or when flash flooding occurs. Village officials consider River Grove's sewer system adequate.

EXTENT OF FLOODING

According to village officials, River Grove does not have a flooding problem. (See map, p. 193.) Village officials estimate that only 3 percent of all buildings experience some sewer backup due to tree root infiltration in resident's sewer lines and inadequate MSD interceptors. The remainder are unaffected or use flood control equipment. There are no viaducts within the village and no reported street flooding problems. Overbank flooding from the Des Plaines River is confined to forest preserve lands.

ACTIONS TAKEN BY COMMUNITY

River Grove has regular programs for cleaning catch-basins and streets and for cleaning and rodding sewers. Sewer complaints are dealt with when received.

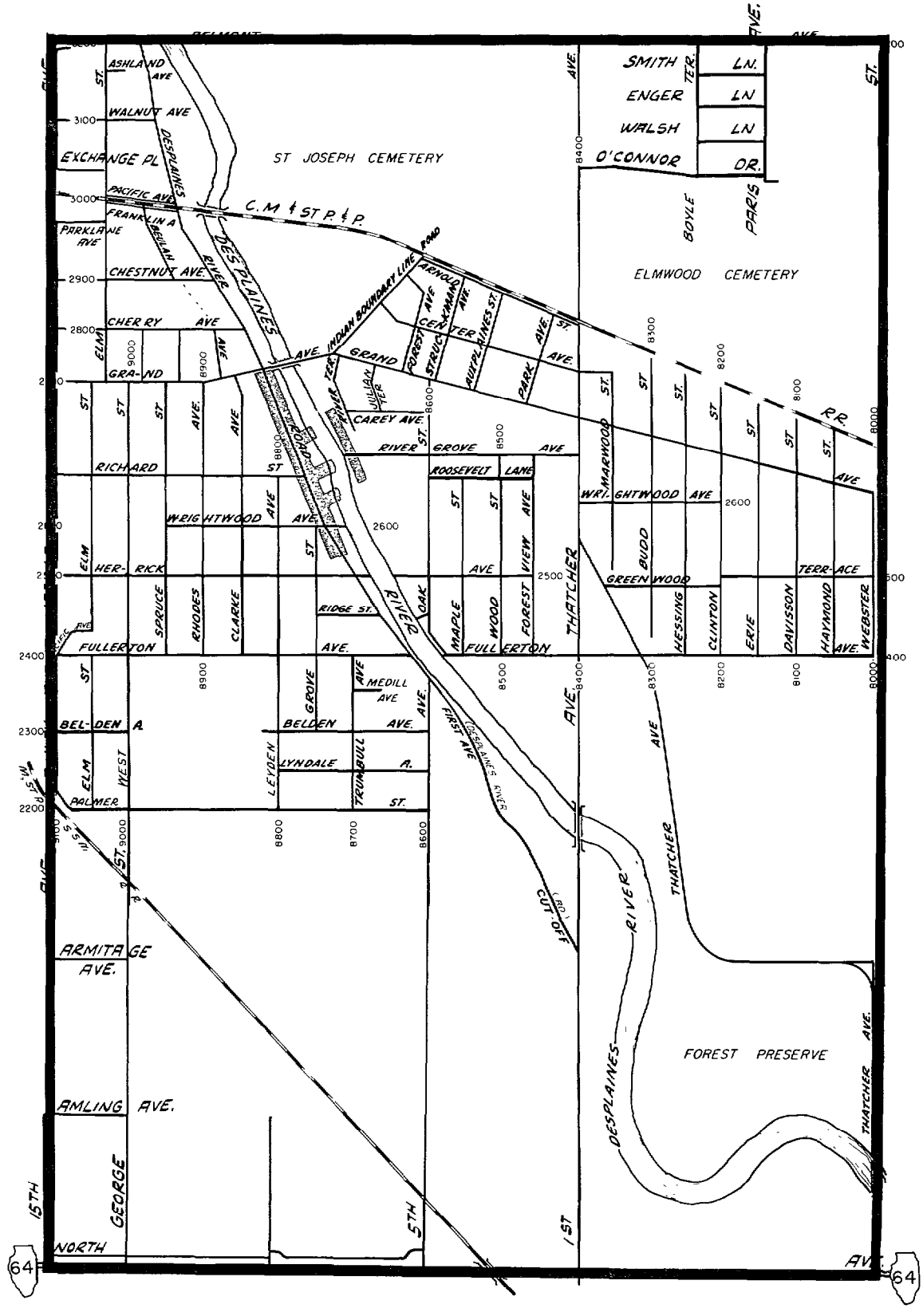
A River Grove ordinance requires that all new construction after 1971 must have overhead plumbing.

ACTIONS TAKEN BY RESIDENTS

Village officials estimate that River Grove residents have taken the following flood control measures;

--20 percent have rodded out their sewers.

--8 percent have installed removable drain plugs,



Overbank Flooding

City Limits

Combined Sewer Area

RIVER GROVE

--30 percent use standpipes,

--10 percent have installed check valves in basements,

--3 percent have check valves between basements and streets,

--20 percent use sump pumps connected to sewers,

--15 percent have sump pumps which discharge water to yards,

--60 percent have disconnected their downspouts,

--3 to 5 percent have raised items off basement floors,

--70 percent have waterproofed their basements, and

--15 to 20 percent have installed overhead plumbing.

IMPACT OF TARP

The River Grove sewer system will not have to be upgraded to benefit from TARP. Still, village officials do not consider TARP benefits worth the cost. While TARP would relieve some sewage spillover and prevent possible sewer backup from larger storms, the minor flood problem at 3 percent of the village buildings would continue because of low-level topography.

COMMUNITY PLANS

The village does not plan to study its sewer system or take other flood-related actions due to lack of flooding problems.

SECTION 47

RIVERSIDE

BACKGROUND

Riverside, located approximately 19 miles west of Chicago, has a population of around 10,000 and covers about 2 square miles of relatively flat terrain. Most of the village is developed and almost exclusively residential, with about 2,600 single-family homes, 900 apartments, and 90 businesses. In 1977 median family income was $25,570.

Riverside, the first planned suburb in the United States, was designed by Frederick Law Olmsted, with a park-like setting, winding residential streets, numerous large trees, and approximately 134 acres of parks or greenbelt areas.

About 75 percent of the community is served by combined sewers. Community records did not readily identify the age of the sewer system. According to a village official, the system has been regularly inspected and cleaned and is in fairly good condition.

According to a community official, Riverside constructed a number of separate storm sewers in the 1950s which alleviated flooding problems.

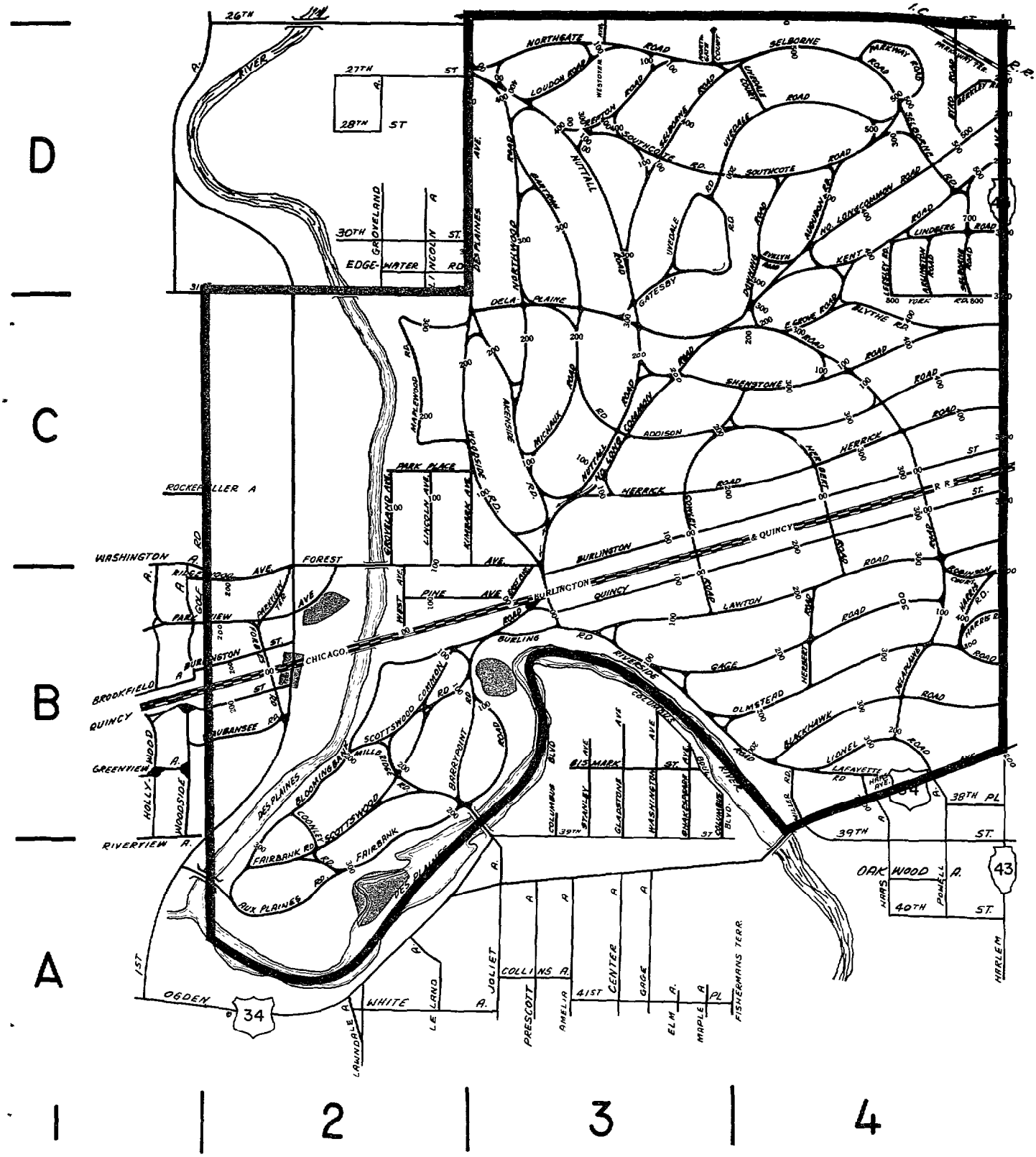
EXTENT OF FLOODING

Overall, flooding in Riverside is not a major problem. (See map, p. 197.) According to a village official, the numerous green areas and large residential lots afford ample drainage areas. Sewer backup in basements occurs rarely and when it does occur, it results in almost all instances from clogged sewer lines between homes and streets. Street flooding occurs infrequently.

Overbank flooding from the Des Plaines River occurs once or twice each year during severe storms (3 inches of rain in an hour) or winter ice jams. Overbank flooding does not affect residences; it occurs in the southwest part of the community, on one street in a forest preserve, and in two greenbelt areas.

ACTIONS TAKEN BY COMMUNITY

The village has passed two flood-related ordinances; one prohibiting new residences from connecting downspouts to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RIVERSIDE
Overbank Flooding
Viaduct Flooding
City Limits
Combined Sewer Area

the sewer system and one restricting construction on flood plain areas. The village also has a 5-year program to inspect and maintain its sewer system. Contractors use television inspection techniques and rod out and vacuum sewers under this program. Also, village employees rod out community sewers in emergency situations.

The village also has a continuing street cleaning program. An employee spends 2 hours each day (weather permitting) removing debris from thoroughfares and cleans all streets in about a 2-week period.

ACTIONS TAKEN BY RESIDENTS

Village records did not disclose the extent of flood control measures taken by residents. A village official noted that a number of homeowners had disconnected their downspouts and had installed overhead sewers in their basements.

IMPACT OF TARP

The village official we talked to was unfamiliar with the TARP project and its potential impact on the village.

COMMUNITY PLANS

Village officials have not recently studied and have no plans to study the sewer system to determine if upgrading is necessary.

The village has no other current plans for flood-related actions.

SECTION 48

SCHILLER PARK

BACKGROUND

Schiller Park comprises 2-1/2 square miles of flat, highly developed land bordering O'Hare Airport. Its population of 12,172 had a 1977 median family income of $19,650. There are 2,109 single-family residences, 329 apartment buildings, and 359 businesses.

The village has 35 miles of sewers, 5 miles of which are combined sewers in the older, southeast section. Separate and combined systems empty into the MSD interceptor sewers under Des Plaines River Road and Lawrence Avenue.

Schiller Park's combined sewers were constructed in the 1920s, whereas the separate sewers were built between 1945 and 1970. According to an engineer's report, both systems have inadequate storm drainage throughout. Also, there may be connections between supposedly separate sanitary and storm sewers. A rainfall of 2 inches in 3 hours (a 5-year frequency storm) will fill the system.

EXTENT OF FLOODING

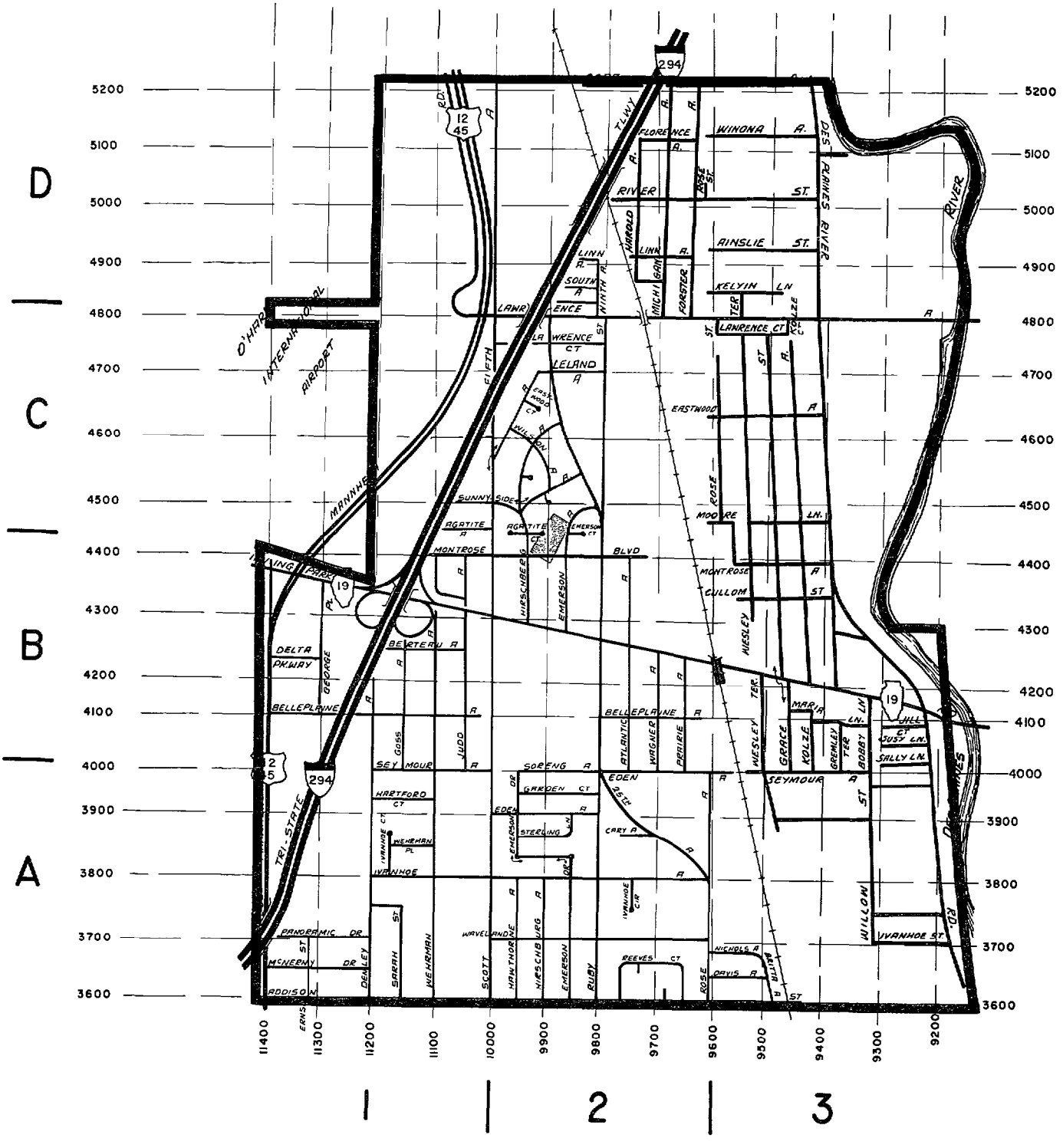
Results of a 1973 flood damage survey, which included input from 50 percent of the residents, indicate that flooding in Schiller Park is minimal. Village officials feel the survey results are still reliable--in the last 2 years only six basement flood complaints have been received.

While basement backups and street flooding are infrequent, serious viaduct flooding occurs on Lawrence Avenue and Irving Park Road, west of River Road. Inadequate interceptors combined with clogged local sewers are the suspected causes. Overbank flooding does occur, but it is primarily on forest preserve land. (See map, p. 201.)

ACTIONS TAKEN BY COMMUNITY

Schiller Park has initiated various actions to reduce flooding. For example:

--The village flushes its sewer system annually and makes television inspections. A third of the catch-basins are cleaned every year and in 1977 all catch-



Overbank Flooding

Viaduct Flooding

Combined Sewer Area

City Limits

SCHILLER PARK

basins were cleaned. Schiller Park also inspects and cleans sewers when complaints are received. The village removes roots from residents' lateral sewers without charge.

--The Forest Preserve Creek and Crystal Creek have been dredged and widened to prevent overbank flooding. Hand dredging and cleaning of Crystal Creek is done every summer. O'Hare Airport management cooperates with Schiller Park in detaining runway runoff from entering Crystal Creek until flood levels have subsided.

--Detention ponds are required for new developments along with overhead plumbing in accordance with MSD regulations.

--The village inspected all separate sewer areas and requested residents to disconnect downspouts.

ACTIONS TAKEN BY RESIDENTS

According to village officials, most Schiller Park residents with basement backup problems use individual measures such as check valves. No other information on residents' actions was available.

IMPACT OF TARP

According to Schiller Park's consulting engineers, only the central area of the village near the MSD interceptor will experience a reduction in street flooding and basement backup as a result of TARP. If Schiller Park is to completely eliminate flooding, it will have to upgrade the current system at an estimated cost of from $4.1 million to $6.1 million.

COMMUNITY PLANS

EPA awarded Schiller Park a $35,000 grant for a study of its sewer system. This sewer study is currently underway.

The village has no current plans for other flood-related actions.

SECTION 49

SKOKIE

BACKGROUND

Skokie, in northern Cook County, has a population of 69,000 and covers 10.5 square miles. Thirty-three percent of the village is residential and there are 14,251 single-family homes. Fourteen percent of the area is used for open space (golf course, etc.). The 1977 median family income was $25,400.

Virtually all of Skokie is served by combined sewers, some of which were installed 50 years ago. Even though the sewer system was originally designed to handle a 5-year storm, this is no longer possible due to the growth which has occurred in the village. The sewers now have inadequate conveyance capacity for handling present runoff from rains which occur several times each year.

EXTENT OF FLOODING

According to consultant engineers, Skokie experiences severe widespread flooding, including both backup of combined sewage in basements and on streets. (See map, p. 205.)

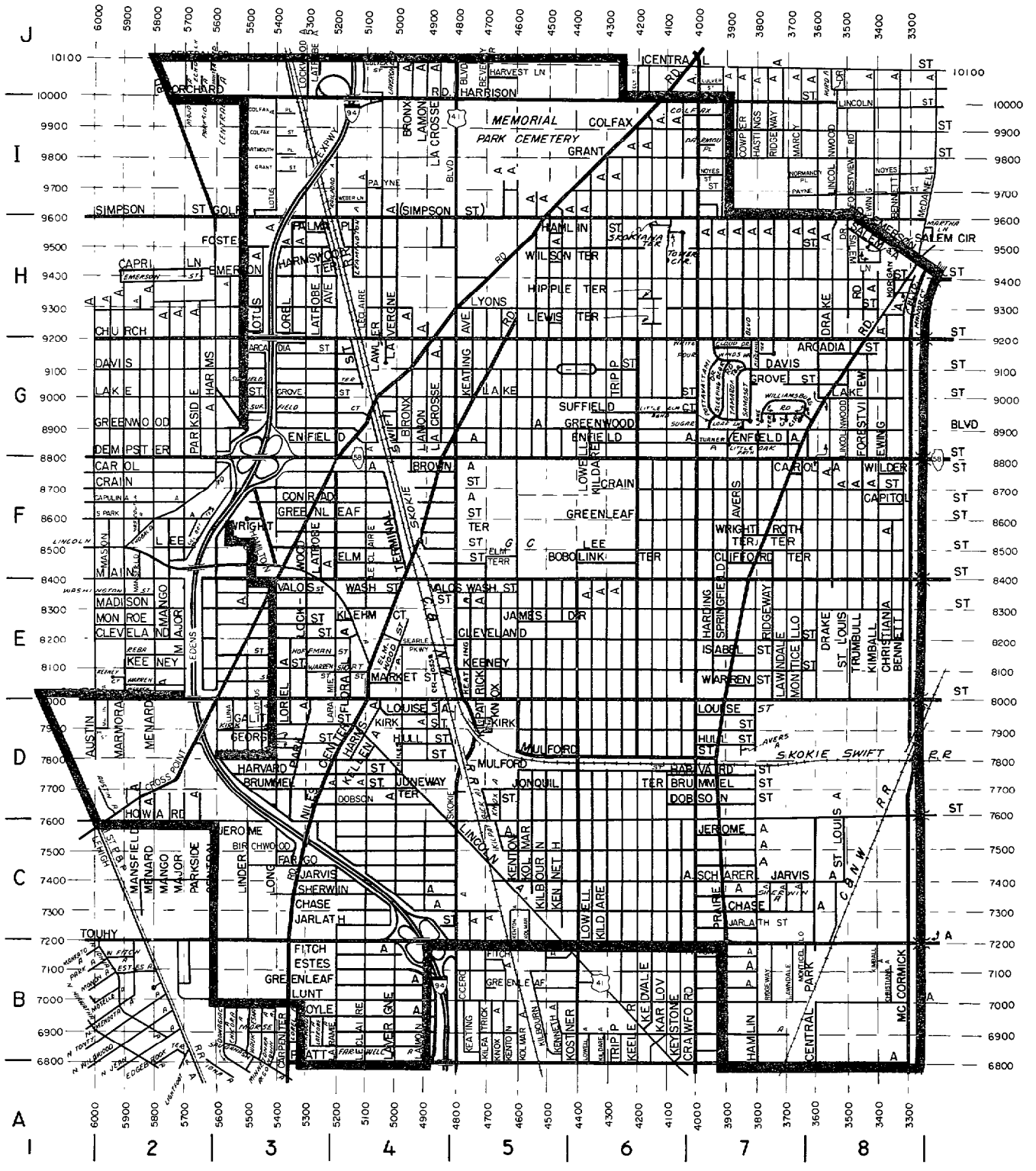
Since 1966 three flood surveys have been conducted in Skokie to determine the extent of basement backup. The most recent survey, in 1977, was made to determine the villagewide effects of four storms that occurred in June 1977. Of the 11 percent of the residents responding, about 20 percent reported basement backup during at least one of the storms even though they had one or more flood protection devices in their homes.

According to a village official, there is no overbank flooding in Skokie.

One flood-related death was reported when a gas explosion occurred in a flooded basement.

ACTIONS TAKEN BY COMMUNITY

Skokie has taken various actions to alleviate flooding problems.


Severe Sewer Backup
City Limits
Viaduct Flooding
Combined Sewer Area

SKOKIE

For example, the village:

--Has adopted all MSD's required ordinances.

--Has required storm water retention devices (such as rooftop storage, parking lot ponding, etc.) for all new construction sites.

--Uses restrictors on 25 percent of its catchbasins.

--Sewer maintenance program includes rodding out sewers and cleaning catchbasins every 3 years and inspection of sewers in problem areas and elimination of obstructions when necessary.

--Cleans all streets once a week.

--Issued a flood information booklet in 1972 in which it listed some interim remedies to help residents relieve flooding problems. This booklet which is available at the village hall, has been distributed at public meetings, given to homeowner groups, and publicized in Skokie's newsletter.

In 1974 Skokie's Department of Public Works initiated a detailed storm sewer study of the village's southwest section (Fairview South area). This area comprises approximately 116 acres and is composed predominately of single-family homes. As a result of the study, the department recommended that downspouts be disconnected for most of the residences in the area since this could be done without causing localized flooding and would reduce the demand on the sewer system by 49 percent.

Two years after this recommendation was implemented, 85 percent of the 490 single-family homes in the area have downspouts disconnected.

ACTIONS TAKEN BY RESIDENTS

According to consulting engineers, 60 to 70 percent of Skokie residences have flood protection devices such as standpipes, check valves, or overhead sewers. However, about 20 to 25 percent of these residences continue to have backup problems. Village officials had no additional information on flood control actions by residents.

IMPACT OF TARP

According to Skokie's engineers, the village will only benefit from TARP if the local sewer system is upgraded.

COMMUNITY PLANS

Skokie has already completed its EPA-funded sewer system study and developed a plan to alleviate the problems caused by its inadequate sewer system. The most cost-effective plan for deriving benefits from phase I of TARP will cost $53 million and includes building shallow and deep tunnels. This plan will reduce the frequency of basement backups to approximately once every 10 years. To derive the total benefits from phase I and II of TARP, the village will have to spend $77.8 million. This amount includes two additional elements--villagewide disconnection of downspouts and installation of additional sewers to relieve the existing system.

EPA funding for this sewer upgrading is uncertain because there has been no precedent for determining eligibility of this multi-purpose type of project. The anticipated sources of funding would be EPA or the State environmental agency and a local bond issue.

Skokie plans to apply for additional EPA grants for design and construction funds. Even if the grants are awarded, the village will not be able to afford the entire 25 percent local share, so it is hoping for additional funding from outside sources (currently unidentified).

The village does not plan to do anything in the interim to relieve its flooding problem except suggest that homeowners install some sort of flood protection devices.

SECTION 50

SOUTH HOLLAND

BACKGROUND

South Holland is a residential village of 8 square miles and 27,000 people in southern Cook County. It is 90 percent developed, with 7,292 single-family homes and 400 businesses. The 1977 median family income was $25,110.

South Holland has a partially combined sewer system. The combined sewers, which comprise 10 percent of the system, are located in the central and northeast sections of the village. Village officials believe that local sewers are basically adequate; only a few sections of the system need replacing.

EXTENT OF FLOODING

South Holland has moderate flooding problems in isolated areas. (See map, p. 211.) According to village officials, 1-1/2 to 2 inches of rain in 1 hour will cause basement backup and street flooding in these areas once or twice a year.

Basement backup primarily occurs in three sections:

--A four block section in the northeast separate sewer area where sanitary lines are reportedly blocked by tree roots and debris.

--A four block south-central section of the separate sewer area where backup reportedly results from cracked sanitary lines and sanitary sewer inadequacy.

--A three block section in the central area that comprises about 20 percent of the combined system.

South Holland experiences street flooding on one street in the separate sewer area. This is caused by submersion of the storm sewer overflow points and reduced flow of storm water.

Overbank flooding from the Calumet River is limited to park land and occurs infrequently.

ACTIONS TAKEN BY COMMUNITY

According to village officials, South Holland has taken various actions to alleviate flood problems. For example:

--The village cleans approximately 25 percent of the 3,000 catchbasins annually, sweeps streets five times per year, and cleans sewers as needed.

--Permits for new construction include MSD requirements for storm water detention and plumbing.

--Some properties in the village use flood control measures, such as plaza ponding, roof and parking lot reservoirs, retention basins, and storm water restrictors.

ACTIONS TAKEN BY RESIDENTS

Village officials estimate the following flood control actions by residents:

--Less than 1 percent have rodded sewers or installed standpipes or check valves.

--About 90 percent use sump pumps connected to sewers.

--About 50 percent have sump pumps which discharge water to yards.

--More than 90 percent have disconnected downspouts.

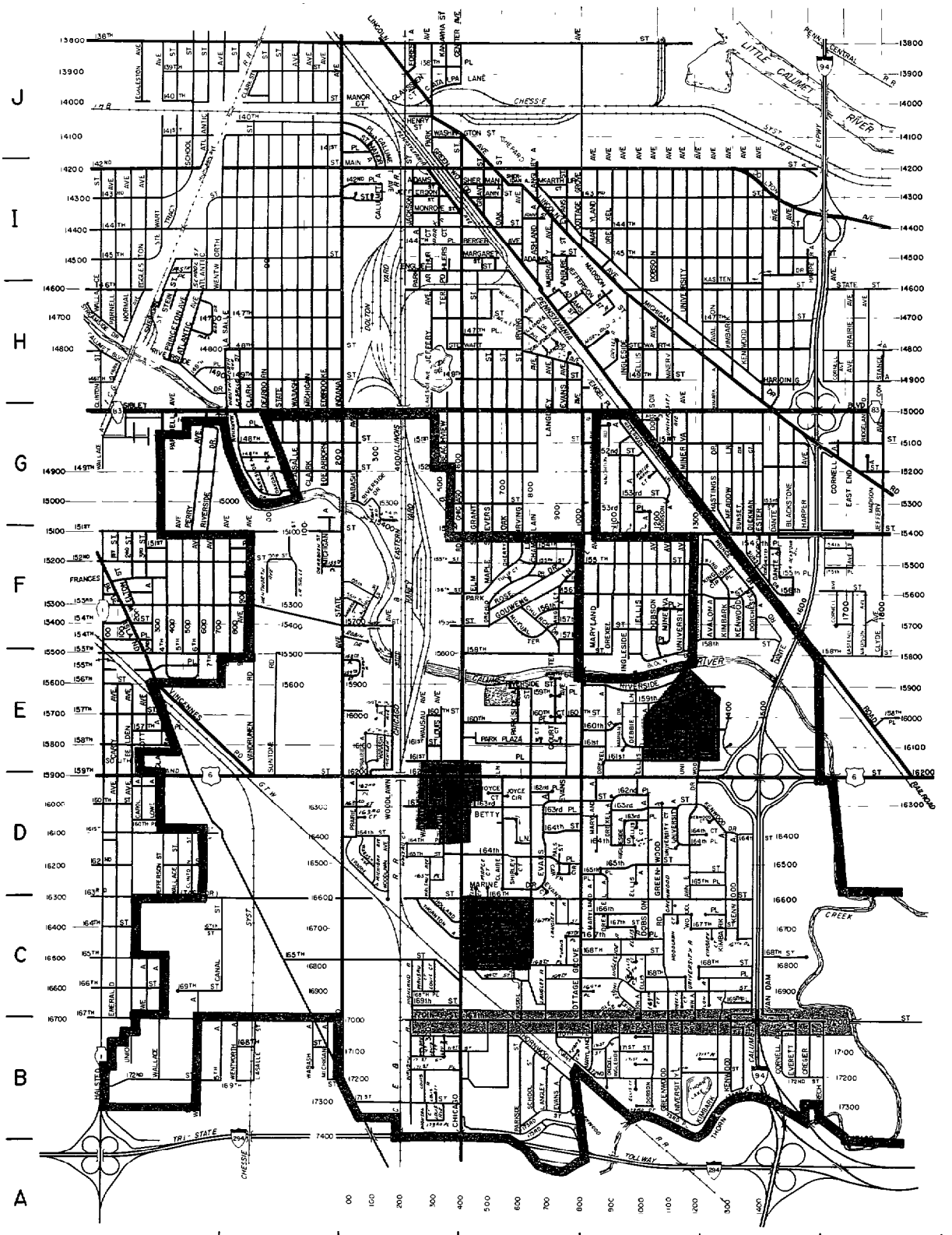
--About 75 percent use overhead plumbing.

IMPACT OF TARP

Village officials anticipate that phase I of TARP will have a minimal effect on the village's flooding problems without local sewer system upgrading in problem areas. If phase I and II of TARP are constructed, officials anticipate that increased storm water flow and MSD interceptor capacity will ease street flooding.

COMMUNITY PLANS

South Holland received a $58,700 EPA grant to inspect its sewer system. Village officials expect to take action



SOUTH HOLLAND

on flood relief recommendations when the study is completed and problem areas are identified. However, village officials do not foresee any massive sewer upgrading project since the sewers are considered basically adequate. No other flood-related plans are currently contemplated.

SECTION 51

STICKNEY

BACKGROUND

Stickney, in central Cook County, has a population of 7,000 and covers 16 square miles. The village is almost totally developed with residences, light industrial plants, and the MSD Stickney Wastewater Facility, each comprising about one-third of the land area. The village also includes the 1/2 square mile Hawthorne Racetrack. The 1977 median family income was $20,030.

Stickney has a totally combined sewer system. Although the sewer system was built in 1925, it is estimated to be in good condition.

EXTENT OF FLOODING

Stickney experiences infrequent flooding problems (once every 3 years). Basement sewer backup occurs when overflow points are submerged during heavy rainfalls (typically 4 inches of rain in a 4-hour period). This flooding occurs randomly and village officials could not identify the areas affected.

Stickney does not experience any street or overbank flooding.

ACTIONS TAKEN BY COMMUNITY

This village has adopted all of MSD's flood-related regulations. In addition, the village has an ordinance requiring all new buildings built after 1971 to disconnect downspouts.

Stickney cleans about one-third of their catchbasins yearly and sweeps all streets monthly. The village also rods and buckets their sewers on an as-needed basis.

ACTIONS TAKEN BY RESIDENTS

A village official estimates that residents have taken the following actions to alleviate flooding;

--40 percent have installed standpipes and

--33 percent have homes with overhead plumbing.

IMPACT OF TARP

A Stickney official estimates the TARP (phase I or phase I and II) will prevent submersion of overflow outlets and eliminate basement sewer backup flooding. Upgrading of local sewers will probably not be needed to benefit from TARP.

COMMUNITY PLANS

In March 1978, Stickney applied for an EPA grant to study its sewer system but has not received EPA approval. The village has no current plans for other flood-related actions.

SECTION 52

SUMMIT

BACKGROUND

Summit, in southwest Cook County, has a population of 10,308 and covers 2.2 square miles. The village is highly developed with 2,500 buildings, primarily residential. The 1977 median family income was $16,120.

Summit's sewer system, which is 99 percent combined, contains 21 miles of sewer lines. One section of the village has a separate sewer system which runs from 59th Street and Archer west to the Sanitary Canal. The sewer system was constructed around 1920 and is considered inadequate for storm water drainage. Village engineers noted in 1973 that "* * * sewer capacities in many locations are impaired by buildup of debris and growth of roots in the sewers, by broken pipe sections and other structural defects." According to a village official, the original concrete pipe has suffered from poor construction and wear. These conditions resulted in erosion of a 48" diameter sewer line and a street cave-in in 1977. Cost to repair the street and sewer totaled $70,000.

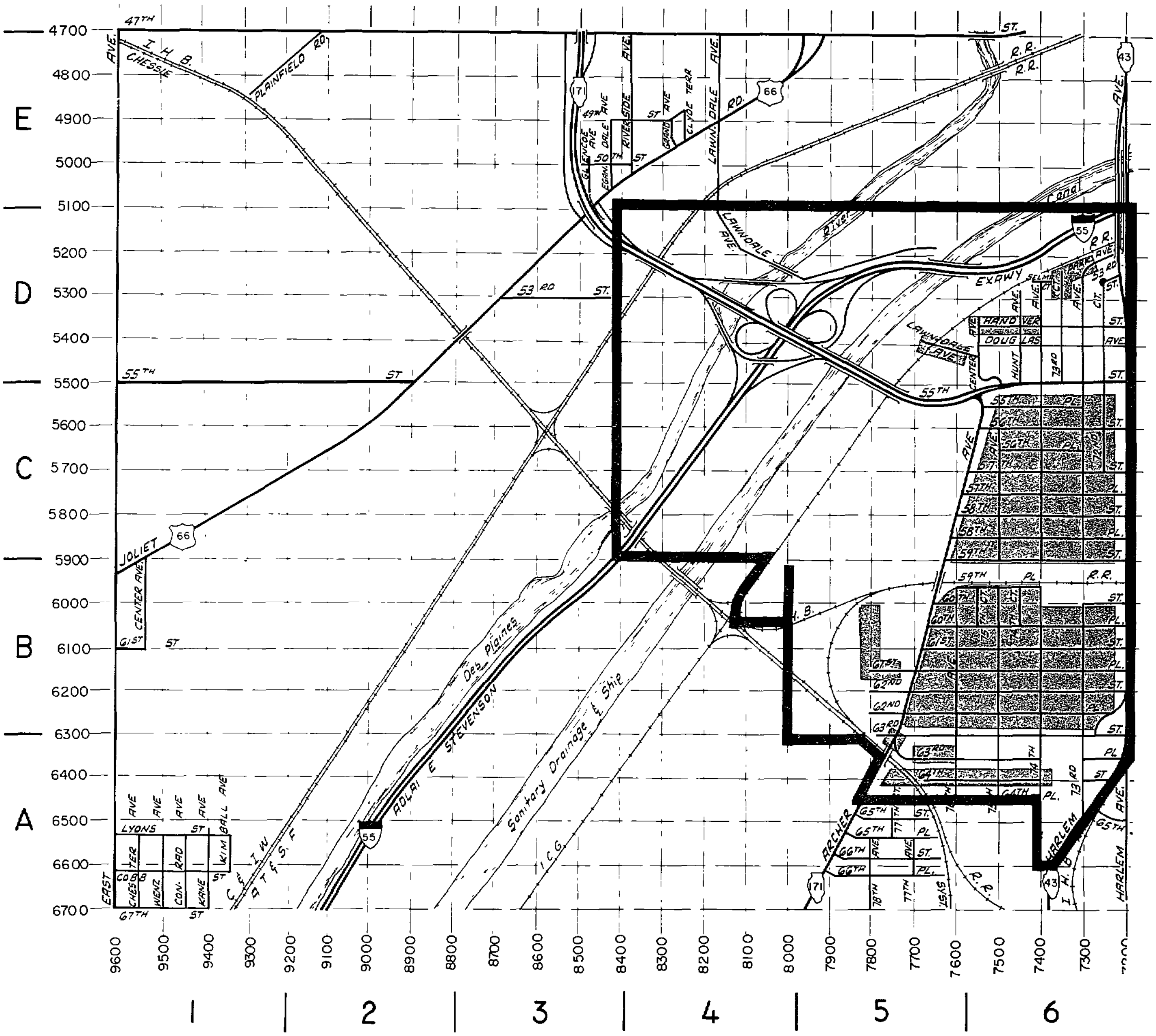
EXTENT OF FLOODING

Summit experiences severe street flooding due to inadequate local sewers. (See map, p. 217.) Some flooding occurs with the slightest precipitation, whereas 1/2 inch of rainfall causes most of the sewers to overflow into streets.

Village officials estimated that two blocks in the northeast, two blocks in the southwest, and eight blocks in the south-central sections flood every time it rains. With 1/2 inch of rain, four blocks in the northeast and five blocks in the south-central sections flood an estimated 8 to 10 times each year. When 2 inches or more of rain falls, an estimated area greater than 50 blocks experiences flooding.

Before 1973, basement sewer backup due to inadequate sewers was also a severe problem. Subsequent actions by residents to install flood control devices substantially alleviated this problem. Currently, about 50 homes in the village experience severe basement sewer backup. Some of these basements flood every time it rains while others flood 8 to 10 times each year after 1/2 inch or more of rain.

There are two viaducts in the village; one floods every time it rains and the other whenever it rains 2 or more inches.



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Street Flooding

City Limits

Combined Sewer Area

SUMMIT

There was no reported overbank, highway, or expressway flooding in Summit.

ACTIONS TAKEN BY COMMUNITY

Summit has initiated the following flood relief measures:

--Began a continual power rodding program to insure maximum capacity of sewer lines.

--Implemented MSD recommendations for overhead sewers, injector pumps, and disconnected downspouts on new construction.

--Required disconnection of all downspouts.

ACTIONS TAKEN BY RESIDENTS

According to village officials, Summit residents began to install flood control devices after EPA denied funding for a 1973 sewer relief project. Village officials estimated that out of the villages 2,500 buildings, 90 percent had basements and 80 percent had the following control devices

--1,200 contained sump pumps;

--600 had standpipes; and

--250 included check valves.

These individual actions have been effective in alleviating basement sewer backups.

IMPACT OF TARP

Village officials anticipate no benefit from TARP since street flooding problems in Summit are due to inadequate local sewer capacity.

COMMUNITY PLANS

Summit received an EPA grant for $15,000 for an engineering study of its sewer system. As a result of this study, which was completed in 1973, the village applied for an EPA grant for engineering plans for a proposed $3.5 million relief sewer construction project. However, EPA advised the village that it was ineligible for funding as the proposed construction had no pollution abatement benefits. The proposed project would upgrade the current system to handle a 10-year frequency storm and eliminate the village's combined sewer backup problem.

A village official noted that Summit has insufficient resources to finance the relief sewer construction project and needs substantial funding from some governmental source. Officials indicated that many residents would not support a bond issue to eliminate street flooding because they have already invested in flood control devices.

SECTION 53

WESTERN SPRINGS

BACKGROUND

Western Springs, in western Cook County, has a population of 13,800 and comprises 3.8 square miles of flat terrain. The village is 98 percent developed and includes 4,250 single-family, 50 multiple-family dwellings, and about 100 commercial businesses. The 1977 median family income was $30,595.

Western Springs has both combined and separate sewer systems, each serving about 50 percent of the village. The combined system, built in the early 1900s, serves the area north of 47th Street. The area south of 47th Street is served by separate sewers which were built between 1940 and 1960. Drainage from the separate sewer area is pumped into the combined sewer system at Hillgrove and Clausen Avenues.

According to a village official, both the combined and separate systems are in good condition.

EXTENT OF FLOODING

Overall, flooding in Western Springs is an infrequent problem. However, severe basement flooding (in a limited number of homes) and street ponding occurs in some sections of the village due to the inability of local sewers to handle heavy storm flows which occur about four times a year. (See map, p. 223.)

Prior to 1969, almost 50 percent of the homes experienced basement backups. Since that time, most residents have installed various flood control equipment to alleviate flooding problems.

The following flooding conditions exist in the village:

--Basement flooding still occurs in about 12 homes throughout the village. These are the homes where residents have not installed flood control devices.

--Street flooding occurs in both the combined and separate sewer areas. The most serious flooding occurs in the northeast and northwest sections of the village, with moderate and infrequent flooding occurring in the south section. A 1977 engineering study states that unless the village is willing to spend an exorbitant amount, there is no alternative to the present

situation of temporarily storing storm water in the streets.

Overbank flooding from a drainage area causes ponding in one yard in the south section of Western Springs.

ACTIONS TAKEN BY COMMUNITY

According to village officials, the community has taken various actions to alleviate flooding problems. For example:

--The village installed a pumping station in the separate sewer area which pumps storm water directly into Flagg Creek when storm sewers become overloaded.

--The village has ordinances or regulations requiring disconnection of downspouts from all sanitary and combined sewers and installation of overhead plumbing and sump pumps in all new construction.

--Public works officials investigate every report of basement flooding and see that necessary repairs are made to the sewer system or suggest solutions to the resident, as appropriate.

--The village rods the entire sewer system annually and trouble spots every 6 months.

--All catchbasins are cleaned about twice a year. Approximately 8 to 10 basins are replaced and 50 are repaired annually.

--All sewers are inspected each year.

--Streets are swept at least once a week when weather permits.

ACTIONS TAKEN BY RESIDENTS

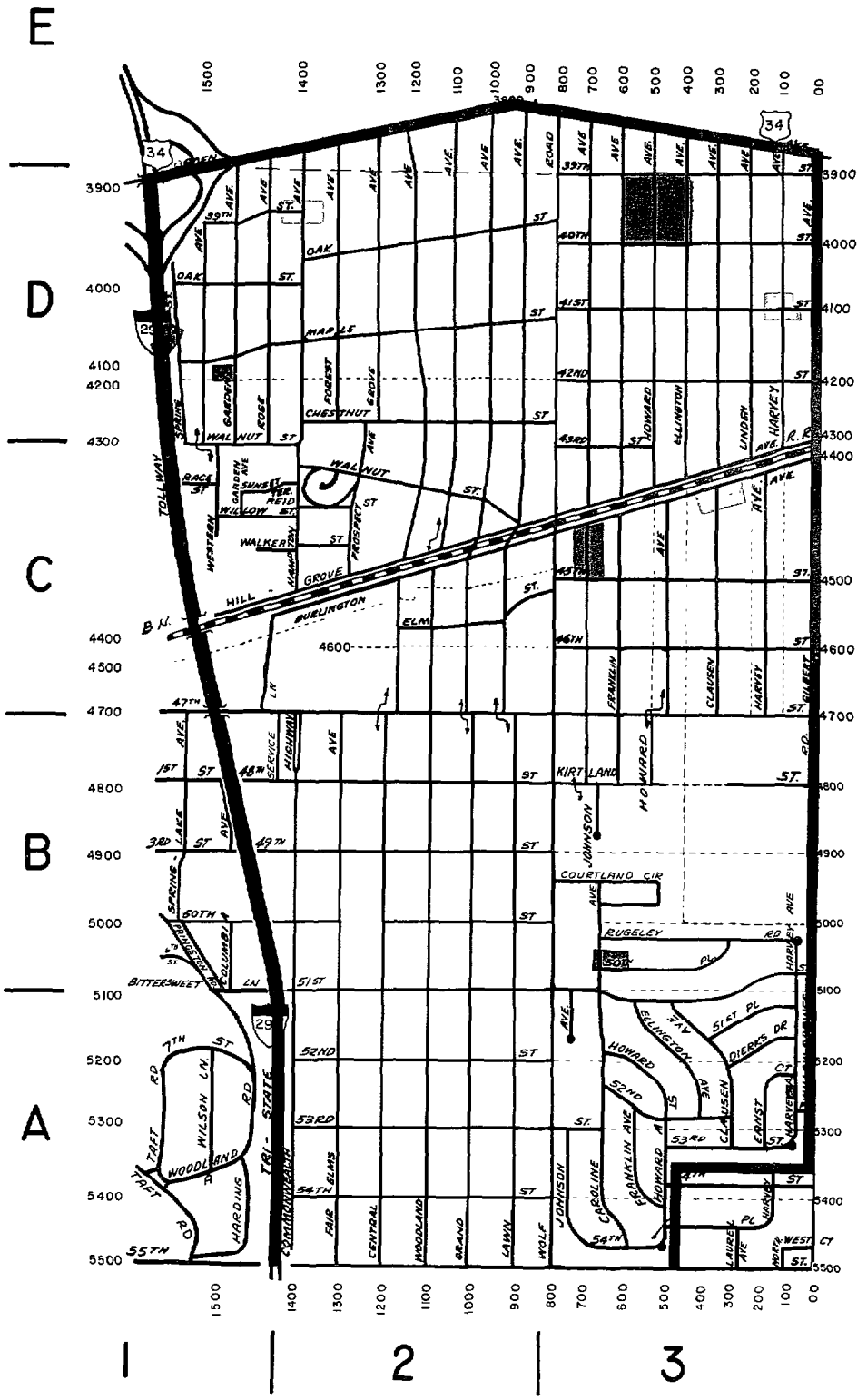
A village official estimated that residents have taken the following actions to alleviate their flooding problems

--100 have rodded out sewers;

--2,000 have installed removable drain plugs, standpipes, or check valves;

--3,000 have installed sump pumps discharging into yards;

--3,000 have disconnected downspouts; and



WESTERN SPRINGS

--15 have waterproofed basements.

Many Western Springs residents use more than one flood control device. Officials estimated that probably only a dozen residents are not using some type of flood control measure.

IMPACT OF TARP

Village officials estimated that local sewers will require improvements costing $3.5 million to $7 million to effectively connect with TARP. They feel that, even though the cost is extremely high, TARP is still the best overall solution to the village's flooding problems.

COMMUNITY PLANS

An EPA funded engineering study, completed in 1978, recommended various alternatives to control flooding. As mentioned above, village officials estimated that $3.5 million to $7 million is needed to upgrade the local sewer system and connect to TARP. The village has no current plans for sewer upgrading because of the lack of local financing.

No other flood-related actions are currently contemplated by Western Springs.

SECTION 54

WILMETTE

BACKGROUND

Wilmette, in northern Cook County, has a population of 32,134 and comprises 5.4 square miles of flat terrain. The village is 95 percent developed and includes 7,986 single- and 1,844 multiple-family dwellings and 370 businesses. The 1977 median family income was $29,140.

Wilmette has both combined and separate sewer systems, each serving about 50 percent of the village. The combined system, built around 1900, serves all buildings east of Ridge Road. The separate system was built between 1930 and 1955 and serves the area west of Ridge Road. There are no direct connections between the combined and separate sewer systems.

According to a village official, the combined sewer system is in fair condition with some pipes near collapse, whereas the separate system is in good condition.

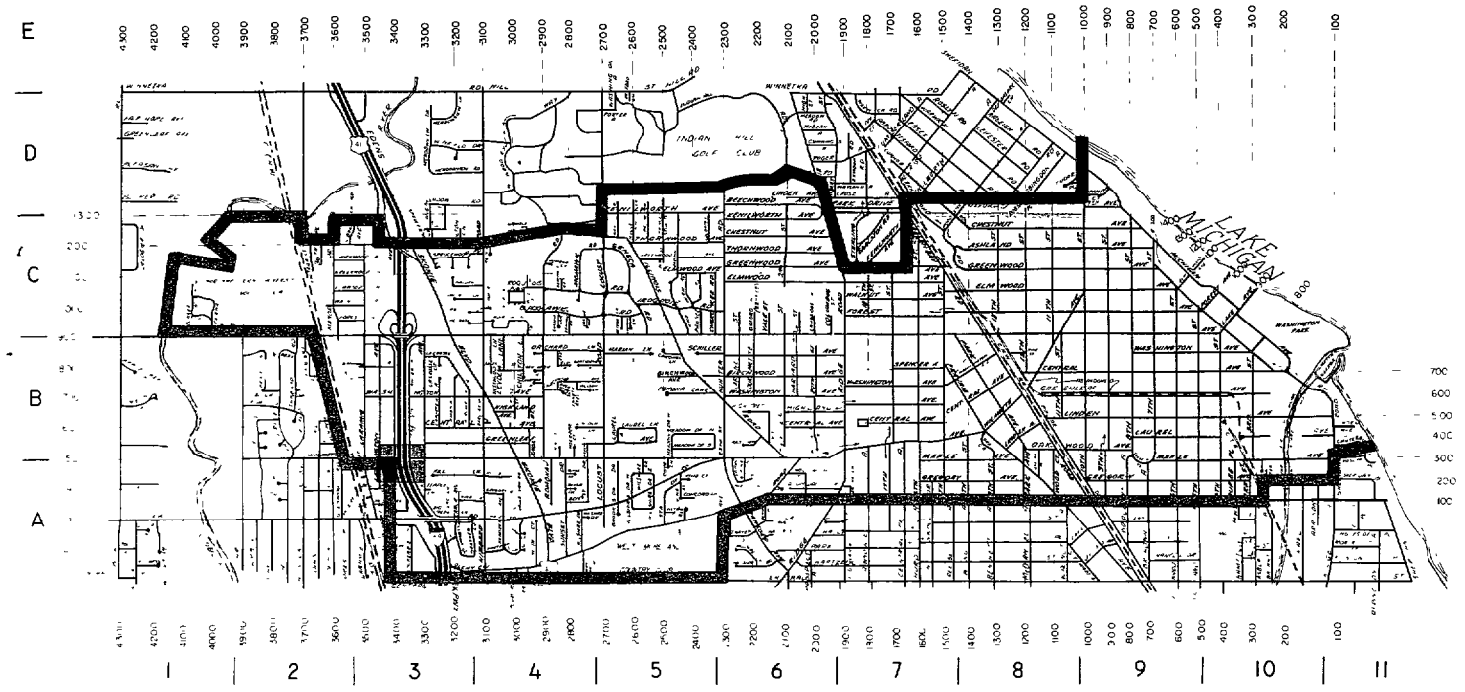
EXTENT OF FLOODING

Wilmette experiences serious flooding problems throughout the village. (See map p. 227.) According to a village official, this flooding occurs two to three times a year when inadequate local sewers and MSD interceptors become overloaded causing basement sewer backup and street flooding. The following flooding conditions exist in the village.

--Basement backup flooding is a widespread problem in both the combined and separate sewer areas. The most serious flooding occurs in the northeast and southwest sections of the separate sewer system and the southwest section of the combined sewer system.

--Street flooding occurs throughout the village with most problems in the combined sewer area.

This village has not experienced overbank flooding.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LAKE MICHIGAN
INDIAN HILL GOLF CLUB
WINNETKA
Severe Sewer Backup
Viaduct Flooding
City Limits
Combined Sewer Area

WILMETTE

ACTIONS TAKEN BY COMMUNITY

Wilmette has taken various actions to alleviate flooding problems. For example:

--The village requires that all new parking lots and the roofs of all new apartment buildings be constructed to retain storm water.

--The village has adopted all standard MSD ordinances regarding retention of storm water on new construction.

--The village passed an ordinance which prohibits connection of downspouts on new construction and requires sump pumps and ejector pumps be provided on new construction and older buildings being remodeled. Downspouts on all public buildings have been disconnected.

--The village has promoted downspout disconnection and installation of flood control devices through articles in the village newsletter.

--In 1976 village contractors constructed a storm relief sewer in the separate sewer area to reduce street and basement flooding.

--Over the past 10 years, the village has increased the capacity of a pumping station which discharges storm water into the North Branch of the Chicago River.

--The village has installed restrictors in sewers on 5 to 10 percent of the streets, and has an ongoing program to seal lift holes in all sanitary sewer covers to reduce storm water infiltration.

--In 1978 the village completed a 2-year program to jet clean both sewer systems and all catch-basins were cleaned during fiscal year 1977. The village is continuing an annual program of jet cleaning both sewer systems.

--Sewer inspections and repairs are done on an as-needed basis.

--All streets are cleaned each month, weather permitting.

--Between June 1968 and September 1969, the village used smoke detection techniques to identify 400 illegal connections in the separate sewer area. To date, village actions have resulted in homeowners compliance in all but three of these cases.

--During the period 1957 to 1977, the village funded three engineering studies dealing with the adequacy of the sewer system and effect of TARP on the village.

A village official stated that the above actions were effective in reducing flooding in the village. He estimated that storm water runoff has been reduced or delayed by about 15 to 20 percent.

ACTIONS TAKEN BY RESIDENTS

Some homeowners have installed flood control equipment such as standpipes, check valves, and overhead sewers, but officials were unable to estimate the number of homeowners who have done so. One official estimated downspouts have been disconnected on 25 to 30 percent of the buildings in Wilmette.

IMPACT OF TARP

A village official said that TARP phase I and II will significantly reduce flooding in the village by relieving overloaded MSD interceptors. He said it will be necessary to upgrade the village's sewer system to fully eliminate flooding and achieve the benefits of TARP.

COMMUNITY PLANS

In 1978 the village applied for a $247,500 EPA grant to study the sewer system and determine what sewer upgrading was needed. EPA has approved a grant for $82,650 which includes phases I and II of the study. The village hopes to fund part of the construction costs to upgrade the sewers through EPA grants and the remainder through a bond issue and/or increased water rates.

The village has no other current plans for flood-related actions.

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