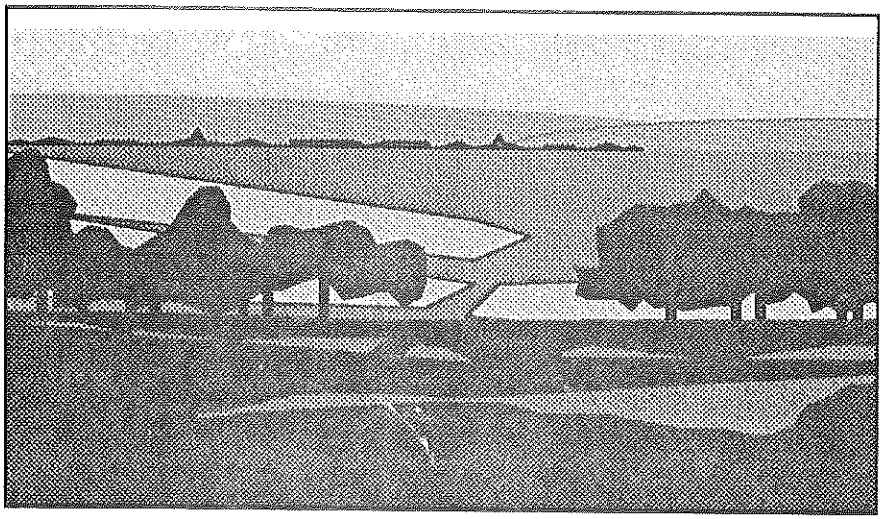
Southern Reservoirs Study



Prepared by:

The Oneida County Department of Planning

and

The Oneida County Environmental Management Council

1987

SOUTHERN RESERVOIRS STUDY

December, 1987

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Town of New Hartford
Utica Board of Water Supply

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I. INTRODUCTION

In response to the draining of Southern Reservoir #2 by the City of Utica Board of Water Supply in the fall of 1986, an informational meeting was called by the Oneida County Department of Planning on November 13, 1986. The purpose of this meeting was to get the interested parties together to discuss the future of the Southern Reservoirs site, in light of the draining of Reservoir #2 and plans announced by the Water Board to drain Reservoir #5. Officials from the City of Utica, Utica Board of Water Supply, Town of New Hartford, Oneida County Health Department, Oneida County Planning Department, Oneida County Environmental Management Council and New York State Department of Environmental Conservation attended this meeting. It became apparent during this meeting that there were many complex and competing interests involved in the issue of the future of the Southern Reservoirs site. The end result was that the Oneida County Environmental Management Council (EMC) and the Oneida County Department of Planning, agreed to undertake a study concerning the Southern Reservoirs site.

The purpose of the Southern Reservoirs study is to provide an increased level of information for use by those individuals and groups who may effect the future of the Southern Reservoirs site. This information will take two forms. The first is by way of the data and material which is contained in sections II through VI of this report. This includes:

(a) a general description of the Southern Reservoirs site;

(b) an attempt to identify and research the issues and factors which may influence the reuse of the site; and

(c) an analysis of the general need and feasibility of establishing certain recreational facilities and housing on the site.

The second way in which we have tried to provide a broader base of information concerning the reuse of the Southern Reservoirs site, is through a set of three conceptual land use plans for the site. These three conceptual plans are intended to illustrate what we believe is a range of potential development options for the Southern Reservoirs site. It should not be inferred that the uses depicted in these conceptual plans are the only uses which could be successfully established on this site. However, the surrounding land uses, capacity of the existing infrastructure and the physical characteristics of the site suggests to us that the type and scale of development shown in Section VII in Figures 22, 23 and 24 would be very appropriate for the Southern Reservoirs site. In addition to those uses specifically depicted, other, complimentary uses could also be incorporated into any future use and design of the site.

It is our hope that these conceptual plans will point out some alternative possibilities for the reuse of the Southern Reservoirs site, and also stimulate and focus further discussion on this issue based on the facts presented. While we have provided a suggestion as to a phased approach for the future use of the site it is not our intention to emphasize this aspect of the report. We would prefer that the basic data and conceptual plans be used by the public and government officials to draw their own conclusions.

There are also a number of related issues not addressed in this report, which will have to be addressed while considering the fate of the Southern Reservoirs site. It should also be understood that more detailed studies will be

necessary after a preliminary direction for the site is chosen, and these steps are outlined in Section VIII of this report. For example, if it is eventually decided that the site should be used for housing, the developer may need more detailed physical data and a market study before financing can be obtained. On the other hand, if it is decided that the site should be used for public recreation, the municipal bodies involved will want to see more technical and financial information than provided in this report regarding the feasibility of such a venture, before agreeing to become involved. In other words, we view this report as a starting point for deciding the future use(s) of the Southern Reservoirs site.

II. BACKGROUND INFORMATION

GENERAL SITE DESCRIPTION

The 214 acre Southern Reservoirs site is located in the northeastern section of the Town of New Hartford, with the City of Utica municipal limits located very near to the northern and western boundaries of the site (see Figure 1). The site contains three reservoirs which were constructed in the mid to late 1800's for water supply purposes. The three reservoirs total 70 acres in surface area, with the largest (#4) comprising 34 acres. Table 1 provides the relevant information for the three reservoirs. Only one of the three reservoirs, #4, is currently being utilized as part of the water supply system by the City of Utica Board of Water Supply. Reservoir #4 receives the water which it stores, and eventually distributes to the water system, from Hinckley Reservoir.

The reservoirs site is characterized by the presence of the three reservoirs, which vary considerably in elevation. The embankments of Reservoirs #2 and #5 slope to within several feet of Pleasant Street on the northern boundary of the site, and differ in elevation by 17.4 feet, with #5 having the higher elevation. Reservoir #4's embankment is 54.4 feet higher in elevation than #2, and 37 feet higher than #5. The difference in elevation between the reservoirs, particularly #4, is a key factor influencing site use considerations. Figure 2A, "Profiles," illustrates the change in elevation between the three reservoirs.

Two streams traverse the Southern Reservoirs site, flowing south to north. Sylvan Glen Creek, also labelled Ballou Creek in some documents and maps, enters from the southwest portion of the site and runs below Cascade Drive.

SOUTHERN RESERVOIRS STUDY
Locational Map

Figure 1

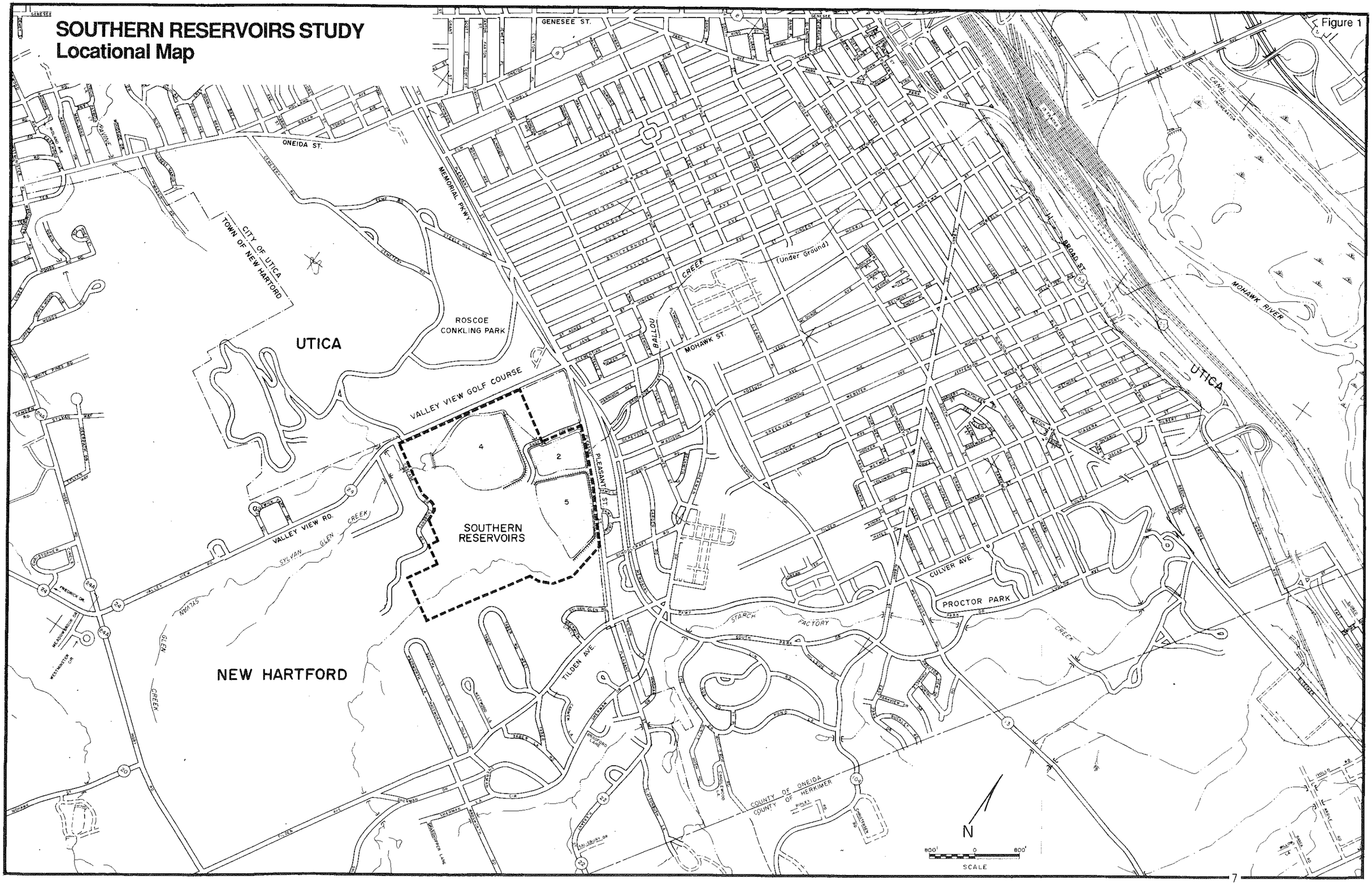


TABLE 1
SOUTHERN RESERVOIRS FACT SHEET

	RESERVOIR #2	RESERVOIR #4	RESERVOIR #5
Construction Date	1868	1886	1896
Reservoir Storage - Normal Pool (Gallons)	36,086,000	282,000,000	187,796,000
Reservoir Area[1]	12.6 acres	34 acres	23 acres
Length of Reservoir Pool[2]	850 feet	1,600 feet	1,500 feet
Maximum Height of Embankment[3]	25 feet	55 feet	34 feet
Normal Pool Depth	22 feet	51 feet	32 feet
Elevation - Normal Pool	600.6 feet	654 feet	618.5 feet
Elevation - Top of Dam	603.6 feet	658 feet	621 feet
Length of Dam	1,380 feet	1,700 feet	2,640 feet
Slope of Embankments (Upstream/Downstream)	66.6%/50%	50%/31.5%	50% (side slopes)

1 Reservoir Area equals the surface area of the water in the reservoir.

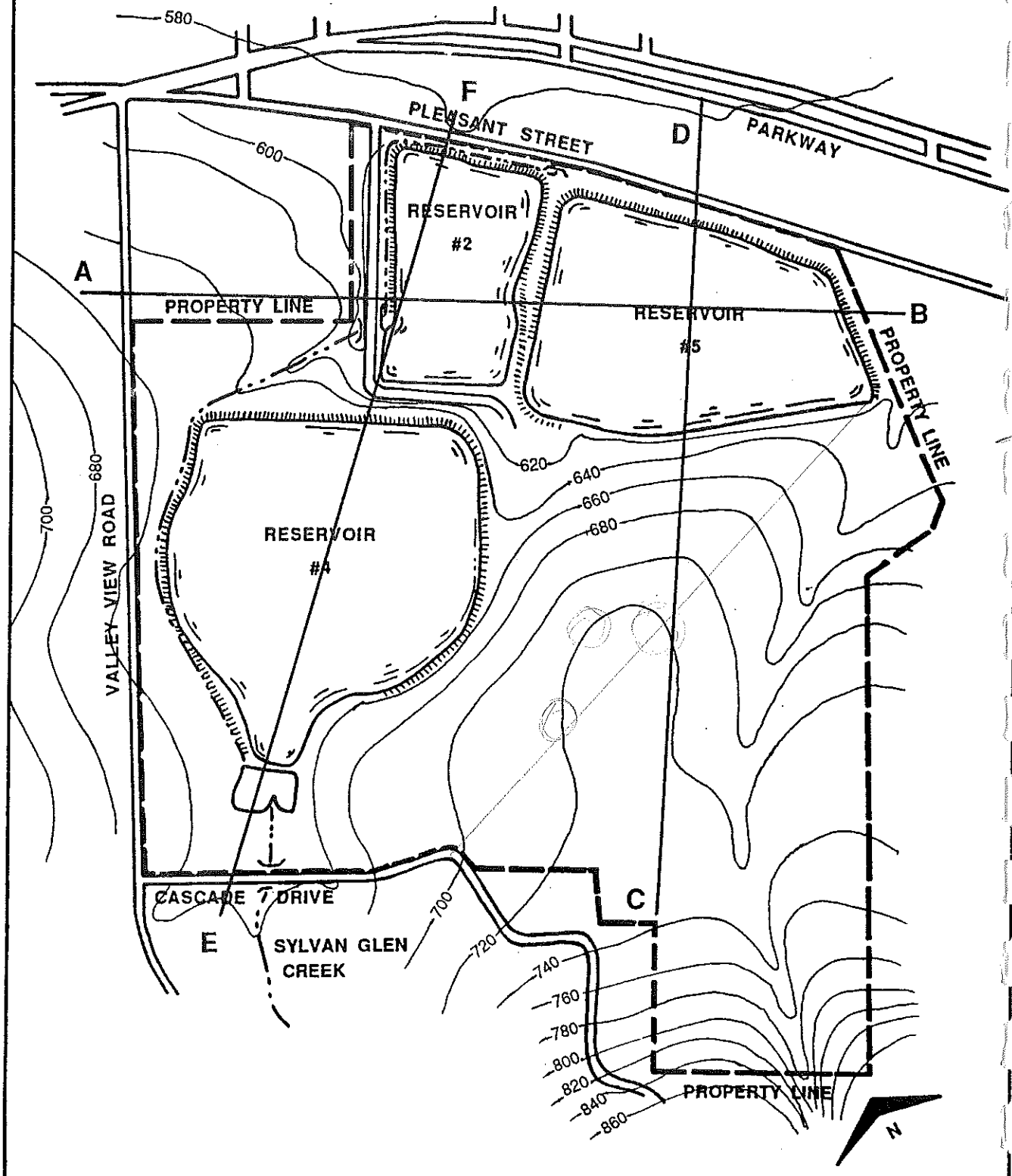
2 Length of Reservoir Pool equals the distance from one end of the surface of the water to the other end measured on the Reservoir's longest side.

3 Maximum height of embankment equals maximum reservoir depth

Source: Phase I Inspection Report - National Dam Safety Program, New York District Corps of Engineers (1978/1980).

SOUTHERN RESERVOIRS STUDY
Profiles - Aerial View

Figure 2



20ft. Intervals

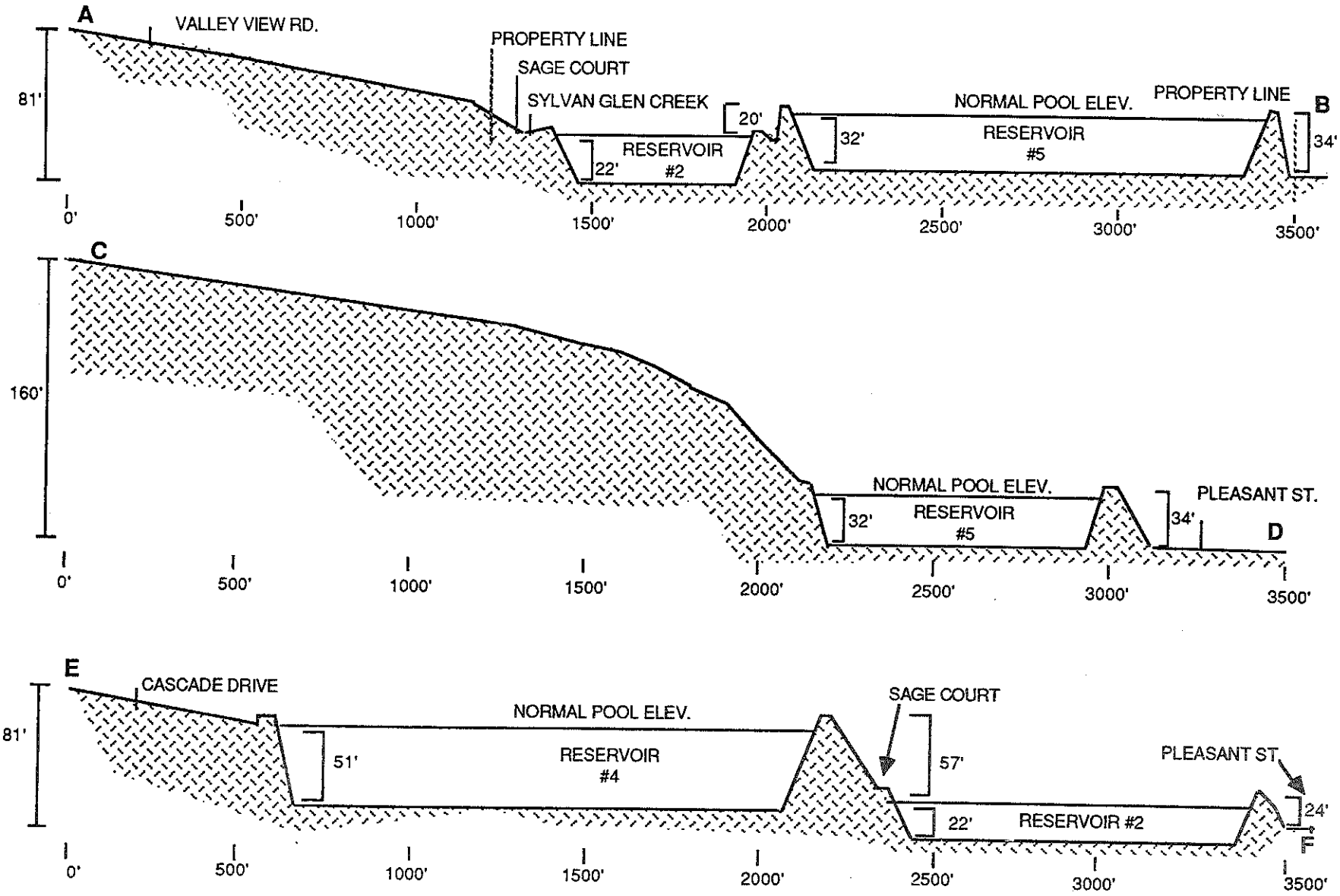
660 0 660

1"=660'

PREPARED BY ONEIDA COUNTY DEPARTMENT OF PLANNING

SOUTHERN RESERVOIRS STUDY
Profiles - Cross Sections
(* EXAGGERATED VERTICAL SCALE)

Figure 2A



Sylvan Glen Creek then flows into a retention basin, or ponding area, which is immediately adjacent to the southern tip of Reservoir #4. There is an earthen embankment which separates this ponding area from Reservoir #4. Sylvan Glen Creek then flows out of the retention basin along the western boundaries of Reservoirs #4 and #2, makes a sharp turn and then flows east along Pleasant Street before it is diverted underground, flowing beneath East Utica until it discharges into the Mohawk River.

Beckwith Creek flows into the site at the southern tip of the site, continuing through a deep and wooded ravine along the easternmost section of the site. This stream then enters a retention basin. The discharge from this retention basin is diverted underground in an easterly direction until it discharges into Starch Factory Creek.

The area between Reservoir #4 and Cascade Drive is wooded, as is an area which is near the center of the site and extends along the southern boundary of Reservoir #5. These wooded areas are also characterized by fairly steep slopes, especially along the eastern boundary of Reservoir #4, the center portion of the site and the southern boundary of Reservoir #5. The southern tip of the site is characterized by very steep slopes (greater than 15%), as are portions of the ravine which run through the eastern section of the site. A 15% slope means that there is a 15 foot change in elevation over 100 ground feet.

There is also an area within the reservoirs site which is approximately 20 acres in size which is not wooded, and is relatively flat. This area abuts

Cascade Drive and extends for approximately 1,000 feet in a northeasterly direction. This portion of the site was apparently farmed until the mid 1960's.

Also located on the site are a caretaker's residence, police firing range, pump houses and an outside storage area for various Board of Water Supply equipment. Figure 3 shows the existing land use for the site.

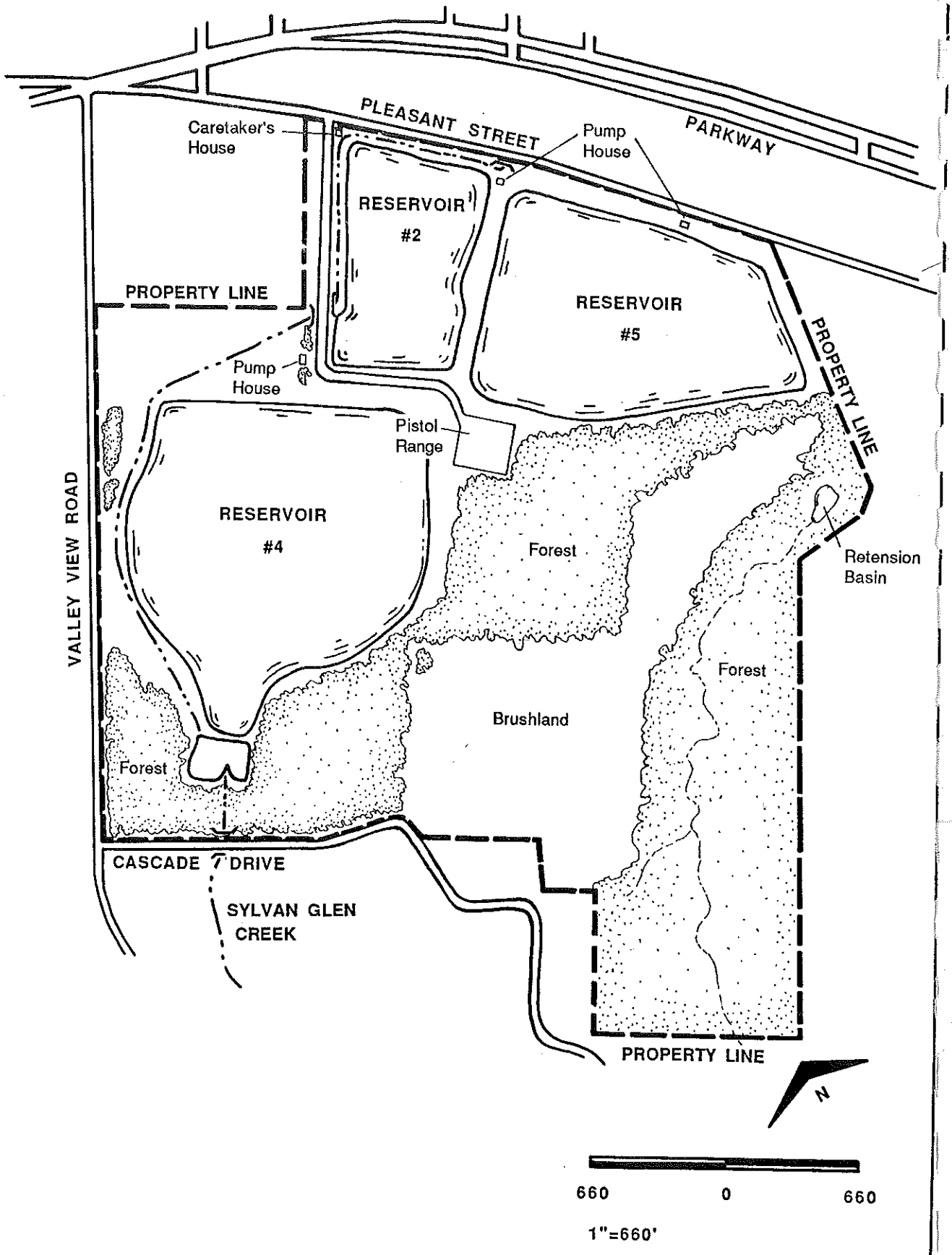
CONDITION OF RESERVOIRS EMBANKMENTS

The condition of the embankments of the three Southern Reservoirs is an important piece of background information because this question could have a bearing on the reuse of Reservoirs #2 and #5 and the continued use of #4. The three reservoirs located on the Southern Reservoirs site have all been inspected within the last decade. Reservoir #4 was inspected in July, 1978, while Reservoirs #2 and #5 were inspected in August, 1980. The site investigations were conducted by a private engineering firm under contract to the New York State Department of Environmental Conservation. The site investigations were authorized by the National Dam Inspection Act of 1972, which is administered by the U.S. Army Corps of Engineers.

The purpose of these "Phase I Site Investigations" is to note the condition of the embankments, spillway, and other appurtenant structures in order to assess whether or not the reservoirs pose a hazard to human life or property. The investigations are not intended to provide detailed structural and hydrologic analyses.

SOUTHERN RESERVOIRS STUDY
Existing Land Use

Figure 3



It is important to note that because the reservoirs were constructed some time ago (1868, 1886, and 1896), complete and accurate records of the materials and soils used in the construction process are not available. In some instances, only speculations can be made as to the structural elements of the reservoirs and the construction process which was utilized.

It is also important to realize that the condition of the embankments depend on numerous and constantly dynamic internal and external factors. It cannot be assumed that the condition of the embankments are the same today as they were when they were inspected, nor can one assume that the condition of the reservoirs today will remain the same in the future. The evolutionary nature of embankments and related structures calls for frequent site inspections and monitoring.

Reservoir #2: Reservoir #2 was inspected in August, 1980. This is the reservoir which was drained in the fall of 1986. It is the smallest of the three reservoirs and also the oldest, having been constructed in 1868. The embankment is constructed of earthen material and has a length of approximately 1,380 feet. No information is available as to the type of soil which was used in the construction of the foundation of the embankment.

Following examination of the embankment, the inspection report indicated that "the visual inspection revealed that the embankment is generally in good condition. Minor seepage has occurred over a long period of time at the toe of the northerly embankment. Woodchuck holes were detected on the downstream face of the embankment and localized sloughing at the waterline is suggestive of the

existence of muskrat burrows. The channel running along the westerly toe shows some evidence of displacement of its riprap. This condition could result in undesirable erosion of the toe of the embankment under high flows, therefore the riprap should be repaired."

Basically, the inspection revealed that the embankments are in relatively good condition. The report suggested continued surveillance to ensure that seepage does not worsen, and it also suggested that woodchucks and muskrats be eliminated from the reservoir site. In addition, as mentioned above, the riprap should be repaired to prevent further displacement and erosion.

Reservoir #4: Reservoir #4 was inspected in July 1978. It was constructed in 1886 and is the largest of the three reservoirs on the site. The embankment was constructed with earthen materials. The type of soil used in the embankment is unknown but the City of Utica Board of Water Supply speculates that the embankment may consist of clay.

In conducting the site investigation, it was noted in the report that "tall grass and vegetation covering the entire embankment may have obscured potential problem areas or evidence of unstable conditions."

However, two potential minor problems were discovered in the site investigation. "A large number of animal burrows were encountered over the entire downstream face, and ponded water surrounded by what appears to be saturated ground was observed at the downstream toe." It was noted that this ponded water may have resulted from a previous rainfall.

It was recommended that the tall vegetation should be removed and the grass should be mowed frequently to allow for continued monitoring of the embankment and related structures. As in the case of Reservoir #2, it was suggested that burrowing rodents should be removed from the reservoir site and their burrows should be filled.

Unlike the recommendations made for Reservoir #2, however, the inspection report recommended that "piezometers should be installed to monitor pore pressure development throughout the embankment."[1] The report also indicated that "since both the foundation geology and the materials used to construct the embankment are unknown, an exploratory boring program should be performed concurrent with the piezometer installations."

The inspection report basically recommends that the condition of the reservoir be monitored and certain precautions be taken to ensure that there is no potential hazard to human life or property. The report seemed to indicate that no real hazard existed at the time of the investigation.

Reservoir #5: Reservoir #5 was inspected in August, 1980. This reservoir is the most recently constructed of the three having been built in 1896. The reservoir embankment is constructed of earthen material and has a length of approximately 2,640 feet. Again, no records exist which indicate the type of soils which were used to construct the foundation of the embankment.

1 A piezometer is an instrument used to measure the changes in water pressure on a structure. In this instance, the "structure" would be the reservoir embankments.

The report stated that "the visual inspection revealed that the embankment is generally in good condition. Woodchuck holes were detected on the downstream face of the embankment and localized sloughing at the waterline is suggestive of the existence of muskrat burrows." The report suggests that woodchucks, muskrats, and other burrowing animals should be removed from the site.

The City of Utica Board of Water Supply has addressed most of the issues raised in the site investigation reports. In particular, the Board of Water Supply now has arranged for an individual to trap and remove burrowing animals from the site. Holes created by these animals are also filled routinely. Additionally, mowing of grass and vegetation on the embankments is now done regularly to allow for easier and more thorough visual inspections.

At this time, the only recommendation included in the report that has not been addressed is the installation of piezometers in the embankments of Reservoir #4.

An additional point worth noting is that all three of the reservoir structures (the embankments) are classified in the High Hazard Category as defined in the Recommended Guidelines for Safety Inspection of Dams, by the U.S. Army Corps of Engineers.

This classification has nothing to do with the physical condition of the embankments. Rather the high hazard classification is assigned to structures (embankments in this instance) which are located in close proximity to developed areas, and the topography downstream of the structure is such that

failure of the dam would cause floodwaters to be directed towards the developed area resulting in the possible loss of many lives and extensive property damage.

Although the three reservoirs and appurtenant structures were inspected at least seven years ago, the New York State Department of Environmental Conservation's Water Dam Safety Division has not indicated when the dams will be inspected again. The Water Dam Safety Division does not utilize a rigid dam inspection schedule.

III. SITE CONSTRAINTS/OPPORTUNITIES

The various constraints and opportunities present on the Southern Reservoirs site need to be examined prior to considering any future use of the site. For example, portions of the site with steep slopes, high water table and shallow depth to bedrock need to be delineated in order to determine where on the site development can occur without considerable site preparation costs, and what type of uses should be considered. The physiographic site constraints associated with the Southern Reservoirs site were examined in a general manner using soils surveys, wetland maps, site visits, aerial photography and topographic maps. It appears for at least the forseeable future that we can expect continued use by the Water Board of Reservoir #4 for water storage and distribution purposes. Therefore, not all of the site will be available for reuse. This issue will be discussed in greater detail in Section IV. For the purposes of this study, it is estimated that a 36 acre buffer around Reservoir #4 will be maintained by the Water Board, leaving approximately 144 acres for reuse consideration.

SOILS

A soil survey is a detailed inventory and evaluation of the most basic resource of an area - the soil.

Planners and others using the soil survey can evaluate the general impact a specific land use may have on the environment or overall productivity of an area. Plans for any type of development should maintain or create a land use pattern in harmony with the existing soils. If properly examined, soils information can help avoid soil related failures such as: cracked or fallen foundations, wet basements, erosion of soil or damaged roads.

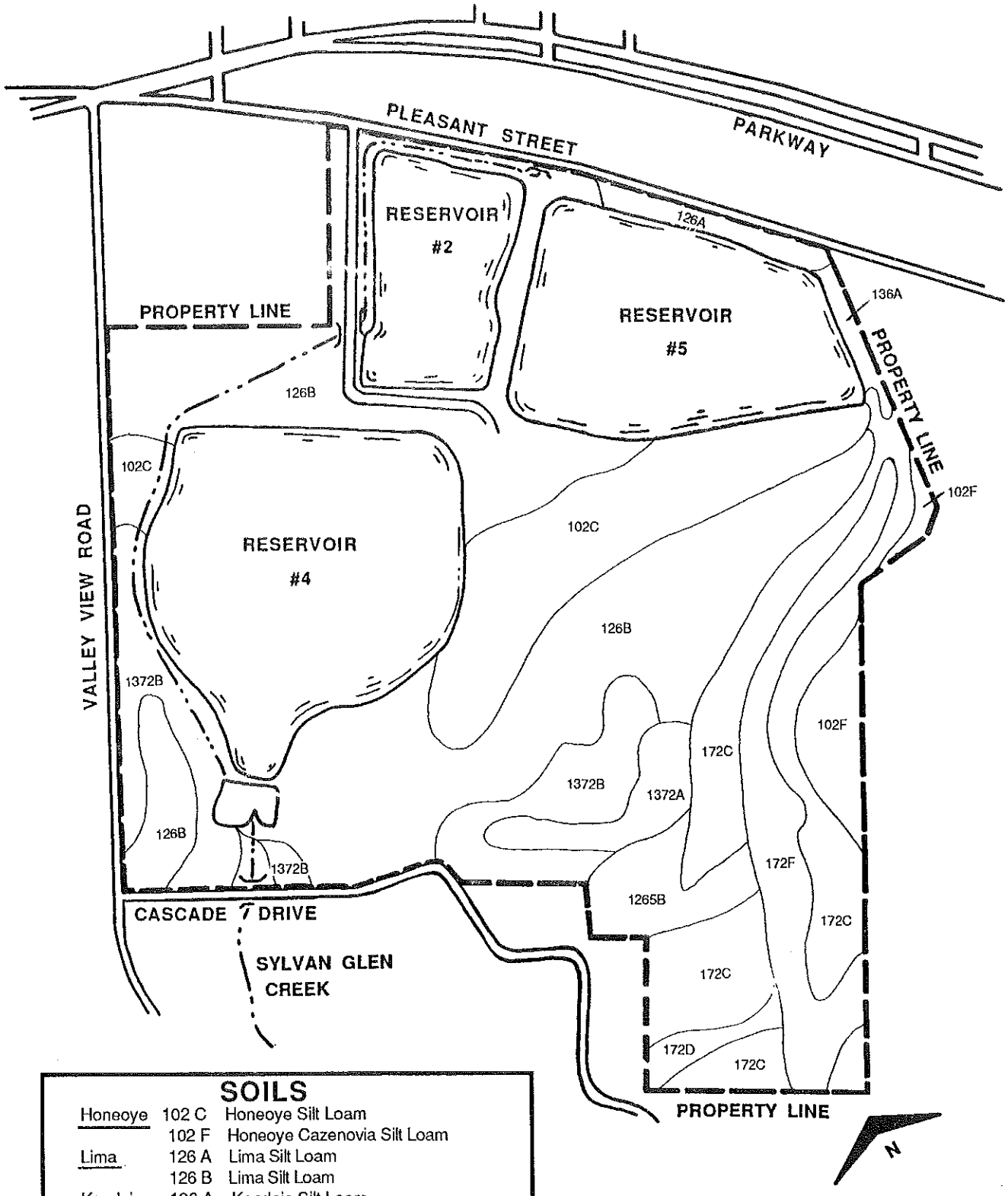
The information in this section of the report was extracted from a number of soil surveys which were prepared by the United States Department of Agriculture's Soil Conservation Service. Although this information may help in determining which land uses are best suited for the general area, on-site soil samples and more detailed investigations are necessary before any development should take place. Figure 4, "Soils," illustrates the various soil types and their location within the Southern Reservoirs site.

Although the text of the soil survey examines a number of different types of land uses, for purposes of this report, we will only examine a few of the uses categorized under "Building Site Development," "Recreational Development," and "Water Management." Each of the land uses examined in this report will have certain impacts which may affect the suitability to locate that use on a particular soil type. For example, soil properties such as wetness, slope, and depth to bedrock may have an effect on whether the site can be used for building homes with basements, without taking corrective measures. However, the effects of these same soil properties may not be as critical if the site was to be used for certain recreational uses. Because of this variation, soil properties are rated in the soil survey as slightly limiting, moderately limiting, or severely limiting for each particular type of land use.

It should be noted however that the information contained in the soil survey of Oneida County is a summary of general findings. Although a detailed soils map is prepared as a result of this survey, any land area which is less than 5 acres in size and is being considered for a particular use will need an on-site investigation to determine the exact extent of any limitation arising from soil properties.

Figure 4

SOUTHERN RESERVOIRS STUDY
Soils



SOILS

Honeoye	102 C	Honeoye Silt Loam
	102 F	Honeoye Cazenovia Silt Loam
Lima	126 A	Lima Silt Loam
	126 B	Lima Silt Loam
Kendaia	136 A	Kendaia Silt Loam
Manlius	172 C	Manlius Channery Silt Loam
	172 D	Manlius Channery Silt Loam
	172 F	Manlius and Lordstown
Aurora	1265 B	Aurora Silt Loam
Appleton	1372 A	Appleton Silt Loam
	1372 B	Appleton Silt Loam

SOURCE: USDA Soil Conservation Service

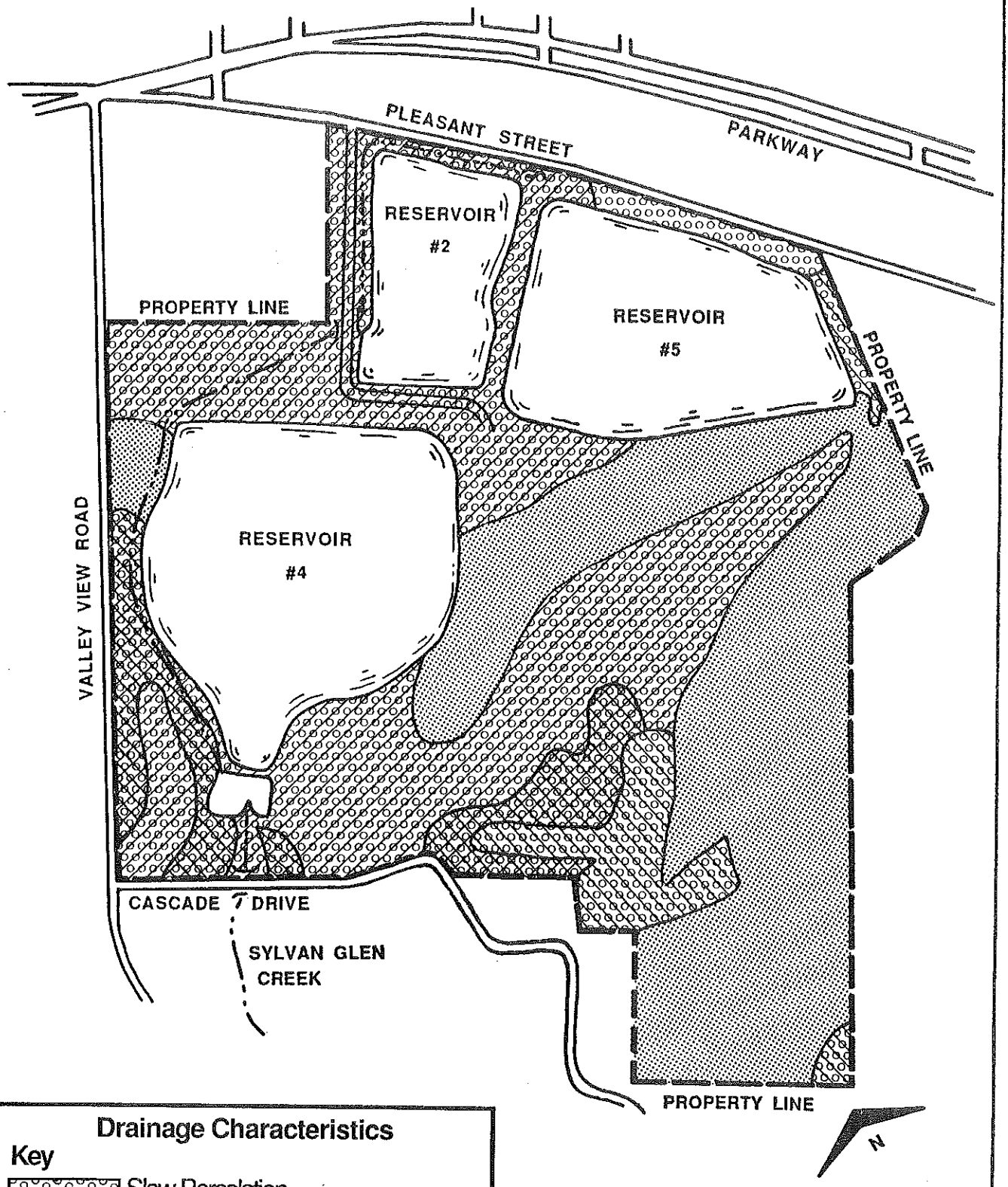
A slight limitation rating means that the soil properties are generally favorable, desirable for the use named and that any limitations are minor and can be easily overcome. A moderate limitation rating describes a limitation which can be overcome or alleviated by planning, design, or special maintenance. A severe limitation rating means that soil properties are generally unfavorable and limited by a hazard or restriction which can only be corrected through costly soil reclamation, special design, intensive maintenance or limited use. A rating of severe for a particular land use does not imply that a soil so rated cannot be put to that use, but rather the severe rating indicates a need for corrective, and probably expensive site preparation measures.

Drainage: Drainage of soil is affected by a number of soil properties. Some of those properties include: depth to bedrock, depth to water table, slope, permeability, surface texture and frost action. Soil permeability is a measure of the amount of water which can pass through the soil in a given amount of time. Permeability is an important item in rating soils for septic tank effluent disposal and stormwater management. Soils with rapid permeability are often rated as having slight limitations. Those with moderately slow to slow permeability are rated as severely limiting because sewage may rise to the surface instead of percolating down through the soil. In addition, stormwater may collect on the surface, or runoff a site in large quantities on soils with a slow permeability.

Figure 5, "Drainage Characteristics," illustrates a composite of drainage characteristics for the site including: slow percolation, slope, frost action and depth to seasonal high water table.

SOUTHERN RESERVOIRS STUDY
Drainage Characteristics

Figure 5



Drainage Characteristics

Key

- Slow Percolation
- Deep to Seasonal High Water Table
- Slope Limitations
- Frost Action

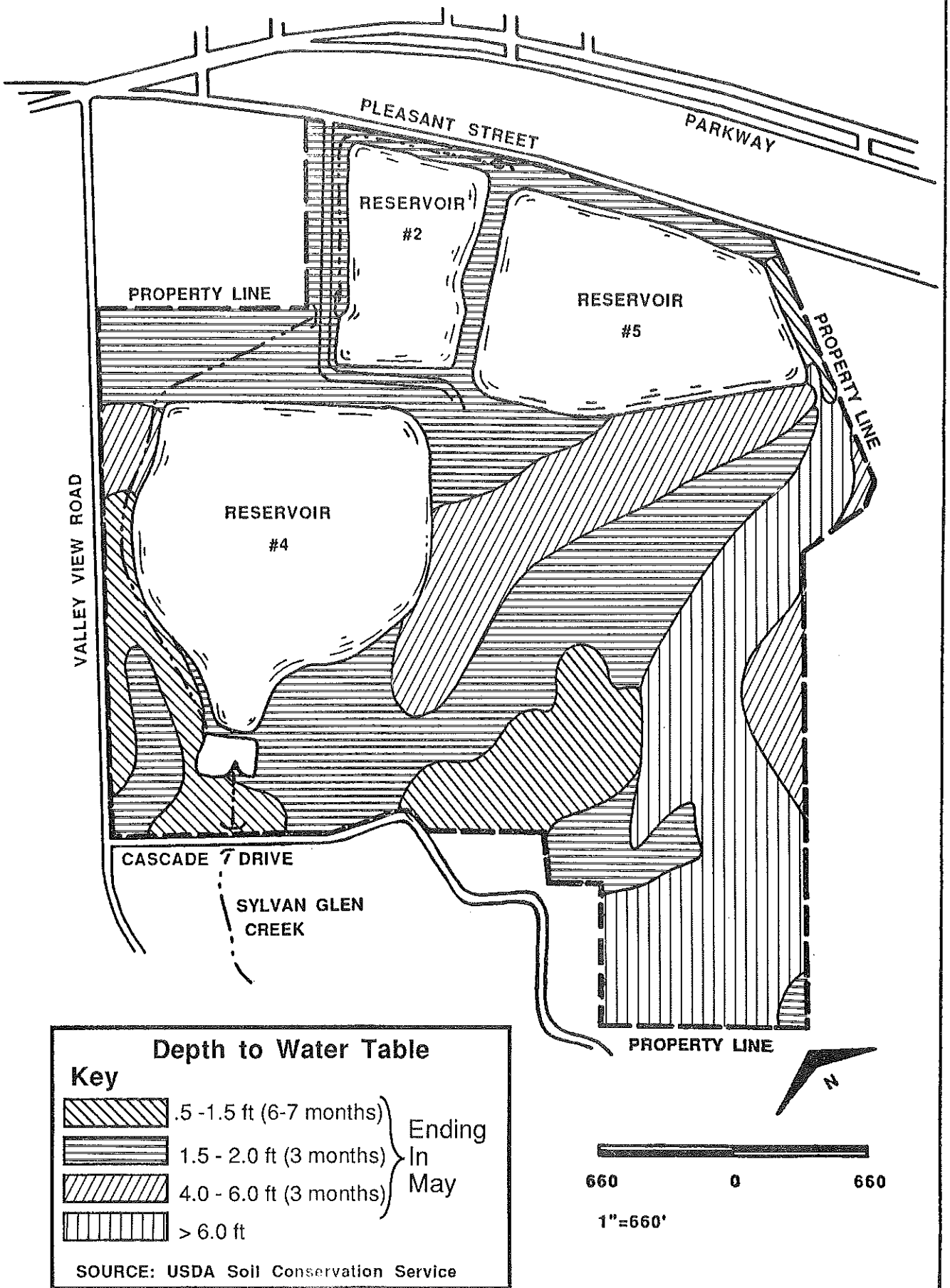
SOURCE: USDA Soil Conservation Service

Seasonal High Water Table: Information about the seasonal high water table helps in assessing which uses are best suited for a particular area in question. Such information may indicate the need for specially designed foundations, the need for specific types of drainage systems or the need for footing drains to insure a dry basement. Water table information may also be used to decide whether or not construction of basements is feasible and to determine how septic absorption fields or other underground installations will function. The ease with which excavation may be performed is also affected by the depth to the water table. The depth to water table is measured as the estimated depth at which free water will most likely be present in the soil during the wetter spring months. Only those depths less than six feet are indicated.

Within the Southern Reservoirs site, approximately 34 of the total 144 acres (that portion of the site not including the reservoirs themselves) have a depth to water table greater than six feet. This area is concentrated near the eastern boundary of the property. Approximately 25 acres of the site have a water table between four and six feet during the months of March, April and May. Approximately 65 acres of the site have a high water table between 1.5 and 2 feet, also during March, April and May. The remaining 20 acres, which are concentrated near the south central portion of the parcel and to the southwest of Reservoir #4, have an extremely high water table during the months of December through May. This area's depth to water table is between .5 and 1.5 feet. Figure 6, "Depth of Water Table," indicates the varying depths to the water table relative to soil types.

Figure 6

SOUTHERN RESERVOIRS STUDY
Depth of Water Table



Depth to Water Table

Key

- .5 -1.5 ft (6-7 months)
- 1.5 - 2.0 ft (3 months)
- 4.0 - 6.0 ft (3 months)

} Ending In May

- > 6.0 ft

SOURCE: USDA Soil Conservation Service

Buildings With Basements: This section will examine the soil limitations for small buildings with basements. This use refers to homes or low buildings of three stories or less. The main soil properties considered here are soil wetness, permeability, slope, stoniness and depth to bedrock. Nearly 85% of the reservoir site is rated as severely limiting for buildings with basements. The majority of this rating is due to soil wetness.

Soils which are wet most of the year, though not necessarily flooded, are rated as having severe limitations for most uses. Wetness of soils may be a limiting factor for buildings because of its relationship to soil strength. Generally, a soil containing a large amount of water has less stability than a soil containing a lesser amount of water. To prevent settling, shifting, and slipping of buildings, the stability or strength of a soil is an important property to consider for such uses which require the support of heavy loads.

Another soil property which accounts for a lesser part of the severe limitations for buildings with basements on the reservoir site is slope. Slope is usually expressed as a percentage of rise in elevation over a given distance. 0-5% slopes are relatively flat. Nearly level and gently sloping soils that have no other physical shortcomings, have slight limitations for most uses. However, slopes under 1% may present limitations for building development in that significant grading and fill material is required to insure adequate on-site stormwater drainage. Slopes from 1-5% are suitable for the most intensive form of development.

In the opposite extreme, soils with steep slopes have severe limitations for most uses. Slopes in the 11-20% range are considered steep. Slopes at the

lower end of this category may support low density residential uses, some agricultural uses, or passive recreational uses. Slopes at the upper end of this category are usually unsuitable for development. On steep slopes, soils present severe problems for buildings, roads and septic systems. Although erosion is not generally considered as being a critical soil property, the tendency for soil to erode is extremely high on steep slopes - as is the danger of soil slumping or collapse under weight. Development on steep slopes is possible but costs increase significantly when considering that special foundations and utility connections will usually need to be designed.

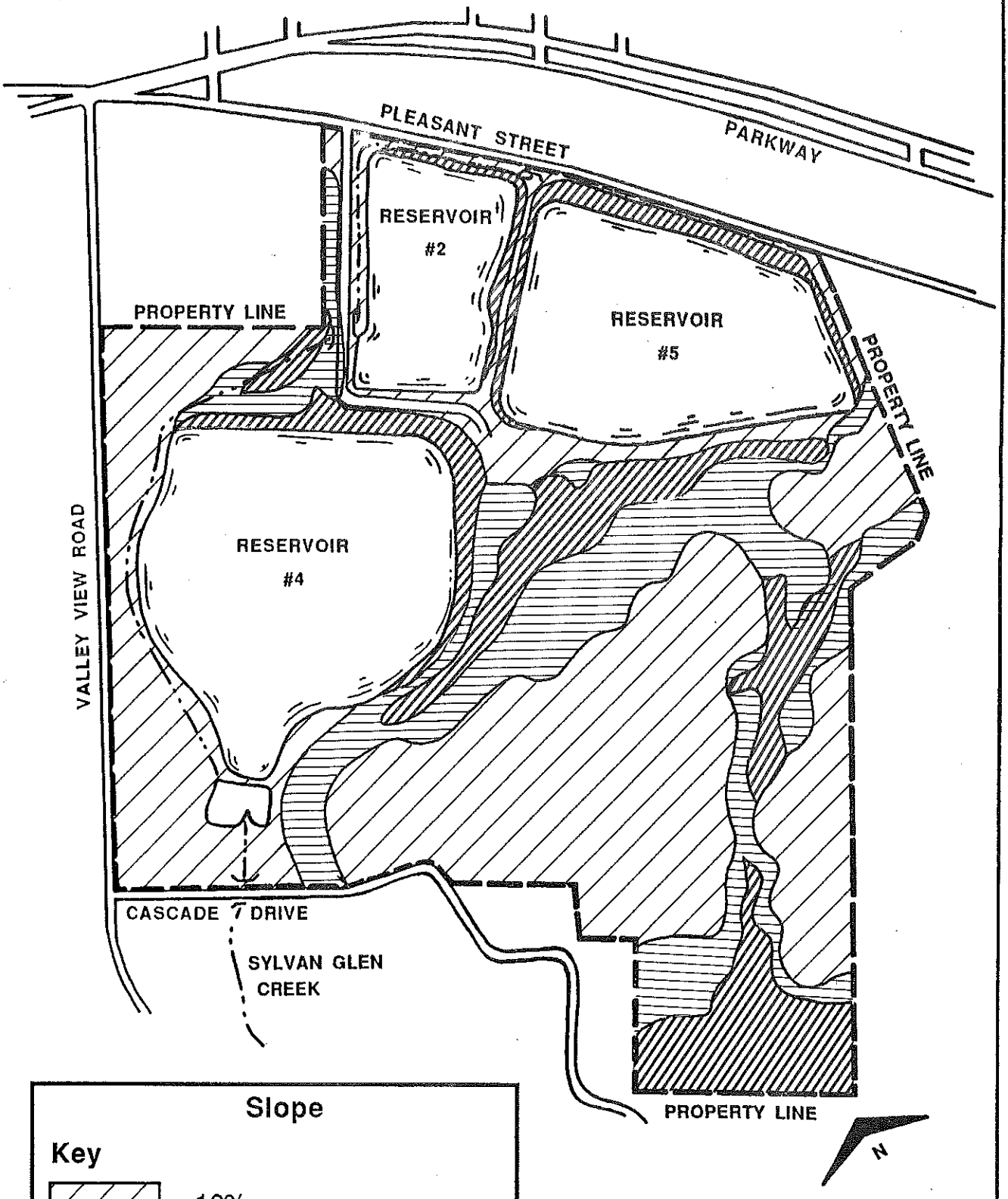
Soils with a 6-10% slope are considered moderate if other soil properties are excluded. Soils with other limiting properties, even if on minor or moderate slopes, may be unable to bear the weight of construction equipment, buildings, or traffic. Settling, shifting and slipping of soils can result in damage to buildings, streets and roads and can be a constant maintenance problem. Figure 7, "Slope," illustrates the varying slope on the Southern Reservoirs site.

The remaining soil property contributing to a rating of severe limitation for buildings with basements is depth to bedrock. A soils depth to bedrock is a property which may affect a variety of uses, especially if any excavating or grading is needed, such as with buildings. It is also generally difficult to establish certain vegetation on soils where the bedrock is close to the surface, which may limit the landscaping potential. Figure 8, "Depth to Bedrock" illustrates the depth to bedrock at the site as taken from the soil survey.

In general, 85% of the site is rated as severely limiting for buildings with basements due to the soil properties already mentioned; the remaining 15% of

SOUTHERN RESERVOIRS STUDY
Slope

Figure 7



Slope

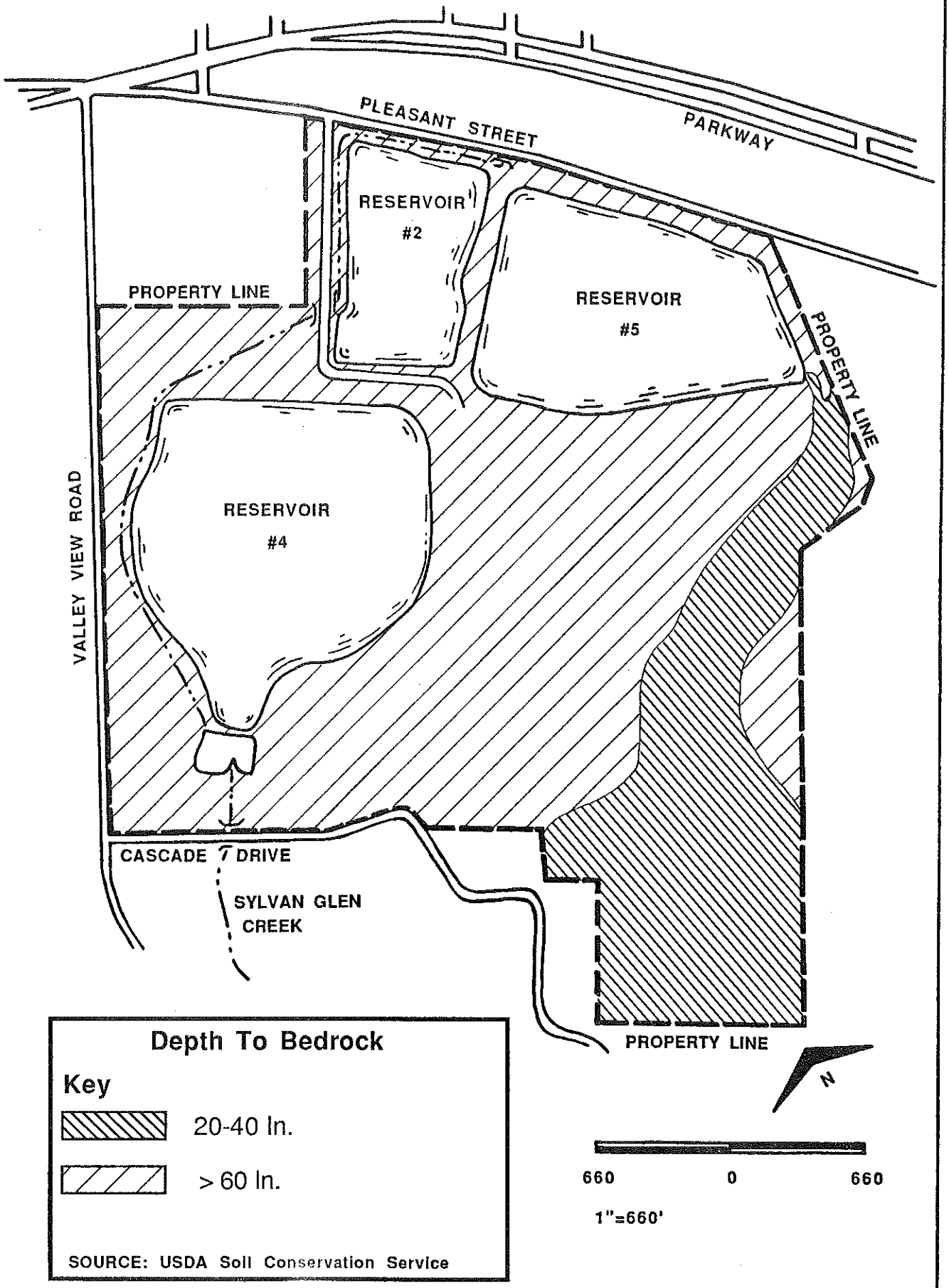
Key

- < 10%
- 10% - 15%
- > 15%

SOURCE: Utica East Quadrangle

SOUTHERN RESERVOIRS STUDY
Depth to Bedrock

Figure 8



the site is rated as only moderately limiting. The moderate limitations are due to the varying degree of slope for reasons discussed above. Figure 9, "Limitations for Buildings With Basements" illustrates the locations of the severe and moderate limitations for buildings with basements.

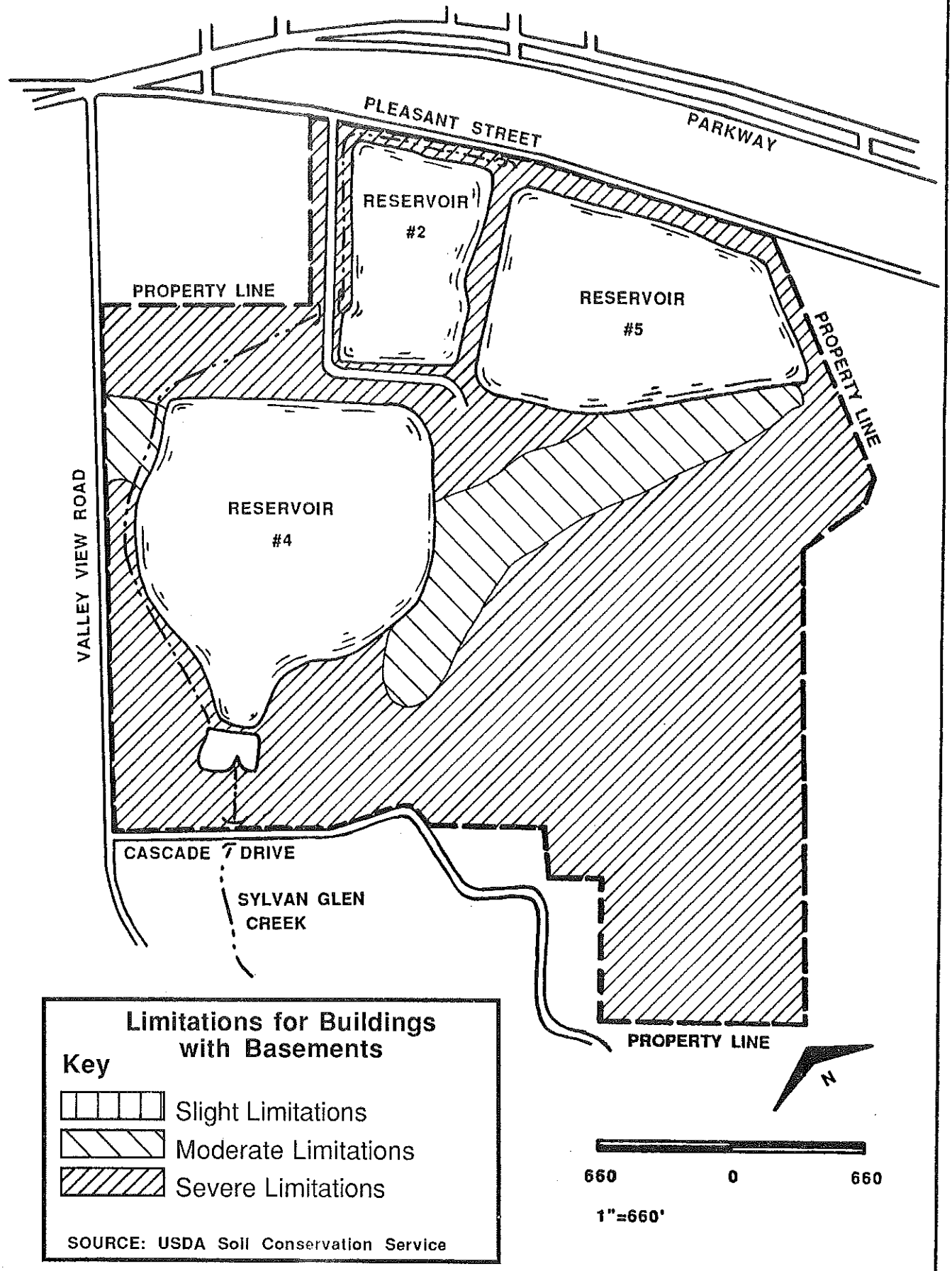
It is important to reiterate that soil ratings indicate the potential development limitations associated with a particular soil type. These limitations can be addressed through special design and construction measures, the cost of which depend upon the severity of the limitations. It appears that soil limitations similar to what are present on the Southern Reservoirs site are being addressed on land adjacent to the site, as evidenced by the development of single-family homes along Cascade Drive. It should be recognized that these homes are presently being built with basements.

Buildings Without Basements: By not constructing a basement, the soil rating changes dramatically for constructing buildings. The slab on grade technique reduces the impact of the soil limiting factors such as wetness by doing away with basement areas. When considering this type of construction (buildings without basements) only 25% of the site is rated as having severe limitations. The remaining 75% of the site is rated as moderately limiting due to lesser slope, soil wetness and depth to bedrock conditions. Figure 10, "Limitations For Buildings Without Basements," delineates the various soil limitations for buildings without basements, as determined by the Soil Conservation Service.

Picnic Areas: Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to

SOUTHERN RESERVOIRS STUDY
Limitations for Buildings with Basements

Figure 9



Limitations for Buildings with Basements

Key

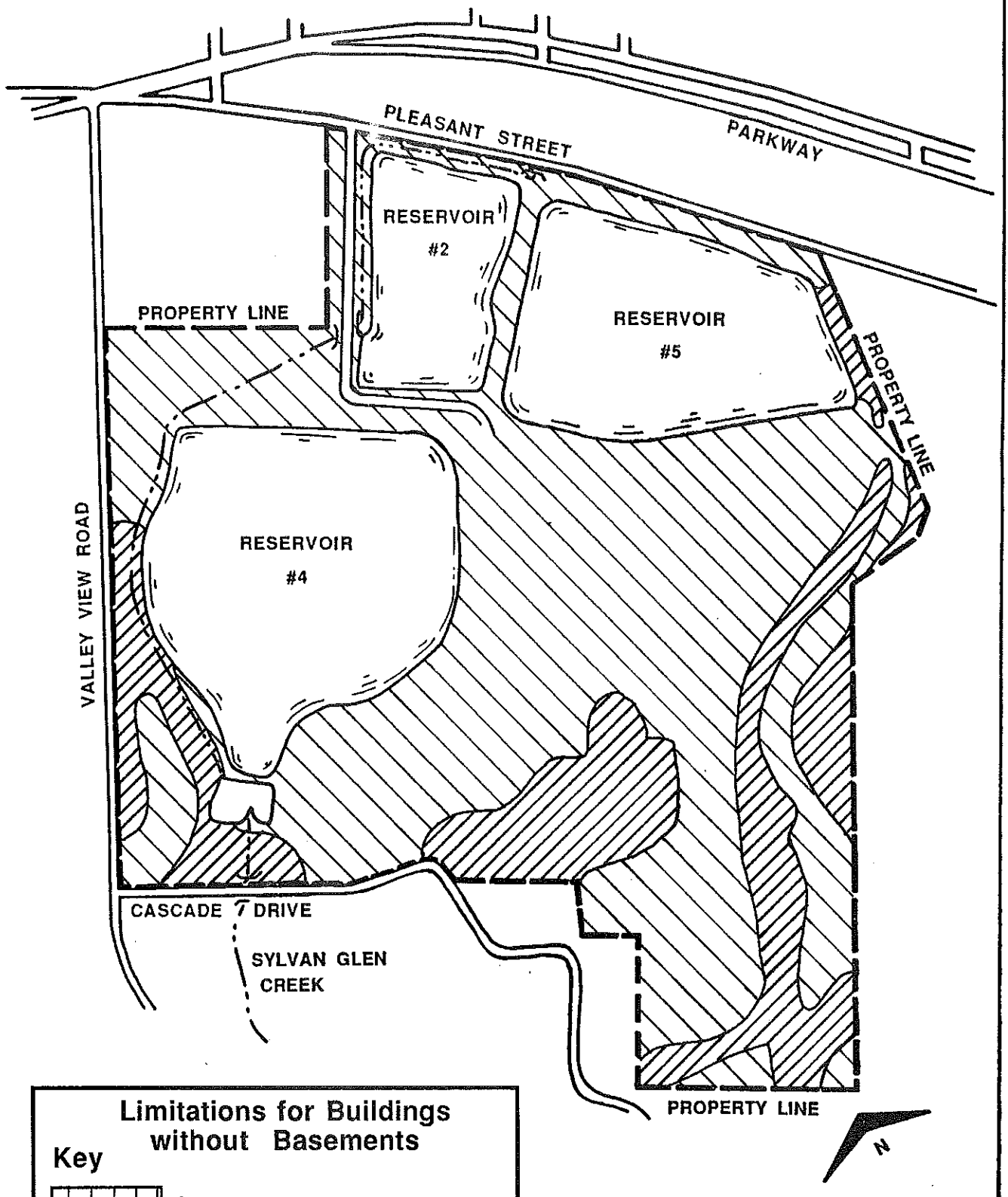
- Slight Limitations
- Moderate Limitations
- Severe Limitations

SOURCE: USDA Soil Conservation Service

SOUTHERN RESERVOIRS STUDY

Figure 10

Limitations for Buildings without Basements



Limitations for Buildings without Basements

Key

- Slight Limitations
- Moderate Limitations
- Severe Limitations

SOURCE: USDA Soil Conservation Service

flooding during the period of use, and do not have slopes, stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

On the reservoir site, 75% of the soils are rated as moderately limiting for picnic areas due to the slope, wetness, small stones and slow percolation rates. The remaining 25% is rated as severely limiting because of wetness and slope.

Paths and Trails: Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet. Because of the wetness of the soils at the reservoir, 46% of the area is rated moderately limiting for trails due to wetness. The wetness also partially contributes to the severe rating of 25% of the site. According to the soil survey, paths and trails should also be developed on moderate slopes. The slopes at the reservoir site contribute to some of the severe rating. The remaining 29% of the site is only slightly limiting for paths and trails.

Athletic Fields: Baseball, softball, soccer or other similar athletic activities require a finished area which is nearly level and able to withstand heavy foot traffic. Approximately 55% of the site is rated as severly limiting for the development of athletic fields. This is due primarily to soil wetness and texture, and also to steep slopes. The remaining 45% of the site is rated as having moderate limitations for the development of athletic fields due to soil wetness. Figure 11, "Limitations for Athletic Fields," delineates the areas with severe and moderate limitations for athletic fields.

IV. ISSUES AFFECTING SITE USE

CURRENT AND POTENTIAL WATER SUPPLY USES OF THE SOUTHERN RESERVOIRS

There are a number of issues and factors which could impact the reuse of the Southern Reservoirs site. Factors such as the physical characteristics of the site, and the need to use the site for housing or recreation are major issues requiring significant analysis and explanation, and are the focus of separate sections within this report. There are other factors which are of equal importance (but are less clear cut) which need to be addressed prior to formulating any plans for reusing the Southern Reservoirs site. This section will address those issues which are not the focus of an entire section.

Southern Reservoir #4 is the only one of the three reservoirs being utilized by the Utica Board of Water Supply. Reservoir #4 receives water for storage and distribution purposes from Hinckley Reservoir. Hinckley Reservoir is the source of all the water used in the entire water supply system operated by the Water Board. The Water Board does not have any record of Reservoir #2 being used for water supply purposes since the turn of the century. With the exception of a 30-day period during the drought of 1963, the Water Board also does not have any record of Reservoir #5 being used for water supply purposes since the turn of the century. During that period in 1963 when #5 was used to supplement the water supply, there was only one transmission line coming down to the greater Utica area from Hinckley Reservoir (there are now two) and, the Water Board has stated that "... a similar drought reoccurrence would not require the use of either Reservoir #2 or #5."[1]

1) Answering Affidavit filed by Russell S. LoGalbo, Principal Engineer for the Utica Board of Water Supply on behalf of the Commissioners of the Utica Board of Water Supply. State of New York Supreme Court, Oneida County, December 1986. Page 2.

The Water Board has indicated that it has no plans to drain Reservoir #4, nor to discontinue using #4 as a storage and distribution reservoir. At the present, approximately 300,000 gallons/day is fed from Reservoir #4 into the distribution system in East Utica by gravity during the day, and approximately 900,000 gallons/day is pumped from #4 into three separate storage facilities south of the reservoirs in the Town of New Hartford. The entire water system operated by the City of Utica Board of Water Supply uses approximately 20 million gallons/day (mgd) and Reservoir #4 provides 1.2 mgd, or 6% of the total daily needs of the water system. In general, the area of the water system which is serviced by water distributed from #4, is that area east of Oneida Street and south of Memorial Parkway.

According to an answering affidavit filed in the State of New York Supreme Court, Oneida County, "... the Water Board Commissioners decided to drain the subject reservoirs ... [#2 and #5] ... because they are not used, are not required for the public water supply, and for insurance liability reasons."[2] The Water Board has stated that they have not been able to obtain liability insurance for Reservoirs #2 and #5, and in July 1986, the Water Board's insurance consultant recommended that the Water Board drain the reservoirs for liability reasons. In addition, the Water Board has indicated that the abandonment of Reservoir #2 should result in an estimated savings of approximately $8,300 in annual real property taxes, and the abandonment of Reservoir #5 should result in an estimated savings of approximately $18,800 in annual real property taxes. These estimated savings are based on 1986 tax figures and are

2) Answering Affidavit filed by Russell S. LoGalbo, Principal Engineer for the Utica Board of Water Supply on behalf of the Commissioners of the Utica Board of Water Supply. State of New York Supreme Court, Oneida County, December, 1986. Page 2.

approximations. It should be noted that Reservoir #2 was refilled by the Water Board during the summer of 1987.

Two related issues which need to be addressed prior to discussing the various factors which may impact any potential use of the Southern Reservoirs site are:

1. The extent to which the two reservoirs not presently being utilized by the Water Board could be utilized during an emergency; and

2. The general outlook for continued utilization of Reservoir #4 as an open storage and distribution reservoir in the future.

The first point is important because the desirability of using the Southern Reservoirs site (excluding Reservoir #4) for something other than its current use could be diminished if Reservoirs #2 and #5 could serve as a dependable backup to all, or a portion of, the water system. According to the Water Board, Reservoirs #2 and #5 could be pressed into service if a catastrophic event occurred which damaged both transmission lines coming down from Hinckley Reservoir. This statement should be placed in the proper context so as not to be misleading.

The Southern Reservoirs are only capable of distributing approximately 10 mgd into the water system, from all three reservoirs combined. Based on the entire water system's needs of 20 mgd (and excluding hydraulic limitations, which are an extremely important factor) the Southern Reservoirs site could service 50% of the system's daily needs. Based on an output of 10 mgd (which would hypothetically serve 50% of the system during an emergency), #4 normally would

contain about a 20 day supply of water at any one point in time. Assuming that the Water Board would choose to utilize the water in #4 during the first 18-20 days of the emergency, Reservoirs #2 and #5 could be utilized after the 20th day of the emergency. Based solely upon the quantity of water which Reservoirs #2 and #5 contain when filled, the combined amount of water from #2 and #5 could hypothetically serve 50% of the system for approximately 22 days. This estimation does not take hydraulic limitations into account, which would be a particularly limiting factor in regard to utilizing #2 and #5 for water supply purposes.

This study assumes that the Water Board would utilize the water supply in Reservoir #4, prior to utilizing the water in either Reservoirs #2 or #5. The reasons for this appear to be straightforward. The first, and more critical reason has to do with the hydraulic limitations of the three Southern Reservoirs. As noted above, hydraulic limitations would impact the ability of all three of the Southern Reservoirs to serve as a backup and supply water to the distribution system. This is an issue because the elevation of the reservoir impacts the amount of water it could supply to the distribution system. According to the information listed on Table 1, the bottom of Reservoir #4 is at an elevation of 603 feet, #5 is at 587 feet and #2 is at 579 feet. The bottom of Reservoir #4 appears to be over 2 feet higher in elevation than the surface of Reservoir #2, and the bottom of Reservoir #4 is approximately 16 feet higher than the bottom of #5. Based on this information, it appears that Reservoir #4 would have the least problem with hydraulic limitations in the event an emergency would necessitate the use of the Southern Reservoirs as a backup to the system.

A second reason why this study assumes that the Water Board would utilize the water supply in #4, as opposed to the water in #2 or #5, is that the water in #4 should be of a slightly higher quality. This is because Reservoirs #2 and #5 have a significant drainage area (according to a Dam Inspection Report prepared through the New York District Corps of Engineers) and the water which enters both reservoirs is subject to contamination as the rainfall and snowmelt flows over the surface of the drainage area. This contamination could include animal feces, decaying organic matter, etc. It is also important to note that water levels in both Reservoirs #2 and #5 are presently maintained solely by precipitation, and are not fed by Hinckley Reservoir.

A similar Dam Inspection Report prepared through the New York District Corps of Engineers indicated that Reservoir #4 has virtually no drainage area due to local topography and is, therefore, not subject to contamination by water flowing over land and into the body of water. The water in #4 also is treated by means of disinfection and fluoridation as it is diverted from Hinckley Reservoir. This process, along with an absence of a drainage area for #4, should render the water in Reservoir #4 a higher quality than the water in either Reservoirs #2 or #5.

Another way to place the question of preserving Reservoirs #2 and #5 in context is to look at the total amount of storage within the water system, and the ability of this storage to meet the needs of the entire system in the event of an emergency. According to a recent NYS Department of Environmental Conservation report, there is a total of 408.6 million gallons (MG) of storage within the water distribution system. This amount includes Reservoir #4, but not Reservoirs #2 and #5. There are two other open reservoirs in the system, one in Marcy with a capacity of 15.2 MG and one in Deerfield with a capacity of 104

MG. There are fourteen other storage and distribution facilities located throughout the service area with capacities ranging from 6,000 gallons to 1,500,000 gallons. The combined storage from all the storage facilities represents a supply of approximately 21 days for the entire water supply system, based on the current average daily water consumption within the system.

There seems to be enough information available to draw the conclusion that Reservoirs #2 and #5 are of limited value to the Utica Water Board as a backup to the system in the event of an emergency. It appears that because of the 20 day supply of water normally in Reservoir #4, and the current total storage capacity within the system, Reservoirs #2 and #5 would not be utilized until close to the third week of any such emergency.

A related background issue which this study addressed was the ability of the Water Board, in light of current or foreseeable drinking water standards (or other additional regulations) imposed by the state or federal government, to continue to use Reservoir #4 for open water storage and distribution. Reservoir #4 is the dominant feature of the Southern Reservoirs site, and the ability to continue to use #4 as an open storage and distribution reservoir is a point which is crucial when discussing the various issues and factors which may impact the potential future use(s) of the Southern Reservoirs site. From the limited amount of research conducted on this issue, it appears that there are no state or federal regulations which will, in the foreseeable future, prevent the Water Board from maintaining #4 as an open reservoir for storage and distribution, even when the water entering the reservoir has previously been treated at a filtration plant.

The New York State Department of Health requires that a water supply system which is using an open reservoir for storage must disinfect (chlorinate) the water before it enters the distribution system. This requirement must be met regardless of whether or not the water entering the open reservoir has received prior treatment. It apparently is common, especially in the older water supply systems, for treated water to be fed into an open storage reservoir and then chlorinated prior to distribution. If in the future the Department of Health's position changes, and open storage is no longer permitted, Reservoir #4 could still be utilized for storage and distribution if the reservoir surface was covered.

It should be noted that there are advantages, as well as disadvantages to using an open reservoir for water supply storage. Two of the advantages are that a reaction occurs at the upper water level (mixing with air releases some volatile gases), and depending on the detention time, some degree of natural sedimentation occurs (heavier materials fall to the bottom). The main disadvantage to open storage is the potential for outside contamination. This contamination could include bird and animal feces, various airborne pollutants entering the reservoir during rainfall or snowfall, or contaminants entering the reservoir via groundwater seepage. Due to local topography, Reservoir #4 is isolated from surface drainage runoff, which appears to be a definite advantage in this particular situation.

There may also be a disadvantage to continued use of #4 as a storage reservoir however, and that is Skully's Landfill being located in the ravine through which Sylvan Glen Creek flows. As was mentioned previously, Sylvan Glen Creek flows into a retention basin immediately adjacent to Reservoir #4. An earthen

embankment separates this retention basin from Reservoir #4. Skully's Landfill is on the Class II Hazardous Waste Site List for the New York State Department of Environmental Conservation (DEC) and according to a preliminary on-site investigation of Skully's Landfill by DEC, leachate from the landfill had been observed entering Sylvan Glen Creek. Leachate is the residue which "leaches out" of something after water passes through it. In this particular instance, the leachate could contain some of the hazardous waste which is believed to be in Skully's Landfill. The proximity of Sylvan Glen Creek to Reservoir #4 has not been identified as a problem up to this point in time, (and may in fact not be a problem), but the issue probably will not be resolved until further tests are conducted on Skully's Landfill, and remediation plans to address the area it may have contaminated have been formulated.

A tangible problem in terms of using Reservoir #4 for open storage, is the potential problem of people trespassing onto the Southern Reservoirs site for whatever purpose, and taking the risk of injuring themselves or drowning. If the decision is made in the future to develop any portion of the Southern Reservoirs site, it would seem that some sort of barrier would have to be constructed around Reservoir #4 in order to lessen the likelihood of this problem occurring.

There is also an economic issue associated with the continued use of Reservoir #4 for open storage, and that is the cost of building a new storage tank and transmission line which would take over the function which Reservoir #4 has in the water supply system. The Water Board has estimated that it could take approximately $4 million to construct a 5-10 million gallon storage tank, and a new transmission line coming down through southeast Utica from one of the two open storage reservoirs in Marcy or Deerfield.

Based on statements by the Water Board that they have no intention of discontinuing use of Reservoir #4 for storage and distribution purposes, and as a result of this study's independent research on the general issue of open water supply storage, this office must assume that #4 will remain in use for the foreseeable future. Any conceptual plans as to how the Southern Reservoirs site could be used in the future would have to include the continued use of #4 as an open storage reservoir, with appropriate measures taken to prevent contamination from the land uses outlined in the conceptual plan, and also to assure public safety.

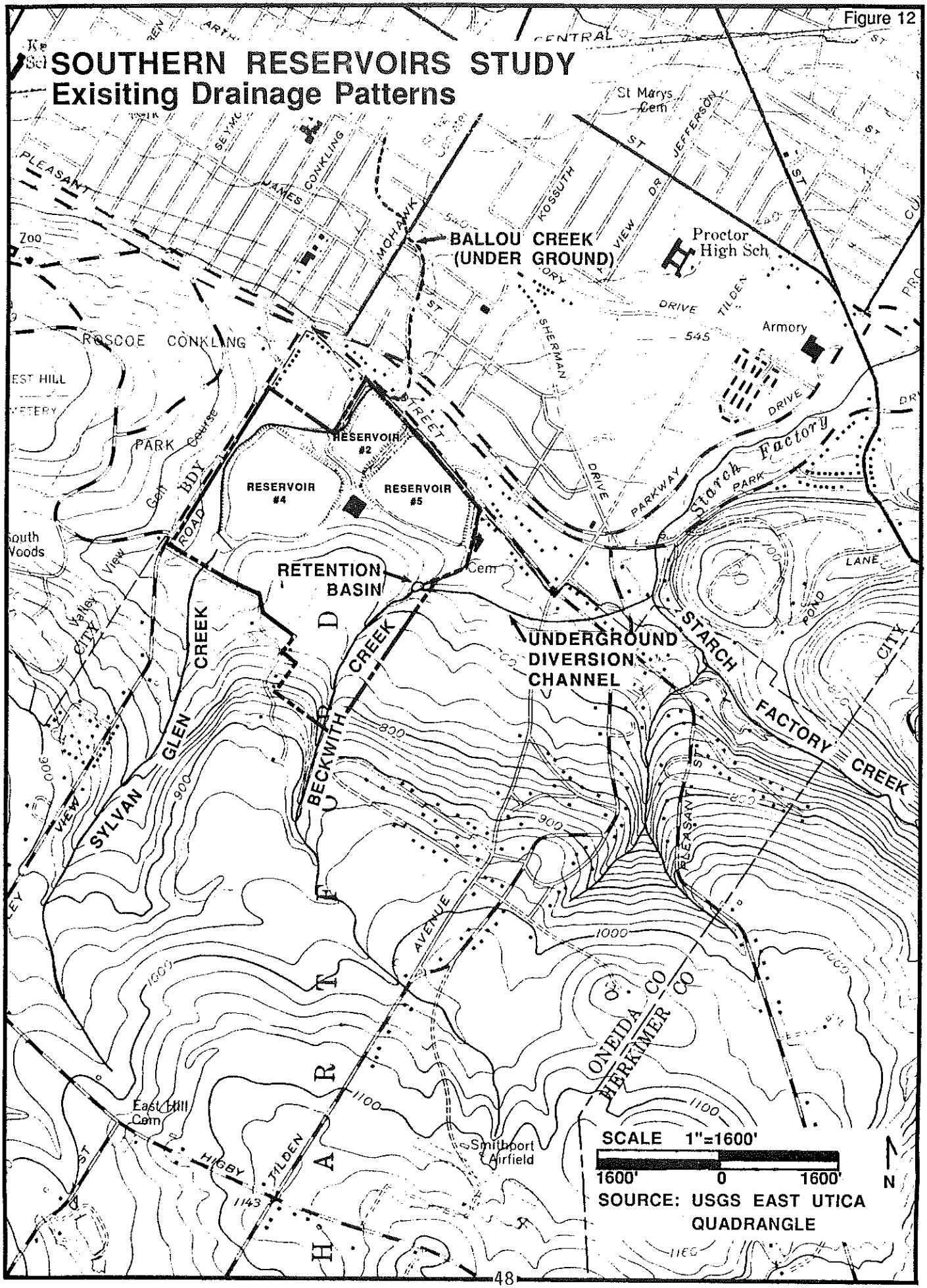
INFRASTRUCTURE

The following discussion examines the infrastructure surrounding the site. The infrastructure consists of the storm drainage system, sanitary sewers, water lines and roads.

Stormwater drainage: Based on conversations with the City of Utica Engineer's Office, there is no identifiable problem with stormwater runoff caused by any activity on the Southern Reservoirs site. There apparently are no drainage or flooding problems resulting from Sylvan Glen Creek as it leaves the Southern Reservoirs site at Pleasant Street. As was mentioned previously, Sylvan Glen Creek flows under Pleasant Street and aboveground for a very short distance until it goes underground at Park Drive (see Figure 12).

Figure 12

SOUTHERN RESERVOIRS STUDY
Exisiting Drainage Patterns



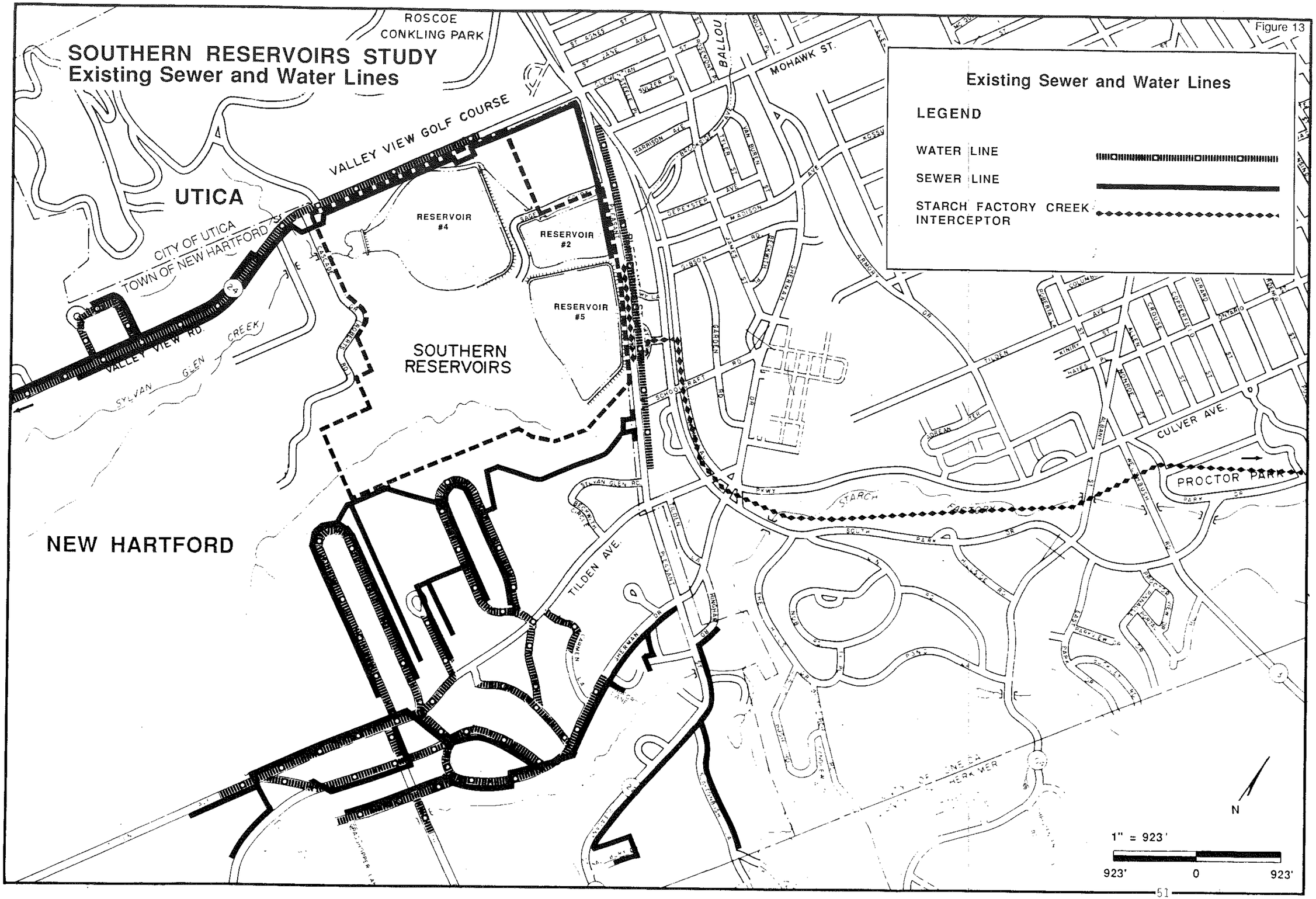
There apparently are some drainage problems which result in occasional flooding for some properties east of the Southern Reservoirs site, along Pleasant Street. Beckwith Creek flows through the ravine along the eastern section of the reservoir site and into a ponding area, or retention basin, which is located in the far eastern portion of the reservoir site. From this retention basin, the overflow is diverted underground in an easterly direction until it discharges into Starch Factory Creek just north of Hingman Drive (see Figure 12). According to the City of Utica Engineer's Office, the problem occurs because grates which were placed at ground level of the underground diversion channel and were intended to collect stormwater runoff, at times can become covered with debris. This then allows the runoff to continue north until it reaches the low areas along Pleasant Street. This particular problem may be more of a maintenance problem than an inherent drainage problem, and also does not appear to be associated with the Southern Reservoirs site.

It does not appear that any of the three Southern Reservoirs have had any noticeable impact on stormwater drainage in the area. All three of the reservoirs have either overflow pipes or spillways which divert any overflow into a stormwater drainage channel. It is recognized that Reservoirs #2 and #5 do serve to collect some drainage from the site, and if they are removed a stormwater management system would need to be implemented to handle this runoff, as would be the case for additional development on the site.

Sanitary Sewers: There is a 12-inch sewer line on Valley View Road between Cascade Drive and Pleasant Street, and a 12-inch sewer line along Pleasant Street from Valley View Road to Parkway Lane. There is also a major county sewer interceptor line located just north of the reservoir site in the Pleasant Street area (see Figure 13). The proximity of these sewer lines, particularly

Figure 13

SOUTHERN RESERVOIRS STUDY
Existing Sewer and Water Lines



the major interceptor just north of the Southern Reservoirs site, suggests that the existing sanitary sewer facilities could accommodate development on the site.

Public Water: At the present time, there is a water line which extends north on Valley View Road to a point approximately 1,200 feet south of the intersection with Pleasant Street. There is also a waterline running along Pleasant Street, immediately adjacent to the northern portion of the site (see Figure 13). According to the Utica Board of Water Supply, there would be no problem with providing public water service to the Southern Reservoirs site.

Roads: The public roads in the vicinity of the Southern Reservoirs were examined in regard to the existing traffic volumes and capacities. If the Southern Reservoirs site was to be developed for either recreational and/or housing purposes, there would be an increase in traffic levels on those streets in the vicinity of the site. In particular, traffic levels would increase on Valley View Road, Pleasant Street, and Memorial Parkway with other major streets and roads in the area such as Higby Road, Mohawk Street and Chapman Road likely experiencing higher traffic volumes. Whether or not the increase in traffic would be significant depends on the type and level of development.

Currently, continued residential growth in the vicinity of the reservoirs site, particularly on Valley View Road, Higby Road, Chapman Road and Mohawk Street in the Town of New Hartford has contributed to increased traffic near the site. Undoubtedly, any development on the site itself would add to this volume. Although the increasing levels of traffic on these roads and streets does not pose a significant problem at this time, it is important to note that the

primary function of some of these streets, as determined by the Federal Highway Administration (FHWA), is being threatened. To illustrate this point, the following list provides a summary of the most recent highway function classifications of streets in the vicinity of the site as determined by FHWA in April, 1984.

Road	Functional Classification
Valley View Road	Urban Arterial
Pleasant Street	Urban Arterial
Memorial Parkway	Urban Arterial
Higby Road (east of Oneida Street)	Urban Collector
Chapman Road (east of NYS Route 8)	Urban Arterial
Mohawk Street	Urban Collector

As the above list indicates, the major streets in the area near the Southern Reservoirs site are either classified as an urban arterial or urban collector. In short, FHWA defines an arterial as a road of regional importance, or main roads of a community.

FHWA defines a collector road as a road that provides access to non-residential land uses and connects residential streets to the system's arterial roads. Again, direct access to residential uses on collector roads is discouraged. However, residential growth with direct access to the road continues on both Higby Road and Mohawk Street which are classified as urban collectors.

Land adjacent to Valley View Road and Chapman Road is also being developed for residential purposes with direct driveway access onto the roadway, and Pleasant Street and Memorial Parkway are already heavily developed with residential, recreational and a few commercial uses.

In terms of existing traffic levels, the following table illustrates the most recent calculations of hourly traffic volumes, capacities and level of service for those major street segments which are in the immediate vicinity of the Southern Reservoirs site. This data is also depicted graphically in Figure 14. The data was gathered in 1986 by the New York State Department of Transportation (NYSDOT). The figures represent traffic volumes during the PM peak hour which is typically the period of heaviest traffic volume. It should be noted that these are the only street segments within the immediate vicinity of the reservoir site for which DOT has performed these particular calculations.

TABLE 2

HOURLY TRAFFIC VOLUMES AND CAPACITIES FOR SELECTED STREET SEGMENTS NEAR THE SOUTHERN RESERVOIRS SITE.

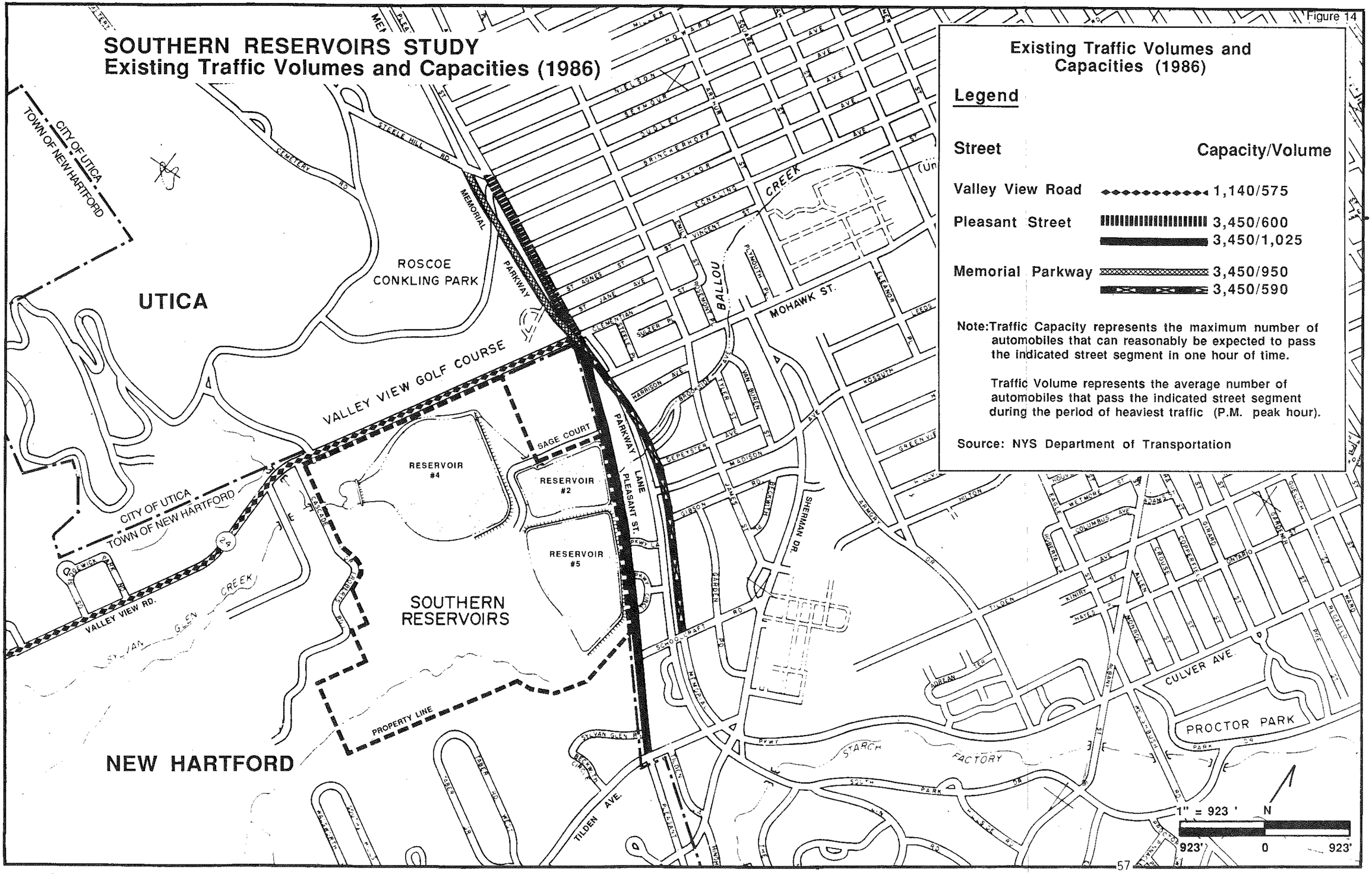
Street	Street Segment	Hourly Traffic Volume	Hourly Traffic Capacity
Valley View Road	Pleasant St. to Higby Rd.	575 trips	1,140 trips
Pleasant St.	Zoo Entr. to Valley View Rd.	1,025 trips	3,450 trips
Pleasant St.	Valley View Rd. to Tilden Ave.	600 trips	3,450 trips
Memorial Pkwy.	Zoo Entr. to Valley View Rd.	950 trips	3,450 trips
Memorial Pkwy.	Valley View Rd. to Sherman Dr.	590 trips	3,450 trips

SOURCE: New York State Department of Transportation

The level of service for all of the street segments examined is "A". The level of service is a measure of traffic flow based upon a scale of "A" through "F" where "A" indicates non-congested free-flow traffic and "F" represents extremely high traffic congestion in which traffic delays are lengthy.

Figure 14

SOUTHERN RESERVOIRS STUDY
Existing Traffic Volumes and Capacities (1986)



Existing Traffic Volumes and Capacities (1986)

Legend

Street	Capacity/Volume
Valley View Road	1,140/575
Pleasant Street	3,450/600
	3,450/1,025
Memorial Parkway	3,450/950
	3,450/590

Note: Traffic Capacity represents the maximum number of automobiles that can reasonably be expected to pass the indicated street segment in one hour of time.

Traffic Volume represents the average number of automobiles that pass the indicated street segment during the period of heaviest traffic (P.M. peak hour).

Source: NYS Department of Transportation

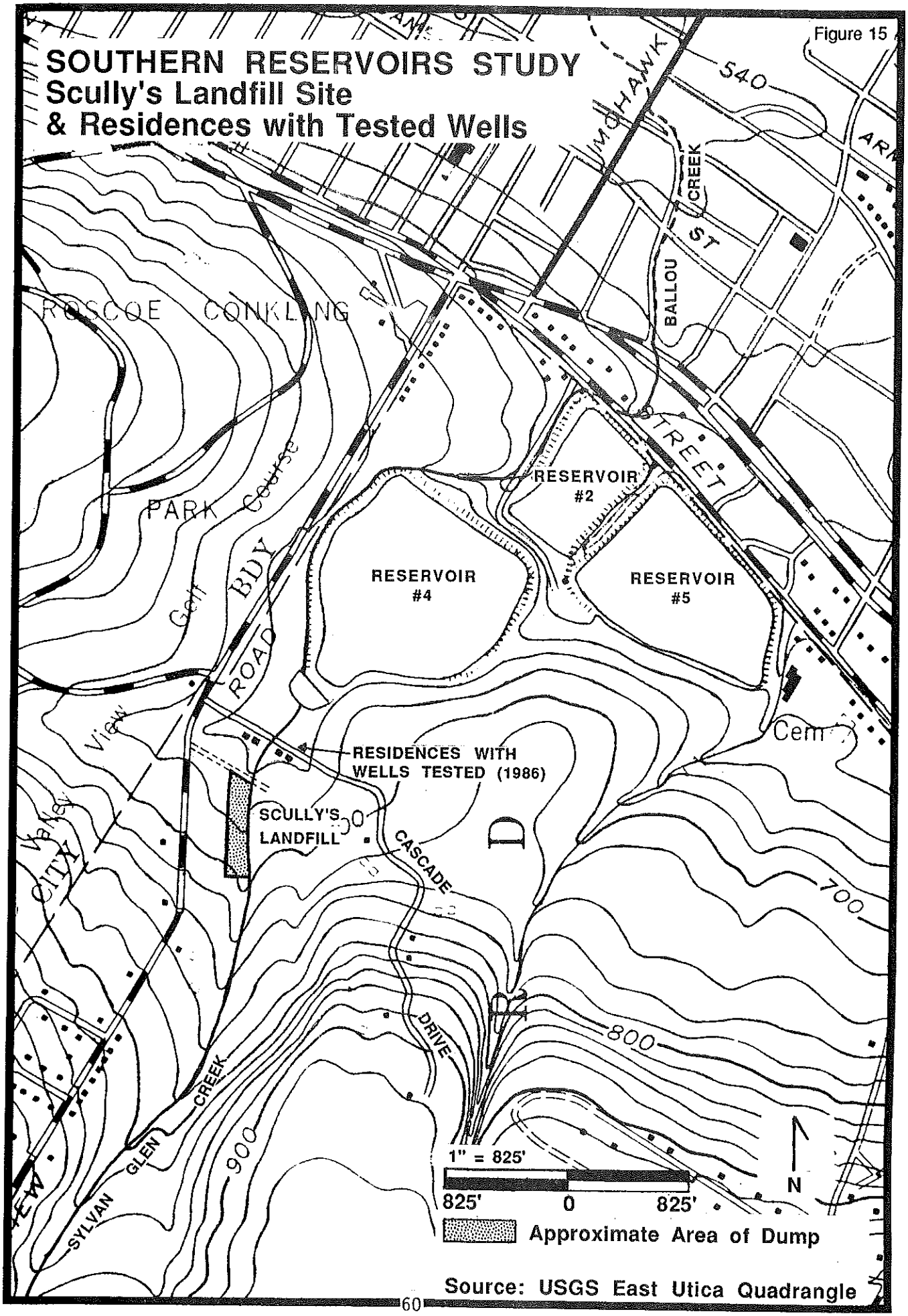
The 1985 Highway Capacity Manual, published by the Transportation Research Board, defines "Level of Service A" as ..."primarily free flowing operations at average speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal."

Therefore, it can be concluded that the existing traffic volumes on the major street segments in the immediate vicinity of the Southern Reservoirs site are well below the traffic capacities, even during the time of heaviest traffic (pm peak hour). Future development in the Town of New Hartford will add more traffic to the street segments listed above, and traffic flow could also be adversely affected as a result of the continued increase in residential driveways with direct access onto these roads as would development on the site itself. Further, site design considerations for access to the Southern Reservoirs site could impact traffic flow and would warrant additional study once specific uses were identified.

SCULLY'S LANDFILL

In relation to this study of the future use of the Southern Reservoirs, concerns have been raised regarding the effects Scully's Landfill may have on the Reservoir property. This is because the reservoirs are located approximately 1,200 feet, north of Scully's Landfill (see Figure 15).

Sylvan Glen Creek flows past the landfill, following the ravine in a northeasterly direction. The stream flows under Cascade Drive, where there is currently new residential development, and toward the three reservoirs. According to the Water Board, there is no evidence that Sylvan Glen Creek flows


SOUTHERN RESERVOIRS STUDY
Scully's Landfill Site
& Residences with Tested Wells
Figure 15
MOHAWK
540
ROSCOE CONKLING
BALLOU ST
CREEK
STREET
RESERVOIR #2
RESERVOIR #4
RESERVOIR #5
PARK
Golf
BUY
ROAD
View
Cem
RESIDENCES WITH WELLS TESTED (1986)
SCULLY'S LANDFILL
CASCADE
DRIVE
700
800
900
CITY
SYLVAN GLEN
CREEK
1" = 825'
825'
0
825'
N
Approximate Area of Dump
Source: USGS East Utica Quadrangle

into any of the reservoirs. Sylvan Glen Creek passes within 20 feet of Reservoir #2, but the embankments are intended to direct the creek around the reservoir.

During the 1930's through the 1950's, the landfill, otherwise known as the S.O.S. Septic Tank Service Dump, accepted municipal and industrial wastes. The dump site is presently about three acres in size and has presently been placed on the NYS Department of Environmental Conservation's (DEC) Inactive Hazardous Waste Disposal Site List. The site is currently classified as 2a, meaning it is suspected to contain hazardous waste, but more information is needed to make such a determination.

An initial site report, completed by DEC in June of 1986, describes the site as "an open dump along the ravine of Sylvan Glen Creek." According to the report, there are severely decomposed 55 gallon steel drums visible along the face of the dump. It is estimated that 50-70 barrels are on the site, some visible, some partially buried, and others underground. According to the labels on a few visible empty drums, the chemicals "Chlorothene" and "Neu-tri Superior Solvent" were among some of the wastes disposed of at the site. The DEC report states that according to a Dow Chemical spokesman, both chemical names are products of Dow and are common industrial solvents. He stated, both tend to evaporate when exposed to air and neither has been shown to cause cancer.

Near the top or uphill portion of the dump, DEC discovered a drum containing a "black viscous goo." The DEC expects many of the drums are likely to be waste oils and solvents from the General Electric Plant.

During September and October of 1986, DEC took samples, as part of a Phase I investigation, to determine what type of chemicals may be present at the dumpsite. Four water samples were taken from groundwater seeps along the base of the dump and a soil sample was taken from an area within the dump likely to be contaminated. (Lack of vegetation was a determining factor for the soil sample site. All sample sites were arbitrarily chosen.) Preliminary site investigation by DEC reveals leachate is evident at the base of the dump and is discharging directly into Sylvan Glen Creek. In this investigation, drums were reported to have washed downstream in the past, apparently during spring floodwaters. According to the DEC, results published in November of 1986 revealed contamination by Cloronated Organics such as Trichloroethane and Dischloroethane, described better as industrial solvents.

Because of the elevated levels of contaminants, the site had been nominated by DEC for a Phase II investigation during 1987. Through additional surface water samples of Sylvan Glen Creek, samples of groundwater from monitoring wells, and some air sampling, DEC will prioritize the site and determine the source of dollars for remedial work (whether State or Federal Superfund). In September of 1987, DEC indicated that the Phase II investigation will not occur, and that the remedial work is the next step in addressing this issue. No time frame was given for the remedial work.

In December of 1986, the Oneida County Health Department collected water samples from individual wells of residents living on Cascade Drive. The location of these residences are illustrated on Figure 15, "Scully's Landfill." The results of these samples indicate that the water in one or more of the three homes has exceeded the maximum allowable contaminant levels for sodium, free fluoride, barium, iron and manganese.

Although the maximum contaminant levels are exceeded, the State Health Department has indicated that "none will cause undue harm at the levels indicated." In a memo dated January 26, 1987, the Oneida County Health Department states these contaminants may, in fact, be naturally occurring in the aquifer and, thus, the area should be resampled with a control group.

It remains unclear at this time the impact - if any - Scully's Landfill may have on the Southern Reservoirs site, and any possible impact(s) probably will not be known until the scope of the remedial work is determined.

V. RECREATION POTENTIAL

In order to determine the feasibility of using the Southern Reservoirs site for recreational purposes, several different types of information were reviewed. In order to get a better sense of the potential need for certain recreational activities the information was considered for two different geographic levels. One level comprises a two mile radius from the Southern Reservoirs site and the other level encompasses the Town of New Hartford and the City of Utica. The information which will be utilized in this section of the report includes:

(1) a review of existing recreation facilities, compared to a set of existing standards which can be used to estimate the number and type of recreational facilities which should be provided for a specific area based on the population;

(2) conversations with recreation officials from the Town of New Hartford and the City of Utica, in which their opinion was asked as to the need for certain recreational facilities within their respective municipality;

(3) analysis of the socio-economic characteristics of residents of the Town of New Hartford and City of Utica as these characteristics relate to a demand for various recreational facilities;

(4) the Town of New Hartford Park System Master Plan; and

(5) discussions with the New York State Department of Environmental Conservation relative to using the Southern Reservoirs for public fishing.

EXISTING PARKS

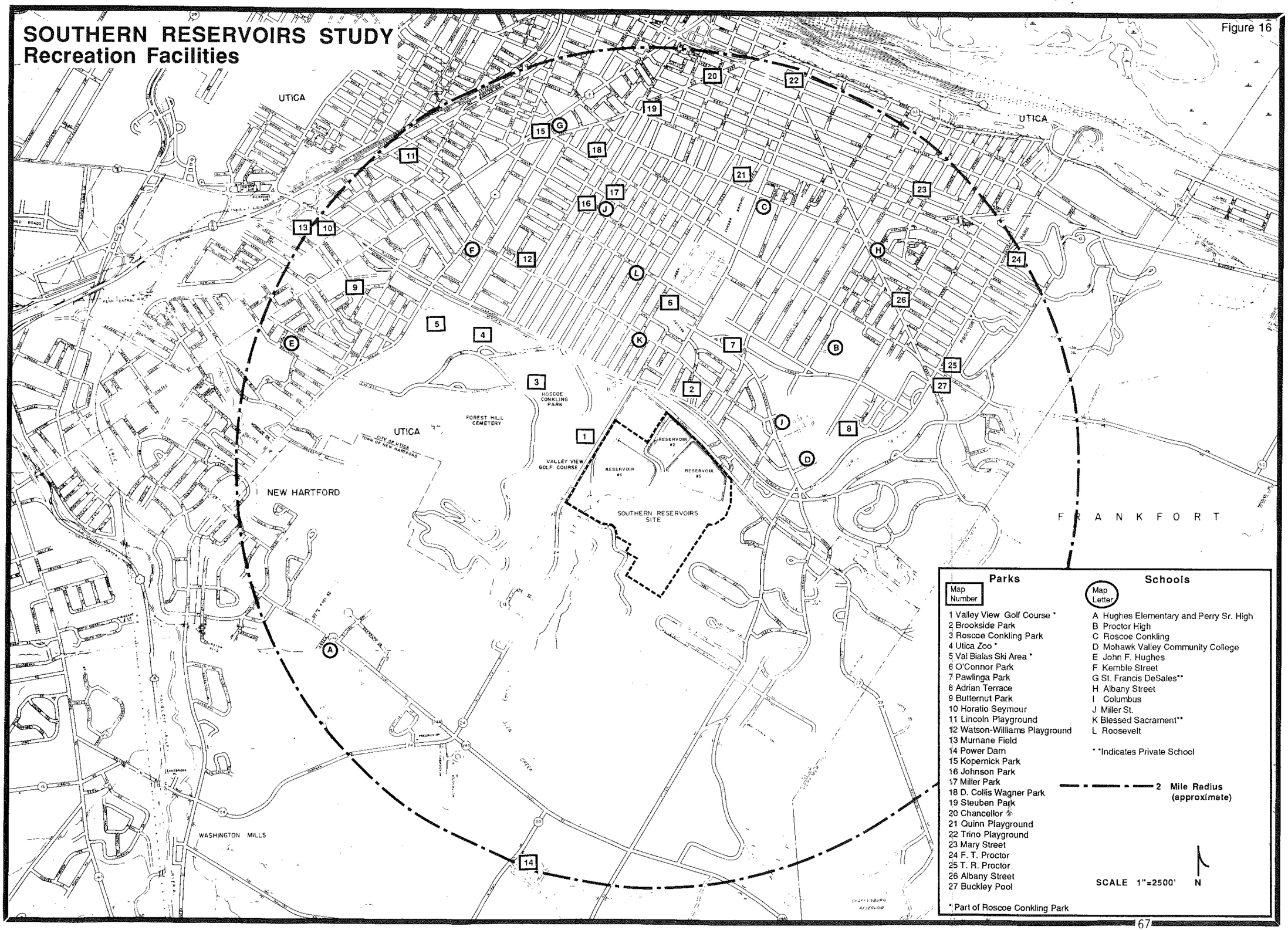
To examine the existing outdoor recreational opportunities for a more localized area surrounding the Southern Reservoirs, a two mile radius was established and designated as a study area. According to the New York State Comprehensive Recreational Plan, a standard community park encompasses a service area of two miles. Portions of the City of Utica, as well as the Towns of New Hartford and Frankfort fall within this study area. Each park located within the established two mile radius was examined. A total of 27 parks were identified and are summarized in Appendix A. Schools having some type of recreational facilities were also identified and are listed in Appendix B. A total of 12 schools were identified within the two mile study area. Both the parks and the schools are shown on Figure 16.

Recreational Acres Provided: Early in this century, the National Recreation and Park Association developed a standard of ten acres of recreation space per thousand population for urban areas. This standard was widely accepted at that time and is still commonly used by recreation planners today. Population statistics from the 1980 census reveal that approximately 40,000 people live within the designated two mile recreational study area of the Southern Reservoirs. By using the National Recreation and Park Association's standards, slightly over 400 acres of recreational land would be required to meet the recreation needs of this population. The total recreation facility acreage of all parks and schools within the study area examined, totals approximately 870 acres.

This simple calculation would seem to indicate that sufficient acreage is being utilized for recreational opportunities within the study area. While sufficient land area may be provided, this fact does not necessarily insure

SOUTHERN RESERVOIRS STUDY
Recreation Facilities

Figure 16



Parks

Map Number

1 Valley View Golf Course *
2 Brookside Park
3 Roscoe Conkling Park
4 Utica Zoo *
5 Val Bialas Ski Area *
6 O'Connor Park
7 Pawlinga Park
8 Adrian Terrace
9 Butternut Park
10 Horatio Seymour
11 Lincoln Playground
12 Watson-Williams Playground
13 Murnane Field
14 Power Dam
15 Kopernick Park
16 Johnson Park
17 Miller Park
18 D. Collis Wagner Park
19 Steuben Park
20 Chancellor
21 Quinn Playground
22 Trino Playground
23 Mary Street
24 F. T. Proctor
25 T. R. Proctor
26 Albany Street
27 Buckley Pool

* Part of Roscoe Conkling Park

Schools

Map Letter

A Hughes Elementary and Perry Sr. High
B Proctor High
C Roscoe Conkling
D Mohawk Valley Community College
E John F. Hughes
F Kemble Street
G St. Francis DeSales**
H Albany Street
I Columbus
J Miller St.
K Blessed Sacrament**
L Roosevelt

**Indicates Private School

2 Mile Radius (approximate)

SCALE 1"=2500' N

that an adequate number of facilities for specific activities such as picnicking, baseball, tennis, swimming, etc., are present within the study area.

Recreational Uses Provided: To obtain a better understanding of the types of uses which are, or may be, in demand, each park's and school's facilities were examined. Appendix A and B summarizes the activities provided at each of the recreational areas identified by the 1982 NYS Parks and Recreation Department Census of Facilities, the 1986 Town of New Hartford Park System Master Plan, the 1968 Herkimer-Oneida Counties Comprehensive Planning Program Recreation and Open Space Plan, and 1987 conversations with the recreation officials from the Town of New Hartford and City of Utica.

In addition to the National Recreation and Park Association's standards of recommended acreage, there are also standards which can be used to assist in determining the type and number of specific recreational activities and/or facilities which should be provided based on the population of an area. Table 3 lists some of these specific standards as taken from the New York State Comprehensive Recreation Plan, and the National Park and Recreation Association. Table 3 also indicates the number of specific facilities which should be provided within the two mile study radius and the approximate number of facilities which are currently provided.

TABLE 3
RECREATION FACILITY STANDARDS

Activity	Standard	Needed*	Approximate Provided
Basketball	1 court/5,000 people	8 courts	10 courts
Baseball/Softball	1 field/5,000 people	8 fields	25 fields
Swimming Pool	750 sq.ft./1,000 people	30,000 sq.ft.	6,000 sq. ft.
Golfing	1 course/50,000 people	1 course	1 course
Skating	1 rink/100,000 people	1 rink	1 rink
Tennis	1 court/2,000 people	20 courts	34 courts
Picnicking	Not Available	-	110 tables
Field Games***	3 acres/1,000 people	120 acres	55 acres
Fishing	.5 miles of stream/1,000 people	20 miles	0 miles**

* Based on 40,000 people
** NYS DEC Class C (T) or Better
*** Field Games Excluding Baseball/Softball

SOURCE: NYS Comprehensive Recreation Plan, and National Park and Recreation Association

By combining the information contained in this table with information obtained from conversations with recreation officials and existing recreation reports, some general observations can be made about certain activities provided for within the study area, and the need for these activities at the study area level as well as at a city-wide and town-wide level.

Swimming: The information presented in Table 3 indicates that the study area is lacking in available swimming areas. Of the 27 parks and 12 schools inventoried, only five provide pools. The Mohawk Street Power Dam is the only site within the two mile study area which provides a "natural type" setting for swimming. It should be noted that the Power Dam was closed for part of 1986 and the entire 1987 season and it appears that the Power Dam will not provide

public recreational opportunities for upcoming seasons. The remaining four swimming pools are provided at MVCC, Buckley Pool, Hughes Elementary School and Miller Street School. Wading type pools are provided at Lincoln Playground and Chancellor Park.

Outside of the two mile study area, the nearest opportunities for additional outdoor swimming areas include: Graffenburg Reservoir (which because of various issues may or may not provide recreational opportunities in the future), Hinckley Reservoir and Delta Lake which are both approximately 25 miles away, and Glimmerglass State Park and Oneida Lake which are approximately 40 miles away.

The Town of New Hartford Park System Master Plan prepared in 1985-1986, specifically calls for an additional swimming pool to be developed within the Town by 1990.

As a result of the strict regulations governing public swimming areas, and for purposes of this study, the assumption was made that swimming is not a feasible future use for the Southern Reservoirs site.

Baseball/Softball: It would appear from Table 3 that based on national standards, baseball and softball fields are adequately provided for within the study area. However, after conversations with recreation officials from the City of Utica and Town of New Hartford, both have indicated a need for additional baseball and softball fields. As a result of an increase in the number of softball leagues, softball fields are lacking, especially on weekends during the spring and summer. Although baseball fields are in less of a

demand then are softball fields, both parks' departments indicated a need for baseball fields. The New Hartford Park System Master Plan suggests a town-wide need for one additional baseball field by 1990, and in addition, specifically calls for five additional softball fields to be developed in the Town by 1990.

Picnicking: A need for picnic areas within New Hartford and Utica was noted by each Park's Department. Although there are no available facility standards for picnicking, and Table 3 shows 110 picnic tables being provided, both communities have indicated a need for additional areas, especially during weekends. The Town of New Hartford Park System Master Plan suggests the construction of three new picnic pavillions within the Town by 1990.

Fishing: Recreation facility standards as illustrated on Table 3 suggest one-half mile of fishing stream to be provided for every 1,000 people. Although there are several streams within the two mile study area, none are classified by NYS Department of Environmental Conservation as C (T) (suitable for trout fishing) or better. However, it should be noted that the following streams or water bodies which are currently used for fishing, and are within five miles of the study area include: the Barge Canal, the Mohawk River, Sauquoit Creek and Oriskany Creek. Fishing opportunities will be discussed in more depth later in this section of the report because of the unique nature of a fishing area in a setting such as the Southern Reservoirs site.

Other Uses: From Table 3, it would appear (again based on national and state standards) that uses such as golfing, basketball, tennis, and field games (excluding baseball and softball) are adequately provided for within the two mile study area. The Town of New Hartford Park System Master Plan, however,

has concluded a town-wide need for four additional soccer fields, four tennis courts, 1 playground and 5 shuffleboard and horseshoe pits, by the year 1990. In Utica, there appears to be a need for additional ice skating opportunities.

SOCIO-ECONOMIC FACTORS

Socio-economic characteristics, such as population, age, income and means of travel, may have a direct influence on the demand for recreational facilities in an area. It is the intent here to first examine the socio-economic characteristics in the Southern Reservoirs area, and then discuss the impact these characteristics may have on the recreational demand in this area.

Population: One factor affecting recreational demand in a specific area is the population of that area. According to population projections prepared by the New York State Department of Commerce, Oneida County's population is expected to increase by approximately 4% from 1980 to the year 2000. As a result, levels of demand in recreation will grow simply because of the growth in population. The fastest growing areas will naturally experience the largest growth in demand for recreational facilities. Table 4 illustrates the population change in the City of Utica and Town of New Hartford from 1970 to 1980 broken down into neighborhood and census tract classifications. Most areas have decreased in population with the exception of west Utica and eastern New Hartford.

TABLE 4
TOTAL POPULATION CHANGE, 1970-1980

City of Utica	1970 Population	1980 Population	Percent Change
Total City	85,812	75,632	-11.9
* -Cornhill	17,595	16,547	- 5.9
-Downtown Utica	3,018	2,577	-14.6
-East Utica	17,391	13,961	-19.7
-North Utica	10,085	9,594	- 4.9
-South Utica	15,702	11,974	-23.7
-Southeast Utica	7,926	4,940	-37.7
-West Utica	14,095	16,039	13.8
Town of New Hartford			
** Total New Hartford	17,129	17,043	- 1.5
***-0252 Northwest	4,920	4,506	- 8.4
-0253 Southwest	7,509	7,339	- 2.2
-0254 East	4,700	5,198	10.6

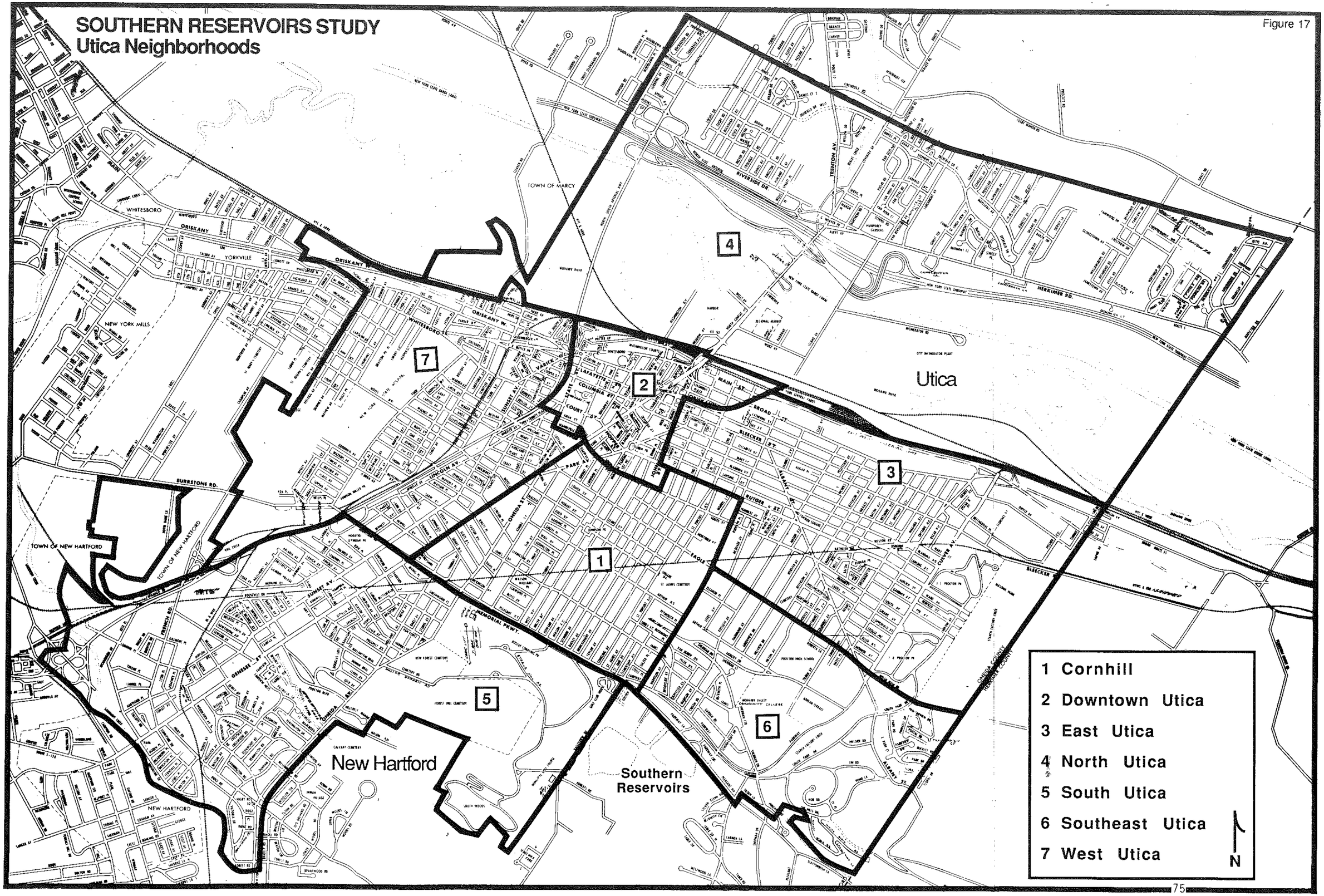
NOTE: * These geographic areas are delineated in order to provide census data at a "neighborhood" level from the 1980 Census of Population. Figure 17 shows the neighborhood delineations.
** Population data from the Village of New Hartford and that portion of New York Mills located within the Town is not included.
*** Census Tract Numbers.

SOURCE: 1970 and 1980 U.S. Census of Population

Since the 1980 census, population estimates for the Town of New Hartford have revealed a slight decrease from 1980 to 1984. The City of Utica, as a whole, has experienced an estimated 3.6% decrease in population from 1980 to 1984. However, it is evident from recent and past planning department activities that the area south of the reservoirs in the Town of New Hartford has the potential for accommodating more residents, and appears to be growing rapidly in population.

SOUTHERN RESERVOIRS STUDY
Utica Neighborhoods

Figure 17



Age: Another socio-economic factor which influences the recreational demand in a particular area is the age of the population. Generally speaking, the older people become, the less they engage in strenuous outdoor recreational activities. The rate of this decline in recreational involvement, however, has varying levels. Participation in more physically active sports, particularly team sports, declines significantly at a steady rate as age increases. According to the NYS Comprehensive Recreation Plan, participation in activities such as golfing or fishing, which require less exertion than team sports, increase throughout the early years of adulthood and decline at the slowest rate with aging. Appendix C illustrates recreational participation rates by age.

This variation in participation levels for different age groups has an impact on the need for recreational opportunities in a particular area. As an example, organized team sports would be a more practical recreational opportunity to provide for in an area which has a large number of youths below the age of 18 but would not be practical in an area where the elderly constitute a majority of the population.

Table 5 illustrates the age distribution from the 1980 U.S. Census of Population for the City of Utica and the Town of New Hartford.

TABLE 5
1980 AGE DISTRIBUTION

	City of Utica	Town of New Hartford
Less Than 20 Years	21,081 (28%)	5,098 (30%)
20-44 Years Old	24,085 (32%)	5,139 (30%)
45-64 Years Old	16,980 (22%)	4,271 (25%)
65 Years Or Older	13,486 (18%)	2,535 (15%)
Total Population	75,632	17,043
Median Age	34.0	36.2

SOURCE: 1980 U.S. Census of Population

NOTE: Numbers in parenthesis represent the percentage of total population in that particular age bracket for that Town/City.

Looking at the Town of New Hartford's age distribution, Table 5 illustrates that the population is evenly distributed throughout the first two (less than 20 and 20-44) designated age categories, with the lowest proportion of the population in the oldest age bracket. This seems to suggest that while recreation facilities for New Hartford should provide opportunities for all age groups, there should be a slight bias towards activities oriented to children and adults 44 years old and under: since 60% of the Town population is below 45 years of age and 40% at or above 45 years of age. New housing developments, particularly in the eastern portion of the Town of New Hartford, will likely result in an increase in younger families with more children. Appendix C indicates activities oriented towards youth might include swimming and organized team sports.

Utica's population numbers also decrease slightly as age increases, and 60% of the population is also below the age of 45. These similarities between New Hartford and Utica, suggest that Utica should also place a slight emphasis on

providing recreational facilities for those in the 0-44 year age bracket. In terms of sheer numbers however, there is a significant amount of Utican's who are 45 years and older. In addition, the elderly are also the most rapidly growing sector within the population in Utica. The point is that while every age group should have recreational opportunities available to them, differences in the proportion of the total population in each age group is a factor to consider when trying to determine the potential demand for recreational opportunities.

In terms of absolute population numbers, the City of Utica should provide more overall recreational facilities than should the Town of New Hartford, and should focus slightly on younger age groups.

Income: Income levels are also an important factor influencing demand for recreation. As a general statement, a higher income will increase recreational participation which, in turn, increases the demand for recreational facilities. This is particularly true of the more expensive sports such as skiing, golfing, and boating. As with population, income is expected to increase the fastest in suburban areas. As a result, the suburban areas, such as eastern New Hartford, will have the largest growth rate in recreational demand. However, it is important to keep in mind that areas in Utica may have a higher total recreational demand simply because of the higher number of people living in Utica. As illustrated in Table 6, the mean family income has increased in all areas of New Hartford and Utica, based on the 1970 and 1980 U.S. Census of Population.

TABLE 6
MEAN FAMILY INCOME 1969 AND 1979

	1969 Income	1979 Income	Percent Change
City of Utica			
-Cornhill	$ 9,057	$14,984	65.4%
-Downtown Utica	6,869	7,553	9.9
-East Utica	8,264	15,458	87.0
-North Utica	10,287	20,427	98.6
-South Utica	12,026	21,974	82.7
-Southeast Utica	11,322	20,870	84.3
-West Utica	10,811	15,920	47.2
Town of New Hartford			
-Northwest (0252)	10,922	22,294	104.1
-Southwest (0253)	15,159	28,217	86.1
-East (0254)	15,227	28,586	87.7
Oneida County	$10,838	$20,165	86.1%

SOURCE: 1970 and 1980 U.S. Census of Population

From the previous discussion, and considering only income as a factor, New Hartford would seem to have a higher per capita demand for recreation than would Utica. As increases in income occur, not only are individuals able to afford the direct costs associated with recreation (i.e., fees, equipment, etc.) but they are also able to afford indirect costs such as automobiles and travel expenses, which will increase the ease of accessibility to a wider selection of recreational areas.

At the other extreme, those individuals with lower incomes will be more likely to use facilities with low or no fees, those which are in close proximity to their residence and those facilities which do not require expensive equipment purchases.

Access: In general, the availability of a car to an individual will increase the opportunity he or she may have to participate in recreational activities. Because of the close relationship between car ownership and participation rates, figures on the number of households without a vehicle were also examined (see Table 7).

TABLE 7
HOUSEHOLDS WITHOUT A VEHICLE AVAILABLE - 1980

	Number of Households Without a Vehicle	Percent of Total Households Without a Vehicle
City of Utica		
-Cornhill	1,911	29%
-Downtown Utica	895	71
-East Utica	1,849	33
-North Utica	197	6
-South Utica	584	13
-Southeast Utica	295	18
-West Utica	1,871	30
Town of New Hartford		
-Northwest (0252)	97	6
-Southwest (0253)	95	4
-East (0254)	40	2
Oneida County	12,338	13.2%

SOURCE: 1980 U.S. Census of Population

The preceding discussion as to the manner in which income and accessibility affect recreational participation rates may lead one to infer that New Hartford, with a large percentage of households with both a relatively high income and an automobile at their disposal, would have a high demand for recreational facilities. While this statement may be true, the demand for recreational facilities generated in the area surrounding the Southern

Reservoirs site may not actually be as high for New Hartford residents because as income and automobile ownership increases, the ability to travel to other facilities outside the study area also increases. For example, the relatively high income among households in New Hartford allows for the purchase of boats, fishing equipment, golf clubs, etc. The high percentage of these same households with a car also allows them to travel to other parts of the region and the Adirondacks, the St. Lawrence River as well as other popular destinations.

Continuing with this same theory, those neighborhoods in Utica with a high number of households with a relatively low mean family income (as compared to the Oneida County and New Hartford income figures) may have a low recreational demand for those activities which require expensive equipment, and also involve travel. Similarly, if a household does not have a vehicle available, travel to the Adirondacks and other popular destinations for recreation is difficult. The point here is that a low income, coupled with the lack of a private automobile, may be suppressing the demand in some Utica neighborhoods for certain types of recreational activities.

The overall feasibility of Southern Reservoirs #2 and #5 to meet this "suppressed" demand mentioned above, as well as the demand for other recreational facilities to serve the residents of both the City of Utica and Town of New Hartford will be examined in more detail later on in this report.

UTILIZING THE SOUTHERN RESERVOIRS FOR PUBLIC FISHING

In terms of becoming a successful public fishing site, Southern Reservoirs #2 and #5 have several factors in their favor. Reservoir #4 probably also possesses the potential to become a good fishery, but as was mentioned

previously, #4 will continue to be used for storage and distribution purposes by the Utica Board of Water Supply.

As Reservoir #2 was being drained in the Fall of 1986, the New York State Department of Environmental Conservation (DEC) and the Syracuse University Student Chapter of the American Fisheries Society conducted a survey of the fish population of the reservoir. According to DEC, approximately one-hundred adult smallmouth bass were netted and transferred to the Rome Fish Hatchery after data was gathered on the fish. A fishable population of bullheads was also observed during this survey, as well as a few panfish. Based on this quick survey, it was concluded that a healthy fish population existed in Reservoir #2. This suggests that a healthy fish population could again be established in Reservoir #2, and that a stable population of fish may currently exist in #5.

The size (surface acres and depth) of Reservoirs #2 and #5 is a positive feature in regard to creating a good public fishing site. Based on the size of the reservoirs and the survey conducted in 1986, DEC has indicated that the Southern Reservoirs should not be difficult to manage for public fishing purposes. Annual Spring stockings of rainbow trout by DEC is a possibility, and it may also be possible to establish a stable population of bass in either of the two reservoirs.

DEC has suggested that if the reservoirs were going to be used for public fishing, fishing should be permitted only from the shoreline. There are two reasons for this. First, if access is allowed to the entire area, the reservoirs could easily be overfished due to their size. Second, most fisher-

man drownings take place from boats under 14 feet in length, and this is most likely the type of boat which would be used on the reservoirs if they were allowed.

The Southern Reservoirs could provide fishing opportunities to certain segments of the population who have limited access to the majority of public fishing sites in this region. Decks could be constructed so that both the handicapped and elderly with limited mobility could have access to the reservoirs for fishing. A successful program currently exists whereby DEC, local governments, sportsman groups or civic groups work together to construct handicapped fishing decks along the Mohawk River. There is the possibility that this program could be utilized to construct a fishing deck on Reservoirs #2 and/or #5 if it is eventually decided to have public fishing on the site.

Some of the socio-economic factors discussed earlier, would seem to suggest that there are certain segments of the population who would make use of the Southern Reservoirs for fishing if the opportunity is presented to them. For example, a car is needed to get to the majority of public fishing sites in this region. As can be seen from Table 7, 29% of all households in Cornhill, 13% in South Utica and 18% in Southeast Utica did not have a vehicle available to them in 1980. In addition, 33% of all households in East Utica and 71% in the Downtown did not have a vehicle available to them in 1980. The availability of public fishing at the Southern Reservoirs site may provide a unique opportunity to those people who, for lack of an automobile, do not have access to the majority of public fishing sites in this area.

Fishing appears to be one of those recreational activities in which

participation does not fluctuate dramatically with age (see Appendix C). This point is interesting in two ways. First, fishing appeals to all age groups, meaning that a public fishing site at the Southern Reservoirs may be used by people of all ages. Second, fishing appears to be the third most popular recreational activity with those 65 years and older, and is one of the few recreational activities in which participation does not decline significantly as age increases. So while a public fishing site may appeal to all age groups, it would also provide a recreational activity which is popular with the elderly.

In addition to specific segments of the population, public fishing at the Southern Reservoirs could be utilized by families for a variety of reasons. For example, parents could take children fishing at the site without being concerned about rough terrain or a rugged shoreline. Since this would be a basic type of fishing experience, parents could take their children fishing there without much prior fishing experience. Given the likely increase in families in the developing areas south of the site, this factor should be of interest to the Town of New Hartford.

It is recognized that access to certain areas of the Mohawk River and Barge Canal is readily available by the mass transit system, however it should also be recognized that the Southern Reservoirs could provide a pleasant alternative to fishing in the sections of the Mohawk River or Barge Canal which are within the urbanized sections of the City of Utica and the Town of Whitestown.

CONCLUSION

Based upon the analyses undertaken in this section of the report, it appears that recreational facilities such as baseball, softball and soccer fields, boating, hiking trails, fishing, ice skating and picnicking could be successful if established at the Southern Reservoirs site. This opinion was based on the review of the socio-economic characteristics, conversations with recreation officials from the Town of New Hartford, City of Utica and DEC, a review of the literature and the physical characteristics of the site (the presence of reservoirs, wooded areas, nice views, etc.).

To be more specific, if public recreation were to be established on the Southern Reservoirs site, fishing, boating and field sports would probably emerge as the main public recreation uses of the site. Our analysis up to this point has indicated that there is a need for additional baseball, softball and soccer fields. What our analyses has not indicated is that there is an identifiable need to use the Southern Reservoirs site (as opposed to other nearby undeveloped land) for field sports. The presence of Reservoirs #2 and #5 obviously make the Southern Reservoirs site more suitable for fishing, boating and ice skating than other undeveloped land in the area.

Despite the fact that there is a need for additional public swimming opportunities, for the purpose of this study, the assumption was made that swimming is not a feasible future use for the Southern Reservoirs site. We based our opinion on the strict public health regulations governing public swimming areas, and the physical characteristics of Reservoirs #2 and #5, which do not lend themselves to such a use.

VI. HOUSING POTENTIAL

Several factors which may affect both the need and feasibility of developing the Southern Reservoirs site for residential purposes will be examined in this section of the report. All of the factors listed below will have some impact on the use of the site for housing, however the order in which these factors are discussed has no bearing on their relative importance. These factors include:

(1) land use regulations, primarily zoning requirements;
(2) amount of undeveloped land remaining in existing or proposed subdivisions or housing developments (including rental and owner occupied);
(3) amount of undeveloped land remaining in the area immediately surrounding the Southern Reservoirs site which is either within or adjacent to public water and sewer service areas;
(4) residential vacancy rates (including rental and owner occupied), and the need for any particular types of housing; and
(5) population characteristics

IMPACT OF LAND USE REGULATIONS ON THE DEVELOPMENT OF THE SOUTHERN RESERVOIRS SITE

One factor which affects the extent to which residential development could take place on the Southern Reservoirs site, is the land use regulations in effect for the site. The site is located in the Town of New Hartford and is currently zoned R-1 Residential, which permits single-family development on a minimum of 15,000 square foot building lots (approximately one-third of an acre). See

Figure 18 for a listing of land uses which are permitted in the R-1 district and the corresponding dimensional requirements.

As stated in the Town of New Hartford Zoning Ordinance, R-1 Residential Districts are established "to provide for moderate density single-family residential development in areas close to existing development and population centers," (p. 13). Essentially, this district is relatively restrictive with an emphasis on establishing moderately dense suburban type residential development while discouraging intensive residential and commercial development.

Upon examination of Schedule A of the Town of New Hartford Zoning Ordinance (Figure 18), one can see that the most dense type of development which would be allowed in R-1 districts is single-family residential development. As mentioned previously, the minimum lot size for a single-family home is 15,000 square feet, or approximately 1/3 acre. The other principal uses which are permitted by-right, including schools, churches, and libraries, are only allowed on lots having a minimum size of five acres, three acres and one acre, respectively.

Certain other uses are allowed under the site plan review process as outlined in Schedule A of the Town of New Hartford Zoning Ordinance. These uses include professional home occupations, colleges, public buildings, parks, public utilities, private golf courses, and day care facilities.

It appears that under the current zoning regulations for the Town of New Hartford, the most likely form of future housing development would be single-family residential. Utilizing the minimum lot size of 15,000 square feet for

SOUTHERN RESERVOIRS STUDY
Town of New Hartford Zoning Ordinance
"Schedule of Uses"

Figure 18

SCHEDULE A

DISTRICT	PERMITTED PRINCIPAL USES (Bldg. Permit)	SITE PLAN REVIEW USES (Planning Board)	SPECIAL PERMIT USES (ZBA)	MINIMUM LOT SIZES AREA (sq. ft.)	MINIMUM LOT SIZES WIDTH OR FRONTAGE	MAXIMUM COVERAGE (%)	BUILDING HEIGHT MAXIMUM IN STORIES	BUILDING HEIGHT MAXIMUM IN FEET	MINIMUM YARD DIMENSION FRONT	SIDE ONE	SIDE TOTAL	REAR
R-1A Residential	One Family Dwellings			18,000	120	25	2½	35	30	20	35	60
	Schools, Convents			5 acres	200	25	2½	40	50	30	65	100
	Farm			10 acres	-	-	-	-	-	-	-	-
	Accessory Uses			-	-	-	-	-	-	-	-	-
		Public Bldgs.		30,000	120	25	2½	40	30	30	50	100
		Park		-	-	-	-	-	-	-	-	-
		Public Utility	Public Utility	-	-	-	-	-	-	-	-	-
		Private Golf Club	Private Golf Club	-	-	-	-	-	-	-	-	-
		Day Care Facility		18,000	120	25	2½	35	30	20	35	60
R-1 Residential	One Family Dwellings			15,000	100	25	2½	35	25	15	30	40
	Schools			5 acres	200	25	2½	40	50	30	65	100
	Churchs			3 acres	200	25	-	-	50	50	30	100
	Libraries			1 acres	100	20	2½	35	25	15	30	40
	Accessory Uses			-	-	-	-	-	-	-	-	-
		Professional Home Occupations		20,000	150	25	2½	35	25	20	50	50
		Colleges		5 acres	200	25	2½	40	50	30	65	100
		Public Bldgs.		30,000	120	25	2½	40	30	30	65	100
		Park		-	-	-	-	-	-	-	-	-
		Public Utility	Public Utility	-	-	-	-	-	-	-	-	-
		Private Golf Club	Private Golf Club	-	-	-	-	-	-	-	-	-
		Day Care Facility		15,000	100	25	2½	35	25	15	30	40
R-2 Residential	R-1 Permitted Principal Uses			10,000	80	30	2½	35	25	10	25	30
	Two Family Dwellings			7,500/DU	80	30	2½	35	25	15	25	30
	Customary Home Occupations			10,000	80	30	2½	35	25	10	25	30
	Rooming Houses			10,000	80	30	2½	35	25	15	25	30
	Accessory Uses			-	-	-	-	-	-	-	-	-
		Colleges		5 acres	200	25	2½	35	50	30	65	100
		Public Bldgs		30,000	120	25	2½	40	30	30	65	100
		Park		-	-	-	-	-	-	-	-	-
		Public Utility	Public Utility	-	-	-	-	-	-	-	-	-
		Private Golf Club	Private Golf Club	-	-	-	-	-	-	-	-	-
		Day Care Facility		10,000	80	30	2½	35	25	10	25	30
R-3 Multiple Family Residential	One Family Dwellings			15,000	10	25	2½	35	25	15	30	40
	Accessory Uses			-	-	-	-	-	-	-	-	-
		Two Family Dwelling		7,500/DU	80	30	2½	35	25	15	30	40
		Multiple Family Dwelling		3,000/DU	100	30	3	45	25	15	30	40
		Nursing, Convalescent or Home for										

single-family homes, we have estimated that 314 single-family homes* could be constructed on the available 144 acres of the Southern Reservoirs site. As stated previously, 70 acres of the site (34 acres consumed by the reservoir and a 36 acre buffer of land) will be reserved by the Utica Board of Water Supply for use in conjunction with Reservoir #4.

It is important to keep in mind that the available land mentioned above does not take into account the development limitations, such as areas with a high groundwater table or steep slopes which are present on site and may alter the total number of potential single-family building lots.

It should be recognized that the City of Utica borders the Southern Reservoirs site on the north and west, and that one entity or another of the City of Utica owns the Southern Reservoirs site and that annexation of this site has been discussed. It is for this reason that the land use regulations which are in effect for the developed portion of Utica which abuts the site were examined. The area to the north of the Southern Reservoirs site in the City of Utica is currently zoned RS-1 Single-Family Residential, and development is permitted on a minimum of 8,500 square foot building lots.

RS-1 zoning districts are established to delineate those areas where predominantly residential development has occurred or is likely to occur.

* Note: The figure of 314 single-family homes is based on the assumption that 25% of the available acreage would be consumed by streets and utilities, and the land currently occupied by Reservoirs #2 and #5 would be utilized for housing.

It should be noted that residential development in the RS-1 district is the least dense level of development which is required in the City of Utica. See Figure 19 for a listing of land uses which are permitted in the RS-1 district and corresponding dimensional requirements.

For the sake of comparison, if the City of Utica were to annex the Southern Reservoirs site and this land was zoned RS-1, approximately 550* single-family homes could be constructed on the site. This contrasts sharply with the 314 single-family homes which could be constructed on the site under the current zoning regulations for the Town of New Hartford. Both of these figures are based on our estimation of available land. Again, this calculation does not consider site constraints which will certainly tend to reduce both of these figures.

It is worth pointing out that many of the single-family residences immediately north of the Southern Reservoirs site in Utica have lot sizes significantly greater than the minimum lot size requirement in the RS-1 zoning district. It is also worth pointing out that the average residential lot size (excluding the densely developed area north of Memorial Parkway) in the vicinity of the Southern Reservoirs site is approximately one-half acre (approximately 22,000 square feet) in size. Based on these factors, it appears that traditional single-family residential development on 8,500 square foot building lots on the northern portions of the Southern Reservoirs site may be out of character with

* Note: The figure of 550 single-family houses is based on the assumption that 25% of the available acreage would be consumed by streets and utilities, and the land currently occupied by Reservoirs #2 and #5 would be utilized for housing.

SOUTHERN RESERVOIRS STUDY
City of Utica Zoning Ordinance
"Schedule of Uses"

Figure 19

ZONING SCHEDULE OF USE CONTROLS — CITY OF UTICA, NEW YORK

DISTRICT	PURPOSES	USES: PERMITTED PRINCIPAL	USES: PERMITTED ACCESSORY	USES: SPECIAL
RS-1 & RS-2 Single-Family	To delineate those areas where predominately residential development has occurred or will be likely to occur in accordance with the Master Plan for the City of Utica.	Single-Family detached dwelling Public parks, playgrounds, recreational areas Public elementary and high schools and private schools having curricula comparable to that offered in the public school Churches and similar places of worship Planned unit developments	Private garage Private recreation facilities designed and intended for the sole use of the residents therein Signs Other customary accessory uses and buildings	Essential services Universities and colleges including accessory facilities Country clubs, golf courses Community Centers Nursing Schools Hospitals
RA-1, Two-Family	To upgrade the character of all residential areas in the city by requiring standards of land use and lot and building bulk and size which more accurately reflect existing development.	Any use permitted in RS Residential Districts Single-family semi-attached dwellings Two-family detached dwellings	Any accessory use permitted in RS Residential districts Customary home occupations	Essential services Nursery school
RA-2, Multi-Family Low Density	To protect the integrity of residential [illegible] by prohibiti[illegible]	Any use permitted [illegible]		

SCHEDULE II

ZONING SCHEDULE OF BULK AND COVERAGE CONTROLS — CITY OF UTICA, NEW YORK

SCHEDULE OF RESIDENTIAL LAND USE CONTROLS

District	Minimum Lot Area (Sq. Ft.)	Minimum Lot Area per Dwelling Unit (Sq. Ft.)	Minimum Lot Width (Feet)	Minimum Lot Depth (Feet)	Maximum Height (Feet/Stories)1	Minimum Front Yard (Feet)	Minimum Side Yard One/Both (Feet)	Minimum Rear Yard (Feet)	Maximum Lot Coverage (Per cent)	Maximum Floor Area to Lot Area Ratio
RS-1 Single-Family	8,500	8,500	75	100	35/2-1/2	25	15/25	30	30	0.6
RS-2 Single-Family	6,000	6,000	60	100	35/2-1/2	25	10/15	25	35	0.7
RA-1 Two-Family										
Detached Single-Family	5,000	5,000	50	100	35/2-1/2	20	10/15	25	40	0.8
Semi-attached Single-Family	4,5[illegible]	4,500	45	100	35/2-1/2	20	12/—	25	40	0.8
Two-Family	5,000	2,500	50	100	35/2-1/2	20	10/15	25	40	0.8
RA-2 Multi-Family, Low Density										
Detached Single-Family	4,500	4,500	45							
Semi-attached Single-Family	4,000									

the surrounding area, which is developed at significantly lower density than what the RS-1 zoning district permits in the City of Utica.

It is also important to keep in mind that there are other ways in which the Southern Reservoirs site could be developed besides the traditional single-family detached housing development. For example, a change in zoning could be obtained which would permit development of multiple-family residential units or even mixed commercial-residential uses. Non-traditional single-family development which results in the same overall density as what is currently permitted, but which utilizes smaller lot sizes in order to achieve an aesthetically pleasing design, conserve open space and lower development and thus housing costs, would work very well on a site such as the Southern Reservoirs. This report is suggesting that if it ever is decided to utilize any portion of the Southern Reservoirs site for housing, the planned development process should be given special attention. The planned development process is discussed in more detail in Appendix D.

ANALYSIS OF EXISTING (INCLUDING PARTIALLY DEVELOPED) AND PROPOSED HOUSING DEVELOPMENTS

Thirteen major subdivisions and housing projects, including rental units and owner occupied units, have recently been proposed in the general vicinity of the Southern Reservoirs site. These subdivisions and housing projects were identifed from information contained in the offices of the Oneida County Health Department and the Oneida County Planning Department. All except three proposed housing developments are located in the Town of New Hartford.

Tables 8 and 9 provide some information on the major subdivisions and housing projects which have either been approved by the involved government agencies

and boards, or else were in the proposal stage (formal or informal), at the time this study was prepared.

TABLE 8

NUMBER OF INDIVIDUAL BUILDING LOTS/OWNER-OCCUPIED HOUSING UNITS EITHER PROPOSED OR APPROVED

Project Name	Number Proposed or Approved	Approximate Location
Reservoir Heights Subdivision	18	Pleasant Street, just east of the Southern Reservoirs site
Beckwith Circle Subdivision	9	Beckwith Road, east of the Southern Reservoirs site
Higby Hills Subdivision	63	Southwest corner of Higby Road and Mohawk Street
Sherman Hills*	200	Tilden Avenue, south of the Southern Reservoirs site
Higby Woodlands*	68	Off of Higby Road, southwest of the Southern Reservoirs site
South Woods Subdivision*	66	Off of Valley View Road, south of the Southern Reservoirs site
Fraccola Estates	192	Welshbush Road, Town of Frankfort, east of the Southern Reservoirs site
Mazza Subdivision	13	Mohawk Street, south of the Southern Reservoirs site
Total	629	

NOTE: An asterisk (*) indicates that some development has already taken place on the particular project, and the corresponding number is the approximate number of lots/units remaining to be developed.

SOURCE: Oneida County Department of Planning, Herkimer-Oneida Counties Comprehensive Planning Program and Oneida County Department of Health (5/87)

TABLE 9

NUMBER OF RENTAL HOUSING UNITS
EITHER PROPOSED OR APPROVED

Project Name	Number Proposed or Approved	Approximate Location
Washington Mills Apartments	150	Oneida Street, southwest of the Southern Reservoirs site
Fitzgerald Housing Development* (Brookview Apartments)	44	Oneida Street, southwest of the Southern Reservoirs site
Chenango Road Housing Development	24	South Utica, west of the Southern Reservoirs site
Lomond/Richardson Housing Development	55	South Utica, west of the Southern Reservoirs site
Fraccola Estates	238	Welshbush Road, Town of Frankfort, east of the Southern Reservoirs site
Total	511	

NOTE: An asterisk (*) indicates that some development has already taken place on the particular project, and the corresponding number is the approximate number of rental units remaining to be developed.

SOURCE: Oneida County Department of Planning, Herkimer-Oneida Counties Comprehensive Planning Program and Oneida County Department of Health (5/87)

It should be kept in mind that the residential development projects listed above are either in the proposal stage, or have already received approval for development from government agencies and boards with jurisdiction to review these projects. The information contained in Tables 8 and 9 is approximate, and should be viewed in that context. For example, the total number of housing units indicated for Fraccola Estates was the number that was proposed in the Fall of 1985 on the most recent site plan submitted to the Herkimer-Oneida Counties Comprehensive Planning Program for conceptual review. Similarly, the

13 lot Mazza Subdivision is a conceptual proposal, and has not been officially submitted to any government agency or board for review. The ultimate completion of any of these projects depends entirely upon the developer, and the regulating agency, and some of these projects may be more tentative than others.

UNDEVELOPED LAND REMAINING IN THE AREA

Parcels of vacant land over 3 acres in size, large parcels currently in agricultural use and large underdeveloped residential parcels (large parcels with one or two structures) located in the area surrounding the Southern Reservoirs site were inventoried from the tax maps and tax assessment information available in the office of the Oneida County Finance Department. The aggregate acreage for each of these categories is listed in Table 10. The site constraints, if any, associated with these undeveloped parcels have not been reviewed, and in fact many of the site constraints which were discussed earlier as being associated with the Southern Reservoirs site may be exhibited on any one of the parcels below. What Table 10 indicates is simply the aggregate acreage of large undeveloped parcels of land near the Southern Reservoirs site, which have access to public utilities.

TABLE 10

UNDEVELOPED LAND IN THE VICINITY OF THE SOUTHERN RESERVOIRS

Number of Parcels	Approximate Acreage	Current Use
15	314 acres	Vacant
9	411 acres	Agricultural
3	255 acres	Rural Residential*
27	980 acres	

* One or two structures per parcel with a large amount of undeveloped land.

SOURCE: Oneida County Department of Finance (Tax Mapping) (5/87)

Much of this undeveloped land is in the Town of New Hartford and is zoned R-1 Residential which permits single family residential development on building lots of at least 15,000 square feet (roughly one-third of an acre). Assuming that 25% of the 980 undeveloped acres in the Town of New Hartford would be consumed by roads and utilities, approximately 2,100 single family residential lots could be developed on this land.

The vacant land identified above in the City of Utica is zoned RS-1 Single-Family Residential, and permits development on a minimum of 8,500 square foot building lots. Assuming again that at least 25% of the 52 undeveloped acres in the City of Utica would be consumed by roads and utilities, approximately 200 single-family residential building lots could be developed on this land.

In addition to the larger undeveloped parcels, approximately 80 vacant individual building lots have been identified in the southeast section of the City of Utica which could comply with the existing zoning regulations for single-family residential development in the RS-1 district, have frontage on public roads and are serviceable by public water and sewer.

These statements as to the total amount of development which could take place on the undeveloped land listed above for both the City of Utica and Town of New Hartford, assume that there are no significant site constraints and that the land will be developed for traditional single-family detached housing.

We are aware however that certain site constraints do exist that would lower the number of single-family housing units which could be constructed on this undeveloped land in accord with the existing zoning regulations. It is also important to point out that with the exception of the abovementioned 80 individual building lots, in southeast Utica, development of any on this vacant land (by way of a change in zoning) for multi-family housing could actually increase the potential number of housing units. The preceding analysis was intended to provide an idea of the housing development opportunities in the immediate area of the Southern Reservoirs, based on existing zoning regulations.

To summarize, in those subdivisions or housing developments currently under construction or proposed, 1,140 individual building lots and/or dwelling units could be developed in the future in the general vicinity of the Southern Reservoirs site. Approximately 629 of these lots or dwelling units are intended to be either owner occupied or investment properties, with the remaining 511 units originally intended for rental purposes. In addition, approximately 2,380 individual single-family building lots could be developed on the undeveloped land which was identified in the general vicinity of the Southern Reservoirs site.

Therefore, the broad assumption this study is making is that approximately 3,520 dwelling units could theoretically be constructed in the future in the general vicinity of the Southern Reservoirs site. This statement is not a prediction, or projection, of the level of residential development which will take place in the area reviewed, but rather is an "educated guess" as to the gross number of individual building lots and dwelling units which could be developed under the most favorable set of circumstances. In fact, it is questionable whether 3,520 building lots/dwelling units will be developed in the general vicinity of the Southern Reservoirs due to the lack of population growth, physical development limitations and numerous other foreseeable market factors. The fact remains however, that there are opportunities for housing development readily available in the immediate area. It should be noted though, that most of these opportunities would be located in the Town of New Hartford.

REVIEW OF EXISTING HOUSING UNITS AND VACANCY RATES IN UTICA AND NEW HARTFORD

Information on the change in the total number of housing units and vacancy rates for the City of Utica and Town of New Hartford were compiled in order to further assess housing need.

Existing Housing Units: Table 11 provides a comparison as to the change in the total number of housing units in the City of Utica and the Town of New Hartford from 1970 to 1980.

TABLE 11

TOTAL HOUSING UNITS
CITY OF UTICA AND TOWN OF NEW HARTFORD, 1970 AND 1980

Municipality	1970	1980	Absolute Change	Percentage Change
Utica	32,724	31,796	-928	-2.8%
New Hartford*	5,002	5,968	966	19.3%

* Figures for the Town of New Hartford do not include Village figures.

Source: 1980 U.S. Census of Housing

According to a report prepared by the Herkimer-Oneida Counties Comprehensive Planning Program in 1982, "Housing Changes: 1970-1980 for Herkimer-Oneida Counties," much of the growth in the Town of New Hartford occurred as extensions of existing subdivisions.

This same report stated that in regard to housing in the City of Utica:

> Housing unit loss in the City of Utica was only 2.8 percent but the City has 928 less housing units in 1980 than in 1970. There was substantial new apartment construction including garden apartments in North Utica, the Kennedy Plaza (303), Historical Park (120), Six Nations Square Apartments (135), Peretta Twin Towers (108) and Chancellor Park Apartments (92). This construction did not offset the housing loss from demolition of single-family houses and small apartment buildings in the Cornhill area.

In addition to the housing data available from the 1980 U.S. Census of Housing, the following information was available regarding the number of housing units

which have been constructed in the Town of New Hartford since 1980. Based on the information in Tables 11 and 12, it would appear that the rate of housing growth in the Town of New Hartford from 1980 to 1986 is keeping pace with the rate of growth in the Town from 1970-1980.

TABLE 12
HOUSING UNITS (BY TYPE) CONSTRUCTED IN THE TOWN OF NEW HARTFORD, 1980-1986

Type of Housing Unit	Number Constructed
1 Family	314 units
2 Family	24 units
Multi-Family	170 units
	508 total dwelling units

SOURCE: Town of New Hartford Codes Enforcement Office.

NOTE: Similar data was not available on housing units constructed in the City of Utica since 1980.

Vacancy Rates: Residential vacancy rates are another factor which could have a bearing on both the need and feasibility of developing the Southern Reservoirs site for housing purposes. The information on residential vacancy rates for the City of Utica and the Town of New Hartford was taken from the 1980 U.S. Census of Housing, and as such it is somewhat dated (see Table 13). This data is nonetheless the most complete and accurate data which is readily available on overall residential vacancy rates.

TABLE 13

CITY OF UTICA AND TOWN OF NEW HARTFORD: OVERALL RESIDENTIAL VACANCY RATES, 1980

Type of Housing Unit	Utica	New Hartford
1 Family Detached	3.03%	1.23%
2 Family	10.07%	4.13%
3 and 4 Family	15.65%	6.25%
5 or More Units	13.21%	4.86%
All Housing Units	9.10%	2.18%

Source: 1980 U.S. Census of Housing

A common rule is that a 3% vacancy rate for all types of housing units, rental and owner occupied, is an indication of a healthy housing market. This is because a certain proportion of vacant housing units are needed to accommodate households moving into the area, and also to allow households currently residing in the area a certain degree of choice in housing selection if they choose to change residences within the same municipality.

In 1980 in the Town of New Hartford, there appeared to be a significant shortage of single-family detached housing, with only 1.23% of these units vacant. The vacancy rate for single-family homes in the City of Utica was very close to the desired rate, at 3.03%. As Table 13 shows, there appeared to be a surplus of 2, 3, 4 and 5 family units in both the Town of New Hartford and the City of Utica, if the overall 3% vacancy rate is used to evaluate these vacancy rates. If it is reasonable to assume that a significant portion of the 2, 3, 4 and 5 family units are rental units, then the Town of New Hartford, based on this overall vacancy rate guideline may not have experienced a surplus of these units in 1980.

While the vacancy rates in the City of Utica in 1980 indicated that there is a disproportionate percentage of vacant housing units, a brief review of the selected neighborhood statistics shown in Table 14, reveals that in at least two "neighborhoods" in 1980, the vacancy rates were quite different from that of the overall vacancy rates for the City of Utica.

TABLE 14

SELECTED CITY OF UTICA NEIGHBORHOODS:
RESIDENTIAL VACANCY RATES, 1980

	Neighborhood		
Type of Housing Unit	South Utica	Southeast Utica	East Utica
1 Family Detached	0.61%	1.85%	4.47%
2 Family	2.40	3.17	11.40
3 and 4 Family	3.05	0.0	13.34
5 or More Units	5.2	10.04	18.44
All Housing Units	1.61	3.87	10.40

NOTE: The term "neighborhood" as used in Table 14 refers to a geographic area delineated in order to present census data at the neighborhood level. Figure 17 shows the neighborhood delineations.

SOURCE: 1980 U.S. Census of Housing-Neighborhood Statistics

An examination of the vacancy rates for South and Southeast Utica for single-family detached units reveals that in 1980 there was a less than adequate supply of these units in terms of accommodating households either moving into, or within these neighborhoods. The 1980 vacancy rates for two-family units in South Utica, and three and four family units in Southeast Utica were also below 3%. The 1980 vacancy rates for East Utica seem to indicate that there is an adequate supply of all types of housing units in that neighborhood.

New Hartford. The proportion of vacant rental units in the Town of New Hartford is also deficient according to the above standard, while there appeared to be a surplus of rental units in 1980 in the City of Utica.

In addition to the housing data which is available from the 1980 U.S. Census, HOCCPP recently conducted a survey of apartment complexes in Herkimer and Oneida Counties which contain 10 or more units, and tabulated a vacancy rate by type of unit. The data contained in Table 16 should be viewed as a guideline only, in that this rental housing survey did not represent a 100% sampling.

TABLE 16

VACANCY RATE BY TYPE OF RENTAL UNIT
FOR SELECTED APARTMENT COMPLEXES IN HERKIMER AND ONEIDA COUNTIES, 1986

Type of Unit	Vacancy Rate
Efficiency	6.2%
One Bedroom	5.0%
Two Bedroom	2.3%
Three Bedroom	3.0%

SOURCE: Rental Housing Survey, HOCCPP, 1986.

Using the 6% vacancy rate for rental units as the desired ratio, Table 16 indicates that there may be an adequate supply of efficiency units available in Oneida and Herkimer Counties. There appears to be a slightly inadequate supply of 1 bedroom units, and an even more inadequate supply of two and three bedroom rental units located in apartment complexes with 10 or more units in the two county area.

POPULATION CHARACTERISTICS

Population Projections: Up to this point, this section of the report has discussed the number of housing units which have been proposed and remain to be developed in the vicinity of the Southern Reservoirs site, the amount of undeveloped land surrounding the reservoirs, change in total housing units, and residential vacancy rates for the City of Utica and Town of New Hartford. Another factor, which must be considered is the increase or decrease in population (specifically the number of households) in the Town of New Hartford, City of Utica and adjacent areas which will in turn affect the demand.

Population projections for the City of Utica, Town of New Hartford and Oneida County are expressed in Table 17, both by total population, and number of households. Translating the population projections into the corresponding number of households provides a measure of the future housing demand, since by definition a household is comprised of all those persons (related or unrelated) occupying a single housing unit. For the purpose of this exercise, the average household size is estimated to be 2.77 people. A general trend towards a lower household size will increase the overall demand for housing, while a larger household size will decrease the demand for housing.

TABLE 17

CITY OF UTICA, TOWN OF NEW HARTFORD AND ONEIDA COUNTY
POPULATION PROJECTIONS, 1990 - 2010

	1990	2000	2010	Increase 1990-2010
City of Utica				
Total Population	69,600	70,000	70,399	799
Number of Households	25,126	25,270	25,414	288
Town of New Hartford				
Total Population	18,242	19,155	19,517	1,275
Number of Households	6,585	6,915	7,046	460
Oneida County				
Total Population	256,753	263,958	268,392	11,639
Number of Households	92,690	95,291	96,892	4,202

SOURCE: New York State Department of Commerce and Herkimer-Oneida Counties Comprehensive Planning Program. The number of households is obtained by dividing the total population by 2.77.

Based solely on the projected increase in households from 1990 to 2010, it appears that the 1,140 housing units already proposed for development in the general vicinity of the Southern Reservoirs site as of May, 1987 could accommodate all of the future housing demand which one would expect to be generated by the projected increase in households in the Town of New Hartford from 1990 to 2010, as well as all of the housing demands generated by the projected increase in households for the City of Utica over the same time period. To provide another point of reference, the abovementioned number of housing units which have been proposed and remain to be developed, could accommodate approximately 27% of Oneida County's total projected household increase during the same time period.

Household Size: A related trend which suggests that the demand for housing in the New Hartford and Utica area will increase, is the trend towards a smaller household size. A smaller household size can account for an incresed demand for housing in an area, even if the total population of a particular area

decreases. This is because there is only one household per housing unit, and one and two person households are becoming common. The information in Table 18 illustrates this point.

TABLE 18

CITY OF UTICA, TOWN OF NEW HARTFORD AND ONEIDA COUNTY
POPULATION AND HOUSING UNITS, 1970-1980

	1970	1980	Change
New Hartford			
population	17,129	17,043	-86
total housing units	5,002	5,968	966
City of Utica			
population	91,373	75,632	-15,741
total housing units	32,724	31,796	-928
Oneida County			
population	273,070	253,466	-19,604
total housing units	88,248	95,834	7,586

SOURCE: 1970 and 1980 U.S. Census of Population

From 1970 to 1980, the Town of New Hartford experienced a population decrease of 86 people, yet the number of housing units in the Town increased by 966. Table 18 indicates that the rate of increase in housing units from 1970 to 1980 is similar to the rate of increase in housing units in the Town of New Hartford from 1980 to 1986 (see Table 12), although the population in the Town of New Hartford is expected to increase slightly from 1980-1990. Oneida County also lost population from 1970 to 1980, yet had an increase in the total number of housing units. The City of Utica had both a significant population and housing unit decrease from 1970 to 1980, with the housing loss largely attributable to the demolition of single-family homes and small apartment buildings in the Cornill area.

There are many other factors which cannot be anticipated at this point in time, such as a significant change in employment for a major local employer, which could dramatically impact the future housing demand in this area. The point here is that we have to rely primarily on data on the physical site characteristics, past housing trends and population projections on which to make a preliminary determination as to the need to develop the Southern Reservoirs site for housing.

The residential vacancy rates examined in Tables 13, 14 and 15 indicate that in 1980 there was a significant shortage of single-family detached housing in the Town of New Hartford and the City of Utica (particularly in the neighborhoods of South and Southeast Utica). Table 14 also pointed out a shortage of 2-family units in South Utica, and both the City of Utica and the Town of New Hartford experienced a shortage of owner-occupied housing units in 1980. In addition to this, a recent survey conducted of apartment complexes in Herkimer and Oneida Counties, indicated that there is an inadequate supply of one, two and three bedroom rental units. The population projections in Table 17 also suggest that there will be an increased need for housing as the number of households increase. Finally, the trend towards a smaller household size should have a significant impact upon the demand for housing in the area.

On the other hand, approximately 1,140 housing units have already been proposed for development in the general vicinity of the Southern Reservoirs site. In addition, a significant amount of potentially developable land remains undeveloped near the site.

CONCLUSION

At this point it is important to differentiate between the need (or demand) for actual housing, and the need for undeveloped land on which to develop this housing. While there may be a need for certain types of housing in the Town of New Hartford and the City of Utica, both now and in the near future, there certainly is no shortage of undeveloped land, nor housing units which have already been proposed for development, in the general vicinity of the Southern Reservoirs site.

The conclusion we have drawn from reviewing the various factors which should impact the need to develop the Southern Reservoirs site for housing, is that there is not a critical need at this point in time to develop the site for residential purposes. This is primarily due to the number of housing units already proposed for development, along with the significant amount of undeveloped land (with access to public utilities) available near the site. This does not mean that the site should not or could not be successfully developed for housing, but rather that other housing opportunities of a relatively equal nature can be made available nearby.

In discussing these housing factors, particularly the vacancy rates for rental units, the recent developments relating to the new State prisons at Marcy and Rome, and the temporary (4-5 years) assignment of the Helicopter component of the 10th Mountain Division at Griffiss Air Force Base should be noted. While it is too early to determine specific impacts of these developments, it is clear that their combined magnitude will effect the regional housing market, putting pressure on limited rental housing stock and adding some new demand for new and affordable single family owner-occupied and rental units.

VII. LAND USE ALTERNATIVES

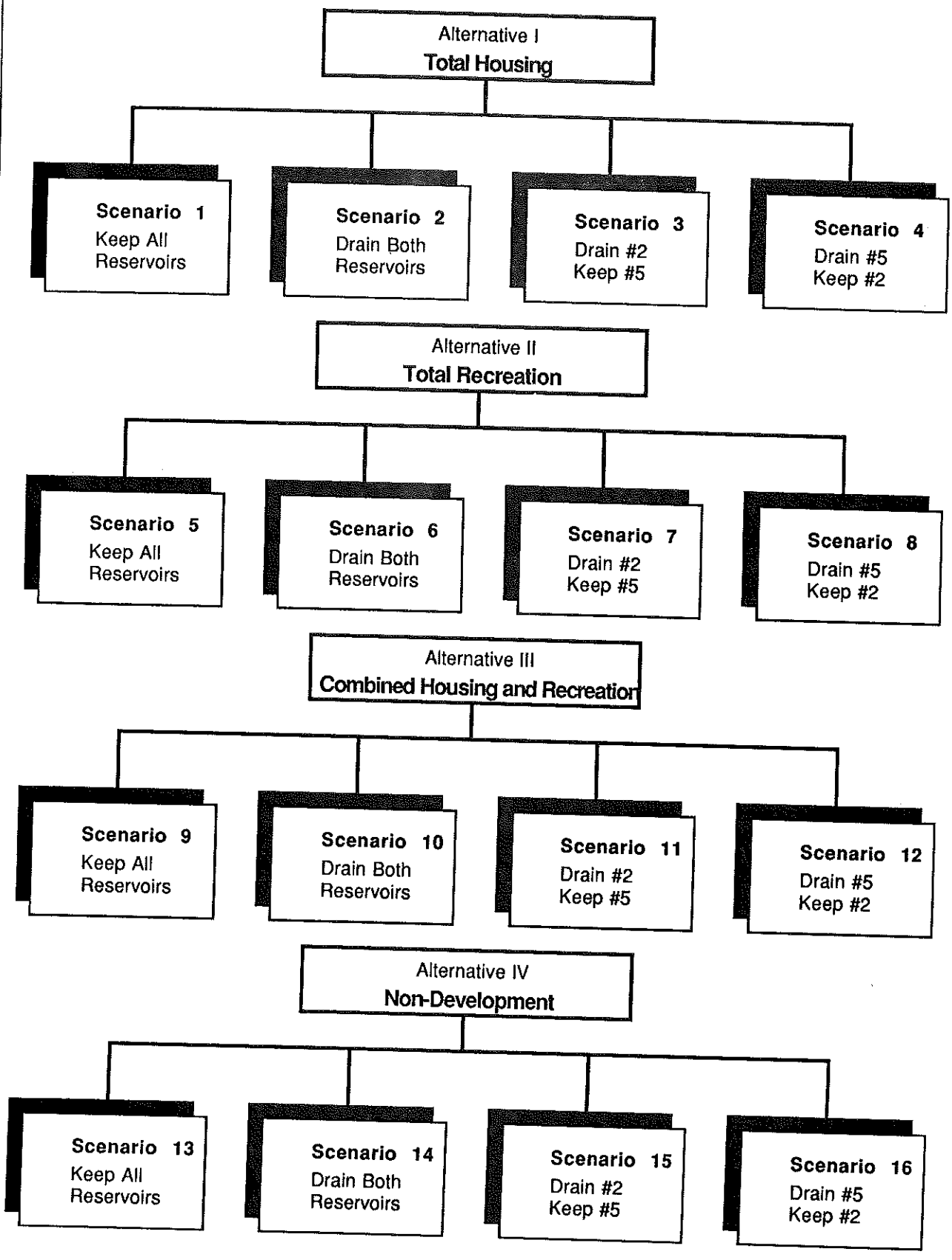
In this section of the report we will examine four basic alternatives for the development of the Southern Reservoirs site. These alternatives represent four distinctly different options for the future use of the site. The alternatives examined include: I) developing the site for housing; II) developing the site for recreation; III) developing the site for a combination of both housing and recreation; and IV) non-development.

Figure 20 illustrates these four alternatives and the various scenarios possible when considering the different combinations of either maintaining or eliminating Reservoir #2 and/or Reservoir #5. As discussed earlier in this report, it is assumed that Reservoir #4 will remain intact and on-line as part of the water supply system for the foreseeable future. Approximately seventy (70) acres immediately surrounding and including Reservoir #4 were set aside to be retained by the operator of the water system. This area would serve as a protective buffer to keep unauthorized users physically away from the water and shoreline. The four major alternatives represent the broad, general uses which were examined. The sixteen scenarios, four for each alternative, represent specific development combinations. These scenarios were arrived at through an analytical approach whereby all possible development combinations were examined. Each of the alternatives include the following four scenarios: keeping all the reservoirs intact; draining both reservoirs; draining Reservoir #2 and keeping Reservoir #5; and draining Reservoir #5 and keeping Reservoir #2.

Various factors resulted in an initial elimination of a number of the scenarios listed in Figure 20. Alternative IV (non-development) and its four scenarios

SOUTHERN RESERVOIRS STUDY
Alternatives and Scenarios

Figure 20



(#'s 13, 14, 15 and 16) were eliminated for the following reasons. Whether maintaining the status quo by keeping all reservoirs as they now exist, draining both reservoirs or draining only one reservoir, in implementing Alternative IV (non-development) any use potential the site might contain would not be realized. In other words, while the liability, taxes, risks, maintenance, etc. would remain with the owners, by doing nothing with the site the owners would receive no monetary or physical benefits nor would any of the existing problems be addressed. While there may be some benefits from keeping all the reservoirs intact, such as simply maintaining the site for its open space and aesthetic value (Scenario 13), we should note that the topography of the site and surrounding area significantly limits the vantage points from which to view the reservoirs. One must also address the legitimate question of should the Utica Board of Water Supply, or the City itself, continue to pay for the open space values when they do not require the reservoirs for an operational purpose?

Additional options which were eliminated include Scenarios 4, 8, and 12, all of which relate to draining Reservoir #5 and keeping Reservoir #2. Regardless of which specific reservoir might be drained and which might be kept, the act of draining one reservoir (assuming these embankments would be regraded) would create certain advantages: the high hazard risk classification for the embankments of the drained reservoir would be eliminated; the undrained reservoir would provide for water based recreation if chosen as an alternative; and the aesthetics and greenbelt concept of the area would be partially preserved. However, it appears that if there is a choice to drain one reservoir and keep the other, draining Reservoir #2 would be more beneficial than draining Reservoir #5. This determination is based on several factors including 1) Reservoir #5 is more aesthetically pleasing than is Reservoir #2;

2) the views northward from Reservoir #5 are more exceptional than those from Reservoir #2; 3) Reservoir #5 is larger in area than Reservoir #2; 4) Reservoir #5 could provide more space for water based recreation than could Reservoir #2; and 5) Reservoir #2 is located directly below Reservoir #4, which will remain on-line.

At the conclusion of the initial screening process a total of seven scenarios, including one entire alternative, the "Non-Development" alternative, were eliminated completely. The remaining nine scenarios (three scenarios for each of the three major alternatives remaining) were examined and analyzed in greater detail. As a result of this examination and analysis, one preferred scenario was identified for each alternative considered, i.e. total housing, total recreation, or a combination of the two. It was felt that these three alternatives would be representative of the three major development options which would be most likely to occur on the site. A conceptual illustration was then prepared to graphically depict the theoretical development of the site under each of the three scenarios.

DEVELOPING THE SITE FOR HOUSING

When considering the alternative of developing the site primarily for housing, three scenarios were considered. These include: Scenario 1, keep all reservoirs intact and develop housing on the remaining land; Scenario 2, drain both Reservoirs #2 and #5 and use the reservoir beds and adjacent land for residential and related development; and Scenario 3, keep Reservoir #5 intact, drain and regrade for housing Reservoir #2.

The scenario which was chosen as providing the maximum preferred arrangement for housing development is Scenario 2. The following describes some of the more outstanding reasons why Scenario 2 is considered as having the most potential.

By draining both Reservoirs #2 and 5, approximately thirty-six (36) additional acres would be made available for development purposes than would be provided in Scenarios 1 or 3. These 36 extra acres would allow for additional housing units and open space to be developed on the site. It was also concluded that because Reservoir #2 is directly below Reservoir #4 (which will remain intact for water supply purposes), the area would not be suitable for housing development. We feel this is a valid assumption, recognizing the dominating presence of the embankment of Reservoir #4, (see Figure 2A). Further, since the bed of Reservoir #2 is lower in elevation than the surrounding available land, (see Figure 2A) it provides a logical location for the placement of facilities ancillary to residential housing, including stormwater management/retention and open space/recreation. Finally, by following Scenario 2 and draining both reservoirs, the liability and risk, resulting from the proximity of Reservoirs #5 and #2 and their embankments to the existing residential housing development would be eliminated.

Draining both Reservoirs #2 and #5 and developing the site for housing (Scenario 2) appears feasible because the infrastructure and utilities necessary to service the site are close-by, and the housing alternative would blend well with the existing character of surrounding land-uses. Property tax revenues generated in the Town of New Hartford from the property would likely increase with the development of housing. Further, a higher monetary value

would be realized from the sale of the site for housing rather than for recreational uses.

After deciding Scenario 2 provides the maximum amount of land available for housing development, when compared to the other two scenarios, a conceptual site plan was developed to better analyze what might be done on the site (see Figure 21).

With the removal of Reservoir #5, regrading and terracing could take place and provide approximately twenty-three (23) acres for housing development. Because existing housing on Pleasant Street in the vicinity of the Southern Reservoirs site is mostly single-family detached units on approximately 20,000 square foot lots, we would recommend that in this area formerly occupied by Reservoir #5 new housing should also be single-family detached units on 16,000-20,000 square foot lots. In this way the proposed type and density of housing will blend with the existing adjacent residential land uses.

The steeply rising slopes directly south of Reservoir #5 provide a natural buffer area between the approximate northern and southern halves of the site. On the southern half, we conceptualize detached and semi-detached single family units of various architectural styles. Traditional townhouses and weak-link townhouses could be provided as part of this type housing. The townhouse is a form of single-family attached dwelling units which share common side walls and are often designed in staggered rows. Weak-link townhouses have both a one story and two story portion; thereby having an appearance of a single-family attached home. This provides a greater sense of the individual unit identity. Because townhouse lots are typically much smaller than single family detached

SOUTHERN RESERVOIRS STUDY

CONCEPTUAL PLAN
for the
HOUSING SCENARIO

Figure 21

lots, common open space is abundant and provides an opportunity to create a more attractive, natural setting with recreational areas and natural buffers to surrounding land users. For aesthetic reasons and to maximize the potential for scenic vistas, we have located the townhouses adjacent to areas of steep slopes and ravines.

Other types of housing which are suitable on the southern half of the site include patio-houses and village houses. The village house is a single-family detached unit built on very small lots. This type of housing is designed to reflect the old style homes on small lots as found in many historic towns and villages throughout New England. The homes are placed close to the street to maximize the rear yard, and alleys are encouraged to reduce the visual impacts of autos on the streets.

The patio-house is also a single-family detached or semi-detached unit. Some, like the townhouse, may share a common wall. Patio-homes are built on small lots usually enclosed by walls which provide individual privacy. The patio-house is designed to appeal to those who want privacy without the maintenance of a larger yard.

As can be seen from the site constraints maps in earlier sections of this report, soils in a small portion of the site are somewhat limiting for residential development. To mitigate this problem, housing construction could be slab-on-grade and small lots would require only minimal site disturbance. Further since we recommend housing development contingent on the availability of public sewers (and water) the limitations associated with these soils for individual septic tanks would not be applicable.

In addition to preserving open space and minimizing site disturbance, one of the more attractive features of townhouses, patio houses and village houses is that they can be more affordable than a traditional single-family detached unit. These units are usually more affordable because of lower land and construction costs. Smaller lot sizes, reduction in the amount of land per housing unit denoted to right-of-way (streets, utilities,etc.) and attached units such as the townhouses contribute to lowering housing costs and providing a more affordable type of housing unit than the traditional single-family detached unit.

As discussed earlier stormwater retention is proposed in the open space area formerly occupied by Reservoir #2. In conjunction with the common open space areas, nature trails are provided on the undevelopable, steeply sloped land containing the ravine in the southeast corner of the site. A jogging and/or fitness trail could also be developed and located around the circumference of Reservoir #4, just outside of any security fencing.

The road system for a conceptual housing development like this might include a semi-grid pattern with individual driveway access onto streets through the conventional single-family development closest to Pleasant Street. A loop/cul-de-sac system could be designed for the development in the southern half of the site, thereby eliminating individual access onto the main road. Four access points were also proposed. One is located off Cascade Drive and three off Pleasant Street forming intersections at Parkway Circle, Parkway Lane and Sage Court. One "collector" street could be provided connecting Cascade Drive with the eastern portion of Parkway Circle and Pleasant Street. Curves, speed limits, and other control mechanisms could be used to discourage through traffic from Cascade Drive to Pleasant Street and the Parkway.

The conceptual plan for the housing scenario shows a fewer number of housing units than what is permitted for the site under the current zoning regulations. This is because this plan was formulated by taking into consideration the various site constraints, maintenance of open space and minimizing site disturbance. It is recognized that more units than what is shown in Figure 22 could be established on the site at the expense of some of the open space and other natural features and with higher site development costs.

DEVELOPING THE SITE FOR RECREATION

When considering the development of the site primarily for recreation (Alternative II), three scenarios (#'s 5, 6, and 7) were examined. Of these three, the scenario which was selected as providing the maximum potential for recreation is Scenario 5.

Scenario 5 calls for keeping both Reservoirs #2 and #5 intact and developing extensive field sports and water oriented recreational opportunities. The following paragraphs describe some of the more significant reasons why Scenario 5 was chosen over Scenarios 6 and 7.

If both reservoirs were drained, as called for in Scenario 6, no water based recreation could be provided, thereby limiting the types of recreational opportunities which could be provided to only those non-water oriented activities. Scenario 6 would also result in the site irreversibly losing two of its most distinguishing features, Reservoirs #2 and #5. Given the abundance of undeveloped land in the vicinity of the subject site it is possible to find

other areas suitable for the development of land oriented recreation. It is, however, more difficult to find other existing nearby areas with the potential for water based recreation. This is particularly relevant when one considers those segments of the population which are dependent on public transportation rather than private automobiles as discussed earlier in this report.

Scenario 7, although not as beneficial as Scenario 5, still offers more potential than does Scenario 6. There does not appear to be any exceptional losses resulting from the draining of Reservoir #2. In fact, some of the liability and risk may decrease as a result of the elimination of one reservoir. It was concluded, however, that the permanent loss of Reservoir #2, compared to the potential of providing additional water based recreation, if kept, resulted in Scenario 7 being viewed as less desirable than Scenario 5.

By following Scenario 5 and keeping both Reservoirs #2 and #5, the maximum amount of water area is available for water based recreation. In addition, organized field sports or other land oriented recreational activities could be provided in the southern half of the site, adjacent to Cascade Drive.

Although the often mentioned issues of liability and risk associated with the public use of the reservoirs would not be addressed by Scenario 5, there would appear to be significant benefits which could be gained from utilizing the site for active recreation rather than keeping both reservoirs and just allowing the site to serve an open space function. Perhaps the greatest benefit to promoting Scenario 5 is the fact that the decision to keep the reservoirs is totally reversible. If, in the future, costs outweigh the

benefits, the reservoirs can always be drained. An additional benefit to Scenario 5 is the preservation of the aesthetic character of the area and the continuation of the "Greenbelt" concept.

A conceptual site specific plan was developed to better illustrate what might be done on the site should Scenario 5 be implemented (see Figure 22).

The relative shallowness of Reservoir #2 results in an ideal location for some type of limited boating access, whether paddleboats, canoes or rowboats. Floating docks, located in the southeastern corner of Reservoir #2 could provide easy access to boats. It is possible to lower the water depth even further and provide only enough water to float the boats. While this may decrease the risk of accidental drownings, embankment failure and associated risks it might also be the equivalent of boating in a bowl (see Figure 2). However, it may be possible to lower the banks of Reservoir #2 proportionally with the water level to minimize this effect.

Based on information obtained from staff of the New York State Department of Environmental Conservation and discussed earlier in this study, the depth and relatively large surface area of Reservoir #5 provides an excellent area for regulated shore fishing. Fishermen would be able to access the reservoir from any of the four twenty (20) foot wide embankments. Special access for handicapped individuals could be provided through the construction of a platform in the southwest corner of Reservoir #5, closest to the parking area.

In conjunction with the development of fisherman access trails on the southern side of Reservoir #5, picnic areas could be interspersed in both shoreline and

SOUTHERN RESERVOIRS STUDY

CONCEPTUAL PLAN
for the
RECREATION SCENARIO

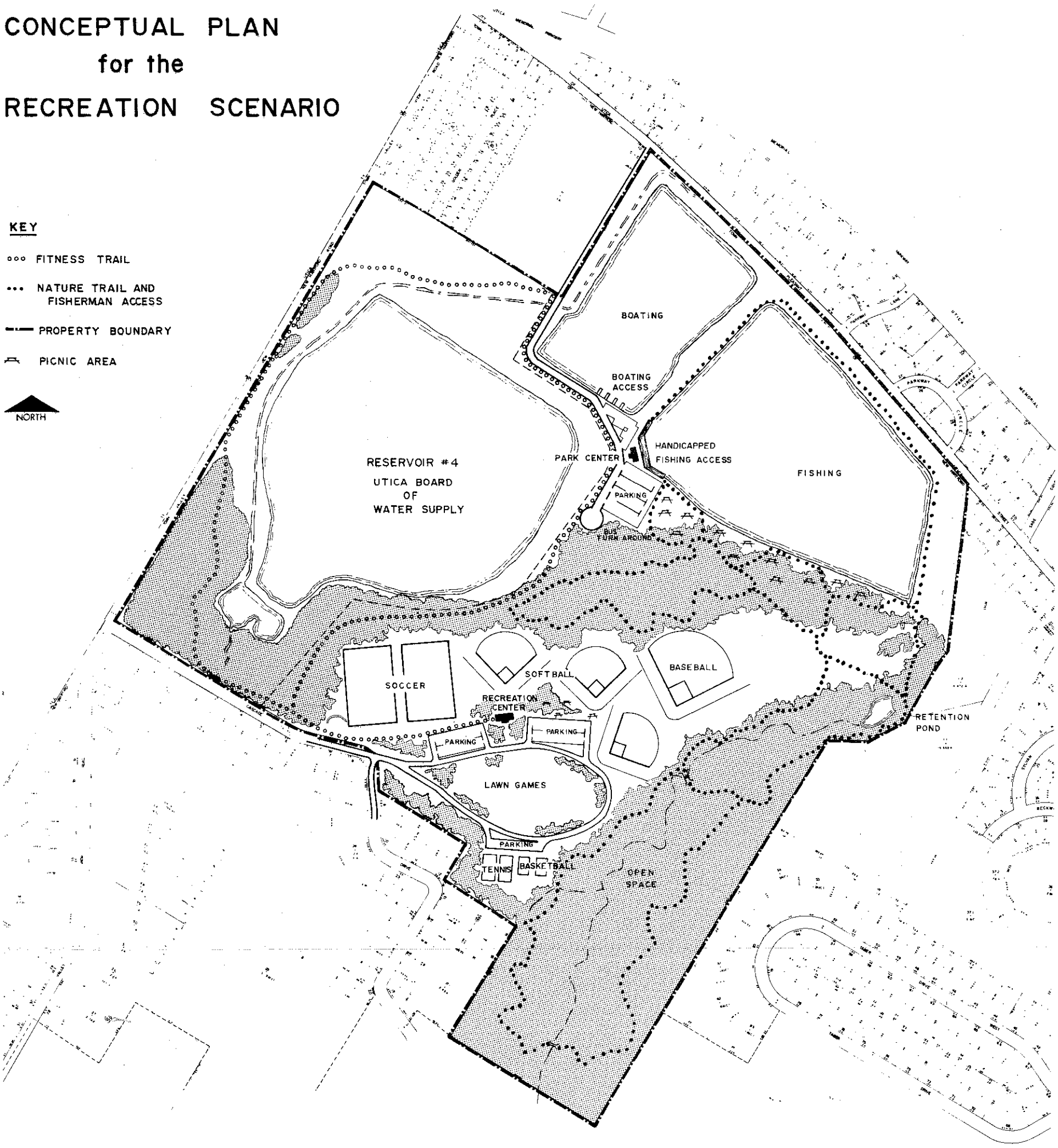


Figure 22

wooded settings. This would provide the opportunity for combined fishing and picnicking, picnicking near the waterfront, and areas for segregated use of fishing or picnicking. In addition to the abovementioned facilities, we would propose a park center to be located between Reservoirs #2 and #5, near the handicapped fishing access and parking areas. This building could include restrooms, information, food concession, boating concession, first-aid and administrative park offices.

Steep slopes are located just south of Reservoir #5. This area is proposed for the development of a nature/hiking trail system. The fisherman access trails could connect to the nature trails which would then extend into the steeply sloped ravine in the southeast section of the parcel. To complete a trail system in the entire area, we propose a jogging/fitness trail to be developed around the perimeter of Reservoir #4.

In the south central portion of the site soccer, softball, baseball or other organized field sports could be developed on the relatively flat, dry and treeless area which exists. Following proper site design criteria and recommended orientation of the fields to the sun approximately two (2) soccer, three (3) softball and one (1) baseball field could be provided within this flat area.

A one-way "loop" style road system could provide access to the field-oriented sports and could be located in the areas of seasonable wetness which would not be suitable for athletic fields. In addition, with the installation of properly designed subsurface drainage systems parking areas, tennis courts and basketball courts could be located in this seasonably wet area. To prevent

excessive pedestrian and vehicular conflicts, the area located in the center of the "loop"/road could be designated as open space or used for lawn games such as frisbee, kite flying, or croquet. A small building could be provided in the southern section of the site, near the ball fields. This "recreation center" building might be used to store maintenance and sports equipment, provide restrooms, and first-aid facilities. One or more picnic pavillions could also be located in this area and/or in the "loop".

The water-based recreational activities located in the northern section of the parcel would be accessed directly off Pleasant Street at the location of Sage Court. A bus turnaround could be developed at the southern terminus of the road. Parking areas could be located near the southeast corner of Reservoir #2 and the southwest corner of Reservoir #5. The loop road accessing the field sports and the cul-de-sac road accessing the water oriented sports would not connect. This will serve to divide the site into two (2) distinct areas and will also help minimize pedestrian and vehicular conflicts.

DEVELOPING THE SITE INTO A COMBINATION OF HOUSING AND RECREATION

The final alternative considered involves developing the site for a combination of both housing and recreation. The options which were examined for this alternative include: keeping both reservoirs (Scenario 9); draining both reservoirs (Scenario 10); or draining Reservoir #2 and keeping Reservoir #5 (Scenario 11).

Although any of these three scenarios are feasible, the option of draining Reservoir #2 and keeping Reservoir #5 (Scenario 11) was chosen as having the

maximum diversity and the greatest potential for providing a mixture of housing and recreational opportunities, while still taking advantage of the fact that the reservoirs themselves account, to a large degree, for the unique aesthetic quality of the site. We consided keeping both Reservoirs #2 and #5 as they presently exist for water oriented recreational purposes and locating housing on the southern portions of the site. However, this option provided no opportunity for providing field sports, except at the expense of housing units. Further, when considering this site for the combined development of housing and recreation, we felt that it was important to not only consider the reservoirs and their recreational potential, but to also provide for the maximum diversity of uses. Only Scenario 11 offers the flexibility to provide opportunity for meaningful water-oriented recreation, field sports and a mixture of housing opportunities.

A conceptual site specific plan was developed to better illustrate what could be done on the site should Scenario 11 be followed (see Figure 23).

After regrading of the embankments and pond area of drained Reservoir #2, and following specific design criteria and recommended orientation of the fields to the sun, approximately two soccer, two tennis, two basketball and two softball fields could be located in this area. These facilities would, in addition to serving the existing recreational needs of the neighborhood, also serve the recreational needs of the new residents of the southern housing development. These residents could access the recreational facilities via a series of pedestrian/bicycle trails. Reservoir #5, which would remain intact, could provide fishing access similar to the development for Scenario 5 discussed earlier. The handicapped fishing platform, fisherman access trails,

SOUTHERN RESERVOIRS STUDY

CONCEPTUAL PLAN
for the
MIXED USE SCENARIO

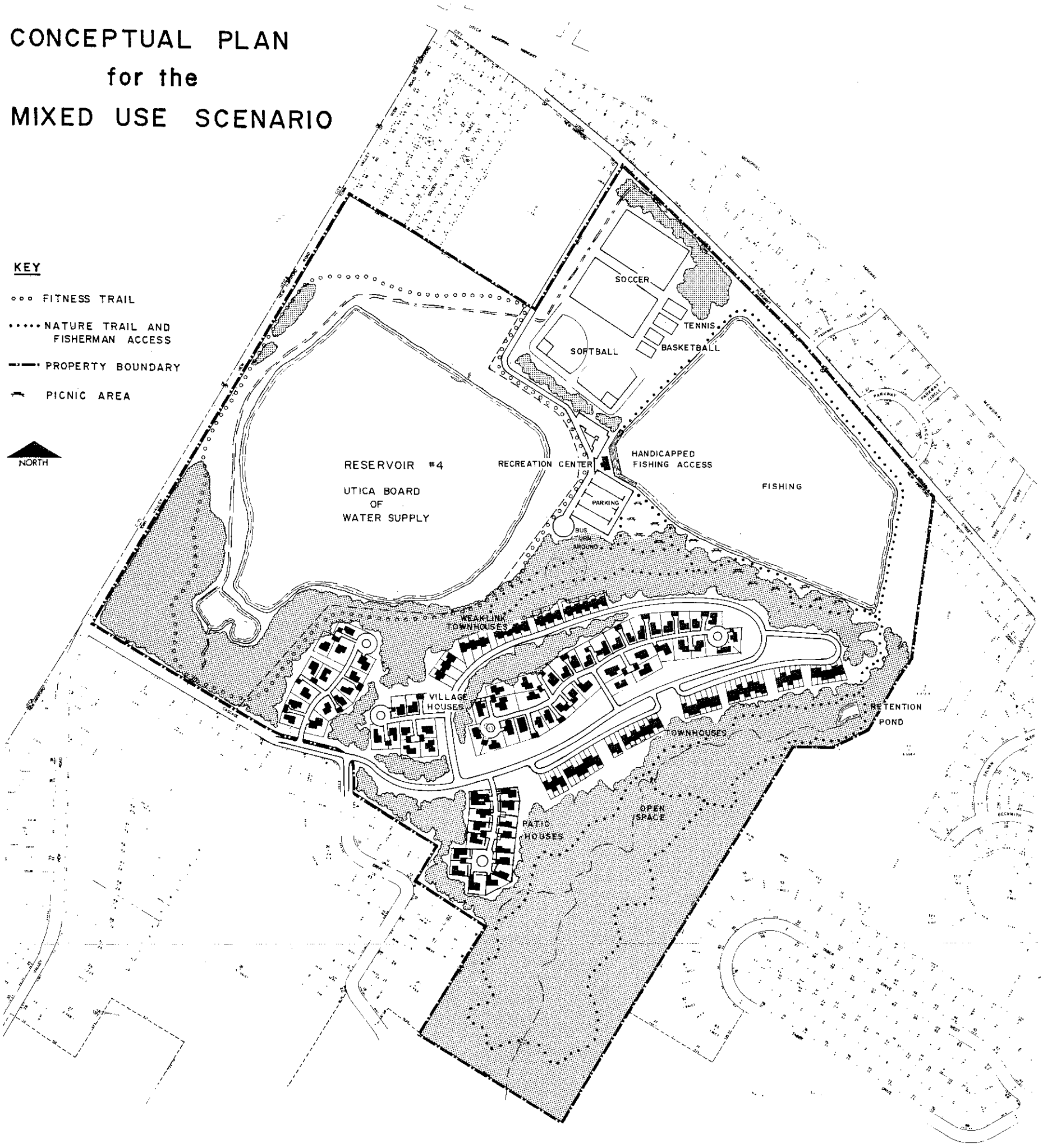


Figure 23

picnicking, recreation center, roads and parking also reflect the same recreational development ideas and concepts as in the Scenario 5 discussion. All recreational uses, with the possible exception of small sub-neighborhood oriented tot-lots interspersed throughout the residential area as needed, would be limited to the northern section of the site. Nature/hiking trails would extend down the eastern slopes and into the ravine. The fitness/jogging trail around Reservoir #4 which was discussed earlier would also be included in this scenario.

Conventional single-family housing will not be provided under this scenario. However, the townhouses (traditional and weak-link), patio houses, and village houses are proposed in the same location and in the same quantity for Scenario 11 as they were in Scenario 2.

Scenario 11 intentionally does not provide for a new road system connecting Cascade Drive and Pleasant Streets. This decision will insure more separation between the recreational and residential areas and will help to avoid potential vehicular/pedestrian conflicts. This separation will further enhance the natural buffer already provided by the steep slopes and existing vegetation located between the northern and southern portions of the site.

VIII. CONCLUSION

We hope that the information contained in this report will be of value to the decision makers as they weigh the future of the Southern Reservoirs site. The conceptual plans presented offer three distinct and reasonable alternatives for the reuse of the site. These three alternatives or variations of them can serve as the starting point for eventually making a sound decision concerning the future of this public resource.

THE NEXT STEP

The next step for the decision makers to take is to select a preliminary course of action to pursue. Once this is accomplished the conceptual plan chosen will require more detailed study, analysis and evaluation in three broad areas: refinement of the conceptional plan, financial aspects and administrative/legal aspects.

1. Refine conceptual plan - the conceptual plan (or combination of plans) chosen will need to be refined and further detailed.
   a. A more detailed market study must be conducted to more specifically establish the need and demand for housing and/or recreation facilities. Concerning housing, the type, density and price range would have to be more specifically determined. In terms of recreation more definition on the number, size and location of specific facilities to be provided will be required on such items as ball fields, parking, buildings, docks, rest-rooms, etc.

b. A detailed preliminary site design will be needed including more specificity relating to the layout of housing and/or recreation facilities, utilities (sewer and water lines), roads, stormwater management system, etc.

2. Develop financial aspects of the plan - preliminary cost and financial data required to implement the plan will be needed. This is particularly true for the recreation alternatives as it is assumed these will involve public ownership.

   a. the cost of site preparation and improvements will need to be determined for the intended uses in such areas as grading, utilities, roads, etc. These costs are an important component necessary to determine overall project costs.

   b. The construction costs of the facilities themselves will need to be determined. As it relates to recreation this applies to the cost of constructing ball fields, administrative building, docks, trails, etc. In relation to housing, the ultimate developer will need to, based on the market studies noted above, develop construction costs for housing.

   c. Particularly for the public recreational alternatives the annual operating and maintenance costs must be develope.

   d. Potential sources of local, state and Federal funding for both capital and operating costs will need to be determined.

   e. A financing plan will have to be developed which will cover both capital and operating requirements over the life of the project to include type of bonding, sources of operating funds and user fees if any.

3. Develop administrative/legal aspects of the plan - this component will be the key to the success of any future use of the Southern Reservoirs site particularly when addressing recreation alternatives.

   a. The most appropriate administrative mechanism to manage the site will need to be determined. Included here is the major issue of how site ownership will be resolved and a determination of the local government or intermunicipal agency most suited to operating a public recreation site of this type. In relation to housing a decision will be needed as to whether the site should be sold to a private developer or whether some local government or intermunicipal agency acts to develop the site.

   b. If an intermunicipal approach to developing or operating the site was selected an appropriate legal structure would need to be organized. Included for consideration here would be such issues as developing a cost sharing formula, dividing risk and liability responsibility and determining an appropriate approach to providing adequate representation on the governing board and oversight of the new entity.

The above noted steps are not meant to be a complete list of actions required, but should give the reader an idea of the work ahead. As the more detailed data becomes available a continual reappraisal of the course of action selected should take place since the new data may require a change in approach due to cost, site constraints, market analysis or other factors.

We feel that the options available for pursuing the recreational alternatives may differ somewhat from that of housing. We assume that for the public to derive maximum benefit from the recreational opportunities, the areas of the site used for recreation should remain in some form of public ownership. The housing alternatives may provide other options. In the discussion below we briefly outline further some of the different issues dealing with these two options.

Public Recreation - Potential Ownership and Administrative Arrangements: Two of the three conceptual plans shown in Section VII of this report suggest that the Southern Reservoirs site (minus the 70 acres to be retained by the Utica Board of Water Supply) could be used either partially, or entirely for public recreation. Figure 23 shows the northern portion of the site being used for public recreation activities. Figure 22 shows the entire site (minus the abovementioned 70 acres) devoted to public recreation. An important issue must be addressed if a decision is reached that all, or a portion of the Southern Reservoirs site will be used for public recreation activities. This issue deals with the ownership and administrative responsibilities inherent in operating and financing a significant new public recreation facility.

The City of Utica owns the Southern Reservoirs site, and the site is located within the municipal limits of the Town of New Hartford. The ownership and location of the Southern Reservoirs site would most likely preclude the usual procedures involved in establishing and operating a public park when the site for the park is owned by and will primarily be used by the municipality in which it is located. The geographic location of the site near the municipal

boundaries of the City of Utica and Town of New Hartford, suggests that residents of both municipalities may benefit if public recreation activities were established on the site. If it is decided to use the site for public recreation, the abovementioned factors (ownership, location and potential users/beneficiaries) point to a possible intermunicipal agreement between the Town and City for establishing, operating and financing the facility. The basis for such an agreement is contained in New York State General Municipal Law.

Establishing an intermunicipal agency and formulating the "equation" for allocating management and financial responsibilities between the City of Utica and Town of New Hartford for capital improvements and day-to-day operations of the site would be a formidable task. An example of the type of factors which would probably enter into this "equation" may shed some light on the complexity of negotiating such an intermunicipal agreement. These factors may include:

(a) How the City of Utica's current ownership of the site will impact the agreement. It has to be assumed that the City of Utica will want to receive some sort of compensation for the site, whether it is monetary or credit for an inkind contribution towards the ultimate financial responsibility resulting from the intermunicipal agreement. On the other hand, it should be kept in mind that the interests of the customers of the Water Board and the Towns and Villages in the water service area may impact on this issue too. These parties may assume that as contributing members to the Water Board they too have a vested interest in a portion of the value of the site;

(b) One of the governments, under contract to the new intermunicipal agency, may perform the actual administrative and maintenance duties; or the new agency can be organized and staffed to perform these functions itself;

(c) The potential benefits to both the City of Utica and Town of New Hartford, which may be derived from establishing public recreation on the site will have to be determined. This benefit ratio may have to be quantified if administrative, maintenance and financial responsibilities are to be fairly assigned to each municipality;

(d) The duration of the agreement, will need to be determined which certainly will have to be long enough to provide a financial basis for project development; also for consideration will be how the site and its facilities will be handled if the agreement were not to be renewed in the future; and

(e) The issues of risk and liability needs to be investigated and how these would impact both the City and the Town.

The above discussion is meant only to provide an example of the type of exercise which the two municipalities may have to go through in order to jointly establish a public recreation area. While there are a number of complex factors which will enter into the negotiation of any intermunicipal agreement, the scope of these may be more readily addressed because the recreational activities shown in Figures 22 and 23 are not very capital intensive and could be established in phases over a period of time. In addition, funding to offset some of the capital costs associated with municipal parks projects may currently be available through Federal and State programs. The question of annual operating costs and risk and liability are still major factors though.

Beyond such an intermunicipal agreement to specifically address the Southern Reservoirs project the potential benefits of a broader approach to maximizing the recreational opportunities in the Parkway area is worth mentioning. Through a sub-regional ownership/management mechanism (i.e. authority or part-county district) the Southern Reservoirs project could be linked with other facilities in the area such as the zoo, golf course, ski slope, tennis courts and Roscoe Conkling Park.

However, recommending such a broad format for providing expanded recreational opportunities is beyond the scope of this report. We would propose at this time, however, that a limited intermunicipal agreement between the City of Utica and Town of New Hartford be attempted, if an alternative is selected which includes establishing public recreation on the Southern Reservoirs site.

We have noted that the reservoirs themselves do offer unique water based recreational opportunities since they are located in an urban setting, while the land based recreational activities could be located elsewhere and still serve the intended public recreation needs. However, if the site were to be used for public recreation, we believe it could be done so successfully and effectively.

Housing - Potential Development Options: As with public recreation, two of the three conceptual plans outlined in Section VII of this report show housing as a potential use for the Southern Reservoirs site. Figure 21 shows the site being used exclusively for housing, while Figure 23 depicts housing on the southern portion of the site and public recreation on the northern portion. Similar to

the situation which will evolve if it is decided to use the Southern Reservoirs site for public recreation, there will be a distinct set of issues to be addressed, (relative to how the alternative chosen can be achieved), if it is decided to use all, or a portion of the site for housing. One of the major issues which will need to be addressed is whether the site should be developed by a private firm or a public entity. Information should become available as a result of the work performed after the preliminary selection of an alternative (as outlined in the beginning of this section), which should aid the decision makers in determining whether developing the Southern Reservoirs site for housing would work best as strictly a private project, or a joint public-private venture.

If the site is to be developed by a private firm, there is a certain procedure which must be followed when selling city-owned land to a private concern. In order to do this, the following steps must be taken:

1) a 3/4 vote of the City of Utica's Common Council is required to authorize the sale;
2) a public auction must take place with the property offered for sale to the highest responsible bidder; and
3) the sale must be approved by the City of Utica Board of Estimate and Approval.

As noted previously, an issue which may need to be addressed prior to selling the site to a private concern, is what claim, if any, do Utica Board of Water Supply customers and the municipalities served have to the surplus assets of the water system. This issue could impact the ability of the City of Utica to make any unilateral decisions concerning the future use of the site.

There are some recognizable advantages to having the site (or most housing developments for that matter) developed exclusively by a private firm. The private sector has more overall experience developing housing, certain efficiencies in the development process are not available to the public sector and already limited public resources would not have to be devoted to this venture. If the site were to be sold for private development however, the site's public recreation potential (particularly the unique water based recreation potential) would be lost forever. This is an important point for the decision-makers to note, and is based upon our assumption that a private housing development would not permit public use of the site for recreation.

If it is decided that the Southern Reservoirs site should be used for housing, an alternative to having the site developed entirely by a private concern would be a joint private-public venture. The primary reason for having a public entity become involved in this development process would be to lower the cost of housing on the site. The cost of housing could theoretically be lowered in a couple of different ways with public involvement.

The lowering, or elimination of land acquisition costs is an example of one of the possible ways by which public involvement in a housing development could lower the cost of housing to the consumer. Lowering housing costs by eliminating, or reducing land acquisition costs, could be supplemented by other efforts on the part of the Town of New Hartford and the City of Utica to lower development costs using tools such as tax incentives, and state or federal government funding. In addition to these, there may be other methods by which the City of Utica and/or the Town of New Hartford could participate in the development of the Southern Reservoirs site for housing. Certainly, if the

City of Utica were to become involved with housing development on the site (which is located in the Town of New Hartford) the City would have to benefit in a proportional manner from property taxes generated on the site.

It is apparent that there would be many technical and legal issues involved in a public-private housing venture. Not the least of which would be ensuring that those who are intended to benefit from public involvement in the development process actually do so.

As with public recreation, it is beyond the scope of this report to suggest the mechanics of such a public-private venture. We are suggesting that if it is decided to use the site for housing, and the City of Utica and/or the Town of New Hartford have the resources and the desire to do so, their involvement in the development process could theoretically lower the housing costs. This could be accomplished by the public entity (or entities) using their contribution to the development process to lower the purchase price of housing on the site.

Another very important component of a public-private venture to develop housing, is finding a private housing developer willing to become involved in such a project. It would seem that to make it worthwhile for a private developer, the positive aspects of working with a public entity to develop housing (such as lower up-front costs, taking part in providing affordable housing, etc.) should outweigh the negative aspects (profit ceilings imposed by the agreement, additional rules and regulations, etc.).

In a previous section, it was pointed out that while there may be a need for housing in the area, there was no critical need to utilize the Southern Reservoirs site for housing at this time. However, if it is decided that the site should be used for housing, we believe a successful housing development could be established either by a private developer, or through a cooperative public-private venture which could provide the additional benefit of some affordable housing.

WHAT DO WE THINK?

It is a most difficult task to suggest a future course of action for the use of the Southern Reservoirs site given the variety and competing nature of the many alternatives. However, having agreed to become involved in this controversial task in the first place we will press ahead anyhow.

First, we have stated that our research indicated there is a need for housing, both single and multi-family owner-occupied and rental, in the Southern Reservoirs area. However, our research also shows that there are other available opportunities to meet this forseeable demand, in housing developments both established and proposed and through the use of comparable vacant sites readily serviced by the necessary utilities. Second, our research has shown that there is a need for field sports and other land-based recreation activity in the vicinity of the site, but that similarly these opportunities too could successfully be provided elsewhere in the area.

When we step back and view the Southern Reservoirs Site in perspective then we can see the unique aspects of the site; that is the reservoirs themselves. We

think that it is the potential for developing a unique urban water-based recreational opportunity that deserves attention at this time.

We therefore would suggest a phased approach to dealing with the future use of the site. We suggest that the portions of our Scenario 5 (conceptual recreation plan) dealing with use of Reservoirs #2 and #5 for boating and fishing, respectively, be pursued first. We would further suggest that for the moment, the southern portion of the site remain undeveloped, but that a periodic reappraisal be done to determine when and if that portion of the site should be used for housing or recreation. Future conditions may provide a clearer picture and a more definitive need as to how this portion of the site may best be used.

There are several advantages to the approach we suggest. This phased approach would allow for full use of a valuable water-based resource providing both active recreational opportunities for a wide segment of the area's population while preserving the current open space values. Also, time, effort and funding would be focused on developing that which is unique about this site while delaying action on the other portion of the site until demands upon it become more focused. Most importantly, following this path would be totally reversible. That is, if the water-based recreation aspects proved unsuccessful or if housing or other recreational needs proved so urgent the reservoirs could be drained at a later date and the land used for housing or other recreational facilities.

If however, the reservoirs were drained now and the area regraded to permit other uses the unique site value would be lost forever.

Along with the physical changes necessary for the site to accommodate a water-based recreational facility, should come a new administrative arrangement for site development and management. We do not feel it appropriate nor in the best interest of maximizing the potential of the site to place this responsibility with the Water Board. Rather, the site should, as we stated earlier, be transferred to some new intermunicipal entity; one with the specific mission to implement the plan, manage the site and promote its use. The Water Board's primary responsibility is to provide an adequate supply of high quality water to the greater Utica area. They should be permitted to focus their efforts and financial resources on this most important task.

An arrangement should be developed whereby the Water Board would transfer the property (with the exception of Reservoir #4 and the surrounding 36 acre buffer area discussed earlier) to the new intermunicipal entity in such a manner as to permit its value to be used as a match to attract state and federal grants. These grants could then be utilized to help finance the construction of the recommended recreational facilities.

While the Water Board would not realize any direct financial gain from the sale of this portion of the site through this approach they would benefit in several important other ways: they would be relieved of the responsibilty and cost for maintenance of the site; they would no longer bear the responsibility of risk and liability associated with Reservoirs #2 and #5; and they would no longer pay property taxes on this portion of the site. These benefits do translate into significant annual savings to the Water Board.

It is understood that the New Hartford Central School District and the County would receive correspondingly less property tax revenues as a result of this arrangement.

However several points are worth noting here. First, the Water Board may in any event move to empty Reservoirs #2 and #5 and possibly regrade the land if the site is not sold or transferred. With the reservoir facilities removed the land would be taxed as vacant yielding lower tax revenues. Second, the property tax base of the Town of New Hartford and thus the school district is growing rapidly and this increase in real property value should offset the relatively minimal payment currently made by the Water Board. Third, the public recreational benefits to school district children would seem to provide far more value than the loss in the property tax revenue.

The agreement for transferring the site should also protect the Water Board's interest should the site or a portion of it later be developed for housing or commercial uses. If this were to occur and the site sold to private developers the Water Board should share in any profits realized.

We would note at this point that should the no action alternative be selected, that is, the site remain in its present physical state, we feel that ownership and management of the site should be transferred from the Water Board to an appropriate intermunicipal agency. We do not feel it appropriate nor in the best long term interests for site management to require the Water Board to maintain and be liable for a site that they do not need. If the open space values are such as to justify keeping the reservoirs, but not using them for

active recreation, than an appropriate public body should be selected or created to manage and pay the cost for the maintenance of the open space values.

In conclusion, we reiterate our hope that the information presented in this report will help those with the responsibility to decide the future of the Southern Reservoirs site to do so wisely. This is a difficult task considering the many, and sometime competing, factors involved. It is not our suggestion presented here as to the future use of the site that is of great importance. Rather, we hope the basic information and ideas presented in this report will speak for themselves and focus discussions on the key aspects to consider in determining the future use of this valuable resource.

Appendices

A) Parks Within 2 Mile Study Area

B) Schools Within 2 Mile Study Area

C) Population Participation By Age

D) The Planned Development Process

Appendix A
Parks Within 2 Mile Study Area

Map Number	Name	Acres	Facilities
1	Valley View Golf Course	200	18 holes
2	Brookside Park	1	Passive Recreation activities
3	Roscoe Conkling Park	386	Picnic, skiing, golfing, tennis
4	Utica Zoo*	80	Amusement park
5	Val Bialas Ski Area*	20	Skiing, skating snowmobiling
6	O'Connor Park	7	Playground, basketball, baseball, playfields
7	Pawlinga Park	1	Passive Recreation activities
8	Adrian Terrace	1	Passive Recreation activities
9	Butternut Park	1	Passive Recreation activities
10	Horatio Seymour	1	Passive Recreation activities
11	Lincoln Playground	3	Playground, basketball, baseball, wading pool, playfield
12	Watson-Williams Playground	7	Playground, tennis, baseball, playfields
13	Murnane Field	15	Playground, baseball, playfields
14	Power Dam	5	Swimming
15	Kopernick Park	1	Passive Recreation activities

Map Number	Name	Acres	Facilities
16	Johnson Park	1	Passive Recreation activities
17	Miller Park	1	Playground
18	D. Collis Wager Park	1	Playground
19	Steuben Park	1	Passive Recreation activities
20	Chancellor	4	Playground, basketball, wading pool, tennis
21	Quinn Playground	4	Basketball, playground, baseball, playfields
22	Trino Playground	1	Playground
23	Mary Street	2	Playground, basketball
24	F T Proctor	44	Picnic, baseball
25	T R Proctor	71	Picnic, baseball
26	Albany Street	1	Passive Recreation activities
27	Buckley Pool	6	Swimming pool

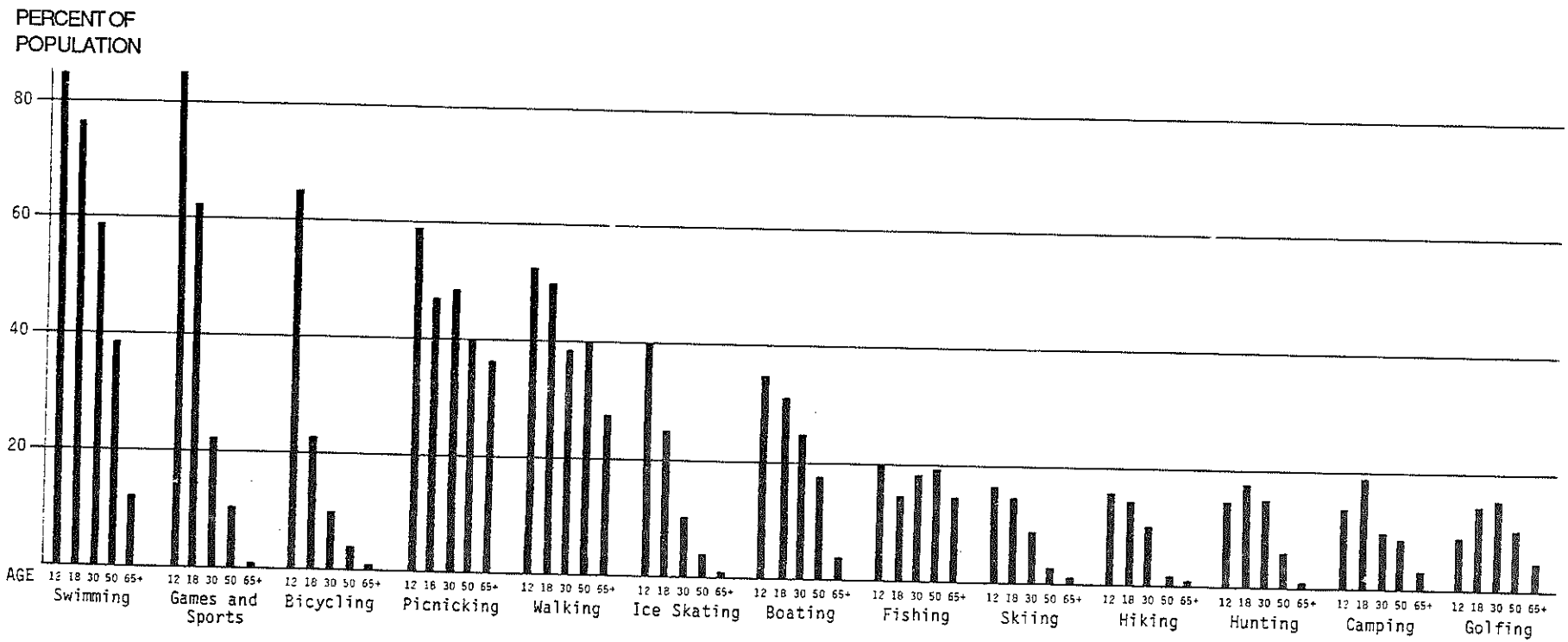
(* Part of Roscoe Conkling Park)

Appendix B
Schools Within 2 Mile Study Area

Map #	School	Acres	Facilities
A	Hughes Elementary and Perry Senior High School	57	Baseball, play fields, track, pool, playground
B	Proctor High	19	Tennis, track, playfields, baseball
C	Roscoe Conkling	NA	-
D	Mohawk Valley Community College	17	Tennis, track, baseball, pool
E	John F. Hughes	1	Playfield
F	Kemble Street	1	Playfield
G	*St. Francis DeSales	NA	Playground, basketball
H	Albany Street	2	Playfields
I	Columbus	5	Playfields
J	Miller Street	3	Softball, basketball, pool
K	*Blessed Sacrament	NA	-
L	Roosevelt	NA	Playfields

(* Indicates Private School)

Appendix C
Population Participation By Age



Source: N. Y. S. Comprehensive Recreation Plan

Appendix D
The Planned Development Process

Developers and individuals seeking to establish residential and/or commercial development projects on a relatively large scale are more frequently utilizing the planned development process as a means of obtaining project approval at the local level. Unlike traditional zoning districts, planned development districts allow for a more flexible and imaginative design concept under the guidance and supervision of the local municipality.

The planned development process is used to allow for development in which the quality of design is a very important consideration. Flexible design standards (which make the planned development process a unique land use regulatory tool) are usually incorporated to address unique circumstances related to on-site topography, soils, geology, drainage, as well as surrounding land uses and development. In addition, planned development districts should be established in accordance with community established goals, objectives and development policies.

A unique feature of planned development districts is that there are no density or dimensional standards to be met. In other words, structures within the planned development district do not have to meet any minimum lot size or building setback requirements, height regulations, lot coverage regulations, parking criteria, and so on. In general, providing the specific development proposal (which the proposed planned development district is based upon) maintains the existing character of the neighborhood and does not pose a threat

to the health, safety and general welfare of the community, the applicant does not have to comply with any specific dimensional standards such as minimum setbacks, lot coverage requirements, parking regulations, etc.

Although there are some differences between communities in terms of the exact process an applicant must follow in proposing a planned development district, most differences are minor. In nearly all communities, including the City of Utica and Town of New Hartford, the planned development process involves, at a minimum, two basic steps.

First, the applicant must request that the zoning of the land to be developed is changed from its current zoning designation to a planned development zoning district. The rezoning request can only be acted upon by the local legislative body. In Utica, the legislative body is the Common Council, and in the Town of New Hartford, it is the Town Board. The legislative body reviews the rezoning request and grants the establishment of a planned development district only if the actual proposed development scheme is in general compliance with the municipality's comprehensive plan and overall development policy.

The second step for the establishment of a planned development district involves the local planning board. In short, the planning board must review the actual development proposal to determine if, among other things, the proposed use is needed, the use will not alter the essential character of the neighborhood, the use will not be detrimental to the health, safety and general welfare of the community, and the proposed use is designed in such a manner as to reflect sound planning and development practices. Depending on the findings

of the planning board, they will either approve, approve with modifications, or disapprove the proposal in question.

In regards to the Southern Reservoirs site, it is possible that a proposal for development could arise which would involve something other than traditional single-family residential development. However, as discussed previously, the site is currently zoned R-1 Residential by the Town of New Hartford. Again, the R-1 zoning district is established primarily for single-family residential and related uses. Neither multi-family nor commercial uses (with the exception of professional home occupations) are permitted within this district. Therefore, it is likely that if a developer was to propose a multi-family, commercial, mixed residential, or mixed residential/commercial project on the Southern Reservoirs site, he/she would attempt to obtain project approval through the planned development process. Rezoning the reservoir parcel from R-1 to planned development would allow for development other than single-family residential.

Understandably, a project involving multi-family, commercial, or mixed uses on the reservoir site will have a different overall impact than would an exclusive single-family development proposal. Depending on the actual proposal, one would expect to see differences in the amount of traffic generated, overall drainage pattern, amount of stormwater runoff, amount of water usage, amount of sewage generated, overall aesthetic quality, and so on. These are all very important items which would have to be addressed during the review of the proposed planned development district to ensure that the impacts of the project are minimized and that the project will not be in conflict with the official development policies of the community.

It is important to realize that the planned development process is a very flexible land use regulatory tool. Through the establishment of a planned development district, the developer is afforded numerous options on the "type" of project he/she can create. The project may be as straightforward as a mix of single-family homes and duplexes or it may be as complex as a combination of residential, commercial, recreational, and even industrial uses. Keeping this in mind, through the planned development process, it is possible that the Southern Reservoirs site, if developed, could be developed in a variety of ways.