

EXISTING CONDITIONS LAND USE PLAN

**TOWN OF
DUANESBURG, NEW YORK**

SCHENECTADY COUNTY

CPA-NY-02-36-1001

MURPHY & KREN PLANNING ASSOCIATES, INC.

DECEMBER, 1973

BIBLIOGRAPHIC DATA SHEET		1. Report No. M&K - DU- 73-1	2.	3. Recipient's Accession No.	
4. Title and Subtitle Existing Conditions, Land Use Plan Town of Duanesburg, Schenectady County, New York				5. Report Date Issue - Dec. 1973	
7. Author(s) Murphy & Kren Planning Associates, Inc.				8. Performing Organization Rept. No. M&K - DU - 73-1	
9. Performing Organization Name and Address Murphy & Kren Planning Associates, Inc. 208 Main Street Fort Lee, New Jersey 07024				10. Project/Task/Work Unit No.	
				11. Contract/Grant No. CPA-NY-02-36-1001	
12. Sponsoring Organization Name and Address Region 2 U. S. Department of Housing and Urban Development 26 Federal Plaza New York, New York 10007				13. Type of Report & Period Covered Proposed Plan - final	
				14.	
15. Supplementary Notes Prepared for the Planning Board of the Town of Duanesburg, N. Y.					
16. Abstracts This report examines existing land use and physical characteristics in the Town of Duanesburg, N. Y. and proposes a Land Use Plan based upon existing condition analysis, upon the results of the planning questionnaires, upon examination of other plans such as Interstate Route 88 and various discussions at Planning Board meetings and public informational meetings.					
17. Key Words and Document Analysis. 17a. Descriptors Land Use Plan					
17b. Identifiers/Open-Ended Terms					
17c. COSATI Field/Group					
18. Availability Statement Planning Board Town of Duanesburg, N. Y.				19. Security Class (This Report) UNCLASSIFIED	
				20. Security Class (This Page) UNCLASSIFIED	
				21. No. of Pages 45	
				22. Price	

EXISTING CONDITIONS
LAND USE PLAN

for the

TOWN OF DUANESBURG

SCHENECTADY COUNTY, NEW YORK (CPA-NY-02-36-1001)

Prepared by

MURPHY & KREN PLANNING ASSOCIATES, INC.

December, 1973

The preparation of this report was financially aided through a Federal Grant from the Department of Housing and Urban Development under the Comprehensive Planning and Management Assistance Program authorized by Section 701 of the Federal Housing Act of 1954 as amended. This report was prepared under the Comprehensive Planning and Management Assistance Program for the New York State Office of Planning Services. It was financed in part by the State of New York.

MURPHY & KREN PLANNING ASSOCIATES, INC.

208 MAIN STREET, FORT LEE, N. J. 07024 TEL (201) 947-6660

Joseph K. Murphy, A.I.P., A.S.L.A.

Robert C. Kren, A.I.P.

December, 1973

Richard A. Wiebe, Director
New York State Office of Planning Services
488 Broadway
Albany, New York 12207

Dear Mr. Wiebe:

We are pleased to submit the EXISTING CONDITIONS AND LAND USE PLAN report for the TOWN OF DUANESBURG, NEW YORK. This report is the fulfillment of the Comprehensive Planning Assistance Project Agreement No. C53675 between our firm and the State of New York: Project No. CPA-NY-02-36-1001.

We are grateful for the helpful assistance we received from State, regional, county and local officials, the planning board members and the many private citizens who have contributed to this program.

Respectfully submitted,

MURPHY & KREN PLANNING ASSOCIATES, INC.



Robert C. Kren

RCK:ezk

TOWN OF DUANESBURG, NEW YORK

PLANNING BOARD

John Mikus, Chairman
Francis Crowe, Secretary
Howard Grup
Carl Geores
Frederick Dykeman, Sr.

TOWN BOARD

Bruce L. Martin, Supervisor
Hugh MacDougall, Justice
James Featherstonhaugh, Justice
David I. Rickard, Councilman
Robert Dunlop, Councilman

William R. Denty, Town Clerk

James Curfman, A.I.P. - New York State Office of Planning
Services Representative

TABLE OF CONTENTS

	<u>Page</u>
Regional Considerations	1
Physical Characteristics	2
Analysis of Comprehensive Water Supply and Sewerage Studies Prepared for the County	8
Existing Land Use	18
Population Analysis and Forecast	20
LAND USE PLAN	25
Environmental Assessment	Appendix A

List of Illustrations

	<u>After Page</u>
Physical Features Map	2
Generalized Existing Land Use	18
Land Use Plan	26

SUMMARY

The Town of Duanesburg has an area of 72.5 square miles and a present population of approximately 4300 persons. The topography is gently rolling but soil types throughout all but a very few areas of the Town lack permeability. Interstate Route 88 is proposed to be constructed through the Town. The Town, excluding the Village of Delanson is not served by any public water or sewage disposal systems.

The land use plan proposes two densities of residential uses based primarily on location factors, existing development and the ability of the area to be served by public water supply and sewage disposal systems. The major portion of the Town is placed into the Rural Residential classification requiring a 2-3 acre minimum lot size while the hamlets of Quaker Street and Duanesburg and existing lake-side development are placed into the hamlet residential classification (minimum lot size 30,000 square feet). The plan also includes a limited amount of business development and proposals for open space.

- REGIONAL CONSIDERATIONS -

The Town of Duanesburg is located in the western portion of Schenectady County. Albany and Schoharie Counties abut the southern portion of the Town, Schoharie County abuts the western portion of the Town and Montgomery County the northern portion. The area of the Town is 72.5 square miles or approximately 46,400 acres.

Measured from the Hamlet of Duanesburg, the Town is approximately 10 miles west of the City of Schenectady, slightly more than 15 miles northwest of the City of Albany and about 15 miles south of the City of Amsterdam.

State highways numbers 7, 20, and 30 pass through the Town of Duanesburg. Consideration is now being given to the location of Interstate Route 88 which will generally parallel Route 7 and will pass through the Town of Duanesburg.

Between 1920 and 1950 the population of the Town of Duanesburg increased by approximately 700 persons from 2,115 in 1920 to 2,822 in 1950. Between 1950 and 1970 the population increased by another 1,000 persons to 3,800 persons, which includes 508 persons residing within the Village of Delanson. The gross density of the Town is one year-round resident family per 41 acres.

Population projections by the New York State Office of Planning Services indicate a population of over 4,700 by 1980, an increase of 900 persons in a 10-year period.

The major shopping facilities in the area are located in the central business district of the City of Schenectady and in shopping centers in the Towns of Glenville, Rotterdam and Niskayuna. Industrial development within the County exists mainly along the Mohawk River, and about half of the industrial land in Schenectady County and most of the major industries are located within the City of Schenectady.

Interstate Route 88, a limited access highway, will pass through the Town of Duanesburg generally paralleling Route 7. This route will improve the accessibility to Duanesburg, quite possibly adding impetus to increase the population.

- PHYSICAL CHARACTERISTICS -

Topography

The topography of the Town ranges from a low of approximately 500 feet above mean sea level along the Schoharie Creek in the northwestern portion of the Town to over 1,400 feet north and northeast of Duanesburg Reservoir. The Town is composed of gently rolling hills with limited compact areas having a slope of over 15% and even fewer areas having a slope of 10%-15%. The major portion of the Town has a slope of less than 10%.

The land form in the Town is composed of two major valleys. One is along the Schoharie Creek; the other along Normans Kill. The Delaware and Hudson Railroad is located in this latter valley, as is the Village of Delanson and the Hamlet of Duanesburg. The Hamlet of Quaker Street is located at an elevation approximately 100 feet higher than the Village of Delanson. South of the Normans Kill and the Delaware and Hudson Railroad, land elevation rises toward the Albany County and Schoharie County line except for the valley along the Bozen Kill. North of the Delaware and Hudson Railroad and Normans Kill and east of Schoharie Creek, land elevations rise to a plateau which includes Duanesburg Reservoir and Mariaville and Featherstonhaugh Lakes. North of this plateau, land elevations decrease toward the Montgomery County line and particularly in the northeast where elevations fall off toward the Sandsea Kill in the Town of Princetown.

Drainage Basins

The Town is divided into several major drainage basins. The western portion of the Town is drained by the Schoharie Creek and its tributaries which flows north to the Mohawk River. The drainage basin boundary generally parallels the north-south portion of the Schoharie Creek and is generally located about 3 miles east of the Creek.

The southwestern portion of the Town is basically drained by Normans Kill which flows easterly into and through the Town of Princetown toward the Hudson River. Located within this drainage basin are the Hamlets of Duanesburg and Quaker Street and the Village of Delanson. A very southern portion of the western section of the Town is drained by the Bozen Kill. Duane Lake is located within this drainage basin.



LEGEND

- | | |
|---|--|
|  DRAINAGE BASIN BOUNDARY |  SOILS - SLIGHT LIMITATIONS |
|  SLOPE - OVER 15% |  SOILS - MODERATE LIMITATIONS |
|  SLOPE - 10% - 15% |  MARSH |

PHYSICAL FEATURES MAP

THE PREPARATION OF THIS MAP WAS FINANCIALLY ASSISTED BY A FEDERAL GRANT FROM THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE COMMUNITY DEVELOPMENT ASSISTANCE PROGRAM ADMINISTERED BY THE NEW YORK STATE OFFICE OF PLANNING SERVICES. IT IS THE POLICY OF THE STATE OF NEW YORK.

TOWN OF DUANEŠBURG
TOWN PLANNING BOARD

MURPHY & KREN PLANNING ASSOCIATES, INC.

DATE: DEC. 1972



SCALE: 1" = 4000' 8000' 12000'

The northwest portion of the Town drains north via the Chuctanunda Creek and Terwilliger Creek and east toward the Mohawk River via Sandsea Kill. Featherstonhaugh Lake and Mariaville Lake are located within a separate drainage basin.

The significance of a drainage basin is that, just as water will flow from the crest of hills toward the body of water at the low point, sewage in sewerage lines will also flow from the high point to the body of water which is generally the point of location of the sewage disposal plant, by gravity flow. The crossing of a drainage basin boundary necessitates pumping which facility is expensive and needs maintenance.

Marshes

Several marshy or swampy areas exist in the Town. These are notably adjacent to Featherstonhaugh Lake, along the Chuctanunda Creek on the west side of State Highway Route No. 30 north of Batter Street, in the area of Duanesburg Reservoir, lowlands along the Normans Kill west of the Village of Delanson, scattered areas along the Normans Kill and the Delaware and Hudson Railroad between the Village of Delanson and the hamlet of Duanesburg and an area on both sides of Route 20 in the eastern portion of the Town west of the Schoharie Turnpike intersection.

Soils

A soil survey for all of Schenectady County has been completed by the Soil Conservation Service, United States Department of Agriculture. The Schenectady County Planning Department issued a report in March 1968 entitled Soils which supplied information on interpretation of this soils data. These soil interpretations indicated the degree of limitation (slight, moderate or severe) for selected uses as follows:

- homesites in subdivisions
- homesites not in subdivisions
- sewage effluent field
- subdivision streets and parking lots
- secondary roads
- sanitary landfill
- cemeteries
- athletic fields
- play and picnic areas
- trailer campsites
- paths and trails
- lawns, landscaping, golf fairways
- pipelines
- tent campsites

Slight - Relatively free of limitations or limitations are easily overcome.

Moderate - Limitations need to be recognized but can be overcome with good management and careful design.

Severe - Limitations are severe enough to make use questionable.

Of the above uses the sewage effluent field was selected as being of critical importance to future development of the Town of Duanesburg. The various soil types were examined in the Town and the degree of limitation for sewage effluent fields noted.

Sewage effluent fields are defined as drainage fields for disposal of effluent from adequately designed and installed home septic tank systems. Source of water supply, whether from individual or community systems, is not a consideration in the ratings. However, the possibility of a pollution hazard exists when the soils in the sewage field are rapidly permeable and located near lakes, springs or shallow wells. Shattered or creviced bedrock may also present a pollution problem. Specific location of drainage fields for disposal of effluent requires on-site investigation.*

The Physical Characteristics Map indicates those areas in the Town having slight and moderate limitations considering sewage effluent fields. Only very limited areas have been classified as slight or moderate. Most of the area of the Town is classified as severe. Permeability is the major factor causing a severe classification for the soils in the Town followed by Depth to Seasonal High Water Table and Depth to Bedrock. The following is a brief description of some of the soil types occupying a major portion of the Town.

Alden

These are deep, very poorly drained, silty soils. Internal drainage is very slow and at times water stands on the surface. Alden soils have 8-10 inches of black mucky silt loam over 2-3 feet of gray, slowly permeable, mottled silt loam.

Burdett

The Burdett soils are deep, medium to slightly acid, somewhat poorly drained, moderately fine textured soils formed in glacial till high in shale. Burdett soils have about 18 inches of moderately permeable silt loam over a slowly permeable silty clay loam.

* Source: Soils, Schenectady County Comprehensive Plan: Work Report, Schenectady County Planning Department, March, 1968

<u>Cattaraugus</u>	Cattaraugus soils have 18 to 24 inches of moderately permeable, acid, channery silt loams over a very dense, firm, very slowly permeable, reddish-brown channery silt loam fragipan.
<u>Chippewa</u>	Chippewa soils have 8 to 12 inches of permeable channery silt loam over a very dense, firm, very slowly permeable channery silt loam fragipan.
<u>Culvers</u> (Troy & Mardin are very similar)	Culvers soils have 18 to 24 inches of moderately permeable channery silt loam over a very dense, firm, slowly permeable, reddish-brown gravelly silt loam or gravelly silty clay loam fragipan.
<u>Ellery</u>	Ellery soils have 8 to 12 inches of moderately permeable channery silt loam over a very dense firm, very slowly permeable channery silt loam fragipan.
<u>Erie</u>	They have 12 to 18 inches of dark grayish-brown gravelly or channery silt loam over a very dense, firm, slowly permeable, gravelly silt loam (fragipan).
<u>Langford</u> (Nunda is similar)	Langford soils consist of 1½ to 2 feet of moderately permeable, acid channery silt loam fragipan that is 2 to 3 feet thick.
<u>Lordstown</u>	These are well drained, very strongly acid soils in medium-textured material that is 20 to 40 inches thick over bedrock.
<u>Manlius</u>	Manlius soils have from 20 to 40 inches of moderately permeable shaly and very shaly silt loam over bedrock.
<u>Norwich</u>	Norwich soils have about 12 inches of moderately permeable silt loam or silty clay loam over slowly permeable channery silt loam or silty clay loam.
<u>Oquaga</u>	Oquaga soils have 20 to 40 inches of moderately permeable, reddish brown, channery silt loam and very channery silt loam over bedrock.

Arnot

Arnot soils are well to moderately well-drained, strongly acid soils in medium textured, strongly acid glacial till that is 10 to 20 inches over bedrock.

Those soils classified as slight are of the following type.

Chenango

Chenango soils have 2 to 3 feet of moderately permeable to rapidly permeable gravelly loam or gravelly silt loam over very rapidly permeable stratified sands and gravels.

Howard

Howard soils have 2 to 3 feet of moderately permeable to rapidly permeable gravelly or very gravelly loam or silt loam over very rapidly permeable stratified sand and gravel.

Those soils classified as moderate are of the following type.

Poland

Poland soils have 1½ to 2 feet of moderately permeable silt loam over slowly permeable, dark grayish brown silt loam.

Scio

Scio soils have 3 to 4 feet of moderately permeable coarse silt loam or very fine sandy loam over rapidly to slowly permeable lake laid sands, silts, clays or glacial till.

Unadilla

Unadilla soils have over 40 inches of yellowish brown silt loam which may be underlain by stratified sands and gravel or by varied silts, sands and clays.

Phelps

Phelps soils have 1 to 2 feet of moderately permeable gravelly silt loam or loam over slowly permeable loam or coarse clay loam that extends to a depth of 2 to 3½ feet. This layer is underlain by stratified gravel, sands or silts of glacial outwash.

Although not mapped, the limitation of the soil types for homesites was also considered.

Homesites are defined as buildings of three stories or less with basements averaging at least five feet below normal ground level. If homes are constructed without basements, the depth and seasonal high water table properties would be less restrictive. Problems of sewage disposal, water supply, stabilizing or maintaining negative cover or access roads are not considered part of the rating. Specific location of buildings require on-site investigation.*

Generally, a soil-type classification of severe regarding sewage effluent fields was also severe regarding homesites. This applies to Erie, Burdett, Chippewa, Ellery, Norwich, Lordstown, Oquaga, Arnot and Manlius soil types. The Langford, Nunda, Culvers, Mardin and Troy soil types were classified as moderate regarding homesites but severe regarding sewage effluent fields. The Valois soil type was classified as slight and moderate for homesites but severe for sewage effluent fields.

* Source: Soils, Schenectady County Comprehensive Plan: Work Report, Schenectady County Planning Department, March, 1968

ANALYSIS OF
COMPREHENSIVE WATER SUPPLY AND SEWERAGE STUDIES
PREPARED FOR THE COUNTY

Water Supply

The following are excerpts from a report entitled "Comprehensive Public Water Supply Study for Schenectady County, New York, Project No. CPWS - 56" prepared by Parsons, Brinckerhoff, Quade and Douglas, Inc. for the New York State Department of Health and the Board of Representatives of Schenectady County, New York in March 1970.

"Several studies and reports have been made concerning the geology and water resources of Schenectady County. The consensus of these reports is that any large supply of water in Schenectady County must come from the Mohawk River, either by pumping direct from the river or by pumping from the sand and gravel deposits along the river that are fed mainly by underflow from the river. Some water supplies of moderate capacity may be obtained from sand and gravel deposits along tributary streams likewise supplied by underflow from these streams. Therefore, large-capacity water supply sources in Schenectady County are mainly confined to the narrow flood plain area of the Mohawk River. Elsewhere in the County, only small-capacity wells can be developed in the glacial till and underlying bedrock sufficient only to supply individual homes and small farms. These wells are supplied by recharge from local precipitation on the tributary areas. Firm yields from the surface streams in the western and northern areas of the county are in general too small to economically develop for public water supplies of any reasonable magnitude." (Page 7)

(An accompanying map entitled Ground Water Availability indicates that all of the Town of Duanesburg is classified as having well yield of less than 5 gallons per minute.)

"It will be noted that an area averaging 3 miles wide on the western edge of the county (about 20 square miles) drains to the Schoharie Creek, which has been diverted to the Ashokan Reservoir as a water supply for New York City, and which presumably has prior claim to the water from this watershed. Therefore no large public water supply would be permitted to take water from Schoharie Creek. (page 9)

"The small local wells over the County are, with a few exceptions, drilled into the underlying shale or compacted sand and are not of good yield or quality, having high iron content and hardness. Although these wells are sufficient for individual household or farm supplies, they are not considered of consequence for public water supply. (Page 15)

"The Town of Duanesburg is mainly rural and has no public water supply system except in the small village of Delanson which has an impounded surface supply, serving about 50 people. This water supply consists of two surface reservoirs. The upper reservoir is very shallow with poor quality water and is used only when necessary to augment an insufficient supply from the lower reservoir. The quality of the water supply from the lower reservoir is very difficult to control because it is partially fed by roadside ditches which pick up waste and debris from the road. Route 395 passes immediately over the reservoir and drains into it. The Delanson water system is about 70 years old; much of it is in poor condition, and distribution pipe sizes are too small for good fire protection. The Village of Delanson has had water shortage difficulties recently. (Pages 31 and 32)

"In view of pending state highway projects, there is the possibility of development of the area along the Normans Kill in the southeastern corner of the Town of Duanesburg comprising the Village of Delanson and the hamlets of Quaker Street and Duanesburg. One of the first things this area will need for sound growth is a safe and dependable water supply system.

"There are three possible sources of public water supply in the area, in addition to the existing Delanson water supply reservoirs. These sources are:

- 1) Wells in gravel deposits along the Normans Kill west of Duanesburg between Duanesburg and Delanson. There are two or three gravel pits that should be explored for yield and quality of water.
- 2) A new impounding reservoir created by a dam (approximately 35 feet high) across the Normans Kill at a point about one-half mile west of Duanesburg. At Spillway Elevation 690 this reservoir would impound over 300 million gallons. With a drainage area of 8 square miles, and an estimated

firm yield of 0.06 mgd per square mile, a firm yield of about 0.5 mgd, which would supply a population of 5,000 would be provided.

- 3) Rebuilding the existing dam at Mill Pond on the Normans Kill just north of Duanesburg and rehabilitating this lake to about 20 million gallons capacity. With the large drainage area of about 20 square miles, it is reasonable to expect that this reservoir would provide a firm yield of about 1.0 mgd.

"All three of the above possible sources should be verified by field surveys and hydrological study.

"In view of the limited water supplies in this area, the current State program encouraging regional development of water resources presents a rare opportunity for these small population centers to join forces and develop a regional water supply district to serve the area, which has a growth potential equal to any in the County.

"Probable Water Demand - Based upon the population and water demand data presented in the tabulations below, the provision of a regional water supply appears to be feasible at a reasonable cost.

Present (1967) population:

Delanson	500
Quaker Street	200
Duanesburg	<u>300</u>

Regional District 1,000

"With water demand at 100 gpcd=100,000 gallons per day and an estimated growth rate three percent per year, the project water demand is as follows:

<u>Regional District</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>
Population	1090	1470	1970	2650	3560	4780
Avg. Water Demand(mgd)	0.11	0.15	0.20	0.265	0.36	0.48

"Probable Cost - Without a survey of the conditions of construction, the cost estimate below must be considered only as an approximation, given only as a basis of preliminary planning.

(Based on 1970 prices)

<u>Item</u>	<u>Estimated Cost</u>
Dam	\$150,000
Treatment Plant	150,000
Pumping Station	100,000
Pipelines: 20,000 ft. at \$10 (including R.O.W.)	<u>200,000</u>
	\$600,000

"If a suitable well supply can be developed this cost might be considerably reduced. The estimated probable cost amounts to \$300 per capita for the 1970 population, estimated to be 2,000. If amortized in 30 years on basis of five percent bonds, the debt service per year will average \$40,000, or \$20.00 per year per capita in 1990, or \$80.00 per year per service, using four persons per service.

"Probable Annual Cost - The probable annual cost is as follows:

Debt Service	\$40,000
Operation	
Treatment, at \$50 per mg	9,000
Pumping power at \$0.06 per Kwhr	7,000
Personnel (2 at \$5,000)	10,000
Maintenance (1% of \$600,000)	<u>6,000</u>
Total annual cost	\$72,000

"Distributed among the estimated 1990 population of 2,000 this total cost amounts to \$36.00 per capita per year, or \$144 per family of four (about \$12 per month). This covers the capital investment, production, treatment and delivery of the water to the customers.

"Extensions of the lateral distribution piping would be paid for by the individual property owners benefitted, probably on a frontage assessment basis, as is customary, the service connection and meter installation would be paid by the individual customer as usual.

"A more detailed survey and comparison of the three possible sources of supply should be made to determine which one is the most economical and beneficial, and whether it should supplant or only supplement the existing Delanson supply. This latter question would be determined by the cost of treatment facilities which without question should be provided for all surface supplies. Such treatment should be no less than coagulation, filtration and chlorination. If the existing Delanson reservoir is improved and maintained in service, the additional supply could be delivered to it raw and treatment provided there before delivery to the Village of Delanson and boosted to Quaker Street. Then a small treatment plant would be provided for the hamlet of Duanesburg near the new supply.

"Since the existing Delanson Reservoir must be maintained in service and must receive more adequate treatment, now, to meet the State Drinking Water Standards, this latter plan would appear to be the more practicable." (Pages 95-97)

Sewerage Study

The following are excerpts pertaining to the Town of Duanesburg from a report entitled "Comprehensive Sewerage Study for Schenectady County, New York, Project WPC-CS-176" prepared by Parsons, Brinckerhoff, Quade and Douglas, Inc. for the New York State Department of Health and the Board of Representatives of Schenectady County, New York in June 1970.

"Sewerage is provided entirely by individual septic tanks. In general, the septic tanks have provided adequate and economical waste disposal systems due primarily to the scattering of the population. Within the Town of Duanesburg, however, there are a few concentrated communities--Duanesburg, Quaker Street and the Village of Delanson--where it may be necessary and more economical to provide public sewerage systems. Health hazard problems caused by septic tank effluent entering the well water supply may accelerate the need for a central sewerage system. Mariaville is basically a summer colony with a population concentration only during the season. Because few people live in Mariaville during the remaining seasons, it was not considered.

"All three communities--Hamlets of Duanesburg, Quaker Street and the Village of Delanson--lie within the Norman's Kill drainage basin and will therefore discharge their waste into the Normans Kill.

"Even at average flow in the Normans Kill too small a dilution ratio for the maximum daily sewage effluent at Quaker Street and the Village of Delanson is provided. In addition, the slope of Normans Kill in the area of the Delanson outfall is relatively flat (about 0.17 percent) and swampy. The discharge of sewage effluent even after secondary treatment will create anaerobic conditions in the Normans Kill around Delanson with the attendant odor nuisance. The incorporation of tertiary treatment in the system will therefore be necessary.

"The Normans Kill at Duanesburg provides a much higher dilution ratio and for the average streamflow this can be considered adequate for secondary treatment effluent.

"A summary of population and projected sewage flow design criteria is as follows:

	<u>Population</u>			<u>2020 Sewage Flow (mgd)</u>		
	<u>1960</u>	<u>1990</u>	<u>2020</u>	<u>Aver.</u>	<u>Max. Day</u>	<u>Peak Hr.</u>
Quaker St.	200	300	400	0.04	0.08	0.16
Village of						
Delanson	400	600	800	0.08	0.16	0.32
Duanesburg	250	375	500	0.05	0.10	0.20

"The low flow in the Normans Kill and the downstream use of the stream for water supply to the City of Watervliet necessitates a minimum of tertiary treatment of sewage discharging into it. For the size of the plants required, extended aeration-type package plants are recommended for primary secondary treatment, with a sand filter as the final step prior to discharge to the Kill."

(The Comprehensive Sewerage Study recommends that the Village of Delanson and hamlets of Duanesburg and Quaker Street each install a sewage collection system and treatment plant.)

"Plan Implementation - The sewerage improvement program for the Town of Duanesburg communities can be pursued in a number of ways. Two approaches available are noted below:

- 1) Proceed on a collective basis to approach the New York State Pure Waters Authority to plan, finance and construct the treatment works and sewerage collection systems.
- 2) Collectively approach a consulting engineer to plan, process grant funds applications and construct the treatment works and sewerage collection systems. Financing would be through Town bonds.

"The following estimates of capital costs, operation and maintenance costs and the annual costs (first year of operation) are presented, without State and Federal aid and with State and Federal aid. The portions of the proposed systems eligible for 60% State and Federal aid are the treatment plants and the sand filters, and possibly the trunk sewers."

ESTIMATE OF COSTS FOR DUANESBURG, QUAKER STREET
AND VILLAGE OF DELANSON SEWER SYSTEMS

	<u>Duanesburg</u>		<u>Quaker Street</u>		<u>Village of Delanson</u>	
	<u>Without Aid</u>	<u>With Aid</u>	<u>Without Aid</u>	<u>With Aid</u>	<u>Without Aid</u>	<u>With Aid</u>
<u>Capital Costs</u>						
*Sewer System	\$120,500	\$120,500	\$120,500	\$120,500	\$129,500	\$129,500
**Treatment Plant	60,000	24,000	60,000	24,000	72,000	28,800
**Sand Filters	26,500	10,600	21,000	8,400	42,000	16,800
TOTAL	\$207,000	\$155,100	\$201,500	\$152,900	\$243,500	\$175,100
<u>Operating & Maintenance Costs</u>						
Administrative & Personnel	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
Power and Chemicals	1,000	1,000	1,000	1,000	1,000	1,000
Sand Filter Maintenance	1,200	1,200	1,000	1,000	2,150	2,150
TOTAL	\$ 4,200	\$ 4,200	\$ 4,000	\$ 4,000	\$ 5,150	\$ 5,150
<u>Annual Cost, 1st Yr. of Operation</u>						
Debt Service						
Principal	\$ 5,600	\$ 4,400	\$ 5,400	\$ 4,300	\$ 6,600	\$ 5,000
Interest at 4½%	9,400	7,000	9,100	6,900	11,000	7,900
Operating and Maintenance	4,200	4,200	4,000	4,000	5,200	5,200
TOTAL ANNUAL COST	\$ 19,200	\$ 15,600	\$ 18,500	\$ 15,200	\$ 22,800	\$ 18,100
Projected Population	290		230		470	
Avg. Cost Per Capita	\$ 66.30	\$ 53.40	\$ 80.50	\$ 66.10	\$ 48.50	\$ 38.50

* May be eligible for Federal and State Aid; a hearing is required.

** Eligible for 60% State and Federal Aid.

SUMMARY

Both the Comprehensive Public Water Supply Study and the Comprehensive Sewerage Study for Schenectady County recommend that the Hamlets of Duanesburg and Quaker Street be served by public water supply and sewage disposal systems. In addition it is recommended that the Village of Delanson be served by a public sewage disposal system and that the present water supply system be improved.

The water supply report points out that concerning ground water supply in the Town only small-capacity wells can be developed in the glacial till and underlying bedrock sufficient only to supply individual homes and small farms. The Town of Duanesburg is classified as to Ground Water Availability as having well yield of less than 5 gallons per minute.

The physical characteristics section of this report indicates that practically all of the Town is classified as severe regarding the ability of the soil to absorb sewage effluent from septic tanks.

Thus from the point of view of water supply and sewage disposal the physical characteristics present limitation upon the density of population in most areas of the Town. The exceptions are those areas where public water supply and sewage disposal are present or can reasonably be anticipated.

The following charts are presented as "rule-of-thumb" guides for planning purposes.

<u>Population Density</u>	<u>Equivalent Lot Size</u>	<u>Service Economic Justification</u>
Over 5,000 persons per sq. mi.	Less than $\frac{1}{2}$ acre	Public sewerage is Justified
2,500-5,000 persons/sq. mi.	$\frac{1}{2}$ to 1 acre	Public sewerage is normally justified
1,000-2,500 persons/sq. mi.	1 to 2 acres	Public sewerage is not normally justified
Less than 1,000 persons/sq.mi.	Over 2 acres	Public sewerage is rarely justified

<u>Population Density</u>	<u>Equivalent Lot Size</u>	<u>Service Economic Justification</u>
Over 2500 persons/sq. mi.	Less than 1 acre	Public water supply is justified
1000-2500 persons/sq. mi.	1 to 2 acres	Public water supply is normally justified
500-1000 persons/sq. mi.	2 to 4 acres	Public water supply is not normally justified
Less than 500 persons/sq. mi.	Over 4 acres	Public water supply is rarely justified

Source: Environmental Health Planning Guide, Public Health Service, U. S. Dept. of Health, Education and Welfare, 1962

In addition, regulations of the New York State Department of Health requires a lot size of at least 20,000 square feet for a residential unit not served by a community water supply or sewage disposal system.

- EXISTING LAND USE -

The Town of Duanesburg is predominantly undeveloped. Relatively small concentrations of development do exist at the hamlets of Duanesburg and Quaker Street and at the Village of Delanson. Another small concentration of residential development exists at Braman Corners.

The frontage of both Mariaville Lake and Duane Lake is almost totally developed with residential uses. Approximately 60 houses surround Duane Lake, while over 250 abut or are nearby to Mariaville Lake. Field investigation further indicates that while most of the units at Mariaville Lake are seasonal this is certainly not totally the case as some of these units were occupied during the field survey period (the middle of December). Featherstonehaugh Lake, located just south of Mariaville Lake, also has summer homes abutting its shores although the number is only approximately 20.

With the exception of these lake and hamlet concentrations, the pattern of residential use in the Town is basically a decentralization along the existing State, County and Town Road systems.

Twelve mobile homes exist at scattered sites in the Town, while another 22 are located in a mobile home park on the north side of Route 20 east of the hamlet of Duanesburg.

Commercial uses are primarily located along State Highways 20 and 7. These commercial uses are oriented to serving the highway traveler being primarily gasoline stations, motels, eating places and antique shops. Commercial uses oriented to serving the resident population consist of a drug store, grocery store, barber shop and bank at the hamlet of Duanesburg, a grocery store at the hamlet of Quaker Street and a grocery and supply store at Mariaville Lake. Very few commercial uses are located in the Village of Delanson. At the intersection of Thousand Acre Crossroad and Western Turnpike (Route 20) exists a substantial building of the Jamaica Builders consisting of a showroom and sales outlet and manufacturing plant. No other industrial uses exist in the Town.

Three public schools are located in the Town. The Duanesburg Central School District encompasses a major portion of the Town including the Village of Delanson and the hamlets of Duanesburg and Quaker Street but not including the Mariaville area. A grade 7-12 school is located in the Village of Delanson and an elementary school (grades K-6) near the intersection of State Route 7 and County Road 7D (Chadwick Road). Another elementary school is located in Mariaville but is not part of the Duanesburg Central School System. The Town Hall and Town Garage are located on Route 20 west of the hamlet of Duanesburg. A firehouse exists at Quaker Street and at Mariaville Lake. A State Police Station is located on the south side of Route 7 east of the hamlet of Duanesburg. A library is also located at the hamlet of Quaker Street.

A commercial campground serving travel trailers and camping trailers is located east of Tidball Road.

Also located in the Town are several churches, a V.F.W. and several small cemeteries. Six hundred and eighty-two acres of State land (Featherstonehaugh State Forest) exist adjacent to Featherstonehaugh Lake.

The major portion of the 72.5 square miles of land in the Town is vacant, wooded or used for agricultural purposes. Agricultural lands are located generally in the western and north-western portions of the Town. A dairy farm and poultry farm are also located east of the hamlet of Duanesburg. Most of the agricultural land in the Town has been classified as being of low economic viability. The agricultural land in the western portion of the Town has been classified as medium economic viability. No agricultural land in the Town was classified as being of high economic viability.* The low viability included farms judged to be obsolete for full-time use under modern farming conditions. Moderate viability included farms near enough the economic margin to make their future somewhat uncertain. Income prospects are sufficient to give farm families the option of continuing in farming, but this option will not continue to be preferable to nonfarm employment in all instances. Further development in farm technology will gradually tend to disadvantage these operators.**

The street system in the Town is composed of State Highway Route Nos. 7, 20, 395, 30, 159 and 407. Most of the roads in the Town are part of the County Road system. The remainder of the roads are part of the Town road system or are private roads.

The major land use problems facing the Town are a combination of physical and man-made. The physical problems are soil types not suited to intensive development without public water and sewer systems. The man-made problems are development (primarily residential) which is taking place along the existing street system and to which completion of Interstate Route 88 will most likely add impetus. Fortunately, most of the residential development has been taking place on relatively large lot sizes. Further land use problems are in areas abutting Mariaville Lake and Duane Lake, both of which are practically totally developed without any reserved public recreation areas. Additional problems and potential problems involve sewage disposal from the homes around these lakes, a situation which will be particularly aggravated with further conversion of these homes from seasonal to year-round use. The need for public water supply and sewage disposal also exists at the hamlets of Duanesburg and Quaker Street and at the Village of Delanson.

* State of New York, Office of Planning Coordination, Economic Viability of Farm Areas, May 1969

** The Nature and Distribution of Farming in New York State, New York State Office of Planning Coordination, December, 1969

POPULATION ANALYSIS AND FORECAST

The 1970 U. S. Census of Population recorded 3800 persons as residing in the Town of Duanesburg; 502 of these were within the incorporated Village of Delanson leaving 3,292 as the 1970 population of the Town of Duanesburg less the Village of Delanson. Approximately 150 building permits have been issued for new housing units since the 1970 census. At approximately 3.4 persons per housing unit, the occupancy of these units will increase the population by 510 persons. Thus it is probable that the January, 1973 population of the Town excluding Delanson is approximately 3,800 persons and 4,300 if the Village of Delanson is included.

The following table shows the population history of the Town.

Population History Town of Duanesburg					
<u>Year</u>	<u>Total</u>	<u>Village of Delanson</u>	<u>Town of Duanesburg Less Delanson</u>	<u>Schenectady County</u>	<u>Duanesburg Less Delanson as a % of Schenectady County</u>
1930	1,937	372	1,565	125,021	1.25%
1940	2,141	326	1,815	122,494	1.48%
1950	2,822	430	2,392	142,497	1.67%
1960	3,070	398	2,672	152,896	1.74%
1970	3,800	508	3,292	161,078	2.04%

Source: U. S. Bureau of the Census

Most of the growth which has taken place has been in the Town of Duanesburg outside of the Village of Delanson and the Town excluding the Village has been increasing as a percent of Schenectady County. This growth has not been uniform in all age groups as shown on the following table.

Town of Duanesburg
1970 Population by Age Group

	Male	Female	Total - Town of Duanesburg including Village of Delanson	%	Village of Delanson Total	Duanesburg Less Delanson Total	%	Schenectady County (%)
Under 5	140	142	282	7.4	41	241	7.3	8.0
5-14	447	412	859	22.6	129	730	22.2	18.6
15-24	255	273	528	13.9	67	461	14.0	15.3
25-34	214	224	438	11.5	51	387	11.8	11.2
35-44	217	232	449	11.8	68	381	11.6	11.3
45-54	218	214	432	11.4	40	392	11.9	13.1
55-64	217	208	425	11.2	44	381	11.6	10.6
65 & Over	174	213	387	10.2	68	319	9.7	11.9
	1882	1918	3800		508	3292		

Source: U. S. Bureau of the Census

Town of Duanesburg
1960-1970 Population Change by Age Group

	No.	1960 %	No.	1970 %	Numerical Change
Under 5	323	10.5	282	7.4	- 41
5-14	627	20.4	859	22.6	+232
15-24	347	11.3	528	13.9	+181
25-34	340	11.1	438	11.5	+ 98
35-44	415	13.5	449	11.8	+ 34
45-54	421	13.7	432	11.4	+ 11
55-64	261	8.5	425	11.2	+164
65 & Over	336	10.9	387	10.2	+ 51
	3070		3800		+730

Source: U. S. Bureau of the Census

The largest increase between 1960 and 1970 took place in the 5-14 age group followed by the 15-24 age group and the 55-64 age group. These three age groups accounted for approximately 80% of the total increase in population between 1960 and 1970. The Under 5 age group actually showed a net loss between 1960 and 1970 reflecting the significant national decrease in the birth rate.

Population Forecast

The New York State Office of Planning Services has, as of June, 1972, prepared demographic projections for the State and Counties. These projections as well as the New York State Office of Planning Services projections for the Town of Duanesburg follow:

	<u>New York State</u> <u>(in thousands)</u>	<u>Schenectady County</u>	<u>Town of Duanesburg*</u>
1970	18,241	161,078	3,800
1980	19,604	167,217	4,729
1990	21,248	178,833	5,734

Source: Demographic projections, New York State
Office of Planning Services, 488 Broad-
way, Albany, New York 12207, June, 1972

The above forecast for the Town of Duanesburg projects an increase in population of approximately 1,900 persons by the year 1990. Schenectady County is projected to increase at about the same rate as the State of New York. The Town of Duanesburg is projected to increase at a faster rate than Schenectady County. While the Town of Duanesburg presently contains slightly over 2% of the present population of the County, it is expected to absorb approximately 11% of the increase in the County between 1970 and 1990. This forecast for the Town of Duanesburg for the 1970-1990 period is somewhat slower than the growth experienced in the Town between March 1970 and January 1973 previously discussed.

The following indicates the population projections for the municipalities in Schenectady County between 1970 and 1990.

* Includes Village of Delanson

	<u>1970</u>	<u>1990</u>	<u>Net Change</u>
Town of Duanesburg	3,800	5,734	+ 1,934
Town of Glenville	28,969	35,121	+ 6,152
Town of Niskayuna	17,879	25,086	+ 7,207
Town of Princetown	1,405	2,687	+ 1,282
Town of Rotterdam	31,067	36,734	+ 5,667
City of Schenectady	77,958	73,468	- 4,490
Schenectady County	161,078	178,830	+17,752

Source: New York State Office of Planning Services,
488 Broadway, Albany, New York 12207

The above projections indicate that the City of Schenectady will decrease in population and all other Towns except Princetown will absorb a much higher numerical population growth than Duanesburg.

The population projection for the Town of Duanesburg as prepared by the New York State Office of Planning Services is reasonably similar to the projection for the same year by the Schenectady County Planning Department. The population projections prepared as part of the County Water Supply and Sewerage Study were considerably less than the OPS projection. The OPS forecast will be used as a basis for Plan preparation.

Subtracting from the 1990 population projection for the Town of 5,734, the estimated present population of 4,300 persons yields an increase of 1,434 persons or approximately 400 families. At the present minimum lot size of 30,000 square feet per unit, these families would occupy 375 acres or less than 1% of the area of the Town. The 375 acre figure includes residential acreage plus an allowance for necessary streets. If the same 400 families were to occupy an average of 2 acres per family, the resulting land area needs would be approximately 1,000 acres or approximately 2% of the total area of the Town.

Age Group Breakdown
Schenectady County
1970, 1980, 1990

	<u>1970</u>		<u>1980</u>		<u>1990</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Under 5	12,808	8.0%	14,496	8.7%	16,374	9.2%
5-14	29,972	18.6%	23,939	14.3%	29,448	16.5%
15-24	24,617	15.3%	32,111	19.2%	25,625	14.3%
25-34	17,983	11.2%	25,573	15.3%	32,607	18.2%
35-44	18,269	11.3%	17,231	10.3%	24,507	13.7%
45-54	21,124	13.1%	16,661	10.0%	15,803	8.8%
55-64	17,120	10.7%	17,720	10.6%	14,025	7.8%
65 & Over	<u>19,185</u>	11.9%	<u>19,486</u>	11.7%	<u>20,444</u>	11.4%
	161,078		167,217		178,833	

Source: Demographic Projections,
New York State Office of Planning Services
488 Broadway, Albany, New York 12207
June, 1972

- LAND USE PLAN -

A Land Use Plan is a policy guide to future use of land in the Town of Duanesburg. As basically a policy statement, it does not become law. Because it is dealing with the next 15-20 years in the future, it must of necessity be broad and provide some flexibility. The policy established by the Plan should be effectuated by a revised zoning ordinance and through the use of subdivision regulations. A zoning ordinance and subdivision regulations do have the force of law.

As an aid to the establishment of Town policy, a planning questionnaire was distributed to residents and property owners and two public informational meetings were held to explain the existing conditions information, its implications and tentative land use plan proposals.

A summary of the results of the planning questionnaire is as follows:

- 1) 93% of the respondents favored retaining as much as possible the present basically rural character of the Town.
- 2) 59% of the respondents were not in favor of attracting more stores and shops into the Town while 36% were in favor and the remainder had no opinion.
- 3) 67% of the respondents were not in favor of encouraging industrial development in the Town while 29% were in favor and the remainder had no opinion.
- 4) 67% of the respondents were not in favor of two-story garden apartments in the Town while 28% were and the remainder had no opinion.
- 5) 64% of the respondents were in favor of establishing Town park and recreation areas while 31% were not and the remainder had no opinion.

The number of respondents to the above questions was generally in the range of 220-240. The overwhelming comment on the questionnaire was that people like Duanesburg because it is rural, residential and lightly populated. Frequently mentioned dislikes and needs expressed in the questionnaire are: sewage and drainage problems, junk autos and other junk, Town is growing too fast, need to plan for recreation and more zoning is needed.

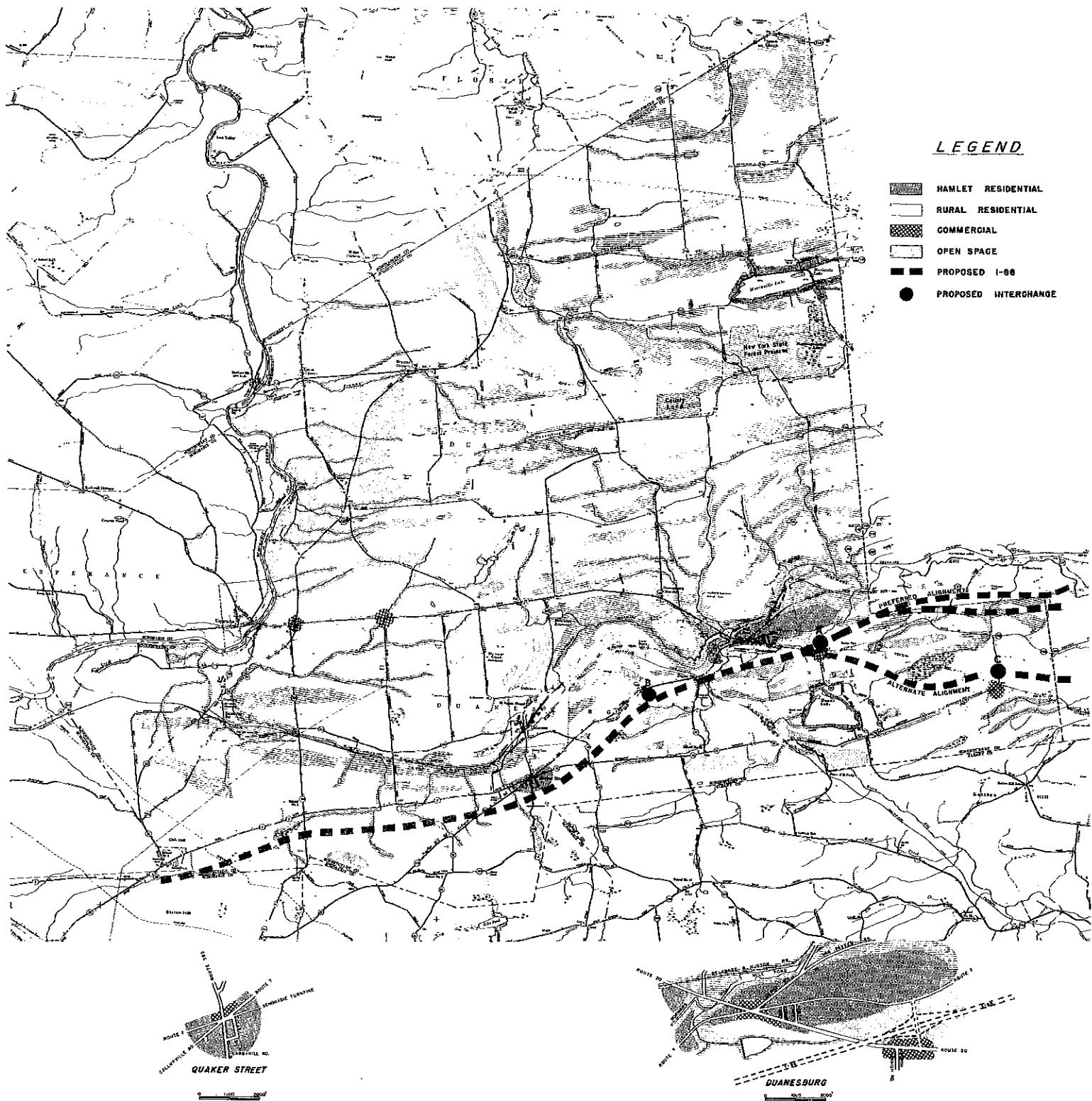
The Land Use Plan is based upon the existing condition analysis, upon the results of the planning questionnaires, upon examination of other plans such as Interstate Route 88 and the County sewer and water plans and upon various discussions at Planning Board meetings. The basic policies used in formulating the Land Use Plan were as follows:

- 1) In view of the severe rating of the soil types in the Town regarding septic tank systems, further residential development under the present minimum lot size of the zoning ordinance (30,000 square feet) will be permitted only in the area where they can be served by public water and sewer systems or in areas where existing development is such that it must be recognized in the Land Use Plan.
- 2) A larger minimum lot size is recommended for those areas where it is not anticipated that public water and sewers will be available. In these areas (which constitute the major portion of the Town) a 2-3 acre minimum lot size is recommended.
- 3) The preservation of open space should be encouraged, particularly involving land along waterways, steep slopes and scenic areas.
- 4) Although some commercial growth can be anticipated with an expanding population and upon completion of I-88, the land use policy is not to permit strip commercial development along major routes of travel but to concentrate commercial uses at the hamlets and at the I-88 interchange. The land uses along the major routes of travel should reflect the basically open character of the Town and protect the integrity (traffic-carrying capacity) of the street system.

Residential

In accordance with the above policies, the Land Use Plan for the Town proposes that most of the Town be placed into a Rural Residential classification (2-3 acres minimum per family). This is in accordance with the results of the planning questionnaire which indicates that a majority of the respondents wish to maintain the Town's rural characteristics and, as previously noted, is designed to provide a low residential density in areas of severe soil types which will not be served by public water and sewer systems. It is anticipated that only a portion of the land in this Rural Residential classification will be developed residentially and a major portion will continue to be devoted to agricultural use and remain undeveloped.

A Hamlet Residential classification is proposed at certain locations in the Town, the density of which is the present 30,000 square feet per family. The classification reflects existing development at the Hamlet of Quaker Street, at Mariaville



LEGEND

- HAMLET RESIDENTIAL
- RURAL RESIDENTIAL
- COMMERCIAL
- OPEN SPACE
- PROPOSED I-88
- PROPOSED INTERCHANGE

LAND USE PLAN

TOWN OF DUANEBURG

TOWN PLANNING BOARD

MURPHY & KREN PLANNING ASSOCIATES, INC.

DATE: DEC. 1973

SCALE: 1" = 4000'

THE PREPARATION OF THIS MAP WAS FINANCED BY THE TOWN OF DUANEBURG, MISSISSIPPI, FROM THE REVENUES OF THE TOWN AND FROM THE REVENUES OF THE STATE OF MISSISSIPPI. THE TOWN OF DUANEBURG IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE TOWN OF DUANEBURG IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN.

Lake and at Duane Lake and is basically restricted to the present "Residential Zoning District." In addition, a Hamlet residential classification is proposed at the Hamlet of Duanesburg reflecting existing development and providing for expansion. Attempts are presently being made to designate Quaker Street Hamlet as a National Historical Site.

It can be anticipated that not all families moving into the Town of Duanesburg will desire a relatively large residential lot and thus provision is made for hamlet expansion. The Hamlet of Duanesburg was selected for further hamlet residential expansion after also considering other areas, particularly the Hamlet of Quaker Street and an area adjacent to the Duanesburg elementary school. The problem posed by both of these areas for hamlet residential development is the lack of adequate stream flow in these areas to accommodate sewage outfall from a sewage disposal plant. The alternative is an expensive system of trunk lines to an area of adequate stream flow or lagooning. Lagooning is described as a temporary method of sewage disposal for a project up to the size of 200 single-family homes.*

A sewage disposal plant has been proposed on the Norman's Kill east of Mill Pond by the Schenectady County Sewerage Study to serve the Hamlet of Duanesburg. It is anticipated that the areas proposed for hamlet residential expansion will also be tied into this proposed sewage treatment plant.

The hamlet residential expansion area at the Hamlet of Duanesburg contains an area of approximately 200 acres located south of the Delaware and Hudson Railroad. This area could accommodate an additional 750 persons or approximately one-half of the expected population increase between the present and 1990. Assuming that many new residents will probably continue to locate outside of the hamlet areas, as is the present situation, it is not necessary to zone all of this expansion area at the present time for hamlet residential use. In fact, in view of the soil types and lack of utilities in this hamlet expansion area, it would be advisable to open such land for hamlet development only after suitable utility systems are available. If, in the future, it appears that additional hamlet residential land in addition to the area proposed on the Land Use Plan is needed, an area which can be served by the Hamlet of Duanesburg utility systems should be selected.

* Source: Community Builders' Handbook, Urban Land Institute, 1968

It should be noted that the densities expressed are minimums. Lot sizes larger than the minimums are perfectly consistent with the plan and effectuating zoning ordinance.

Although many areas are referred to as residential areas, these areas will also permit related uses such as religious buildings, clubs, golf courses, etc.

The densities as set forth will apply to both year-round and seasonal housing units. Seasonal units must comply with the requirements for year-round homes because of the distinct possibility that these seasonal units will be converted to year-round housing at some future date.

The technique of cluster development could be advantageously used in the Town of Duanesburg. This procedure will permit a property owner to group house sites on smaller lots than normally required, provided the overall maximum density of the site is not exceeded. The remainder of the tract is then left in its natural state or used for recreational purposes. Cluster layouts will help preserve the rural and open character of the Town. The undeveloped land can be owned and maintained by a property owners' association or, when the Town is agreeable, deeded to the Town as permanent open space or recreation space. Cluster developments are particularly advantageous to sites which contain both developable land and problem land such as areas of steep slopes. In these cases the undevelopable land can remain in its natural state. In the Town of Duanesburg, cluster development should only be permitted upon a finding that the developer will adequately install a public water supply and sewage disposal system.

A majority of respondents to the planning questionnaire did not favor permitting two-story apartments (multi-family housing). The Land Use Plan does not propose any site for such housing due primarily to the fact that an adequate sewage disposal system does not exist. It is suggested that after a sewage disposal system is operating the question of multi-family housing could be re-studied. Such type of housing does provide particularly for newly married couples and elderly persons or couples who no longer desire home ownership. If, in the future, a re-examination of this question is favorable, sites which can be tied into a public water supply and sewage disposal system should be selected. Sites should also be selected that will not adversely affect single-family uses due to proximity of parking areas, etc. or due to traffic generation.

No specific sites for additional mobile home parks are shown on the Plan. The plan proposes continuation of the present policy of permitting mobile homes to locate only in mobile home parks. A review procedure will be established by a revised zoning

ordinance which will give the Town the option of changing the zoning map to a mobile home park district after a review of the proposal by the Town and appropriate County and State agencies and after public hearing. The Land Use Plan recognizes that mobile homes do provide a needed source of housing but that adequate controls and review procedures are necessary.

It can be anticipated and the County Water and Sewage plans propose that the Hamlets of Quaker Street and Duanesburg be served by public water and sewage disposal systems as well as the Village of Delanson. The County Water and Sewage studies do not propose water or sewer facilities for the Mariaville Lake area, but with continued development, particularly with year-round residences and with continued emphasis on environmental problems, such facilities will be necessary.

Commercial

Pressure for commercial expansion will come from an expanding population and at the interchange location of I-88. Again a majority of respondents to the planning questionnaire did not favor commercial expansion. Thus the plan reflects basically existing areas in which commercial development exists, but with provision for expansion at the proposed interchange location.

The expected population increases in the market area are not great in terms of actual numbers and the total population will still be less than 7500 persons generally necessary to support a neighborhood shopping center with a supermarket as a major tenant. Adequate room for commercial expansion does exist on the south side of Route 20 east of the Route 7 intersection for new commercial uses, and a small neighborhood grouping of stores and shops could be located in this area of the Hamlet of Duanesburg. It is imperative, however, that with any new commercial uses adequate off-street parking requirements be established as part of the revised zoning ordinance. In addition, landscaping should be required and sign location and size controlled.

At the proposed I-88 interchange location it is anticipated that commercial uses designed to serve the traveling public will be established. Again, parking, landscaping and sign control should be established.

It can be anticipated that once I-88 is complete that Route 7 will not carry significant amounts of traffic, particularly through traffic between the hamlet of Duanesburg and the New York State Thruway. Thus the demand for commercial space for business uses to serve the traveling public may very well decrease. Although it is possible that traffic volumes on Route 7 west of Quaker Street may increase somewhat, the frontage of Route 7 is still shown on the Land Use Plan in residential classifications as its basic ultimate use although in the interim the revised zoning ordinance may reflect existing commercial uses.

It is not anticipated that traffic flow on Route 20 west of the Hamlet of Duanesburg will be as significantly affected. Several areas now partially developed with commercial uses are proposed for commercial use with room for expansion, notably at the Route 30 intersection and at Thousand Acres Cross Road. Most of Route 20 will be in the Rural Residential classification thus reflecting to the traveling public the basic rural character of the Town.

Industry

No specific site is proposed for industry on the Land Use Plan. The majority response to the planning questionnaire indicates this position. At the present time a very limited marketability for industrial land exists in the Town together with a lack of public sewer and water facilities.

Upon completion of I-88 and the proposed interchange in Duanesburg, the marketability for industrial uses may become improved, particularly if public sewer and water facilities are also then available. It can be anticipated that such increased demand will be for industrial land convenient to the interchange. At that time the Town may wish to review its position and determine whether such uses would be appropriate. Industrial uses can provide a source of employment as well as a source of tax income to the Town. However, the establishment of industrial uses may very well generate further residential activity. If industrial uses are to be permitted in the future, strict standards of coverage, landscaping, off-street parking, absence of nuisances and environmental considerations should be established and adhered to.

The preceding text mentions development at the interchange location for both commercial and industrial uses. This is a logical location for such uses; however, it is not anticipated at this time that the amount of such development will be significant. The Town should control through its zoning ordinance the amount of development and also the manner in which such development takes place. Previous comments regarding off-street parking, signs and landscaping are again appropriate. In addition, the buildings should be well set back from the street or highway (100 feet or more), buffers between such uses and adjacent residences should be established and review of plans by the Planning Board should take place to maintain a smooth flow of traffic. Entrances and exits to commercial establishments should not be located in proximity to the points of ingress and egress of I-88. It must be emphasized that proper planning and design standards should be established at the outset of development and adhered to.

Open Space

The area of the Town being 72.5 square miles and the fact that the population forecast indicates a limited amount of new development should result in a continued significant amount of open space in the Town. However, it is not too early to be planning for the preservation of open space, for many times it is land that is the most desirable park or recreation land that is the first to be developed. For example, the land adjacent to Mariaville Lake and Duane Lake is almost totally developed. Thus shown upon the Land Use Plan is proposed open space along the Schoharie Creek, Normans Kill and other waterways in the Town and also indicating those areas of steep slope as open space in the Town. The lands of the New York State Forest Preserve and the lands owned by the County are also included in the open space category. These proposals can be effectuated through purchase, setback regulations and cluster development.

Analysis of Current Planning of Interstate Route 88

Interstate Route 88, a controlled access highway, linking the Schenectady area and the Binghamton Area is now in the planning stage in the Duanesburg area although several sections have already been started and some completed eg., Binghamton. As this Route is proposed to be located partially in Schenectady County and will pass through a portion of the Town of Duanesburg, its location and design (particularly the location of points of ingress and egress) play a large role in planning for the Town.

One of the major factors being considered at the present time is the eastern terminus of this Route. Consideration is presently being given to corridor routes and interchange locations with the New York State Thruway.

Through the Town of Duanesburg, I-88 is proposed to pass south of the Hamlets of Quaker Street and Duanesburg. East of the Hamlet of Duanesburg, I-88 is divided into alternative corridors. The northerly corridors generally parallel Route 7 in the Town of Duanesburg with the most northerly alternate leading to the New York State Thruway at a point north of the Shalmont School and the other intersecting the Thruway in the vicinity of the Penn Central Railroad. The southerly corridor through the Town of Duanesburg generally follows State Highway Route 20. This southerly alternate is proposed to intersect the New York State Thruway at Interchange 25.

Alternate points of ingress and egress are now being studied by the New York State Department of Transportation depending upon the alternate alignment selected. If the northerly alternate corridors are selected, interchanges are proposed: 1) just east of the Hamlet of Duanesburg labeled "A" on the Land Use Plan and 2) at Route 7 between Cole Road and Weaver Road labeled "B" on the Land Use Plan. These are alternates and only one would be selected. The Town Planning Board favors interchange alternate "A" and the northerly alternate alignments. If the southerly alignment is selected, interchanges "B" (on Route 7 between Coles Road and Weaver Road) and "C" (at Suits Road) would be constructed and would function as a combination interchange and not as alternates.

These alternate corridors and interchanges are being studied by DOT and design public hearings will be held in the future. Construction in the Duanesburg area is expected in 1976.

State Highway Route 7 now passes through the hamlets of Duanesburg and Quaker Street. With the completion of I-88, the through traffic and most of the through truck traffic now using Route 7 will use the interstate route. The completion of the interstate route will also improve the accessibility of the Town of Duanesburg from the City of Schenectady and adjacent areas. In addition to improving accessibility, I-88 at the interchanges may cause pressure for non-residential development, such as highway commercial uses (gasoline service stations, motels, eating establishments) and quite possibly industrial uses, as previously discussed.

The environmental significance of I-88 is discussed in the Environmental Assessment section of this report. However, in summary it can be anticipated that more vehicular traffic will be passing through the Town on I-88 than formerly used Route 7 and the increased number of vehicles will result in increased vehicular exhaust emissions. During inclement weather the salting and sanding of the highway will run off into the local drainage system.

The anticipated effect on the hamlet of Quaker Street of I-88 includes the above-mentioned factors. No interchange will be located at Quaker Street; however, a shift of through traffic which is now

using Route 7 to I-88 can be anticipated. Thus I-88 will be beneficial in this respect, particularly the removal of through commercial traffic. Although final plans have not been examined, it can be anticipated that as I-88 passes to the south of the hamlet of Quaker Street its grade elevation will be increasing from east to west. The existing land form changes at approximately the rate of 1%. Route 7 through the hamlet of Quaker Street has less than 1% grade. The noise factor can not be determined with any precision at this point. It would appear that I-88 will be advantageous in removing through traffic, particularly truck traffic from the hamlet center on Route 7. Disadvantages may result from an increased amount of traffic on I-88 in proximity to the hamlet on I-88 but such a determination should be made based upon the final location and grades of the highway, particularly as to whether or not the grades will necessitate shifting of gears of trucks. If the examination of plans indicates that noise will be a factor, a screen is recommended between the highway and residential areas composed of trees or shrubs which will form a year-round sound absorption system.

The situation at the Hamlet of Duanesburg is different in view of the fact that it is most likely that an interchange will be located in the Hamlet of Duanesburg area. This interchange may very well cause pressure for commercial development near this interchange which in itself is not necessarily bad but the plans for such development should be adequately reviewed by the Town as to design and function. Residential growth can also be anticipated. I-88 will remove through traffic from the hamlet area which is advantageous. The same comments made for the hamlet of Quaker Street regarding grades and noise apply to the hamlet of Duanesburg.

The New York State Department of Transportation is now developing an environmental impact statement regarding I-88 including this area.

Plan Considerations

These alternative alignments and interchange locations have been studied. The Land Use Plan and text reflect the preferred alignments and interchange location. The choice between these two northerly alternates involves planning and engineering decisions in the area east of the Town of Duanesburg extending to the New York Thruway. No final decisions have been made at this time and thus these alternates are still subject to study, review and public hearing.

Two alternate interchanges were reviewed as part of the preferred northerly alignments. The location just east of the Hamlet of Duanesburg between Routes 7 and 20 is the preferred interchange location. The other alternate, on Route 7 near Coles Road, located about midway between Quaker Street and Duanesburg would involve doubling back for westbound motorists wishing to go to the Hamlet of Duanesburg or to Route 20. The Land Use Plan proposes more residential emphasis at the Hamlet of Duanesburg than at Quaker Street and thus the preferred interchange is more convenient to this development.

It should be noted that the alignments and interchange locations are generalized as to their location and further New York State DOT studies are necessary to finalize these locations. Thus the proposed business location at the preferred interchange is also generalized and it is anticipated that a more finalized location will be developed as part of the revised zoning ordinance and map. If the southerly alignment of I-88 is selected east of the Hamlet of Duanesburg, this will also necessitate certain Land Use Plan changes.

APPENDIX A

ENVIRONMENTAL ASSESSMENT

This environmental assessment has been prepared for the Town of Duanesburg, Schenectady County, New York Land Use Plan.

1) Summary of the Land Use Plan Proposals and Policies

The Land Use Plan has been prepared for the purpose of establishing land use policies for the Town for the next 15-20 years. The Land Use Plan is particularly necessary because Interstate Route 88 has been proposed by the New York State Department of Transportation to be constructed through the Town and because the present zoning ordinance does not provide adequate development protection. The Land Use Plan is essentially phase one of this study and the preparation of a new zoning ordinance will constitute phase two.

As part of the Land Use Plan the following studies and policies were developed:

- a. The topography of the Town is gently rolling but the soil types in practically all areas of the Town lack permeability.
- b. The 72.5 square miles of the Town are primarily undeveloped. Small concentrations of development do exist at the hamlets of Duanesburg and Quaker Street and the Village of Delanson. The frontage of both Mariaville Lake and Duane Lake is almost totally developed with residential uses. Commercial uses are primarily located along State Highways Routes 20 and 7 oriented to serving the traveling public and the residential population. Agricultural uses in the Town have been classified as low or medium economic viability and no area has been classified as high economic viability.
- c. The 1970 population of the Town of approximately 3800 (includes approximately 500 persons in the Village of Delanson) has grown to 4300 at the present time and a forecast by the New York State Office of Planning Services indicates a 1990 population of 5,734. Practically all of the growth is expected to take place in the Town rather than the Village.
- d. Both the Comprehensive Public Water Supply Study and the Comprehensive Sewerage Study for Schenectady County recommend that the hamlets of Duanesburg and Quaker Street be served by public water supply and sewage disposal systems.

- e. Interstate Route 88, a controlled access highway, linking the Schenectady area and the Binghamton area, will pass through the Town of Duanesburg with an interchange most likely to be located near the hamlet of Duanesburg.
- f. A planning questionnaire was distributed to property owners and residents, and the results indicated that a majority of respondents favored retaining as much as possible the present basically rural character of the Town and favored establishing Town park and recreation areas. Respondents were not in favor of attracting more stores and shops, industrial uses or garden apartments.
- g. The Land Use Plan is based upon the existing condition analysis, upon the results of the planning questionnaires, upon examination of other plans such as Interstate Route 88 and the County sewer and water plans and upon various discussions at Planning Board meetings. The basic policies used in formulating the Land Use Plan were as follows:
 - 1) In view of the severe rating of the soil types in the Town regarding septic tank systems, further residential development under the present minimum lot size of the zoning ordinance (30,000 square feet) will be permitted only in the areas where they can be served by public water and sewer systems or in areas where existing development is such that it must be recognized in the Land Use Plan.
 - 2) A larger minimum lot size is recommended for those areas where it is not anticipated that public water and sewers will be available. In these areas (which constitute the major portion of the Town) a 2-3-acre minimum lot size is recommended.
 - 3) The preservation of open space should be encouraged, particularly involving land along waterways, steep slopes and scenic areas.
 - 4) Although some commercial growth can be anticipated with an expanding population and upon completion of I-88, the land use policy is not to permit strip commercial development along major routes of travel but to concentrate commercial uses at the hamlets and at the I-88 interchange. The land uses along the major routes of travel should reflect the basically open character of the Town.

2) The Environmental Impact

The Land Use Plan was prepared to avoid many adverse environmental impacts on the Town. A low density of development

is proposed throughout most of the Town based upon an analysis of soil types and other planning considerations. More intensive development is proposed only in areas which can reasonably be served by public water and sewage disposal systems (basically the hamlet of Duanesburg). No significant industrial development is anticipated. A significant amount of land is proposed for open space along the Schoharie Creek, Norman's Kill and other streams, in areas of steep slope and near areas of higher density development.

Part of the higher density development concentration at the hamlet of Duanesburg is proposed on land presently in agricultural use which could be considered an adverse effect although such land is not classified as high economic viability. Such land, however, is a logical extension of the present hamlet development.

Due to the fact that Duanesburg is presently an undeveloped Town with no significant industrial development, the construction of Interstate Route 88 through the Town has both environmental advantages and disadvantages. The increased volume of traffic through the Town will result in increased vehicular emissions, the salting and sanding will run off into the local drainage systems and noise may be a factor depending upon final engineering designs. The New York State Department of Transportation will prepare an environmental impact statement. I-88 can be regarded as beneficial because it will divert traffic now passing directly through the hamlets on Route 7 to the Interstate Route, thus removing particularly truck traffic from passing through basically residential areas.

3) Adverse Environmental Effects Which Cannot be Avoided

Although the plan has been prepared with the objective of minimizing adverse environmental effects, the two factors mentioned in section 2 above, being I-88 and the proposal for hamlet residential development of some agricultural land, are possible adverse environmental effects included in the plan proposals.

In addition, the Land Use Plan recognizes the existing development (almost exclusively residential) adjacent to the Lakes, particularly Mariaville Lake. Although the majority of units are presently seasonal, it would not be unreasonable to expect continued conversions to year-round use with the result that unless a sewer and water system are installed pollution of the lakes may very well result. The Schenectady County Water Supply and Sewerage Study do not propose either public water supply or sewage disposal for the Mariaville Lake area. The Land Use Plan basically recognizes the existing development around these lakes because to do otherwise would be unrealistic.

4) Alternatives to the Proposed Plan

The principal alternative to the Land Use Plan is to continue under the existing zoning ordinance regulations which require a minimum lot size per dwelling unit of 30,000 sq.ft. throughout the Town. The reasons for recommending a larger minimum lot size in most areas of the Town are set forth in Section 1.

As part of the Land Use Plan preparation, alternatives to selection of the hamlet of Duanesburg as the area which should accommodate the hamlet type residential growth (minimum lot size of 30,000 square feet per dwelling unit) were considered. The alternates considered were the hamlet of Quaker Street and the area adjacent to the Duanesburg elementary school. Both were rejected as sites for substantial hamlet residential growth because of the lack of adequate stream flow to accommodate treated sewage with the probable result that lagooning would be necessary, generally a system which is not satisfactory for a significant concentration of residential development.

5) The Relationship between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The Land Use Plan provides for the expected population increases in the Town for the next 15-20 years and considering the 72.5 square mile area of the Town, it could, in fact, accommodate many more people under the proposed plan densities than is forecasted. It can logically be expected that a considerable amount of vacant land will still exist in 1990. Irrespective of this, however, the plan proposes that certain critical physical features be maintained as open space, namely land adjacent to streams and creeks, steep slopes, scenic area and park and recreation areas near the hamlets and existing county and state lands.

With the previously mentioned fact that one area presently used for agriculture is proposed for hamlet residential use, there is no known short-term plan proposal which is in conflict with long-term productivity use of the land.

6) Irreversible and Irretrievable Commitments of Resources Which Would be Involved if the Proposed Plan is Implemented

The implementation of the proposed Land Use Plan involves a commitment by the Town to revise its zoning ordinance to reflect the proposals of the Land Use Plan. The proposals of the Land Use Plan involve concentrating smaller lot size development in areas where it can be readily served by public water supply and public sewers. Thus plan implementation implies a

commitment by the local, and also most likely, state and federal agencies to make the necessary investment in such public water supply and sewage disposal systems to serve the hamlets.

Interstate Route 88 is a facility to be provided by using State and Federal funds and involves no direct funding by the Town. The Land Use Plan is not irretrievably tied to the construction of I-88 and would still be valid should this route not be constructed.

7) Applicable Federal, State and Local Environmental Controls

The major implementing controls are local, being the zoning ordinance and subdivision regulations. The County and State Health Departments are also involved in implementation, particularly involving density, and in review of sewer and water systems. Under certain development proposals, the New York State Department of Environmental Conservation and the Federal Environmental Protection agency will also become reviewing and approval agencies and their rules and regulations will be applicable to such developmental proposals.