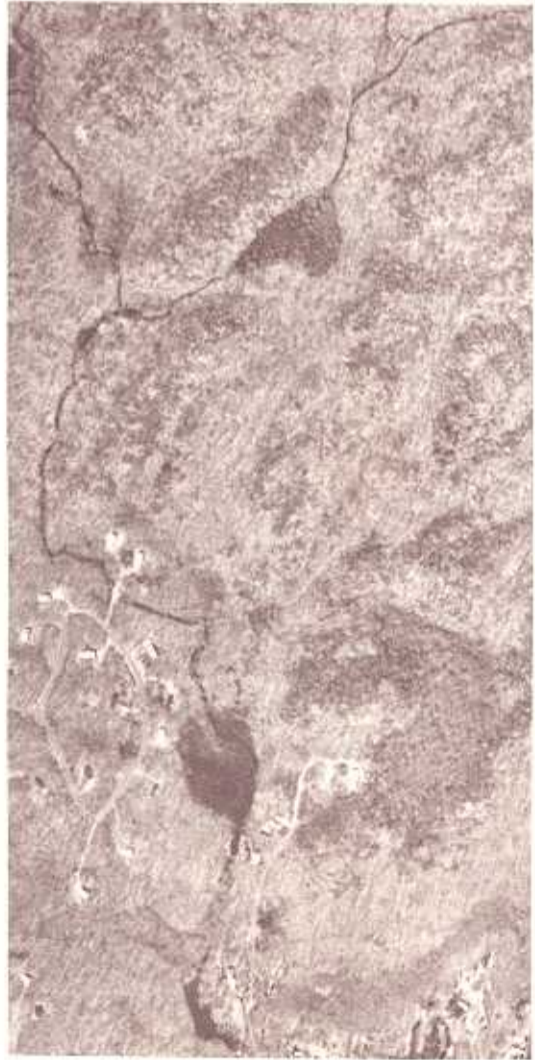


MAP 6, HYDROLOGY



Complexes of streams and wetlands can be clearly identified in this aerial photograph. The streams appear as dark lines while the typical wetland vegetation appears darker and bubbly in contrast to the surrounding woodland.



Human development in wetlands and along wetland margins may be subject to flooding and malfunctioning septic fields.

The natural drainage of Weston is organized by three river systems: the East Branch and West Branch Saugatuck River and the Norwalk River. The Aspetuck drains into the Saugatuck and is considered part of its system. For the purposes of analysis and management, the three rivers were divided into study areas, by watersheds of the major tributaries. This breakdown is shown on Table

Any human activity—agriculture, forestry, industry, residential living with associated storm and sanitary sewage—will affect water flow and quality *within a watershed in which it lies*. By monitoring the watercourse exiting from a given watershed, it is possible to assess the impact of human development within the watershed, including the effect of land use on water supply.

In Weston, there is special activity within a watershed bedrock, which is tapped stratified drift aquifers. the extent to which human impact streams by lowering increased flooding.

As indicated in Table 5, V interest in watershed mar towns, since a number of Weston's border.

EXPLANATION OF THE LEGEND

FIRST ORDER STREAMS. The East Branch and West Branch Saugatuck River are the first order streams in Weston, with the Aspetuck River joining the East Branch.

SECOND ORDER STREAMS are major tributaries of first order streams.

THIRD ORDER STREAMS are major tributaries of second order streams, which run all year.

INTERMITTANT STREAMS dry up during periods of low precipitation because of lack of ground water discharge. Intermittant flow is characteristic of streams with small sub-watersheds, with limited ground water storage capacity.

WATERSHED BOUNDARIES are the high points—ridges, hills, plateaus, etc.—determined from topographic maps; aerial photos interpretation and field observation which define a drainage basin that moves water to a single point of exit into a larger system. Theoretically, if a raindrop were to fall exactly on a **BOUNDARY**, one-half of the drop would flow to the streams and then the exit of one watershed, and the other half to the adjoining watershed. The amount of time, usually measured in minutes, which is required for a drop of water falling at the farthest point in the watershed to reach the exit is called the Time of Concentration, a value used to calculate peak flow.

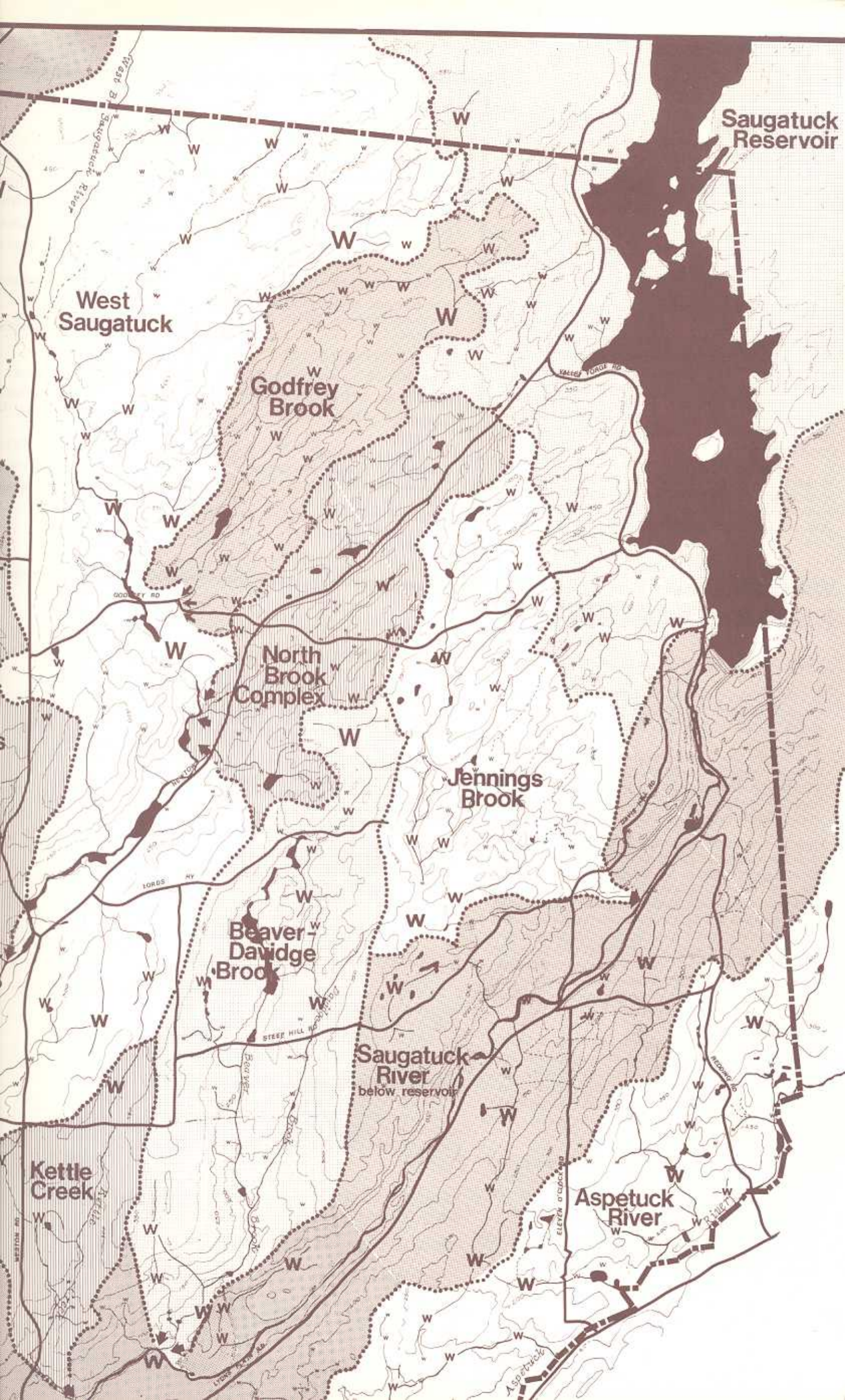
A watershed defines an area which is working as a drainage system, and conversely, indicates the limits of a hydrologic picture. For example, since streams never cross **WATERSHED BOUNDARIES**, it can be inferred that a point source of pollution will spread in a predictable way down its system and will not show up in a neighboring watershed. However, while streams and rivers do not cross their **WATERSHED BOUNDARIES**, bodies of water may lie on the **BOUNDARY**. In Connecticut's folded topography, it is common to have a wetland of a lobed shape lying on a **BOUNDARY** in a high, flat location, draining into two adjoining watersheds. This situation can be observed on the **BOUNDARY** between the Saugatuck Reservoir Watershed and the Godfrey Brook Watershed. It is also possible for a limited amount of underground flow to cross watershed boundaries.

W—WETLANDS are indicated by a symbol to indicate approximate location along stream. In this picture they represent water can be expected to flow will spread out and of sediment loads. When a stream channel may be practical purposes the entire watershed may be understood to be functional though a dry-season flow route through the area.

WATERSHED EX precipitation falling could make its way ultimately to the over the surface (called stream leading to the exit into the ground, and then from where it may also feed. About half of the precipitation watershed never reaches the it gets evaporated from pl

Of a total average annual 23.4 inches reaches the water coming from surface runoff water discharge. It is the so-called **base flow**, which keeps streams during dry periods. The ground streams is used as an estimate water being recharged into Human development in Weston of 1.2 inches of precipitation returns most of it back to fields.

The 23.1 inch portion of never reaches the watershed the atmosphere. This includes directly on plants and new taken from the soil by plants evaporates from the soil surface within the watershed.



Saugatuck Reservoir

West Saugatuck

Godfrey Brook

North Brook Complex

Jennings Brook

Beaver-Davidge Brook

Saugatuck River below reservoir

Kettle Creek

Aspetuck River

Planning to maximize environmental quality at each stage of development, requires an analysis of the unique character of its individual watersheds. This character resides in the distribution of **Landscape Systems** in a watershed, their geographical relation to each other and their interaction with present and potential human development.

TABLE 6 summarizes the landscape composition of Weston's watersheds. The lowland areas, steep areas and shallow areas which are quite sensitive to development constitute 58.4% of Weston's area.

An analysis of CRITICAL PLANNING UNITS (TABLE 7) shows that the remaining undeveloped areas have a much higher proportion of steep and shallow-soiled areas than the town as a whole. This reflects the fact that the more easily developable, moderate slope and deep-soiled areas have been preferentially developed. Fortunately, for Weston's environmental future, a large proportion of undeveloped steep and shallow-soiled areas are in the Lucius Pond Ordway Preserve.

A number of recommendations, unique to individual watersheds, are embodied in the maps and technical reports produced as part of the Environmental Resources Study. For convenience, these are listed here.

WATERSHED RECOMMENDATIONS

SAUGATUCK RESERVOIR WATERSHED

1. Special monitoring of drainage from Blue Spruce Circle and Laurel Ridge Road (see MAP 8, DATA INDEX AND MONITOR POINTS).
2. A master plan for the watershed should be developed which takes into account its extraordinary ecological sensitivity and recreational potential. This would forestall haphazard incremental development which could threaten water quality.

Weston contains most of the shoreline of the Saugatuck Reservoir and 7% of its total watershed. Several parcels within the Weston portion of the watershed are currently slated for sale by the Bridgeport Hydraulic Company. Development of these parcels or other areas within the watershed could adversely affect reservoir water quality. Storm drainage from new development with its content of chemical pollutants—gasoline, oil, salt, fertilizers, lead, pesticides, etc.—and turbidity from erosion will adversely affect water quality, as delivered to customers of Bridgeport Hydraulic in neighboring towns.

Today's water treatment plants cannot cope with dissolved chemical pollutants, and turbidity has been linked to the production of chloroform, and other chlorinated hydrocarbons, when drinking water is chlorinated. The precise effect of development on these water quality problems, unfortunately, cannot now be predicted in advance.

Richard Woodhull, chief of the water supplies sector of the Connecticut State Health Department, has stated that development criteria for state water company land would be based on distance from water, slope and soil type. The definition of CRITICAL PLANNING UNITS and PROTECTION ZONES within the watershed has taken these factors into account. (see MAP 4, PROTECTION ZONES and MAP 5, CRITICAL PLANNING UNITS).

JENNINGS BROOK WATERSHED

1. Close Town Landfill at earliest possible time.
2. Institute monitoring in vicinity of Landfill immediately (see MAP 8, DATA INDEX AND MONITOR POINTS).

TABLE 5

WESTON WITHIN ITS REGIONAL WATERSHED CONTEXT

Regional Watersheds in Weston

12.0	East Branch Saugatuck
7.6	West Branch Saugatuck
0.3	Norwalk River
19.9	Total Weston Area (sq. mi.)

East Branch Summary

Jurisdictions: Easton, Redding, Ridgefield, Newtown, Danbury, Bethel, Weston, Fairfield, Westport.

Outlet: Long Island Sound

Total area: 79.1 square miles

Weston area: 12.0 square miles

Subdivision of Weston Area:

<i>Stream</i>	<i>Area</i>
Saugatuck Reservoir	2.4
Saugatuck River (main branch below reservoir)	4.1
Aspetuck River	1.7
Beaver-Davidage Brook	1.7
Jennings Brook	1.5
Kettle Creek	0.6
	12.0 (sq. mi.)

West Branch Summary

Jurisdictions: Re

Outlet: Saugatuck

Total area: 11.9 sq

Weston area: 7.6 sq

Subdivision of We

Stream

West Branch Sa

Cobbs Mill Bro

Godfrey Brook

North Brook C

Norwalk River Sum

Jurisdictions: No

Ridgefield, Reddi

Weston.

Outlet: Norwalk

Total area: 61.4 s

Weston area: 0.3

WEST BRANCH SAUGATUCK WATERSHED

1. Protect major aquifer. (MAP 11, AQUIFERS).
2. Town center needs special monitoring. (MAP 8, DATA INDEX AND MONITOR POINTS).
3. One of a limited number of opportunities for higher density development exists in a parcel along Godfrey Road. It is recommended that this potential be considered in Townwide planning. (MAP 5, CRITICAL PLANNING UNITS).
4. Area adjoining west border of Lucius Pond Ordway Preserve recommended for open space acquisition. (MAP 4, PROTECTION ZONES).

SAUGATUCK RIVER WATERSHED

1. Protect major aquifer. (MAP 11, AQUIFERS)
2. Extensive acquisition of open space recommended including hemlock grove below reservoir, a major complex of wetland, upland forest and open fields east of Eleven O'Clock Road and a gravel pit near Broad Street. (MAP 4, PROTECTION ZONES.)

ASPETUCK RIVER WATERSHED

1. Special monitoring is needed in peat and muck wetland and wetland linkage complex along Codfish Lane. (MAP 8, DATA INDEX AND MONITOR POINTS).

BEAVER-DAVIDAGE BROOK WATERSHED—no special recommendations.

COBBS MILL BROOK WATERSHED

1. Protect major aquifer. (MAP 11, AQUIFERS).
2. Acquisition of wetland-open field complex along Cannondale Road for wildlife sanctuary. (MAP 4, PROTECTION ZONES).

GODFREY BROOK WATERSHED—no special recommendations.

TABLE 6; LANDSCAPE COMPOSITION BY WATERSHED (IN ACRES)

WATERSHED	UPLAND LANDSCAPE SYSTEMS					LOWLAND LANDSCAPE SYSTEMS				Total Area
	Steep Slopes	Shallow Soil	Hardpan Soil	Well Drained Soil	Peat, Muck Wetlands	Wetland Linkage	Surface Water			
Aspetuck River	44	162	140	567	93	51	16	1073		
Beaver-Davidage Brook	114	166	555	122	127	13	23	1120		
Cobbs Mill Brook	100	—	200	131	61	18	3	513		
Godfrey Brook	206	279	—	29	118	18	5	655		
Jennings Brook	189	576	—	25	110	23	8	931		
Kettle Creek	—	23	312	2	40	13	3	393		
North Brook Complex	135	373	3	73	53	26	11	674		
Norwalk River	10	5	84	86	22	10	2	219		
Saugatuck Reservoir	377	547	—	—	79	9	497	1509		
Saugatuck River	732	88	569	1007	151	22	57	2626		
West Branch Saugatuck	643	582	948	464	289	74	37	3037		
All Watersheds	2550	2801	2811	2506	1143	277	662	12,750		
Fraction of Weston Area	20.0%	22.0%	22.0%	19.6%	9.0%	2.2%	5.2%	100.0%		

West Branch Saugatuck	643	582	948	404	1143	277	662	12,750
All Watersheds	2550	2801	2811	2506	1143	277	662	12,750
Fraction of Weston Area	20.0%	22.0%	22.0%	19.6%	9.0%	2.2%	5.2%	100.0%

TABLE 7; CRITICAL UNIT COMPOSITION OF UNDEVELOPED LAND
(IN ACRES)

WATERSHED	Steep Slopes	Shallow Soil	Hardpan Soil	Well Drained Soil	Special Shallow	Special Well Drained	Total Area
Aspetuck River	54	10	175	121	—	—	360
Beaver-Davidage Brook	—	234	39	13	—	—	286
Cobbs Mill Brook	93	—	38	30	—	—	161
Godfrey Brook	22	407	—	18	—	8	455
Jennings Brook	155	416	—	—	—	—	571
Kettle Creek	—	—	94	—	—	—	94
North Brook Complex	86	295	—	—	—	—	381
Norwalk River	2	—	9	48	—	—	59
Saugatuck Reservoir	380	—	—	—	500	—	880
Saugatuck River	396	63	210	159	—	—	828
West Branch Saugatuck	563	631	132	160	—	13	1499
All Watersheds	1751	2056	697	549	500	21	5574

**WESTON
ENVIRONMENTAL
SOURCES MANUAL**

**GUIDE TO NATURAL CARRYING CAPACITY
IN CONNECTICUT**

PREPARED FOR THE

**PLANNING AND ZONING COMMISSION
Town of Weston,
Connecticut**

**Dominski/Oakrock Associates
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CONNECTICUT**

**NICHOLAS QUENNELL ASSOCIATES
NEW YORK**

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CONNECTICUT**

**SEPTEMBER
1976**