PLAN OF CONSERVATION & DEVELOPMENT 2000

TOWN OF ORANGE, CONNECTICUT

PLAN OF CONSERVATION & DEVELOPMENT 2000

Town Plan & Zoning Commission
ORANGE, CONNECTICUT

TOWN OF ORANGE, CONNECTICUT
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O'Brien & Marmo Associates
Hamden, Connecticut

in association with
Harrall-Michalowski Associates, Inc.

Effective November 1, 1999

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VISION STATEMENT

The following statement is written in the present tense but is reflective of a vision for the community.

Orange is a community known for its rural areas, quality residential areas and vibrant commercial, retail and industrial areas. Orange residents have a thriving community spirit and an active citizen volunteer movement. The Town Center Complex brings together neighbors for activities such as reading a book at the library, helping a child on a playground swing, umpiring a ballgame or obtaining information at a town office.

Orange is a safe and good place to live, work and raise a family. Residents travel on safe roads and are still able to enjoy rural vistas. Farms are still viable. Housing is available for all residents within the community. Schools are places of excellent teaching. Services and facilities are available to help elderly residents stay in their homes or move to senior housing or assisted living facilities.

The roadway network allows Orange residents to travel within the town as well as commute to employment, cultural, or recreational opportunities in surrounding communities.

Quality of life issues for residents continue to be of paramount concern for the Planning and Zoning Commission.

PURPOSE AND SCOPE OF PLAN

Planning within a community is an on-going process wherein current conditions are evaluated, future goals are articulated and plans for the future are formulated. Planning in Orange is conducted and carried out by several boards, commissions and Town departments.

The Town Plan and Zoning Commission is charged with the responsibility to prepare the overall Plan of Conservation and Development. This Plan represents an overall guide for the Town. The Plan contains considered recommendations for the conservation and development of Orange at this point in time.

A Plan of Conservation and Development shows the recommendations of the Plan and Zoning Commission for the use of land for residential, recreational, commercial , industrial, conservation and other uses. The Plan is also a statement of broad goals and standards for the physical and economic development and preservation of the community. The overall purpose of the Plan is to protect the health, welfare and general safety of the citizens while promoting prosperity. The Plan was last reviewed in a comprehensive way in 1985. While amendments have been added over the years, this current effort represents a complete updating in accordance with the Connecticut General Statutes.

Generally following the updating of a Plan of Conservation and Development a community undertakes the following activities.

- Comprehensive review and updating of zoning regulations.
- Review of long range capital improvement projects.
- Review by entities responsible for wetlands protection, recreation, schools, water pollution control, health, stormwater, municipal facilities, etc., of relevant plan recommendations.

HOW A PLAN IS KEPT CURRENT

Once adopted this plan may be modified, as needed, by the Town Plan and Zoning Commission as follows:

1. **Amendment**

   So as to change a policy, goal or recommendation contained herein.

2. **Programs**

   By the addition of programs which detail or elaborate on features of the Plan.

3. **Supplement**

   By addition of technical supplements which contain data, information, standards or procedures in support of the Plan

4. **Administrative**

   By addition or updating of information including maps, development or conservation sites, public facilities and open space.

While amendments, programs and supplements need to be adopted in accordance with the procedures of Section 8-23 of the Connecticut General Statutes, the Town Plan and Zoning Commission may make administrative modification by resolutions.

The Connecticut General Statutes require that a plan be updated at least once every 10 years. Therefore, the time horizon of this plan is the next 5 to 10 years.

THE SETTING

The Town of Orange is a small town in Connecticut. Orange encompasses 17.6 square miles of rolling farmland, single family detached housing, a vibrant retail corridor along the Post Road and a healthy industrial area.

For the decade of the 1990's, the population of Orange has held fairly steady at about 12,500 people. At the same time, the median age has risen to 44 years. This means that half of all Orange residents are over 44. The population of Orange is in general older than residents of the State of Connecticut as a whole.

For a small town, Orange has a vibrant employment base. While only about 6,500 Orange residents are members of the area work force, there are over 8,000 jobs located in the Town.

The commercial and industrial base makes up about 25 percent of the taxable grand list of the Town. Orange is part of the New Haven area benefitting from cultural, recreational and employment opportunities as well as health care institutions within the New Haven Region. In addition Orange is located in close proximity to the lower Naugatuck Valley area and the greater Bridgeport area, and benefits from these regions as well.

Single family detached houses on large lots of an acre or more comprise over ninety six percent of the total housing units.

While median household income in Connecticut is about $46,000, Orange households have a median income more than 50% higher at about $67,000. Similar to median income, housing values in Orange are also more than 50% higher than median values in New Haven County or Connecticut.

OVERALL POLICIES AND GOALS

In preparing the Plan, the Commission adopted the following overall policies and goals:

- Maintain the quality, livability and character of the community.
- Maintain the pattern of development whereby the Town is essentially divided into a residential area north of the Post Road and an economic development area south of the Post Road.
- Protect the suburban and rural character of residential areas.
- Provide for housing opportunities for all residents consistent with environmental constraints and the suburban nature of the community.
- Encourage well-planned development in the Economic Development Area to provide a healthy tax base.
- Avoid adverse impacts on important natural resources.
- Provide for the maintenance of healthy, safe and good living and working conditions in the Town as a whole.
- Continue the semi-rural pattern and historic features of Orange Center around the Green and Town Hall building complex.

RESIDENTIAL POLICIES AND GOALS

- Maintain one acre and one and a half acre lots with single family owner occupied dwellings as the predominate housing pattern of the community.
- Encourage the development of housing opportunities whereby elderly persons may continue to reside in Town without the responsibility for a typical one family owner occupied dwelling.
- Allow additional dwelling opportunities, including living units with lesser floor area that would accommodate the local family cycle for young persons through elderly years.
- Allow the clustering of housing units at the same density level as standard subdivisions for conservation and farmland preservation.

- Allow housing development alternatives for young people seeking first housing, couples whose children have grown and left the house, i.e., empty nesters, and retired individuals. All of the above residents may not want to maintain a large home on a large lot.
- Assure that housing choice densities are consistent with the character of the Town.
- Allow housing choice options such as attached and detached units in the living area on parcels of land of 15 acres or more with generous buffers and subject to strict requirements.
- Allow elderly accessory apartments subject to standards that protect health, welfare and public safety.
- Allow elderly housing units on parcels of land of 15 acres or more.
- Allow residential units in designated areas along the Post Road.

ECONOMIC DEVELOPMENT AREA GOALS

Overall

- Provide for the furtherance of a vibrant economic base.
- Review building and site design standards on a regular basis to accomplish quality site and building design.
- Determine right of way capacity requirements needed to support full development.
- Pursue a monitoring program that assures safe and convenient traffic circulation.
- Maintain level of service C as the desirable traffic flow goal.
- Continue the policy that principal traffic improvements are the responsibility of the developer.
- Create a controlled development district along the Marsh Hill Road corridor that allows for hotel, quality light industrial and office uses.
- Provide for the upgrading of Indian River Road between Marsh Hill Road and the Post Road.

Retail

- Encourage the continued upgrading of quality retail uses in the Commercial and Light Industrial 3 areas.
- Restrict the expansion of retail into the light industrial zones.

Office and Research Uses

- Maintain the Office Park district adjacent to the Wilbur Cross Parkway.
- Allow for the expansion of office uses in the Office Park district.
- Determine appropriate office development standards in the current business office park district along Marsh Hill Road.
- Allow office uses in the commercial and industrial zones consistent with road capacity.

Light Industrial

- Light industrial means primarily clean manufacturing, assembly and distribution facilities.
- Maintain existing light industrial zones for light industrial purposes that generate a healthy tax base.
- Restrict uses not compatible with a quality industrial development setting.

EXISTING AND PROPOSED LAND USE

This Plan contains two Land Use Maps. The first map shows existing land use as mapped by the consulting town planners. This map, entitled Existing Land Use, was created in July 1998 and depicts land in 23 categories. The map clearly demonstrated that the majority of the Town of Orange is either residential or agricultural use.
The second land use map is the Land Use Plan showing the proposed use of land. The Land Use Plan is the guide to future conservation and development.

A detailed commercial/industrial existing land use map is found in the commercial industrial section of the plan.

In preparing the existing land use maps, the first task was to create a base map of the Town. This was accomplished by digitizing assessor, engineering and planning office data. Upon this base map, streets were added current to the Fall of 1998.

After adding land use categories designated by assessor records, a field survey was conducted in the commercial and industrial areas to determine and verify types of land use. This existing land use map clearly shows the division of the Town into the housing areas and the economic development areas. However, there are notable exceptions to both uses.

There are residential areas within the primarily economic development area and there are commercial uses within the primarily residential area. The type of land uses, their scale and density determine the character and livability of a community.

While the existing land use map depicts actual land uses the land use plan map may or may not reflect current active land use in a particular area. An example of this is current farm land designated on the land use plan for residential use.

The Land Use Plan represents the judgement of the Plan and Zoning Commission on the most appropriate use of land in keeping with the health, welfare and public safety of the community.

The Comprehensive Zoning regulations depicting specific zoning districts and the specific regulations which apply to each district are the controlling tool utilized to carry out the intent of the Land Use Plan map. The Land Use Plan map contains the following use categories:

LAND USE PLAN

Residential

Single family homes will remain the predominate residential land use.

Commercial

Commercial uses are mainly retail uses. These uses primarily exist along and near the Boston Post Road.

Industrial and Hi-Tech Uses

Industrial and hi-tech uses are planned for 2 main areas: (1) south of Interstate 95 and (2) between Interstate 95 and the Post Road.

Business Park

The Business Park District is along the Wilbur Cross Parkway and is designed for corporate office use.

Marsh Hill Design District

The Marsh Hill Design District is planned to encompass all land that is adjacent to Marsh Hill Road between Interstate 95 and Prindle Hill Road. This area serves many purposes.

- Gateway to community
- Large open tract of land adjacent to I-95 and near the center of two metropolitan areas.
- A buffer area to shield resident uses around Indian River Road from industrial uses to the south and east.

This area is designated for hotel, conference center, offices and hi-tech uses.

Open Space Uses

- The Land Use Plan also contains categories of open space areas as described in the open space plan.

Conservation Corridors

- The Land Use Plan depicts conservation corridors which serve open space and storm water management functions as described in those sections of the Plan.

Town Land/Facilities

- The maps show the location of town land and town facilities.

LAND USE POLICIES

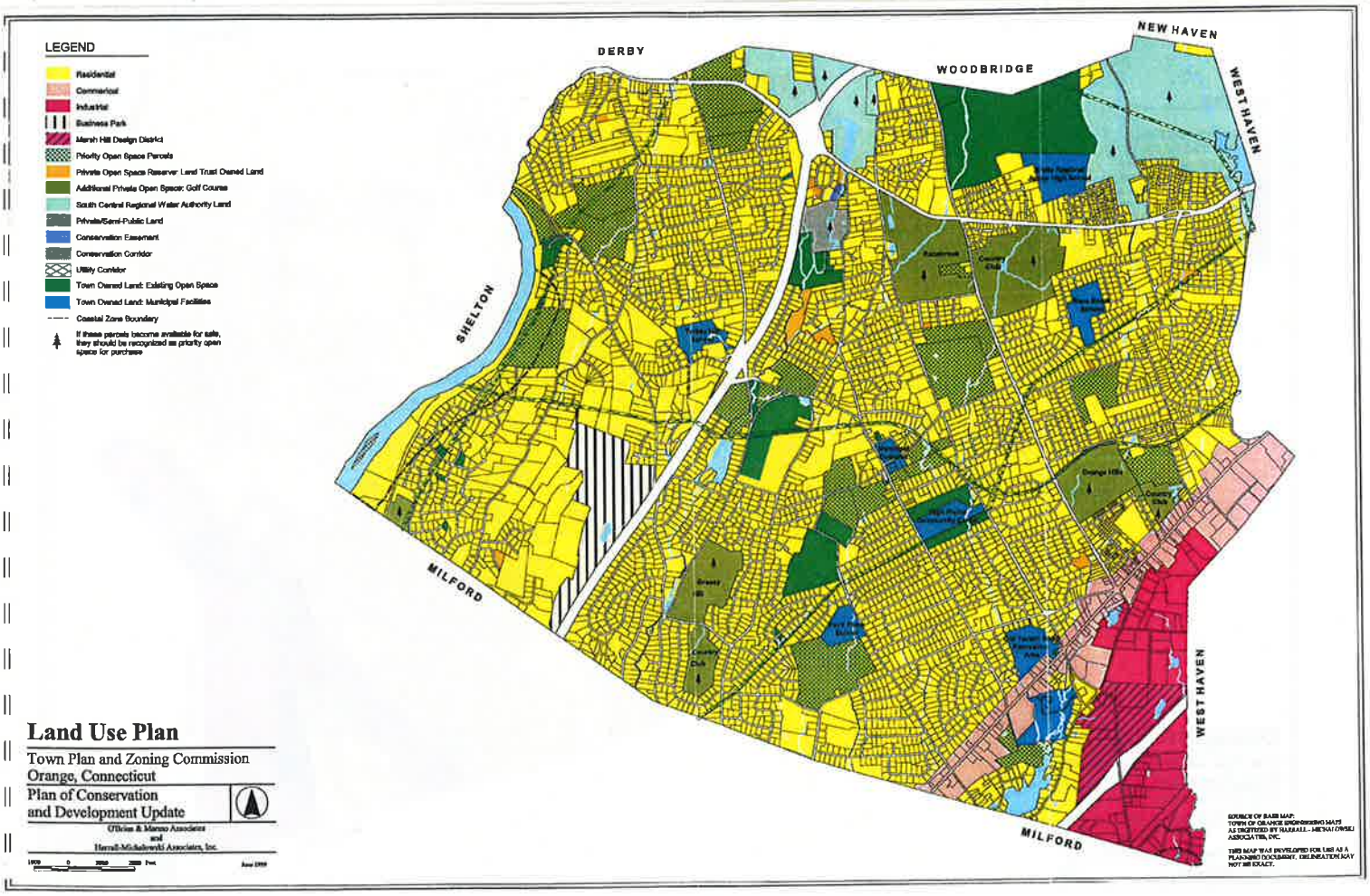
- Land uses will be consistent with the unique characteristics of the land such as topography, soils, wetlands, streambelts and historical features.

- Land uses will be consistent with the primary goal of protection of residential neighborhoods from incompatible uses. Land uses will minimize traffic congestion. LOS C service level will be the standard. Land uses should promote the protection of the rural ambiance of Orange.

ZONING POLICIES

The Zoning Regulations should be reviewed and updated following the adoption of this Plan. Zoning districts and regulations will be in harmony with the goals and policies of the Plan of Conservation and Development. Zoning Regulations will be enforced fairly and consistently for all citizens. In reviewing projects for Zoning Approval, the Commission will consider:

- The off site and cumulative impact of the proposed development.
- The present and future impact on roads, sanitary sewers, stormwater, traffic flow, environmental quality and public services.
- The present and future impact on municipal services and revenues.
- The need for proposed projects in the community such as daycare facilities, community services, employment and housing opportunities, etc.


LEGEND
Residential
Commercial
Industrial
Business Park
Marsh Hill Design District
Priority Open Space Parcels
Private Open Space Reserve: Land Trust Owned Land
Additional Private Open Space: Golf Course
South Central Regional Water Authority Land
Private/Semi-Public Land
Conservation Easement
Conservation Corridor
Utility Corridor
Town Owned Land: Existing Open Space
Town Owned Land: Municipal Facilities
Coastal Zone Boundary
If these parcels become available for sale, they should be recognized as priority open space for purchase
DERBY
NEW HAVEN
WOODBRIDGE
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
Land Use Plan
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
Ullrich & Manno Associates
and
Harrall-Michalowski Associates, Inc.
SOURCE OF BASE MAP:
TOWN OF ORANGE ENGINEERING MAPS
AS DIGITIZED BY HARRALL - MICHALOWSKI
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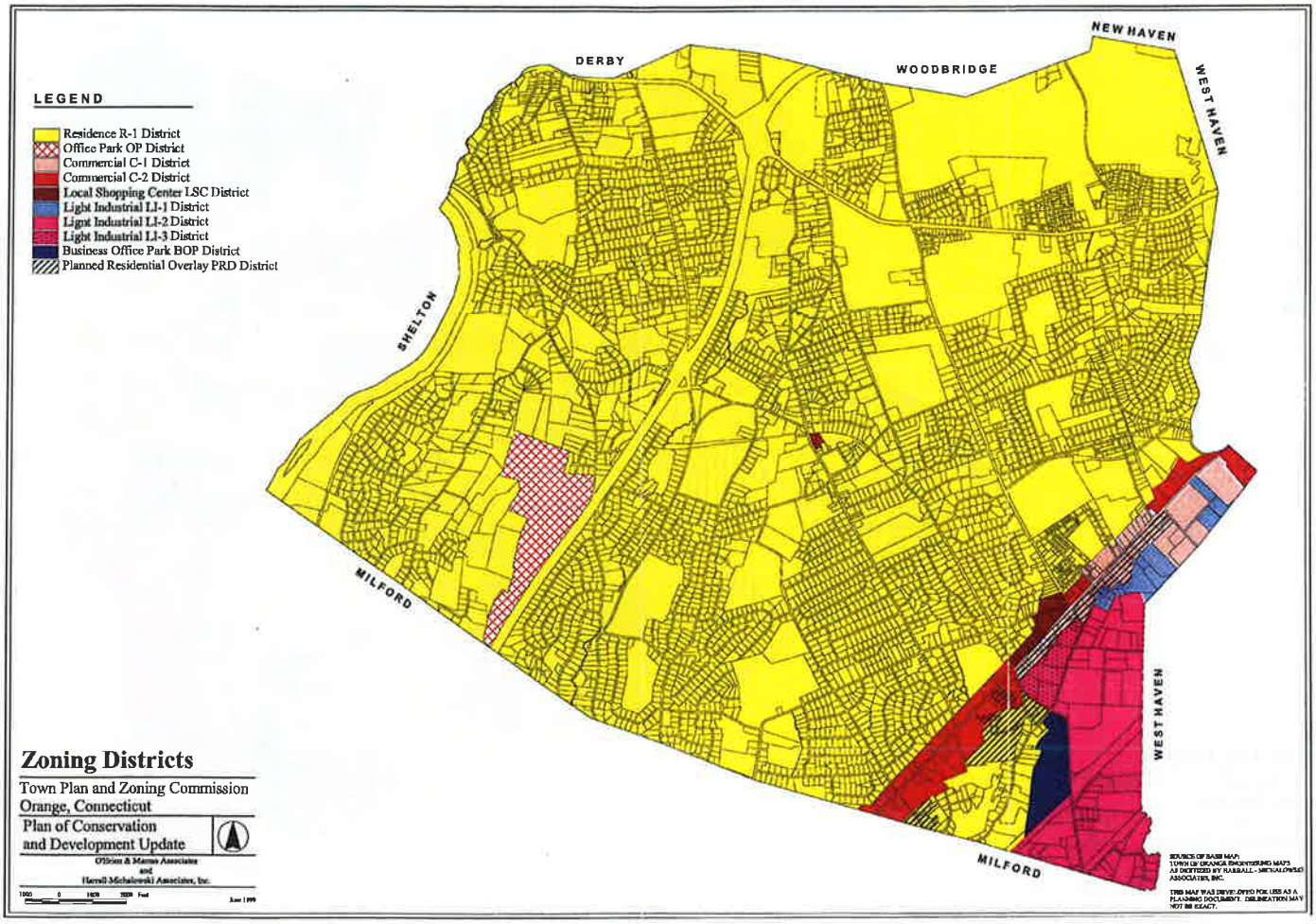
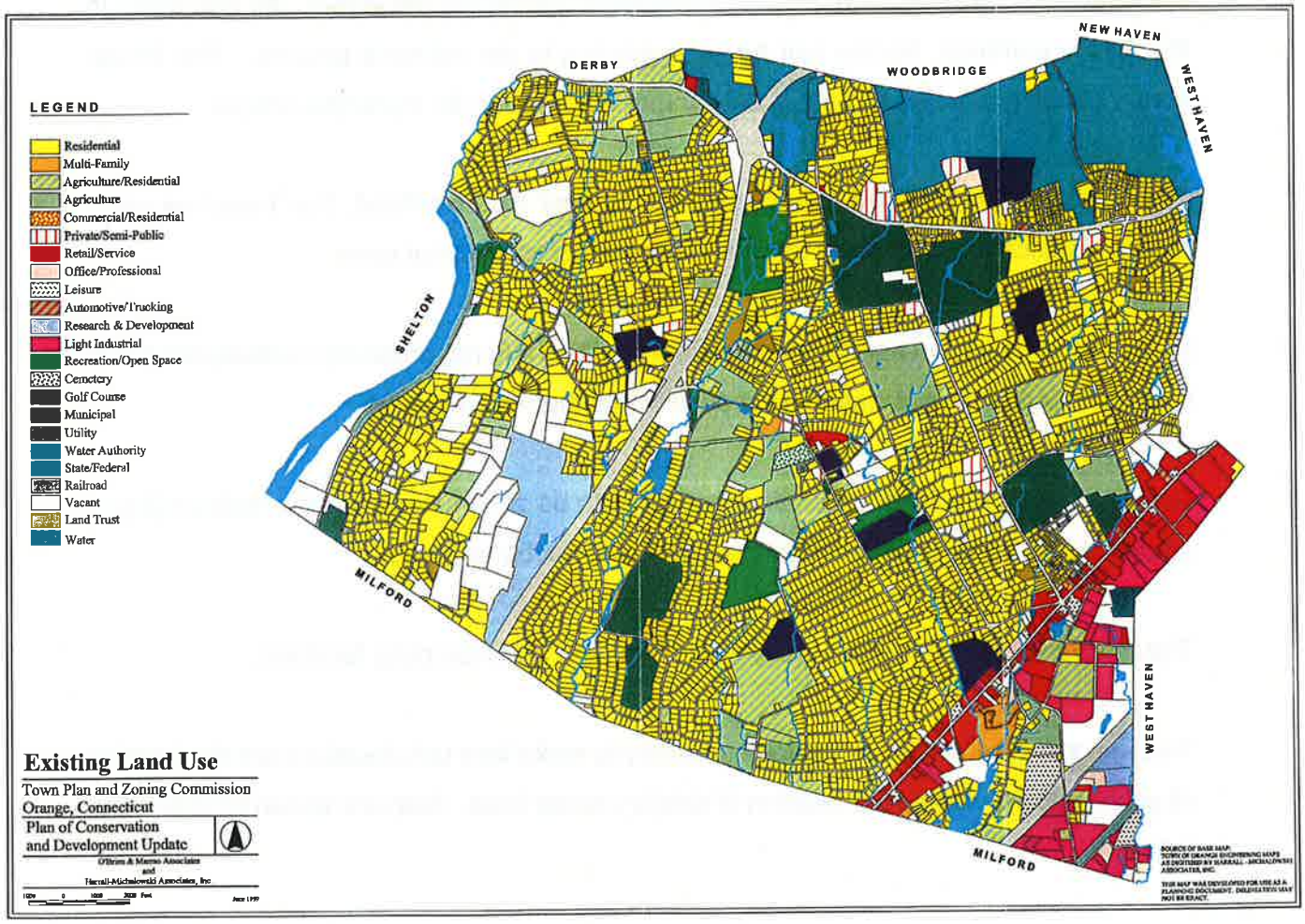

LEGEND
Residence R-1 District
Office Park OP District
Commercial C-1 District
Commercial C-2 District
Local Shopping Center LSC District
Light Industrial LI-1 District
Light Industrial LI-2 District
Light Industrial LI-3 District
Business Office Park BOP District
Planned Residential Overlay PRD District
DERBY
WOODBRIDGE
NEW HAVEN
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
Zoning Districts
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
Milone & Macero Associates
and
Harrall-Michalowski Associates, Inc.
June 1999


LEGEND
Residential
Multi-Family
Agriculture/Residential
Agriculture
Commercial/Residential
Private/Semi-Public
Retail/Service
Office/Professional
Leisure
Automotive/Trucking
Research & Development
Light Industrial
Recreation/Open Space
Cemetery
Golf Course
Municipal
Utility
Water Authority
State/Federal
Railroad
Vacant
Land Trust
Water
NEW HAVEN
DERBY
WOODBRIDGE
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
Existing Land Use
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
O'Brien & Manno Associates
and
Harrall-Michalowski Associates, Inc

MUNICIPAL FACILITIES

The Town Plan and Zoning Commission has the authority under Section 8-24 of the Connecticut General Statutes to approve the construction, use or reuse of municipal facilities including facilities used by the Board of Education. As this plan was being prepared the Case Memorial library was opened behind the old library. As one walks to the library entrance, horses can be seen grazing in the adjacent pasture. The former library building appears to be a good candidate for reuse for municipal offices.

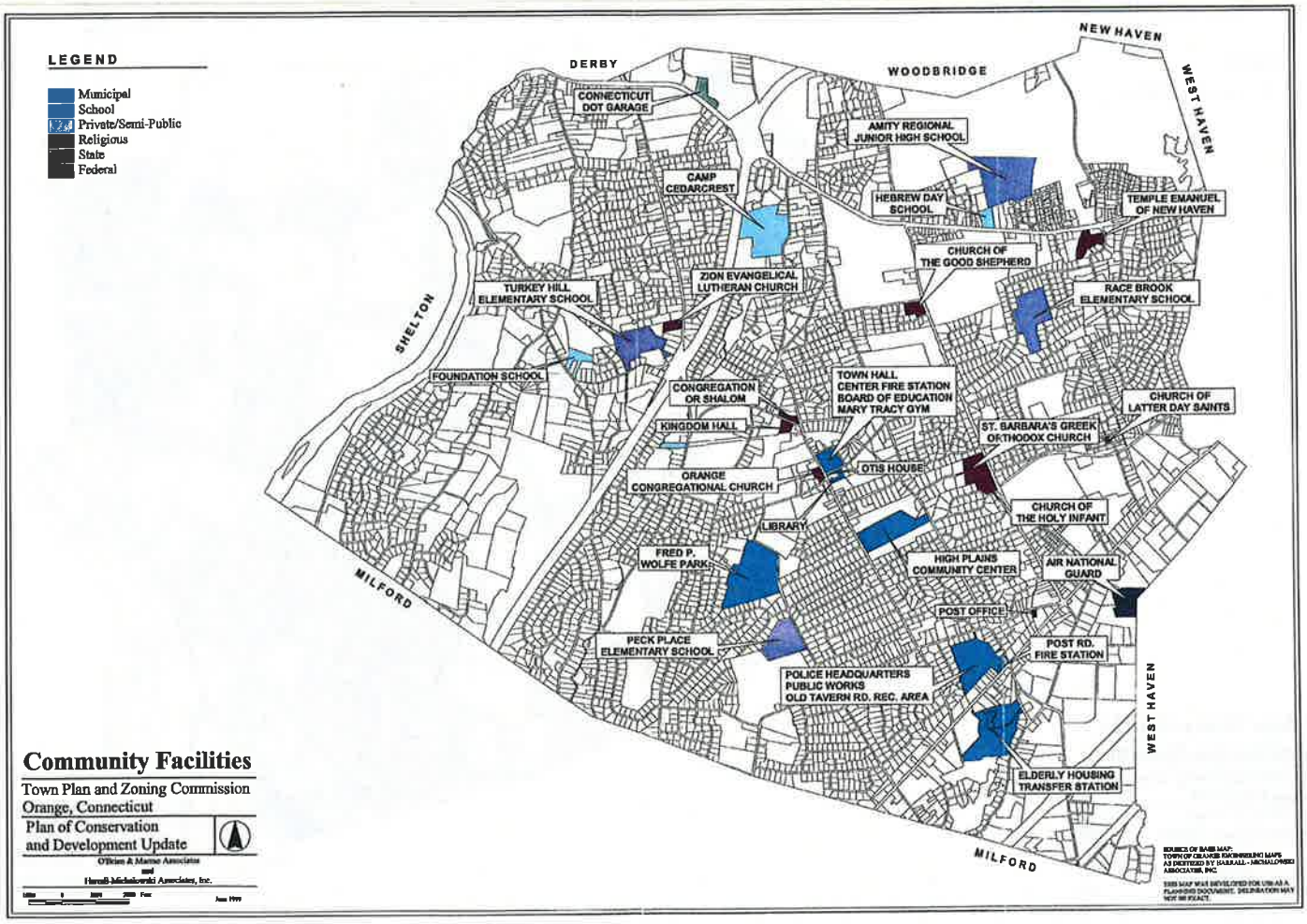
The Town has recently built a new police facility near the Post Road. The Town has made recent significant acquisitions for open space and recreational uses.

In reviewing municipal services and school facilities it is not presently contemplated that land will need to be purchased for growth within the next 10 years.

Growth within the school population may need to be accommodated by a redistricting of students or a building addition but new sites will not be required.

The following map shows the location of town land and municipal facilities.

Two important pieces of information necessary to make land use decisions are the location of public water lines and the location of sanitary sewer lines. Both are shown on maps that follow.


LEGEND
Municipal
School
Private/Semi-Public
Religious
State
Federal
NEW HAVEN
DERBY
WOODBRIDGE
WEST HAVEN
SHELTON
MILFORD
CONNECTICUT DOT GARAGE
AMITY REGIONAL JUNIOR HIGH SCHOOL
CAMP CEDARCREST
HEBREW DAY SCHOOL
TEMPLE EMANUEL OF NEW HAVEN
CHURCH OF THE GOOD SHEPHERD
ZION EVANGELICAL LUTHERAN CHURCH
TURKEY HILL ELEMENTARY SCHOOL
RACE BROOK ELEMENTARY SCHOOL
FOUNDATION SCHOOL
TOWN HALL
CENTER FIRE STATION
BOARD OF EDUCATION
MARY TRACY GYM
CONGREGATION OR SHALOM
CHURCH OF LATTER DAY SAINTS
KINGDOM HALL
ST. BARBARA'S GREEK ORTHODOX CHURCH
OTIS HOUSE
ORANGE CONGREGATIONAL CHURCH
CHURCH OF THE HOLY INFANT
LIBRARY
FRED P. WOLFE PARK
HIGH PLAINS COMMUNITY CENTER
AIR NATIONAL GUARD
POST OFFICE
PECK PLACE ELEMENTARY SCHOOL
POST RD. FIRE STATION
POLICE HEADQUARTERS
PUBLIC WORKS
OLD TAVERN RD. REC. AREA
ELDERLY HOUSING
TRANSFER STATION
Community Facilities
Town Plan and Zoning Commission
Orange, Connecticut
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O'Brien & Marme Associates
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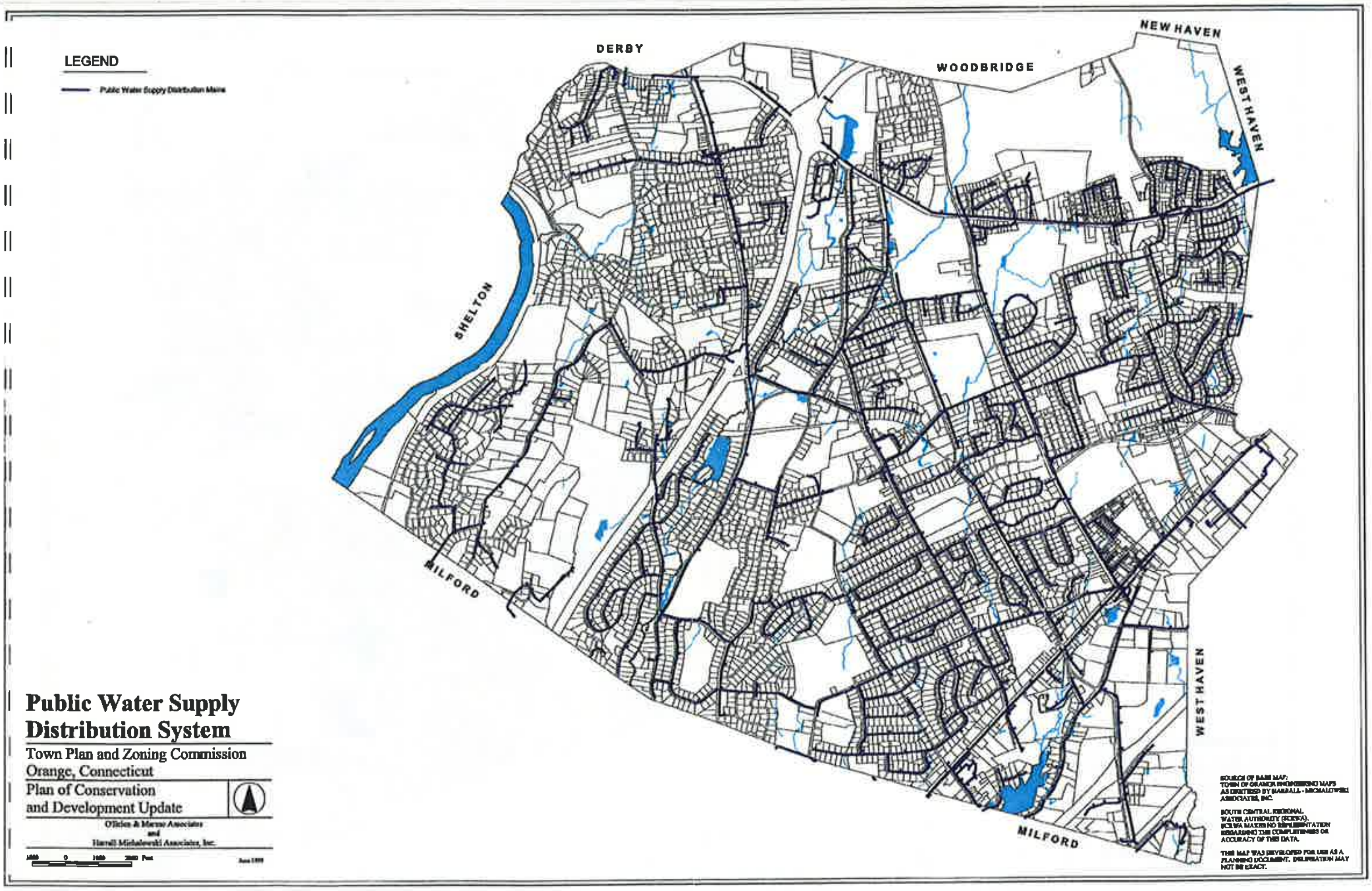
LEGEND
Public Water Supply Distribution Mains
DERBY
WOODBRIDGE
NEW HAVEN
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
SOURCE OF BASE MAP:
TOWN OF ORANGE ENGINEERING MAPS
AS DIGITIZED BY HARRALL - MICHALOWSKI
ASSOCIATES, INC.
SOUTH CENTRAL REGIONAL
WATER AUTHORITY (SCRWA).
SCRWA MAKES NO REPRESENTATION
REGARDING THE COMPLETENESS OR
ACCURACY OF THIS DATA.
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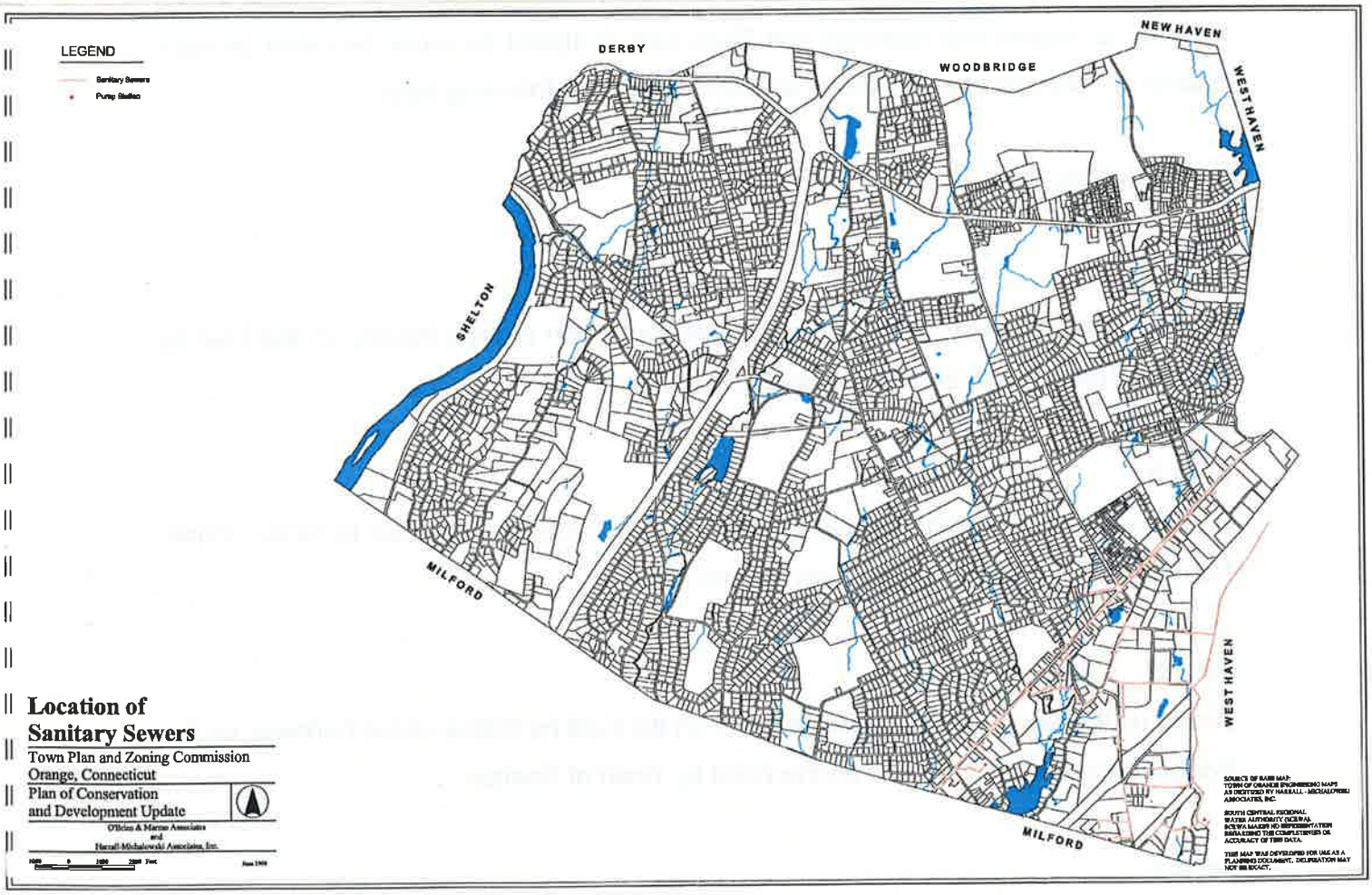
Public Water Supply
Distribution System
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update



Location of Sanitary Sewers

Town Plan and Zoning Commission
Orange, Connecticut
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RESIDENTIAL DEVELOPMENT ANALYSIS

In preparing an update of the Plan of Conservation and Development, planners want to know the answer to the question -- What would happen if the Town developed in accordance with the current plan and current zoning?

In order to answer this question, the Town was analyzed by areas bounded by main arterial or collector streets. These are depicted on the following map.

RESIDENTIAL AREAS

Area 1

Bound on the North by Town of Woodbridge and Town of New Haven, on the East by Town of West Haven, and on the South by Derby Avenue.

Area 2

Bound on the North by Derby Avenue and Town of Derby, on the East by Wilbur-Cross Parkway, and on the West by Derby-Milford Road.

Area 3

Bound on the North by Derby-Milford Road, on the East by Wilbur-Cross Parkway, on the South by Town of Milford, and on the West by Town of Shelton.

Area 4

Bound on the North by Derby Avenue, on the East by Orange Center Road and Residence R-1 Zoning District, on the South by Town of Milford, and on the West by Wilbur-Cross Parkway.

Area 5

Bound on the North by Derby Avenue, on the East by Racebrook Road, on the South by the Residence R-1 Zoning District, and on the West by Orange Center Road.

Area 6

Bound on the North by Derby Avenue, on the East by the City of West Haven, on the South by the Residence R-1 Zoning District, and on the West by Racebrook Road.

Area 7

Bound on the North by the City of West Haven, on the East by the City of West Haven, on the South by the City of Milford, and on the West by the Residence R-1 Zoning District.

For purposes of this analysis, existing large residential parcels with additional subdivision potential, Water Authority Land, and golf course properties have not been included in the inventory. Existing large residential parcels have been mapped and quantified but have not been included with this overall analysis because they will most likely not be subdivided in the near future.

Table 1 depicts about 1,228 acres of vacant land and Table 2 shows about 1,035 acres of agricultural land, for a total of 2,263 acres of potential developable land in residential districts. Of this total, 1,330 acres fall under the Public Act 490 farm or forest categories, which currently receive reduced assessments. It should be noted that the 490 designation does not assure long term conservation. Therefore, this acreage has been included in the land inventory used to calculate development potential.

CONSTRAINTS

To accurately estimate the amount of developable land, environmental constraints must be taken into account. For this development potential analysis, the following constraints have been used: wetlands, steep slopes, depth to bedrock, and floodplains. All of the constraints have been derived from the Advanced Connecticut Soil Survey Database published by the USDA Natural Resources Conservation Service in cooperation with CT DEP, Natural Resources Center. The soil data was mapped at 1 to 12,000 scale and is to used for planning purposes only. The following gives a brief description of each constraint:

Steep Slope

Soils with a characteristic of having a minimum slope of 15 percent.

Depth to Bedrock

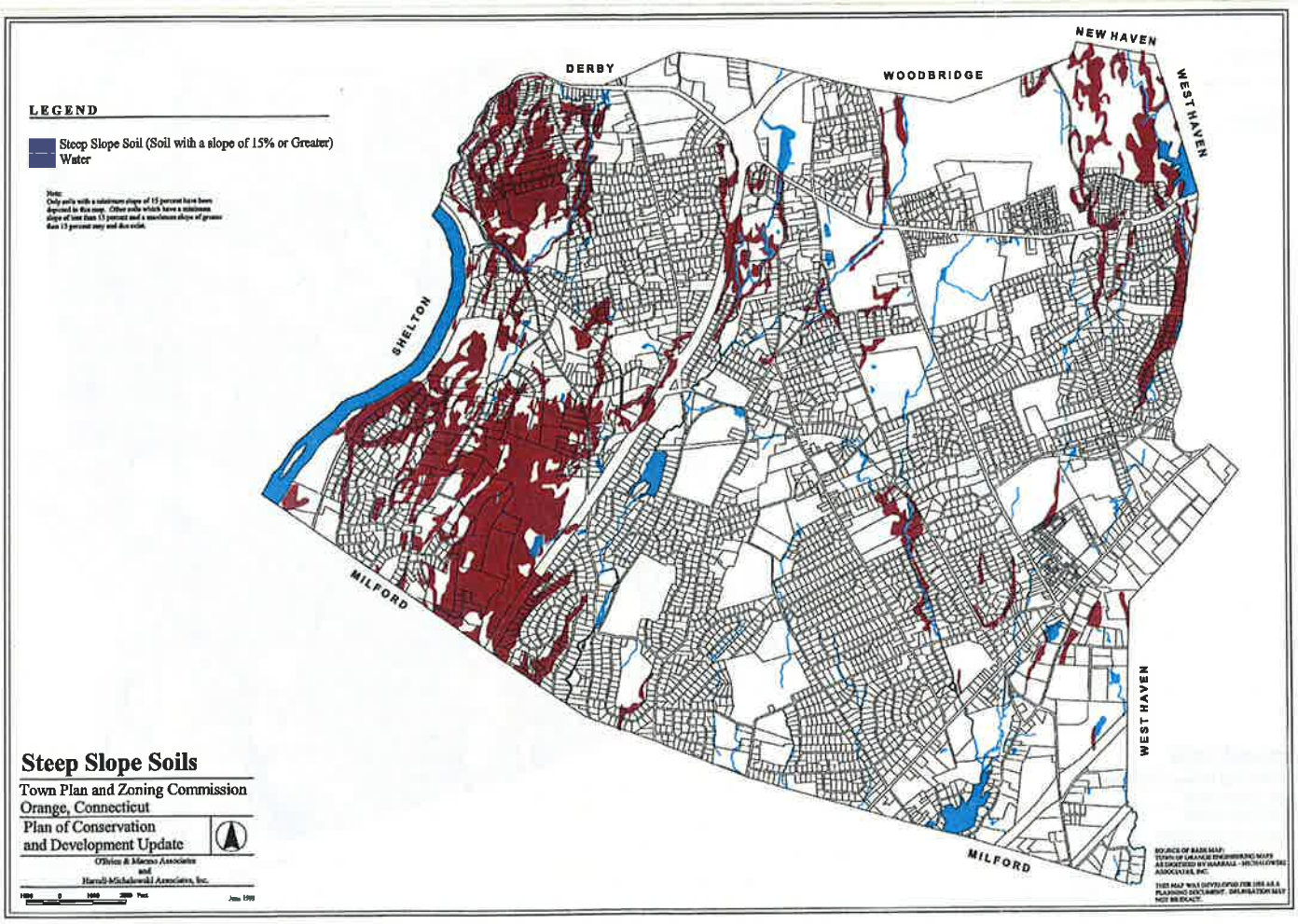
Soils with a characteristic of having a depth to bedrock of less than 60 inches.

Wetlands

Soils with a characteristic of having wetland qualities as determined by the NRCS, CT DEP.

Floodplain

Soils with a characteristic of having floodplain qualities as determined by the NRCS, CT DEP.


LEGEND
Steep Slope Soil (Soil with a slope of 15% or Greater)
Water
Note:
Only soils with a minimum slope of 15 percent have been
depicted in this map. Other soils which have a minimum
slope of less than 15 percent and a maximum slope of greater
than 15 percent may and does exist.
DERBY
WOODBRIDGE
NEW HAVEN
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
Steep Slope Soils
Town Plan and Zoning Commission
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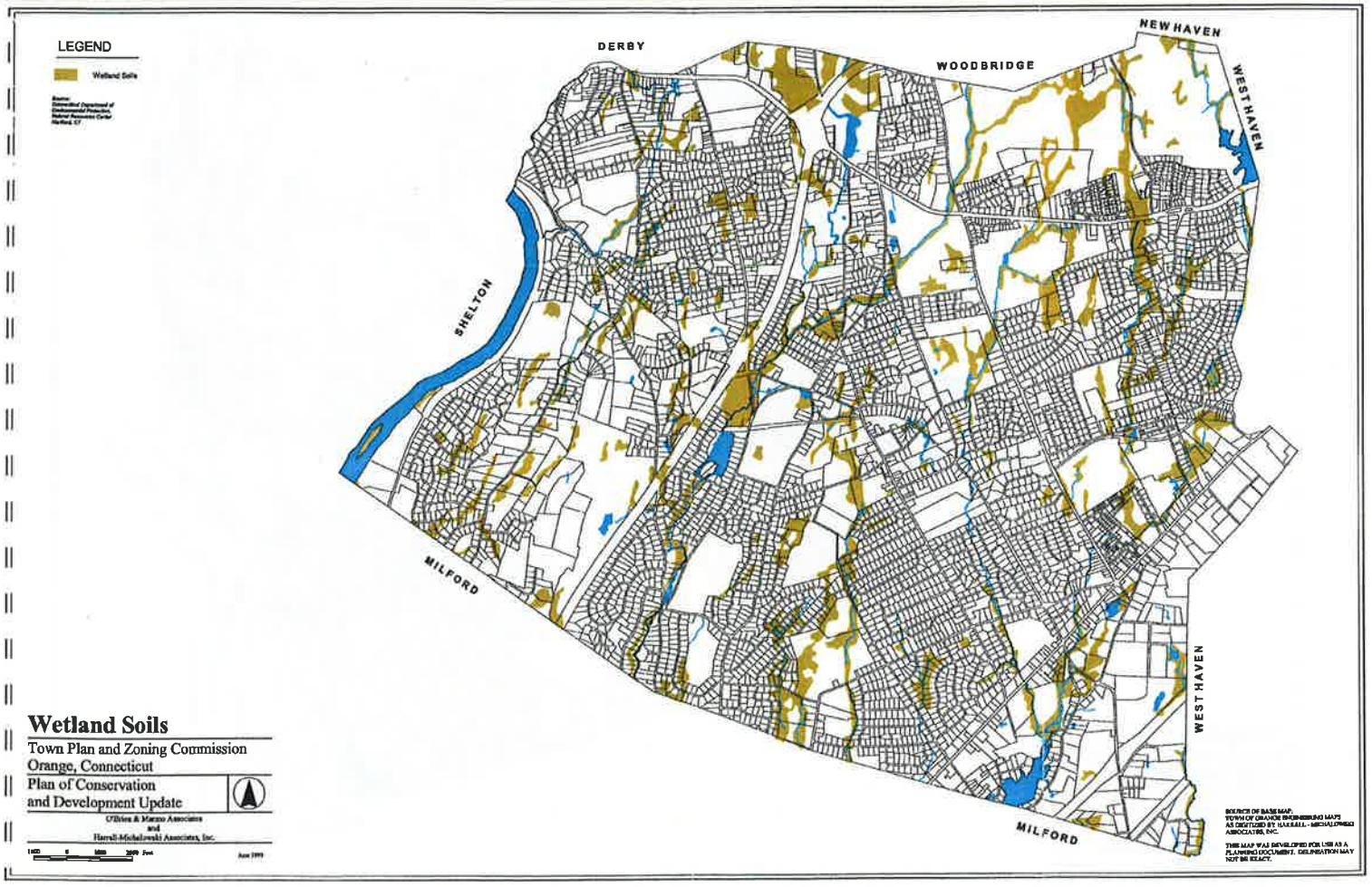


Wetland Soils

Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update

O'Brien & Manno Associates
and
Harrall-Michalowski Associates, Inc.

June 1999

Table 1

Vacant Land
Residential District

Area	Number of Parcels	Acreage	Constrained Acreage	Developable Acreage	Percent Developable
1	48	29.76	7.63	22.13	74%
2	48	152.68	94.41	58.27	38%
3	52	437.73	316.59	121.14	28%
4	54	128.72	69.54	59.18	46%
5	39	108.32	22.98	85.34	79%
6	135	154.30	71.56	82.74	54%
7	53	216.49	117.59	98.90	46%
Total	**429**	**1,228.00**	**700.30**	**527.70**	**43%**

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

Table 2

Agricultural Land
Residential District

Area	Number of Parcels	Acreage	Constrained Acreage	Developable Acreage	Percent Developable
1	1	19.81	3.53	16.28	82%
2	22	240.61	80.92	159.69	66%
3	10	93.93	44.47	49.46	53%
4	27	395.05	98.03	297.02	75%
5	4	89.14	24.91	64.23	72%
6	6	90.44	13.99	76.45	85%
7	13	106.32	20.35	85.97	81%
Total	**83**	**1,035.30**	**286.20**	**749.10**	**72%**

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

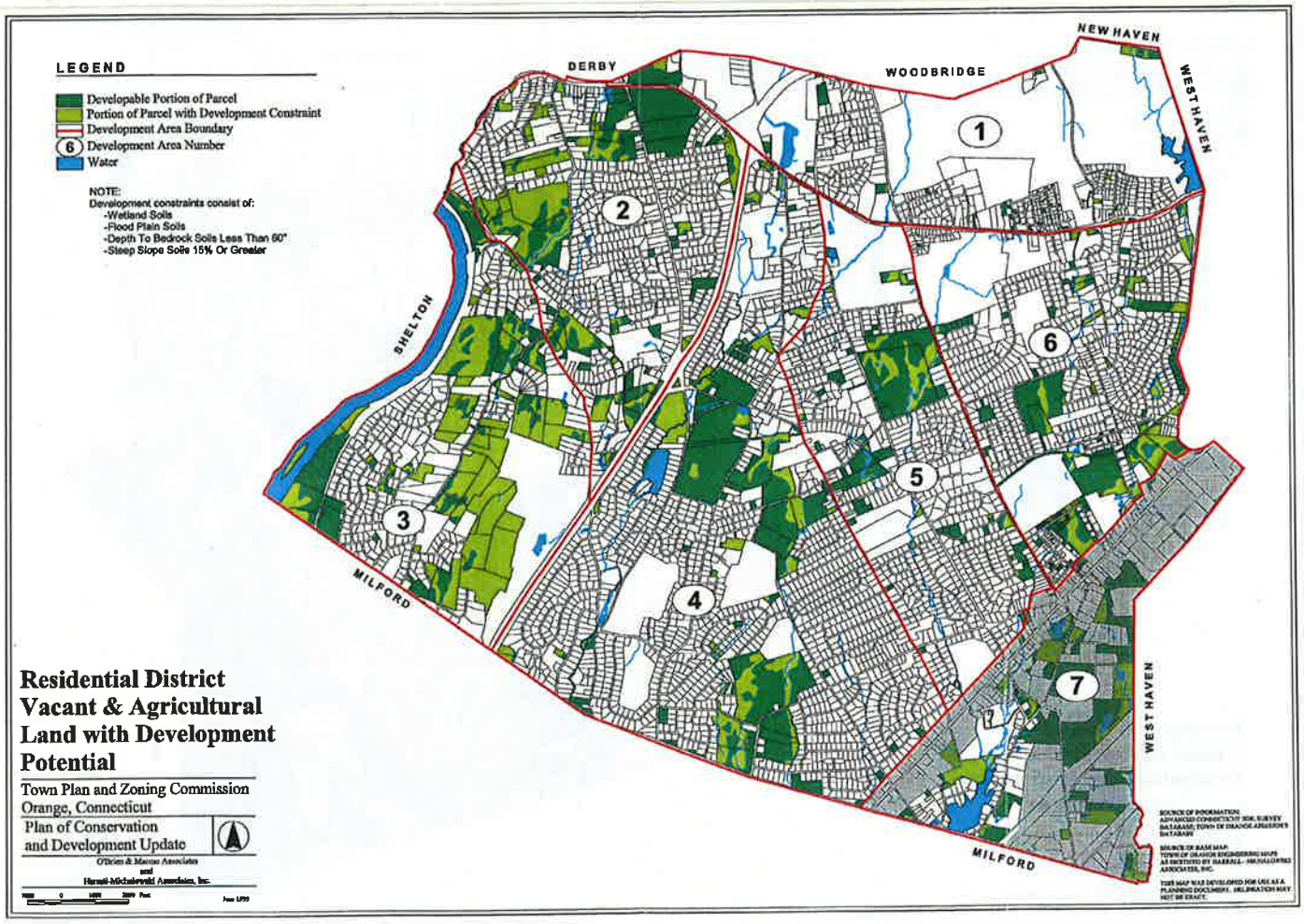
Table 3

Vacant & Agricultural Land
Residential District

Area	Number of Parcels	Acreage	Constrained Acreage	Developable Acreage	Percent Developable
1	49	49.57	11.16	38.41	77%
2	70	393.29	175.33	217.96	55%
3	62	531.66	361.06	170.60	32%
4	81	523.77	167.57	356.20	68%
5	43	197.46	47.89	149.57	76%
6	141	244.74	85.55	159.19	65%
7	66	322.81	137.94	184.87	57%
Total	**512**	**2,263.30**	**986.50**	**1,276.80**	**56%**

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

Orange currently has about 4,640 dwelling units based on the estimates of developable land and the existing zoning density of one dwelling unit per acre. Orange has the potential for about 1,115 additional housing units. It should be made clear that this estimate of potential dwelling units is based upon an analysis of physical conditions and does not reflect market conditions nor does it reflect the fact that development of property is the result of decisions by individual property owners. Because of these factors, it is reasonable to assume that development over time will be less than the actual development potential based upon physical conditions. However, this analysis is an important planning tool to enable the community to make informed policy decisions. If the estimated development potential actually occurs, it would bring the total number of units in Orange to approximately 5,755 when fully developed.


LEGEND
Developable Portion of Parcel
Portion of Parcel with Development Constraint
Development Area Boundary
6 Development Area Number
Water
NOTE:
Development constraints consist of:
-Wetland Soils
-Flood Plain Soils
-Depth To Bedrock Soils Less Than 60"
-Steep Slope Soils 15% Or Greater
NEW HAVEN
DERBY
WOODBRIDGE
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
1
2
3
4
5
6
7
Residential District
Vacant & Agricultural
Land with Development
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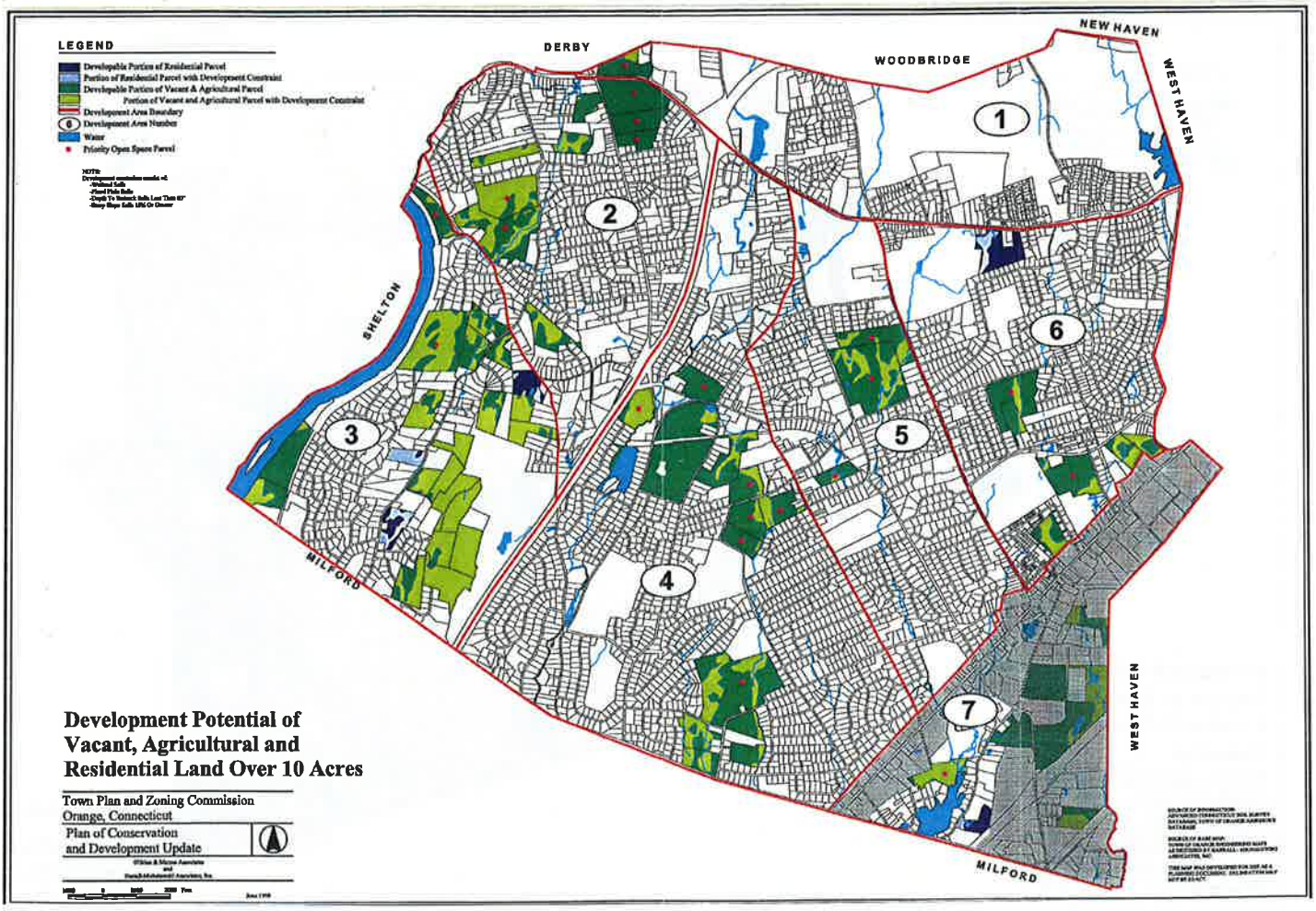
and
Harnett-Michalowski Associates, Inc.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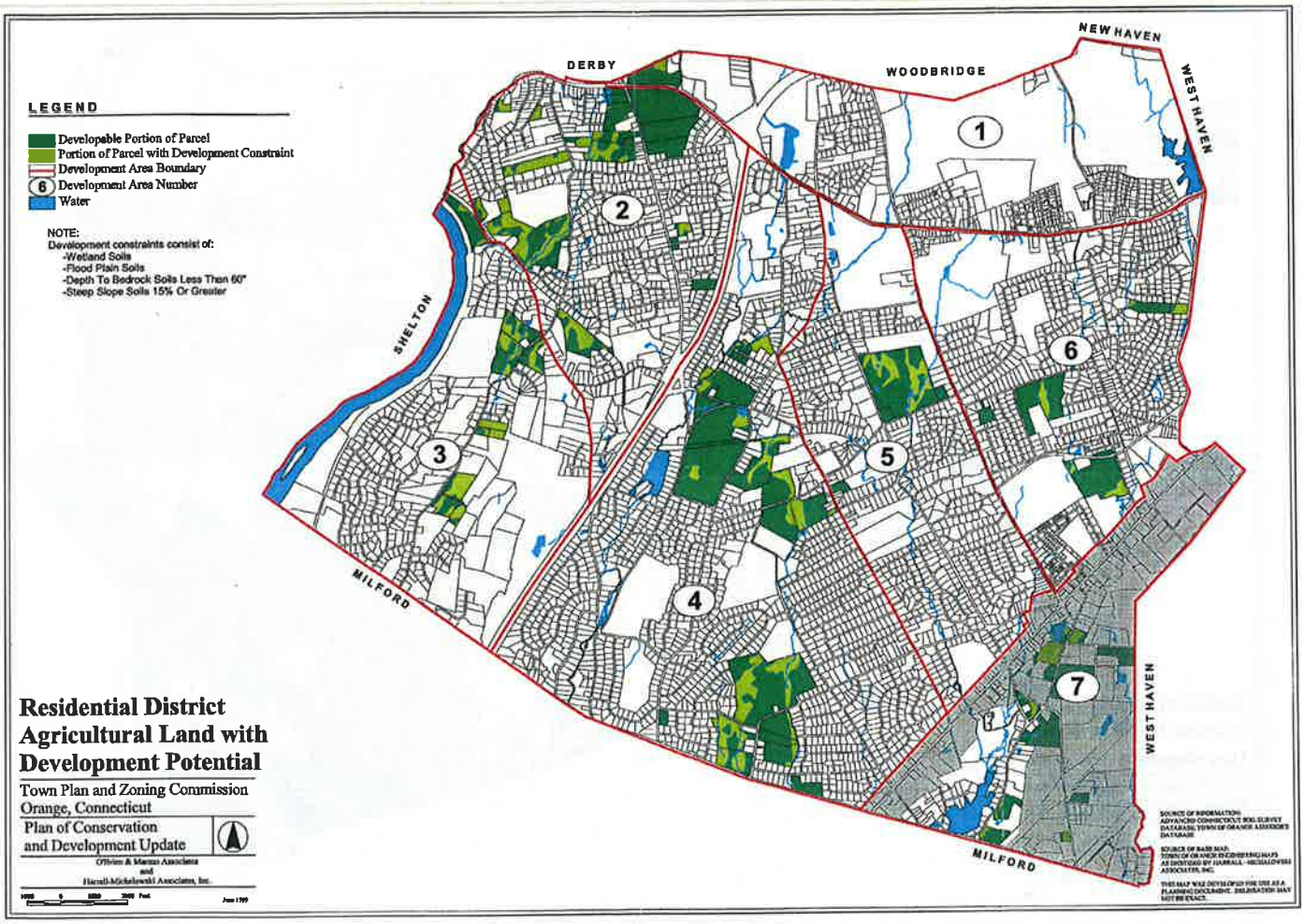
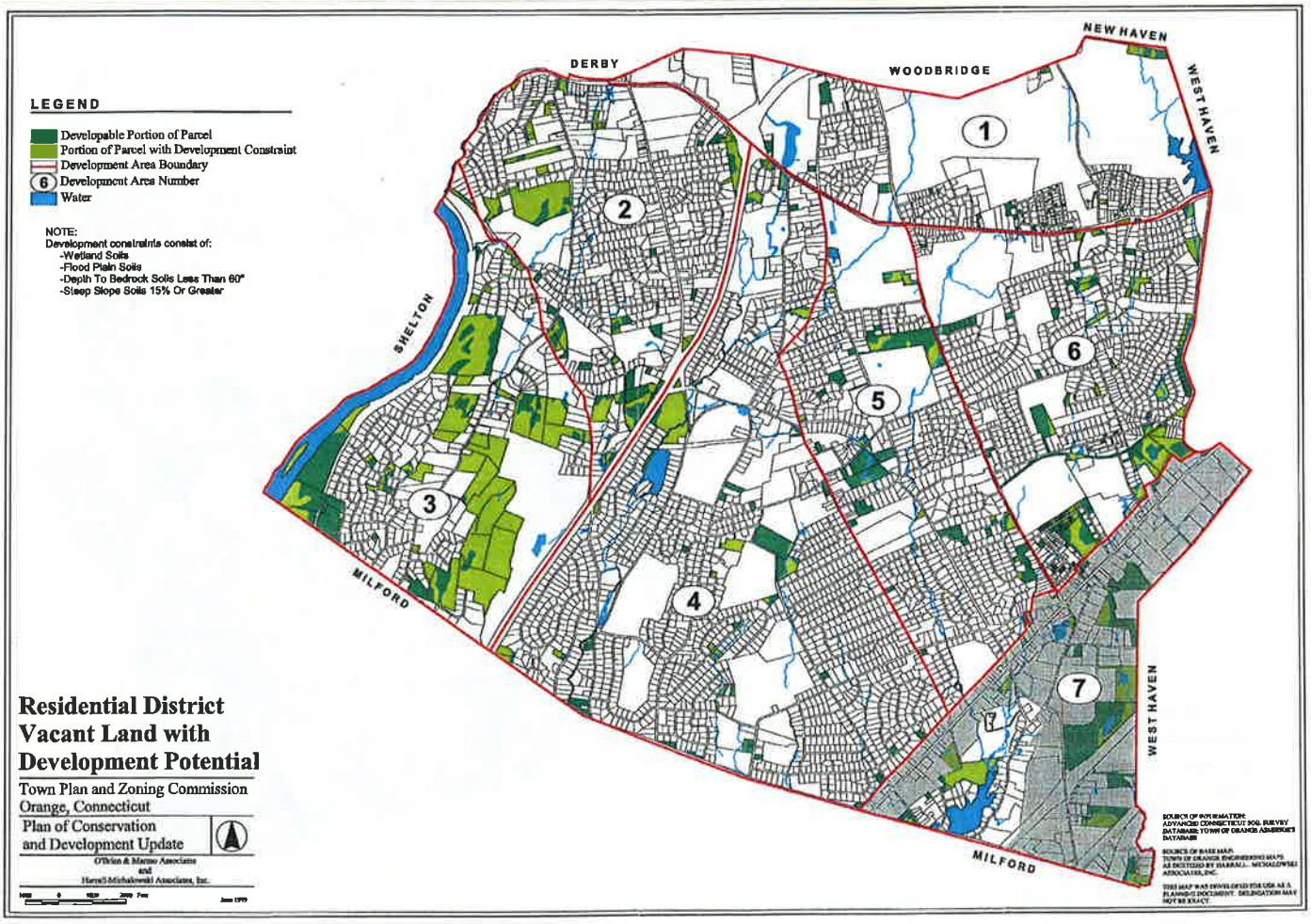
Developable Portion of Residential Parcel
Portion of Residential Parcel with Development Constraint
Developable Portion of Vacant & Agricultural Parcel
Portion of Vacant and Agricultural Parcel with Development Constraint
Development Area Boundary
Development Area Number
Water
Priority Open Space Parcel
DERBY
WOODBRIDGE
NEW HAVEN
WEST HAVEN
SHELTON
MILFORD
MILFORD
WEST HAVEN
1
2
3
4
5
6
7
Development Potential of
Vacant, Agricultural and
Residential Land Over 10 Acres
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update


LEGEND
Developable Portion of Parcel
Portion of Parcel with Development Constraint
Development Area Boundary
6 Development Area Number
Water
NOTE:
Development constraints consist of:
-Wetland Soils
-Flood Plain Soils
-Depth To Bedrock Soils Less Than 60"
-Steep Slope Soils 15% Or Greater
DERBY
WOODBRIDGE
NEW HAVEN
WEST HAVEN
SHELTON
MILFORD
MILFORD
WEST HAVEN
1
2
3
4
5
6
7
Residential District
Agricultural Land with
Development Potential
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
Milone & Macbroom Associates
and
Harrall-Michalowski Associates, Inc.
June 1999


LEGEND
Developable Portion of Parcel
Portion of Parcel with Development Constraint
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Residential District
Vacant Land with
Development Potential
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
O'Brien & Marino Associates
and
Harrall-Michalowski Associates, Inc.
June 1999

Table 4

Potential Single Family Dwelling Units Under Current Zoning

Area	Number of Parcels	Developable Acreage	Potential Dwellings
1	49	38.41	38
2	70	217.96	218
3	72	170.60	171
4	81	356.20	356
5	43	149.57	150
6	141	159.19	160
7	17	21.60	22
Total	**512**	**1,113.53**	**1,115**

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

A brief description of the residential development for each Analysis Area is given below:

Area 1

Area 1 has the least amount of potential for additional dwelling units with 38, even though it has the most undeveloped land within its borders. Approximately 60 percent of the area's undeveloped land is Water Authority land, which is assumed not available for development.

Area 2

Area 2 has the second most potential for residential development with 218 units. The majority, 73 percent coming from existing agricultural land.

Area 3

Area 3 has the most undeveloped acreage, but also the most acreage with environmental constraints. This area has the potential for 171 units.

Area 4

Area 4 has the most potential for additional residential units with 356. The area has an abundant inventory of agricultural land as compared to the rest of the Areas. Approximately 75 percent of this agricultural land is developable.

Area 5

Area 5 has the potential for 150 dwelling units. Developable land is divided nearly equally among vacant and agricultural land.

Area 6

Area 6 has the potential for 160 dwelling units. Its characteristics closely resemble that of Area 5.

Area 7

Area 7 includes a small residentially zoned area that has the potential for 22 dwelling units.

Table 5

Potential & Existing Single Family Dwelling Units Under Current Zoning

Area	Potential Additional Dwellings	Existing Dwellings	Potential Total Dwellings	Percent Increase
1	38	397	435	10%
2	218	753	971	29%
3	171	367	538	47%
4	356	1,451	1,807	25%
5	150	739	88	20%
6	160	825	985	19%
7	22	105	127	21%
Total	1,115	4,637	5,752	24%

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

Table 5 displays both the numerical and percent increase of dwelling units each Area could experience. These are important factors to consider when determining the overall impact that a build-out scenario may have on an area in regards to transportation, runoff, resource needs, and various public service needs.

In addition to the preceding analysis of the potential development of agricultural and vacant parcels, large residential parcels having the potential to be further subdivided also were analyzed. Within the Orange residential district, large residential parcels with five acres or more were identified as having this ability. Table 6 shows the results of the analysis for each Area. Large residential parcels in the Orange residential district total about 291 acres in all. Of this, 180 acres are developable when constraints are factored in. Furthermore, a deduction of one acre per parcel for existing dwelling units reduces the total potential buildable area to approximately 144 acres, which could accommodate 144 additional dwelling units.

Table 6

Existing Residential Large Parcels
Residential District

Area	Number of Parcels	Acreage	Developable Acreage	Existing Dwelling Acreage	Net Acreage
1	4	34.60	27.85	4.00	24
2	5	36.80	18.08	5.00	13
3	11	83.36	36.85	11.00	26
4	7	52.06	32.98	7.00	26
5	4	24.78	21.73	4.00	18
6	3	43.66	29.09	3.00	26
7	2	15.87	13.75	2.00	12
Total	**36**	**291.13**	**180.33**	**36.00**	**144**

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

RESIDENTIAL DEVELOPMENT FINDINGS

Currently the population of Orange is about 12,500. Applying the 1990 Census household size of 2.88 to the potential dwelling units, Orange could achieve a population of approximately 16,500. The following shows the potential housing units by area as well as the percent increase in units. The development potential under current zoning could result in an increase of about 25 percent in the number of dwelling units.

Table 7 and the following map depict agricultural and vacant parcels with a size of five acres or greater. These larger parcels have been identified as those that have a high potential of becoming developed. Of the total 1,791 acres in this classification, 48 percent are vacant and 52 percent are used for agriculture. After constraints are subtracted from the totals, the resulting figures show that 68 percent of the potential developable land is currently agricultural and 32 percent is currently vacant. This demonstrates the stress that may be put upon existing agricultural land to achieve future potential development.

Table 7

Large Vacant and Agricultural Land with Development Potential

Area	Number of Parcels	Acreage	Constraint Acreage	Developable Acreage	Percent Developable
1	2	26.97	7.25	19.72	73%
2	20	307.70	132,075.00	174.95	57%
3	29	463.63	305.70	157.93	34%
4	22	446.31	140.20	306.11	69%
5	5	134.48	39.55	94.93	71%
6	9	143.31	44.41	98.90	69%
7	18	268.94	112.93	156.01	58%
Total	**105**	**1,791.34**	**782.79**	**1,008.55**	**56%**

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

HOUSING OPTIONS

In response to state law, the Plan and Zoning Commission created an overlay district south of the Post Road in 1992. This district known as Planned Residential Development allows multi-family units, provided 25 percent of the units are reserved for residents meeting affordable housing eligibility or residents age 62 or over. Since this district was created several projects have been built. Recently, the industrial portion of the PRD was eliminated because the Commission did not feel that residential housing was appropriate in an industrial zone. Multi-family housing with a 25 percent elderly or affordable component is currently allowed along a section of the south side of the Post Road.

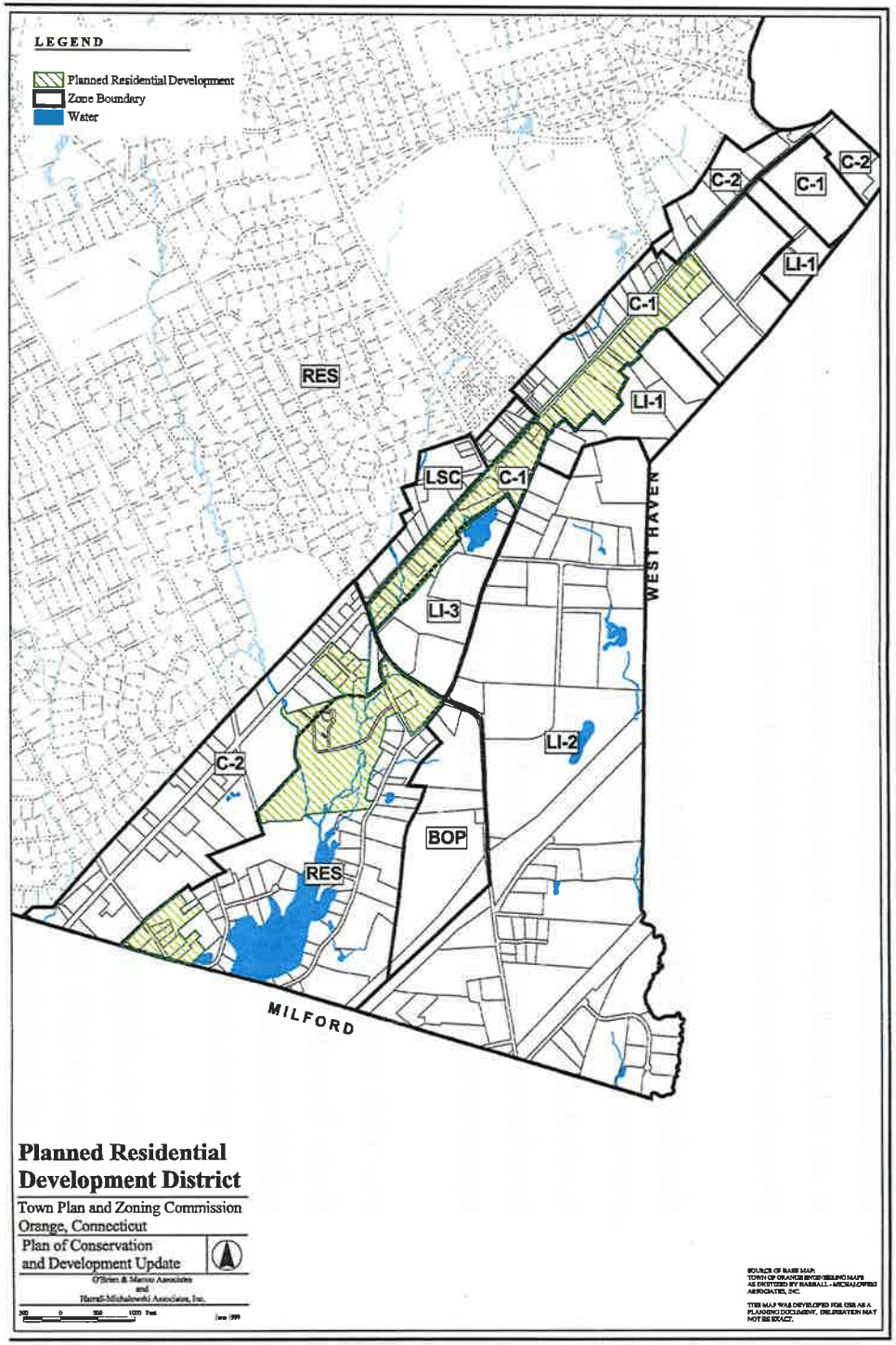
HOUSING OPPORTUNITIES/LAND CONSERVATION

The Connecticut General Statutes requires that each community provide a range of housing opportunities to meet the needs of citizens of the Town. The 1985 Plan of Development recognized the need for elderly housing. This resulted in the Silverbrook elderly housing and subsequent Silverbrook II housing being built.

The 1985 Plan of Development also recognized the need for a cluster housing option. Under this option land can be preserved and housing opportunities for young singles, individuals, empty nesters, divorced and young married or retired individuals not wanting or being able to afford a large house on a large lot can continue to live in Orange.

In order to comply with state law, this plan maintains the residential cluster concept. However, in order to protect the health, welfare and public safety of the residents, this option will be limited to parcels of land of 15 acres or more when located on an arterial or collector street and where served by public water. Fifteen acres will allow for the provision of community septic systems.

Cluster units will be allowed at the same density as traditional subdivision units. Cluster units will be further limited to 50 units on any one site. Generous buffers and screening will be provided so that surrounding neighbors will be protected.


LEGEND
Planned Residential Development
Zone Boundary
Water
RES
C-2
C-1
LI-1
LSC
LI-3
LI-2
BOP
WEST HAVEN
MILFORD
Planned Residential Development District
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation and Development Update
O'Brien & Manno Associates
and
Harrall-Michalowski Associates, Inc.

COMMERCIAL AND INDUSTRIAL DEVELOPMENT ANALYSIS

LAND USE ANALYSIS, COMMERCIAL & INDUSTRIAL AREA

This section provides information on existing land uses in the commercial and industrial areas.

Table 8 provides information on the number of parcels currently utilized for specific uses by zoning district. There are 261 parcels of land currently zoned for commercial or industrial use. These parcels compose 1,115 acres of land.

Table 9 provides information on the parcels zoned commercial or industrial that are currently vacant or used for agricultural purposes. There are 207 acres of land currently vacant or being used for agriculture.

Table 10 provides information derived from our field analysis of the current land uses in the commercial and industrial area. We believe that there are 38 parcels of land consisting of 77 acres that have potential for reuse within the next 5 - 10 years. An example of such a parcel would be a former factory currently being used for retail purposes on the Post Road.

Table 8

Number of Parcels by Land Use Type Commercial/Industrial Districts

ZONE								
Land Use	**BOP**	**C-1**	**C-2**	**LI-1**	**LI-2**	**LI-3**	**LSC**	**OP**
Residential	2	7	1	1	8	1	1	0
Multi-Family	0	0	3	0	0	0	0	0
Agricultural/ Residential	0	0	0	0	5	1	0	0
Agriculture	1	0	0	0	1	1	0	0
Commercial/ Residential	0	0	1	0	0	0	0	0
Private/ Semi-Public	0	0	0	0	0	0	0	0
Retail Service	0	40	47	1	2	3	8	0
Office/Professional	0	1	10	0	5	2	2	0
Leisure	2	6	1	0	1	0	1	0
Automotive/Trucking	0	6	3	1	0	0	0	0
Research & Development	0	0	0	0	2	0	0	1
Light Industrial	0	2	4	8	30	1	0	0
Recreation/Open Space	0	0	0	0	0	0	0	0
Cemetery	0	0	0	0	0	0	0	0
Golf Course	0	0	0	0	0	0	0	0
Municipal	0	0	1	0	0	0	0	0
Utility	0	0	1	0	0	0	0	0
Water Authority	0	0	0	0	0	0	0	0
State/Federal	0	0	0	0	1	0	1	0
Railroad	0	0	0	0	1	0	0	0
Vacant	0	5	2	2	11	2	3	0
TOTAL	**5**	**67**	**84**	**13**	**67**	**8**	**16**	**1**

Table 9

Vacant/Agriculture
Commercial/Industrial Land

Zone	Number of Parcels in Zone	Total Acreage In Zone	Total Acreage of Vacant/ Agric. Parcels	Developable Acreage	Percent Developable
BOP	5	60.65	18.87	18.87	100%
C-1	67	149.91	2.17	2.02	93%
C-2	84	176.72	11.00	8.43	77%
LI-1	13	58.03	.25	.25	100%
LI-2	67	417.43	154.30	136.44	88%
LI-3	8	46.39	17.61	12.83	73%
LSC	16	26.80	2.60	1.86	72%
OP	1	179.41	0	0	0%
TOTAL	**261**	**1,115.34**	**206.80**	**180.70**	**87%**

Source: Town of Orange assessor database; Compiled for Orange Plan and Zoning Commission.

Table 10

Potential Reuse
Development Areas

ZONE	PARCELS	ACREAGE
C-1	17	23.02
C-2	18	38.14
LI-1	3	15.63
TOTAL	**38**	**76.79**

COMMERCIAL/INDUSTRIAL POTENTIAL

This section presents an analysis of the development potential under current zoning in the commercial and industrial area south of the Boston Post Road.

First presented is the current controlling zoning requirements in each of the districts.

CURRENT CONTROLLING ZONING STANDARDS

Local Shopping Center District

Minimum lot size:	25,000 square feet
Maximum floor area ratio:	50%
Maximum ground coverage:	25%

Commercial One District

Minimum lot size:	25,000 square feet
Maximum floor area ratio:	50%
Maximum height:	3 stories or 40 feet
Maximum ground coverage:	25%

Commercial Two District

Minimum lot size:	25,000 square feet
Maximum floor area ratio:	50%
Maximum height:	3 stories or 40 feet
Maximum ground coverage:	25%

Light Industrial District One

Minimum lot size:	2 acres
Maximum floor area ratio:	50% for up to 7.5 acres
	60% for 7.5 to 15 acres
	70% for 15 - 30 acres
	80% for 30 or more
Maximum height:	40 feet
Maximum ground coverage:	35% for up to 15 acres
	40% for 15 acres or more

Light Industrial District Two

Minimum lot size:	2 acres
Maximum floor area ratio:	50% for up to 7.5 acres
	60% for 7.5 to 15 acres
	70% for 15 - 30 acres
	80% for 30 or more
Maximum height:	40 feet
Maximum ground coverage:	35% for up to 15 acres
	40% for 15 acres or more

Light Industrial District Three

Minimum lot size:	2 acres industrial
	5 acres retail
Maximum floor area ratio:	50% office
	15% retail
Maximum height:	40 feet
Maximum ground coverage:	25%

Office Park District

Minimum lot size:	2 acres
Maximum floor area ratio:	10%
Maximum height:	2 and one half stories or 35 feet
Maximum ground coverage:	10%

Business Office Park District

Minimum lot size:	8 acres
Maximum floor area ratio:	50%
Maximum height:	60 feet or three and a half stories
Maximum ground coverage:	15%

Parking Standards all Districts

2 spaces per thousand square feet	Industrial
4 spaces per thousand square feet	Office
5 spaces per thousand square feet	Retail

The zoning requirements above were applied to an inventory of vacant, agricultural or potential reuse parcels in the commercial and industrial development area to determine the "full build-out" development potential.

ESTIMATED FULL BUILD-OUT CURRENT ZONING POTENTIAL DEVELOPMENT SQUARE FOOTAGE

Local Shopping Center District

40,000 square feet retail space on 3 vacant parcels consisting of 2.6 acres.

Commercial One District

43,000 square feet retail space on 5 vacant parcels consisting of 2.17 acres.
400,000 square feet retail space on 17 potential reuse parcels consisting of 23 acres.

Commercial Two District

180,000 square feet retail space on 7 vacant parcels consisting 11 acres.
600,000 square feet retail space on 18 potential reuse parcels consisting of 38 acres.

Light Industrial One District

No vacant land
240,000 square feet industrial space on 3 potential reuse parcels consisting of 16 acres.
or
345,000 square feet office space

Light Industrial Two District

2,200,000 square feet industrial space on 16 vacant parcels consisting of 154 acres.
or
3,350,000 square feet office space
no potential reuse parcels.

Light Industrial Three District

100,000 square feet retail space on 4 vacant parcels consisting of 17 acres.
or
340,000 square feet office space
no potential reuse acres

Business Office Park District

390,000 square feet office space on 5 vacant parcels consisting of 19 acres

SUMMARY INDUSTRIAL DEVELOPMENT POTENTIAL

Vacant Land

Industrial potential	
LI-1	none
LI-2	2.2 million square feet

Reuse Land

LI-1	240,000 square feet
LI-2	none
Total	*2,440,000 square feet*

SUMMARY RETAIL DEVELOPMENT POTENTIAL

Vacant Land

LSC	40,000 square feet
C-1	30,000 square feet
C-2	180,000 square feet
Total	*250,000 square feet*

Reuse Land

LSC	none
C-1	400,000 square feet
C-2	600,000 square feet
Total	*1,000,000 square feet*

Total Retail 1,250,000 square feet potential full build-out.

SUMMARY OFFICE DEVELOPMENT POTENTIAL

Vacant Land

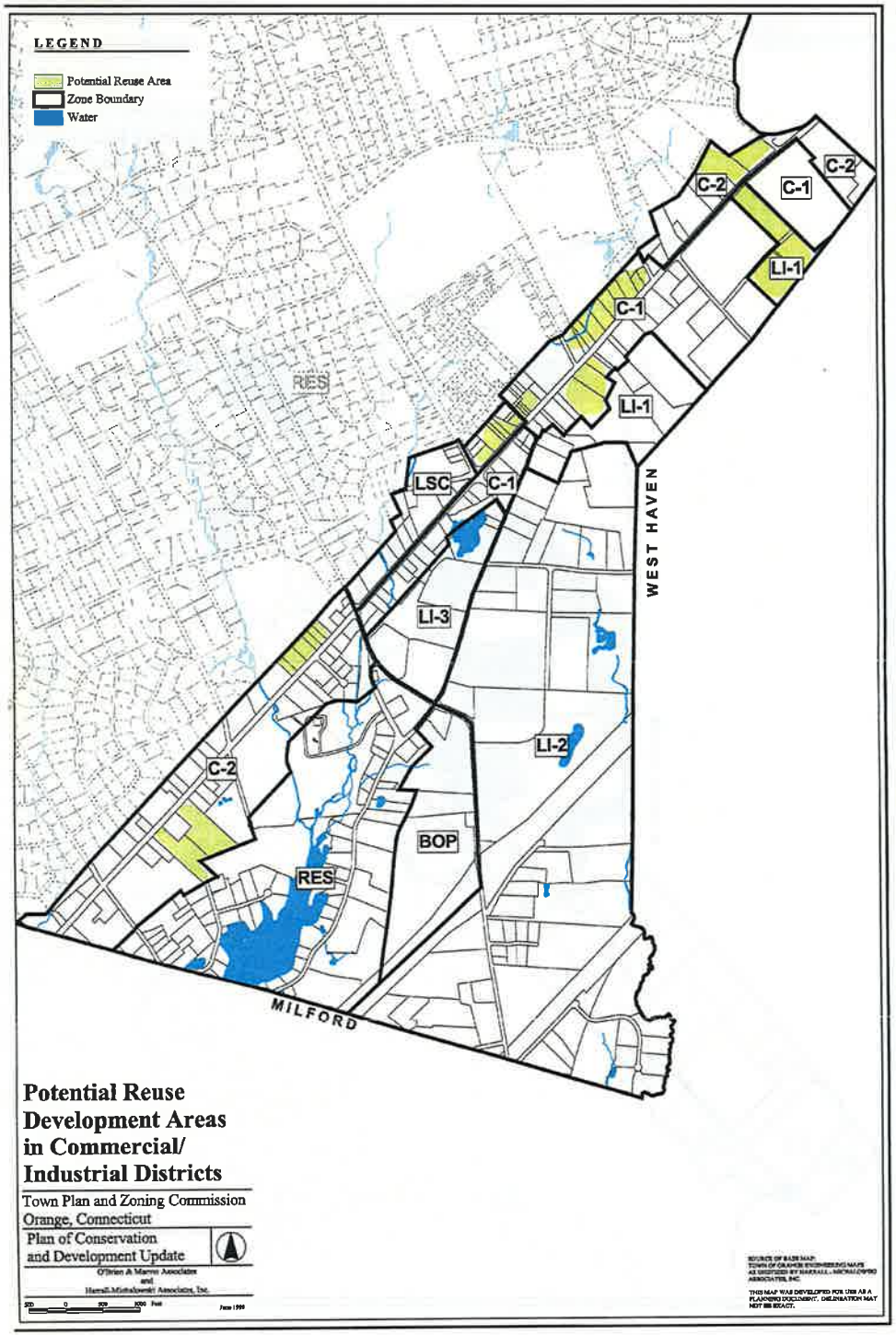
LI-1	none
LI-2	3,350,000 square feet
LI-3	340,000 square feet
Total	*3,690,000 square feet*

Reuse Land

LI-1	345,000 square feet
LI-2	none

Total Office 4,035,000 square feet potential full build-out

The reader should be mindful that it is not likely that the market could absorb the full build-out potential within the timeframe of this Plan of Conservation and Development.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Potential Reuse Area
Zone Boundary
Water
C-2
C-1
C-2
LI-1
C-1
RES
LI-1
LSC
C-1
WEST HAVEN
LI-3
LI-2
C-2
BOP
RES
MILFORD
Potential Reuse
Development Areas
in Commercial/
Industrial Districts
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
O'Brien & Morris Associates
and
Harrall-Michalowski Associates, Inc.
SOURCE OF BASE MAP:
TOWN OF ORANGE ENGINEERING MAPS
AS DIGITIZED BY HARRALL - MICHALOWSKI
ASSOCIATES, INC.
THIS MAP WAS DEVELOPED FOR USE AS A
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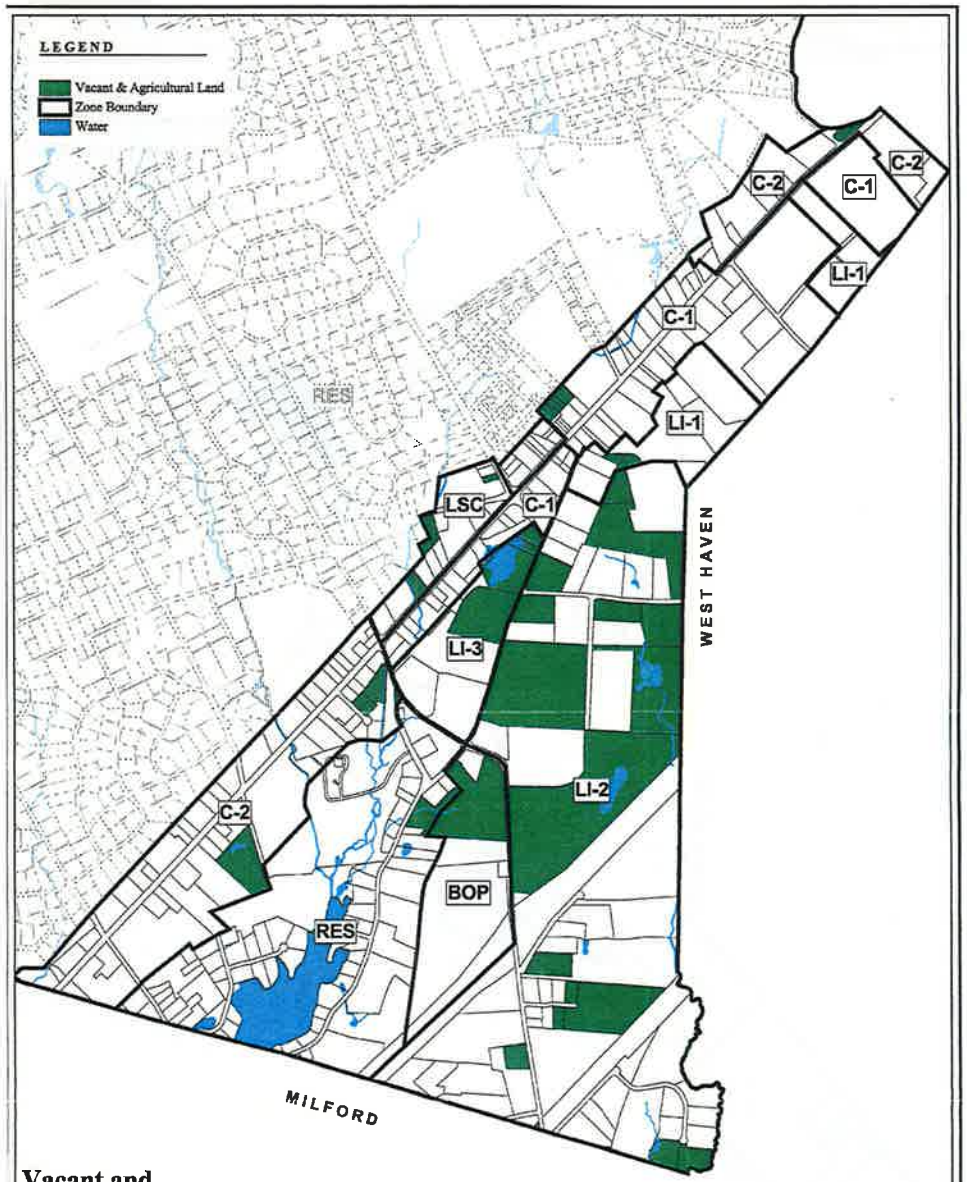

Vacant and Agricultural Land in Commercial/ Industrial Districts

Town Plan and Zoning Commission
Orange, Connecticut

Plan of Conservation and Development Update

O'Brien & Marcus Associates
and
Harrall-Michalowski Associates, Inc.

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TOWN OF ORANGE ZONING MAPS
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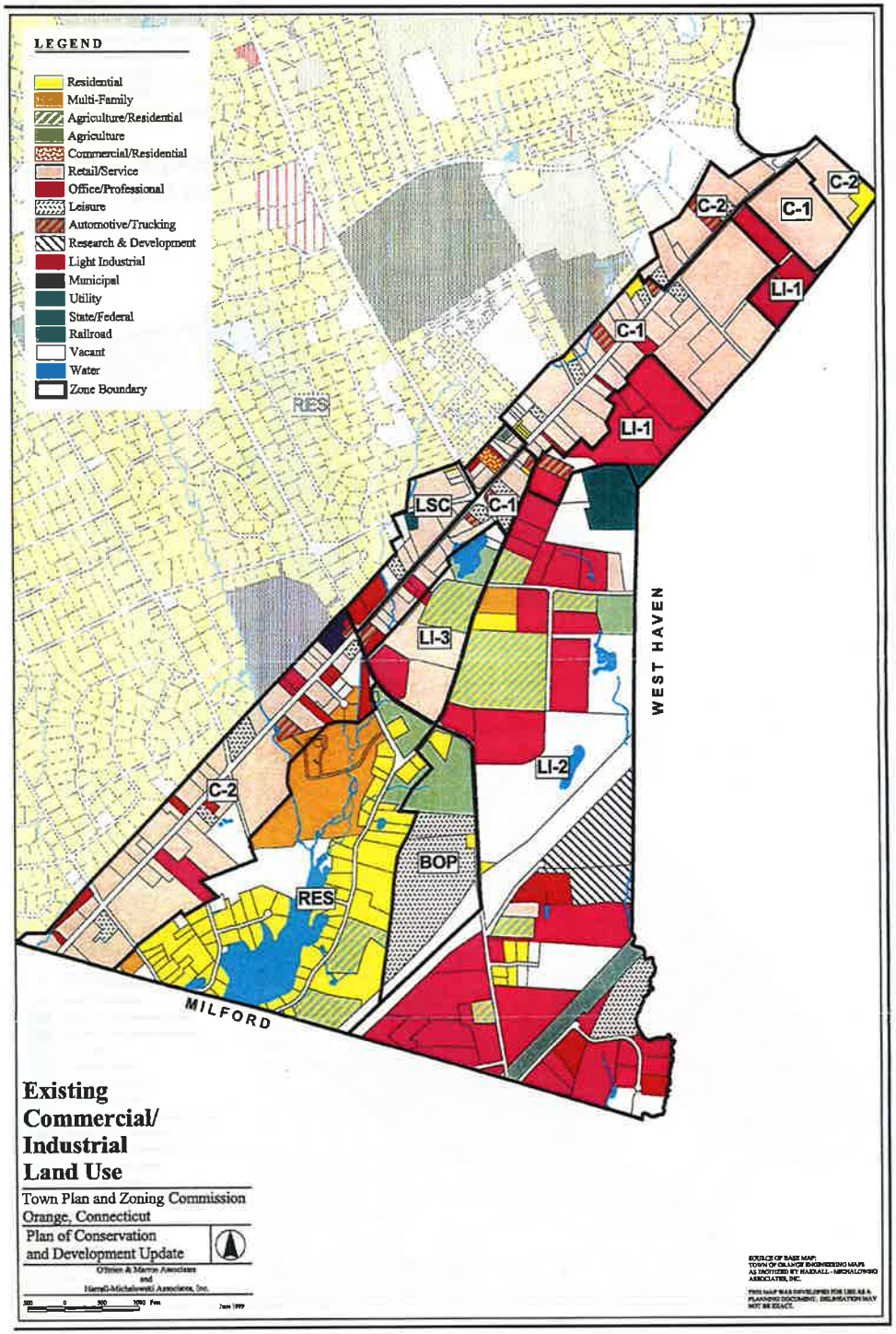
LEGEND
Residential
Multi-Family
Agriculture/Residential
Agriculture
Commercial/Residential
Retail/Service
Office/Professional
Leisure
Automotive/Trucking
Research & Development
Light Industrial
Municipal
Utility
State/Federal
Railroad
Vacant
Water
Zone Boundary
RES
C-2
C-1
C-2
LI-1
C-1
LI-1
LSC
C-1
LI-3
WEST HAVEN
LI-2
C-2
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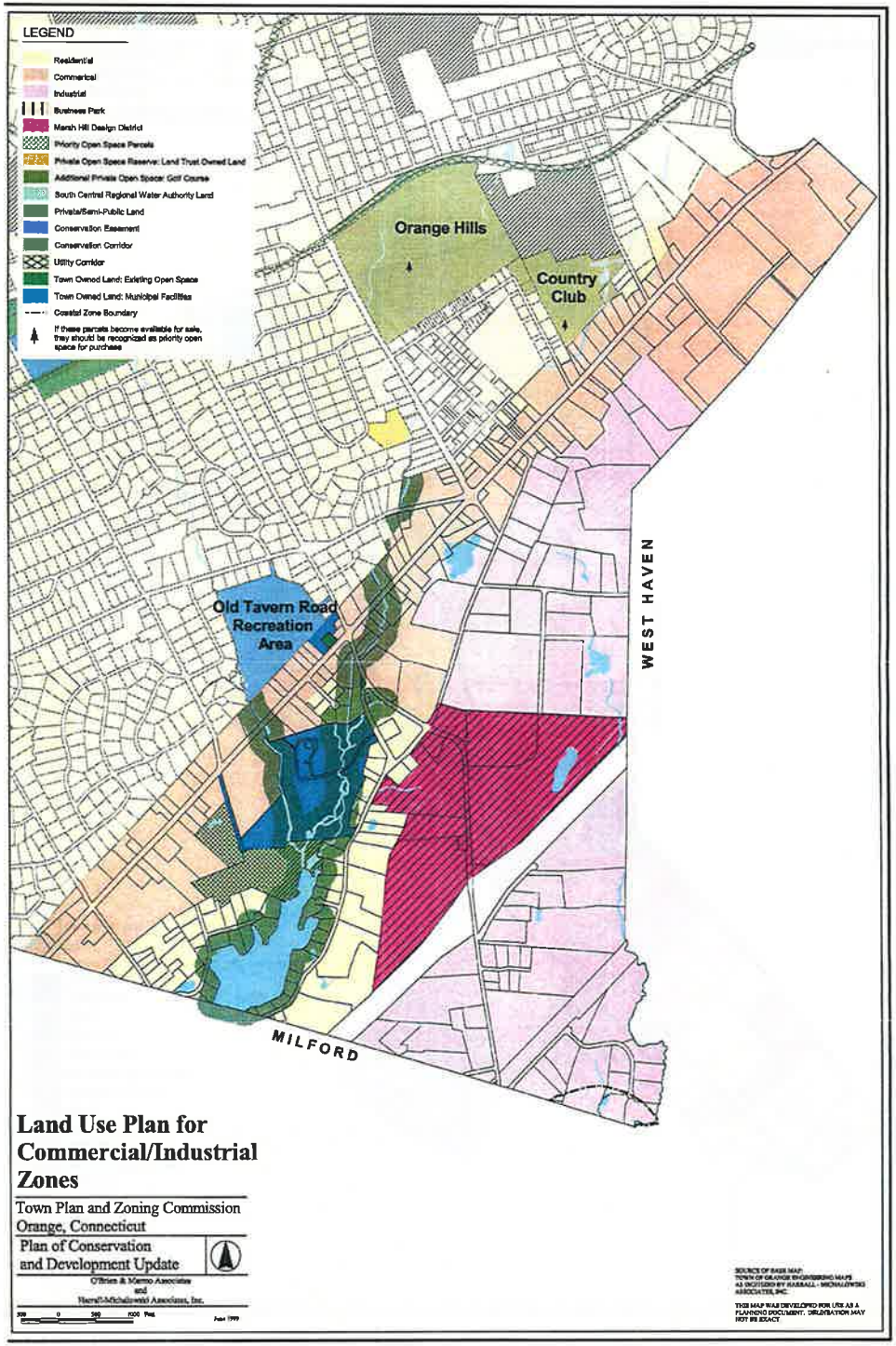
LEGEND
Residential
Commerical
Industrial
Business Park
Marsh Hill Design District
Priority Open Space Parcels
Private Open Space Reserve: Land Trust Owned Land
Additional Private Open Space: Golf Course
South Central Regional Water Authority Land
Private/Semi-Public Land
Conservation Easement
Conservation Corridor
Utility Corridor
Town Owned Land: Existing Open Space
Town Owned Land: Municipal Facilities
Coastal Zone Boundary
If these parcels become available for sale, they should be recognized as priority open space for purchase
Orange Hills
Country Club
Old Tavern Road Recreation Area
WEST HAVEN
MILFORD
Land Use Plan for Commercial/Industrial Zones
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation and Development Update
O'Brien & Manno Associates
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June 1999
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TRAFFIC AND CIRCULATION

INTRODUCTION

Providing for the safe, efficient and economical movement of persons and goods is one of the most important elements of an economically stable and desirable community. The fact that the Town of Orange remains a very desirable place to live, work and shop is a good indicator of how successful the Town has been in achieving a good transportation and traffic circulation system.

Purpose of Transportation and Traffic Circulation Component of Plan

This section of the Town Plan of Conservation and Development sets forth the overall goals and objectives of the plan relative to the Town's transportation system and indicates how the Town should plan to address future transportation and traffic circulation needs.

In order to maintain and expand the commercial and retail development corridor along U.S. Route 1 (Boston Post Road), and the industrial and office uses located generally south of U.S. Route 1 along Marsh Hill Road, South Lambert Road, Indian River Road and Prindle Hill road while at the same time maintaining the residential character of the Town it is essential to structure both the land use and zoning regulations in a fashion designed to achieve the desired development patterns.

Background Trends Impacting Transportation and Circulation

The Town of Orange developed similarly to many suburban New Haven communities. Historically most of the Town's land area was rural undeveloped land, agricultural farmland and single family residential. During the fifties, sixties and for a portion of the seventies a majority of Orange residents out-commuted to business destinations in New Haven, Bridgeport and other destinations throughout the region.

During the mid-seventies Orange began to experience commercial and retail development pressures along U.S. Route 1, then further to the south along Marsh Hill Road in the late seventies and the early eighties. For the most part, the Town has been reasonably successful in restricting non-residential uses to the area generally along the U.S. Route 1 corridor and Marsh Hill Road. In restricting these land uses to the southeasterly corner of the Town, there was for the most part a control of traffic growth to that area.

However, as Orange has grown it has become a regional retail corridor (along Route 1), a recreation destination with the multiple screen theaters, and a business destination for the offices, warehouses, light industrial and research facilities. Traffic destined for these uses from other communities to the north and west (Shelton, Derby, Woodbridge and others) has sought alternative, non-highway routes to these facilities. Many times the alternative routes are rural and/or residential streets that were not intended to carry both continuous and high volumes of traffic. Examples of roads that fall into this category are Racebrook Road, Lambert Road, Orange Center Road and Grassy Hill Road.

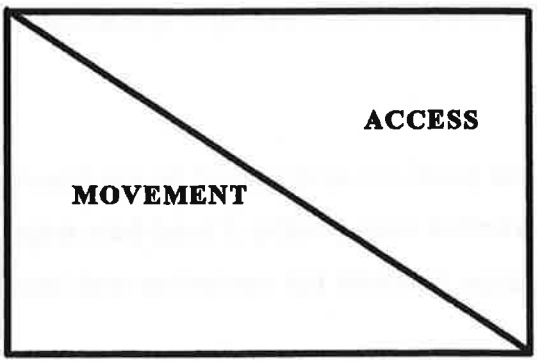
Balancing traffic and circulation needs with the impact to residents of these streets will be important to the effectiveness of any plan.

Definitions of Commonly Used Transportation and Circulation Terms

All roadways, whatever their classification, provide in varying degrees either "movement" or "access". On the high end of the "movement" function, we have I-95, the Wilbur Cross Parkway, and to a slightly lesser degree Connecticut Route 34. On the low end of the "access" function we have any number of the Town local residential streets.

The following diagram graphically depicts this relationship.

FUNCTION OF ROADWAY



Local & Residential Streets

Collectors

Minor & Principal Arterials

Limited Access Highway

Local and residential streets are designed for and intended almost exclusively to provide access to the abutting land uses, while limited access highways are intended and designed specifically to provide the highest level of through traffic movement with limited provisions for providing access to abutting properties. Collector streets and minor and principal arterials provide far more balance between access to abutting properties and provision for through movement. These roadway classifications and their specific application in Orange are discussed in more detail in the next section.

Other terms and definitions that will be discussed include:

Level of Service (LOS): A quantifiable measure of how effectively the roadway is operating from a high of LOS A, to a low of LOS F, which represents failure.

Average Daily Traffic (ADT): The number of vehicles expected to pass a point on a roadway (generally both directions) in a 24-hour period.

Peak Hour Traffic: The number of vehicles expected to pass a point on a roadway (generally both directions) in a one hour period, typically the morning (AM) or evening (PM) peak time period.

Capacity: The statistical maximum number of vehicles that could pass over a roadway segment or through an intersection during a specific time period.

Basic Roadway Elements:

Right-of-Way: The area (width) of land owned by the Town.

Pavement Width: The actual area (width) of road from edge to edge.

Lane Width: The distance between the centerline and landline for vehicle travel.

Shoulder Width: The distance between the landline and the edge of the road.

Cross-slope: The pitch of the road from the centerline to the edge of the pavement.

Curbing the vertical material (generally bituminous or concrete) at the edge of the travelway to curtain water flow.

Utility Strips: The area generally between the curb and sidewalk (normally grassed) used to accommodated poles, hydrants and signs, etc.

Sidewalks: A pedestrian walk area usually 3 feet to 5 feet wide, made of bituminous concrete.

Lateral Clearance: The distance between the edge of the travelway and the nearest fixed object.

Design Speed: The desired rate at which drivers are expected to be operating.

85th Percentile Speed: The actual speed at which 85 percent of the drivers are operating.

Traffic Signal: A combination of electrical and mechanical devices to provide displays (green, yellow, and red) to tell the driver who has the right-of-way.

Horizontal Alignment: What the driver sees in terms of straight aways or curves.

Vertical Alignment: What the driver sees relative to going up-hill or downhill.

Land-Use: What is allowed or proposed to be built or developed on a particular piece of land.

Trip Generation: The amount of traffic produced by a particular type of land use.

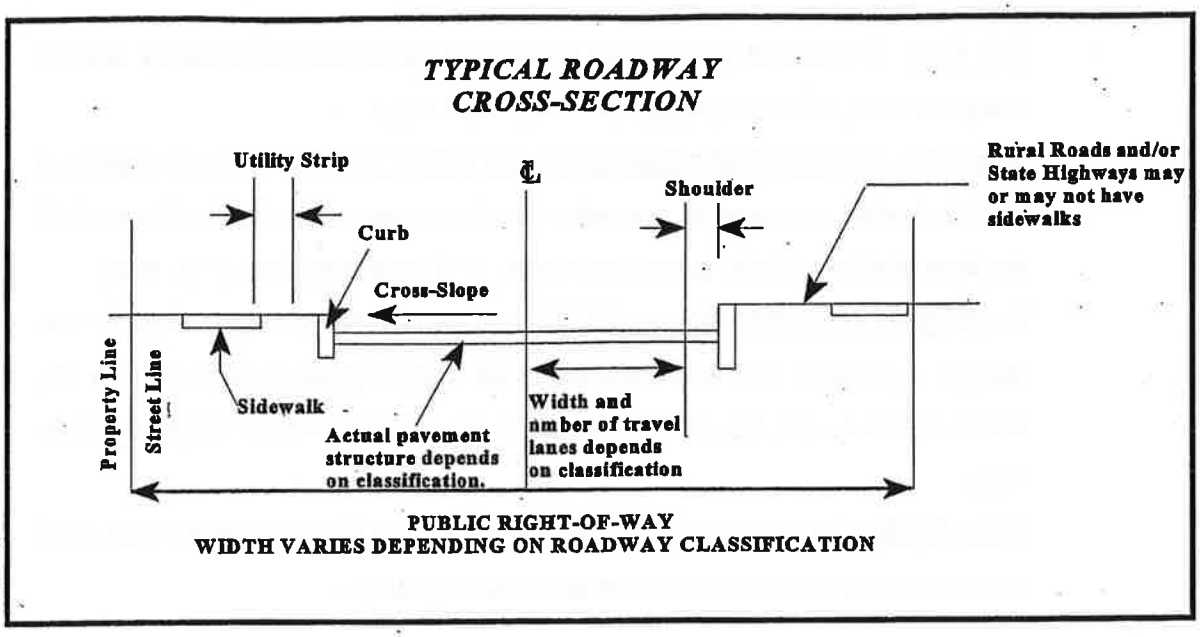
Trip Rate: The actual (estimated) number of generated vehicles by use on a square foot, acre, employee or other fixed input.

Manual or Uniform Traffic Control Device (MUTCD): The national standard for the design, placement, operation and maintenance of all traffic control devices (traffic signals, signs, markings, and other regulatory devices).

Department of Transportation (DOT): The state agency responsible for the design, operation and maintenance of all state highways (I-95, Route 15, Route 1, Route 34, Route 114, Route 7, Route 121, Route 152 and Route 162).

State Traffic Commission (STC): Regulatory body that oversees major land developments in terms of impact on state highways.

The following diagram shows the relationship of many of the components of a public right-of-way.



CIRCULATION ISSUES

As is the situation with most suburban communities, the Town of Orange's transportation network is comprised primarily of the surface roadway network. This roadway network encompasses local and residential streets, state highways and limited access highways. As discussed in the preceding section each of these roadways provide a specific function in terms of providing for access to abutting properties and for the movement of traffic into and through the Town.

For planning and funding purposes the Town and State have developed a functional roadway classification system.

The major roadway classifications are listed below and shown on the Road Classification Map:

- Residential and Local Streets: Roads such as Shepard Lane, High View Drive, Riverside Drive and Mapledale Drive are examples of roads in this category.
- Local Collector Roadways: Roads such as Ridge Road and Prindle Hill Road are examples of roads in this category.
- Minor Arterials (MA): Roads such as Derby-Milford Road, Wheeler Farm Road, Orange Center Road and Racebrook Road fall into this category.
- Principal Arterials (PA): Examples of this classification include Grassy Hill Road, Derby Turnpike and the Boston Post Road.
- Limited Access Highways (LAH): The Wilbur Cross Parkway and Interstate 95 are examples of this classification.

Roadway classifications are not directly related to the actual amount of traffic volumes on a road, but rather how a road functions in terms of providing access to the abutting land uses, its capability for providing through traffic movement and to a somewhat lesser degree, its geometric cross-section. Often problems arise when a lower classification roadway such as Lambert Road, a local roadway, begins to serve functionally at a higher classification such as a local collector or a minor arterial roadway. Roads intended to provide principal access to the abutting land uses are not designed for or generally suitable for accommodating the higher volumes typically associated with through traffic movement.

Traffic Volume Growth Trends

Traffic growth is typically reviewed for a ten year time period. However, in order to understand the longer term history of volumes, and to more accurately reflect the reduction in traffic volumes in the late eighties and early nineties, which coincided with the downturn in the local, regional and state economic climate, a more representative 20 year time period was selected. Table 11 traces the growth in traffic volumes for the past 20 years. In almost all cases there has been an increase in traffic volumes during this time frame.

Table 11

Traffic Volumes at Various Locations

*Estimated Based on 1995, 1996, 1997 & 1998 Volumes Trended Forward

Road Name	Classification	Route Number	Location	Average Daily Traffic Volumes (ADT)					Twenty Yr. Growth
				1979/1980	1985	1990	1995	2000*	
Lambert Road	LC	-	@ Route 1	-	-	-	4,500	6,900	N/A
Lambert Road	LC	-	@ Old Tavern	-	-	-	-	-	N/A
Lambert Road	LC	-	@ Orange Center Road	1,350	-	-	1,900	2,300	70%
Bull Hill Lane	MA	CT Rte 162	@ Route 1	13,000	18,000	17,700	17,600	14,900	15%
Bull Hill Lane	MA	CT Rte 162	@ West Haven Town Line	16,600	18,000	17,700	17,600	16,400	0%
Orange Center Road	MA	CT Rte 152	@ Route 1	3,900	5,000	6,100	6,700	7,300	87%
Orange Center Road	MA	CT Rte 152	@ Ridge Road	4,700	5,400	8,600	10,300	10,800	129%
Orange Center Road	MA	CT Rte 152	@ Route 34	4,100	6,000	5,400	6,100	7,100	73%
Racebrook Road	MA	CT Rte 114	@ Route 1	9,900	11,500	10,000	12,200	12,500	26%
Racebrook Road	MA	CT Rte 114	@ Route 34	10,900	11,500	10,000	12,200	12,500	15%
Racebrook Road	MA	CT Rte 114	@ Woodbridge Town Line	5,700	7,200	6,600	8,500	9,400	65%
Grassy Hill Road	PA	CT Rte 121	@ Milford Town Line	8,100	11,000	9,000	8,400	10,000	24%
Grassy Hill Road	PA	CT Rte 121	@ Derby-Milford Road	5,900	11,000	9,000	11,500	12,300	108%
Grassy Hill Road	PA	CT Rte 121	@ CT Route 15	6,100	7,600	6,400	8,100	7,100	16%
Grassy Hill Road	PA	CT Rte 121	@ Route 34	6,700	11,000	8,600	9,600	8,900	33%
Boston Post Road	PA	U.S. Rte 1	@ Milford Town Line	14,200	18,000	17,000	19,300	21,000	48%
Boston Post Road	PA	U.S. Rte 1	@ Orange Center Road	15,000	17,800	17,000	19,300	25,000	66%
Boston Post Road	PA	U.S. Rte 1	@ West Haven Town Line	16,800	22,000	22,500	21,000	19,600	17%
Derby Turnpike	PA	CT Rte 34	@ Derby Town Line	24,000	31,000	31,900	33,000	34,000	42%
Derby Turnpike	PA	CT Rte 34	@ Racebrook Road	21,000	25,000	21,200	23,100	24,600	17%
Derby Turnpike	PA	CT Rte 34	@ West Haven Town Line	18,900	21,000	21,500	19,500	22,600	20%
Wilbur Cross Parkway	LAH	CT Rte 15	@ Milford Town Line	24,100	31,700	33,000	41,700	43,000	78%
Wilbur Cross Parkway	LAH	CT Rte 15	@ Route 34	24,200	32,000	32,300	41,700	43,000	78%
Wilbur Cross Parkway	LAH	CT Rte 15	@ Woodbridge Town Line	28,100	36,000	38,000	47,000	48,700	73%
Connecticut Turnpike	LAH	I-95	@ Milford Town Line	93,100	107,000	105,800	120,000	121,700	30%
Connecticut Turnpike	LAH	I-95	@ West Haven Town Line	93,100	107,500	105,800	121,300	125,400	35%

Source of Data: (1) Various Traffic Impact Study Reports; (2) Connecticut DOT's Traffic Logs; and (3) South Central Regional Planning Agency.

LC - Local Collector MA - Minor Arterial PA - Principal Arterial LAH - Limited Access Highway

The largest growth numerically (in terms of actual traffic volumes) has been on the two limited access highways (Connecticut Route 15 & I-95) that pass through the Town of Orange.

More locally, U.S. Route 1 (Boston Post Road) within the Town's boundaries has experienced moderate to significant growth in traffic volumes, attributable to the continued development of the Route 1 corridor as a regional shopping destination. While historical data is not readily available, South Lambert Road and Marsh Hill Road, between U.S. Route 1 and interchange 41 on I-95 have also experienced considerable growth, which have necessitated improvements.

Orange Center Road (a minor arterial) and Grassy Hill Road (a principal arterial) both experienced a significant percentage growth in traffic volumes. This occurred generally mid-town at Ridge Road and Derby-Milford Road, respectively.

Standardization of Classification

Lambert Road is an example of a road functioning beyond its intended classification. If the Town desires to keep local roads for local traffic only and to keep local collectors from becoming minor or principal arterials, positive steps must be taken to achieve that objective. In the fall of 1998, the Town engaged DLS Consulting Engineers to undertake such a study. The DLS study focused on traffic engineering strategies to keep "cut through traffic" from adversely affecting the residential environment along Lambert Road. Many of the suggested strategies appear worthwhile, and should be considered by the Town, in a separate form, for adoption and implementation.

Concurrent with any effort to protect the character and environment of residential neighborhoods, an effort must be made (both locally and with the Connecticut DOT) to upgrade, enhance and make more efficient the higher classification roadways. If through movement is difficult on the minor and principal arterials, drivers will seek alternate routes, thereby burdening the lower classification roadways with unwanted traffic

Therefore, it is essential that the Town take the necessary and appropriate steps to clearly define the associated right-of-way and geometric standards (roadway design elements) that are appropriate for each of the various functional roadway classifications.

Functional Standards for Road Classifications

Functional Classification	Public ROW Width	Overall Pavement Width	Curbs
Local & Residential	40'	20' - 26'	Desirable
Collector	50'	30' min.	Yes
Minor Arterial	50' - 60'	30' - 36'	Yes
Principal Arterial	60' min.	36' - 48'	Yes

LONG TERM DEVELOPMENT POTENTIAL SCENARIOS & IMPACTS ON ROAD NETWORK

While much of the land zoned for commercial, retail, industrial and office development is already developed, there remain several undeveloped parcels or properties that could be redeveloped to a higher or more intense use. These parcels are shown on the map entitled Vacant and Agricultural Land Including Underutilized Areas in Commercial/ Industrial Districts. Properties are generally along the U.S. Route 1 Corridor and in the Marsh Hill Road area. Using standard Institute of Transportation Engineers (ITE) Trip Generation Rates, the following anticipated site generated traffic volumes have been estimated based upon the amount of development which could be accommodated under current zoning on these parcels. The development estimate is presented for each zoning district within the Route 1 corridor and Marsh Hill Road area. It should be noted that the levels of development represent " full build-out" over a horizon which might go beyond the next ten years. In many cases, particularly along Route 1, the redevelopment of parcels currently occupied with less marketable uses would be necessary to reach these levels of development. The Light Industrial 1, 2 and 3 Districts have alternative scenarios for industrial development and office development. It should be noted that the office alternative would generate over twice the number of vehicles generated by industrial development. This office alternative would be considered the high development potential. However, market demand for the total of over 3.7 million square feet of office space that could potentially be built within the Light Industrial 1 and Light Industrial 2 Districts could not reasonably be foreseen in the near or mid-term future.

Traffic Generation of Potential Development Scenarios

Local Shopping Center District

40,000 sq.ft. Retail [1]

AM Peak:	1.0 trips/1,000 sq.ft. GLA	=	40	vehicles per hour
PM Peak:	2.6 trips/1,000 sq.ft. GLA	=	104	vehicles per hour
Sat. Peak:	7.5 trips/1,000 sq.ft. GLA	=	300	vehicles per hour
Weekday:	40.7 trips/1,000 sq.ft. GLA	=	1,628	vehicles per day

Commercial One District

43,000 sq.ft. Retail [1]

AM Peak:	1.0 trips/1,000 sq.ft. GLA	=	43	vehicles per hour
PM Peak:	2.6 trips/1,000 sq.ft. GLA	=	112	vehicles per hour
Sat. Peak:	7.5 trips/1,000 sq.ft. GLA	=	323	vehicles per hour
Weekday:	40.7 trips/1,000 sq.ft. GLA	=	1,750	vehicles per day

400,000 sq.ft. Retail [2]

AM Peak:	1.03 trips/1,000 sq.ft. GLA	=	412	vehicles per hour
PM Peak:	3.74 trips/1,000 sq.ft. GLA	=	1,496	vehicles per hour
Sat. Peak:	4.97 trips/1,000 sq.ft. GLA	=	1,988	vehicles per hour
Weekday:	43.0 trips/1,000 sq.ft. GLA	=	17,200	vehicles per day

Commercial Two District

180,000 sq.ft. Retail [1]

AM Peak:	1.0 trips/1,000 sq.ft. GLA	=	180	vehicles per hour
PM Peak:	2.6 trips/1,000 sq.ft. GLA	=	468	vehicles per hour
Sat. Peak:	7.5 trips/1,000 sq.ft. GLA	=	1,350	vehicles per hour
Weekday:	40.7 trips/1,000 sq.ft. GLA	=	7,326	vehicles per day

600,000 sq.ft. Retail [2]

AM Peak:	1.03 trips/1,000 sq.ft. GLA	=	618	vehicles per hour
PM Peak:	3.74 trips/1,000 sq.ft. GLA	=	2,244	vehicles per hour
Sat. Peak:	4.97 trips/1,000 sq.ft. GLA	=	2,982	vehicles per hour
Weekday:	43.0 trips/1,000 sq.ft. GLA	=	25,800	vehicles per day

Light Industrial One District

240,000 sq.ft. Industrial [3]

AM Peak:	0.9 trips/1,000 sq.ft. GLA	=	216	vehicles per hour
PM Peak:	1.0 trips/1,000 sq.ft. GLA	=	240	vehicles per hour
Sat. Peak:	0.2 trips/1,000 sq.ft. GLA	=	48	vehicles per hour
Weekday:	7.0 trips/1,000 sq.ft. GLA	=	1,680	vehicles per day

OR

345,000 sq.ft. Office [4]

AM Peak:	1.6 trips/1,000 sq.ft. GLA	=	552	vehicles per hour
PM Peak:	1.5 trips/1,000 sq.ft. GLA	=	518	vehicles per hour
Sat. Peak:	0.4 trips/1,000 sq.ft. GLA	=	138	vehicles per hour
Weekday:	11.0 trips/1,000 sq.ft. GLA	=	3,795	vehicles per day

Light Industrial Two District

2,200,000 sq.ft. Industrial [3]

AM Peak:	0.9 trips/1,000 sq.ft. GLA	=	1,980	vehicles per hour
PM Peak:	1.0 trips/1,000 sq.ft. GLA	=	2,200	vehicles per hour
Sat. Peak:	0.2 trips/1,000 sq.ft. GLA	=	440	vehicles per hour
Weekday:	7.0 trips/1,000 sq.ft. GLA	=	15,400	vehicles per day

OR

3,350,000 sq.ft. Office [4]

AM Peak:	1.6 trips/1,000 sq.ft. GLA	=	5,360	vehicles per hour
PM Peak:	1.5 trips/1,000 sq.ft. GLA	=	5,025	vehicles per hour
Sat. Peak:	0.4 trips/1,000 sq.ft. GLA	=	1,340	vehicles per hour
Weekday:	11.0 trips/1,000 sq.ft. GLA	=	36,850	vehicles per day

Light Industrial Three District

100,000 sq.ft. Retail [2]

AM Peak:	1.03 trips/1,000 sq.ft. GLA	=	103	vehicles per hour
PM Peak:	3.74 trips/1,000 sq.ft. GLA	=	374	vehicles per hour
Sat. Peak:	4.97 trips/1,000 sq.ft. GLA	=	497	vehicles per hour
Weekday:	43.0 trips/1,000 sq.ft. GLA	=	4,300	vehicles per day

OR

340,000 sq.ft. Office [4]

AM Peak:	1.6 trips/1,000 sq.ft. GLA	=	544	vehicles per hour
PM Peak:	1.5 trips/1,000 sq.ft. GLA	=	510	vehicles per hour
Sat. Peak:	0.4 trips/1,000 sq.ft. GLA	=	136	vehicles per hour
Weekday:	11.0 trips/1,000 sq.ft. GLA	=	3,740	vehicles per day

Business Office Park District

390,000 sq.ft. Office [5]

AM Peak:	1.74 trips/1,000 sq.ft. GLA	=	679	vehicles per hour
PM Peak:	1.50 trips/1,000 sq.ft. GLA	=	585	vehicles per hour
Sat. Peak:	0.14 trips/1,000 sq.ft. GLA	=	55	vehicles per hour
Weekday:	11.42 trips/1,000 sq.ft. GLA	=	4,454	vehicles per day

Light Industrial Two District

250 Room Hotel with Convention Capabilities [6]

AM Peak:	0.67 trips/room	=	168	vehicles per hour
PM Peak:	0.71 trips/room	=	178	vehicles per hour
Sat. Peak:	0.87 trips/room	=	218	vehicles per hour
Weekday:	8.92 trips/room	=	2,230	vehicles per day

NOTES:
** All Trip Generation Rates from ITE=s Sixth Edition Trip Generation Manual (1997)
(1) ITE Land Use Code #184: Specialty Retail Centers
(2) ITE Land Use Code #820: Shopping Centers (general)
(3) ITE Land Use Code #110: General Light Industrial
(4) ITE Land Use Code #710: General Office Building
(5) ITE Land Use Code #750: Office Park
(6) ITE Land Use Code #310: Hotel

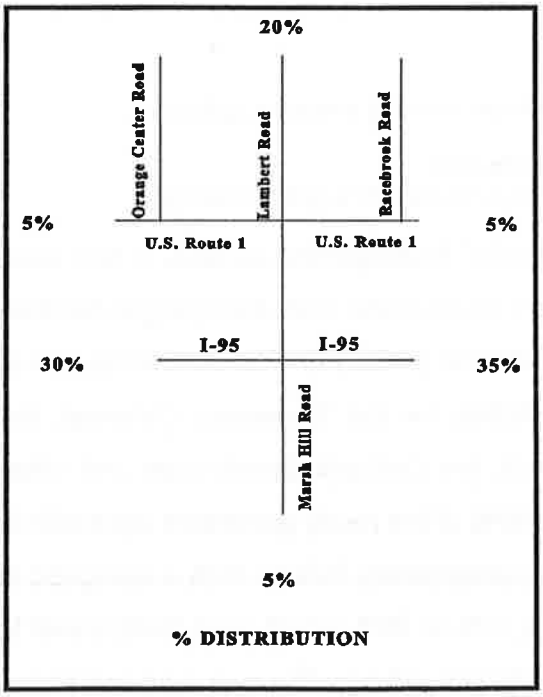
AM/PM/Sat. Peak: Highest One hour traffic period in the morning, evening & Saturday.
GLA: Gross Leasable Area
Vehicle Per Hour: Total number of vehicle trips in one hour.
Vehicle Per Day: Total number of vehicle trips during 24 hours on a typical weekday.

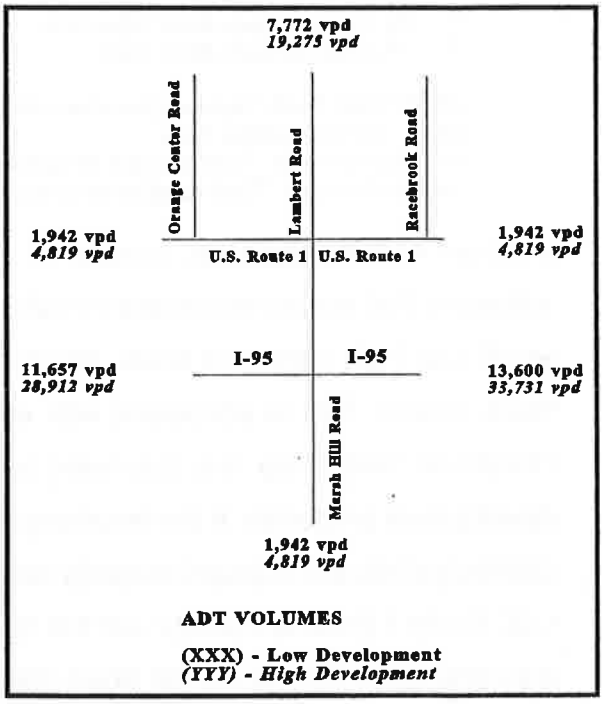
Because of the geographic location of the potential development parcels, it has been estimated that somewhere between 60% and 70% of the traffic from this geographic area would use I-95, north and south, Marsh Hill Road into Milford or Prindle Hill Road into West Haven. This is consistent with earlier studies for the Showcase Cinemas, the Christmas Tree Shop, the Courtyard by Marriott, the Outback Steakhouse and other development proposals. If the remaining 30% to 40% of the newly generated site traffic is distributed into the adjacent roadway network, approximately 10% to 15% is assigned to U.S. Route 1 (east and west), and the remaining 10% to 20% would most likely travel to the north using Orange Center Road, Racebrook Road and possibly even Lambert Road. The following graphics depict both the percentage distribution and the composite numbers for the eight (8) possible development scenarios which range from a low development

potential of some 38,858 new vehicle trips per day to a high development potential of approximately 96,375 vehicle trips per day.

Clearly, I-95 with improvements to the Exit 41 interchange has the reserve capacity to accommodate the new site generated traffic as does an improved U.S. Route 1 (Boston Post Road). However, adding between 7,772 vehicles per day and 19,275 vehicles per day to Orange Center Road, Racebrook Road (and possibly Lambert Road, if the proposed diversioning strategies proposed in the DLS report were not implemented), could produce adverse impacts.

For example, just north of U.S. Route 1 (Boston Post Road), Orange Center Road and Racebrook Road are projected to carry combined volumes of approximately 19,800 vehicles per day in the Year 2000.





If the proposed development did take place in the eight districts (as described above) and the traffic was distributed according to the approaches outlined above, traffic volumes on Orange Center Road and Racebrook Road could grow from the projected 19,800 vehicles per day to 27,572 vehicles per day under the low development scenario to over 39,000 vehicles per day under the high development scenario. This possible 30% to 97% growth in traffic volumes at "full build-out" as described above would require substantial investment to increase the capacity of these roads to safely and efficiently handle such traffic volumes.

ALTERNATIVE MODES OF TRANSPORTATION

While all planning studies must look at and consider other alternatives to the private automobile, the reality is that there is no end in sight to our love of the automobile and the freedom that we have when we each get into our own vehicles. Our travel time, speed, route and intermediate stops are our own choices, and it doesn't appear likely that there will be any compelling reason to alter our preferred choice of travel into the foreseeable future.

This, however, is not to say that there are no alternatives, but rather that known alternatives, even if pursued aggressively, will have little impact on significantly reducing the current or projected future traffic volumes. The following is a listing of some of those "alternatives" and their potential impact (if any) on the Town's transportation and traffic circulation system.

Bus - Due to the relatively low density of the Town, regular bus service to areas other than the Route 1 corridor appear highly unlikely. Commuter bus service to other employment centers in New Haven, Bridgeport or Stamford also appears to have little future potential. Limited van service for the elderly and disabled is available through the Town Human Services and the Greater New Haven Transit district.

Rail - Orange and West Haven are both currently competing for a new station on the New Haven Main Line. With adequate and reasonably priced parking this station could be an attractive alternative to using either the New Haven or Milford stations and might encourage more people to use this mode of transportation. However, this shift would impact traffic volumes on I-95 more than local Orange streets.

Car Pooling/ Van Pooling - Both programs offer very limited potential for reducing the number of private automobiles on the highways unless major financial incentives are offered.

Biking/Walking - While probably very desirable from a recreation standpoint, and one that needs to be aggressively pursued, neither is a serious alternative to the private automobile. However, sidewalks on Route 1 could reduce short trips between adjacent properties.

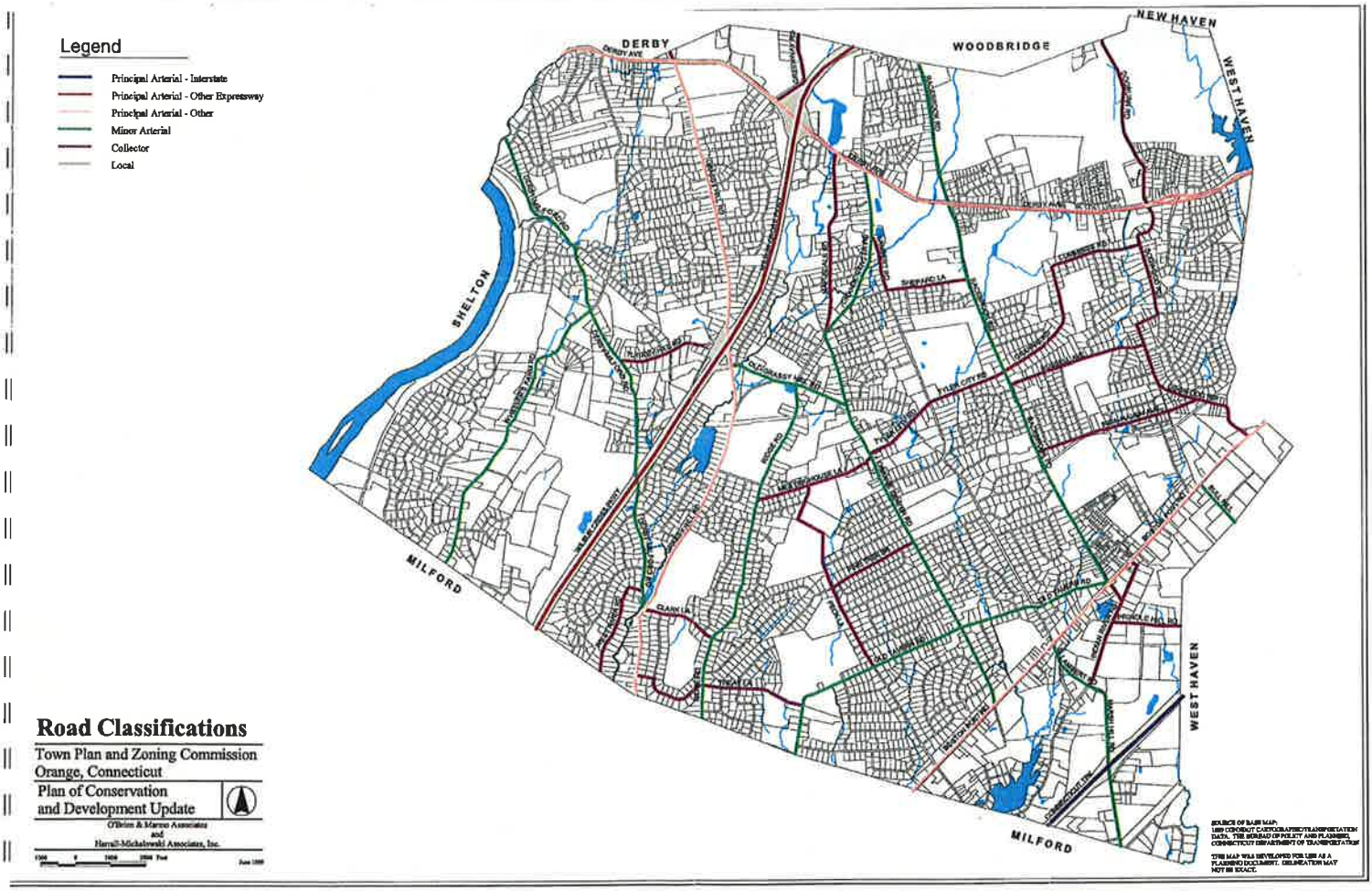
The Town of Orange needs to plan for the ever increasing use of the automobile to perform life's everyday functions.

IMPLEMENTATION STRATEGIES TO ACHIEVE A BALANCED TRANSPORTATION SYSTEM

In order to achieve a balanced transportation system... even one focused on accommodating the private automobile.... it is suggested that the Town of Orange consider the following general strategies:

- Adopt a strict functional roadway classification and ensure that to the extent possible, roads do not function at higher levels.
- For roads with higher classifications, work to ensure that the appropriate right-of-way is available, to allow for future widening if needed.
- Continue to evaluate appropriate traffic engineering strategies to ensure that the roadway network functions both properly and safely.
- Adopt zoning regulations to require all development applications for activities which generate 50 or more peak hour trips to include a traffic impact study.
- Continue policy that establishes LOS C as the Level of Service goal.
- Require that any time a developer proposes a project that degrades the LOS to below LOS C, the developer shall be fully responsible for all improvements necessary to return the intersection or road to a LOS C or better.
- Advocate and advance the pending roadway reconstruction plans for Marsh Hill Road.
- Working with the South Central Council of Governments and the Connecticut DOT advance plans for improvements to U.S. Route 1 and to interchange 41 and I-95.
- Evaluate and implement an access management program which includes a curb cut consolidation plan for U.S. Route 1 and other intensively developed corridors. Provide sidewalks to facilitate intra corridor trips without use of the automobile.
- Match allowed development densities to the capacities of affected intersections and roadways.
- Continue to explore intersection safety improvement programs.
- As appropriate, explore and implement neighborhood traffic calming programs.

- Commit to the establishment and continued funding for a Capital Roadway Improvement Program.
- For safety, establish ordinances or similar legal instruments that require property owners (on corners) to keep the sight lines clear of bushes, trees, fences, etc., that fall within the sight line triangle.
- Support programs and initiatives intended to increase the use of modes of transportation which are alternatives to the automobile.


Legend
Principal Arterial - Interstate
Principal Arterial - Other Expressway
Principal Arterial - Other
Minor Arterial
Collector
Local
DERBY
WOODBRIDGE
NEW HAVEN
WEST HAVEN
SHELTON
MILFORD
MILFORD
WEST HAVEN
Road Classifications
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
O'Brien & Moreno Associates
and
Harrall-Michalowski Associates, Inc.

STORMWATER MANAGEMENT PLANNING

The protection of the water resources of the town is in the public interest and is essential to the health, welfare, and safety of the citizens of the town. Increased development without proper consideration of stormwater impacts can have an adverse impact on the water quality of the rivers and streams in Orange, as well as existing developed areas in the form of increased localized flooding. The town's water resources are important natural, cultural, economic, recreational, and aesthetic resources.

DRAINAGE

As shown on the map of sub-regional drainage basins, primarily three north-south sub-regional watersheds, the Housatonic River, Wepawaug, and the Indian River drain the land within the Town of Orange. The South Central Shoreline sub-regional watershed drains the east side of town bordering West Haven. In addition there are important smaller tributaries to these main watercourses including the Two Mile Brook, draining the area near the Orange-Derby border; Racebrook flowing into the Wepawaug; and Silver Brook flowing into the Indian River and Indian Lake.

By definition, a watershed (or drainage basin) is an area of land that drains to the same body of water. During periods of heavy storms, streams swell and can overflow their banks. In an undeveloped landscape, nature has its way of dealing with this periodic flooding. Wetlands attenuate flood levels by absorbing water and thus easing potential flood conditions. Wetlands have the additional benefit of providing wildlife habitat, and also act as water purifiers as runoff filters through the soils removing impurities before the water reaches the rivers, streams, or individual wells. In Connecticut, wetlands are identified by soil type. The location of wetland soils can be found on the wetlands map.

Floodway zones (floodplains) are also important features to the watershed. While floodplains do not necessarily mitigate flood conditions, they do provide a path for

floodwaters to travel. Floodplains can be identified and avoided to prevent loss of property or worse during flood conditions. The Federal Emergency Management Agency (FEMA) publishes maps and data delineating areas that have a 1% (100 year) and 0.2% (500 year) floodplain. It should be a primary goal of the town to protect the natural drainage systems, including wetland areas and floodway zones to help ensure the proper flow of stormwater.

Drainage systems are shared by all property within the watershed, and the size and intensity of development on a particular parcel creates a demand on the capacity of the drainage system. One of the primary concerns of the Town Plan and Zoning Commission has always been a reduction in the rate of runoff, pre-construction vs. post-construction, based on a 100-year storm standard. It is not surprising that land use and construction modify the natural drainage system. Encroachment along stream banks and wetlands introduce suspended solids through soil erosion and alter the natural flood attenuation abilities of these natural features. In addition, development often results in impervious surfaces (roads, parking lots) that increase the amount and rate of runoff, affecting the stream velocities, as well as introduce toxins (oil and chemicals from roads) into the waterways degrading the water quality of the rivers and streams. These modifications can overwhelm the capacity of the natural drainage system and result in poor water quality and flooding. As a result, expensive engineered drainage systems are needed to mitigate these water quality and flooding problems.

IDENTIFIED AREAS REQUIRING STORMWATER MANAGEMENT ATTENTION

The office of the Town Engineer has identified problem areas that frequently experience localized flooding. A map showing the general location of these areas has been prepared. This map is not intended to be either complete or comprehensive, only to act as a guiding document to address localized flood problems in town. In order to accurately identify problem areas and propose recommendations, a comprehensive and detailed flood analysis for all drainage systems in town should be conducted.

STORM WATER MANAGEMENT RECOMMENDATIONS

1. Manage natural drainage systems to avoid encroachment on wetlands and watercourses and preclude development in flood hazard zones.

   Currently, a degree of protection is given wetlands and watercourses including a 100-foot Upland Review Area regulated by the Inland Wetlands Commission. Continued implementation of these regulations will help ensure the protection of wetlands and watercourses in the town. In addition, as stated in the Open Space Plan, it is recommended that a 100-foot conservation corridor be established. This corridor would be coterminous with the existing Upland Review Area and contain provisions to keep the area in its natural state wherever feasible. By doing so, these conservation corridors would serve to capture and filter out pollutants, prevent erosion and siltation and absorb floodwaters, which would address downstream issues in areas such as Indian Lake. In addition to avoiding encroachment on wetlands and watercourses, avoiding development in flood hazard zones as identified by FEMA could avoid costly flood mitigation measures.

2. Protect and preserve the drainage systems within the town from non-point sources of pollution (sedimentation, chemicals, etc) through the proper management of stormwater flows and minimization of inputs of suspended solids, pathogens, toxic chemicals, nitrogen and floatable debris to these flows.

   Where necessary and in conjunction with sound engineering, ensure the implementation of best management practices and stormwater mitigation techniques.

3. Include in zoning and subdivision regulations as well as site plan requirements engineering provisions including best management practices to manage stormwater flows.

4. Continue coordination between the Inland Wetland Commission, Town Plan and Zoning Commission and other appropriate town departments in reviewing flood mitigation measures for proposed development.

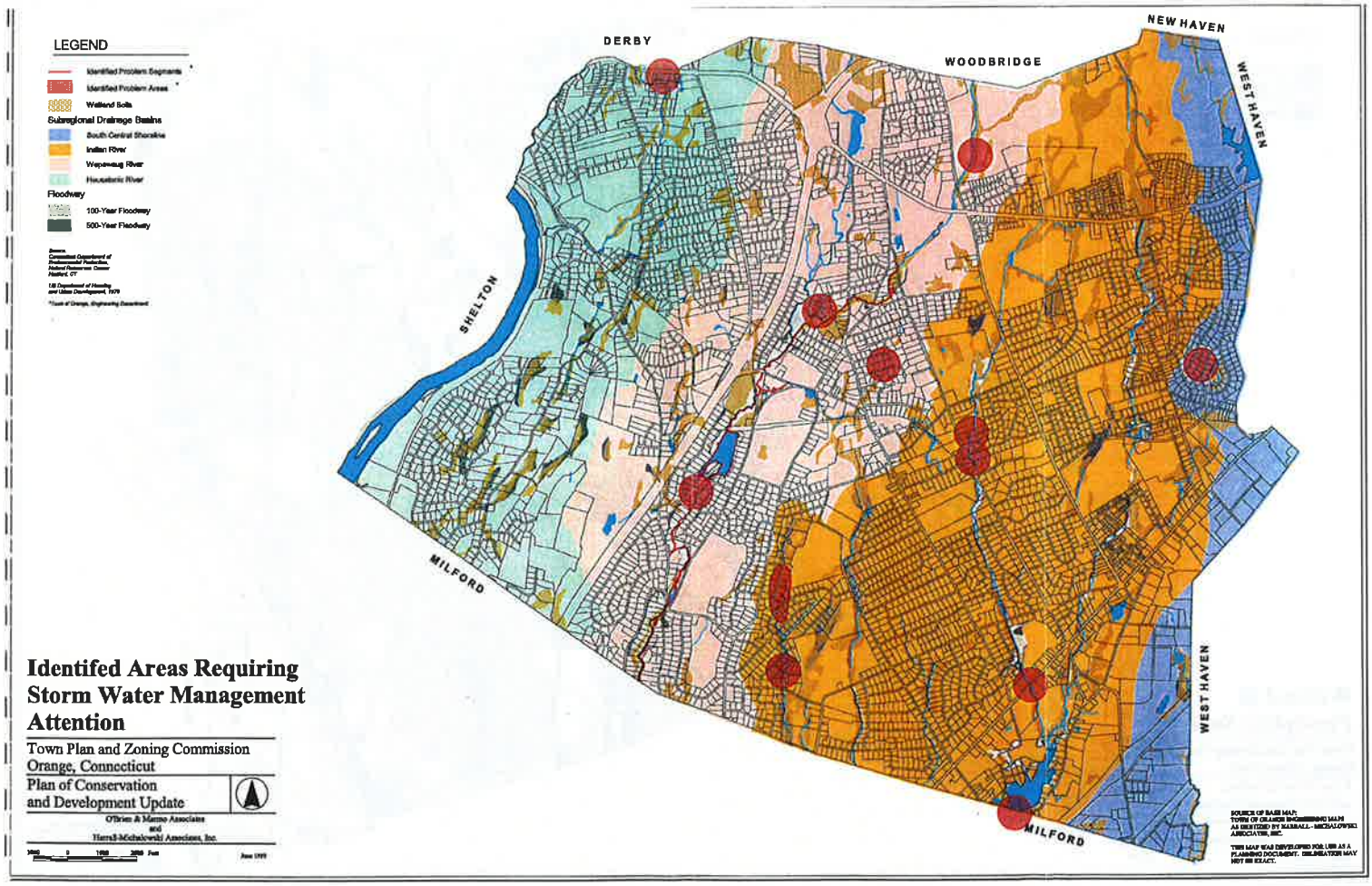
   Included in this process should be provisions for formal review of applications through a referral to town departments and the inclusion of comments received in the commission's deliberative process.

5. Conduct detailed flood studies on all drainage systems in the town to accurately identify problem areas and to recommend mitigating solutions.

   This study should be comprehensive in scope to ensure all flooding issues are addressed and all possible mitigating solutions are explored.

6. In reviewing flood mitigation measures for proposed development, ensure all proposals are consistent with the recommendations outlined in the detailed flood study.

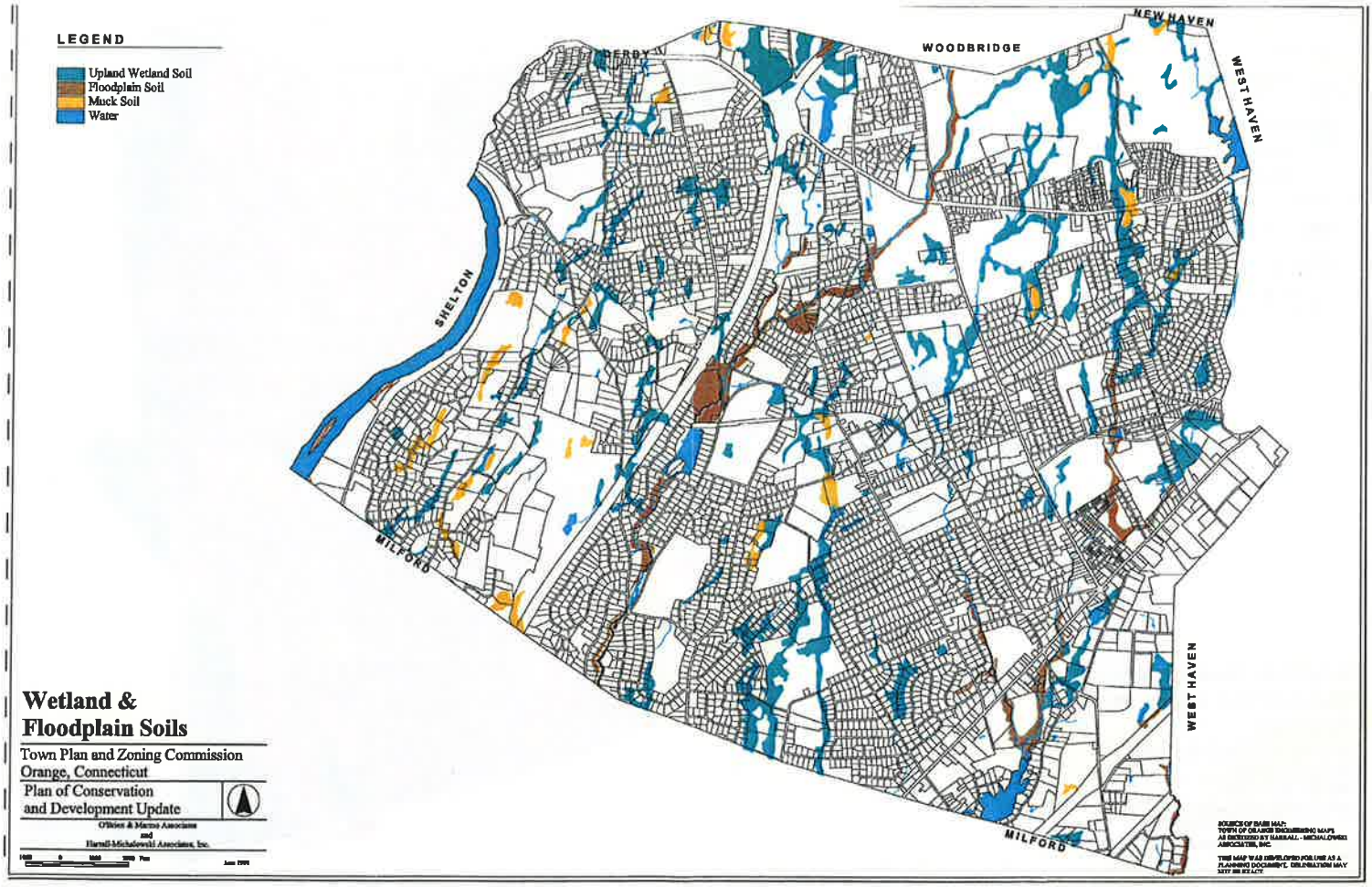
   This process should also ensure that any proposed mitigation consider solutions that are broad in focus addressing the inter-relationships of sites within the watershed.

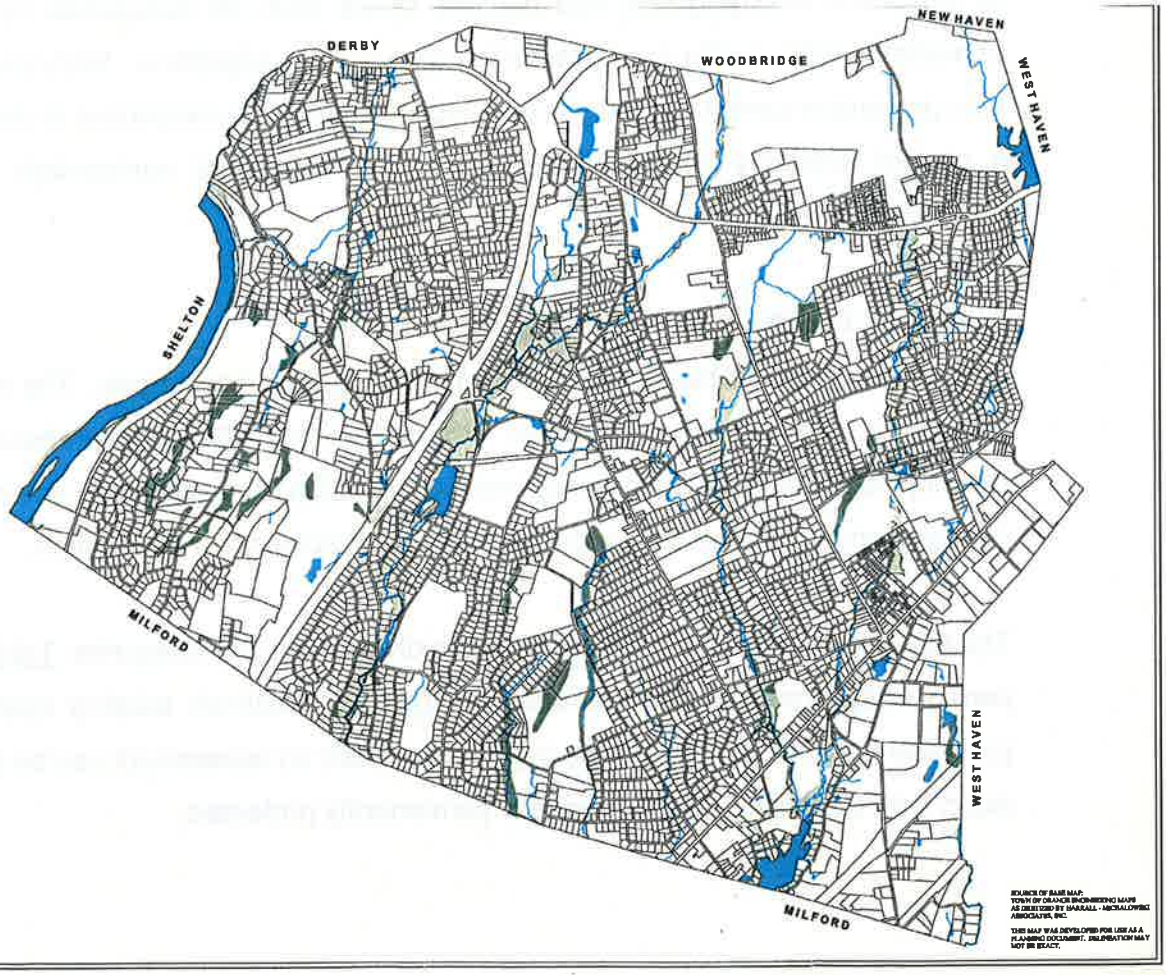


Identifed Areas Requiring Storm Water Management Attention

Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation and Development Update

O'Brien & Manno Associates
and
Harrall-Michalowski Associates, Inc.


LEGEND
Upland Wetland Soil
Floodplain Soil
Muck Soil
Water
DERBY
WOODBRIDGE
NEW HAVEN
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
Wetland &
Floodplain Soils
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
O'Brien & Moore Associates
and
Harrall-Michalowski Associates, Inc.
June 1999



Floodways

Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update

O'Brien & Marms Associates
and
Harrall-Michalowski Associates, Inc.

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June 1999

OPEN SPACE AND CONSERVATION PLAN

It is evident from both the 1985 Comprehensive Plan of Development and the 1991 Open Space and Conservation Plan that the Town of Orange values the importance of open space. While these plans are comprehensive, it is important to review and update them to reflect the changing land use patterns of the town, to incorporate new previously unavailable data, and/or to re-assess the conservation objectives. With this in mind, this plan presents a current inventory of open space land with a comparison to state standards, a current inventory of priority open space parcels, and summarizes open space preservation objectives.

CURRENT INVENTORY OF OPEN SPACE LAND

This section presents background information on open space parcels. The information as presented is based upon statistics included in the 1985 Comprehensive Plan of Development, the 1991 Open Space and Conservation Plan, assessors database records, Orange Land Trust database records, and recent acquisition information.

The tables shown on the next few pages are divided into two categories. Table 12 outlines permanently protected open space and Table 13 outlines existing open space not permanently protected. By comparing the two tables an assessment can be made on how much land classified as open space is permanently protected.

Table 12

Public or Non-profit Owned Open Space

Town Owned Land: Existing Open Space

Map/Block/Parcel	Property Description	Acres
41-5-15	Town of Orange, Fairgrounds Property - Orange Center Rd.	18.72
80-2-1	Town of Orange, Wepawaug Conservation Area	36.21
40-5-1	Wolfe Park, Peck Lane Property	66.53
41-3-18	Town of Orange, The Green (part)	0.20
14-2-21	Town of Orange, Intersection South and Old Lambert	0.18
19-3-22	Town of Orange, 469 Pine Tree Drive	0.98
19-3-23	Town of Orange, 463 Pine Tree Drive	0.97
19-4-9	Town of Orange, 468 Pine Tree Drive	0.94
22-1-4	Town of Orange, Old Tavern Road Recreation Area	34.15
22-1-5	Town of Orange, 351 Boston Post Road	0.57
30-4-1	Town of Orange, South of High Plains	14.45
35-1-25	Town of Orange, Part of Town Green	0.23
41-5-15A	Town of Orange, Fairgrounds Property	1.09
46-5-7	Town of Orange, 516 Wagon Trail	1.10
46-6-5	Town of Orange, Fairway Road	0.93
46-6-6	Town of Orange, Fairway Road	1.08
47-1-10	Town of Orange, Wagon Trail	1.11
47-1-11	Town of Orange, Wagon Trail	0.98
50-3-2	Town of Orange, Grassy Hill Road, Triangle	0.18
50-3-1	Town of Orange, Grassy Hill Road	16.10
52-3-1	Town of Orange, Parking Lot MLT	1.08
54-6-1A	Town of Orange, New Haven Avenue	0.15
61-1-2	Town of Orange, Old Grassy Hill-Corner Grassy Hill	5.25
61-7-4	Town of Orange, Old Grassy Hill Road	33.80
67-1-1	Town of Orange, High Ridge Road	1.04
76-4-2	Town of Orange, Housatonic Area	3.07
76-4-4	Town of Orange, Housatonic Area	3.00
76-4-5	Town of Orange, Housatonic Area	3.33
76-4-6	Town of Orange, Housatonic Area	2.03
80-2-5-2A	Town of Orange, Wepawaug Conservation Area	2.30
82-3-8	Town of Orange, Derby Avenue	2.30
92-5-2	Town of Orange, Taft Street	0.09
51-1-2	Town of Orange, Old Grassy Hill	3.90
90-2-1	Town of Orange, Race Brook Tract	230.00
	Subtotal Town or nonprofit owned land	*488.90*

Private Open Space Reserve: Land Trust Owned Land

Map/Block/Parcel	Property Description	Acres
31-6-5	Orange Land Trust, Manley Heights	4.20
89-1-6	Orange Land Trust, The Ravine - Mapledale Road	2.70
88-7-5	Orange Land Trust, Wepawaug Meadows, Green Circle	1.60
25-1-33	Orange Land Trust, Hawkins Acres	3.50
75-1-01A	Orange Land Trust, Hunting Hill Place	4.25
65-3-01	Orange Land Trust, Russell Avenue	1.00
95-1-7A	Orange Land Trust, Garden Road	1.71
72-1-29	Orange Land Trust, Estelle Court #14	1.00
71-1-12	Orange Land Trust, Kowal Nature Preserve	15.00
88-7-4	Orange Land Trust, Wepawaug Meadows	1.70
70-5-21	Orange Land Trust, Mulberry Lane	5.93
	Subtotal land trust land	*42.59*

Private/Semi-Public Land

Map/Block/Parcel	Property Description	Acres
41-3-17	Orange Congregational Church, The Green (part)	0.85
80-2-6	Interservice Clubs of New Haven, Inc, Camp Cedar Crest	36.10
	Subtotal private land	*36.95*
TOTAL Acres	**Public or Nonprofit Owned Open Space Land**	**568.52**

Table 13

Open Space Land - Not Permanently Protected

Additional Private Open Space: Golf Courses

Map/Block/Parcel	Property Description	Acres
44-2-25*	Walter Smith Realty, Orange Hills Country Club	21.79
44-2-22*	Walter Smith Realty, Orange Hills Country Club	1.02
44-2-4*	Walter Smith Realty, Orange Hills Country Club	0.65
44-2-3	Walter Smith Realty, Orange Hills Country Club	1.56
43-4-1*	Walter Smith Realty, Orange Hills Country Club	81.41
54-6-2*	Walter Smith Realty, Orange Hills Country Club	3.14
18-1-10*	Grassy Hill Sports Club, Inc., Grassy Hill Country Club	38.10
27-6-1*	Grassy Hill Sports Club, Inc., Grassy Hill Country Club	76.66
80-4-1*	Racebrook Realty Corporation, Race Brook Country Club	138.37
82-7-5*	Racebrook Realty Corporation, Race Brook Country Club	135.04
35-2-1	Herbert Coran LLC, Great River Golf Club	13.04
	Subtotal private golf course land	*510.78*

Regional Water Authority Land

Map/Block/Parcel	Property Description	Acres
90-2-1*	South Central Regional Water Authority, Racebrook Tract	110.00
87-8-9	South Central Regional Water Authority, Grassy Hill Road	0.92
87-8-10	South Central Regional Water Authority, Grassy Hill Road	0.93
97-3-2*	South Central Regional Water Authority, Derby Avenue	54.46
106-2-1*	South Central Regional Water Authority, Greenway Road	19.87
107-2-1*	South Central Regional Water Authority, Orange Center Road	11.10
93-3-33*	South Central Regional Water Authority, Dogburn Road	264.22
93-4-1*	South Central Regional Water Authority, Derby Avenue Property	8.51
97-4-2*	South Central Regional Water Authority, Wilbur Cross Property	74.36
	Subtotal Water Authority land	*544.37*
TOTAL Acres Private golf courses and Water Authority land		**1,055.15**

*P.A. 490 Open Space Designation; P.A. 490 Forest Designation

Public Act 490 is a significant tool for open space conservation. P.A. 490 provides assessment of farm, forest and open space on the basis of current use of the land, not its fair market value based upon potential use. This assessment method lowers the tax burden of landowners who keep their land in an undeveloped state, provided their land meets the criteria set aside in the Act. Forest and farmland under P.A. 490 have site specific requirements that must be met to qualify for designation. However, the open space category has no such criteria, but must be identified in the Plan of Conservation and Development. Currently there are 130 parcels in the Town claiming P.A. 490 status. The acreage classified as farmland, forestland, and open space is as follows:

P.A, 490

Farmland:	959.75 acres
Forest Land:	1224.23* acres
Open Space:	614.38* acres
TOTAL:	2,798.36 Acres

*Parcels claiming P.A. 490 status and classified as Golf Courses or Water Authority Land are included here as well as in the assessment of open space not permanently protected (Table #13).

OPEN SPACE PLAN

Open Space Ownership Types

Land areas identified in the map entitled Open Space Plan and in the open space inventory included in this plan are characterized by the following types of ownership:

- Town Owned Land includes both land that contains municipal facilities (schools, Town Hall) and open areas that are commonly viewed as open space (Wolfe Park, Wepawaug Conservation Area). For our purposes of identifying existing preserved open space in the inventory only areas that do not contain municipal facilities were considered.

- Private Open Space Reserve includes those areas owned and maintained by the Orange Land Trust.

- Private/Semi-Public Land includes land owned by the Orange Congregational Church around the town green and Camp Cedarcrest.

- Additional Private Open Space includes land that is owned and operated as a golf course.

- Regional Water Authority Land includes those parcels owned and managed by the South Central Regional Water Authority

- Conservation Easement identifies the Wepawaug Meadows conservation easement held by the Orange Land Trust.

- Conservation Corridor is defined as a 100 foot buffer (coterminous with the Upland Review Area defined in the Inland Wetland Regulations) along the three major

watercourses in the Town: the Housatonic including the Davis Brook tributary, The Wepawaug including the Race Brook tributary, and the Indian River including the Silver Brook tributary. Wherever feasible this area should be left in its natural state and is intended to serve a variety of functions including mitigating storm water runoff and soil erosion and providing wildlife habitat corridors.

- Utility Corridor identifies areas of town where utility easements are found. It is important to note that just because a utility easement exists, it doesn't mean that the parcel is publicly accessible. The purpose of showing utility easements is to show where potential linkages can be made between existing open space parcels.

PRIORITY OPEN SPACE AREAS

The parcels listed below and illustrated on the Open Space and Land Use Plan consist of parcels that were identified either by the 1985 Comprehensive Plan of Development, the Conservation Commission, the Land Trust or the Plan and Zoning Commission. These parcels are identified for a variety of reasons including their proximity to existing preserved open space (potential greenways), their location to watercourses (buffers) and/or the existence of significant natural resources or features.

The priority open space areas listed in Table 14 are not necessarily areas to be municipally acquired, however purchase is one means of conservation. Development of these areas is possible consistent with their general location, but they are identified to alert land owners, developers and town officials that special care should be paid to development density and design to be sure the valuable natural characteristics of the sites are not compromised. It should be noted that the priority open space designations shown on the Open Space Plan and Land Use Plan are intended to show general locations. However, since an entire parcel has been used for mapping purposes, entire parcels are included in such designations. It is not intended to imply that the entire parcel contains significant open space features.

Table 14

Priority Open Space Parcels

Owner	Parcel Number	Acres	Location
Bespuda, Walter M.	86-1-1-15A*	41.39	Garden Road
Bespuda, Walter & Maryellen	77-3-1*	56.58	Derby-Milford Rd
Clark, Eloise P.	40-5-3*	20.22	Meetinghouse Lane
Daddario, F. Francis Est.	46-1-1*	3.85	Wooster Island
Ewen Jr., James H. et al	63-2-1*	79.40	Lambert Road
Hine, Walter S.	105-1-1*	19.81	Derby Avenue
Hine, Walter S.	96-3-1*	37.33	Grassy Hill Road
Hine, Walter S. & Dorothy	96-3-2*	20.64	Grassy Hill Road
Hine, Walter S. & Dorothy	96-3-3*	12.88	Grassy Hill Road
Racebrook Realty Corporation	81-5-1A*	6.33	Racebrook Road
Rogers, Frank & Wright, Thomas	50-2-10*	6.48	Grassy Hill Road
Rogers, Jonathan et al	60-6-1*	19.70	Grassy Hill Road
So. Central CT Reg. Water Auth.	93-3-33*	264.22	Derby Avenue
So. Central CT Reg. Water Auth.	93-4-1*	8.51	Derby Avenue
So. Central CT Reg. Water Auth.	97-3-2*	54.46	Greenway Road
So. Central CT Reg. Water Auth.	97-4-2*	74.36	Derby Avenue
So. Central CT Reg. Water Auth.	106-2-1*	19.87	Greenway Road
So. Central CT Reg. Water Auth.	107-2-1*	11.10	Orange Center Road
Treat, Addie B., Wilson, Susan	11-3-2*	85.03	Old Tavern Road
Homestead Farm LLC ET AL	61-1-1*	7.64	Old Grassy Hill Road
Homestead Farm LLC ET AL	61-3-8*	21.66	Old Grassy Hill Road
Pepe Ann S Trustee	6-4-11	19.01	S. Orange Center Road
BJ Realty	13-7-5	6.59	S. Orange Center Road
Grassy Hill Country Club	18-1-10	38.10	Clark Lane
Grassy Hill Country Club	27-6-1	76.66	Clark Lane
Herbert Coran LLC	35-02-01	13.04	Coran Lane
Russell, Hannah Clark	40-4-8	18.57	Meetinghouse Lane
Russell, Hannah Clark	41-3-11	20.56	Meetinghouse Lane
Clark, Bryant & Patricia ET AL	41-4-1	3.70	Orange Center Road
Walter H. Smith Realty Corp	43-4-1	81.41	Racebrook Road
Walter H. Smith Realty Corp	44-2-3	1.56	Racebrook Road
Walter H. Smith Realty Corp	44-2-4	0.65	Racebrook Road
Walter H. Smith Realty Corp	44-2-22	1.02	Racebrook Road
Walter H. Smith Realty Corp	44-2-25	21.79	Racebrook Road
Clark, Eloise P	52-4-1	8.16	Tyler City Road
Clark, Benjamin & Donald F	52-4-1A	11.02	Behind Municipal Complex
Clark, George E	52-4-14	4.08	Lambert Road
Walter H. Smith Realty Corp	54-6-2	3.14	Racebrook Road
Walter H. Smith Realty Corp	55-1-1	35.58	Dogburn Lane
Russo Partners, Richard M, ET AL	58-1-10	60.29	Along Railroad Bed
Sperry, Wm Curtis EST ET AL	64-6-1	35.37	Russell Avenue
LaSalle, Suzanne Warner ET AL	72-1-1*	29.57	Racebrook Road
Loman, Wallace Jr. ET AL	76-4-7	16.19	Derby-Milford Road
Racebrook Realty Corp	80-4-1	138.37	Derby Avenue
Racebrook Realty Corp	82-7-5	135.04	Derby Avenue

* Previously identified as Priority Parcels in 1985 Comprehensive Plan of Development

Methods of Conservation

The purchase of land is just one means of open space protection. The following are examples of some of the techniques that can be implemented to protect open space. Each of the examples below has unique advantages and disadvantages worth investigating before a protection measure is decided upon

- Fee Simple - Outright purchase of full title to land
- Fee Simple/Leaseback - Purchase of full title and then lease back to previous owner subject to land use restrictions
- Purchase of Development Rights – Entity purchases the development rights to a parcel. As ownership changes restrictions on development remain
- Conservation Easements – Entity purchases or obtains specific conservation restriction on land. As ownership changes restrictions on land use remain
- Land Use Regulations (both local and state) – controls the use of land through adoption of regulations

Various land use proposals are contained in this plan which would provide additional means to ensure maximum feasible protection and conservation for the priority open space areas.

For example cluster subdivisions would preserve significant features and portions of land. In addition to the municipality investigating ways to protect the important parcels of the town, public and not-for-profit agencies and organizations should use the Open Space Plan as a guide for possible acquisition strategies if appropriate. Such strategies might include the purchase of a right to first refusal or other ownership methods outlined above.

OPEN SPACE OBJECTIVES AND RECOMMENDATIONS

The following objectives are focused on maintaining the rural character of the town. Specific recommendations to meet these objectives are listed in no particular order.

Objective #1: Protect Surface and Subsurface Water Resources

Recommendations:

1. *Protection of stream belt should be strengthened by establishing conservation corridors.* Orange is defined in part by its watercourses. The three main watersheds, the Indian River, Wepawaug and Housatonic are regional resources and have a dramatic effect on the nature of the community. Watercourses and adjacent wetlands have a degree of protection (including a 100' buffer area) in the inland wetland regulations, however these regulations are specific to wetland soil types. By establishing a conservation corridor amounting to a 100' buffer along the major watercourses, a variety of functions will be served including storm water mitigation, water quality protection and habitat protection. This buffer area would contain provisions to keep the area in its natural state.

2. *Aquifer protection areas should be identified and protected.* The Town of Orange has approximately 1,800 residents served by private water supply wells. However, no aquifer protection measures exist to protect those residents from groundwater contamination. It is recommended that aquifer areas be identified and protected.

Objective #2: Add to Existing Committed Open Space

Recommendation:

1. *Additional open space should be protected to add to the current inventory of protected open space.* In protecting land, special priority should be given to parcels found on the Priority Open Space Listing.

Objective #3: Establish Open Corridors or Greenways

Recommendation:

1. *Potential greenway corridors should be identified and protected.* In this plan open space corridors have been identified and recommended. The greenway corridors are shown on the open space and conservation map by conservation corridors, conservation easements, utility corridors and priority open space parcels. The potential benefits of greenway corridors include preservation of the rural character of the town, protection of wildlife habitat and development of recreational opportunities.

Objective #4: Farmland Preservation

Recommendation:

1. *Farms of significant size containing prime farmland should remain viable economic units.* The retention of farming activity in Orange continues to be important to preserve the rural character of the town. Continued use of PA 490 assessment is an important tool to ensure farming is economically viable. In addition, other farmland preservation techniques should be investigated including the State Department of Agriculture's Farmland Preservation Program. To the extent feasible, Orange should strive to conserve farmland for the future through the various open space conservation approaches outlined in this plan.

Objective #5: Scenic Views and Vistas Protection

Recommendation:

1. *Views and vistas should be preserved to help maintain the rural quality of the town.* The 1991 Open Space and Conservation Plan recognized the importance of views and vistas to the rural character of the town and outlined important areas of town in need of protection. Protection of these areas should remain an objective of the Town.

Objective #6: Historic Site Protection

Recommendation:

1. *Sites of identified historical significance should receive special consideration in planning review in order to preserve the historic character of the town.* Consideration should be given to measures that can be taken to preserve the historic nature of these sites.

Objective #7: Protection of Fragile Natural Resources

Recommendation:

1. *Fragile natural resource features should receive specific consideration in planning reviews in order to preserve their special characteristics.* Particular attention should be placed on areas that have been identified as having unique natural resource characteristics.

Objective #8: Properly Maintain Existing Open Space Parcels

Recommendation:

1. *Develop a detailed recreation and open space plan and ensure its implementation.* While it is beyond the scope of this plan to make any detailed recommendations on how a parcel or combination of parcels should be managed, it should be a priority of the town to work in conjunction with the Recreation Department, Conservation Commission and Land Trust to ensure that all property acquired under an open space designation is managed to meet the needs of the town while at the same time preserving the properties natural resource value.

Objective # 9: **Protection and Care of Trees**

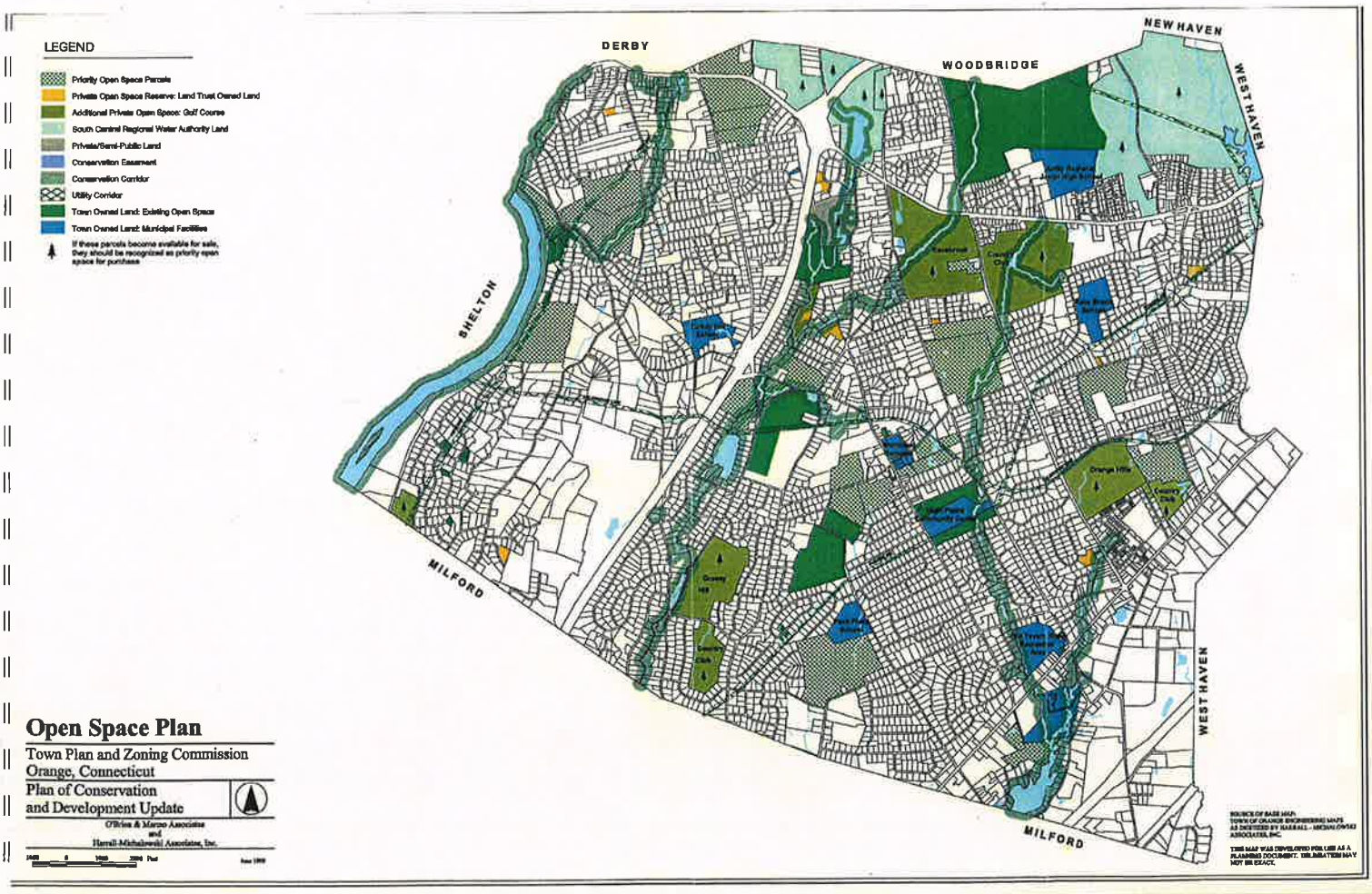
Recommendation:

1. Incorporate the provisions of the Orange Tree Ordinance of 1999 in project plans

Objective # 10: **Protection of Coastal Area Resources**

Recommendation:

1. The provisions of the adopted Orange Coastal Area Management Plan are incorporated by reference as a part of this plan.


LEGEND
Priority Open Space Parcels
Private Open Space Reserve: Land Trust Owned Land
Additional Private Open Space: Golf Course
South Central Regional Water Authority Land
Private/Semi-Public Land
Conservation Easement
Conservation Corridor
Utility Corridor
Town Owned Land: Existing Open Space
Town Owned Land: Municipal Facilities
If these parcels become available for sale, they should be recognized as priority open space for purchase
DERBY
NEW HAVEN
WOODBRIDGE
WEST HAVEN
SHELTON
MILFORD
WEST HAVEN
MILFORD
Open Space Plan
Town Plan and Zoning Commission
Orange, Connecticut
Plan of Conservation
and Development Update
O'Brien & Marzo Associates
and
Harrall-Michalowski Associates, Inc.