

**BEEKMAN FIRE DISTRICT
GROWTH & EXPANSION ANALYSIS
FOR FIRE PROTECTION PURPOSES**

By EMAPS ASSOCIATES

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BY EMAPS ASSOCIATES
ENVIRONMENTAL MANAGEMENT AND PLANNING SERVICES**

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EXECUTIVE SUMMARY

The Beekman Fire District (BFD) Growth Evaluation and Analysis Study (GEAS) is prepared for the Beekman Fire District to analyze the need for expansion of and addition to the space and services provided by the Fire District based on the projected Town growth and the needs of the BFD. This Report is provided to facilitate the BFD decision making process regarding the expansion of existing facilities, the addition of a remote facility, and/or the planning of a new headquarters facility, any or all of which will result in improved services to the community.

The report is focused on a review of the Town history, growth, and characteristics that relate to the services provided by the BFD. The existing Town characteristics have been examined in relationship to the recent and projected growth patterns as determined for the Town as well as current initiatives to preserve the Town character and also plan for the future.

The Beekman Fire District has initiated a process to develop a Master Plan that builds upon the Town Comprehensive Plan and that will support the community of Beekman. The BFD is planning for the continued fire protection of the Beekman community by examining the current facilities and services and by incorporating decisions that will ensure that the services provided by the BFD continue to meet the needs of the residents of the Town.

The questions raised by this study include the scope and impact of the Town growth, the area and density of the coverage, maintaining the Town character and the impact on the provision of fire and emergency services, as well as the future firematic needs of the Town.

This report examines the planning processes and the issues inherent in the decisions and considerations for evaluating expansion of or addition to the facilities of the BFD. The following issues examined in this GEAS report include:

- The *Architectural Firematic Feasibility & Schematic Study*;
- The investigation of the *Feasibility of the Main Fire Station Facility Expansion*;
- The *Town Planning Board Reservation of Land* parcels for fire sub-stations;
- Plan, Implement, Bid and Construct a *Fire Sub-Station Facility*;
- The *District Master Plan* for the future development of the *Green Haven Parcel*;
- Analysis of the viability of the *South Green Haven Parcels*;
- The *Funding Strategy* for these fire services *Projects*.

This investigation is therefore structured to pattern, review and pursue this *seven-pronged approach* for analyzing and meeting the current and future emergency needs of the Beekman community.

I. PURPOSE

The Growth and Expansion Analysis Study (GEAS) is designed to provide information on the Town of Beekman growth and distribution as well as the Town characteristics that impact the provision of fire and emergency services. This study is intended for use with the ' Proposed Fire Station Building Addition – Preliminary Subsurface Investigation ' studies of Nov, 2004 , Jan , 2005 , May , 2005 , & June , 2005 ; the ' Building Addition for Storage & Office Space Feasibility Study' of Feb, 2005; as well as the Proposed Architectural Feasibility Study which is intended to plan for the current and future expansion of space and services at the main facility, and to preliminarily investigate the use of the large Green Haven parcel.

The Proposed Fire Station Building Addition –Preliminary Subsurface Investigation study as prepared by EMAPS Associates in conjunction with RW Steller, Soil Scientist, has investigated the possibility of expanding the current facility and has concentrated on a subsurface investigation of the site soils. As the Board is aware the Study has mapped the concerns with the subsurface conditions on site.

To assist the District with the questions of the growth and future direction of the BFD, and as a basis and foundation for this Architectural (AF) Study, the District has authorized this Growth & Expansion Analysis (GEAS) Study. This Study provides baseline information on the recent, continued and future growth of the Town its boundaries of which are serviced and protected by the Beekman Fire District and the membership of the Beekman Fire Company. In addition the Study provides factual information, mapped visual data, and guidance for the Fire District Board of Commissioners that will prove useful during the BFD 's planning and deliberations while the Board considers the future direction of and the appropriate expansion of the present fire facilities.

The Beekman Fire District is evaluating the pursuit of an Architectural Feasibility (AF) Study to meet the needs of the Fire District and the growing Beekman community. The AF Study will provide a firematic schematic of the facility, it will explore and address the concerns of the Fire District to facilitate master planning, training, emergency operations as well as to permit future flexibility. The AF Study will consider both the main facility on Beekman-Poughquag Road as well as the secondary twenty-nine acre Green Haven parcel as also owned by the District.

II. INTRODUCTION

The planning process and impetus for this Growth and Expansion Analysis Study (GEAS) is part of an ongoing process that has been under consideration and discussion by the Board of Fire Commissioners in order to continue to meet the need for Emergency Services within the Town. The Beekman Fire District Commissioners (the Board) has had the foresight to review and evaluate the need to expand their services for the well being and continued fire and emergency protection of the Beekman Town community. The previous Board of Fire Commissioners consisting of Messers Kenneth Mallen, Alfred Wohrman, George Kennedy, Douglas O'Dell, and Fred Henderson have responsibly considered and acted upon these needs over the years. The Board has requested this analysis of the Town growth to position the Beekman Fire District to meet

the growing needs of the Town of Beekman, and to assist the Beekman Fire Company with its volunteer needs. The present Board of Commissioners, comprised of ; Kenneth Mallen, Douglas O'Dell, Peter Poltrack, Laurie Millus, and David Wysocki, are continuing these planning efforts and deliberations.

III. HISTORY

The history of the BFD is important to evaluate the future emergency services growth in the context of the prior initiatives. The Town of Beekman, was once much larger in land area in the late 1600 's, it had its boundary beginnings and formed a Township in 1788 (refer to **Maps # 1, 2, & 36** in Appendix), while the fire company began in the 1930 's. The origin of the fire company in the Town of Beekman began with a need to provide emergency services, and thus the creation of the Beekman Fire Protectives came into being in 1937; in 1938 the Protectives purchased their first piece of fire equipment; this Chevy pumper was housed in a horse shed alongside a garage which eventually became the Poughquag Post Office ; in 1939 the Protectives were renamed the Beekman Fire Department ; the present Town Hall was erected in 1942 and the lower level (refer to photo below) was used to house both the BFD fire fighting vehicles and the Town Highway Department equipment, refer to The Town Hall photo below ; as time passed and the Town grew, the Highway Dept. built a new Highway Garage near the Town Hall and the entire lower level of the Town Hall was occupied by Fire Dept. and Rescue Squad vehicles ; the Beekman Fire Company was incorporated in 1957 ; by 1972 the Town had grown and the Town Board decided they needed to utilize the Hall lower level for additional municipal office space, the Town asked the Fire Commissioners to provide a Fire House to house and protect the Departments equipment ; in 1972 the Fire Company acquired approximately 1.6 acres along Beekman -Poughquag Road (the present BFD main site), and in 1974 purchased a contiguous 0.8 acre parcel near Corey Road; In 1974 work began on the new six-bay Fire House on CR 7 (Beekman-Poughquag Rd), which was occupied in 1975 ; in response to continued Town growth, subsequently a three-bay addition to the Fire House was constructed and occupied in 1987. This is the main Fire House facility, a nine-bay block structure as utilized today, on County Route 7, refer to **Maps # 15 & 19**. Over the years the District has maintained and improved this facility, this included an accessibility (ADA) upgrade in the mid 1990's ; and subsequent improvement projects within the apparatus bays including; non-slip floors, block wall painting, lighting upgrade, heating upgrade, an environmental vehicle exhaust automatic capture system, and a keyless entry system to name a few of those improvements and upgrades.

The Beekman Fire facility has only expanded three times since its inception nearly seventy years ago. The Main Fire House Facility, located along Beekman-Poughquag Road, is the sole facility that Beekman Fire has, and this houses the following BFD fire equipment at this location ; a ladder truck, two engine trucks, two tanker trucks, one each brush & utility trucks, a support vehicle, an ambulance, three chief's trucks, and the antique pumper, all of these vehicles are given the number **34** – designation representing Beekman (BFD). Also refer to **Maps # 15, 18, 19, 19A, & 33**.



Photo above is the rear view of the Beekman Town Hall, see the lower level, which depicts four large tan and white wooden window and access door areas which are actually infills for what was once the four overhead door openings where the fire, rescue and highway equipment was stored. Source : EMAPS Assoc. March 2006.



Photo above is the front view of the Beekman Fire House, the six bay area which houses the fire apparatus. Source : EMAPS Assoc. March 2006.



The Photo above is the front view of the Beekman Fire House, which extends westerly beyond the apparatus bays, view from CR7. Source : EMAPS Assoc. March 2006.

IV. BEEKMAN FIRE DISTRICT FACILITIES & PLANNING

A. EXISTING FACILITIES & PLANNING NEEDS

In 1999 a town wide Vacant Property Investigation (VPI) was undertaken by EMAPS Associates on behalf of the Fire District, with the assistance of the Town Assessors office. At that time six (6) vacant properties were identified as potential sites for the Fire District Headquarters, Firematic Training Facilities, a new Fire House Facility, possible recreation use and/or a Fire Sub-Station. These properties ranged in size from two acres to one hundred acres on up to three hundred and fifty eight acres; and in location from the areas of Greenhaven Rd/ Beekman Rd's to Grape Hollow Rd/ Depot Hill Rd 's, and to the Clapp Hill Rd/ Baker Rd 's areas within the Town. Into 2000 the District considered these properties and the District needs, and several years later acquired the 29 acre parcel along Greenhaven to plan for the future of the Beekman Fire District. For an overview of the Town refer to Quadrant **Maps # 5, 6, 7, and 8.**

The District currently owns three parcels of land (refer to **Map # 18** in Appd.) as identified herein; The main FireHouse Facility situated on 2.4 acres of land (refer to **Maps # 19, & # 19A** in Appd.) located along CR 7 , Beekman-Poughquag Road ; also a 29.3 acre parcel of vacant land (refer to **Maps # 20, & # 20A** in Appd.) on Greenhaven Road ; and an approximate 1.7 acre piece of land (comprised of two small parcels, refer to **Maps # 21, & # 21A** in Appd.) at the corner of South Greenhaven Road & Route 216 adjacent to the Mt Zion Baptist Church and near the Green Haven Correctional Facility. The District has also requested that the Town Planning Board through the Development Planning Approval process also reserve two lot-sized parcels of land for Fire District use, such as Fire Sub-Stations, as located in more remote areas of the Town. The first parcel is near the intersection of Clapp Hill Road and Baker Road to the northwest ; this parcel at approximately two acres in size, is part of the proposed Park Hill Estates Subdivision, EMAPS

this project is somewhere in the preliminary stages of approval, although relatively inactive at this time. The Town of Beekman has also recently instituted a building moratorium in the Hamlet which could impact the process of any land reservation. The second parcel in the southerly portion of the Town, located along Grape Hollow Road, at approximately three acres in size, also has an inactive status at this time.



This photo shows the backside of the Beekman Fire District Fire House, main facility and property generator/propane, view east of 2.4 acres of land, along CR 7. Source: EMAPS Assoc. March 2006.



This photo shows a portion of the Beekman Fire District's 29.3 acre property located along Green Haven Road. Source: EMAPS Assoc. March 2006.



This photo shows a portion of the Beekman Fire District's third property, with approx. 1.7 acres of land along South Green Haven & Rte. 216. Source: EMAPS Assoc. March 2006.

The Beekman District and Company have additional space constraints and planning needs within their existing main Fire House facility on Beekman-Poughquag Road. These needs include additional space requirements for offices, for storage, for filing, and meeting space, as well as site needs for parking and protection of the antique Chevy which is now relegated to parade use only, and finally, possibly an ambulance. The additional space at the main facility would be an enhancement to both the District and the Company. The addition would have the obvious benefits of reducing clutter in the offices and bay areas, and providing additional safe and secure storage. This would also have the more subtle benefit of efficiency, such as, if the officers each had their own office, they would have the working room and filing space to work more efficiently, effectively, and economically and with the additional storage space this would be a facility that would be more inviting in terms of bringing ' new recruits ' or prospective volunteers, and or the community at large into this space. In an interview with the current Fire Chief he has stated that proper space planning and utilization may alleviate some of these concerns. This expansion may also be of necessity for the storage and protection of fire and emergency equipment and vehicles.

The Fire Company does intend to put forth a concerted effort in the latter portion of this year in terms of recruitment. The Company presently stands at about 60 members strong, with about one-third of those providing a continuous effort and presence for meeting attendance, work parties, emergency response and general event participation. Refer to **Map # 9**, in Appd. which shows the general locations of the Company membership with grouped concentrations found in the central, northern and western portions of the Town. Obviously the location of the Company members is important to the continued health of the volunteer program, as well as the BFD's ability to maintain reasonable emergency response times. The BFC presently does not maintain records on actual response times to emergency incidents.

Since the year 2000 the Board has also considered and investigated the possibility of either siting detached out-buildings at their Beekman-Poughquag Road facility and/or an expansion with a similar construction block & brick addition onto the main Fire House Facility. The Board has placed several interim wood pre-fabricated pole barn structures at the rear of the site to ease the crowding condition somewhat. This expansion investigation has met with varying degrees of success due to the difficult organic soils remaining under the site as created by the former pond located on these lands. The two plus acre site was filled on at least two occasions with some well graded r-o-b gravel and other less suitable materials, the area of the former pond site contains organic silt and clay, with unconsolidated, saturated, non-uniform and unstable soils in some areas, the clay has a high plasticity and moisture content. The subsurface exploration program, through backhoe excavations and soil observations in various locations around the site, were accomplished with the assistance of the Town Highway Department, and witnessed, evaluated and analyzed by a Registered Soil Scientist. Those test pit locations are still visible today with the slightly darker rectangular patches of asphalt throughout the parking lot areas. Refer to the Aerial Soils Map, entitled Beekman Fire District 6758-02-725770, 2.4 ac., **MAP # 15**, see Appendix.

One of the considerations before the BFD Board is an evaluation of the need for, the planning of, and the siting and location of a Fire Sub-Station or stations at a remote location or locations within the Town. The Town of Beekman is physically bounded by five other municipalities who provide mutual-aid service, and they are ; the Town of Union Vale which has two Fire facilities located to the north of Beekman ; the Town of Dover with two Fire facilities located to the northeast of Beekman ; the Town of Pawling with three Fire facilities located to the east/southeast ; the Town of East Fishkill with six Fire facilities and a head quarters & training facility located to the west ; and the Town of La Grange which includes three Fire facilities located to the northwest .

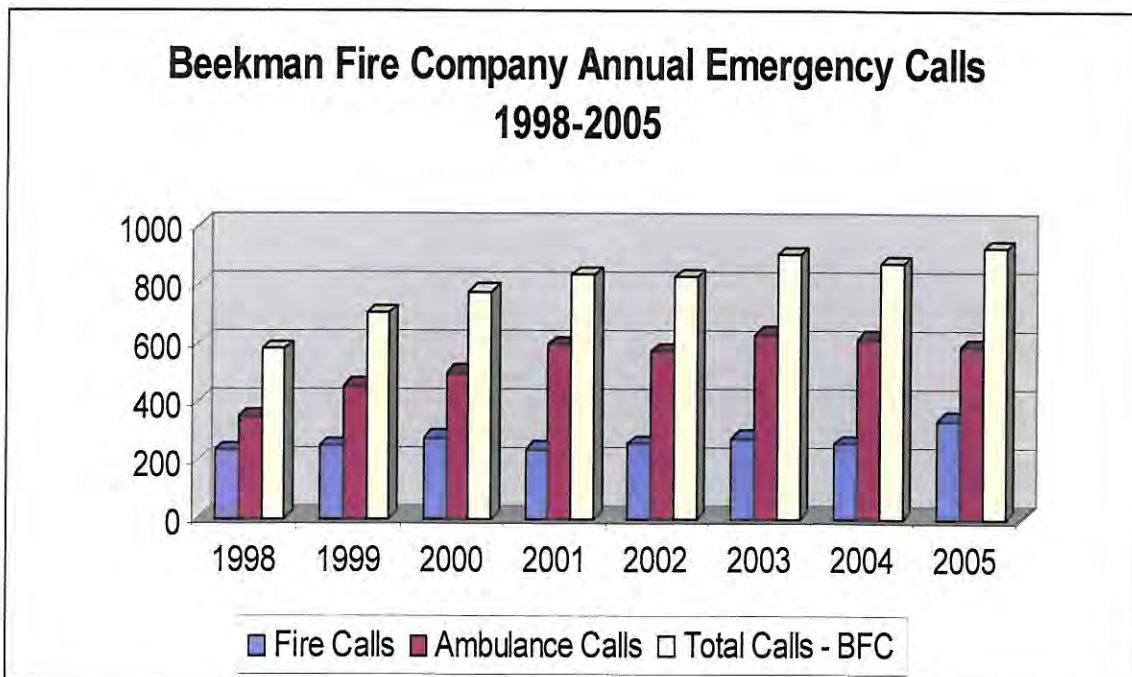
Refer to the Appendix for **MAP # 34**, entitled; Area Fire Houses, which shows all area Firehouse locations as well as such Key Area Hazards as gas stations. Any siting of a new BFD sub-station must consider the ISO five mile radius zone of coverage and influence. When locating or siting a new firehouse or sub-station facility, and for the benefit of the residents, from a homeowners insurance rating benefits ratio basis, it is beneficial to site the new firematic facility outside the zone of influence of other fire facilities.

Comparison of Beekman Fire Coverage to Five Neighboring Municipalities

Municipality	2000 Population	2004 Population	% Increase	Land Area	# of Fire Stations	Fire Coverage Area	Avg. Density/ Sq. Mile
Beekman	13,655	14,810	+ 10 %	31 sm	1	1/31 sm	478
East Fishkill	25,589	28,287	+ 10 %	57 sm	6	1/10 sm	450
La Grange	14,928	15,974	+ 7 %	40 sm	3	1/13 sm	376
Dover	8,565	8,847	+ 4 %	56 sm	2	1/28 sm	154
Pawling	5,288	6,034	+ 14 %	42 sm	3	1/14 sm	125
Union Vale	4,546	5,115	+ 12 %	38 sm	2	1/19 sm	121

Upon review of the Comparison table above, when comparing the Town and its immediate adjoining neighbors, the following very important facts are determined ;

- The Town of Beekman has experienced considerable growth in the past four year period, at 10 %, the 3rd highest in the County, and as shown at an astonishing 42 % growth in the past 15 years,
- Beekman has the most density, in terms of the population at 478 persons per square mile on the average, refer to the Appendix, **Maps # 3, 4 & 32.**
- Beekman has the highest fire coverage area demands with a single fire station providing coverage for the entire Town,
- Covering the entire Town with one Fire Station requires the District to provide emergency coverage for ;
 1. Servicing and protecting 31.7 square miles of land area,
 2. This includes approximately 19,637 acres of land,
 3. Traveling along 90 miles of roadways, which includes the Town with 66.4 miles; the State with 9.1 miles ; and the County has 14.5 miles of roads,
 4. Responsible for protecting nearly 15,000 residents,
 5. The residents are housed in approximately 4,200 residential units,
 6. In addition the Town has thousands of square feet of non-residential commercial space to protect.
 7. And the added duty of protecting the Key Hazard Areas within the Town.
 8. Being first Responders in most any kind of Emergency in Town.
 9. Providing Mutual Aid to the five neighboring Towns.
- The Town also has some *Key Fire Hazard* locations, including commercial Gas Stations, as well as three (3) dams that present special concerns for the Beekman Fire Company.
Refer to **MAP # 34** in the Appendix entitled; ' Surrounding Fire EMS Stations ' which shows all area Gas Stations within the Town & the five neighboring Towns.



As noted from the Calls graph above, this indicates the total number of Emergency Calls responded to annually, by the **Beekman Fire Company**, during the calendar years of 1998 through 2005, were as follows :

- 1998 TOTAL EMERGENCY CALLS = **573**
- 1999 TOTAL EMERGENCY CALLS = **703**
- 2000 TOTAL EMERGENCY CALLS = **777**
- 2001 TOTAL EMERGENCY CALLS = **836**
- 2002 TOTAL EMERGENCY CALLS = **829**
- 2003 TOTAL EMERGENCY CALLS = **907**
- 2004 TOTAL EMERGENCY CALLS = **873**
- 2005 TOTAL EMERGENCY CALLS = **927**

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As could be expected with the rise in population, the total number of emergency calls has steadily risen within the Town. This included a major jump in calls from 1998 to 1999 with slight dips in the calls number from 2001 to 2002 and again from 2003 to 2004. During the Calls charted period of 1999 through 2005 (refer to Calls graph above), it shows a twenty five percent (**25 %**) increase in the number of emergency calls and responses; also noteworthy is (refer to Fire Coverage table above) the Beekman population increase of ten percent (**10 %**), from the period 2000 through 2004, and a forty two percent (**42 %**) growth increase during the period from 1990 through 2004.

V. HI-LIGHTING BEEKMAN'S SPECIAL CHARACTER

A. Highlands, Forested Ridges, and Appalachian Trail

Situated several miles eastward, inland from the Hudson River, in the scenic Hudson River Valley, the Town of Beekman in southern Dutchess County, (refer to **Map # 24** in Appendix, for the Town's location within the County) New York is situated in its rural, predominantly natural environmental setting in contrast to more suburban, and urban communities to the south. Beekman's landscape includes creeks, streams and fertile agricultural fields in a valley setting surrounded by open, rolling hillsides and forested ridges. The southern ridges are part of the Hudson Highlands of the Appalachian Mountain range that stretches 2,174 miles along the Eastern Seaboard from Maine to Georgia. An approximately 3 mile segment of the Appalachian National Scenic Trail, known as the "AT," 1 runs through Beekman parallel to Depot Hill Road, and crosses NYS Route 55. The southern and eastern portions of Beekman contain the largest mass of forested lands, which are primarily protected as state and federal lands. Beekman's Depot Hill and West Mountain are part of this Highlands Region national resource. Federal lands create a greenbelt along the Hudson Highlands surrounding the Appalachian Trail and extending east and north to the state-owned Depot Hill Multiple Use Area and West Mountain State Park. The 260-acre Depot Hill Multiple Use Area, a State owned parkland, encompasses Depot Hill and connects to federal lands

surrounding the Appalachian Trail. Beekman's topography, including major hills and ridges are identified on **Map # 12**, Natural Features (see Appendix).

1 "The Appalachian Trail Experience and Non-hiking Recreational Uses of Trail Corridor Lands," as adopted by the Appalachian Trail Conference Board, 4/19/97
Source: National Park Service website, <http://www.nps.gov/appa/>

The northeastern part of Town is framed by West Mountain and Gardner Hollow. A significant area of West Mountain, which continues eastward into the Town of Dover, is publicly accessible as a State park forest. Gardner Hollow, a narrow valley in northeast Beekman is defined in the east by the adjacent West Mountain range, which begins in Dover and continues south into Pawling. The West Mountain State Forest/Municipal Use Area consists of 850 acres in the Towns of Beekman, Union Vale and Dover, with about 400 acres in Beekman. The northern-northwest area of Beekman is marked by the western hills of Clove Mountain and Clapp Hill.
; <http://www.highlandscoalition.org/images/NYfram.jpg>.

In the more remote areas of the Town the emergency vehicles are faced with traveling over very steep terrain to respond to emergency situations, refer to **Map # 35** entitled Physical Constraints Map, and **Map # 26**, Potential Limits to Development, both in the Appendix, which shows these areas of very steep grades and other limits to development.

B. Valleys and Farming Core

Below the Highlands, towards the central and northern areas of Beekman is the Clove Valley. The six-mile Clove Valley extends from Beekman northward into neighboring Union Vale. The Clove Valley is ranked as one of the top ten most valuable agricultural areas throughout Dutchess County, as identified in the *Dutchess County Agricultural and Farmland Protection Plan*. The Clove Valley is home to Fishkill Creek and its many tributaries, as well as to ponds, wetlands and other smaller water resources. The cumulative water resources in the valley are critical to the quality and quantity of Beekman's drinking waters. The Fishkill Creek continues flowing in a southwestern direction and ultimately flows into the Hudson River at Beacon.

Beekman is rich in agricultural resources, as shown on **Map # 13**, Agricultural Features (see Appendix). Much of the valley landscape is blanketed with soils of statewide significance and prime farmland soils. There are several working farms within the Town of Beekman. Sugar Maple Farm is an icon of Beekman's scenic, agricultural heritage. It is a premier thoroughbred horse-breeding and boarding farm. Farmers and growers in Beekman produce hay that is sold to horse farms throughout the region. Barton Orchards maintains an on-the-farm market that is open seasonally as well as a pick-your-own operation. Other landowners operate smaller-scale farms that sell products locally and regionally, such as the O'Connor, McIntosh, and Klein farms (dairy and hay). The Town has proposed that these farms be preserved through a land protection program that utilizes a variety of tools to ensure protection of lands from future development. Protecting and enhancing Beekman's agricultural core is one of the most critical steps in preserving the quality of life and unique character of Beekman. One of the results of preserving such farmlands from development is that this act of preservation in itself will reduce or somewhat limit the future growth in Town. The Town Board is currently pursuing this land preservation as recommended by the Town's Open Space Plan. If some of the Town's major farms are in fact preserved, this will reduce the amount of future growth attainable within the Town, thus putting less of a strain on emergency services.

C. Aquifers, Watersheds and Waterways

Beekman's Aquifer

In the Town of Beekman, ground water is obtained from both unconsolidated sand and gravel deposits as well as from underlying bedrock. Beekman's main aquifer and primary recharge area is located in the center of the community along the lowlands of the Fishkill Creek Valley. Groundwater is stored in both the overlying sand and gravel deposits and the underlying fractured carbonate bedrock formation of the valley bottom. This valley aquifer supplies the majority of the Town's water.

Aquifer studies were conducted by the Town in the 1990s, including an inventory of existing groundwater resources and recommendations on managing the system for future growth in the Town. These studies provide the framework for a Town-wide Groundwater Supply Plan. An updated mapping inventory of Beekman's water resources was completed by the Town of Beekman Conservation Advisory Committee in conjunction with the Dutchess County Environmental Management Council in 2004. The resulting Water Resources Maps, in addition to indicating major streams and waterbodies, shows the Town's primary aquifer (see Appendix, **Map's # 29, 30, 31**).

Beekman's Watersheds

Streams and other natural drainage systems are part of the Town's setting. The northern side of the Highlands ridge is part of a watershed that flows northerly towards the Town's "valley" and eventually into the Fishkill Creek Watershed, a very important water resource for most of the Town's residents. The other side of the Highlands ridge through Beekman is part of the New York City Watershed that flows southerly towards Putnam County. In both cases, the importance of protecting the ridge in terms of how it affects the two major watersheds is critical for drinking water protection. Most of the Town is within the Fishkill Creek watershed, and the Fishkill Creek is the centerpiece stream flowing through the heart of Town and the valley in a generally northeast to southwest direction. Smaller streams and tributaries flow into the Fishkill Creek, flowing out of Beekman to the southwest, and eventually into the Hudson River. (refer to **Map # 27**).

<http://dcemc.org/fishkill/index.htm> *Fishkill Creek Watershed Map. Source: Dutchess County Environmental Management Council* (<http://dcemc.org/fishkill/wsmap/>)

The nearby Wappinger Creek Watershed has pioneered water protection measures and the Wappinger Creek initiatives have received funding from federal sources because of the watershed's connection to the Hudson River, a National Heritage River. Notably, the most southern tip of the Town of Beekman is within the northern edge area of the Croton River Watershed Area, south of Depot Hill Road, part of the New York City Water Supply. Such lands and waters within the New York City East-of-Hudson Watershed are both regulated locally, and also regulated and protected by the New York City Department of Environmental Protection (NYCDEP). The northwest corner of Beekman is part of the Sprout Creek Watershed, which feeds into the Fishkill Creek watershed. The northeasterly edge of Beekman, on the eastern side of West Mountain, is part of the Swamp River Watershed which drains to the east towards Dover and Pawling.

The importance of the protection Beekman's aquifers, watersheds, wetlands and waterbodies continues to be of great importance to the environmental survival of the

Town. With increased Town growth comes more strain on both the quality and quantity of these resources.

Beekman's Streams, Lakes and Waterbodies

As noted in the previous section, the Fishkill Creek is Beekman's major tributary flowing northeast to southwest through the center of Beekman and framing the valley's lowlands. According to a 1999 Groundwater Resource Assessment Report,² approximately 93% of the Town lies within the Fishkill Creek Watershed. Other main tributaries in the Town include Whaley Lake Stream and Whortlekill Creek. Major water bodies within the Town include Sylvan Lake, Prison Reservoir, Furnace Pond, Sylvan Lake and a portion of Nuclear Lake. Refer to **Map # 12, Natural Features** (see Appendix) which highlights many of Beekman's key lakes, streams and waterbodies.

² Comprehensive Town-Wide Ground-Water Supply Plan.

Wetlands

The Town's wetlands are predominantly concentrated along streams and tributaries, with wetland habitat focused along Fishkill Creek and its tributaries in the northeast and southwest part of Town. There are also smaller areas of wetlands along the Hudson Highlands in the southeast part of Town. Wetlands have been characterized as "nature's kidney" because of their important role in filtering pollutants from ground and surface water. Wetlands provide a natural retention area for water, and they can also protect areas from the devastating effects of flooding, and they are also known to provide high-quality habitat for a diverse array of wildlife. The Beekman Town Board, according to a March 6, 2006 news article, has endorsed state legislation proposed as the Clean Water/Flood Protection Act, which will allow the state to regulate isolated wetlands as small as one acre in size. The state currently protects from construction marshlands over 12.4 acres in size. Smaller wetlands were protected by the US Army Corp of Engineers but lost that federal protection with a US Supreme Court ruling in 2001.

Water Quality

Water quality is an ongoing concern for Beekman, both for surface and ground water. Groundwater quality is especially critical to Town residents as most obtain their water supply through private wells. Groundwater issues in the Hamlet of Poughquag have elevated the significance of protection of water quality as a Town issue in the 1990's. Naturally, sources of water, and possibly central water systems capable of supplying fire pressures and quantities is of importance to the BF District.

D. History, Hamlets and Rural Areas

The beautiful landscapes found in Beekman are not only a product of natural processes but also a product of the generations of stewardship by the earliest inhabitants, the Wappinger Indians, the Dutch farmers in the 17th century and the subsequent landowners who have valued the land for providing their livelihood and subsistence. Beekman has been primarily a rural town settled with deep regard for natural features such as streams and fertile valley soils. The traditional settlement pattern has been a combination of open agricultural lands and small hamlets of commercial and residential development that also serve as centers of social and civic activity. These historic

Hamlets are known as Poughquag, Beekmanville and Green Haven. The earliest inhabitants were the Wappinger Indians, this branch of the Algonquin tribe was centered in the southwest portion of Dutchess County known for the best fishing and good ports along the streams ³. It is thought that the name Poughquag is derived from the Indian word "Apoquagus" which meant "round water."⁴

³ Historic Highlights of Pine Plains and Vicinity, Sesquicentennial Edition, 1973; <http://www.rootsweb.com/~nylnphs/HH/2.htm> ⁴ <http://www.forestlakecoop.com/hist.html>



Hamlet

Photo source the Open Space Plan (Behan-BPA, 2005).

Beekman's name has its roots in the Beekman Patent, which was awarded in 1697 from the British crown to Henry Beekman, a Dutchman from Kingston. The patent included what we now know as the Towns of Beekman, Pawling, Dover, Unionvale and a portion of LaGrange. Settlers from Germany, France, Holland, New England and Long Island began entering this area in the early 1700's and Beekman's modern-day boundary was delineated in 1788, when the State of New York was broken up into counties and towns.⁵ This early portion of Beekman's settlement consisted mostly of farms and services to support farm operations such as grist mills, which were formed along streams such as Whaley Lake Stream. Country stores and hamlets were established at major junctions, such as Millers country store in the Hamlet of Poughquag. Beekman's first major population boom is linked to the beginning of iron mining and railroad construction in the Clove Valley. Beginning in the mid-1800's, entrepreneurs settled in Beekman to participate in the burgeoning iron industry, with major settlement occurring in the early hamlets of Sylvan Lake, Clove Valley and Beekmanville. A branch of railroad was completed from Hopewell to the Clove in 1877. Another railroad line, the Putnam & Dutchess, served Beekman's southern edge, stretching along the northern base of the Hudson Highlands ridge through Town.⁶ The Clove Branch railroad was abandoned when the iron mines closed in the 1890's. Furnace Pond, a small portion of the Clove Valley's mining history, has been preserved along Furnace Road off Route 55.

⁵ Lee Eaton, Beekman Town Historian, A Bicentennial Note, <http://www.townofbeekman.com/images/historytext.gif>.

⁶ History of Dutchess County, New York; James H. Smith 1882. *The Beekman Furnace – a remnant of Beekman's "Iron Age" preserved as a historic landmark.*

Following the exodus of the iron industry, in 1911, the State acquired 839 acres of land in the heart of Beekman's valley to build the Green Haven Prison, constructed around 1940. In 1916, the prison land was briefly used as a New York National Guard training camp known as Camp Whitman, where troops prepared for the invasion of Mexico. In the 1940's, the facility was used as a military prison by the federal government during WWII. The prison land has a history of active farming, predominantly dairy farming. Today, the Green Haven Correctional Facility, is one of the largest employers in Town. The Town enjoys some presidential history, with a long heritage of Roosevelt family members in the Town. Starting in the late 1980s into 2000, a former large, private farm estate, previously owned by the Roosevelt family, was developed into an innovative residential cluster subdivision, known as Dalton Farms, that is very popular among its residents. The subdivision was large in scale at over 550 homes compared to the previous smaller scale of developments in Town (see Appendix, **Map # 32**).

When the Town experiences considerable areas of growth similar to the Dalton Farms project, even though it was phased, this forces the Fire District to concentrate additional focus and often manpower in these areas of sudden higher density, and generally speaking to respond to higher numbers of emergency calls.

Source Note: Portions of this Hi-Lights Section were reprinted from the 2005 Town of Beekman *Open Space Plan*, as prepared by Behan Planning Associates.

VI. EVALUATING BEEKMAN'S GROWTH

A. POPULATION

Both the Town of Beekman Town Board as well as the Beekman Fire District Board of Commissioners have been concerned with the amount of development within the Town. This concern spans the extreme growth throughout the 1990's, as well as 'new' projects involved in the planning process, and coupled with the fast paced growth of the Town, protection of the 'rural nature of the Town for future generations as well as the concern for adequate fire and emergency protection of the Town and its residents which continues to be a main focus with the Fire District Board of Commissioners. The Beekman Town growth has exceeded 42% during the last decade and a half from 1990 through 2005, and depending upon which report or data source you reference, is certainly within the top three (3) municipalities, out of thirty in Dutchess County, in terms of overall growth.

This Growth and Expansion Analysis Study was authorized in December 2005, to review past and present growth as well as future projected growth in the Town of Beekman. This growth pattern has been considered in conjunction with the Planning for the future Fire Protection of the community, its residents, the structures, in harmony with the Towns natural character along with the historic Hamlets within its boundaries.

It is noted that the Beekman Fire Boundaries align with and follow along those of the Town boundaries, and the Town includes the historic Hamlets of Poughquag, Beekmanville, and Green Haven, and several other outlying Hamlets of Clove Valley, Sylvan Lake, and West Pawling (refer to Appendix, **Maps # 1 & # 2**).

As one of thirty (30) Municipalities within Dutchess County , the Town of Beekman has experienced the third highest population growth rate at 42 %, during the past fifteen (15) years, third only to two other Towns which also happen to abut Beekman, and they are Pawling at 52 % and Union Vale at 43 % growth. Impacted by this internal growth and coupled with the developmental pressures from neighboring Towns; which is rounded out with Dover's growth placed at 14 %, LaGrange growth at around 21%, and East Fishkill growth at approx. 28 % the Beekman Fire District must take a focused look at this growth and the impact it has on emergency services for the Town. Beekman is situated in the southern portion of Dutchess County, and this is where most of the growth in the County has taken place. Recent news articles have discussed the popularity of the County, with many newcomers moving in from Westchester County, and even sometimes referring to Dutchess County as "the next Westchester" (County), However, this is the reality that communities must face and plan for, and this includes ; evaluating everything from Town services, to taxes, to Master Planning, to land preservation, from disappearing farmlands, to protection of the towns rural character, to open space issues, trails and recreation, both passive and active, to central drinking water and wastewater needs and the protection of water sources, aquifers, and wetlands, from resource conservation and recycling, to transportation issues to traffic congestion concerns, to growing overcrowded classrooms in our school systems, to infrastructure rebuilding, and including emergency services and of course the firematic needs of the community.

B. OPEN SPACE, FARMS & FORECASTS

As stated the Town Board has also felt these development pressures and in recent years the Town has commissioned the following studies addressing growth, resources, and hamlet planning which were also helpful Sources of information, mapping, photos and data for this Growth Study :

BEEKMAN OPEN SPACE PLAN	Behan Plann Assoc 2005
BEEKMAN COMPREHENSIVE PLAN	Behan Plann Assoc 1999
BEEKMAN TOWN CENTER PLAN	Rohde Soyka & Andrews 2005
BEEKMAN GROUNDWATER RESOURCE ASSESSMENT STUDY...	Chazen Co 1999
BEEKMAN WATER RESOURCES INVENTORY MAPPING	Town Cons Adv Comm. 2004

The 2004 population for the Town of Beekman is placed at 14,810 persons (source, US Census Bureau and Dutchess Co. Planning & Development Dept.) .

The actual resident population data (source, US Census Bureau data) from 1990 to 2004 along with population projections (source, the Poughkeepsie-Dutchess County Transportation Council) from 2005 through the year 2025 are shown in the Population Forecasts Table below ;

Refer to **Map # 11, Open Space Vision Map** by Behan Assoc., which is a vision for open space throughout the entire Town, as conceptually planned by Behan.

BEEKMAN POPULATION FORECASTS

	1990	2000	2001	2002	2003	2004	2005	2010	2015	2020	2025
US Census	10,447	13,655	14,134	14,397	14,722	14,810					
PDCT Council		13,655					14,149	14,559	15,008	15,792	16,514

(Source: US Census Bureau data & the Poughkeepsie-Dutchess County Transportation Council)

As noted in the Forecasts Table above, the Town's growth rate from the period of 1990 through 2004 was placed at **41.8 %** . It is projected by the US Census Bureau that the Town population will grow another **17 %** between 2005 and 2025. This number however, appears to be low, in comparison to and in consideration of the actual population for 2004 which exceeds that projected by the US Census Bureau and the PDCT Council for the 2005 year, in view of past growth rates, the current number of projects, which includes over 600 new residential lots under various stages of approval and planning consideration. These planned 600 + new building lots would equate to approximately 1500 new residents of the Town which would almost equal the PROJECTED POPULATION equivalent for the year 2025, which with a five to seven year buildout of these planned units could add this estimated growth by the years 2011 to 2013 or about twelve years ahead of schedule. As can be shown, the continued popularity of southern Dutchess County as a favorable place to raise a family and other similar growth affecting factors will continue to increase the population within the Town at an accelerated rate, more than originally thought and projected. This Study estimates the future population growth, during the next nineteen (19) to twenty (20) year period will be more likely in the range of **25 % to 28 %** . This continued and projected growth will continue to strain the emergency and fire services provided by the BFD.

The Beekman Town Board, also very concerned with community growth, had in 2005 commissioned the **OPEN SPACE PLAN** , which depicts lands already protected from development, as including, in the ownership of Federal, State, Town or private entities. The PLAN also identified sensitive farm lands which the Plan proposes and the Town wishes to purchase the rights to, in order to protect them forever from future development. These sensitive or critical farmlands to remain forever wild or to be used only for agricultural purposes are identified as follows :

Sugar Maple Farms	~ 466 acres	- see photos in Sect VI
Barton Orchards	~ 121 acres	- see photos in Sect VI
O'Connor Farm	~ 102 acres	- see photo in Sect VI
McIntosh Farm	~ 304 acres	
Klein Farm	~ 82 acres	

Refer to the *Photos* of several of the subject Farms in this Section (VI), including Sugar Maple, Barton Orchards, and O'Connor Farm, and also refer to the Appendix for **Maps # 13, 14, 22 & 28**, showing these areas.

These farms, totaling approximately 1,075 acres would be protected through the purchase-of-development-rights program (PDR, refer to Glossary for further definition) which involves the purchase by the Town of the development rights from the private landowner to preserve the lands without further development pressures. The Town has begun to take such preservation actions, and is currently negotiating a rights purchase price with the owner of the 300 acre McIntosh Farm. A recent news article has indicated that the owners of Barton Orchards (121 acres) may be having second thoughts about this forever land preservation. The Town has however, committed monies to this effort and the Town Board is actively pursuing said reservations.

The significance of the land preservations and PDR acquisitions to the BFD and this GEAS study includes the reduction in the amount of buildable lands from the development market, while preserving open space which is part of the special character of the Town that the residents cherish.

C. EXISTING PROTECTED LANDS

The properties already protected and under Federal, State, County, Towns or private ownership include approximately 2,616 acres of land in Beekman, which are permanently protected Open Space, as follows :

The Appalachian National Scenic Trail, The 'AT'
Hudson Highlands
Nuclear Lake
Depot Hill State Park
West Mountain State Forest Park
Dalton Farms Cluster Open lands, monitored by Dutchess Land Conservancy
Recreation Park
Beekman Town Center Park
Tymor Park (T/Union Vale)
Sylvan Lake Beach Park (private)

Refer to **Map # 10** in the Appendix (as prep. by Behan Assoc.), which shows these lands.

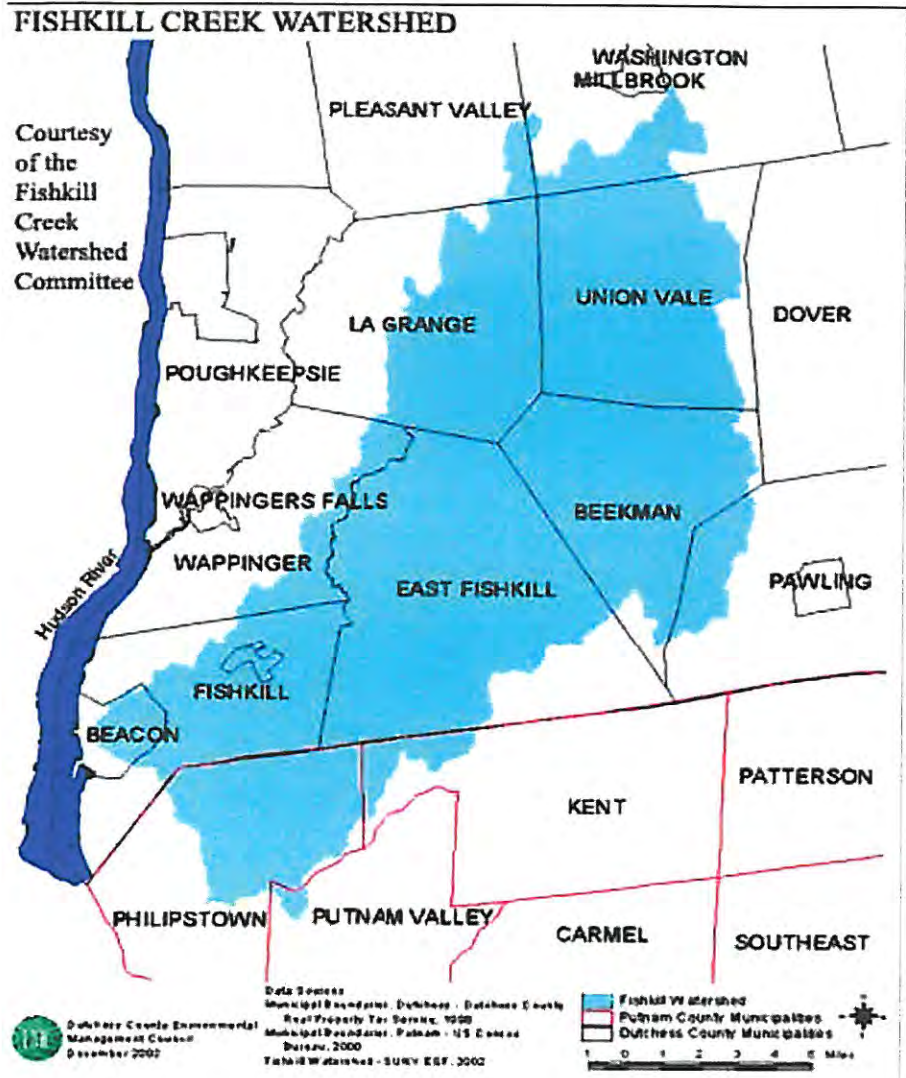
Recent newspaper articles in the Poughkeepsie Journal have indicated that other area Towns, including the Towns of New Paltz and North East are taking similar farm preservation steps, through rights purchase conservation. During an Interview, and according to the County Planning Dept., there a number are other area Towns, in addition to Beekman, that have taken steps to preserve farmlands, and those Towns include, Red Hook (bond in place), North East (have committed some monies), New Paltz (raising money stage), Rhinebeck (seeking bond approval), and La Grange (in the proposal stage).

AQUIFER PROTECTION

The main water aquifer underlying the Town of Beekman is the Fishkill Creek Aquifer which is under most, about 93 %, of the Town, refer to Watershed Map below.

This aquifer is critical to the community as a whole, as most properties are served by individual wells, and most all of these draw their potable water from a single source, the Fishkill Creek Aquifer, as shown in blue on the Watershed map below.

The Fishkill Creek Watershed



Map Source "s : Behan Planning Assoc. from the 2005 Open Space Plan
 Dutchess County Environmental Management Council
 And the Fishkill Creek Watershed Committee

There are several watershed areas within the Town's boundaries, which include the following ;

- Fishkill Creek (underlying more than 90 % of the Town)
- Wappinger Creek
- Croton River (this is part of NYC Watershed)
- Sprout Creek
- Swamp River

Of important note is that both the Fishkill Creek and the Wappinger Creek flow into the Hudson River, and the Hudson is a *National Heritage River*.

D. GROWTH AND THE CHANGING TOWNSCAPE

Town of Beekman Building Permits Issued for New Residential Dwellings

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
46	84	98	142	224	154	85	122	41	43	39

Sources include: Town of Beekman Building Department, and U.S. Bureau of Census, compiled by the Dutchess County Department of Planning and Development.

Major Projects Under Consideration by the Beekman Planning Board

Number of Residential Units 2004	Number of Residential Units 2005	Number of Non-Residential Square Feet 2004	Number of Non-Residential Square Feet 2005
PDCTC			
404	432	48,200	22,700
Source Town Planning Dept	603 lots		

Sources Include: Poughkeepsie-Dutchess County Transportation Council, refer to *The Major Projects Summary of 2005* ; and info from the Town of Beekman Planning Dept. Also refer to **Map # 16**, for the locations of large Vacant Tracts of Land only in the Northwest quadrant of the Town ; and also **Map # 17** for a layout of Major Planned Projects.

These proposed projects involve approximately 13 different projects in varying degrees of approval stages before the Beekman Planning Board. Refer to the Table above, which indicates a total of 432 lots for 2005, this information source is from the County

Transportation Council *Major Projects Summary Report*. However, further review of the Planning Board files indicate there are actually 16 residential projects containing a total of 603 new lots and 2 commercial ventures with about 23,000 sq ft of space, as currently under various stages of consideration for development purposes, refer to **Maps # 17 and 23** in the Appendix.

Refer to the following Land Use and Coverage Table for the Town, as based upon 1994 aerial photos, and as prepared by the County.

TOWN OF BEEKMAN, LAND USE / LAND COVER AREA*			
<i>Description</i>	<i>Square Meters</i>	<i>Acres</i>	<i>% of Total</i>
Area of service facilities	117,325.69	28.99	0.15%
Bogs, shrub wetlands	142,851.52	35.30	0.18%
Commercial strip with max, of 1/3 mix of Rs	257,585.33	63.65	0.32%
Cropland/cropland pasture	9,124,262.06	2,254.65	11.48%
Forest Brushland	1,687,911.34	417.09	2.12%
Forest land	42,774,383.98	10,569.74	53.83%
Gravel, sand extraction	474,587.84	117.27	0.60%
High density residential, minimum 50 feet frontage	557,051.41	137.65	0.70%
Horticulture	43,623.28	10.78	0.05%
Inactive agricultural land	1,298,404.26	320.84	1.63%
Light manufacturing	6,855.77	1.69	0.01%
Low density residential, over 100 feet frontage	13,753,933.24	3,398.66	17.31%
Medium density residential, 50-100 feet frontage	246,019.17	60.79	0.31%
Natural water body, one acre or more	1,045,513.97	258.35	1.32%
Orchard	525,251.44	129.79	0.66%
Outdoor recreation, all types	900,301.16	222.47	1.13%
Permanent Pasteur	662,977.52	163.82	0.83%
Public, all categories	933,137.19	230.58	1.17%
Rural estate, 5 acres or greater	741,838.67	183.31	0.93%
Specialty farm	1,779,515.44	439.73	2.24%
Urban inactive	661,900.48	163.56	0.83%
Urban inactive under construction	174,547.06	43.13	0.22%
Woodland wetlands	1,557,025.15	384.75	1.96%
TOTAL AREA=	79,466,802.94	19,636.60	100.00%
* Estimates from GIS data developed using <u>1994 Aerial photos</u>			
Prepared by the Dutchess County Environmental Management Council 2/12/99			

This Land Use Table excerpted from the Town of Beekman Final Comprehensive Plan & DGEIS Aug 10, 1999 as prepared by Behan Planning Assoc. Also refer to **Maps # 25 & 30**, in Appendix.

E. RECENT TOWN EFFORTS TO PLAN GROWTH

The Town will revise its allowed Driveway grade limits from a max of 15 % to a max of 10 %, to deal with a safety issues for both Fire trucks trying to ascend and cars trying to descend these private driveways (especially during winter months) .

(Source: Jan 4, 2006 Poughkeepsie Journal news article)

In an effort to deal with development pressures and overdevelopment the Town Board is applying for grants to acquire the development rights to the 300-acre McIntosh Farm, off Frog Hollow Road in the Town.

(Source: Jan 17, 2006 Poughkeepsie Journal news article)

In an attempt to provide a controlled growth, and to preserve the small-town character in the historic Hamlet of Poughquag, the Town Board has enacted a six month development moratorium on Planning Board approvals in that Hamlet.

(Source: March 3, 2006 Poughkeepsie Journal news article)

With a concern about flooding and the destruction of wildlife habitat, the Town has endorsed proposed State Legislation, *The Clean Water / Flood Protection Act* that will allow the State DEC to regulate isolated wetlands as small as one acre in size.

(Source: March 6, 2006 Poughkeepsie Journal news article)

F. PUBLIC INTEREST IN OPEN SPACE

Refer to the 2005 Town of Beekman *Open Space Plan*, as prepared by Behan Associates. The results of the public interest survey conducted in the Town by Behan Associates, indicates that the Beekman residents are in favor of preserving open space and the rural character of the Town and that the residents are willing to pay to preserve it.

Landowner Survey

The Open Space committee sought the input of large landowners in Beekman (owners of 10 acres of land or greater) by means of a mailed landowner questionnaire. This survey revealed strong interest in a voluntary land preservation program, with the majority of landowners indicating that they are interested (53%) or may be interested or are undecided (35%) in a program to conserve their land. Combined, these landowners own approximately 750 acres of Beekman's core agricultural lands. Many landowners (approximately 50%) indicated that they would be interested in selling a conservation easement for some or all of their lands to protect them.

Informational Meeting for Landowners of Large Acreage

In addition, the town supervisor and chairman of the Open Space committee sent a joint letter to the large landowners inviting them to attend and participate in a focus meeting held in March 2004 and attended by more than 40 landowners.

The community was invited to participate in a public workshop on April 24, 2004, and workshop participants helped to identify Beekman's special places for preservation.

Town-Wide Open Space Interest Survey

A second type of open space interest survey was developed and mailed to all town residents and business owners in June 2004 to obtain comments from citizens who may not have been able or interested in attending a public meeting, or who own smaller parcels of land. The survey achieved a response rate of 26% (receiving 1,039 responses from about 4,000 mailed surveys). This survey indicated strong resident support for protection of open space and a willingness to pay to protect open space. A large proportion of survey respondents (81%) indicated that conserving rural character and open space resources in Beekman is very important and another 15% indicated that it was somewhat important. The more rural in character the Town remains, the more spread out the population is, and therefore the emergency response times will be higher.

G. PROPOSED PROTECTED LANDS



O'Connor Farm
Source, the Open Space Plan- Behan Plann., 2005.



Sugar Maple Farm, a horse farm along Route 216,
with their trademark white fences.
Source, the Open Space Plan- Behan Assoc. , 2005.



Sugar Maple Farm, taken along Rte. 216
Source: EMAPS Assoc., March 2006



Barton Orchard entrance shown from CR 7.
Photo Source EMAPS Assoc. Mar 2006



Barton Orchard
Photo Source, the Open Space Plan -
Behan Plan. Assoc., 2005.

In previous sections of this report, refer to information regarding the Town's position with regard to the preservation of five large tracts of farmland through the purchase-of-development-rights program (see Glossary for definition). Also refer to the photos above, as well as the Maps showing these parcels, **Maps # 13, 14, 22, & 28**, in the Appendix.

The future reservation of undeveloped open space versus development of the Barton Orchard has been brought into question recently, with the Orchard owners apparently rethinking the Town offer for land preservation, this according to a source at Dutchess County Department of Planning & Development.

VII. EXPANSION CONSIDERATIONS

The Fire District currently owns three parcels of land, please refer to **Maps # 18, 23 & 33**, in the Appendix at the end of this report.

A. Main Fire House Facility on CR 7

The District main FireHouse Facility was built in 1974 on the front portion of 2.4 acres of land located within the Poughquag Hamlet, which is situated along CR 7, Beekman-Poughquag Road ; refer to **Maps # 15, 18, 19, 19A and 33** in the Appendix . The facility was added onto in 1987, providing for a total of nine (9) active apparatus bays for fire and emergency equipment parking, protection, maintenance and dispatch.

Refer to Section IV in this report for further information on other investigative studies on expansion of this facility, and some of the subsurface soils concerns at this location. It is recommended that the Board consider some type of expansion of this main facility, especially in view of recent discussions regarding the ambulance services in the Town. Some of the discussions regarding the facility expansion included as follows :

Main Fire House Expansion Considerations

- An addition to the east end of bldg. (bay side), this included both single-story and two-story additions varying in size from 4400 sf per floor to 5300 sf per floor.
- An addition to the west end of bldg. (banquet room side), one-story, 5000 sf.
- A large addition, approx. 6,000 sq. ft. to the south (rear), this was an infill from the 3-bay running west to end of building, as a two-story structure.
- The construction of a detached pole barn type structure, in the southwest corner.
- Purchase of the adjacent property to the east, enabling a larger expansion east.
- Also a suggestion that a parcel be purchased from the Plum or Victoria developments located across the road to the north, and a separate detached building be built (residential style) for the offices, meeting and storage purposes.

B. Green Haven 29 Acre Parcel

Several years ago the District purchased a 29.3 acre parcel of vacant land, refer to **Maps # 18, 20 & 20A** in the Appendix, as located on Greenhaven Road. The Architectural Feasibility Study will look at some possible uses for this site. The District should develop a Master Plan for the use, development and time line schedule for this

rolling field which runs along the Fishkill Creek. This parcel has been brush cleared of secondary growth, and mowed annually to keep the growth down to a sustainable level.

C. South Green Haven & Route 216 Parcel

A number of years ago the Fire District acquired the former library parcels, an approximate 1.7 acre piece of land, comprised of two small parcels, refer to **Maps # 18, 21 & 21A** in the Appendix, as located at the corner of South Greenhaven Road & Route 216 adjacent to the Mt Zion Baptist Church and near the Green Haven Correctional facility. The District should look into the viability of developing these parcels, one possible use is as a sub-station. Perhaps some financial considerations could be explored and an agreement entered with Greenhaven Correctional to provide protection thereto, as it understood that the GHCF emergency equipment is in need of update.

D. Remote Sub – Stations

The District has also requested that the Town Planning Board through the Development Planning Approval process also reserve *two lot-sized parcels of land* for Fire District use, such as Fire Sub-Stations, as located in more remote areas of the Town. The first parcel is near the intersection of Clapp Hill Road and Baker Road to the northwest ; this parcel at approximately two acres in size, is part of the proposed Park Hill Estates Subdivision, this development project is somewhere in the preliminary stages of approval, although relatively inactive at this time. The Town of Beekman has also recently instituted a building moratorium in the Hamlet which could impact the process of any land reservation. The second parcel explored by the District with the Planning Board is in the southerly portion of the Town, located along Grape Hollow Road, at approximately three acres in size, also has an inactive status at this time. This second parcel is the less desirable location, please refer to Map # 34 in the Appendix, which shows other area firehouses from neighboring Towns (East Fishkill & Pawling) within close proximity thereto, although this report does not recommend elimination of this alternative at this time.

VIII. RECOMMENDATIONS AND CONCLUSION

In conclusion, the Beekman Fire District is faced with several decisions about its future fire fighting capabilities as well as maintaining its serviceability levels in conjunction with the needs of the community. As stated in the Executive Summary, it is recommended that the Fire District plan and pursue a **seven pronged approach** to enable the District to provide for the future needs of the Town of Beekman, the community at large, satisfy the mutual aid responsibilities, the emergency responsiveness, the viability of the volunteer Fire Company and the well being of the District itself.

In the Expansion Consideration section above, this Study discusses the three parcels of land that the BFD currently owns, as well as Planning initiatives for a fourth and possible fifth piece of land that will fulfill firematic substation needs which EMAPS sees as inevitable for the District when evaluating the various impacts associated with that need. The following is an outline of the seven initiatives as concluded and recommended by this Study as prepared by EMAPS Associates.

The Beekman Fire District Seven Pronged Initiative :

1. With this Growth Evaluation Study as a basis, Revisit & Review, Choose a Consultant and Authorize the *Architectural Firematic Feasibility & Schematic Study*;
2. Continue the investigation into the *Feasibility of the Main Fire Station Facility Expansion*;
3. Pursue the *Town Planning Board Reservation of Land* parcels for fire sub-stations located in remote areas (NW and S sections) of the Town;
4. Move forward to Decide, Develop, Site, Plan, Fund, Implement, Bid, Construct and Man & Equip a *Fire Sub-Station Facility*, in the northwest quadrant of the Town.
5. Consider, Plan and Authorize The *District Master Plan* for the future development of the *Green Haven Parcel*;
6. Pursue Analysis of the viability and development of the *South Green Haven Parcels*;
7. Establish a Committee to investigate and recommend a *Funding Strategy* for these Fire Services *Projects*.

ACKNOWLEDGEMENTS AND SOURCES

EMAPS Associates, on behalf of the Beekman Fire District, would like to recognize and thank the following agencies for their invaluable assistance and cooperation in their efforts to make this Study possible. As the individual participants are too numerous to name, the agency, group or company has been acknowledged in each instance.

Beekman Fire District Commissioners

(Both past and present Board members)

Beekman Fire Company

(The Chief and its officers)

Beekman Town Board

(Supervisor & Town Board Member / Liaison to the BFD)

Beekman Town Departments :

(including Building, Assessor, Planning, Town Clerk,
Highway, & the Supervisor's office)

Dutchess County Departments of :

Planning & Development

Real Property Tax

Emergency Response

Environmental Management Council

Cooperative Extension

Behan Planning Associates, Saratoga, New York

SOURCES

Portions of the *Town OPEN SPACE PLAN 2005*, and also the *Town COMPREHENSIVE PLAN 1999*, both as prepared by Behan Planning Associates for the Town, which includes several maps in this appendix, portions of report text, glossary definitions and several photos, which includes the Beekman Special Character portion of this Report and also the Land Use / Land Cover Table, have been reproduced and included herein as both pertinent and germane to this Growth Analysis Study for the Beekman Fire District. EMAPS Associates would like to acknowledge the cooperation and generosity of the Town of Beekman as well as Behan Planning Associates in this endeavor.

BEEKMAN OPEN SPACE PLAN	Behan Plann Assoc 2005
BEEKMAN COMPREHENSIVE PLAN	Behan Plann Assoc 1999
BEEKMAN TOWN CENTER PLAN	Rohde Soyka & Andrews 2005
BEEKMAN GROUNDWATER RESOURCE ASSESSMENT STUDY ...	Chazen Co 1999
BEEKMAN WATER RESOURCES INVENTORY MAPPING	Town Cons Adv Comm. 2004

Glossary

Agricultural District. Article 25-AA of the Agriculture and Markets Law is intended to conserve and protect agricultural land for agricultural production and as a valued natural and ecological resource. Under this statute, territory can be designated as an agricultural district. To be eligible for designation, an agricultural district must be certified at the county level for participation in the state program. Once a district is designated, participating farmers and farmland owners within it can receive reduced property assessments and relief from claims and certain forms of local regulation.

Aquifer. A saturated geologic formation that receives, stores, and/or transmits groundwater that can be withdrawn and used for human purposes.

A *confined aquifer* (aka artesian aquifer) is bounded above and below by formations of impermeable or relatively impermeable material.

An *unconfined aquifer* has its upper boundary at the earth's surface, known as the water table.

Buffer. An area and/or a physical or visual feature that separates different land uses. The buffer may incorporate natural features such as woodlands, attractive fencing, stone walls, and hedgerows wherever feasible, or requires the creation of a planted landscape buffer where no natural features exists.

Build-out analysis. A projection of a community's future development growth that is based upon the maximum theoretical development of all lands under the current zoning and regulatory controls.

Cluster Development (also known as conservation-based development). A technique that allows flexibility in design and subdivision of land by allowing the developer to cluster buildings on a portion of a site to preserve a larger area open space. Cluster development allows a municipality to maintain its traditional open space character, while at the same time providing, and encouraging new development. The active use of clustering provisions help a municipality to achieve planning goals that may call for protection of open space, protection of scenic views, protection of agricultural lands, protection of woodlands and other open landscapes.

Comprehensive Plan. A document that is created and updated locally that helps to guide the long-term protection, enhancement, growth and development of a municipality. This plan includes text, maps, charts, reports and other materials that help to illustrate and describe the plan's goals and objectives, concepts, policies, guidelines, etc.

Conservation. The use of a resource while not diminishing or damaging its natural resource value. This implies knowing the particular values that the resource possesses and having a specific plan in place to ensure the balance of its use and protection.

Conservation Easement. A voluntary legal agreement between the landowner and the municipality, or a third party such as a land trust, to protect land from development by permanently restricting the use and development of the property, thereby preserving its natural or manmade features. The legally binding agreement is filed in the office of the county clerk in the same manner as a deed. The landowner retains ownership of the land, and all of the rights of ownership except the ability to develop the land.

Cultural Resources. The cultural features of a community reflect the ways in which the people who have lived there have used their natural environment to suit their economic needs and social patterns, and may include such types of resources described as agricultural, institutional, historic, and archeological, among others.

Farmland, Prime. Lands with the best physical and chemical combination of features for the production of agricultural crops. As defined by the National Resources Conservation Service (NRCS), prime farmland is "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses."

Farmland, Statewide Importance. Lands with a good combination of physical and chemical features for the production of agricultural crops.

Greenfield. Undeveloped land. Property that has not been previously "developed" or physically altered for construction.

Growth Management. The process of guiding development, through a system of land use techniques, in a direction that is environmentally and fiscally sound and that helps to preserve quality of life. The goals of growth management often include encouraging urban infill, reducing sprawl, and promoting economic development.

Hamlet. A cluster of dwelling and/or other uses, such as commercial and retail, often at a crossroads, that is much smaller in scale than a village or downtown.

Municipal Bond. A bond issued by a local government to pay for special projects, such as infrastructure improvements or open space preservation.

Open Space. Open space consists of farmland, woodland, and other ecological, recreational, and scenic land that helps to define the character of a community, and buffers residential and other land uses. Open space may be public or privately owned. Some open space is **permanently protected** from development such as parks, nature preserves, and wetlands while other parcels are subject to development.

Purchase of Development-Rights (PDR). program involves the purchase by a municipal or other government agency or private land conservation organization of development rights from private landowners whose land it seeks to preserve in its current state without further development. The PDR system can protect farmland as well as ecologically important lands or scenic parcels essential to the rural character of the community. Under PDR, the land remains in private ownership and the government acquires non-agricultural development rights. These development rights

(PDR cont'd) once purchased by government or a land trust, are usually extinguished. Landowners who participate receive payment equal to the development value of the property. In return, the property owner agrees to keep the land forever in forest, agriculture or other conservation-type use.

Performance Standards. Criteria established to protect a community's natural and built resources and quality of living through such matters as, but not limited to, noise, air pollution, emissions, odors, wastes, traffic impacts, and visual impact. Typically, land development and use are regulated through zoning by a series of such performance standards that provide criteria for limiting the impacts of development.

Permissive Referendum. An action that is subject to permissive referendum means that the Town Board may take an action without having a general vote of the residents. As a recourse, registered voters may petition the decision and force a ballot referendum.

Preservation. An active process of stewardship with the goal of protection of a resource in its existing, natural or original state.

Recreational Resources. Recreational resources may be described as areas in which the following types of leisure activities may occur: existing or planned hiking, biking, and canoeing; ball fields, tennis courts, basketball courts, golf courses, skating rinks, ski slopes, and swimming pools; and waterfront activities such as boating and fishing. Recreational resources also include nature preserves, community gardens, and other outdoor areas for quiet passive public enjoyment.

Scenic Corridor. A scenic corridor is a viewshed that contains scenic vistas linking natural and cultural resources. Scenic corridors are passive recreational resources that add character to communities.

Site Plan (Review). Site Plan Review is part of the development review process by which the physical elements of a proposed use are reviewed to ensure that they are compatible with the physical characteristics of the site, as well as with the existing and potential uses of the surrounding area. A site plan provides detail on the future development through a scale drawing.

Sprawl. Ever-expanding metropolitan strip and suburban areas consuming huge amounts of farmland, forestlands and natural resources that wastes lands and resources while often abandoning people, places and private investments at the center, in the hearts of towns and villages. It is very expensive to taxpayers to provide roads, sewers, water, and services to low-density urban development.

Subdivision Regulations. A set of laws or regulations for the division of land, lot, or parcel into units for the purpose of development and/or sale.

Term (Conservation) Easement. A term conservation easement is a voluntary legal agreement between a landowner and the municipality that is written to last for a period of years, commonly for 5 to 20 years. A term conservation easement is not a permanent easement, and does not guarantee long-term protection of resources.

Viewshed. A particular panorama that is valued for its aesthetic or cultural attributes. Buildings, structures, places, or natural features may be considered to contribute to, or detract from the quality of viewshed experience.

Watershed. A region of land that drains down slope to a particular body of water, such as a lake, stream, or an ocean.

Wetland Protection. Areas that are saturated by either fresh or salt water for at least a period of time during the growing season. In state regulations, they are defined chiefly by the forms of vegetation present. Wetlands provide a number of benefits to a community; providing wildlife habitat, wetlands habitat protection, recreational opportunities, water supply protection, and open space and scenic

beauty that can enhance local property values. Wetlands also serve as storage for storm water runoff, thus reducing flood damage and filtering pollutants. In coastal communities, they also serve as a buffer against shoreline erosion. The preservation of wetlands also protects water quality; increasing flood protection; supporting hunting, fishing and shell fishing; providing opportunities for recreation, tourism and education; and enhancing scenic beauty, open space and property values.

Wildlife Corridor. A continuous area, often containing critical vegetated habitat or cover, that facilitates the movement of wildlife through an urban, suburban, or rural environment.

Zoning. A process that seeks to ensure that the land uses of a community are compatible with one another and in accordance with adopted plans.

APPENDIX

This section of the report is dedicated to providing numerous informational Maps that will be an invaluable resource to the Beekman Fire District both for this project as well as future projects.

The MAPS included in this section are found at the end of this report, and are as follows :

'FINDING THE MAP YOU NEED' : SEARCH FOR MAPS BY THE DESIGNATION NUMBER FOUND TO THE FAR LEFT ON THE LISTING BELOW, THIS NUMBER ALSO GENERALLY APPEARS AT THE UPPER RIGHT HAND CORNER OF EACH MAP. ALSO SEARCH FOLLOWING THE SAME NUMERIC SYSTEM BY LOCATING THE PLACEMENT OF THE MAP OF INTEREST FROM THE ORDER LISTED BELOW AS WITHIN THE APPENDIX AND THEN FIND THE CORRESPONDING MAP PLACEMENT AT THE END OF THIS REPORT ;

Please note, these Maps have been provided in a size and format, maximum 11" x 17", which is manageable and easily fits into this report. There are forty (40) Maps which indicates the level of information available for the Town and the BFD. Some Maps indicate the same types of information, such as Mapping of Town Parcels, however they are provided for different years which depicts how the Town has grown in stages and in various portions of the Town. Notable, several of these Maps, No's 34, 35, and 36 are available at much larger scales and several copies have been made available to the District and the Town at this large scale; this was made possible due to donations from a BF Board Member and EMAPS Assoc. EMAPS is hopeful that these forty (40) Maps will not only be an asset to The District, but will remain helpful tools and useful resources for many years to come.

EMAPS ASSOCIATES is pleased to have been able to assist the BEEKMAN FIRE DISTRICT in planning for the future. The report has been a lengthy undertaking which has culminated in this report and these valuable mapped resources as presented to the BFD.

1. BEEKMAN TOWN MAP – SMALL	TOWN
2. BEEKMAN TOWN MAP - LARGE	TOWN
3. BEEKMAN TOWN - POPULATION DENSITY	US CENSUS
4. TOWN POPULATION DENSITY	US CENSUS
5. TOWN AERIALS - NW QUAD	BFC
6. TOWN AERIALS - NE QUAD	BFC
7. TOWN AERIALS - CEN QUAD	BFC
8. TOWN AERIALS - S QUAD	BFC
9. BEEKMAN FIRE CO. – MEMBERSHIP PINPOINT LOCATION MAP	BFC
10. TOWN OPEN SPACE PLAN – Permanently Protected Open Space	Behan
11. TOWN OPEN SPACE PLAN – Open Space Vision Map	Behan
12. TOWN OPEN SPACE PLAN – Natural Features	Behan
13. TOWN OPEN SPACE PLAN – Agricultural Features	Behan
14. TOWN OPEN SPACE PLAN – Key Cultural Resources	Behan
15. BEEKMAN FIRE DISTRICT - Main FireHouse Aerial & Contours	Steller
16. TOWN NW QUAD AERIAL -- 12 Large Vacant Parcels	BFC
17. BEEKMAN & DUTCHESS -- MAJOR PROJECTS MAP	PDCTC
18. TOWN ZONING MAP -- 3 Beekman Fire District Properties	EMAPS
19. TAX MAP -- BFD Main FireHouse on CR 7	EMAPS
19A AERIAL MAP -- Main FireHouse Parcel - Enlarged	EMAPS
20. TAX MAP -- BFD Large Green Haven Parcel	EMAPS
20A AERIAL MAP -- Green Haven Parcel - Enlarged	EMAPS
21. TAX MAP -- BFD Small South Green Haven Parcels	EMAPS
21A AERIAL MAP -- South Green Haven Parcels - Enlarged	EMAPS
22. TOWN ZONING MAP – Five Farms Land Preservation	EMAPS
23. TOWN ZONING MAP -- Major Subdivision Planned Projects	EMAPS
24. TOWN COMP. PLAN – Town Location Dutchess – <u>1999</u> Parcels	Behan
25. TOWN COMP. PLAN – General Land Use / Land Cover	Behan
26. TOWN COMP. PLAN – Potential Limits To Development	Behan
27. TOWN COMP. PLAN – Water Resources	Behan
28. TOWN COMP. PLAN – Agricultural Resources	Behan
29. TOWN GROUNDWATER SUPPLY – <u>2003</u> Parcels	DCEMC
30. TOWN GROUNDWATER SUPPLY – Land Use / Land Cover	DCEMC
31. TOWN GROUNDWATER SUPPLY – Water Resources	DCEMC
32. TOWN ZONING & DENSITY MAP	DGP&D
33. TOWN MAJOR PLANNED DEVELOPMENT & BFD SITES	DGP&D
34. TOWNS AREA FIRE STATIONS & KEY HAZARD LOCATIONS	DGP&D
35. TOWN DEVELOPMENTAL PHYSICAL CONSTRAINTS MAP	DGP&D
36. TOWN AERIAL VIEW WITH <u>2006</u> PARCELS OVERLAY MAP	DGP&D

21(page #) FISHKILL WATERSHED MAP

Behan/DCEMC/FCWC