# Mixed Use Feasibility Study

## Boulder Lane
## Wenham and Beverly, Massachusetts

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**Prepared for:**

**Town of Wenham**

138 Main Street
Wenham, MA 01984

**City of Beverly**

191 Cabot Street
Beverly, MA 01915

**With Financial Assistance from**

**MassDevelopment**

99 High Street
Boston, MA 02110

**Prepared by:**

**BSC Group**

15 Elkins Street
Boston, MA 02127

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# Boulder Lane Mixed Use Feasibility Study
# Wenham and Beverly, Massachusetts

BSC Group, Inc. (BSC) has completed this analysis to assess the feasibility of developing a 71-acre Site in Wenham and Beverly, Massachusetts (the Site) (see Figure 1: Site Locus Map and Figure 2: Site Aerial). The goal of the analysis is to determine whether the acreage, configuration and condition of developable land on the Site and market conditions are suitable for the type of land use(s) that Wenham and Beverly seek to attract to expand their respective tax base and increase area employment opportunities.

## 1. EXISTING CONDITIONS OVERVIEW

Existing conditions within and immediately adjacent to the Site were evaluated using MassGIS overlays supplemented by field investigations, online research and interviews with Municipal officials.

The Boulder Lane Site is bounded by Grapevine Road to the east, residential development off Hull Street to the north and west, and Route 128 to the south. The only existing internal roadway is Boulder Lane, a private one-lane dirt road that intersects with Grapevine Road near the Route 128 interchange (Exit 17). National Grid distribution lines run through the Site roughly parallel to Route 128 and a cell tower is located at the end of Boulder Lane in Beverly. Otherwise, the Site is undeveloped and wooded. Previous disturbance is indicated along Route 128 associated with its construction, and there is evidence of past agricultural activities in Beverly west of the cell tower (e.g., a farmhouse foundation, cart paths and stone walls).

The Site is comprised of 10 parcels (see Figure 3: Parcel Plan). As shown in Table 1: Property Information, seven parcels totaling 29 acres are in Wenham, and three parcels totaling 42 acres are in Beverly. The Wenham parcels are both publicly and privately owned, and the Beverly parcels are all privately owned.

**Table 1: Property Information**

| Municipality | Parcel ID | Owner | Parcel Acreage | Acreage by Municipality |
|---|---|---|---|---|
| Wenham | 45_1 | Brady Development Corp | 10.29 | |
| | 47_1 | Frangos Realty Corp | 2.78 | |
| | 47_3_A | Town of Wenham | 5.5 | |
| | 47_3_B | | 5.5 | |
| | 47_3 | | 2 | |
| | 47_2 | | 5.3 | |
| | 47_4 | | 0.36 | 28.95 |
| Beverly | 86-39 | Foster, Archer & Dwight | 6.20 | |
| | 73-8 | Frangos Realty Trust | 26.00 | |
| | 86-114 | Frangos, Michael | 9.79 | 41.99 |

Both Wenham and Beverly have targeted the Site for economic development purposes. The Wenham portion of the Site is zoned Residential, which allows single-family homes by right and Flexible Development (single and multi-family units up to four dwellings) with Planning Board approval. The

Wenham FEMA Flood Hazards Zoning Overlay Map shows an area of 100-year flood which extends across the northern and western sections of the Wenham properties. Alterations to land in the Flood Plain District would require a Special Permit from the Planning Board.

Zoning in the Beverly portion of the Site is Restricted Industrial (IR), which allows office complexes, light industrial parks, and necessary support facilities, including ancillary storage, service, and retail uses. Limited residential development is allowed by Special Permit from the Zoning Board of Appeals (e.g., subsidized elderly housing, bed and breakfast establishments). The Site is also within the City's Water Supply Protection Overlay District. According to the Zoning Ordinance, commercial and industrial uses in the overlay district would trigger the need for a Special Permit even though they are permitted in the underlying district. Please refer to Figure 4: Zoning.

The Massachusetts Department of Transportation (MassDOT) Highway Division has jurisdiction along Grapevine Road from Hull Street to just north of Toppan Lane.[1] This includes the intersection of Grapevine Road and Boulder Lane. MassDOT right-of-way (ROW) associated with Route 128 runs along the southern edge of the Site.

# 2. DEVELOPMENT CONSIDERATIONS

The objective of this task is to determine the acreage and configuration of potentially developable areas. Environmental and regulatory conditions are considered. This section also identifies issues that may increase development costs or restrict development altogether. Please refer to Figure 5: Water and Wetlands Resources Map.

Potential constraints to development at the Boulder Lane Site include the following:

- Extensive regulated wetland resource areas;
- 3 potential and 3 certified vernal pools (PVP/CVP);
- Drinking water protection area;
- Areas of steep slopes;
- Ledge and Bedrock;
- MassDOT/Route 128 scenic vista easement;
- MassDOT Highway Division jurisdiction; and
- Zoning

Each of these issues is discussed below.

## 2.1 WETLANDS AND VERNAL POOLS

A large wetland system encompasses the entire northern/northwest alignment of the Site, and four wetlands extend south toward Route 128. Work within resource areas falls under the jurisdiction of the Massachusetts Wetlands Protection Act (WPA) (310 CMR 10.00). State-regulated wetland resource areas include Bordering Vegetated Wetland (BVW), Inland Bank (Bank) associated with two intermittent

[1] Source: http://services.massdot.state.ma.us/maptemplate/roadinventory/

streams, Bordering Land Subject to Flooding (BLSF) (shown on the Site Constraints Map as FEMA Floodplain), and 100-foot Buffer Zone to BVW.

Three CVPs and three PVPs were identified (see Figure 5). Vernal pools are typically regulated under the WPA, but if they are not associated with specific wetland, they may be regulated under other Massachusetts regulations, including the Surface Water Quality Standards (314 CMR 11.00), Title 5 of the Environmental Code (310 CMR 15.00) or the Forest Cutting Practices Act (304 CMR 11.00).

Wenham and Beverly have local wetland bylaws/ordinances. Wenham regulates 100-foot buffer zones for BVW, BLSF and PVPs/CVPs. Wenham regulates limit of work and limit of building setbacks which vary according to the specific use and may also regulate activity in adjacent upland up to 200 feet from the edge of regulated resource areas. Beverly regulates a 25-foot no disturb zone to BVW and IVW, and a 100-foot no disturb zone for PVPs/CVPs. Both municipalities are likely to require a Habitat Evaluation as part of the WPA review. These buffer zone requirements are shown in Figure 5.

## 2.2 DRINKING WATER PROTECTION

The Site is within an area designated as Outstanding Resource Water (ORW) and a Surface Water Protection Zone associated with the Longham Reservoir in Beverly. As such, the Salem and Beverly Water Supply Board may have some jurisdiction over Site usage/allowable discharges. The potential for blasting within these areas may also be a concern due to chemicals sometimes used in the blasting process. Thus, in addition to local zoning, planning board and conservation commission approvals, the Project may also require review by the Salem and Beverly Water Supply Board and (depending on whether any thresholds outlined in 301 CMR 11.00 are exceeded), MEPA review.

## 2.3 SOILS, LEDGE, AND BEDROCK

The USDA Soils Map (see Figure 6: Soils) show the predominate soils to be Chatffield Hollis Rock Outcropping, Freetown Muck, Canton Fine Dandy Loam, and Merrimac Fine Sandy Loam. These soils are all classified as having severe limitations for septic disposal systems Field observations supplemented by United States Department of Agriculture (USDA) Soil Maps indicate the presence of extensive ledge and bedrock throughout the Site. This is likely to necessitate blasting and can be a costly obstacle to development. Challenges posed by ledge and severe topography issues can be overcome by engineering. However, the associated cost and effort are typically undertaken in areas with proven robust markets where the return warrants the additional expense. The Wenham/Beverly market area is untested in this regard.

## 2.4 STEEP SLOPES

In general, slopes of greater than 20% can present difficulties for development, particularly by creating challenges in stormwater management and causing increased equipment and land preparation expenses. A significant portion of the Boulder Lane Site has slopes of greater than 20%. (Please refer to Figure 7: Site Topography and Scenic Vista). As noted in the above discussion of ledge and bedrock, this issue can usually be overcome by careful Site preparation and engineering.

## 2.5 MASSDOT SCENIC VISTA EASEMENT

Site development adjacent to Route 128 may be constrained by a "Scenic Vista Easement" which extends into the Wenham portion of the Site, 200 feet from the state highway layout, and precludes any use other than a roadway or driveway within its boundary (see Figure 7). Because the Site is heavily vegetated, the easement effectively impedes the developer from taking advantage of Site visibility from Route 128, which can be a critical component for commercial development. This also means that no buildings or parking areas could be located with the easement. To develop within this portion of the Site, an administrative waiver from MassDOT would be required. According to the MassDOT District 4 Highway Director, there are no known cases of waiver requests. The decision whether to grant the waiver may emanate from MassDOT's administrative headquarters in Boston, and some mitigation in the form of landscaped buffers is likely to be required.

## 2.6 TRAFFIC AND MASSDOT JURISDICTION

Boulder Lane intersects Grapevine Road just south of Route 128 Exit 17 Ramps in Wenham, Massachusetts. Boulder Lane is a gravel surfaced local road that currently provides access to a cell tower in the City of Beverly. Boulder Lane, as its name suggests, traverses an area with rocky topography, and bounded in some sections by huge rock outcrop. The total length of Boulder Lane is approximately 6,000 feet. The fee ownership in Boulder Lane in Wenham is held by Brady Development Corp.

Grapevine Road is a rural major collector (or urban minor arterial), which travels generally in a north south direction and provides direct access to Route 128 in Wenham. Grapevine Road services residential and institutional uses in both the Town of Wenham and the City of Beverly, where it becomes Hart Street. The section of Grapevine Road between the Route 128 southbound and northbound ramps is under the jurisdiction of the MassDOT Highway Division. The intersection of Boulder Lane and Grapevine Road is therefore under the jurisdiction of MassDOT. Traffic data from MassDOT (2012) indicate that Grapevine Road has an average daily traffic (ADT) of 7,545 vehicles per day south of Route 128 and approximately 6,350 vehicles per day north or Route 128.

An Access Permit would be required from MassDOT for any development on Boulder Lane since it abuts Route 128. Improvements to Boulder Lane at its intersection to Grapevine Road would also involve working within the state highway layout and therefore would also require an Access Permit.

When there is the requirement of an access permit from MassDOT, vehicle trips by the proposed development would have to be checked against the Massachusetts Environmental Policy Act (MEPA) thresholds for Environmental Notification Form (ENF), and or Environmental Impact Report (EIR).

The intersection of Grapevine Road and Boulder Lane would have to be widened and vegetation removed in order to improve the existing sightlines coming out of Boulder Lane. Detailed intersection and roadway safety analysis would need to be performed and it would take into consideration the proposed amount and type of uses to determine the extent of improvements (e.g. turning lanes, signage, and signalization) that are warranted.

## 2.7 ZONING

As described previously, zoning is Residential in Wenham and Restricted Industrial in Beverly. Allowable uses for each type of zoning are completely different, and neither is compatible with a mixed use approach to development. The communities will need to coordinate to create zoning language that is

both compatible with potential development plans and agreeable to residents of both municipalities. Zoning changes require local approval.

## 3. INFRASTRUCTURE

Public water and sewer service are not currently available on the Site, but there are existing connections nearby. Wenham's municipal water supply system does not extend to the Site vicinity, but the Salem and Beverly Water Supply Board supplies water to Beverly and Gordon College in Wenham. The Board obtains water from four surface waters and has a permitted withdrawal volume of 11.31 million gallons per day (mgd).[2] The South Essex Sewerage District (SESD) provides sewerage treatment for Salem, Beverly, Marblehead, Peabody, Middleton and Danvers. They also provide wastewater capacity to a small section of Wenham, consisting of Gordon College and the Parsons Hill neighborhood located off Grapevine Road southeast of the Site. The Gordon College connection is via a private sewer force main that crosses Grapevine Road from the main campus to its athletic complex and turns west on Hull Street into Beverly. The sewer serving Parsons Hill connects on the southerly side of Rout 128. The treatment facility is located on Fort Avenue in Salem with treated effluent discharged to Salem Sound. Wenham has no other municipal wastewater service. Previous requests made to SESD for the provision of service outside of the member communities have not been received favorably. While the SESD has not been contacted directly with respect to the provision of service to Boulder Lane, it does pose a unique case as Beverly is a member community and Wenham is not. Previous efforts to develop the Beverly portion of the site have met opposition from the abutting Beverly residential neighborhood which does not wish to see any increased traffic generation on their streets. The City of Beverly has expressed interest in pursuing development accessed through Wenham via Boulder Lane.

No soil tests have been performed to-date to assess the feasibility of an on-site package treatment plant, but as previously discussed, the steep slopes, soils, abundant ledge outcroppings, and large wetlands indicate that siting a leaching field for on-site wastewater discharge may be challenging. The acreage requirements and soil suitability should be evaluated further.

In sum, existing water and wastewater services are nearby, but not within the Site, and the extent of available capacity from the regional service providers is unknown.[3] There may be environmental and/or regulatory constraints to developing on-site systems. As the provision of water and sewer service as well as access are critical pre requisites for development, Beverly and Wenham need inter-municipal cooperation and coordination to secure the provision of infrastructure to support development of the site.

## 4. MUNICIPAL AGREEMENT

As noted previously, Wenham and Beverly have targeted the Boulder Lane Site for economic growth opportunities. However, successful development will depend on a mutual reliance between the two communities, with each providing an element that the other lacks. For example, Beverly hopes to access the Site through Wenham via Grapevine Road and Boulder Lane. This will avoid disturbing residential

[2] http://www.ipswichriver.org/permitted-water-withdrawals/

[3] Online sources indicate The SESD wastewater facility has a current use of 25.60 mgd and a capacity of 29.71 mgd. This information has not been verified.

areas and wetland resources that abut the Beverly portion of the Site to the east and northeast (i.e., off Kennel Hill Road). Correspondingly, Wenham hopes to obtain water and sewer service from the regional water and sewer districts (Salem and Beverly Water Supply Board and SESD, respectively). Because Beverly is a member of these districts their support may be a key factor in successfully negotiating service agreements. As discussed in Section 2.7, developing zoning that is compatible with desired uses and mutually agreeable to each municipality is also essential.

The ability of each municipality to provide what the other needs is likely to have a significant impact on the successful implementation of the development. There are many unknowns, including whether MassDOT will approve a permit for the volume of traffic generated by the entire development, and whether the regional water and sewerage districts have available capacity to provide needed services. It is worth noting that Gordon College has indicated that they may be willing to construct their own wastewater treatment facility on campus and dedicate their allocated SESD capacity to new Boulder Lane development. However, this willingness is likely dependent upon whether the college perceives that the planned use will benefit their students.

# 5. CONCEPTUAL ALTERNATIVES

BSC developed two conceptual layouts for Boulder Lane, referred to herein as Concept 1 and Concept 2 (Figures 8 and 9, respectively). Both layouts exclude wetlands, a 25-foot wetlands perimeter no disturb zone, PVPs and CVPs, and areas constrained by steep slopes. Both layouts also allow only roadway within the MassDOT 200-foot scenic vista easement in Wenham. For each concept, developable areas are referred to as numbers 1 through 11. Table 2 presents the square footage of developable area for each concept by municipality.

As shown, Concept 2 has slightly more developable area and about 24% less driveway length. Because less driveway would result in lower associated construction costs compared to Concept 1, Concept 2 was selected as the preferred layout. It is assumed that the developable area shown in Concept 2 will serve as a platform which could support a mix of development scenarios, including office, research and development (R&D), small-scale commercial or service space, and multi-family residential uses.

Figure 10 presents a conceptual layout for a mixed used development. The design includes approximately 107,000 square feet of office space, 5,000 square feet of retail, and a total of 194 residential units. Table 3 presents the conceptual development totals by municipality. The ratio of commercial and multi-family residential development presented herein is based on the results of the pro forma analysis, which is discussed in detail in Section 7.

## Table 2: Developable Area by Municipality

| | Concept 1 | | Concept 2 | |
|---|---|---|---|---|
| **Area #** | **Beverly (sf)** | **Wenham (sf)** | **Beverly (sf)** | **Wenham (sf)** |
| 1 | | 23,755 | | 23,755 |
| 2 | | 100,181 | | 100,181 |
| 3 | | 13,868 | | 13,867 |
| 4 | | 64,638 | | 64,638 |
| 5 | | 48,813 | | 53,078 |
| 6 | | 20,316 | | 20,316 |
| 7 | | 31,368 | | 31,368 |
| 8a | 16,758 | | 16,758 | |
| 8b | | 26,998 | | 26,998 |
| 9a | 127,016 | | 127,016 | |
| 9b | | 83,458 | | 83,458 |
| 10 | 172,428 | | 172,428 | |
| 11 | 67,723 | | 67,723 | |
| **Total by Municipality (sf)** | **383,925** | **413,395** | **383,925** | **417,659** |
| **Total Developable Area (sf)** | **797,320** | | **801,584** | |
| **Roadway Length (lf)** | **2,200** | | **2,200** | |
| **Driveway Length (lf)** | **4,200** | | **3,400** | |

Note: sf = square feet, lf = linear feet

## Table 3: Conceptual Development Totals by Municipality

| Municipality | Residential (Units) | Office (sf) | Retail (sf) |
|---|---|---|---|
| Wenham | 86 | 52,000 | 5,000 |
| Beverly | 139 | 55,000 | 0 |
| **Total** | **194** | **107,000** | **5,000** |

## 6. MARKET DEMAND

Market demand has a direct bearing on the rent and sales value a development can be expected to produce, but accurately forecasting demand is extremely difficult. For this analysis, online resources were surveyed to ascertain a reasonable understanding of current market conditions for office and R&D space in the area. A full market research evaluation should be undertaken if Wenham and Beverly decide to move forward with development.

According to the Colliers Market Snapshot for the third quarter of 2014, the Route 128 north submarket area had 8,605,886 square feet of office and R&D space with a vacancy rate of 18.5% and a negative absorption of 115,091 square feet.[4] Current online commercial real estate listings for office and R&D space along the route 128 corridor from Lynnfield to Gloucester show the average asking rents to be $16.47 per Square foot for the City of Beverly and $15.04 per square foot for Essex County.[5] No commercial data specific to Wenham is available. Table 4 presents a graph of the lease trends for Beverly from 2006 through October 2014. Trends for the state, metropolitan region and county are also presented for comparison. As indicated by the graph, Beverly lease rates have remained fairly consistent since 2010.

**Table 4: Lease Trends, 2006 to 2014, Beverly**

The multi-family residential market in the greater Boston metropolitan area remains vibrant and strong. This is also true for the North Shore sub-market where vacancy rates are below 4% and future demand is projected to be strong with a total of forecast 12,400 rental units to be constructed from 2013 and 2016.[6]

[4] http://www.colliers.com/-/media/413017D024464715A6E98D3CF4173FBB.ashx
[5] www.loopnet.com
[6] Source: Department of Housing and Urban Development Comprehensive Market Analysis, Boston Massachusetts, 2013

With respect to residential market rents in the market area a sampling of comparable properties in the general market area was compiled from online listings which are shown in Table 5. The average rents range from slightly under $1,500 for a one bedroom unit to $2,400 for a 3 bedroom unit.

**Table 5: Route 128 North Residential Rental Market Data**

| Apartment Name | City/Town | Rent Range | | Rents | | |
|---|---|---|---|---|---|---|
| | | Low | High | 1 BR | 2BR | 3BR |
| Avalon Burlington | Burlington | $1,495 | $2,390 | $1,495 | | $2,390 |
| Leaves | Peabody | $1,430 | $1,920 | $1,430 | $1,920 | |
| Richmond Vista | Wakefield | $1,635 | $2,140 | $1,635 | $2,140 | |
| Halstead | Danvers | $1,510 | $2,675 | $1,510 | | $2,675 |
| Avalon Essex | Peabody | $1,520 | $2,375 | $1,520 | $2,375 | |
| Burnham Apartments | Beverly | $1,475 | $1,675 | $1,475 | $1,675 | |
| Jefferson | Salem | $1,524 | $2,611 | $1,524 | $2,611 | |
| Hawthorne Commons | Salem | $1,400 | $1,910 | $1,400 | $1,910 | |
| Highlands at Dearborn | Peabody | $1,475 | $2,180 | $1,475 | | $2,180 |
| Endicott Green | Danvers | $1,395 | $2,399 | $1,395 | $2,399 | |
| Longview | Georgetown | $1,410 | $1,965 | $1,410 | $1,965 | |
| **Average Rents** | | | | **$1,479** | **$2,124** | **$2,415** |

Source: forrent.com (selected listings North of Boston as of December 2014)

# 7. CONCEPTUAL PRO FORMA DEVELOPMENT COSTS

A conceptual pro forma for development was prepared to evaluate the financial viability of Concept 2. The pro forma is a static model that assumes full development of the Site and is mindful of the constraints and challenges identified in the analysis. The pro forma is not intended to provide the level of financial insight required by developers, but rather serves as a "first pass" assessment of the Site's economic feasibility. As previously noted Beverly and Wenham do not currently have zoning provisions in place that would accommodate the uses in the development concept envisioned for the site. Therefore this study has assumed a development scenario with use and dimensional requirements outlined below

The pro forma assessment assumes a mixed use development comprised of commercial and residential multi-family development. The commercial component assumes mostly office and R&D uses with two-story buildings and surface parking at a ratio of 3.3 spaces per 1,000 square feet of gross floor area (GFA) and a small retail component located along the site's frontage on Grapevine road. The multi-family residential component assumes garden flat apartments of two to four stories in height and surface parking with a density of 14 units per acre of development area. Development costs generally include design, legal fees, permitting, construction and real estate commissions. Table 6 presents the conceptual pro forma for development of Concept 2 (Preferred Alternative), as depicted in Figure 10.

The pro forma incorporates reasonable, if not slightly optimistic, assumptions regarding the amount of development that can occur on the Site when a floor area ratio (FAR) of 0.5 is applied to the developable land area. Wenham and Beverly currently allow impervious lot coverage up to 70% and 75%, respectively, which could accommodate a development FAR of 0.5.[7] The estimated total build out may be optimistic in terms of amount of space the Site could realistically be expected to absorb. Construction and development costs were based on industry standards and actual recent cost data of projects recently completed by BSC. A commercial vacancy rate of 16% is slightly less than the current rate of 18.5% shown in the Colliers 2014 3rd Quarter Market Snapshot. An estimated rent of $16 per square foot for commercial space is based on LoopNet data, and supported by a sampling of current listing rates for similar properties in the market area, which ranged from $6.95 to $20 per square foot and averaged just over $15 per square foot. The brokerage commission rate is slightly less than what is typically paid for commercial space leases of five-year "triple net deals" with no co-broker involved. There may also be costs associated with the development and implementation of a municipal agreement that are not reflected in the pro forma.

The residential development costs reflect recent multi-family development construction cost estimates for similar projects. The unit mix is weighted heavily towards smaller units to be mindful of concerns regarding fiscal impacts associated with residential projects. The estimated rents are based on current rental offerings for similar product in the Boston metro north market area and it is assumed that no affordable units will be included[8]. The estimated density of 14 units per developable acre reflects the average for recent suburban apartment developments in the Boston metro area.[9] The Beverly zoning for the site does not permit multi-family uses other than subsidized elderly housing which requires a special permit. Ordinance does not specify a permitted density for subsidized elderly housing uses but it does include a Residential High Density (RHD) zoning district that permits densities up to 14 units per acre. The Wenham Zoning Bylaw on the other hand permits multifamily development via a Flexible Development Special Permit process. However the Wenham Flexible Development caps the density at the underlying residential density of one unit per acre plus allows for density bonus of 50 percent, which is still falls short of the modeled density. Additionally, in addition to Beverly's subsidized elderly housing inclusionary provision of 15 percent of the units be made affordable, it has an inclusionary housing provision that 12 percent of the units in developments of 10 or more units be made affordable. Wenham also has an inclusionary housing provision that requires either 10 or 15 percent of the units to be made affordable for low or moderate income families respectively. Unless waived, the inclusionary housing provision would reduce the monthly rental income slightly for the affordable units.

The conceptual pro forma (Table 6) assumes a development mix of 30% commercial and 70% multifamily residential. This ratio was selected as it represents the ratio where full development of the Site where project revenues equal project expenses or the break even ratio. Sensitivity analysis was performed to evaluate how the percentage mix of commercial and multi-family residential development and residential unit density would affect net income.

[7] The pro forma applies the FAR only to the developable portion of the lot. The lot coverage ratios include the entire larger total lot area which easily supports the maximum allowed impervious area

[8] The financial return on multi-family development does not reflect inclusionary affordable units that may be required by Beverly and Wenham which would lessen the estimated Net Income

[9] Survey of Gross Density of Recent Apartment Developments in Boston Area Suburbs, October 16, 2013, prepared for the Needham Zoning Board of Appeals by RKG Associates

## Table 6: Conceptual Development Pro Forma

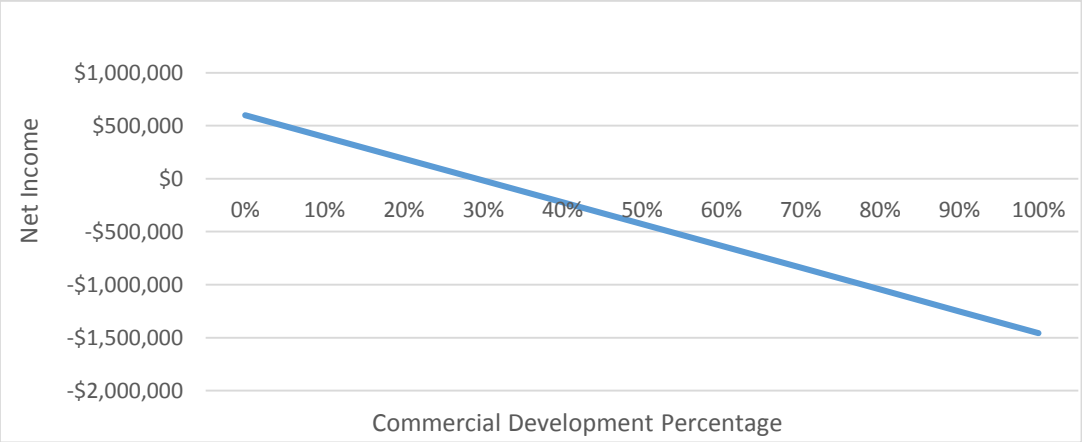
| Assumptions | Project Costs | Notes | | | |
|---|---|---|---|---|---|
| Comm/MF Residential Mix | | 30% Commercial /70% Residential | | | |
| Total Development Area | 801,5845 | 18.62 acres | | | |
| Roadway Length (lf) | 2,200 | Const cost /lf | $850 | | |
| Driveway Length (lf) | 3,400 | Const cost /lf | $450 | | |
| Estimated Comm Development FAR* | 0.5 | * assumes 2 story building with 3.3 parking Spaces per 1,000 GFA | | | |
| Estimated Res Development DU per acre | 14.3 | Average density of recent Boston metro suburban apartment projects | | | |
| Max Potential Comm Build Out (sf) | 120,238 | | | | |
| Building Comm Bldg Const Cost/sf Shell and Core | $90 | | | | |
| Comm Bldg Const Cost/sf Fit up | $40 | | 1 BR | 2 BR | 3 BR |
| Maximum Potential MF Res Build Out (# of Units) | 184 | Unit Mix | 50% | 40% | 10% |
| Res Building Const Cost/DU | $150,000 | Monthly Rent | $1,475 | $2,125 | $2,415 |
| Res Site Development Cost/DU | $40,000 | | | | |
| Comm Site Development Cost/sf | $30 | | | | |
| Land Cost | $0 | Assume Land Value equal to imputed equity | | | |
| Interest Rate | 5.50% | | | | |
| Brokerage Commissions (lease) | 15.00% | | | | |
| Development Soft Cost | 2.00% | % of total Const Cost | | | |
| Rent/sf | $16.00 | Loop Net | | | |
| Operating Costs/sf | 1 | | | | |
| Operating cost/DU | 3% | % of Rental Income | | | |
| Vacancy Rate | 16% | Colliers 3rd Quarter Market Snapshot lists Route 128 North Area Vacancy at 18.5% | | | |
| **Expense/Revenue** | | | | | |
| **Expenses** | | | | | |
| Roadway | $1,870,000 | | | | |
| Driveway | $1,530,000 | | | | |
| Comm Building Const Cost (Shell and Core) | $10,821,384 | | | | |
| Comm Building Const Cost (Fit up) | $4,809,504 | | | | |
| Res Building Const cost | $27,630,357 | | | | |
| Site Development Cost | $10,975,223 | | | | |
| Soft Development Costs | $1,152,729 | | | | |
| Commissions Lease Up | $288,570 | | | | |
| Developer Fee/Profit | $5,907,777 | 10% of Project Cost | | | |
| Total Expenses | $64,985,545 | | | | |
| | | | | | |
| Interest and Debt | $5,437,947 | Total Expenses w/ a 20 year amortization @ 5.5% interest | | | |
| Operating expenses | $241,524 | Administration, Insurance, Taxes, Maintenance, and Management | | | |
| **Total Annual Expense** | **$5,679,471** | | | | |
| | | | | | |
| **Revenues** | | | | | |
| Comm Rents | $1,615,990 | Assume 16% Vacancy | | | |
| Res Rents | $4,042,874 | Assume 100% Market Rate | | | |
| **Total Revenue** | **$5,658,867** | | | | |
| **Net Income** | **-$20,603** | | | | |

Notes: 1. sf = square foot, lf = linear foot, Comm = Commercial, Res = Residential, MF = Multi-family, Const = Construction, DU = Dwelling Unit

2. Commercial construction unit costs from "Construction, Repair, Maintenance & Upgrade Costs for Office, Warehouse, Distribution, and Manufacturing Facilities prepared by DACON 2013 edition. Residential and site development construction unit pricing are generally derived information obtained from actual projects of similar scale, scope and type.

Table 7 depicts the annual Net Income with full development of the Site for the full spectrum of commercial/residential percentage ratios. The results of the pro forma indicate there is a greater financial return as the percentage of residential development increases, with a projected annual net income of approximately $500,000 for 100% residential. The pro forma assumes the value of the land to be imputed as part of the equity for the project. The net income figure used in this report was to illustrate the cash flow that may be realized from development. Unlike Net Operation Income (NOI) which does not include debt service, net income is the income after debt service. Calculations involving NOI and capitalization rates are sometimes used in real estate valuations.[10] However, the pro forma model is a preliminary analysis to gauge the financial feasibility and admittedly biased to favorable assumptions such as market absorption rate, all market rate housing, construction costs and financing, and soft costs.

**Table 7: Net Income Based on Percentage of Commercial Site Development**




The host communities have expressed a desire for development of the Boulder Lane properties to expand their respective tax base and create employment opportunities. A further analysis was performed to determine the relationship between multi-family residential unit density per acre and net income, assuming a 30/70 mix of commercial and residential development.

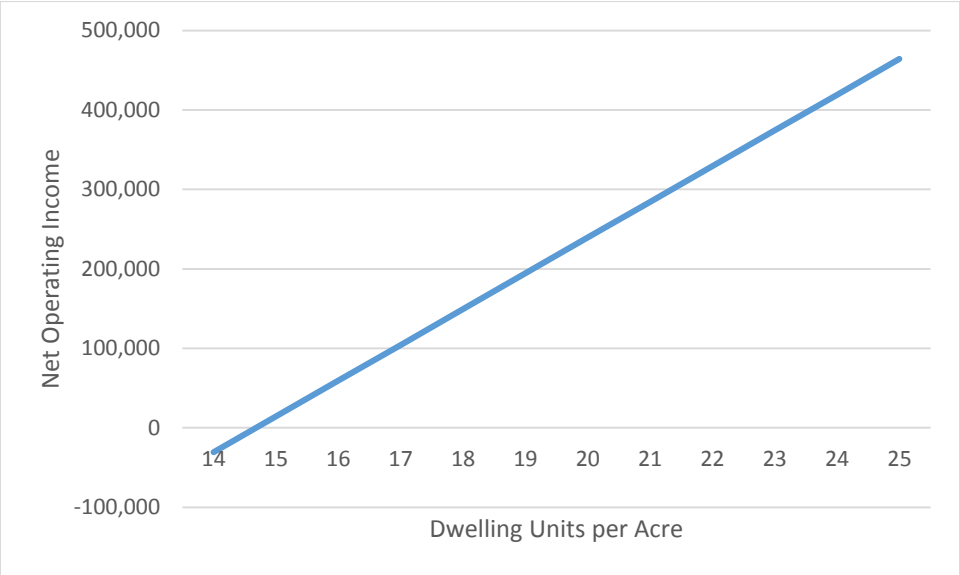
Table 8 indicates that net income will increase in a linear fashion as the unit density increases and approaches a net income of $500,000 with a density of 25 units per acre, comparable to the results with

[10] A capitalization rate ( "cap rate") is a number used to estimate the value of an income-producing property. There are no cap rate tables, no firm standard, and no universal formulas for arriving at the cap rate, and they change frequently, depending on market demand for particular types of properties, lender appetite for particular types of loans, and prevailing interest rates. Most commercial real estate brokers, appraisers, and lenders use a range of cap rates for different types of properties. Typically the annual net operating income is divided by the cap rate to arrive at a value. High quality, multi-tenant medical offices might sell for cap rates of 7%, and rundown apartment buildings with high turnover might sell for a cap rate of 13%. .If both types of buildings had gross rents of $300,000 per year with operating expenses of $60,000, then each would have a net operating income (NOI) of $240,000. By dividing the cap rate into the NOI, the medical offices would have a value of $240,000 / 0.07, or $3,428,571. Using the same formula for the apartments, but the higher cap rate, $240,000 / 0.13 gives a value of $1,846,153. It seems counterintuitive at first, but the higher the cap rate, the lower the value.
The Complete Real Estate Encyclopedia by Denise L. Evans, JD & O. William Evans, JD. Copyright © 2007 by The McGraw-Hill Companies, Inc.

100% residential with a density of 14 units per acre. However, as density increases there may be additional development costs not associated with lower densities, e.g., structured or underground parking.

**Table 8: Dwelling Units per Acre and Net Income**

(Assumes 30% Commercial)




## 8. FEASIBILITY OF DEVELOPMENT FINDINGS

Site advantages include the existing layout of Boulder Lane and ease of highway access. Another advantage is the willingness of both municipalities to work together in order to develop the Site for office or R&D space. Proximity to nearby Gordon College may also be an advantage for certain uses, e.g., small service, retail or convenience grocery. Development of Boulder Lane is an opportunity to increase the tax base of each community, and provide new employment opportunities for nearby residents.

Site disadvantages include the environmental constraints discussed above (e.g., BVW, PVPs/CVPs, and steep slopes). The MassDOT vista easement limits Site visibility from the highway, which may significantly diminish the marketability for commercial uses that depend on visible signage to attract a sufficient volume of customers.

As described in Section 7, the pro forma indicates that multi-family residential use creates the greatest value for the Site. This is explained in part by the area's stronger residential rents, as compared to commercial rents, which go further towards offsetting the Site's significant development costs. However, residential uses do not generate the job creation or tax base benefits sought by the host communities.

In addition to the site and market consideration, there are regulatory considerations to be addressed. The current zoning in Wenham and Beverly are not coordinated, nor would they permit a mixed use development similar to the concept presented herein. It may be feasible to utilize Massachusetts General

Laws Chapter 40B under a friendly Local Initiative Programs (LIP) to override the existing zoning via the issuance of comprehensive permits by the respective Zoning Board of Appeals. Another option could be the adoption of new and coordinated zoning provisions for the contemplated development.

# 9. POTENTIAL APPROACHES TO DEVELOPMENT

The preliminary conclusions of this analysis suggest that the multifamily residential development may be more able to absorb the high site development costs than commercial development. The commercial market does not appear to generate rents that are sufficient to cover development costs.

After considering the advantages and constraints of the Site, BSC considered potential approaches to determining marketability of the Site, and reviews alternatives for phased and/or industry-specific Site development.

## 9.1 SITE MARKETABILITY ASSESSMENT

Accurately determining marketability is extremely difficult. Market assessments rely on existing data and trends which are extrapolated to allow projections. The predictive accuracy is not always reliable. There is a possibility that a specific use or user would have a strong strategic reason to locate facilities at the Boulder Lane Site. It may be possible to more accurately validate market demand by listing and actively marketing the property. The material generated in this analysis could be repurposed as part of a marketing prospectus package to generate interest and provide prospective developers with upfront data and plans to assist with their due diligence. This approach may also help eliminate the hesitancy of prospective developers or interested parties because they will not need to generate their own plans and analyses.

If Wenham and Beverly decide to market the property, it is recommended that all of the parcels be listed as a single package. This approach requires resolution of a number of issues in order to be successful. The first is an agreement among the owners as to overall asking price and more importantly how the proceeds are to be proportioned. Perhaps a proportional interest associated with each ownership parcel be treated as shares whose value will be determined by the actual sale price. This exercise will need to factor the development capacity of the lots as well as the weighted dependency/cost associated with the provisions of infrastructure to the parcels.

The desired use mix should be determined and articulated in the offering. Additionally, the host communities should evaluate the development's consistency with local zoning, and adopt or express the willingness to zoning provisions that would accommodate the desired development scheme, as appropriate. Because the site straddles municipal boundaries, a jointly adopted overlay district may be a good approach for regulating the project area.

The public ownership of some of the property represents another challenge to marketing the property. Massachusetts General Laws Chapter 30B details the public procurement process for goods, services, and the disposition of real estate. Technically, the sale of publicly-held land requires a public bidding process, typically in the form of a Request for Proposal (RFP). While this process can be unwieldy, there are techniques that can be employed to narrow its focus. The first issue to resolve is whether the public owned land is designated as open space or is held in any similar fashion that would require an act of the state legislature before it could be offered for sale. The municipality must also declare the property a surplus.

The RFP should state the intent is to sell the property as part of an assemblage of parcels and should include terms and conditions that link the sale of the property with the other parcels. The RFP will require an end date at which time all bids must be received and it is suggested the time be of sufficient length to maximize the market exposure. A licensed broker may be engaged to market the property, but they would be owed a commission if they successfully procure a buyer. Any RFP should stipulate that the final decision is at the sole discretion of the Seller and the Seller may elect not to sell if no satisfactory offer is rendered.

## 9.2 PHASED AND/OR PARTIAL SITE DEVELOPMENT

An alternative approach to large scale development of the Site is to consider the opportunity for smaller scale initiatives that leverage Site advantages and minimize development costs. For example, the frontage along Grapevine Road may have potential for a small scale commercial development which could include retail and service uses. These uses could be supported by nearby Gordon College and local traffic entering and exiting from Route 128. Proximity to Grapevine Road would limit the amount of roadway and infrastructure necessary to service the Site. The outcome of this initial development could spur additional phases in the Site's interior sections. The disadvantage to this approach is that development of the Beverly portion would be delayed.

Another approach, which could be undertaken separately or in conjunction with the above, is to focus on partial Site development that may generate income with little development cost by focusing on marketing the space for additional cell towers. Given the topography and lack of visibility from nearby residential areas, it may be possible to attract other telecommunication users to locate additional transmission facilities on the Site. This type of use generates income, requires minimal clearing and has modest roadway infrastructure requirements. Additional financial analysis should be undertaken to determine the feasibility of this approach.

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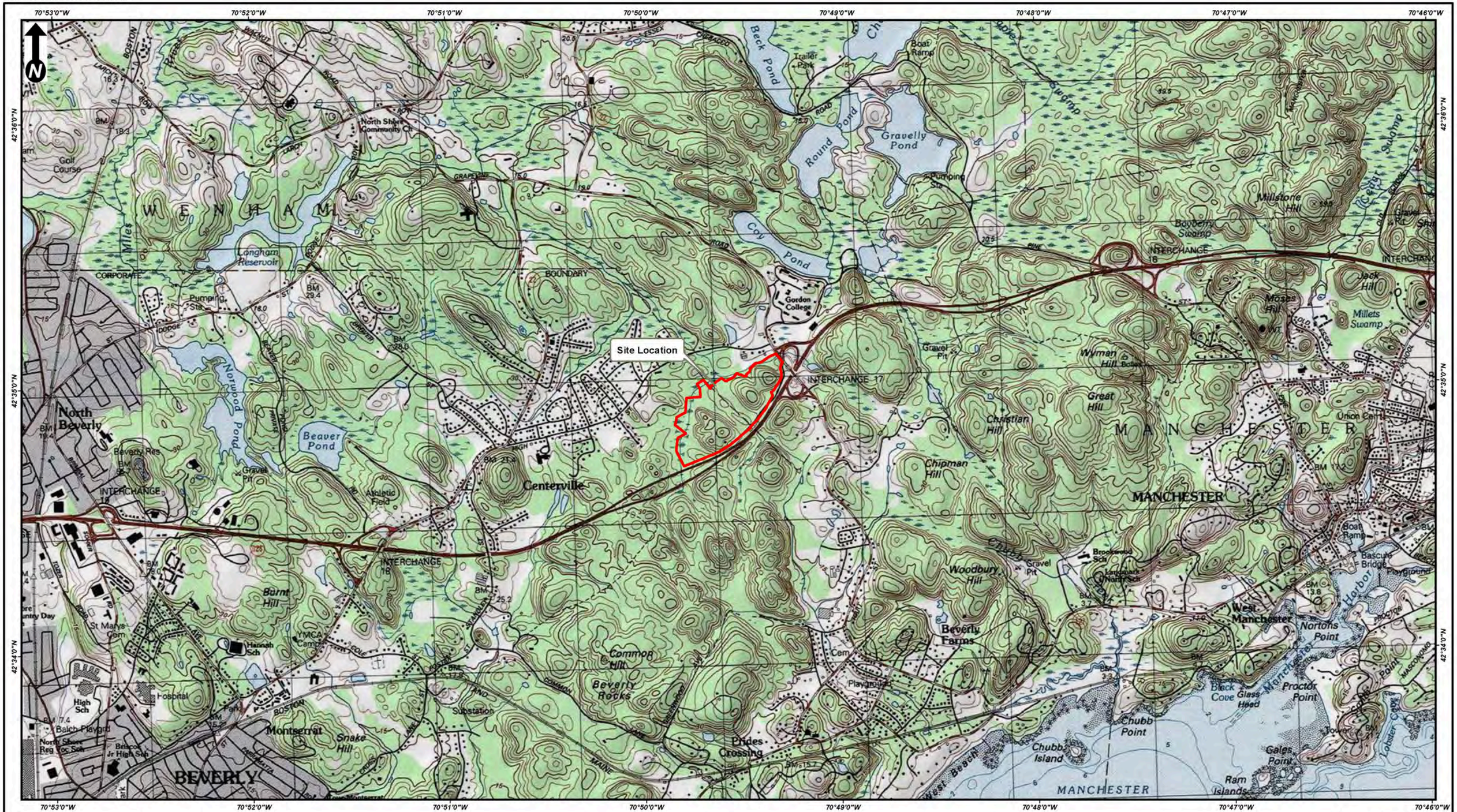


Scale:
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Feet

**BOULDER LAND MIXED USE FEASIBILITY STUDY**

**Figure 1: Site Locus**
**Wenham & Beverly, MA**

Source: USGS, 1982-1990; MADOT, 2005; MassGIS, 2008

BSC GROUP

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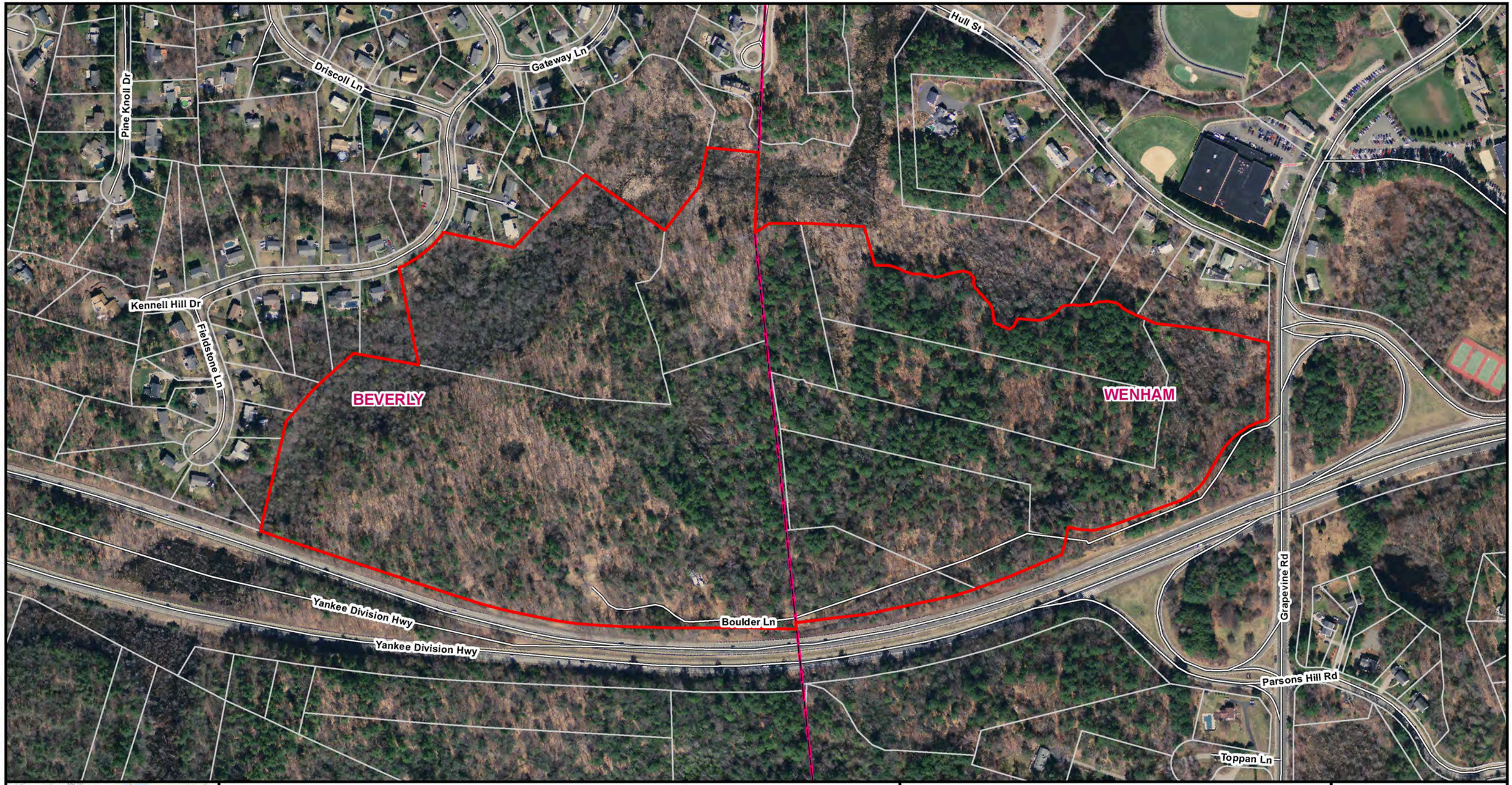

**Legend**

- Area of Interest
- Roads
- Parcel Boundary
- Town Boundary

1 inch = 300 feet

0 300 600

Feet

Source:
-MassGIS Basemap & Environmental Data
-Aerial & Topo Imagery
ESRI, DigitalGlobe, GeoEye, i-cubed, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., AEX, GEBCO, USDA, USGS, FAO, NPS, NRCAN, GeoBase, Getmapping, Aerogrid, IGP, IGN, Kadaster NL, Ordnance Survey, ESRI japan, METI, ESRI China (Hong Kong), swisstopo, & the GIS User Community

# BOULDER LAND MIXED USE FEASIBILITY STUDY

## Figure 2: Aerial Plan

Wenham & Beverly, MA

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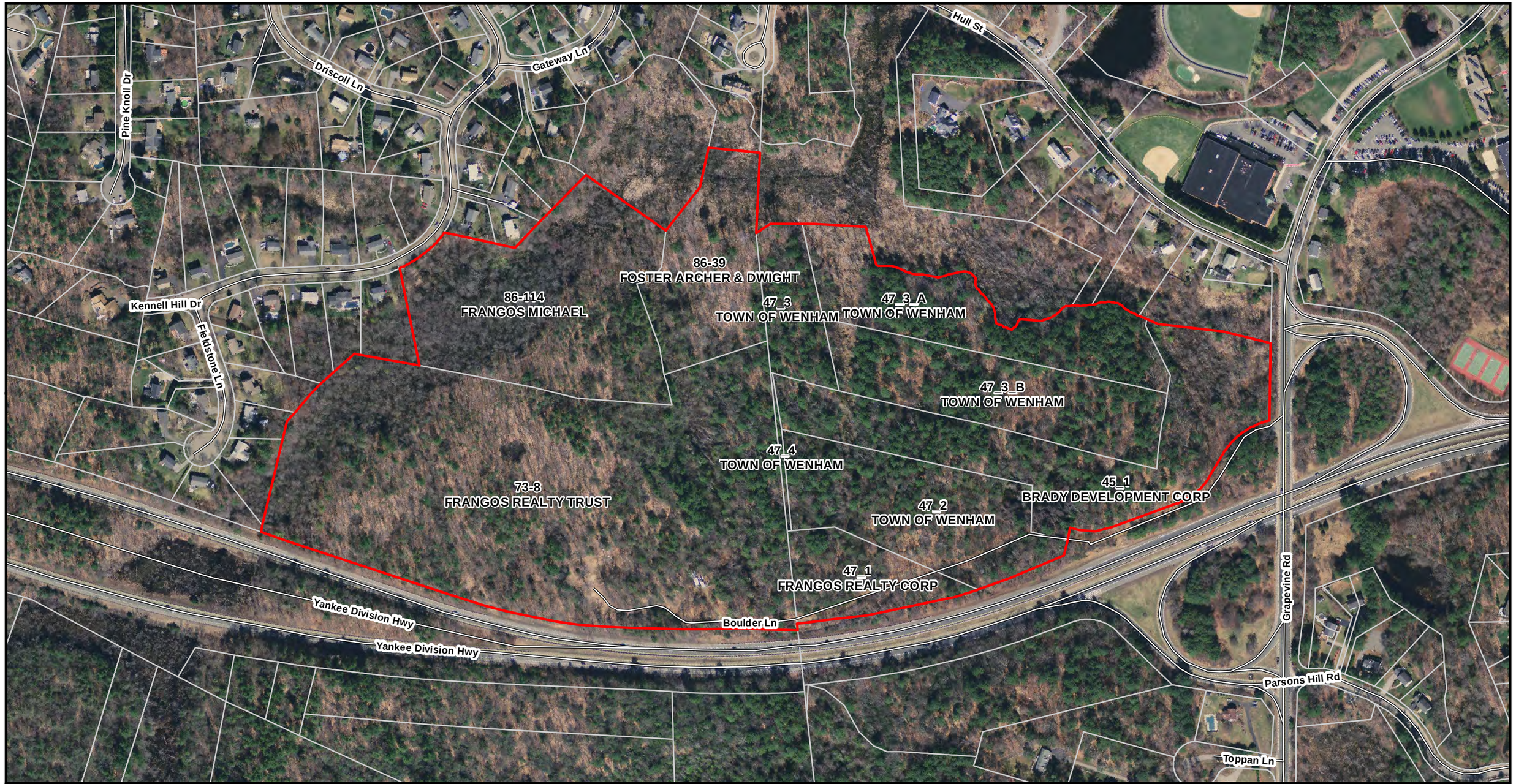


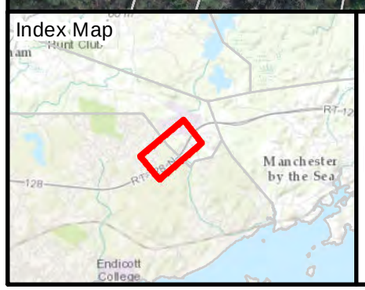


**Legend**

- Area of Interest
- Roads
- Parcel Boundary
- Town Boundary

1 inch = 300 feet

0 300 600

Feet

Source:
-MassGIS
Basemap & Environmental Data
-Aerial & Topo Imagery
ESRI, DigitalGlobe, GeoEye, i-cubed, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., AEX, GEBCO, USDA, USGS, FAO, NPS, NRCAN, GeoBase, Getmapping, Aerogrid, IGP, IGN, Kadaster NL, Ordnance Survey, ESRI japan, METI, ESRI China (Hong Kong), swisstopo, & the GIS User Community

# BOULDER LAND MIXED USE FEASIBILITY STUDY

## Figure 3: Parcel Plan

Wenham & Beverly, MA

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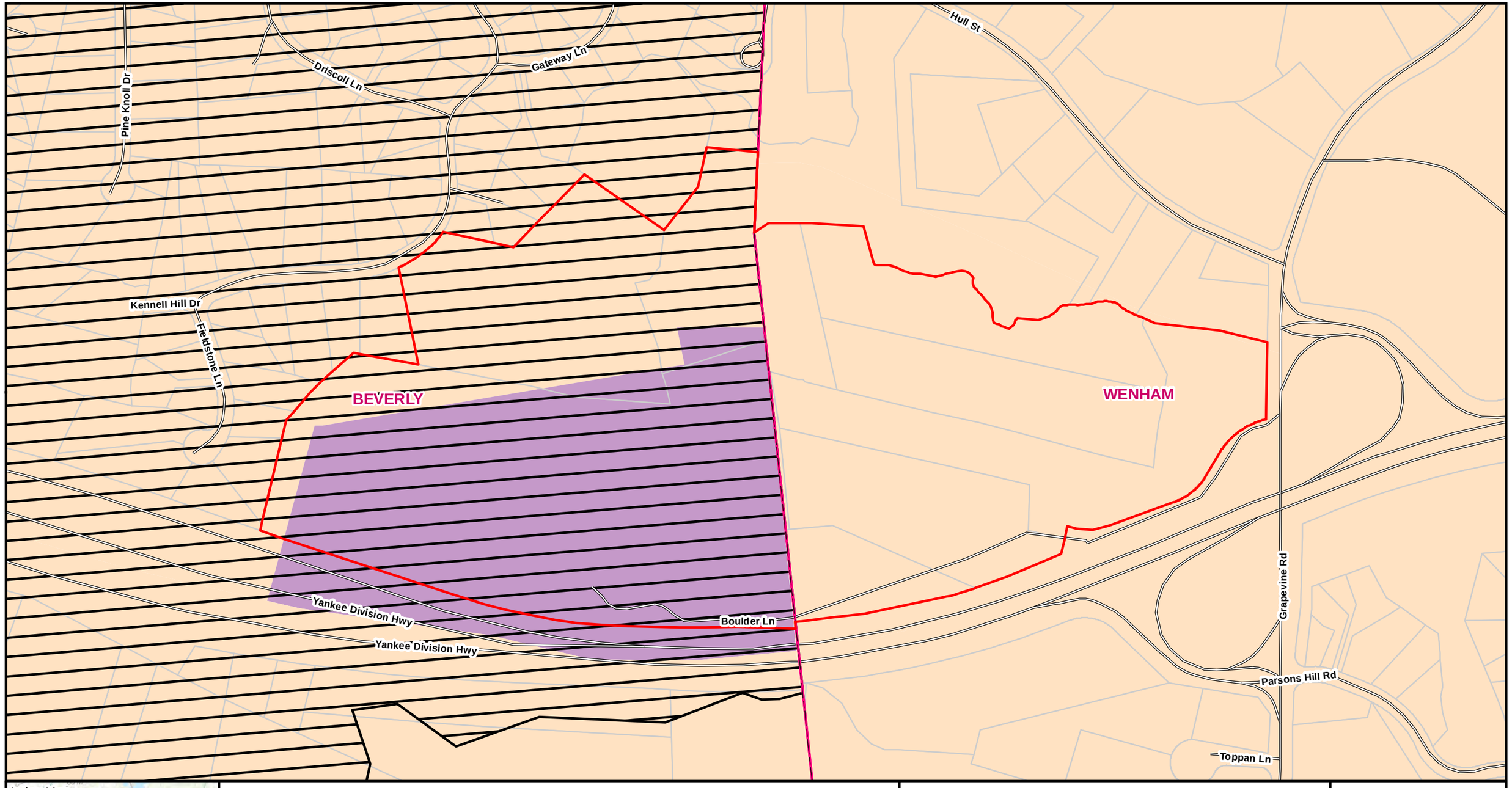


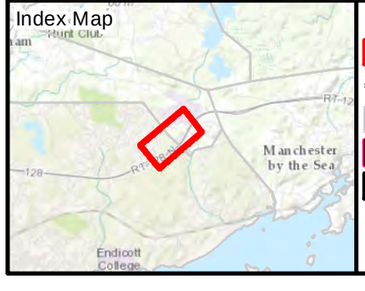


**Legend**

- Area of Interest
- Roads
- Parcel Boundary
- Town Boundary
- Water Protection Overlay

**Zoning by General Use**

- Residential
- Industrial

1 inch = 300 feet

0 300 600

Feet

Source:
-MassGIS
Basemap & Environmental Data
-Aerial & Topo Imagery
ESRI, DigitalGlobe, GeoEye, i-cubed, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., AEX, GEBCO, USDA, USGS, FAO, NPS, NRCAN, GeoBase, Getmapping, Aerogrid, IGP, IGN, Kadaster NL, Ordnance Survey, ESRI japan, METI, ESRI China (Hong Kong), swisstopo, & the GIS User Community

# BOULDER LAND MIXED USE FEASIBILITY STUDY

## Figure 4: Zoning

Wenham & Beverly, MA

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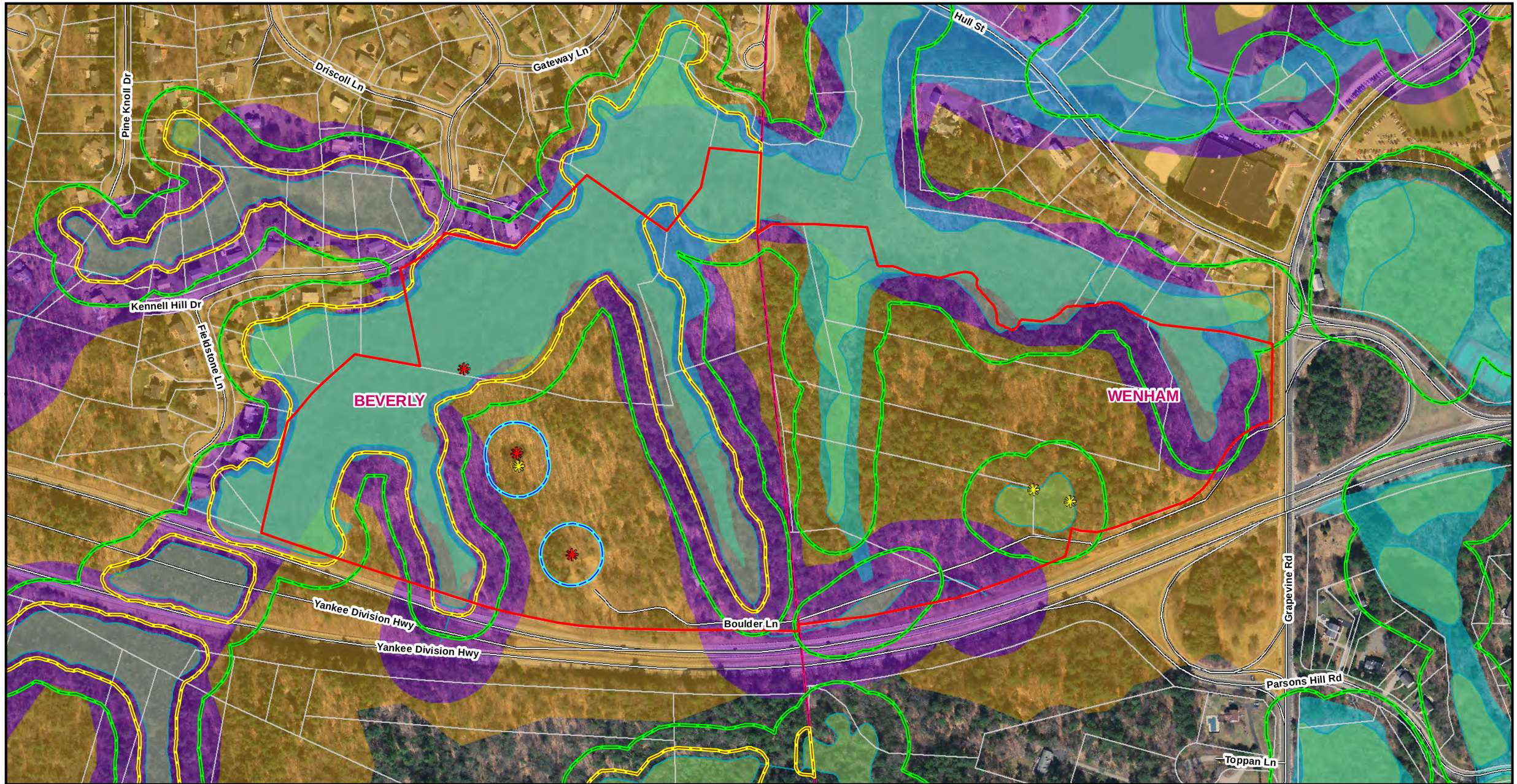
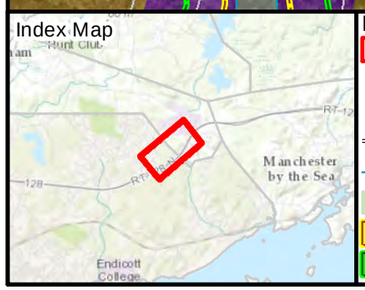



Index Map




**Legend**

- Area of Interest
- Certified Vernal Pools
- Potential Vernal Pools
- Roads
- MADEP Hydrologic Connections
- MADEP Wetlands
- 25ft No Disturb Zone
- 100ft Buffer Zone
- 100ft No Disturb Zone to Vernal Pools
- FEMA Floodplain
- Parcel Boundary
- Town Boundary

**Surface Water Protection Zone**

- Zone A
- Zone C

1 inch = 300 feet
0 300 600
Feet

*Entire Area of Interest is within Surface Water Protection Zone and Outstanding Resource Water Area*

Source:
-MassGIS
Basemap & Environmental Data
-Aerial & Topo Imagery
ESRI, DigitalGlobe, GeoEye, i-cubed, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., AEX, GEBCO, USDA, USGS, FAO, NPS, NRCAN, GeoBase, Getmapping, Aerogrid, IGP, IGN, Kadaster NL, Ordnance Survey, ESRI japan, METI, ESRI China (Hong Kong), swisstopo, & the GIS User Community

# BOULDER LAND MIXED USE FEASIBILITY STUDY

## Figure 5: Water and Wetland Resources

Wenham & Beverly, MA

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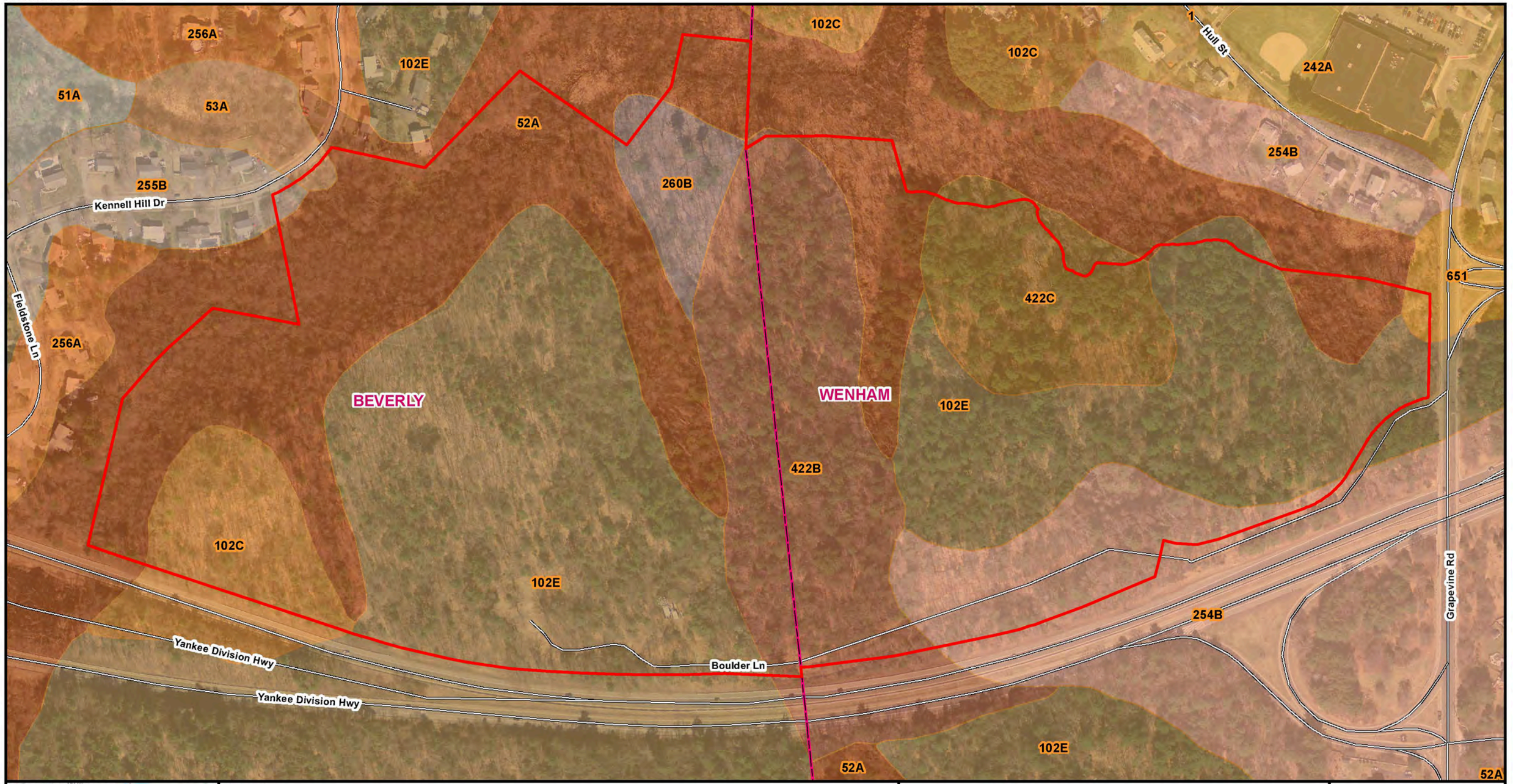


Index Map

Legend

Soil Type

| | | | |
|---|---|---|---|
| 102C | Chatfield-Hollis-Rock outcrop complex 3 to 15 percent slopes | 260B | Sudbury fine sandy loam 3 to 8 percent slopes |
| 102E | Chatfield-Hollis-Rock outcrop complex 15 to 35 percent slopes | 422B | Canton fine sandy loam, extremely stony 3 to 8 percent slopes |
| 242A | Hinckley gravelly fine sandy loam 0 to 3 percent slopes | 422C | Canton fine sandy loam, extremely stony 8 to 15 percent slopes |
| 254B | Merrimac fine sandy loam 3 to 8 percent slopes | 51A | Swansea muck 0 to 1 percent slopes |
| 255B | Merrimac fine sandy loam 3 to 8 percent slopes | 52A | Freetown muck 0 to 1 percent slopes |
| 256A | Deerfield loamy fine sand 0 to 3 percent slopes | 53A | Freetown muck, ponded, MLRA 144A 0 to 1 percent slopes |
| | | 651 | Udorthents, smoothed |

Area of Interest
Roads
Town Boundary

1 inch = 225 feet
0 225 450
Feet

Source:
-MassGIS
Basemap & Environmental Data
-Aerial & Topo Imagery
ESRI, DigitalGlobe, GeoEye, i-cubed, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., AEX, GEBCO, USDA, USGS, FAO, NPS, NRCAN, GeoBase, Getmapping, Aerogrid, IGP, IGN, Kadaster NL, Ordnance Survey, ESRI japan, METI, ESRI China (Hong Kong), swisstopo, & the GIS User Community

# BOULDER LAND MIXED USE FEASIBILITY STUDY

## Figure 6: Soils

Wenham & Beverly, MA

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NOTES:
CVP'S REQUIRE BOUNDARY DELINEATION. TOPOGRAPHIC ASSESSMENT DOES NOT SUGGEST ILSF/ JURISDICTIONAL CONSTRAINTS

# FIGURE 7: TOPOGRAPHIC CONSTRAINTS & VISTA EASEMENT PLAN

## BOULDER LANE DEVELOPMENT FEASIBILITY STUDY

Wenham, MA

LEGEND

- PROJECT BOUNDARY
- 200' VISTA EASEMENT
- STREAM
- 100' WETLAND BUFFER
- 25 NO DISTURB
- 100' NO DISTURB-VERNAL AT POOLS
- WETLAND
- STEEP SLOPES
- 2' CONTOUR
- CVP CERTIFIED VERNAL POOL
- PVP POTENTIAL VERNAL POOL

CVP PVP

SCALE: 1" = 100'

0 50 100 200 FEET

BSC GROUP
33 Waldo Street
Worcester, Massachusetts
01608
508 792 4500

DATE: Month Day, Year
FILENAME: \GRAPHICS\

NOTES:
CVP'S REQUIRE BOUNDARY DELINEATION. TOPOGRAPHIC ASSESSMENT DOES NOT SUGGEST ILSF/ JURISDICTIONAL CONSTRAINTS.

# FIGURE 8: CONCEPT 1

## BOULDER LANE DEVELOPMENT FEASIBILITY STUDY

Wenham, MA

LEGEND

- PROJECT BOUNDARY
- STREAM
- 100' WETLAND BUFFER
- 25 NO DISTURB
- WETLAND
- ROADWAY
- DRIVEWAY
- DEVELOPABLE AREA
- CONSTRAINED AREA
- CVP CERTIFIED VERNAL POOL
- PVP POTENTIAL VERNAL POOL

SCALE: 1" = 100'
0 50 100 200 FEET

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33 Waldo Street
Worcester, Massachusetts
01608
508 792 4500

DATE: Month Day, Year
FILENAME: \GRAPHICS\

NOTES:
CVP'S REQUIRE BOUNDARY DELINEATION. TOPOGRAPHIC ASSESSMENT DOES NOT SUGGEST ILSF/ JURISDICTIONAL CONSTRAINTS.

# FIGURE 9: CONCEPT 2

## BOULDER LANE DEVELOPMENT FEASIBILITY STUDY
Wenham, MA

LEGEND

- PROJECT BOUNDARY
- STREAM
- 100' WETLAND BUFFER
- 25 NO DISTURB
- WETLAND
- ROADWAY
- DRIVEWAY
- DEVELOPABLE AREA
- CONSTRAINED AREA
- CVP CERTIFIED VERNAL POOL
- PVP POTENTIAL VERNAL POOL

SCALE: 1" = 100'
0 50 100 200 FEET

BSC GROUP
33 Waldo Street
Worcester, Massachusetts
01608
508 792 4500

DATE: Month Day, Year
FILENAME: \GRAPHICS\

ACTIVITY LAWN

110,000 SF.
85 UNITS
170-P.S.

40,000 SF.
31 UNITS
75-P.S.

12,000 SF.
8 UNITS
18-P.S.

12,000 SF.
8 UNITS
18-P.S.

20,000 SF.
65-P.S.

40,000 SF.
31 UNITS
65-P.S.

30,000 SF.
23 UNITS
50-P.S.

40,000 SF.
125-P.S.

12,000 SF.
8 UNITS
27-P.S.

12,000 SF.
8 UNITS
27-P.S.

15,000 SF.
50-P.S.

12,000 SF.
40-P.S.

5,000 SF.
RETAIL
40-P.S.

20,000 SF.
65-P.S.

CELL TOWER

**DEVELOPMENT TOTALS**

| TOWN | RESIDENTIAL # UNITS | OFFICE SQ.FT. | RETAIL Q.FT. |
|---|---|---|---|
| WENHAM | 86 | 52,000 | 5,000 |
| BEVERLY | 139 | 55,000 | 0 |
| **TOTAL** | **194** | **107,000** | **5,000** |

# FIGURE 10: CONCEPTUAL DEVELOPMENT

## BOULDER LANE DEVELOPMENT FEASIBILITY STUDY
Wenham, MA

LEGEND

- PROJECT BOUNDARY
- STREAM
- 100' WETLAND BUFFER
- 25 NO DISTURB
- WETLAND
- 200' VISTA EASEMENT
- CVP CVP CERTIFIED VERNAL POOL
- PVP PVP POTENTIAL VERNAL POOL
- ROADWAY
- DRIVEWAY
- DEVELOPABLE AREA
- CONSTRAINED AREA
- COMMERCIAL BUILDING (2 STY.)
- RESIDENTIAL BUILDING (3STY.)
- PEDESTRIAN TRAILS

SCALE: 1" = 100'
0 50 100 200 FEET

BSC GROUP
33 Waldo Street
Worcester, Massachusetts
01608
508 792 4500

DATE: Month Day, Year
FILENAME: \GRAPHICS\