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## **SECTION 4.0**

### **SYSTEM BUILD-OUT EVALUATION**

As part of our system evaluation, PARE conducted a limited build-out evaluation of the Town in order to estimate future water demands and evaluate the future needs of the distribution system. This section of the Water System Master Plan describes PARE’s limited build-out evaluation of the Town; Section 5 of the Plan describes PARE’s evaluation of system performance after build-out.

In order to evaluate the build-out potential of the Town, PARE reviewed several documents provided by the Town and corresponded with Ms. Vera Koliass, AICP, the Southborough Town Planner. The information reviewed by PARE includes Town of Southborough 2008 Master Plan (Town Master Plan) and a document titled 2006 Southborough Build-Out Analysis-Working Document. The Town Master Plan includes a town-wide build-out analysis, which was prepared to accurately assess local growth potential on a parcel-by-parcel basis. This data is based on the 2006 Southborough Build-Out Analysis-Working Document. The Town’s parcel-by-parcel methodology reflects local knowledge about existing land use, ownership patterns, and soil conditions (for suitability for on-site septic disposal), as well as zoning (residential zoning is limited to construction of single family dwelling units). PARE used the information provided in these documents, as well as information provided by Ms. Koliass to estimate the future residential build-out in Town and the future non-residential build-out in Town.

#### **4.1 RESIDENTIAL BUILD-OUT**

The parcel-based analysis for residential development considers two components, maximum build-out based on vacant parcels and maximum build-out of underdeveloped parcels. Based on information presented in the Town Master Plan, at build-out an additional 475 dwelling units may be constructed on vacant parcels and 298 dwelling units may be constructed as infill development for a total additional construction of 773 residential units. Based on the average number of residential (single family) building permits issued over the previous five years (36 per year), full residential build-out will occur around 2030. The Town Master Plan indicates that at build-out, the Town-wide population is expected to be 11,721. This figure does not reflect the construction of any multifamily housing (including “assisted living” units) constructed under the 40B Comprehensive Permit program.



The Planning Department has continued to maintain a build-out database as development has been permitted. The Town reports that they currently have 431 vacant buildable residential parcels, as indicated in Table 4-1, below. This is approximately 44 less than reported in the Town Master Plan, which is a result of building permits being issued since the date of the Town Master Plan. Of the 431 parcels, 222 are located east of Route 85 in the Low Service Area and 209 are located to the west of Rt. 85 in the High Service Area. The Cordaville neighborhood south of I-90, located both east and west of Route 85, is a built-out section of town that is located within the Low Service area. Ms. Koliass indicated that there is more development pressure in the northwestern area of town (High Service Area), an area previously dominated by large agricultural tracts. This is an area with younger families than in the more mature neighborhoods to the east and south.

In 2000, the US Census reported that there were 2,952 households in Southborough. The US Census reports that between 2000 and 2008, 387 residential units were constructed in Town – 233 in the Low Service Area to the east of Rt. 85 and 154 in the High Service Area to the west of Rt. 85. Table 4-1 shows the current vacant lots in Town and the build-out potential of each service area, not including infill development, which is discussed below.

<b>TABLE 4-1: Existing and Projected Residential Lots</b>				
Service Area	US Census – Number of Households 2000	Number of Building Permits Issued 2000 to 2008	Current Vacant Buildable Residential Parcels	Total Number of Households at Build-out
East of Route 85 (Low Service Area)	1,393	233	222	1,848
West of Route 85 (High Service Area)	1,559	154	209	1,922
<b>TOTAL</b>	<b>2,952</b>	<b>387</b>	<b>431</b>	<b>3,770</b>

To account for the additional 298 units that could be developed as infill development, PARE corresponded with the Ms. Koliass. Approximately 60 percent of the future infill development could occur in the Low Service Area and approximately 40 percent could occur in the High Service Area. Therefore, PARE assigned 179 new residential infill units to the Low Service Area and 119 new residential infill units to the High Service Area. Town-wide future residential development is estimated at 729 new residential units, including 431 currently vacant parcels and 298 potential infill units.



To estimate future residential water demand, PARE utilized the number of future residential service connections, which corresponds to the future potential residential development, or 729 new service connections. PARE made the assumption that future residential customers will use a similar amount of water as existing residential customers, or approximately 300-gpd/service connection (refer to Section 2.2). PARE then applied that water demand to the proposed 729 buildable residential lots to estimate future water demand for residential users. Table 4-2 indicates the build-out potential in the High and Low Service Areas. Town-wide, PARE estimates that future residential water demand will increase by approximately 0.22 MGD.

<b>TABLE 4-2: Residential Build-out Water demand by Service Area</b>				
Service Area	Current Vacant Buildable Parcels	Potential Infill Development	Total Number of New Service Connections	Total Future Water demand
Low Service Area	222	179	401	120,300 gpd
High Service Area	209	119	328	98,400 gpd
<b>TOTAL</b>	<b>431</b>	<b>298</b>	<b>729</b>	<b>218,700 gpd</b>

## 4.2 NON-RESIDENTIAL BUILD-OUT

PARE utilized build-out data in chapter two of the Town Master Plan for the non-residential build-out. Given the highly variable nature of commercial and industrial development, it is difficult to predict the number of new non-residential service connections between now and build-out. Therefore, instead of estimating future non-residential water demand based on the number of new services as we did with residential water demand, PARE estimated water demand based on the land area allocated for future non-residential development. PARE's first step was to evaluate the area of land in the Town that is allocated for future non-residential development. PARE evaluated the potential non-residential build-out by reviewing the current land use and zoning in the Town and comparing that information to the future zoning of Southborough, as provided in the Town Master Plan.

The Town Master Plan concluded that approximately 428 acres of non-residential acreage is available for future development. Given the current non-residential zoning of 948 acres, approximately 45% of non-residential zoned land has significant build-out potential.



In section 2.2, PARE estimated that non-residential users consume approximately 500-gpd/acre (gross lot area). As with our residential build-out, PARE assumed that future non-residential development would be similar in nature to current non-residential development, and therefore water demand would also be similar. Therefore, PARE applied 500-gpd/acre to the proposed non-residential acreage to estimate future water demand by non-residential users. Town-wide, PARE estimates that future non-residential water demand will increase by approximately 0.21 MGD.

Please note that this demand estimate is inclusive of the development proposed on the property behind Park Central, which is located on three contiguous parcels totaling 95 acres. One proposal for this site has includes up to 220 assisted living units and 200,000 square feet (sf) of commercial space. Based on MA DEP estimates of 150 gpd per assisted living unit and an estimate of 75-gpd/1,000 sf for commercial space, PARE estimates that future water average day demand for this proposal would be approximately 48,000 gpd, or 505-gpd/acre, which is consistent with our estimate of 500-gpd/acre.

Table 4-3 illustrates average daily demand at build-out for residential and non-residential users in the Town of Southborough

<b>TABLE 4-3: Residential and Non-Residential Average Day Demand at Build-Out</b>				
	Current Water Demand	Future Water Demand	Total Future Water Demand by Type	Increase
Residential	849,000 gpd	219,000 gpd	1,068,000 gpd	26 %
Non-Residential	240,000 gpd	214,000 gpd	454,000 gpd	89 %
<b>TOTAL</b>	<b>1,089,000 gpd</b>	<b>433,000 gpd</b>	<b>1,522,000 gpd</b>	<b>40 %</b>

Based on our evaluation of future land use, it appears as though water demand in Southborough may increase by almost 40 percent when the Town reaches its build-out. Currently average daily water demand is approximately 1.09 MGD, and may increase to 1.52 MGD at full build-out.

