

DEVELOPMENT OPTIONS FOR THE WESTON NURSERIES PROPERTY

Prepared by the Metropolitan Area Planning Council



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Executive Office of Environmental Affairs*

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I. PROJECT OVERVIEW

Background on Weston Nurseries (from the Hopkinton Land Use Study Committee web site):

“Weston Nurseries comprises +/- 920 acres of land (more than 5% of the total land area of Hopkinton), and because of this, the nursery in many ways defines the character of the entire northeast quadrant of the Town. For the last several years the owners of the property have been quietly investigating ways to extract value from the land to enable the business to re-invent itself for the next generation of the family. Most recently, there has appeared in the marketplace an offering of 615 acres of nursery property for sale. “

MAPC recognized that any development of the Weston nurseries site, and the vacant land around this property, would have multi-community impacts. In 2005, with the support of the communities of Hopkinton, Ashland and Southborough, MAPC applied for a state Smart Growth Technical Assistance grant to undertake a regional level analysis to assist the towns.

Specifically, the purpose of the grant was to:

- a. To undertake a regional analysis of the implications of development of the site under existing regulations, including traffic, housing, natural resources, water supply and fiscal impacts.
- b. To hold a series of meetings to gather public input on goals for development and/or preservation of various portions of the site and the surrounding area
- c. To develop alternative scenarios (different from the Hopkinton analysis) for the future of the site and surrounding area, and analyze the implications of those alternative futures, and
- d. To assist the towns by proposing alternative means of achieving the alternative “best case” futures, such as
 - i. acquisitions of key areas for public open space,
 - ii. alternative regulations such as changes to cluster bylaws, other re-zoning options
 - iii. proposed mitigation to accompany potential future development plans

II. PUBLIC PARTICIPATION

MAPC met three times with a committee made up of representatives from Hopkinton, Ashland and Southborough and the MetroWest Growth Management Committee. These meetings took place on:

- February 9, 2006
- April 3, 2006
- May 31, 2006

Name	Community	Representing
Paul Monaco	Ashland	Board of Selectmen
Steve Kerlin	Ashland	Town Planner
Finley Perry	Hopkinton	Hopkinton Land Use Study Committee
Eric Sonnett	Hopkinton	Board of Selectmen
Elaine Lazarus	Hopkinton	Town Planner
Vera Kalias	Southborough	Town Planner
Charles Gaffney	Southborough	Planning Board

In addition, there were two public forums on March 7, 2006 and June 15, 2006. The agendas for these public forums are included in Appendix G. The public forums were advertised in the local newspapers, posted in town halls and on town websites.

III. THE FIRST PUBLIC FORUM

Purpose of the first public forum

The purpose of the first public forum was twofold; to familiarize the residents of the three communities with the work being done under the Smart Growth Technical Assistance Grant and to poll residents concerning areas to be protected, desirable land uses and impacts to be studied.

Analysis in preparation for the first public forum

In preparation for the public forum, the MAPC GIS lab prepared a series of maps. These maps included the following:

- Natural resources
- Water resources
- Transportation
- Economic development and housing
- Topography
- Soils suitability
- Ortho-photograph of the site

These maps are included in Appendix I.

MAPC divided the entire site into 17 sub parcels based on site characteristics and prepared a chart that listed all of the natural features found in those parcels as well as other characteristics such as roadway access. This map and chart were used to obtain feedback at the public forum. This chart is included in Appendix D.

The Public Forum Agenda

The first public forum was held on March 7, 2006 at the Elmwood School in Hopkinton. The full agenda for this forum is included in Appendix G. After presenting an overview of the grant and previous studies that were done for the site, MAPC posed the following questions to the attendees:

1. What areas of the site are the most important to preserve?
2. What are the potential land uses that would work well for the site and the region?
3. What are the impacts of future development on the site that are of the most concern?

In order to identify the areas that were most important for preservation, MAPC went through all 17 sub-parcels and asked for input as to unique features that warranted protection. Then MAPC conducted a “show of hands” voting exercise, with each attendee being “given” five votes. The results of the voting are detailed in Appendix D.

The most important areas for preservation were the northern portion of the site that drains into the Hopkinton Reservoir, the agricultural views along Route 135 and an area to the south of the site that is critical to protecting the future Aprilla Farms well site.

IV. DEVELOPMENT OF THE ILLUSTRATIVE CONCEPTS

MAPC developed three illustrative concepts based on the following:

- Input from the committee
- A review of the master plans and other documents from each community
- Input received at the March 7, 2006 public forum
- The Commonwealths' Sustainable Development Principles (These are included as Appendix C).

These three potential development scenarios were termed “illustrative concepts” to emphasize that these represent only three potential scenarios out of many. In order to conduct an analysis of impacts, it was necessary to come up with several different approaches that met the goals for the project. These three concepts were used as starting points for the analysis. There are many other potential concepts that could be tested. In addition, it is important to note that this project did not take a site planning approach. Even within the three concepts, the exact locations of buildings were not determined, and was not considered critical to the analysis.

It should also be noted that the concepts were developed to meet the goals of the communities existing plans. This, rather than the goal of fiscal neutrality, drove the development of the concepts. The fiscal impacts analysis was not run until after the alternative concepts were developed.

Concept #1 was prepared based on input received from the 5/3/06 meeting of representatives of Hopkinton, Ashland and Southborough. Additional information relating to the zoning analysis which was completed in order to develop Alternative Concept #1 can be found in Appendix A). Concepts #2 and 3 were intended to illustrate alternative development options which would meet the following guiding goals:

- 1) Meet the objectives of the March 7 public forum which included protection of key areas, providing connections to nearby town centers and state parks and encompassing certain preferred uses.
- 2) Meet the goals of the communities existing plans. This was considered more important than the goal of fiscal neutrality.
- 3) Use development to “pay for” significant protection of open space – most likely to be accomplished through zoning and transfer of development rights.
- 4) Have development concepts be realistic from a market standpoint. MAPC avoided including any development concepts that were not likely to be economically feasible. MAPC worked with our economic development sub-consultant (Community Opportunities Group, Inc.) to determine which uses would likely be marketable.

- 5) The development concepts should be able to be implemented through zoning changes to the maximum extent, with additional potential of land acquisitions by the communities. MAPC did not want to depend upon implementation by municipal purchase, because even if the town(s) could purchase portions of the Weston Nurseries site, this would not be a sustainable model for use in the remainder of undeveloped land in eastern Hopkinton.
- 6) Develop plans that would score well when evaluated against the EOEA Sustainable Development Principles, in order for this project to be a demonstration project for smart growth for other suburban/rural areas.

V. DESCRIPTION OF THE THREE CONCEPTS

Concept #1 – Possible Buildout Under Existing Zoning

Overview - This concept assumes development of the entire site under existing zoning based upon by-right and special permit development options. Because the entire site is zoned residential, there is no retail or office development proposed and no cemetery or golf course. Any protection of open space, viewsheds or water supply areas would be done through zoning provisions, site design and site constraints. There would be no specific lands set aside for recreation.

- 920 housing units with none affordable.
- 890 units in Hopkinton and 30 units in Ashland.
- Total population of 2,981.
- Does not protect views along Route 135.
- No specific provisions for protecting wells and aquifers.
- No delineation of a protected wildlife/open space corridor.
- No land set aside for playing fields or a school.
- Puts housing development adjacent to the NSTAR facility.
- Development is not clustered close to the LIFT bus.
- No buffer provided adjacent to existing residential development.
- No commercial or office development.
- Open space protected through zoning provisions - 501 acres.

Housing – This concept allocates approximately 469 acres to 560 single family homes developed under the Open Space and Landscape Preservation Development bylaw (OSLPD). The total number of units is based upon buildout calculations which take into account lot size, losses to roadways and odd lot sizes, wetlands, etc. Note that lot yield shown is less than potential calculated via OSLPD bylaw calculations. For a detailed description of how the number of units was calculated, see Appendix A.

An additional 90 acres are used to develop 360 units (in three clusters) under the garden apartment bylaw. In consultation with Judi Barrett, we assumed that the garden apartments would be 40% rental and 60% owner occupied. Hopkinton Town Planner Elaine Lazarus noted that all previous Garden Apartment developments that were maximum density included municipal/common water and sewer available. All recent Garden Apartment developments are at lower density, possibly due to the market and also due to the need for space for on-site sewage treatment.

None of the units are affordable because the current zoning does not require any affordability.

	# of Units	1 BR Units	2 BR Units	3 BR Units	4 BR Units	% Affordable	Total affordable units
Single family	560				560	0%	0
Apartments/condo (Garden Apts.)	360	36	288	36	0	0%	0
Retail/office	0						
<i>Total dwelling units</i>	920						

Commercial Development – This development concept does not include any commercial uses because the zoning does not allow commercial development.

Open Space - Open space is a function of zoning requirements specific to the two different zoning bylaws applicable to Concept 1. The layout of the open space is conceptual at this time.

Parcel Designation	Acreage
Cluster #1	218.14
Cluster #2	26.09
Cluster #3	225.01
Multi-Family #1	9.25
Multi-Family #2	10.89
Multi-Family #3	11.67
Total Open Space	501.05

Transportation – This concept does not specifically address the layout of any new roads nor does it attempt to lay out the development to maximize access to the LIFT bus by locating residential uses within ¼ mile of the existing transit route.

Water and sewer – This development concept assumes all residential uses will be using a municipal water system (or community well) and a community sewage treatment plant,

in order to facilitate development in a manner less dependent upon soils. Note that it may be possible to propose this development so that all single family development uses private individual wells and septic systems and that the garden apartments will be using shared systems.

Concept #2 – Open Space Preservation Supported by Development

Overview – The goal of this concept is to have development “pay for” significant protection of open space – most likely to be accomplished through zoning and transfer of development rights. The development mix includes residential, retail and office uses. This concept seeks to provide a mix of housing and other uses that will help offset the costs of open space protection. This concept would require new zoning.

- 1,158 housing units including 180 affordable units.
- Total population of 2,891.
- Protects the views along Route 135.
- Protects the wells adjacent to Hopkinton Reservoir and the future well near Aprilla Farms.
- Provides a wildlife/trail corridor connecting the state parks.
- Reserves land for playing fields and a future school.
- Provides low-density uses as a buffer to the NSTAR facility.
- Enhances transit opportunities with the potential for bringing the LIFT Bus onto the site.
- Provides an open space buffer around existing residential development.
- Total protected open space – 703 acres.
- Limits general commercial to 25,000 square feet to avoid negative impacts on downtown and allows for a 40,000 square foot clubhouse if the golf option is chosen.
- Includes 40,000 square feet of medical/professional office space.

Housing – This concept allows for a wide-range of housing types at varying densities and assumes 25% affordability for most housing types. It takes into account the goals of the town’s housing plan as well as the realities of the market.

The 220 mixed-use units are assumed to be rental apartments. Although it is proposed that the vast majority of the single family units are to be on lots of approximately 1/2 acre as part of a tightly clustered plan, some lots at the edges of agricultural fields may be 5+ acres by including part of the agricultural areas (under conservation restriction) within the lot area. This would provide a different market for sale of these oversized lots while still protecting open space. Agricultural land could also be leased to a farmer/horticulturalist.

The assisted living facility is a residential use but is considered commercial for tax purposes and for the purposes of doing the fiscal impact analysis.

Table 4
Summary of Residential Development for Concept #2

	# of Units	1 BR Units	2 BR Units	3 BR Units	4 BR Units	% Affordable	Total affordable units
Single family	314	0	0	0	314	0	0
Condos/townhouses 6/acre	312	0	312	0	0	25%	78
Condos/townhouses 4/acre	68	0	68	0	0	25%	17
Mixed-use with apts. 8/acre	88	9	70	9	0	25%	22
Mixed-use with apts. 12/acre	132	13	106	13	0	25%	33
Asst. living senior apts.12/acre	120	120	0	0	0	25%	30
Senior townhouse 8/acre	32	0	32	0	0	0%	0
Senior single family 4/acre	92	0	92	0	0	0%	0
<i>Total dwelling units</i>	<i>1158</i>						<i>180</i>

Open Space – Concept #2 specifically targets for protection those areas that were identified as having a high priority for preservation at the March public forum. Table 5 details each parcel that was included in the total open space acreage. This plan acknowledges that there are many ways to count open space depending on whether the focus is wildlife, trails, active recreation or water quality. The working definition of open space for this planning process is the undeveloped portions of the site that address key concepts voiced in the public forum regarding what land to protect and uses that might accomplish that. It should be noted that the golf course parcel is larger than would be needed for a 18 hole course. This excess acreage would allow for greater flexibility when designing a golf course, allowing it to be located outside of the watershed for the reservoir. The excess acreage could be used for other open space uses. There is also more than enough acreage to include space for community gardens if desired.

Table 5 Summary of Open Space for Concept #2	
Parcel Designation	Acreage
Agricultural views protection	67.04
Buffer/trail	25.04
Cemetery/golf course	265.21
Far south	73.25
Recreation	50.17
Water supply protection	84.70
Wildlife/trail	138.21
<i>Total open space</i>	<i>703.62</i>

Commercial Development – Concept #2 envisions a modest amount of commercial space consisting of three parcels where retail and office uses would be included and the golf course clubhouse.

The first area where offices would be appropriate is the Southeast parcel where the assisted living facility would be. This area would be most appropriate for medical offices. Some limited “convenience” retail may also be located at this site.

The second area where commercial development is envisioned is the Southwest parcel. This is the mixed-use area where a modest amount of office and retail could be located at the ground level with apartments above. The type of retail that would be most appropriate would be neighborhood convenience shopping for basic everyday items as well as small specialty stores and offices.

The third area is the parcel on Route 135 labeled agricultural retail and offices where the existing nursery sales are located. This area would be most appropriate for agricultural-related businesses such as produce, gardening supplies and a small restaurant or coffee shop.

The decision on the amount of retail was made in order to avoid any conflicts with either the Ashland or Hopkinton town centers. The amount of retail was also kept low to avoid putting an additional heavy traffic generator on Route 135.

Table 6 Summary of Commercial Development in Concept #2	
Type of Use	Square Feet
Retail	25,000
Office	40,000
Golf clubhouse	40,000

Concept #3 – Smart Growth Development (40R) Density

Overview – Concept #3 examines the potential results of changes to zoning which would establish density which is consistent with Chapter 40R, the state’s Smart Growth Zoning law. The plan includes a mix of single family, duplex and multi-family units at 40R densities, and also includes a separate “rural homestead” component. Rural homesteads are single family homes on oversized lots (10+ acres) which may be used for agricultural uses or for those who wish to have horses. This concept attempts to apply the smart growth principles to this site (to the extent possible) and to allow the communities to benefit from the density bonus payment and zoning incentive payment provisions for units created under the 40R program. More information on Chapter 40R can be found at:

http://www.mass.gov/envir/smart_growth_toolkit/pages/mod-40R.html

- 1,030 housing units including 210 affordable units.
- Total population of 2,326.
- Protects the views along Route 135.
- Protects the wells adjacent to Hopkinton Reservoir and the future well near Aprilla Farms.
- Provides a wildlife/trail corridor connecting the state parks.
- Reserves land for playing fields and a future school.
- Provides low-density uses as a buffer to the NSTAR facility.
- Enhances transit opportunities with the potential for bringing the LIFT Bus onto the site.
- Provides an open space buffer around existing residential development.
- Total protected open space –783 acres.
- Limits general commercial to 25,000 square feet to avoid negative impacts on downtown and allows for a 40,000 square foot clubhouse if the town decides to include a golf course.
- This concept includes 40,000 square feet of medical/professional office space.

Housing – In this concept, two parcels (the North parcel and the Southwest parcel) would be designated as 40R districts and developed at 40R densities (20 units/acre multi-family, 12 units/acre duplexes, 8 units/acre single family) The assisted living facility would also be developed as part of this concept. The assisted living facility would include 25% affordable units and the remainder of the 40R housing would be 20% affordable.

**Table 7
Summary of Residential Development for Concept #3**

	# of Units	1 BR Units	2 BR Units	3 BR Units	4 BR Units	% Affordable	Total affordable units
Rural homesteads- (10+ acre lots)	10				10	0%	0
Condominiums/Apartments @20 units/acre	700	70	560	70		20%	140
Duplex condos @ 12 units/acre	120			120		20%	24
Single Family houses @ 8 units/acre	80			80		20%	16
Asst. living senior apts.12/acre	120	120	0	0	0	25%	30
<i>Total dwelling units</i>	<i>1030</i>						<i>210</i>

Open Space – Concept #3 specifically targets for protection those areas that were identified as having a high priority for preservation at the March public forum. The total open space acreage is higher in Concept 3 because the parcels designated for the 40R district are larger than required for development. The excess acreage would be open space designed to enhance the development. See the open space section for Concept #2 for additional comments on open space.

**Table 8
Summary of Open Space for Concept #3**

Parcel Designation	Acreage
Agricultural view protection	67.04
Buffer/trail	25.0
Far south	73.25
Cemetery/golf course	265.21
Open space	26.16
Open space	2.09
Recreation	50.17
South	36.23
Water supply	84.70
Wildlife/trail	153.97
<i>Total open space</i>	<i>783.86</i>

Commercial Development – Concept #3 allows for the same amount and general location of commercial development as Concept #2.

Table 9 Summary of Commercial Development for Concept #3	
Type of Use	Square Feet
Retail	25,000
Office	40,000
Golf clubhouse	40,000

Comparison of Concepts – Table 10 provides an overview of the similarities and differences between the three concepts.

Table 10 Comparison of Concepts			
	#1 Existing Zoning	#2 Open Space Protection	#3 Smart Growth
Housing units	920	1,158	1,030
Affordable units	0	180	210
Protects views along Rte. 135	No	Yes	Yes
Protects current and future wells	No	Yes	Yes
Wildlife/trail corridor connecting state parks	No	Yes	Yes
Land for school/playing fields	No	Yes	Yes
Low-density buffer for NSTAR facility	No	Yes	Yes
Enhanced transit opportunities	No	Yes	Yes
Open space buffer around existing residential.	Yes	Yes	Yes
Total protected open space	501	703	783
General commercial – 25,000 square feet	No	Yes	Yes
40,000 square foot golf clubhouse	No	Yes	Yes
40,000 square feet of office	No	Yes	Yes

Relationship to the Sustainable Development Principles

One of the goals for this grant was to develop and test alternatives that applied smart growth principles (as embodied by the state’s Sustainable Development Principles) to a more suburban/rural setting to determine if a smart growth concept would lessen impacts on the communities. Table 11 evaluates the three concepts against the ten sustainable development principles adopted by the Office of Commonwealth Development. The Sustainable Development Principles are included in Appendix C. Table 11 uses the following designations:

- No: This concept does not support the principle.
- Moderate: This concept is moderately consistent with the principle.
- High: This concept is highly consistent with the principle.

The discussion following Table 11 provides details which support MAPC’s designations of the three concepts relative to the Sustainable Development Principles.

Principle	Concept #1	Concept #2	Concept #3
Redevelop first	No	No	No
Concentrate development	No	Moderate	High
Be fair	No	Moderate	Moderate
Restore and enhance the environment	No	High	High
Conserve natural resources	Moderate	High	High
Expand housing opportunities	No	High	High
Provide transportation choice	No	Moderate	Moderate
Increase job opportunities	No	Moderate	Moderate
Foster sustainable development	No	Moderate	Moderate
Plan regionally	No	High	High

Redevelop First – This principle is not applicable to this project because the focus was on planning for the eventual development of an agricultural parcel.

Concentrate Development – Both Concept 2 and 3 are attempts to concentrate development in a way that would not be allowed under the current zoning. Concept #2 achieves this goal but Concept #3 takes this one step further by using 40R densities. Both Concepts # 2 and #3 include mixed use that is not possible in Concept #1 under existing zoning.

Be Fair – Because Concept #1 could proceed under existing zoning without any further involvement by Ashland and Southborough, there would be no opportunity for neighboring communities to influence development patterns and mitigation of potential impacts. Concepts #2 and 3 would require more community input because of the need to adopt new zoning which would also entail more control over potential impacts.

Restore and Enhance the Environment – Concept #1 achieves some level of natural resource protection because of the nature of the Open Space and Landscape Preservation Development zoning but does not specifically target those areas which the community most wants to see protected including water supply protection and preservation of agricultural landscapes. Both Concepts #2 and 3 would specifically protect those areas. Zoning changes enabling the increased clustering of uses in Concepts #2 and 3 also promote more preservation of open space.

Conserve Natural Resources – The recommended mitigation measures that would be included in any new zoning include the following:

- Low Impact Development
- LEED (Leadership in Energy and Environmental Design)
- Environmentally sensitive golf course design and management
- Water re-use

Expand Housing Opportunities – Concept #1 only includes the two housing types allowed under existing zoning (single family and garden apartments) and does not include any affordability component. Concept #2 and 3 both include a wider range of housing types, densities and both include affordable units. Concepts 2 and 3 also coordinate location of housing with transit (LIFT) and services (neighborhood commercial development).

Provide Transportation Choice – This is a difficult site in which to significantly improve transportation options. Concept #1, while it still has access to the LIFT bus route along Route 135, does not attempt to cluster development within ¼ mile of the LIFT bus to improve the potential for transit use. It also does not provide an option for routing the LIFT bus through the site. Options 2 and 3 put higher density development within ¼ mile of the LIFT bus and assume a bike path connection and sidewalks. See the section on transportation impacts for more details.

Increase Job Opportunities – Concept #1 does not include any additional commercial development because of the constraints of the current zoning. Concepts #2 and 3 do include some level of commercial development but the emphasis is on residential development because of the sites' location. Therefore, job creation is minimal.

Foster Sustainable Development – This principle focuses on strengthening natural resource based businesses. Although this project anticipates that a large portion of the site will be converted from agriculture to residential development, residential development is required to ensure that the scaled back nursery operation continues. Two of the concepts seek to build a small retail cluster of agriculturally related businesses. Concepts 2 and 3 also preserve agricultural land for future uses in the event that the nursery no longer operates on the site.

Plan Regionally – This project is a regional effort to plan for development that will enhance the three immediately affected communities in the following ways:

- By protecting multi-community water supply.
- By providing for potential multi-community recreational areas.
- By promoting development that does not adversely impact nearby town-center commercial areas.
- By promoting development options that have lower traffic impacts.

VI. IMPACTS ANALYSIS

A. Water and Sewer

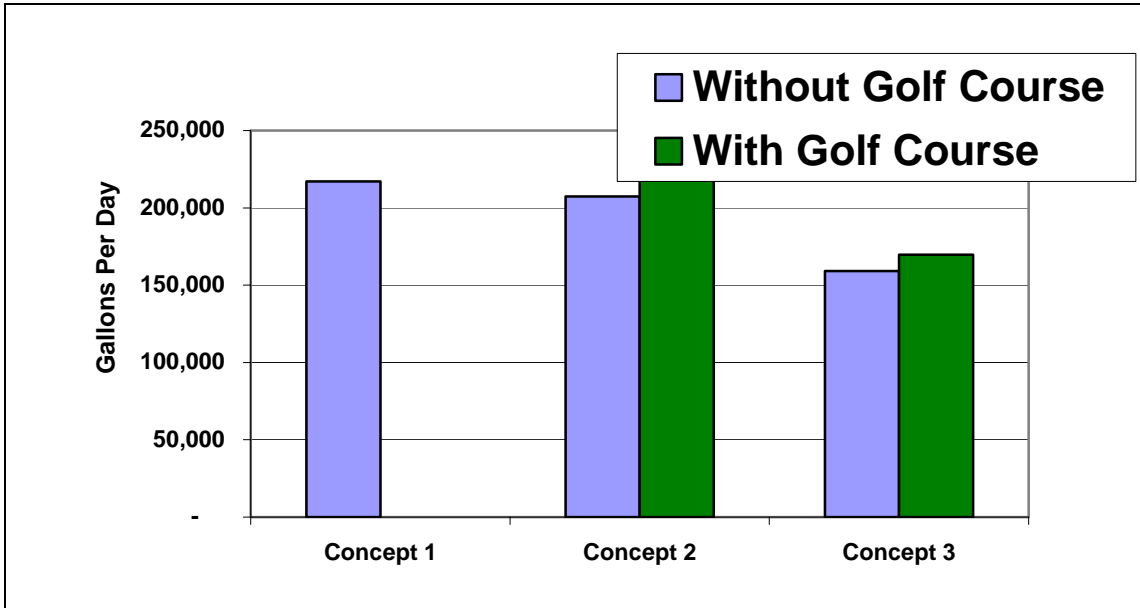
Water Demand

The potential water demand of the Weston Nurseries project was estimated by MAPC based on water use factors for residential, retail, office, and golf course uses (see Table 12 and Figure 1). For each of the 3 development concepts, the residential population was calculated, and per capita water use factors were applied. For all apartments, condos, and elderly housing types, a per capita factor of 65 gallons per person per day was used. This reflects DEP's performance standard for medium and high stress river basins. For single family housing, a higher water use factor of 80 gallons per person per day was used, in order to account for the greater amount of water used for outdoor applications.

Development Concepts	# of Units or sq. ft.	Water Demand (Gal/Day)
<i>Concept 1 - Possible Buildout Under Existing Zoning</i>		
Total dwelling units	890	
Total Residential Population	2865	217,080
Retail/office	0	
Total Water Demand		217,080
<i>Concept 2 - Open Space Preservation Supported by Development</i>		
Total dwelling units	1158	
Total Residential Population	2890	203,105
Retail space / water / wastewater	25,000	1,250
Office space / water / wastewater	40,000	3,000
Total Water Demand		207,355
Golf clubhouse (golf course alternative only)	40,000	10,500
Total Water Demand w/ Golf Course		217,855
<i>Concept 3- Smart Growth Development (40R Density)</i>		
Total dwelling units	1030	
Total Residential Population	2326	154,925
Retail space	25,000	1,250
Office space	40,000	3,000
Total Water Demand		159,175
Golf clubhouse (golf course alternative)	40,000	10,500
Total Water Demand w/ Golf Course		169,675
<i>Golf Course Alternative--Irrigation</i>		
Golf Course Irrigation (~May-September, assumed to be non-municipal water)		250,000

The estimated water use for the three development concepts range from 159,175 gallons per day (gpd) for Concept 3 to a high of 217,080 gpd for Concept 1. A golf course club house facility could add an additional 10,500 gpd to either Concept 2 or 3. Additional water for irrigating the golf course, estimated at 250,000 gpd, would not be from the public water system, but rather from on site wells and/or reused wastewater.

Figure 1
Estimated Water Demand for 3 Development Concepts

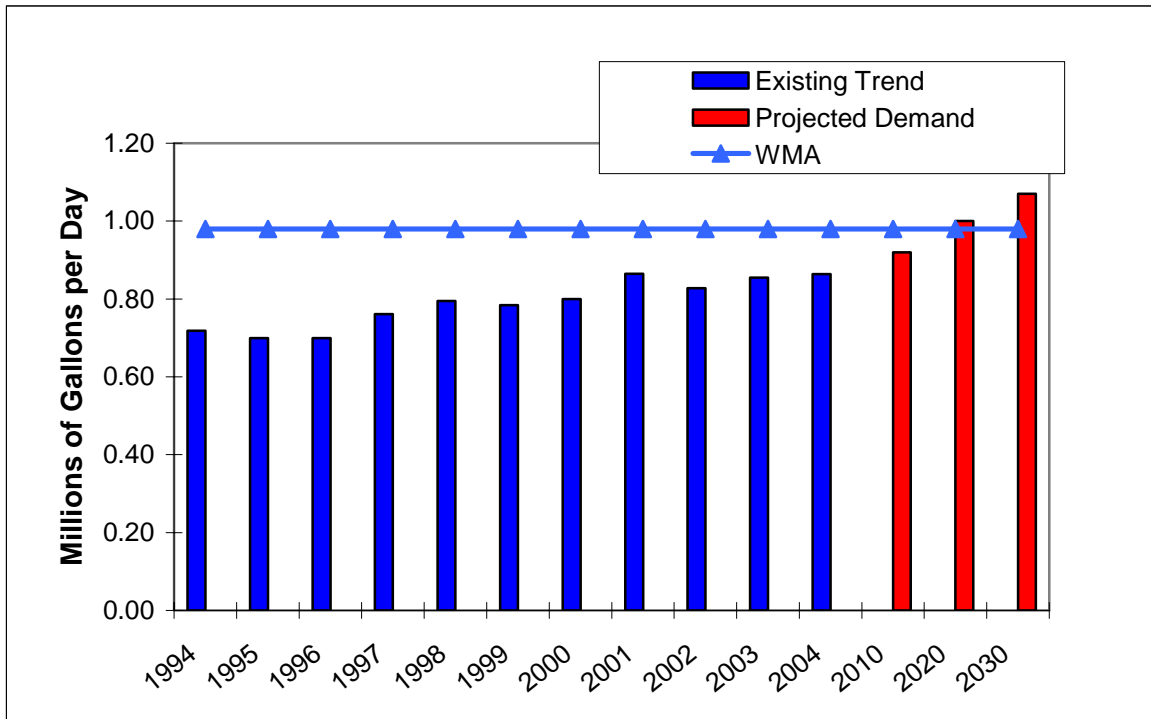


Water Supply Impacts

The town of Hopkinton currently operates 4 wells, Fruit Street wells # 1, 2, and 3, and Whitehall well #5. The town also purchases water from the town of Ashland (which is withdrawn from a well close to the Hopkinton Reservoir, just north of the Weston Nurseries site). The total amount of water currently allowed to be withdrawn by Hopkinton’s Water Management Act (WMA) registration and permit is 0.98 million gallons per day (mgd). The town’s existing demand has been approaching that limit in recent years—it has been at or above 0.85 mgd since 2001, leaving the town with a margin of about 120,000 gallons per day under its existing WMA permit.

MAPC has produced projections of future water demand to the year 2030 for all communities in the region, based on current trends in the growth of population and employment (see Figure 2). MAPC’s projections for Hopkinton indicate that the town will have a demand of 0.92 mgd by the year 2010, which will grow to 1.00 mgd in 2020 and 1.07 by 2030, which would suggest that the town may exceed its current WMA permit after 2010. However, recent growth trends lead local officials to believe that water demand will increase more rapidly, exceeding the existing WMA permit sooner.

**Figure 2
Hopkinton Water Demand-Existing Trends and Projected to 2030**

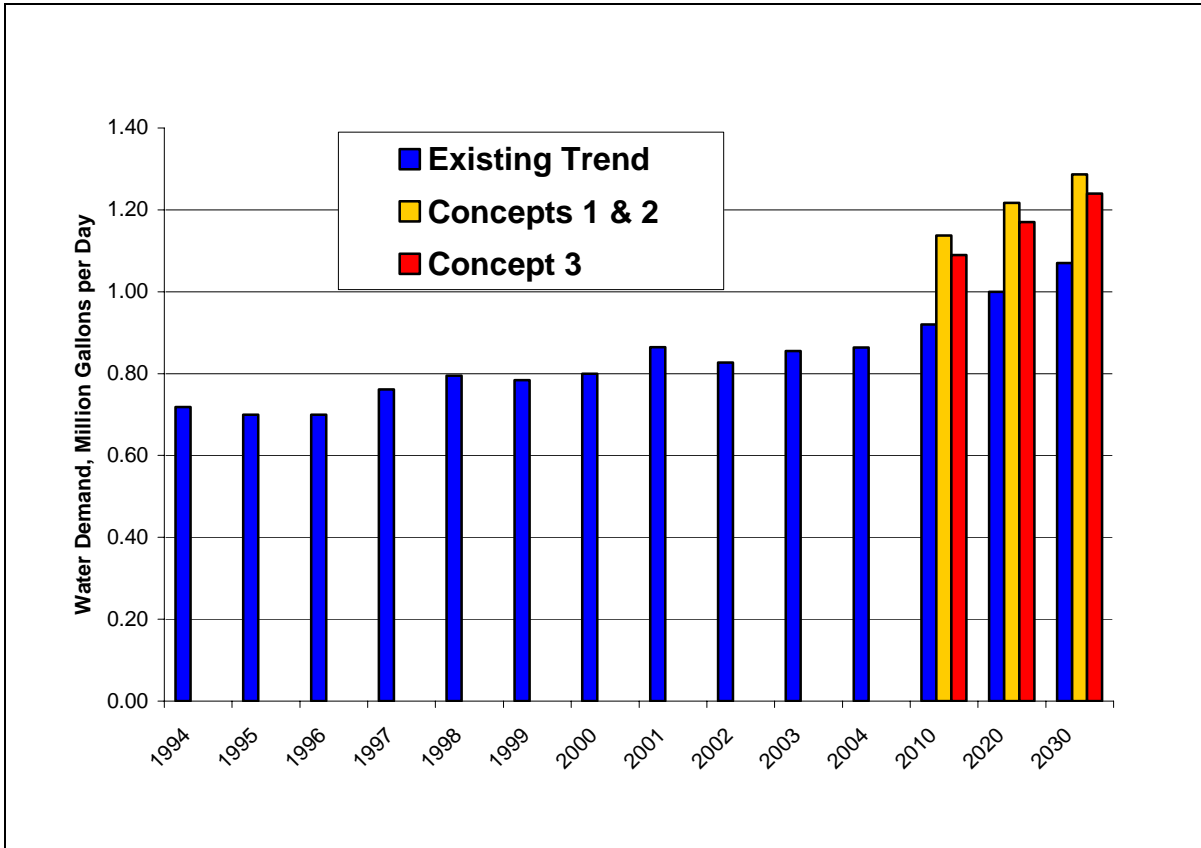


These future projections create a context to evaluate the impact of the potential new water demand for the development of the Weston Nurseries site. When the estimated water demand for the three development concepts is added to the existing demand trends, it becomes clear that any of the three development concepts would result in a water demand greater than the town’s existing Water Management Act permit. The development’s estimated water demand, which ranges from about 160,000 gpd to 217,000 gpd, would increase demand of such a magnitude that existing sources of water would need to be supplemented, and of course the town’s Water Management Act permit would need to be modified to accommodate this additional demand (see Table 13 and Figure 3).

	Existing Trend Projection (mgd)	With Concept 1 or 2 Water Demand (mgd)	With Concept 3 Water Demand (mgd)
2010	0.92	1.14	1.09
2020	1.00	1.22	1.17
2030	1.07	1.29	1.24

Compared to the existing Water Management Act registration and permit, the town’s projected future demand with the additional demand of the Weston Nurseries project would exceed the WMA withdrawals by a range of 111,000 gallons per day in 2010, up to a maximum of 310,000 gallons per day by the year 2030 (see Table 14). Development Concepts 1 and 2 would have a water demand about 48,000 gpd more than Concept 3.

**Figure 3
Hopkinton Water Demand Projections with 3 Weston Nursery Concepts**

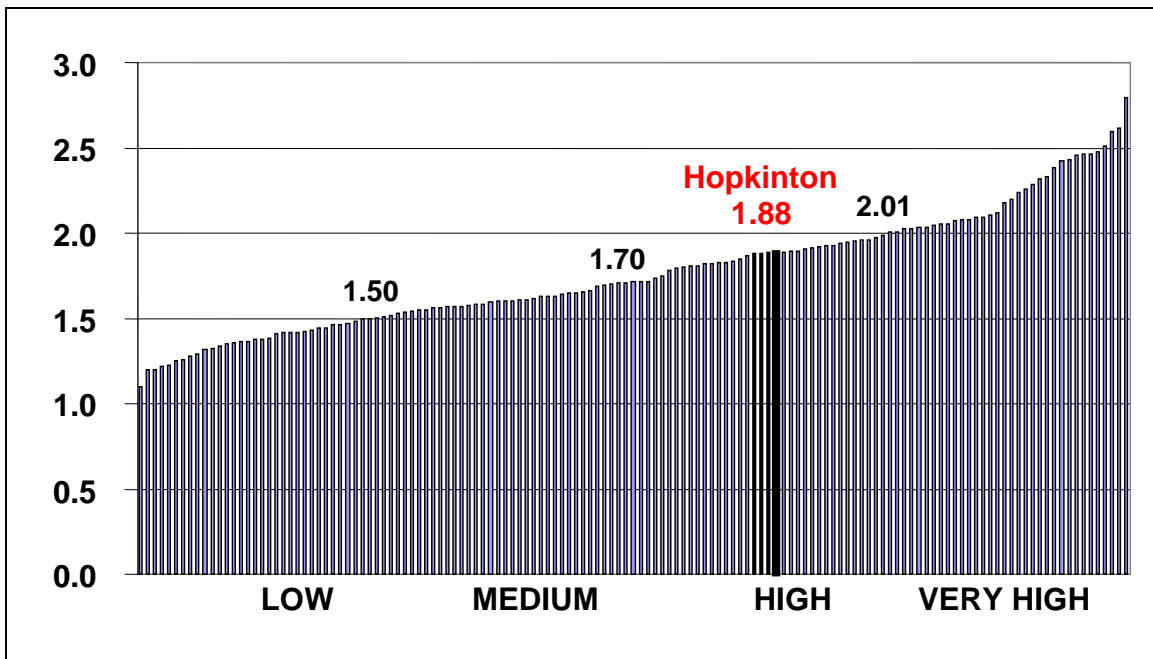


**Table 14
Projected Hopkinton Water Demand:
Comparison to Existing Water Management Act
Withdrawal Registration & Permit Limit**

	Existing Trend Projection (mgd)	With Concept 1 or 2 Water Demand (mgd)	With Concept 3 Water Demand (mgd)
2010	+0.06	(0.16)	(0.11)
2020	(0.02)	(0.24)	(0.19)
2030	(0.09)	(0.31)	(0.26)

The above analysis focuses on the total water demand, expressed as average day demand. However, water demand fluctuates seasonally, with a significant increase in the summer months, leading to increased stress on both the water supply distribution system and the source water aquifers and related streams and surface waters. Planning for the Weston Nurseries development needs to take this “peak water demand” into consideration as it can have significantly greater impacts than the annual average day demand. In fact, the town of Hopkinton’s water demand has a moderately high “seasonal peaking” factor. MAPC has compiled a data base of the ratio of peak day to average day demand in 140 communities in Eastern Massachusetts. This measure of seasonal peak demand for the years 1998 to 2002 ranges from 1.2 to 2.7, and the town of Hopkinton has a ratio of 1.88, above the regional median of 1.70 (see Figure 4). The most significant factor in peak water demand is outdoor water use for lawn and landscape irrigation; therefore it would be expected that Concept 3 would have the lowest peak demand factor because it has the fewest number of large-lot homes.

Figure 4
Ratio of Peak Day to Average Day Demand for 140 Communities
in Eastern Massachusetts, 1998-2002



Wastewater

The Weston Nurseries site does not have municipal wastewater collection service, nor is it likely to be feasible to connect to the town’s limited sewer service area in the future. All the wastewater treatment for any development on the Weston Nurseries land will need to be provided on site as part of the infrastructure of the development.

MAPC has estimated the wastewater flow for the three development concepts, using the wastewater generation rates required by the state’s Title 5 regulations (310 CMR 15). The following factors from the Title 5 regulations were applied for this calculation:

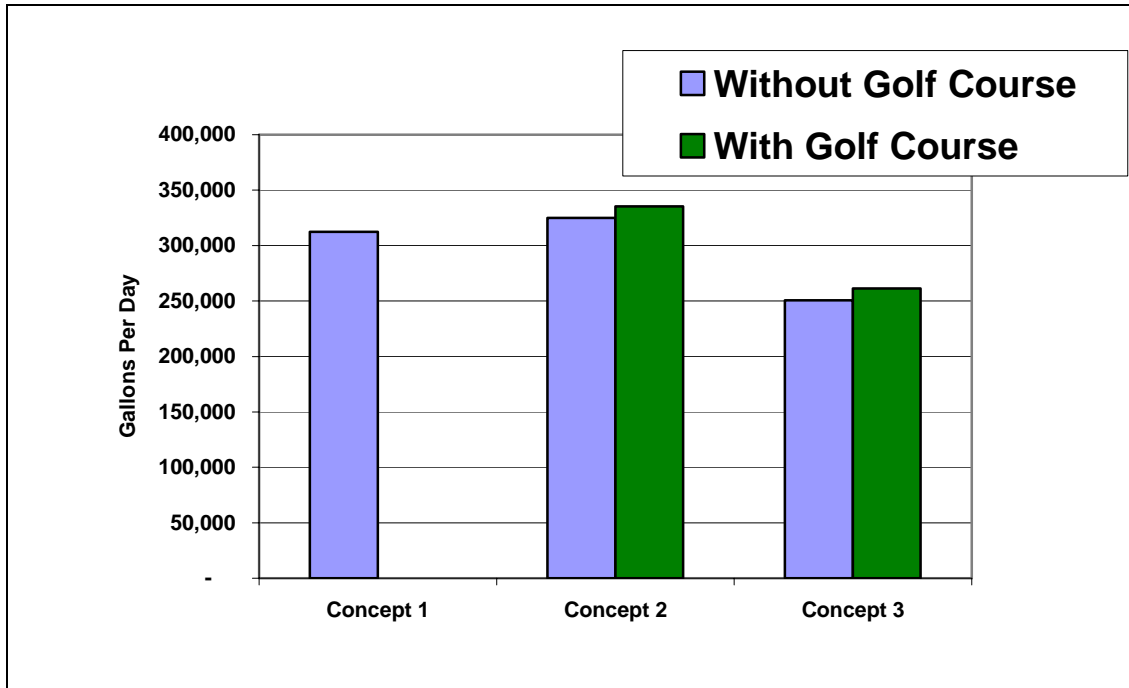
Residential	110 gallons/day per bedroom
Retail	50 gallons/day per 1,000 square feet
Office	75 gallons/day per 1,000 square feet

Applying these wastewater factors to the three development concepts results in a range of wastewater flow from 250,650 gpd for Concept 3 to 325,010 gpd for Concept 2 (see Table 15 and Figure 5). If a golf course with club house is added to either Concept 2 or 3, it would add an additional 10,500 gpd of wastewater flow.

Table 15 Projected Wastewater Flow for Weston Nurseries Development Concepts		
Development Concepts	# of Units or sq. ft.	Wastewater Flow (Title 5) Gal/Day
Concept 1 - Possible Buildout Under Existing Zoning		
Total dwelling units	890	
Total Bedrooms	2840	312,400
Retail/office	0	
Total Wastewater Flow		312,400
Concept 2 -Open Space Preservation Supported by Development		
Total dwelling units	1158	
Total Bedrooms	2916	320,760
Retail space	25,000	1,250
Office space	40,000	3,000
Total Wastewater Flow		325,010
Golf clubhouse (golf course alternative only)	40,000	10,500
Total Wastewater Flow w/ Golf Course		335,510
Concept 3- Smart Growth Development (40R Density)		
Total dwelling units	1030	
Total Bedrooms	2240	246,400
Retail space	25,000	1,250
Office space	40,000	3,000
Total Wastewater Flow		250,650
Golf clubhouse (golf course alternative only)	40,000	10,500
Total Wastewater Flow w/ Golf Course		261,150

Note: Wastewater flow numbers are different from water demand numbers because of different methods of estimation for residential uses. Wastewater flows are based on Title 5’s factor of 110 gallons per bedroom, while the water supply estimates are based on per capita water use factors of 65 and 80 gallons per day, according to DEP performance standards.

Figure 5
Estimated Wastewater Flow for 3 Development Concepts



These wastewater flow estimates include all of the housing, retail, and office uses in each of the three development concepts. It may be possible to use on-site Title 5 systems for some of the large-lot residential units, but these represent a relatively small percentage of the total wastewater generated, so that even with some Title 5 systems, the vast majority of the development's wastewater that would need to be treated in an on-site facility.

An on-site treatment facility would require advanced treatment processes and leaching facilities to discharge treated effluent to the ground. The leaching facilities would need to be developed in a portion or portions of the site that have favorable soils, e.g., acceptable percolation rates and depth to bedrock and water table. The Soil Conservation Service maps indicate that there may be two areas that are more likely to have favorable soils, one north of Rt. 135, and the other in the extreme southern portion of the site, south of Rt. 135. These maps provide only a general indication of soil types; site specific soil surveys would need to be done to definitively identify soils favorable for the leaching facilities.

Given the size of the needed wastewater facility, it would require a Groundwater Discharge Permit from the Department of Environmental Protection. DEP will require a level of treatment sufficient to protect the quality of the receiving groundwater.

Given the varied topography of the site, and depending on where the treatment facility and the leaching facilities are located, it may also be necessary to pump the wastewater from some parts of the site, or to pump the treated effluent to the leaching facilities.

Water Resources Mitigation Measures

The potential impacts of the development related to water supply, wastewater, and storm water can be reduced or mitigated by a number of best management practices. MAPC recommends that any development on the Weston Nurseries site incorporate and fully implement the following measures:

Source Water Protection

- The wastewater discharge should take into consideration the proximity of the site to existing and potential water supply wells. Ashland's wells are just north of the site near the Hopkinton Reservoir, and the potential Aprilla Farm well site is on the southern portion of the site. The Zone 2 or wellhead protection areas of these wells and potential wells should be protected from contamination. Likewise, the golf course and other development should be sited in a manner that is sensitive to these critical water supply sources. The Zone 2/wellhead areas should contain the maximum possible open space managed solely for aquifer protection.

Demand Management and Water Conservation

- Reduce indoor water use by installing ultra-low flush toilets & fixtures. Make this a model "green development" that incorporates state-of-the-art measures that equal or exceed plumbing code and water conservation requirements. This could be part of an overall LEED certification for the project (see below).
- Reduce outdoor water use, and the seasonal peak demand, by reducing lawn areas and requiring water-efficient landscaping. MAPC and the 495/MetroWest Corridor Partnership have recently published a guide to reducing peak season water demand, "SummerSmart Water Use," which is available from MAPC and can be downloaded from www.mapc.org/peakdemand
- Reduce outdoor water use by restricting or eliminating automated irrigation systems; any systems allowed should include weather-based controllers to minimize water use.

Wastewater Management

- Treat wastewater to higher standards to protect aquifers that provide water supply and surrounding watershed resources. This might include additional nutrient removal.
- Site groundwater discharge to avoid impacts on Ashland's wells and potential Aprilla Farms well

Water Reuse

- Develop a water reuse system to provide irrigation for the golf course, nursery operations, and other irrigation needs from treated effluent. Such a system could significantly reduce the need for additional groundwater withdrawals from on-site wells to provide irrigation water for the golf course and other landscaped areas. Note that the projected irrigation needs of a golf course are approximately the same as the estimated wastewater flow for Concept 3, and a substantial percentage of the wastewater flow of Concepts 1 and 2.
- MAPC and the 495/MetroWest Corridor Partnership have recently published guide to water reuse, “Once is Not Enough,” which is available from MAPC and can be downloaded from www.mapc.org/waterreuse

Stormwater

- Reduce the amount of stormwater runoff from developed areas by implementing **Low Impact Development** measures in the design of the project. These measures may
 - Bioretention cells & Rain Gardens
 - Vegetated swales & filter strips
 - Infiltration trenches & dry wells
 - Permeable paving
 - Cisterns & Rain Barrels

These measures will reduce runoff and increase recharge of the aquifers, and benefits both water quantity & water quality in the watershed.

- MAPC and the 495/MetroWest Corridor Partnership have recently published the “Massachusetts Low Impact Development Tool Kit,” which is available from MAPC and can be downloaded from www.mapc.org/lid

Housing Analysis

A review of the Master Plans and Housing Plans of the communities of Hopkinton, Ashland and Southborough indicates that the communities realize that there are housing needs which are not being met by the current housing stock within their communities.

Specifically, the highlights of the goals set forth by the communities are as follows:

Hopkinton Master Plan

- Provide sound & affordable housing for all ages and income levels
- Provide for a variety of housing types within the town's rural residential character

Hopkinton Housing Plan

- Affordable rental units for lower-income families
- Affordable rentals designed for seniors & persons with disabilities
- Affordable homeownership units for moderate-income families & elders
- Homeownership units at below-market prices, affordable to middle-income homebuyers

Ashland Housing Strategy

- Provide a range of options for safe & affordable housing that will blend in with existing neighborhoods & enhance town character
- Create housing that meets the requirements of young families, town employees, elderly, low/moderate groups, & other current & potential inhabitants
- Maintain & surpass 10% affordable (Ch. 40B) housing

Southborough Affordable Housing Strategic Plan

- Provide affordable housing for all
- Achieve 10% affordability under 40B
- Also provide housing opportunities for households with incomes at 81-120% of area median income

A review of the data on housing supply (see Appendix B) indicates that although the supply of housing in the three communities has grown substantially since 1980, the amount of multi-family housing, and the amount of rental housing, as a percentage of the total housing stock, has shown steady decline. In addition, none of the three communities is close to meeting the 40B goals of having 10% affordable housing stock.

The affordability gap has increased over the recent past, with housing prices within the three communities rising substantially faster than the regional median income. The need for affordability of units beyond the standard “affordable to families earning 80% of median income” appears to becoming more pronounced. This is evidenced by the broader housing goals expressed in the reports referenced above.

As is noted in the portion of this report which discusses the details of each of the illustrative concepts, each of the concepts addresses these housing goals in a different fashion and to a different degree.

Concept #1, which is the potential development that could be allowed under existing zoning, is predominantly single family homes which would not meet the affordable housing goals of the municipal plans. The garden apartment developments assumed as part of Concept 1 would potentially meet some of the middle income housing needs for either rental or ownership units, since the 1, 2 and 3 bedroom units would be lower value than the 4+ bedroom houses which are the standard construction in Hopkinton. However, since there is no requirement for an affordable component under the existing regulations, there would not be any housing that would meet these low or moderate income needs.

Concept #2 includes a broader variety of housing types and densities. In addition, this concept assumes an affordability component for the condos/townhouse and apartments. Given the density proposed, it is likely that the market units within the apartments/townhouses would serve to meet middle income market needs. In order to increase economic viability of the project, the 4+ bedroom single-family homes do not include an affordable component. In addition, based upon MAPC's economic development consultant review of existing problems in marketing affordable over-55 units, the senior residential units also do not have an affordability component.

Concept #3 also includes housing types which are designed to meet the low/moderate and middle income housing needs expressed in the housing plans. The mix of single family units, duplexes and higher density condominiums/apartments is designed to provide a diversity of housing styles not presently common in the three communities. This concept again includes an affordability component, but in this case the 40R affordability component includes the 3-bedroom single family homes on small lots as well as the condominium/apartments and duplex units.

C. Transportation Impacts

Existing Conditions

There were no Level-of-Service (LOS) calculations available for Hopkinton town center (Routes 135/85). However, Congestion Management System (CMS) ratings (from the Boston Region MPO/CTPS) show LOS E in the AM and F in the PM peak periods and personal observation during the PM peak showed delays and queues on all approaches. Separate turn lanes are provided on three of the four approaches (only Route 85 northbound, the lowest volume approach, is without) and the existing signal appears to operate on a fixed timer rather than a volume-actuated system. Queues were also observed on Route 135 westbound, west of the intersection, which appeared to extend to I-495. Between 25 and 54 crashes were reported at this intersection in the CMS for the 1997-99. Between the years 2002 and 2004 there were at least 43, 34, and 50 crashes reported annually on either Route 135 or Route 85 within ½ mile of this intersection.

There are well marked crosswalks and pedestrian-actuated signals at the intersection, but the sidewalks do not extend to the Weston Nursery site. The distance from the Weston Nursery site to the town center is too far to encourage regular walking, and building a complete sidewalk network appears to be difficult based on several narrow bridges and some residential development which extends up to the roadway.

The Lift 5 runs along Route 135, past the Weston Nursery site and turning around in Hopkinton center with 60 to 80 minute headways. There is no direct service to either the Ashland or the Southborough train stations but Lift 5 does stop at the Framingham train station (approximately 25 minutes after leaving Hopkinton center). The Southborough train station has a 364 space parking lot, which is regularly filled. The Ashland station has 678 spaces but is reported to be only 1/3 full.¹ The Worcester line is also reported in the CMS to operate at 0.92 riders per seat in the peak hours, slightly below the average crowding figures on the MBTA's commuter rail services and local information suggests that the cars are frequently full after leaving Southborough station in the AM peak.

New Trips

The table below shows estimated new trips from the site under all three concepts. The initial total trips are based on ITE Trip Generation factors for the appropriate land use category. The vehicle trip estimates are based on the assumptions about the potential for walk and bicycle trips within the site and to downtown Hopkinton, for internal drive trips that never leave the Weston Nursery site, and for pass-by trips to retail uses on the site. A range of values is given for all estimates to emphasize the uncertainty of the results.

¹ Park-and-ride statistics come from the CMS 2004 report and personal observation (6/6/06) at the Southborough station. Number of parking spaces from the MBTA web site.

**Table 16
Potential New Trips**

	Daily total trips	PM peak total trips	Daily vehicle trips	PM Peak vehicle trips	Assumptions
Concept 1	7,248 to 9,651	725 to 999	7,176 to 9,554	718 to 989	1% = walk, bike, transit trips, plus internal drive and pass-by - Without mixed use, no place to walk/bike/drive internally, densities not sufficient for transit
Concept 2	12,015 to 16,396	1229 to 1734	10,213 to 13,937	1045 to 1474	15% = walk, bike, transit trips, plus internal drive and pass-by trips - With mixed use, opportunities to walk/bike and drive internally. Only 252 units with densities (7 DU/acre) sufficient for transit use to Hopkinton, Ashland and Southborough commuter rail, if available
Concept 3	10,956 to 14,509	1121 to 1606	8,217 to 10,882	841 to 1205	25% = walk, bike, transit trips, plus internal drive and pass-by trips - With mixed use, opportunities to walk/bike and drive internally. Except for 10 SF units all densities sufficient for transit use to Hopkinton, Ashland and Southborough commuter rail, if available

¹ Park-and-ride statistics come from the CMS 2004 report and personal observation (6/6/06) at the Southborough station. Number of parking spaces from the MBTA web site.

Given the distance from the town center and the difficulties for providing sidewalks for walk trips, the lack of many retail options on site for the residents, and the limited existing Lift schedule, the 15 and 25% assumptions for vehicle trip reductions in Concepts 2 and 3 are probably the upper bounds on any estimates of trip reductions based on mixed use and higher density plans. These calculations and assumptions yield estimates of less than 10 peak transit passengers (Concept 1) to about 160 passengers under Concept 3. Similarly optimistic estimates show a demand of around 175 new residents under all three concepts who might be potential commuter rail customers and might take the Lift there is available. In the year 2000, according the Census estimates, 2.5% of Hopkinton residents took transit to work. Achieving these higher numbers of passengers will require much shorter headways than the existing 60 to 80 minutes for the

Lift (since there is not currently the capacity to move that many riders even if they were available).

Almost all new auto trips, regardless of the level, would be expected to enter and exit the site through Hopkinton center. Based on 2000 Census journey to work data, 84% of all past trips went through the 135/85 intersection. If a direct access from the site to Route 85 north of town was provided this number might drop to 76%, with all but 5% traveling thru on Route 135. This means that between 515 (725 x 71% for Concept 1) and 1231 new vehicles (1734 x 71% for Concept 2) will be added to an already crowded intersection. There is no way even 500 new vehicles can be moved through this intersection without adding significantly to congestion and safety problems.

Mitigation Strategies

Since there are already turning lanes on all approaches except Route 85 northbound (where it is probably not needed) there is no need to add additional lanes. Additional thru lanes on Route 135 would probably increase flow/reduce congestion, but at the expense of any prospect of the area functioning as a true downtown. Nevertheless, improvements to flow (and maybe some resulting safety benefits) can be achieved by upgrading the signal equipment to a fully-actuated demand responsive system on all approaches, which would remove most of the misallocated green time currently observed with a fixed time signal. This new equipment would probably cost \$100,000 - \$200,000.

Even with the long distance between the downtown and the site, there is still a need for a pedestrian and bicyclist connection. With a sidewalk along Route 135 precluded, the development of a bike path along the south side is probably the most practical solution

Concepts 2 and 3 have some potential for transit ridership, and would probably best be served by a new stop at the existing Weston Nursery shop/proposed retail center. There is probably also a market that would allow Lift 5 to be diverted to either the Southborough or Ashland train stations. As an alternative, an aggressive program to provide commuter rail information to residents and encourage them to rideshare to the stations might also be successful.

Ultimately from a transportation standpoint there doesn't seem to be any way to make large scale development at this location sustainable. A more sustainable option might be to allow some development at this site (less than 100 units) with a transfer of the remaining development rights to Hopkinton center. Development in the center would have the advantage of being walkable, providing a concentrated transit service area, and of distributing the remaining traffic in all directions around the intersection.

D. Fiscal Impacts

Introduction

The fiscal impacts analysis was prepared by Judi Barrett of Community Opportunities Group, Inc. The conclusion of the report is that Concept #3 (Smart Growth 40R Density) appears to offer the most advantageous fiscal outcome for the town. The text of the complete report can be found in Appendix F.

A fiscal impact study explores the relationship between the community service costs and revenue attributable to a change in land use. The relationship is expressed as a ratio of costs to revenue. When a development generates more than enough revenue to pay for the services used by its residents, businesses or employees, it is said to be “revenue positive,” i.e., a cost-revenue ratio <1.0. Similarly, a development that produces the same amount of revenue and service costs is “revenue neutral,” or 1.0, and a “revenue negative” project costs more to serve than the amount of revenue it contributes to the community, or >1.00. Local officials often want to know if a proposed development will have a positive or negative impact on the community’s tax rate because if the project does not pay for itself, the gap between new service costs and new revenue will have to be absorbed by other property owners in the form of higher taxes.

Summary of Fiscal Impacts

Table 17				
Net Fiscal Impact of Alternative Development Plans, Years 1-12; Present Value (2006)				
	Hopkinton			Ashland
	Alternative 1	Alternative 2	Alternative 3	Alternative 1
Housing Units	890	1,158	1,030	30
Population	2,864	2,891	2,326	116
School-Age Children	772	551	325	31
Non-Residential Sq. Ft.	0	105,000	105,000	0
Cost of Municipal & School Services	\$82,714,200	\$66,629,700	\$39,659,900	\$3,303,560
Revenue	\$74,926,000	\$70,315,000	\$50,337,000	\$3,136,920
Cost-Revenue Ratio	1.10	0.95	0.79	1.05
Surplus/(Deficit) Revenue	(\$7,788,200)	\$3,685,300	\$10,677,100	(\$166,640)
Avg. Annual Surplus/(Deficit)	(\$899,000)	\$326,900	\$976,000	(\$15,100)
<i>Note: numbers may not add to total due to rounding.</i>				

Methodology

For a discussion of the methodology, please refer to the full report in Appendix F.

Key Findings for Concept #1

- Concept is revenue negative.
- This concept has a net cost-to-revenue ratio of 1.10.
- For every new dollar of revenue, the town's new costs will be \$1.10.
- Most of the cost growth stems from associated debt service for school construction.
- The cost-revenue ratio peaks at 1.45 and declines to 1.05 over a 20 year period.
- Ashland's cost-to-revenue ratio is 1.05 because no school construction is anticipated.

Key Findings for Concept #2

- Concept is slightly revenue positive but should be viewed as revenue neutral.
- This concept has a net cost-to-revenue ratio of 0.95.
- Due to the availability of senior housing option, the resale of empty-nester homes to young families may trigger a secondary fiscal impact (the "echo" effect).

Key Findings for Concept #3

- Concept is revenue positive.
- This concept has a net cost-to-revenue ratio of 0.79.
- The lower rate of tax revenue is because higher density single-family homes will have a lower assessed value.
- Duplex condominiums generate more school children than townhouses.
- Under 40R, the town would qualify for a one-time, non-recurring "zoning incentive payment" of up to \$600,000 and a one-time payment per building permit of \$3,000 for each unit over what could be built under existing zoning.
- The town could also qualify for assistance with school costs associated with the 40R district under the Chapter 40S regulations. These one-time payments were not included in the fiscal impacts analysis.

VII. THE SECOND PUBLIC FORUM

The second public forum was held on June 15, 2006 at the First Congregational Church in Hopkinton. The purpose of the forum was to present the three concepts, to discuss their impacts and to get citizen reaction to the three concepts. The results of that forum are summarized in Appendix E.

VIII. ZONING STRATEGIES AND RECOMMENDATIONS

Overview

MAPC's review of the existing town plans of Hopkinton, Ashland and Southborough contributed to the development concepts presented, in addition to input received at the committee meetings and the public forums. Careful review of the zoning bylaws indicated that zoning bylaw amendments and changes to existing rules and regulations would be required to both implement the existing town plans and to allow development of the Weston Nurseries site under either Concept 2 -Open Space Preservation Supported by Development or Concept 3 - Smart Growth Development (40R Density).

The Weston Nurseries site is an ideal location to demonstrate many of the new and emerging zoning tools that can assist the communities in preservation of open space, protection of key natural resources, and the creation of walkable neighborhoods that offer cultural and recreational opportunities and a mixture of housing choices in addition to shops and offices that provide goods and services in close proximity to housing.

Relationship of Recommendations to the East Hopkinton Master Plan

The town is beginning a significant planning effort in East Hopkinton. MAPC recommends that this report be used during that process to help shape the analysis and public discussion. The town will most likely want to wait until that Master Plan is complete before going forward with any of these concepts. For this reason, MAPC is not making a recommendation concerning which concept should be selected. The zoning strategies below represent the overall zoning approach that would be needed to implement Concepts 2 and 3 if one of those is selected as a result of the East Hopkinton Master Plan.

Key Zoning Strategies Necessary to Implement Concepts 2 and 3

The two key zoning tools necessary to implement Concepts 2 and 3 are:

1. A Mixed-use Overlay District
2. A Transfer of Development Rights (TDR) bylaw.

The mixed-use overlay district would address the mix of uses allowed, the densities and would include affordable housing provisions. A TDR bylaw would be the mechanism by

which development is directed away from lands that should be preserved to areas better suited to higher density development.

Although many model bylaws exist, both of these tools need to be grounded in comprehensive planning to assess local conditions, community reaction and to answer the many questions that need to be asked before any zoning is written. The East Hopkinton Master Plan process provides an excellent opportunity to do the planning that needs to precede the development of these two zoning tools.

Zoning Strategy #1: Develop a Mixed-Use Overlay District for Concept #2

If Concept #2 (or a similar concept) is chosen, MAPC recommends that the Town of Hopkinton develop and adopt a Mixed-Use Overlay District for the site to facilitate development in accordance with Concepts 2 and 3. If Concept #3 is chosen, then there are additional requirements and regulations that will need to be adhered to in order to be approved as a 40R district.

There are a number of Mixed-Use Overlay bylaw models that can be used as a starting point. This Mixed-Use Overlay District will need to include the following provisions:

- Establish a mixture of allowed land uses for the overlay district including single family housing, accessory apartments, duplexes, three and four family dwellings, multi-family dwellings, assisted living, and over 55 independent living communities at a density of not more than 12 units per acre.
- Allowed retail uses subject to a size limitation per business use
- Professional offices as an allowed use.
- Design standards for the Overlay District to guide development of buildings and landscapes that are contextually compatible with the characteristics of the towns.

One way to engage the community is to undertake a Visual Preference Poll to show examples of mixed use and gather citizen feedback on what they like and don't like. In other similar projects, MAPC has compiled a Powerpoint presentation showing examples of mixed use in the region. This presentation was then used to ask residents to vote for those types of development that they would like to see in the areas being considered for mixed use in their community. MAPC then went back through the presentation and asked residents to identify the features they liked and the features they did not like. Some of the examples appear in the MAPC Mixed-Use Toolkit. The Mixed-Use Toolkit can be found at:

Links:

http://www.mapc.org/whats_new/Regional_Record/May2006/mixed_use_toolkit.html.

Zoning Strategy #2: Implement a Transfer of Development Rights Bylaw

TDR is based on the legal principle that the right to develop land can be separated from the land itself. In practice, the right to build on a parcel is transferred from the land to be protected (sending area) to another parcel of land (receiving area), often with a different owner, which can then be developed at an increased density.

The major issue with TDR is the designation of receiving zones. Two possible alternatives are specific sites or other area of town (which could be used in combination). One “other area of town” is downtown Hopkinton, where the increased density could be included in a mixed use redevelopment of the area to increase pedestrian uses, to support local business, and to create more of a village atmosphere. The “specific site” alternative could transfer from the areas of the site targeted for open space preservation, wildlife corridors and hiking trails to target areas within the overlay district. In these areas, the density including Transferred Development Rights could be based on water, septic and traffic limitations.

Step #1: Educate town boards and the community about TDR.

Since TDR is not a traditional tool that is familiar, it will be necessary for the Planning Board and Board of Selectmen to become knowledgeable about TDR. This information would then need to be conveyed to the public. The TDR portion of the Smart Growth Tool Kit (see link below) contains the following educational information that could be used in this effort:

- Three case studies
- Two slide shows
- A brochure
- Three links to other websites

Step #2: Work with the development community to determine if TDR is feasible.

A separate but related effort must be made with the development community to ensure that developers with an interest in working in East Hopkinton are given an opportunity to help shape a program that will be likely to be viewed as feasible by the development community. The link below has specific information for developers and realtors.

<http://www.realtor.org/libweb.nsf/pages/fg804>

Step #3: Determine likely sending zones and receiving zones on the Weston Nurseries site and in the larger context of East Hopkinton.

If the East Hopkinton Master Plan process determines that TDR is feasible, the next step will be to make a preliminary determination as to appropriate sending and receiving zones.

In general, for both concepts 2 and 3, the sending zones would be those areas indicated on the maps as green (areas to be protected) and the receiving zones would be those areas

indicated on the map as yellow (development areas). A TDR program could also involve sending and receiving zones beyond the Weston Nurseries site.

Links: http://www.mass.gov/envir/smart_growth_toolkit/pages/mod-tdr.html

Zoning Strategy #3 - Concept 3 - Smart Growth Development (40R Density)

The Concept 3 plan utilizes the designation of a Smart Growth District with densities consistent with Chapter 40R, the state's Smart Growth Zoning law. Similar to Concept 2, the plan includes a mix of single family, duplex and multi-family units, but at a greater density. The Town would designate a Smart Growth District within the Overlay District where a mixture of housing types, land uses and densities could be provided, which would enhance existing transit services. The town will need to craft zoning that meets the specific requirements of Chapter 40R. It is likely that the same TDR bylaw developed for Concept #2 would also serve to implement Concept #3. There may be some technical legal issues relating to the 40R density being related to transfer of development rights from the "sending areas", so it may be that an alternative method of achieving the conservation areas and density areas may be necessary. One concept would be to zone portions of the Weston Nurseries site as "conservation-recreation" without any development potential, and at the same time zone other areas of the Weston Nurseries property for 40R, without a loss of development potential for the overall site. This could ensure the by-right density required for 40R without the density being dependent upon transferred rights. However, this process would likely not be possible if several ownerships were involved. Additional thought should be given to this process during the East Hopkinton Master Plan project

Links: <http://www.mass.gov/dhcd/40R/default.htm>.

Additional Zoning and Regulatory Strategies for Concepts 2 and 3

Golf Course Regulations

If the town chooses to include a golf course, the zoning bylaw will need to be amended to allow golf courses and related accessory uses, including a club house, pro shop and function rooms. The town should specify that the golf course must adhere to the Environmental Principles for Golf Courses in the United States developed by the United States Golf Association (USGA). These principles were developed through a collaborative research and dialogue process and involved the participation of leading environmental groups including the American Farmland Trust, Audubon Society, Friends of the Earth, National Wildlife Federation and the Sierra Club.

Links:

http://www.usga.org/turf/articles/environment/general/environmental_principles.html

Zoning Strategies for all Concepts

In addition to the specific recommendations that would facilitate development under Concepts 2 and 3, the following tools can be adopted to achieve the over-arching goals of the existing master plans and development that may take place in the future, regardless of which concept is implemented. These zoning strategies, if adopted, would be town-wide. In all cases, links are given to model bylaws or examples from other communities. These examples should be considered starting points for discussion but will almost always require modification to meet the specific needs and situations of the community

Adopt a Low Impact Development Bylaw

Adopt a Low Impact Development bylaw to encourage better site design and more efficient form of development that consumes less open land and protects existing topography, wildlife habitats, and natural features

Low Impact Development (LID) strategies use careful site design and decentralized stormwater management to reduce the environmental footprint of new development. This approach improves water quality, minimizes the need for expensive pipe-and-pond stormwater systems, and creates more attractive developments. The Massachusetts Low Impact Development Toolkit (see links below) is a set of materials designed to help citizens, public officials and developers implement LID.

Links: www.metrowestgrowth.org,
http://www.mass.gov/envir/smart_growth_toolkit),
<http://www.mapc.org/LID.html>

Adopt LEED Standards

LEED stands for Leadership in Energy and Environmental Design. The LEED Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.

LEED was created to:

- define "green building" by establishing a common standard of measurement
- promote integrated, whole-building design practices
- recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognizes achievements and promotes expertise in green building through a

comprehensive system offering project certification, professional accreditation, training and practical resources.

Links: <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

Adopt a Stormwater Management Bylaw

Adopt a stormwater bylaw to regulate post-development stormwater runoff discharges to control and minimize increases in stormwater runoff rates and volumes, post-construction soil erosion and sedimentation, stream channel erosion, and nonpoint source pollution associated with post development stormwater runoff.

Links: www.metrowestgrowth.org,
http://www.mass.gov/envir/smart_growth_toolkit/pages/SG-bylaws.html).

Adopt an Illicit Discharge Bylaw

Adopt an Illicit Discharge Bylaw to carefully regulate increased and contaminated stormwater runoff that is a major cause of impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater; contamination of drinking water supplies; alteration or destruction of aquatic and wildlife habitat; and flooding.

Links: www.metrowestgrowth.org

Adopt Access Management Regulations

Adopt an access management regulation to strengthen the town's general bylaws and subdivision rules and regulations with respect to access from new land divisions onto public, and in some cases, private ways. Encourage reasonable access to development that is consistent with the intended function of the adjacent roadway system. This reasonable access should be achieved through location and spacing criteria for driveways and subdivision road access points along town roadways, minimizing the number of driveways, consolidating existing driveways, encouraging driveways on collectors versus arterials for corner lots, encouraging shared driveways, controlling the geometric design of driveways, and locating driveways as far away from roadway intersections as possible. A model bylaw has been prepared by the Cape Cod Commission.

Links: <http://capecodcommission.org/bylaws/index.html#bylaws>

Adopt a Wildlife Habitat Corridor Overlay

Establish a Wildlife Habitat Corridor Overlay which requires that as land is developed, connectors between existing open space/natural corridors are maintained to ensure continued movement of wildlife. For example, the zoning of the Town of Falmouth, MA establishes a minimum 300' wild natural corridor that must be preserved when development occurs.

This can be accomplished through donation of open space, cluster development, transfer of development rights, or another bylaw provision which allows for lot reduction in these areas (but which is not a full cluster bylaw). Examples of areas to be incorporated into this Overlay are shown on the Concept 2 and Concept 3 maps; additional areas should be considered by the Town in its East Hopkinton Master Plan process and incorporated into the open space plan.

Links: <http://www.town.falmouth.ma.us/depart.php?depkey=planning>

Conclusion

The net result of these recommendations is a proposal for changes from the default future (based on current zoning) to yield an alternative future contemplated in Concept 2 -Open Space Preservation Supported by Development or Concept 3 - Smart Growth Development (40R Density).which protects critical open space and natural resources, provides housing opportunities for individuals and families across a wide range of incomes and life stages, and locates housing in close proximity to the location of jobs, transit and services.

IX. LIST OF REFERENCES

Ashland Executive Order 418 Plan, June 2004

Ashland Housing Strategy, 2001

Ashland Open Space and Recreation Plan, 1998

Ashland 2002 Comprehensive Plan

Fiscal Impact Analysis: Weston Nurseries Alternative Development Plans; Community Opportunities Group, Inc. June, 2006.

Forecasting the Fiscal Impacts of Land Use Change: Weston Nurseries Offering, Hopkinton, MA – Prepared by Judi Barrett, Community Opportunities Group, Inc. December 1, 2005.

Hopkinton Open Space Plan

Hopkinton Master Plan, May 24, 1999

Request for Expressions of Interest: Acquisition, Disposition & Reuse, Weston Nurseries Parcels, June 3, 2005, Land Use Study Committee

Town of Hopkinton Housing Plan, March 2004 – Prepared by Community Opportunities Group.

Hopkinton Zoning Bylaw

APPENDIX A

Weston Nurseries Project: Buildout calculations for existing zoning

5/26/06 DRAFT Completed by Metropolitan Area Planning Council (MAPC), updated to reflect comments by Judi Barrett of COG and Elaine Lazarus, Town Planner.

Introduction and Executive Summary

MAPC has undertaken an analysis of the potential for development of the Weston Nurseries site under existing zoning based upon input received from the 5/3/06 meeting of representatives of Hopkinton, Ashland and Southborough. This analysis under existing zoning will be used to compare against the impacts of alternative development proposal conceptualized by MAPC. The “Existing Zoning” proposal is based upon by-right and special permit development options. The “Alternative Future” development would require changes to zoning to enable a more clustered development pattern which includes mixed-use nodes and which takes advantage of existing transit and a proposed trail network.

MAPC estimates that based upon the existing zoning, the development scenario should include a mix of

- 360 apartments/condominiums² in three development nodes (including a mix of 40% apartments and 60% condominiums [with the potential to shift to 100% condos in the future] and an assumed split of 10% 1-bedroom, 80% 2-bedroom and 10% 3-bedroom units), and
- 560 single-family homes in either a conventional or cluster-style subdivision for a total of 920 residential units.

The remainder of this memo illustrates the rationale and methods used to determine the number of potential units. As noted below, however, if the market ability to absorb condominium units is more or less than the 3 developments in the above model, the unit yield could be significantly increased or reduced, and the mix of units changed, since the density yield for Garden Apartments/Condominiums is significantly higher than for single family houses.

Site divisions and zoning:

The site was divided into the following four areas for purposes of calculating potential development:

- North of East Main Street (Route 135) and Frankland Road (Area 1)
- South of Frankland Road and North of East Main Street (Area 2)

² The Town Planner has noted that only 2 Garden Apartment developments in town have been built to maximum density, and all recent Garden Apartment developments have been proposed and approved at lower density. This is somewhat related to the fact that these developments had on-site sewage treatment facilities, and is also partially dependent upon the market forces for types and sizes of units. Judi Barrett of COG also cautions that 360 units may be a lot for the market to absorb in the short term, and that an apartment condo mix which eventually converts to all condos may be easier for the market to absorb. These are addressed in MAPC analysis (via off-site sewage treatment plant and mix of apartment/condos).

- South of East Main Street (Route 135) (Area 3)
- All parcels in Ashland (Area 4)

Within the Town of Hopkinton, the site is further comprised of the Agricultural District and the RB District. All of Ashland is in the Residential A zone.

Lot Yield via Conventional Development analysis

Based upon the uses allowed in the existing zoning, MAPC's analyses of the Housing Plans of Hopkinton and Ashland, the land use discussion contained in Judi Barrett's 12/1/05 report entitled Forecasting the Fiscal Impacts of Land Use Change, as well as subsequent discussions with Judi Barrett, MAPC developed a hypothetical buildout of the Weston Nurseries property which consisted of a mix of residential units including both single family houses and garden apartments/condominiums.

Note that for the single-family portions of the development, it is assumed that the Planning Board would likely require³ that the development be planned under the Open Space and Landscape Preservation Development bylaw, which allows for development of smaller lots and associated open spaces in lieu of conventional subdivision development. The two methods of determining lot yield for OSPLD developments are 1) via comparison to a conventional development and 2) using a calculation method in the OSPLD bylaw. This first set of calculations will use the conventional subdivision method to determine the likely number of lots within the single-family portions of the development.

Area 1

MAPC assumed that up to 3 developments under the Garden Apartment bylaw could reasonably be absorbed into the existing market. These three developments would each consist of approximately 30 acres (i.e., 30 acres of Usable Land plus additional wetlands and floodplains). Assuming a mix of 10% 1- bedroom, 80% 2- bedroom and 10% 3- bedroom units to provide for the broad housing needs of the community, each development would yield 120 units. The total estimated amount of land that would be used by these developments, within the selected areas of the A District north of East Main Street, is approximately 95 acres (based on the small amount of wetlands within the selected locations), and would yield a total of 360 units.

In addition, it is assumed that approximately 5 acres of Area 1 would be set aside for establishment of a small sewage treatment plant to serve the development. Soils within the area near Route 135 appear to be suitable, and this would preclude the need to establish separate septic systems on each of the lots proposed for development.

The remainder of Area 1 consists of 396 acres within District A and 14.8 acres in District RB. Undertaking a conventional lot-yield buildout analysis, which includes reductions in lot yield due to road construction and odd lot shapes/sizes, the result is 235 lots within

³ Town Planner notes that zoning bylaw requires that an OSPLD subdivision be denied before a conventional subdivision plan can be submitted for approval for parcels of 10 acres or more. Even though OSPLD is by special permit, it is the first single family development option which must be pursued.

District A and 11 lots within District RB. The total number of units estimated for Area 1 is therefore 606 units. Note that although there are wetlands within this northern area, the wetlands appear to be relatively small and are therefore assumed to be able to be included within the lots as a component of the land area required by zoning. Note that for purposes of this analysis, since we were not able to ground-truth the GIS wetland data, we assumed that all lands within the wetlands, flood zone and the first 100 feet of the rivers protection zone, should all be included in the wetlands in order to not underestimate the extent of wetlands on the site.

Calculations:

A District

$$\frac{396 \text{ acres} \times 43560 \text{ sq. ft/acre} \times .82 \text{ (road/lot shape factor)}}{60,000 \text{ sq. ft. min. lot size}} = 235 \text{ single family lots}$$

RB District

$$\frac{14.79 \text{ acres} \times 43560 \text{ sq. ft/acre} \times .82 \text{ (road/lot shape factor)}}{45,000 \text{ sq. ft. min. lot size}} = 11 \text{ single family lots}$$

Area 2

Area 2 consists of approximately 16 acres in the Agricultural District (District A) and 62 acres in the Residential B (RB) District. Undertaking a conventional buildout analysis indicates that a total of approximately 55 lots could be developed (10 in the District A and 45 within the RB District). Note that in this case, the wetlands are of more substantial size relative to the lot sizes, and are assumed to not be able to be absorbed into the lots (and are therefore removed from the raw land figures prior to calculating lot yield).

Calculations:

A District

$$\frac{16.99 \text{ acres} \times 43560 \text{ sq. ft/acre} \times .82 \text{ (road/lot shape factor)}}{60,000 \text{ sq. ft. min. lot size}} = 10 \text{ single family lots}$$

$$\text{RB District } \underline{62.11 \text{ acres} - 4.75 \text{ acres wetlands} = 57.36 \text{ upland acres for development}}$$

$$\frac{57.36 \text{ acres} \times 43560 \text{ sq. ft/acre} \times .82 \text{ (road/lot shape factor)}}{45,000 \text{ sq. ft. min. lot size}} = 45 \text{ single family lots}$$

Area 3

Area 3 is comprised predominantly of land within the RB District, and also includes significant wetlands. These wetlands were removed from the raw land totals prior to calculating lot yield. The 6.5 acres within District A is estimated to yield 4 lots, and the

393 acres (less the 109 acres of wetlands) within the RB District is estimated to yield approximately 225 lots. The total lot yield for Area 3 is therefore approximately 229 lots.

Calculations:

A District

$$\frac{6.5 \text{ acres} \times 43560 \text{ sq. ft./acre} \times .82 \text{ (road/lot shape factor)}}{60,000 \text{ sq. ft. min. lot size}} = 3.86 \text{ single family lots}$$

Note that in this one case the yield is rounded upwards because the parcel has significant frontage on a town road and the road factor is likely to be reduced or eliminated, thus increasing lot yield.

RB District 393.2 acres – 109.55 acres wetlands = 283.65 upland acres for development

$$\frac{283.65 \text{ acres} \times 43560 \text{ sq. ft./acre} \times .82 \text{ (road/lot shape factor)}}{45,000 \text{ sq. ft. min. lot size}} = 225 \text{ single family lots}$$

Area 4

Area 4 includes approximately 31 acres in three parcels in Ashland which are within the Residential A zone (30,000 square feet per lot). After removing the wetlands from the raw land figures, the approximately 27 acres remaining is estimated to yield approximately 30 residential lots.

Calculations:

R-A District: 31.63 acres – 4.45 acres wetlands = 27.18 acres for development

$$\frac{27.18 \text{ acres} \times 43560 \text{ sq. ft./acre} \times .78 \text{ (road/lot shape factor)}}{30,000 \text{ sq. ft. min. lot size}} = 30 \text{ single family lots}$$

Total Units

Total unit yield assuming the above mix of Apartments/condominiums and single-family houses is **920 units**.

OSLPD Method -Alternative Yields

An alternative calculation of yield for residential lots in an OSLPD development can be developed from the Open Space and Landscape Preservation Development bylaw. As is noted above, the bylaw contains several methods of determining lot yield, including comparison to a conventional development as well as a calculation.

OSLPD Alternative 1 – Lot Yield Using Bylaw Calculation

Using the calculations found in the zoning bylaw, the number of units that could be established in the areas of the property assumed for single-family development would be as follows:

Area #1

A District

$$\frac{[396 - (.5 \times 8.2) - (.1 \times 396)] \times 43560}{60,000} = \frac{352 \times 43560}{60,000} = 255.7 \text{ or } 255 \text{ lots}$$

RB District

$$\frac{[14.79 - (.5 \times .1) - (.1 \times 14.79)] \times 43,560}{45,000} = \frac{13.26 \times 43,560}{45,000} = 12.8 \text{ or } 12 \text{ lots}$$

Area #2

A District

$$\frac{[16.99 - (.5 \times .05) - (.1 \times 16.99)] \times 43560}{60,000} = \frac{15.26 \times 43560}{60,000} = 11.08 \text{ or } 11 \text{ lots}$$

RB District

$$\frac{[62.11 - (.5 \times 4.75) - (.1 \times 62.11)] \times 43560}{45,000} = \frac{53.52 \times 43560}{45,000} = 51.8 \text{ or } 51 \text{ lots}$$

Area #3

A District

$$\frac{[6.5 - (.5 \times .05) - (.1 \times 6.5)] \times 43560}{60,000} = \frac{5.825 \times 43560}{60,000} = 4.2 \text{ or } 4 \text{ lots}$$

RB District

$$\frac{[393.2 - (.5 \times 109.55) - (.1 \times 393.2)] \times 43560}{45,000} = \frac{299.1 \times 43560}{45,000} = 289 \text{ lots}$$

Including the 360 apartment/condominium units plus the 30 units from Ashland results in a total yield of **1012 residential units.**

OSLPD Alternative 2 – Lot Yield Based Upon Past Developments

Based upon the Barrett/Lazarus assumptions included in Judi Barrett's 12/1/05 report entitled Forecasting the Fiscal Impacts of Land Use Change, past OSLPD projects in Hopkinton have yielded .37 units per acre. This is at least partially due to location of septic systems on individual lots, and also may be related to the lot size in the zoning districts where the majority of previous OSLPD projects were located.

Since this .37 lots per acre factor does not change based on zoning district, the following calculations are for total land area within the areas allocated to single family development in the scenario above. (Note that the proposed 360 Garden Apartments/condominiums, and also the Ashland development potential, are not included in the acreage and would therefore need to be added to obtain a total number of units for the entire Weston Nurseries site.)

Using the .37 units per acre yield, the estimated number of single family units within the areas assumed for single-family development cited above would be

Area 1: 410 acres x .37/acre = 151 units

Area 2: 79.1 acres x .37 units/acre = 29 units

Area 3: 399.7 x .37 units/acre = 147 units

Note that the unit yields calculated above are significantly below what is expected from conventional development. Including the 360 apartment/condominium units plus the 30 units from Ashland results in a total yield of **717 residential units**.

Note that the total lot yield is highest using the OSLPD Bylaw calculation, and lowest based upon the past history of developments under the OSLPD bylaw. MAPC concurs with Judi Barrett (in her 12/1/06 report) that the calculation method in the OSLPD zoning probably over-estimates the potential lot yields. We note that since 50% of the land area must be set aside as open space, but the lot size may only be reduced by 50%, there is no accounting in the bylaw calculation for roadway areas, and this is the most likely reason for reduced actual lot yields.

However, MAPC also feels that the use of the .37 lots per acre may under-estimate the lot yield possible, especially if (as in our assumptions for the Weston Nurseries site) areas are set aside for establishment of sewage treatment facilities to service the development.

MAPC therefore feels that the lot yield estimated by the conventional subdivision calculations, which accounts for roads and hydrologic features, represents a reasonable approximation of the unit yield potential under either a conventional or a cluster subdivision plan. Note however, that if the market ability to absorb condominium units is more or less than the 3 developments in the above model, the unit yield could be significantly increased or reduced, since the density yield for Garden Apartments/Condominiums is significantly higher than for single family houses.

APPENDIX B: HOUSING FINDINGS

Prepared by Judy Alland

Housing Supply⁴

- 3 towns together have 13,339 housing units, up 74% since 1980.
- Hopkinton alone has 4,548 units, or 34%, and has grown 83% since 1980.
- 85% of the 3-town occupied units are owner-occupied, up from 78% in 1980.
- 90% of Hopkinton's occupied units are owner-occupied, up from 82% in 1980.
- The 3 towns have only 15% rental, down from 22% in 1980.
- Hopkinton has only 10% rental, down from 18% in 1980; between 1990 and 2000, the number of rental units declined by 15%.
- The 3 towns have 84% single-family (attached + detached) housing; 5 % in 2-4 unit structures; and 6% in structures with 5 units or more.
- Hopkinton is 90% single-family, with 7% in structures of 2-4 units and 3% in structures with 5 units or more.
- According to building permit data for 2000-2004, only 16% of newly permitted units are multi-family, and none is in Hopkinton.
- Of the 3 towns' 13,290 year round housing units, 981, or 3.9% "count" toward the Ch. 40B 10% goal and are on the state's Subsidized Housing Inventory.
- Of the 3 towns, Ashland has the most 40B housing – 4.2% -- while Hopkinton and Southborough each have 3.6%.

Housing Costs and Affordability

- 2005 median single-family home sale price in Ashland was \$403,900; in Hopkinton, \$549,000; and in Southborough, \$545,000.
- Ashland's price is 5 times the regional median income (\$82,600). The Hopkinton and Southborough sales prices are almost 7 times the regional median income. An often cited rule of thumb is that families can afford a home that costs 2.5 or 3 times their income.
- Between 1990 and 2005, the regional median income rose 78%. During the same time period, single family home sale prices rose 148% in Ashland, 153% in Hopkinton, and 211% in Southborough.

Is there a Market for Age-55+ Housing?

According to a recent study,⁵

- The recent boom in age 55+ housing is concentrated between Route 128 and the I-495 corridor, including towns west of I-495, and in central MA, including Worcester.
- Given the volume of units in the pipeline, "developments that are not well-located, well-designed and well-priced are unlikely to succeed."

⁴ Sources: U.S. Census; DHCD.

⁵ CHAPA, *Age Restricted Active Adult Housing in Massachusetts*.

- The number of units proposed exceeds likely near-term absorption.
- Most increases in school enrollment result from generational turnover of existing housing, not from new construction. Thus local residents moving into age-restricted housing may be freeing up large existing homes for young families.

Table 1
Age 55+ Housing
Weston Nurseries Towns & Vicinity

Community	55+ units existing, under construction, or proposed
Ashland	390
Hopkinton	142
2-town total	532
Holliston	363
Marlborough	392
Northborough	415
Westborough	486
4-town total	1,656
Hudson	474
Shrewsbury	321
Sudbury	149
Worcester	424
4-town total	1,368
10-town total	3,556
Source: CHAPA, Age Restricted Active Adult Housing in MA.	
Note: Data for communities with 3+ developments only; others may have more units but fewer developments.	

In addition to the questions of marketability, emphasis on age-55+ housing raises local and regional policy questions:

- Is this housing coming at the expense of housing for families and young workers?
- How will concentrations of age-restricted housing affect the demand for and the support for municipal services?

**Table 2
Owner vs. Renter Occupied Housing Units**

Community	Total occupied units, 1980	Owner-occupied housing units, 1980	% of Total	Renter-occupied housing units, 1980	% of Total
Ashland	3,082	2,238	73%	844	27%
Hopkinton	2,362	1,942	82%	420	18%
Southborough	1,977	1,596	81%	381	19%
3-town total	7,421	5,776	78%	1,645	22%

Community	Total occupied units, 1990	Owner-occupied housing units, 1990	% of Total	Renter-occupied housing units, 1990	% of Total
Ashland	4,607	3,409	74%	1,198	26%
Hopkinton	3,159	2,691	85%	468	15%
Southborough	2,281	1,924	84%	357	16%
3-town total	10,047	8,024	80%	2,023	20%

Community	Total occupied units, 2000	Owner-occupied housing units, 2000	% of Total	Renter-occupied housing units, 2000	% of Total
Ashland	5,720	4,556	80%	1,164	20%
Hopkinton	4,444	4,009	90%	435	10%
Southborough	2,952	2,595	88%	357	12%
3-town total	13,116	11,160	85%	1,956	15%

**Table 3
Growth in Housing Units 1980 – 2000**

Community	Total housing units, 1980	Total housing units, 1990	Total Units Added, 1980-90	% Change, 1980-90	Total housing units, 2000	Total Units Added, 1990-2000	% Change, 1990-2000	% Change, 1980-2000
Ashland	3,166	4,821	1,655	52.3%	5,794	973	20.2%	83.0%
Hopkinton	2,489	3,305	816	32.8%	4,548	1,243	37.6%	82.7%
Southborough	2,035	2,361	326	16.0%	2,997	636	26.9%	47.3%
3-town total	7,690	10,487	2,797	36.4%	13,339	2,852	27.2%	73.5%

**Table 4
Building Permits, 2000-2004**

Community	S-f units	M-F units	Total units	% M-F
ASHLAND	374	136	510	27%
HOPKINTON	390	0	390	0%
SOUTHBOROUGH	215	57	272	21%
3-town total	979	193	1,172	16%

**Table 5
Subsidized Housing Inventory, 3-towns**

Community	2000 Census Year Round Housing Units	Total Development Units	Total Subsidized Housing Inventory (SHI) Units	Percent SHI
Ashland	5,781	258	242	4.2%
Hopkinton	4,521	292	165	3.6%
Southborough	2,988	431	108	3.6%
3 towns	13,290	981	515	3.9%

**Table 6
Units in Structure, 2000**

Community	Total Housing Units	1 unit detached	1 unit attached	1 unit attached + detached	1 unit att+det, % of total	2-4 units	2-4 units as % of total	5 units or more	5 units or more as % of total
ASHLAND	5,794	3,506	824	4,330	75%	873	15%	586	10%
HOPKINTON	4,548	3,846	242	4,088	90%	310	7%	139	3%
SOUTHBOROUGH	2,997	2,721	85	2,806	94%	137	5%	54	2%
TOTAL	13,339	10,073	1,151	11,224	84%	1,320	10%	779	6%

**Table 7
Analysis of Home Sale Price Affordability**

Chart compares median home sale prices in each community with regional median income, family of 4, 1990 & 2004

TOWN	SF \$ 1990	Condo \$ 1990	All \$ 1990	SF \$ 2004	Condo \$ 2004	All \$ 2004	% change in SF \$, 1990- 2004	% change All Sales \$, 1990- 2004	2005 Median SF Sales \$	Ratio: 2005 Sales \$:2005 ami
ASHLAND	163,000	122,500	137,250	385,000	319,000	367,000	136%	167%	403,900	4.9
HOPKINTON	217,000	109,000	164,875	501,500	305,000	450,000	131%	173%	549,000	6.6
SOUTHBOROUGH	175,000	-	171,500	495,000	630,600	526,950	183%	207%	545,000	6.6
Regional median income	46,300			82,600			78%			
TOWN	SF90 vs Inc90	C90 vs INC 90	% change in ratio 90 vs 04	All04 vs INC 04						
ASHLAND	3.5	2.6	0.3	4.4						
HOPKINTON	4.7	2.4	0.3	5.4						
SOUTHBOROUGH	3.8	0.0	0.6	6.4						

APPENDIX C

Massachusetts Office for Commonwealth Development (OCD) Sustainable Development Principles

1. REDEVELOP FIRST. Support the revitalization of community centers and neighborhoods. Encourage reuse and rehabilitation of existing infrastructure rather than the construction of new infrastructure in undeveloped areas. Give preference to redevelopment of brownfields, preservation and reuse of historic structures and rehabilitation of existing housing and schools.

2. CONCENTRATE DEVELOPMENT. Support development that is compact, conserves land, integrates uses, and fosters a sense of place. Create walkable districts mixing commercial, civic, cultural, educational and recreational activities with open space and housing for diverse communities.

3. BE FAIR. Promote equitable sharing of the benefits and burdens of development. Provide technical and strategic support for inclusive community planning to ensure social, economic, and environmental justice. Make regulatory and permitting processes for development clear, transparent, cost-effective, and oriented to encourage smart growth and regional equity.

4. RESTORE AND ENHANCE THE ENVIRONMENT. Expand land and water conservation. Protect and restore environmentally sensitive lands, natural resources, wildlife habitats, and cultural and historic landscapes. Increase the quantity, quality and accessibility of open space. Preserve critical habitat and biodiversity. Promote developments that respect and enhance the state's natural resources.

5. CONSERVE NATURAL RESOURCES. Increase our supply of renewable energy and reduce waste of water, energy and materials. Lead by example and support conservation strategies, clean power and innovative industries. Construct and promote buildings and infrastructure that use land, energy, water and materials efficiently.

6. EXPAND HOUSING OPPORTUNITIES. Support the construction and rehabilitation of housing to meet the needs of people of all abilities, income levels and household types. Coordinate the provision of housing with the location of jobs, transit and services. Foster the development of housing, particularly multifamily, that is compatible with a community's character and vision.

7. PROVIDE TRANSPORTATION CHOICE. Increase access to transportation options, in all communities, including land-and water-based public transit, bicycling, and walking. Invest strategically in transportation infrastructure to encourage smart growth. Locate new development where a variety of transportation modes can be made available.

8. INCREASE JOB OPPORTUNITIES. Attract businesses with good jobs to locations near housing, infrastructure, water, and transportation options. Expand access to educational and entrepreneurial opportunities. Support the growth of new and existing local businesses.

9. FOSTER SUSTAINABLE BUSINESSES. Strengthen sustainable natural resource-based businesses, including agriculture, forestry and fisheries. Strengthen sustainable businesses. Support economic development in industry clusters consistent with regional and local character. Maintain reliable and affordable energy sources and reduce dependence on imported fossil fuels.

10. PLAN REGIONALLY. Support the development and implementation of local and regional plans that have broad public support and are consistent with these principles. Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit. Consider the long-term costs and benefits to the larger Commonwealth.

APPENDIX D
RESULTS OF THE MARCH 7, 2006 PUBLIC FORUM

General discussion on desirable uses

- Need additional business tax base.
- Need shuttle bus to address development impacts – connect to train and other locations in town (EMC).
- Cemetery space needed – near capacity now.
- Need new transit – commuter rail only works for Boston.
- Multi community recreational lands.
- Community farming on protected space (including education).
- Connect open space to State Park, trail.
- Open space for wildlife & people of town & region.
- Regional sports complex-perhaps in conjunction with “Y”.
- Business development-alternative ideas such as wind farm.
- Improve transportation infrastructure- pedestrian access, bike, bypass road.
- Protection of Ashland & Hopkinton wells.
- Affordable housing included.
- Alternatives to residential:
 - Bioech, pharmaceuticals - reverse commute
 - Playing fields, School

Additional Specific Land Uses

- Some revenue uses (cemetery, recreation) can fit on open space parcels.
- Community gardens.
- Indoor skating (sports complex).
- Larger biotech – hide behind hills.
- Satellite business centers.
- Revenue positive & rail trail completed – some business development to serve rail trail.

Results of additional discussion of uses – location-specific

- Protect wetlands/wildlife/drainage/open space
 - +Viewsheds
 - +Use remainder for development
- Age restricted/golf/appropriate uses
 - “Active Adult” community but lots of recent “over 55” developments in recent past.
- Smaller houses & more affordable (<4000 sq. ft. houses) Hopefully reputable quality builder.
- Want revenue positive.

- Cemeteries/regional recreation as profit centers- to make revenue positive.

- Parcel 10B good spot for cemetery.
- 50-10 acre plots for “homestead” or small farm uses.
- Commercial area near existing shop.
- Make sure any developments recharge groundwater.
- Parcel 1A-Lucky Rock-Check actual location.

Results of discussion - Impacts of development about which residents are concerned

- Viewshed from 135.
- Former start of Marathon.
- Swamp azaleas-heralding start of spring/Patriot’s Day-imp.to history of town.
- Going west-sunset, moon.
- Other views from top of property.
- Pay attention to elevations.
- Clustering near commuter rail only encourages sprawl – build near T-you will get Boston based commuters.
- Preserve historic structures on the site – footbridge.
- Traffic impacts.
- Pesticide use vis-a vis acceptable land uses.
- Reasonable buffers for existing development.
- Potential impacts on center of town if too much commercial in the East End.
- Impact of what’s happening with development in communities south of Hopkinton – affordable housing growth farther out.
- Water protection-wells, reservoirs.
- Don’t allow negative impacts on downtown – we don’t need another town center.
- Recharge of groundwater.
- Water quality.
- Recreation-water –based.

Additional “Global” concepts raised in discussion

- Viewshed/gateway.
- Recharge of the reservoir.
- Preserve trail system/s.
- Serenity House-continuation (Parcel 4A)
- Connections between state parks /HALT land.
- Grasslands-potential restoration of fields-bird habitat.
- Wildlife corridors.
- TLC-The Local Connection

Other

- Metro Future 2030 is full of interesting info.
- Aquifer recharge-development.
- Broader regional impacts.

Chart Presented at the March 7, 2006 Public Forum

#	Approx.Acres	Votes	Natural Features	Other Features	Comments
					Preserve appearance-entryway
1A	22	12	Woods, visible from Rotue 135, hilly	Portion abuts E. Main St.	Marathon starting site (old) Gas Pipeline, Wildlife Habitat
					HALT Land nearby adjacent to Wilson Street
1B	20	20	Fields, two ponds, flat, visible from Route 135	Abuts Rte. 135	Veiwshed from Rt 135 very important.
					Bank of Azaleas-Open Fields. Private Trails to access State Park
2A	89	23	Steep slope down to wells, mix of woods and fields, wetlands, potential vernal pool	Pipeline crosses parcel, portions in Ashalnd, frontage on Wilson Street.	Lots of Wetlands. Historic Stone Walls. Surface Runoff to Reservoir - Sediment
					Recharge of Reservoir & Wells. Extensive Trail System-unofficial wildlife corridor connection to to other O.S. Adjacent to State Park. Views of Mt. Monadnock>2A/B.
2B	118	9	Ridgeline, moderately hilly, some woods,mostly fields, two ponds	Adjacent to gas company; pipeline crosses parcel; frontage on Wilson Street. Wilson Street south of Rafferty is a scenic road.	Views of Mt. Monadnock>2A/B. Views of Boston

#	Approx.Acres	Votes	Natural Features	Other Features	Comments
3	45	6	Fields, wooded edge, moderately hilly	Some structures and parking; frontage on Frankland Road	Vernal Pools, Wildlife Area. Feral Cats/Bobcats on site. Access Rd for Cross Street. Halt land near Cross Street. Serenity House. Viewsheds to Boston
4A	138	5	Pond, fields, woods, moderately hilly	Portion abuts Wilson Street (a designated scenic road)	Serenity House. Viewsheds to Boston
4B	46	14	Fields, moderately hilly, highly visible from Route 135 and Frankland Road	Frontage on Route 135 and Frankland Road	Viewsheds. Setbacks to protect views from Frankland lots of Groundwater
5	22	3	Pond, fields, relatively flat, stream, highly visible from route 135 and Frankland Road	Used for sales; frontage on route 135 and Frankland Road	Agricultureal-Character of Hopkinton. Commercial Garden Center
6	50	8	Pond, potential vernal pool, wetlands, stream, woods, relatively flat	Frontage on Route 135	Wildlife Corridor. Wild turkeys. Turtle Pond (vernal Pool). Historic Structures
7	13	7	Fields, flat, stream, visible from Route 135	Frontage on Rte. 135, some development along Route 135, RR ROW (potential trail) crosses parcel	Some historic structures. Rural character preservation. Flat stone Bridge

#	Approx.Acres	Votes	Natural Features	Other Features	Comments
8	69	9	Potential vernal pool, wetlands, wooded, hilly, stream	RR ROW (potential trail) crosses parcel	Wildlife - Vernal Pools (Potential) Trails. Eathern dams. Historic mill stone walls
9	41	2	Wooded swamp, flat		Potential for wells. Beaver Dam
10A	21	9	Wooded, relatively hilly	Frontage on Route 135; some development. RR ROW (potential trail) abuts parcel.	Many wet areas & waterways
10B	12	3	Fields, relatively flat, visible from Route 135	Frontage on Route 135; abut potential trail on RR ROW	Abuts Existing Neighborhood
11	118	16 18	Streams, wetlands, ponds, relatively flat; mostly fields; highly visible from Clinton Street	Portion abuts Olive Street and Clinton Street	Borders Cemetery. Trails. Potential Wells nearby Wildlife
12	61	18	Pond, mostly fields, flat, aquifer on portion of site	Potential trail alignment through parcel. Access through Curtis Road.	Wildlife

#	Approx.Acres	Votes	Natural Features	Other Features	Comments
13	46	9	Potential vernal pool, fields, woods, swamp, flat; portions visible from Clinton Street	Portion abuts Clinton Street and Olive Street. Portion of site is in Ashland.	Connection to Ashland State Park
	931		Total		

APPENDIX E
RESULTS OF THE JUNE 15, 2006 PUBLIC FORUM

According to the sign-in sheet, there were at least forty-three people at the June 15 public forum. The attendance list included twenty-nine Hopkinton residents; six from Ashland, several consultants and two Wellesley residents.

During the public comment portion of the forum, the following issues were raised by those in attendance. These questions were addressed to various members of the project team for brief answers. More details on some of these issues can be found in the full report.

Question #1: Why is large lot single family development revenue- negative?

Answer: It depends on the number of children living in these homes over time? The degree to which a development is positive, negative or neutral changes over the 12 year development cycle that was analyzed.

Question #2: Why would there need to be an increase in the Water Management Act permit? If there is no increase, what would the impact be on the number of units?

Answer: The need for additional water withdrawals permitted under the Water Management Act would be lower if all development was on individual wells. 90% of all recent development has been on individual wells.

Question #3: How much water is Weston Nurseries using now?

Answer: The estimate is 1 million gallons per day during the peak season (summer).

Question #4: Why is a golf course being proposed for land that is within the watershed for the reservoir? This could have negative impacts because of pesticides and other chemicals in the runoff? How would the golf course work with NSTAR's proposal to buy 160 acres of land as a buffer?

Answer: Because there is more land than is needed for an 18 hole golf course, it would be possible to site the golf course in such a way that it is not within the watershed. There are also ways to design, manage and operate a golf course that are less environmentally harmful. At this point, there is no NSTAR proposal to buy any land. NSTAR responded to an earlier Request for Expressions of Interest issued by the town. They indicated that they were

interested in three tax parcels totaling 160 acres but there was no formal proposal to purchase this acreage.

Question #5: Why couldn't non-profits looking to expand develop on the site? Wellesley College has been looking to expand.

Answer: Nothing in this study precludes the purchase of the site by a non-profit. This option was not included in the analysis because some non-profits do not pay taxes and we were looking for uses that would be revenue positive. Wellesley College has not expressed any interest in the site.

Question #6: What constitutes a safe radius around the LNG facility? How much land would be necessary?

Answer: NSTAR has expressed an interest in purchasing some of the land as a buffer but there is no specific safety-related information available at this time. The concepts that include a golf course or cemetery were attempting to address the desirability of having a buffer by proposing low-density, non-residential uses for that portion of the site.

Question #7: Will Cross Street be used for access? If it is used for access, this could be a problem for the neighbors.

Answer: This plan is conceptual at this stage and access will not be addressed until the preliminary proposal stage.

Question #8: Are the soils on the site appropriate for a sewage treatment plant? Where are the suitable soils located?

Answer: A soils map was consulted to determine the location of soils suitable for a sewage treatment facility. Such soils do exist in locations that could work for the concepts outlined. At this stage, only conceptual plans have been proposed and any decisions on sewage treatment would need to wait until development plans are well beyond the conceptual stage. Additional engineering studies would need to be conducted.

Question 9: What is the deadline for rezoning the property? Can it be rezoned after a developer purchases the site?

Answer: There is no deadline for rezoning the property. It can be rezoned any time that the town is ready to. It is likely that there will be no new zoning proposed until after the East Hopkinton Master Plan has been completed. A developer is free to develop under the

current zoning but this would not allow Concepts 2 or 3 at this time.

Question #10: What is the relationship between the Master Plan process and any future developer?

Answer: It is likely that there will be no changes to the zoning until after the Master Plan has been completed. If the zoning is an overlay district, a developer will be able to develop under the underlying zoning or the new zoning. It is the town's intention to seek the input of the development community during the Master Plan process to ensure that the plan and any subsequent zoning makes sense from the perspective of a developer.

APPENDIX F

FISCAL IMPACTS REPORT PREPARED BY JUDI BARRETT

COMMUNITY OPPORTUNITIES GROUP

FISCAL IMPACTS

1.0 INTRODUCTION

At MAPC's request, Community Opportunities Group, Inc. analyzed the potential fiscal impacts of three alternative development possibilities for the Weston Nurseries property. Hopkinton is affected by all three alternative plans because most of the Weston Nurseries property is located within its borders. The first alternative plan also affects Ashland, where 30 of the anticipated single-family homes are located.

Table 1: Alternative Development Plan Components			
Class of Use	Alternative 1	Alternative 2	Alternative 3
Residential Uses			
Single-Family Homes			
Rural Density			10
Low Density (Existing Zoning)	560	314	
Moderate/High Density			80
Duplex Units			120
Multi-Family Housing	360	380	700
Mixed-Use Dwellings		220	
Assisted Living Units		120	120
Senior Housing		124	
Total Housing Units	920	1,158	1,030
Non-Residential Uses			
Retail (Sq. Ft.)		25,000	25,000
Office (Sq. Ft.)		40,000	40,000
Golf Course Club House (Sq. Ft.)		40,000	40,000
Total Square Feet Commercial Space		105,000	105,000

Source: MAPC.

Any development of the magnitude or complexity depicted in MAPC's concept plans will require many years to complete. As a result, the direct fiscal impacts will not be felt all at once. The evolution of Weston Nurseries from an agricultural operation to a development of homes, businesses and other uses will occur gradually, which means the net fiscal impacts will be both incremental and cumulative, especially in Hopkinton. Since the number of new single-family homes shown on the land in Ashland is fairly

small, Ashland is more likely to experience new municipal and school service demands in the short run. These demands will converge with demands from new development occurring elsewhere in the town and generate a portion of the cumulative impact on municipal and school services brought about by residential growth.

In Hopkinton, however, the impacts of a change in use on the Weston Nurseries property are quite different. Here, the impacts will be felt as fundamental, enduring changes in the cost of town and school services, for the amount of new development represented in all of MAPC’s alternative plans constitutes a sweeping change in the land use pattern of East Hopkinton.

2.0 SUMMARY OF NET FISCAL IMPACTS

The present value of total revenue and total expenditures associated with each of the alternative development plans, assuming a 12-year buildout period, is presented in Table 2.⁶ The net fiscal impacts differ primarily due to the mix of housing units and to a lesser extent, the inclusion of nonresidential uses in the second and third alternative plans.

	Hopkinton			Ashland
	Alternative 1	Alternative 2	Alternative 3	Alternative 1
Housing Units	890	1,158	1,030	30
Population	2,864	2,891	2,326	116
School-Age Children	772	551	325	31
Non-Residential Sq. Ft.	0	105,000	105,000	0
Cost of Municipal & School Services	\$82,714,200	\$66,629,700	\$39,659,900	\$3,303,560
Revenue	\$74,926,000	\$70,315,000	\$50,337,000	\$3,136,920
Cost-Revenue Ratio	1.10	0.95	0.79	1.05
Surplus/(Deficit) Revenue	(\$7,788,200)	\$3,685,300	\$10,677,100	(\$166,640)
Avg. Annual Surplus/(Deficit)	(\$899,000)	\$326,900	\$976,000	(\$15,100)

Note: numbers may not add to total due to rounding.

3.0 FISCAL IMPACT: SCOPE AND METHODS

A fiscal impact study explores the relationship between the community service costs and revenue attributable to a change in land use. The relationship is expressed as a ratio of costs to revenue. When a development generates more than enough revenue to pay for the services used by its residents, businesses or employees, it is said to be “revenue positive,” i.e., a cost-revenue ratio <1.0. Similarly, a development that produces the same amount of revenue and service costs is “revenue neutral,” or 1.0, and a “revenue negative” project

⁶ Present value converts future expenditures and revenue to a base year of 2006. For purposes of this analysis, present value was established using a discount rate of 3%. Future costs were determined using an assumed inflation rate of 3% for most municipal and school service costs, but for employee benefits and certain vehicle-dependent services such as public works and public safety, the assumed inflation rate was increased to 3.5-6%. Sources: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index, Boston Metropolitan Area, and Federal Reserve Bank of Boston.

costs more to serve than the amount of revenue it contributes to the community, or >1.00. Local officials often want to know if a proposed development will have a positive or negative impact on the community's tax rate because if the project does not pay for itself, the gap between new service costs and new revenue will have to be absorbed by other property owners in the form of higher taxes.

Land development generates many types of government revenue, but a fiscal impact study focuses on general fund revenue and expenditures. Property taxes supply more than half of aggregate general fund revenue for the state as a whole, and well over half of all general fund revenue in Hopkinton and Ashland. A second source of general fund revenue is local aid, such as Chapter 70 aid for public schools and state lottery disbursements to cities and towns. A third source, "local receipts," includes local revenue from a variety of sources other than real estate taxes: motor vehicle excise taxes, user fees for recreation programs or trash service, interest income from a municipality's bank accounts and investments, and so forth. The combined revenue from these sources pays for traditional local services, from public schools to public safety, as well as debt service for most of the long-term bonds that municipalities issue to finance major capital improvements.

In some communities, water and sewer use charges also provide general fund revenue, but today, many towns have converted services such as water, sewer and solid waste disposal to a municipal enterprise. Hopkinton and Ashland have water and sewer enterprise funds. Services provided on an enterprise basis are usually self-supporting operations, financed with user charges or "offset receipts," not tax revenue. Accordingly, enterprise revenue and expenditures are accounted for and reported separately from the general fund and they have no direct impact on the tax rate. Since local government practices vary, a fiscal impact analysis should trace the flow of revenue and expenditures in a given community in addition to examining total revenue and total expenditures over time. Total revenue represents the sum of revenue from all sources, including enterprise revenue, which must be disaggregated from general fund revenue in order to produce an accurate profile of activity that depends in whole or in part on real estate taxes.⁷

Several methodologies exist for estimating a development's revenue and community service costs. The methodology or model used for a given fiscal impact study should be appropriate for the type of project under review. Some fiscal impact models are designed to analyze residential developments and others are designed primarily for non-residential developments. Mixed-use developments require a hybrid approach, i.e., an allocation of costs and revenue based on a project's particular mix of uses. Regardless of design

⁷ Communities usually appropriate and transfer from the general fund amounts of money to pay the enterprise for water or sewer service in municipal and school buildings, and simultaneously transfer from the enterprise fund to pay a pro-rated share of the cost of local government services such as the town accountant and treasurer-collector, or for debt service associated with enterprise-funded capital improvements. Since enterprise fund transfers are supposed to represent actual costs to the local government's general fund, they do not constitute a form of subsidy to the taxpayer. For fiscal impact purposes, enterprise fund and general fund activity must be separated. However, we note that when new growth generates additional enterprise fund revenue, a portion of the additional revenue indirectly contributes to the general fund and also affects general fund expenditures.

differences, all models rely to some extent on known or readily predictable conditions to shed light on future (unknown) outcomes. For example, most of the widely used fiscal impact models for commercial development rely on a formula that uses a project's estimated assessed value to predict its future municipal service costs. The formula assumes that service costs can be inferred from the relationship between the assessed value of a new development, existing developments in the same general use class, and the total assessed value of all real property in the community ("proportional valuation"). For MAPC's study, we used modified per-capita multipliers to estimate each town's future service municipal and school service costs for the new households and total household populations that can reasonably be estimated today, given the number and types of housing units shown on the alternative plans. Per-capita and per-pupil cost multipliers offer the advantage of simplicity and the disadvantage of producing a distorted picture of near-term service costs. Since public services are not equally "population-sensitive," they do not respond to population growth in quite the same way. For example, an increase of 100 households in one fiscal year increases the workload in a community's finance departments, such as the assessor's office, the tax collector and treasurer, but the cost impact is not the same as that associated with adding 100 students to the public schools. A one-year enrollment increase of 100 students requires hiring additional teachers and purchasing more textbooks and classroom supplies, and it may require increasing the number of bus routes depending on where the students live as well as their grade levels. Moreover, if the receiving grades are already large classes, the school system may not have enough classroom space to accommodate the new students.

In our experience, estimating future community service costs involves more than simply dividing a town's existing general fund expenditures by its current population and multiplying the results by an assumed population increase. It also requires some awareness of the types of change that cause some local government operations to grow more rapidly than others. To control for the effects of disproportionately high or low cost increases, we modified each town's per-capita cost of residential services with a series of marginal cost factors over the 12-year period covered by this study. The marginal cost factors effectively regulate the rate at which the model forecasts cost growth in relation to population growth.

Economists often cite local government expenditures per capita as one of several community wealth indicators. To a fiscal impact analyst, however, local government expenditures per capita can be very misleading because municipal services benefit more than the local population. Constructing usable per-capita cost multipliers for a fiscal impact study requires allocating costs to residential and nonresidential land uses so that a per-capita cost reasonably represents the share of total costs attributable to residential development. This is a crucial step in any fiscal impact analysis and unfortunately, many studies omit it. To estimate the percentage of municipal expenditures devoted to nonresidential land uses in Hopkinton and Ashland, we relied on the proportional valuation method because in our experience, it provides a fairly accurate picture of the local government services affected by businesses and industry.

3.1 Considerations

Fiscal impact studies of proposed zoning changes or conceptual development plans – that is, potential land use changes at a very preliminary stage – need to be interpreted with caution. By the time a project is ripe for permitting, the developer usually has a considerable amount of information about the project and reviewers have access to details that simply do not exist at the concept phase. A study that lacks the benefit of these details has to fall back on more generic information or data obtained from seemingly comparable developments, yet project design changes that occur between a concept plan and a special permit or site plan submission can significantly alter the assumptions used in a fiscal impact study.

A useful example involves an analyst's approach to forecasting the fiscal impact of two-bedroom townhouses. When the development plan is purely conceptual, the analyst must assume that most or all of the townhouses will be occupied by households of a size and composition similar to townhouse residents living in the community today (or in demographically similar towns if the community currently has no townhouse developments). However, if the sample floor plans in a developer's site plan submission show that all of the units will have first-floor master bedrooms and the developer's marketing plan is geared to attract the over-55 market, a fiscal impact analyst would assume that at least some of the townhouses will be occupied by empty-nester households: even without age restrictions in the deed, the unit design itself speaks to the likely market of homebuyers. Furthermore, if the sale price range for the proposed townhouses significantly exceeds the market value of the community's existing townhouse inventory, local assessed values, household size and composition statistics may be poor sources of data for estimating the development's fiscal impact.

In general, a fiscal impact study sheds light on the relative costs and revenue associated with development, but fiscal impact practice is not without hazards. Specifically:

- ◆ Analysts frequently disagree about the impacts of land use change, particularly housing development. In the past few years, fiscal impact practitioners have also had lively debates about the short- and long-term impacts of big-box retail, particularly as it relates to the viability of other retail establishments and the tax revenue they generate.
- ◆ The sources of data available for a given study may be inadequate, obsolete or not fully relevant to the project under review. A common pitfall in fiscal impact studies is excessive focus on advertised sale prices as a barometer of the market or actual sale prices for homes in a specific development that may have little similarity to a proposed project. The assessed value of recently built homes is more important to a fiscal impact study than what appears to be happening in the market, for tax revenue is determined by assessed valuation, not by asking prices.
- ◆ In many towns, residents express frustration that new, high-end homes must surely “pay their own way,” yet everyone's taxes continue to increase. When communities experience high housing resale rates (as Hopkinton did during the mid- to late-

1990s), they incur growth in municipal and school service costs against a tax base comprised of new and older homes with a wide range of assessed values. This condition contributes significantly to the gap between residential service costs and residential revenue. While new development is usually the primary source of population change in a community, it is not the only source.

- ♦ Most fiscal impact models do not account for a municipality's existing fiscal condition, yet the real impacts of a project are largely determined by the demographic, economic and fiscal characteristics of the receiving city or town. Context plays a crucial role in the fiscal impacts of growth and often, the impacts are not as transparent as the formulas in a given model would imply. Maturely built communities experience the impacts of new development quite differently from small rural towns or high-growth suburbs: the former tends to have capacity to absorb additional demand for local services but often, the latter does not. Communities that choose to build new schools in order to modernize their facilities and improve the quality of education face different fiscal and economic challenges than communities that build new schools because of rapid enrollment growth.
- ♦ Cost-revenue ratios do not present a complete picture of the effects of land use change on a community's finances. A land use with a positive revenue ratio may seem advantageous, yet in dollars, the amount of surplus revenue it generates may be strikingly small. Low-density commercial development tends to produce a positive revenue ratio and a very small surplus, for reasons ranging from inefficient land use to high public safety costs. Privately owned vacant land and land under Chapter 61, 61A or 61B agreements also produce a positive revenue ratio and a fairly small surplus, yet if the land is developed, its fiscal impact can easily convert to a negative position, at least in the short run, depending on the type of development, its density or intensity of use, and its location.

With these concerns in mind, we have several comments on the three alternative development plans and their estimated fiscal impacts on Hopkinton and Ashland.

4.0 COMMENTS ON ALTERNATIVE DEVELOPMENT PLANS

4.1 Alternative Plan 1

Alternative 1 simulates the amount and types of development allowed under existing zoning in Hopkinton and Ashland. According to MAPC's analysis of the land, the portion located in Hopkinton could absorb up to 530 single-family homes and 360 multi-family units in "Garden Apartment" developments. In Hopkinton, the "Garden Apartments" bylaw has facilitated several condominium projects, but to date, no rental developments have been built under the bylaw and this is probably because the maximum allowable density is too low to make rental housing feasible. Assuming that rental housing may be more realistic if developed along with for-sale units, MAPC requested that we examine the fiscal impacts of mixed rental and ownership multi-family units developed under Hopkinton's "Garden Apartments" regulations. In Ashland, the Weston Nurseries land

could be developed as single-family homes on one-acre lots. The maximum number of new homes is 30.

The results of the fiscal impact study show that if the Weston Nurseries property were developed substantially as presented in Alternative Plan 1, the present value of Hopkinton’s expenditures over 12 years would be \$82.7M and the present value of development-generated revenue, about \$74.9M. The cumulative gap between new revenue and new municipal and school service costs is approximately \$7.8M, for a net cost-to-revenue ratio of 1.10. The ratio means that for every new dollar of revenue generated by Alternative Plan 1, the town’s new municipal and service costs will be \$1.10.

Housing Units	890	Population	2,864
		School-Age Children	772
Cost of Community Services		Revenue	
General Government	\$914,300	Property Taxes	\$53,560,000
Public Safety	\$2,693,000	Local Receipts	\$3,476,000
Public Works	\$2,848,000	Chapter 70 Aid	<u>\$17,890,000</u>
Health & Human Services	\$227,100	12-Year Revenue	\$74,926,000
Culture & Recreation	\$430,800		
Debt Service	\$19,320,000	Cost-Revenue Ratio	1.10
Fixed Costs/Other	\$2,851,000	Surplus/(Deficit) Revenue	(\$7,790,000)
Public Schools	<u>\$53,430,000</u>	Avg. Annual Surplus/(Deficit)	(\$899,000)
12-Year Costs	\$82,714,200		

Note: numbers may not add to total due to rounding.

While this option clearly affects all municipal and school services, most of the cost growth associated with Alternative Plan 1 stems from impacts on the schools and associated debt service for school construction. In the development’s earliest years, the cost-revenue ratio peaks at 1.45, primarily because of school debt service, and improves over time. For Alternative 1, we extended our analysis to a 20-year window, mainly to track the longer-term effects of debt service payments and school enrollment changes as the original population matures and homes begin to recycle in the market. Not surprisingly, the cost-revenue ratio drops to 1.05 by the 20th year – assuming that a majority of the single-family homes remain in the same ownership, such that the number of school-age children living in the development eventually declines.

In Ashland, Alternative Plan 1 can be expected to generate approximately \$3.1M in new revenue and \$3.3M in new service costs during the same 12-year period. Since the number of new homes is fairly small, most of the growth in service costs and revenue would occur in the first few years of the buildout period and recur annually, with some fluctuations in household size and school-age population as the first homes built gradually mature. We did not assume new school construction debt service because the anticipated number of students seems too small to justify a direct debt service impact. In addition, we did not have any evidence that Ashland’s public schools lack capacity for

30+/- additional students. The gap between cumulative revenue and cumulative expenditures will be approximately \$167,000, or a net cost-to-revenue ratio of 1.05.

Housing Units	30	Population	116
		School-Age Children	31
Cost of Community Services		Revenue	
General Government	\$40,580	Property Taxes	\$2,751,000
Public Safety	\$146,500	Local Receipts	\$12,120
Public Works	\$113,100	Chapter 70 Aid	<u>\$373,800</u>
Health & Human Services	\$13,240	12-Year Revenue	\$3,136,920
Culture & Recreation	\$26,210		
Debt Service	\$83,830	Cost-Revenue Ratio	1.05
Fixed Costs/Other	\$171,100	Surplus/(Deficit) Revenue	(\$166,640)
Public Schools	<u>\$2,709,000</u>	Avg. Annual Surplus/(Deficit)	-\$15,100
12-Year Costs	\$3,303,560		

Note: numbers may not add to total due to rounding.

4.2 Alternative Plan 2

Alternative Plan 2 calls for a mix of residential uses, including some units designated as affordable housing, and a fairly modest amount of commercial space. Compared to Alternative Plan 1, this plan would generate less general fund revenue in Hopkinton. Due to the variety of housing types and the allocation of land for some nonresidential uses, it also would impose fewer demands on municipal and school services. However, the following factors should be considered in any assessment of the net fiscal impacts from Alternative Plan 2.

Housing Units	1,158	Population	2,891
		School-Age Children	551
Cost of Community Services		Revenue	
General Government	\$737,900	Property Taxes	\$53,230,000
Public Safety	\$3,193,000	Local Receipts	\$3,555,000
Public Works	\$2,931,000	Chapter 70 Aid	<u>\$13,530,000</u>
Health & Human Services	\$250,700	12-Year Revenue	\$70,315,000
Culture & Recreation	\$441,100		
Debt Service	\$14,620,000	Cost-Revenue Ratio	0.95
Fixed Costs/Other	\$3,026,000	Surplus/(Deficit) Revenue	\$3,685,300
Public Schools	<u>\$41,430,000</u>	Avg. Annual Surplus/(Deficit)	\$326,900
12-Year Costs	\$66,629,700		

Note: numbers may not add to total due to rounding.

Housing Types and Household Population. Two-bedroom townhouses comprise a plurality of all units in the plan, 33%. Hopkinton’s own experience with “Garden Apartment” developments, federal census data for Hopkinton and other affluent suburbs in the Metro-West area, and a household population and school-age children database maintained by the authors mutually reinforce that two-bedroom condominiums generate few school-age children. Since the average number of school-age children per household in owner-occupied townhouses and multi-family condominiums is smaller than the average number in owner-occupied, detached single-family homes, the inclusion of so many two-bedroom units in Alternative 2 largely explains the reduced 12-year outlay for public schools. Still, we note that if many of the townhouses were occupied by renters instead of owners, the development would most likely generate more school costs and less surplus revenue. In our experience, the average household size in renter-occupied townhouses is almost always larger than in owner-occupied townhouses, perhaps because townhouses offer at-grade access, more floor space than units in apartment developments, and usually more outdoor amenities – features that appeal to families seeking a home to rent.

Echo-Effect Service Costs and Revenue. Age-restricted housing constitutes 21% of all housing units in Alternative Plan 2. On one hand, the presence of so many age-restricted units means that Alternative Plan 2 would generate fairly low service costs compared to revenue. However, there is a very high probability that some of the independent senior residence units would be purchased by empty-nester homeowners already living in Hopkinton. The resale of empty-nester homes to young families triggers a secondary fiscal impact known as the “echo effect.”

Unfortunately, there is no academic or industry literature in juried publications on the rate of echo-effect housing sales or the fiscal impacts of over-55 housing on cities and towns. Our own research in Boston-area suburbs indicates that 15-20% of all new units in retirement villages or “over-55” housing developments have been sold to existing homeowners. However, this applies to independent over-55 units only, i.e., units designed for households seeking to downsize and relocate to a managed housing development. The same statistics should not be extended to assisted living facilities, supportive housing or chronic care facilities, which tend to draw from a larger regional area and provide services to frail elders and persons with disabilities. Applying statistics from our research in other suburbs, we believe the net fiscal impact of Alternative Plan 2 could be less advantageous than it appears in Table 4. If 25 of the units (about 20%) were sold to existing Hopkinton residents, the net impact would approximate the figures in Table 5.

Table 5: Alternative Plan 2 Net Fiscal Impact, Including Echo Effects, Years 1-12; Present Value (2006)			
Cost of Community Services		Revenue	
General Government	\$765,000	Property Taxes	\$53,230,000
Public Safety	\$3,490,000	Local Receipts	\$3,710,000
Public Works	\$2,980,000	Chapter 70 Aid	<u>\$13,800,000</u>
Health & Human Services	\$261,000	12-Year Revenue	\$70,740,000
Culture & Recreation	\$467,000		

Debt Service	\$14,600,000	Cost-Revenue Ratio	0.98
Fixed Costs/Other	\$3,040,000	Surplus/(Deficit) Revenue	\$1,737,000
Public Schools	\$43,400,000	Avg. Annual Surplus/(Deficit)	\$291,000
12-Year Costs	\$69,003,000		

Note: numbers may not add to total due to rounding.

Since the resale homes already generate property taxes, it is possible that echo-effect revenue growth would be limited to a net increase in local receipts and additional Chapter 70 aid. However, families purchasing older homes frequently invest in additions, modernization or major alterations. These kinds of improvement projects can be seen throughout Hopkinton today, especially in the town’s older, established neighborhoods. When major improvements increase the market value of a home, the net increase is captured in the amount of “new growth” revenue under Proposition 2 ½ and it contributes to growth in the levy limit. It is beyond the scope of this study to analyze the extent to which resale unit improvements would generate more tax revenue, but we think it is important to note that some tax revenue growth would most likely occur. Arguably, the additional tax revenue would not offset all of the net increase in service costs (mainly schools), but in our opinion, the “surplus” revenue from Alternative Plan 2 would be sufficient to subsidize the revenue deficit from echo-effect population and school enrollment growth. We estimate that the present value of the 12-year revenue surplus would approximate \$1.7M instead of \$3.7M and the cost-revenue ratio, .96-.98. Although still fiscally positive, Alternative Plan 2 should be characterized as a revenue-neutral proposition.

Mixed-Use Development. Mixed-use housing units (meaning units developed in conjunction with commercial space) supply about 19% of the units in Alternative Plan 2. Massachusetts has so little experience with new mixed-use development that it is difficult to forecast the household population and school enrollment impacts of this type of housing. However, the mixed-use development contemplated in Alternative Plan 2 represents a combination of upper-story units and free-standing multi-family housing built as part of a mixed-use project. This feature persuaded us to apply the same household population and school-age children multipliers that we would use to forecast population changes for a new multi-family rental development. If all of the mixed-use units in Alternative Plan 2 were upper-story units in commercial buildings, we would have reduced the multipliers, particularly the multipliers for school-age children, based on our own research of upper-story housing.

Municipal Services. Alternative Plan 2 imposes fewer demands on Hopkinton’s public schools. At the same time, it imposes more demands on municipal services, particularly public safety. Three features of Alternative Plan 2 suggest that public safety costs will accelerate more rapidly than in a development similar to Alternative Plan 1: the presence of multi-family rental, senior residence and assisted living units. Our research for other fiscal impact studies indicates that these housing types generate 18-25% more incident response and emergency medical calls per unit than other residential uses. While emergency medical calls often generate enough revenue from insurance companies to

defray the cost of an ambulance response, especially in towns that offer paramedic services, this is not the case for other types of public safety calls.

Inclusion of Affordable Housing. Alternative Plan 2 assumes that 25% of the multi-family condominiums, apartments and assisted living units will be affordable housing as that term is used in Chapter 40B, the state's comprehensive permit law. Although reducing the gross income stream from rents has little impact on the assessed value of rental housing, reducing the resale price of a housing unit has a significant impact on the assessed value of homes developed for owner-occupancy. As a result, affordable homeownership units generate much less tax revenue than market-rate homeownership units in the same development. This difference partially contributes to the lower overall assessed value of Alternative Plan 2 compared to Alternative Plan 1. However, the factor that primarily explains the lower overall assessed value of Alternative Plan 2 is the mix of housing, independent of affordability. Even if Alternative Plan 2 offered no affordable homeownership units, the present value of the property tax revenue generated over 12 years would be \$55M instead of \$53M.

Impact of Nonresidential Uses. Alternative Plan 2 (and 3) includes a limited mix of commercial development. Determining the fiscal impact of commercial development requires an assessment of similar business activity elsewhere in a community or market area. If a new business is likely to draw too many customers away from other stores, its net fiscal impact may be less advantageous than it appears. For the Weston Nurseries study, a conscious decision was made to cap the total amount of retail space at 25,000 sq. ft. in order to avoid creating a commercial node that could siphon business away from Downtown Hopkinton, where the town is currently engaged in a revitalization plan. There is no question that Hopkinton can support more retail than it currently offers: the town's estimated sales leakage is about 77% of its retail sales capacity, given the high incomes and family composition of most Hopkinton households. This is not particularly surprising due to the small amount of retail development that exists in Hopkinton today. However, this does not mean that Hopkinton's downtown businesses can withstand the direct or secondary effects of locating a major retail facility in another part of town.

A carefully planned mix of shops, perhaps with a small restaurant, thematically related to horticulture or the Boston Marathon, could help to diversify the sources of property tax revenue generated by new development at Weston Nurseries and simultaneously respect downtown's role as the civic, social, cultural and business center of the town.

Unfortunately, 25,000 sq. ft. of retail may not create enough economic opportunity to attract a quality commercial developer. The actual impacts of the retail activity will vary depending on the mix of retail. For example, the impact of a junior retail store and a specialty retail tenant occupying 25,000 sq. ft. of space would be quite different from that of four small specialty shops and a restaurant.

Since many possible retail configurations can be imagined at this site, we decided to assume a collection of small shops, a personal service establishment and a family restaurant for purposes of estimating revenue and service costs. Nearly all of the net increase in community service demands would be felt by Hopkinton's public safety departments (mainly police), but in our opinion, the additional cost will be de minimus

simply because the proposed retail space is so small. In contrast, a destination restaurant together with a bank and a few high-end specialty retailers has the potential to create an unwanted level of competition with downtown businesses due to the customer draw required to support these kinds of establishments. The town will want to think about the relationship between its desired downtown retail mix and the types of retail and services that should be encouraged on the Weston Nurseries property. A trail or walkway system connecting the two areas could be very beneficial to both, however.

We assumed that the proposed 40,000 sq. ft. of office space would rent up over a two-year period. As with the retail space, the mix of office tenants will determine the net fiscal impact of the office component. If the office space were occupied entirely by professional or business office tenants, Hopkinton would most likely experience very little new demand for municipal services and realize a modest amount of additional revenue. In contrast, medical offices would generate more revenue because the assessed value per sq. ft. for medical and dental office space is almost always higher than the value of other types of office space, but the municipal service costs would also be higher. These are the types of trade-offs communities need to consider in determining the fiscal advantages or disadvantages of commercial development.

MAPC's Alternative 2 plan also includes a golf course and small conference facility, and an option to set aside land for a cemetery. We assumed that if a cemetery were developed on the property, it would be a non-taxable land use because under Massachusetts law, cemeteries may be established and operated only by public or non-profit (including religious) entities. Locating a golf course and conference center on the Weston Nurseries land would generate tax and other revenue, although the golf course itself may generate very little revenue if it is placed under a Chapter 61B agreement with the town. There are currently 14 golf courses within a 15-mile radius of Hopkinton, so it is not clear that a market exists for another one. A conference center together with a golf course could make a more attractive package to a qualified developer, but inquiries we made for this study lead us to question whether a new golf course is a near-term marketable use for the property.

Assuming that all of the nonresidential, taxable uses were eventually developed – retail, office, conference center and golf facility – about 1% of the municipal service costs for Alternative Plan 2 would be attributable to them, and they would generate about 11% of the total estimated revenue.

4.3 Alternative Plan 3

Alternative Plan 3 is similar to Alternative Plan 2, but it illustrates an approach to developing the Weston Nurseries property under the state's recently enacted housing production law, Chapter 40R. Specifically, Alternative Plan 3 includes a broader mix of residential uses in a density range from single-family homes at eight units per acre to multi-family units at 20 per acre. This concept plan also includes some very-high-end homes on "estate" lots, an assisted living facility, duplex condominiums, and nonresidential uses such as retail, offices, a golf course and conference center, and land set aside for a cemetery. It appears to offer the most advantageous fiscal outcome for the town, as shown in Table 6.

Table 6: Alternative Plan 3 Net Fiscal Impact, Hopkinton, Years 1-12; Present Value (2006)			
Housing Units	1,030	Population	2,326
		School-Age Children	325
Cost of Community Services		Revenue	
General Government	\$478,800	Property Taxes	\$39,590,000
Public Safety	\$2,532,000	Local Receipts	\$2,636,000
Public Works	\$2,154,000	Chapter 70 Aid	<u>\$8,111,000</u>
Health & Human Services	\$199,500	12-Year Revenue	\$50,337,000
Culture & Recreation	\$261,600		
Debt Service	\$9,689,000	Cost-Revenue Ratio	0.79
Fixed Costs/Other	\$1,805,000	Surplus/(Deficit) Revenue	\$10,677,100
Public Schools	<u>\$22,540,000</u>	Avg. Annual Surplus/(Deficit)	\$976,000
12-Year Costs	\$39,659,900		

Note: numbers may not add to total due to rounding.

Although many of our comments under Alternative Plan 2 apply to Alternative Plan 3 as well, we have the following additional observations.

Family Housing Options. Of all housing choices included in this plan, the higher-density single-family homes (80) and duplex condominiums (120) represent a unique departure from Hopkinton’s established development pattern. They offer a number of advantages to prospective homebuyers, yet from a fiscal perspective they present some challenges.

High-Density Single-Family Homes. Any market-rate home in Hopkinton is likely to command a high sale price because of the town’s prestige, but three-bedroom single-family homes developed at an average density of eight per acre would attract homebuyers seeking a different type of neighborhood than the conventional large house on a spacious lot. Presumably the homes would also sell for somewhat lower prices. This argues for assuming a lower assessed value for single-family homes on small lots to reflect a difference in land value and potentially a difference in building value, for it would not be surprising to see somewhat smaller homes or a more diverse mix of housing sizes in a higher-density neighborhood. With these assumptions in mind, we adopted a different assessed value assumption in our analysis of Alternative Plan 3; here, we applied the median value of new homes built in Hopkinton between 2001 and 2005 instead of the same period’s third-quartile value, which we used to estimate single-family home tax revenue in Alternative Plans 1 and 2. This partially contributes to the lower tax revenue estimate for Alternative Plan 3.

Duplex Condominiums. Duplex condominiums raise other issues. Duplex or two-family homes tend to house relatively large households, whether owner- or renter-occupied; as a result, they usually generate more school students than townhouse or multi-family condominiums. Table 7 illustrates the differences in total population and school-age population by type of dwelling unit.

Unit Type	Housing Units	In %	Total Population	In %	School-Age Population	In %
Single-Family, Estate Lots	10	1%	30	1%	9	3%
Single-Family	80	8%	219	9%	39	12%
Multi-Family Condominiums	480	47%	1,074	46%	119	37%
Duplex Condominiums	120	12%	379	16%	108	33%
Multi-Family Apartments	220	21%	502	22%	50	15%
Assisted Living	<u>120</u>	12%	<u>122</u>	5%	<u>0</u>	<u>0.0%</u>
Total	1,030	100%	2,326	100%	325	100.0%

A duplex unit’s assessed value is invariably lower than the assessed value of a detached single-family home, so its fiscal impact tends to be negative. When the assessed value is reduced further by an affordable housing deed restriction, the duplex unit’s fiscal impact becomes particularly negative. While these unit types support the objectives of housing diversity, they often frustrate the objectives of achieving fiscally positive land use.

Chapter 40R, 40S Revenue. An approach like Alternative Plan 3 may qualify for approval under Chapter 40R. If the town wanted to pursue this type of option and the state approved the proposed zoning – an overlay district with variable densities of up to 20 multi-family units per acre by right – Hopkinton would qualify for a one-time, non-recurring “zoning incentive payment” of up to \$600,000, and a one-time payment per building permit of \$3,000 for each unit built in the Chapter 40R district over and above what could be developed under existing zoning. It is premature to speculate about the amount of money the town would actually receive, however, because the property’s current development potential needs further review.

Chapter 40S authorizes supplemental Chapter 70 aid to offset a community’s educational costs for children living in a Chapter 40R district. The amount of aid will be determined by a statutory formula, regulations yet to be promulgated by the Department of Revenue and Department of Education, and an appropriation by the legislature. Since a Chapter 40R district does not exist in Hopkinton today, potential Chapter 40S assistance, if any, cannot be calculated because the statutory formula requires data from a previous year’s occupancy of Chapter 40R housing units. Furthermore, the formula requires the Department of Education to certify amounts of Chapter 70 additional assistance or foundation aid the community may have received as a direct result of Chapter 40R school enrollments in the previous fiscal year. The additional assistance or foundation aid must be added to the other amounts of revenue that Chapter 40S defines as “smart growth revenue for education.”

It is important to note that the Chapter 70 aid formula has changed since the Education Reform Act went into effect in 1993, and ultimately the total amount available for Chapter 70 aid is subject to the state’s estimated revenues in any given fiscal year. Many communities experienced level funding or reductions in Chapter 70 aid during Fiscal Years 2004-2005 because of weak state revenue projections. For Fiscal Year 2007, however, the legislature has approved a substantial increase in both Chapter 70 and

municipal aid, along with a phased-in plan that changes two key components of the Chapter 70 aid formula. These recently enacted measures may have a significant impact on a community’s eligibility for assistance under Chapter 40S.

Table 8 illustrates the steps outlined in the statute for determining a community’s eligibility for Chapter 40S assistance, using currently available data. For purposes of this example, Hopkinton is assumed to have a new Chapter 40R district that generated 50 K-12 students the previous year, and no Chapter 70 additional assistance or foundation aid as a direct result of those students. The excise and property tax amounts assume the project is in its second year of construction and that virtually all occupied units are multi-family condominiums and apartments. The Chapter 40S formula does not include school construction debt service and school bus transportation costs in the definition of “total education costs for eligible [Chapter 40R] students.”

Table 8: Chapter 40S Supplemental Education Aid-Illustration Purposes Only		
	Components of Chapter 40S Statutory Formula	FY05 \$
1	Hopkinton Actual Net School Spending (NSS) Per Student	\$8,776
	Calculation of Chapter 40S “Education Percentage”	
2	Actual NSS, Statewide Total	\$9,036,382,505
3	General Fund Expenditures, Statewide Total	\$15,628,865,968
4	Regional School Aid, Statewide Total	\$600,159,610
5	Sum (4) + (5): “Total Municipal Expenditures”	\$16,229,025,578
6	Divide (2)/Sum (4) + (5): “Education Percentage”	55.7%
	Revenue Components	
7	Additional Chapter 70 Aid	\$0
8	Chapter 40R Excise Taxes	\$71,711
9	Chapter 40R Property Taxes	\$991,807
10	Total Chapter 40R Revenue	\$1,063,518
11	Proportion Chapter 40R Revenue for Education (10) * (6)	\$592,171
12	Chapter 40R Students	50
13	Chapter 40R Total Education Cost (12) * (1)	\$438,800
14	Surplus/(Deficit) → if positive, no supplemental aid under Chapter 40S	\$126,599
15	Chapter 40S Assistance	\$0

5.0 ASSUMPTIONS

5.1 Proportional Valuation Analysis: Hopkinton

Methodology Component	Data	Notes/Sources
A. Total General Fund Operating Budget	\$49,003,540	<i>Town of Hopkinton</i>
Less Education	\$28,341,785	
Less School Construction Debt	\$5,092,169	<i>Estimated; FY05 Schedule A</i>
Less Education Share, Fixed Costs	\$3,706,238	<i>Estimated 70% Total</i>
Total Municipal (Net of Education-Related Costs)	\$11,863,349	
Non-Residential Real Property Valuation	\$365,279,306	<i>DOR</i>
Total Real Property Assessed Valuation	\$2,796,610,446	<i>DOR</i>
Ratio	0.13	
Non-Residential Parcels	183	<i>DOR</i>
Total Parcels	5,906	<i>DOR</i>
Average Value: Non-Residential Parcel	\$1,996,062	
Average Value: All Parcels	\$473,520	
Ratio	4.22	
Refinement Coefficient (Cost Adjustment Factor)	1.22	<i>CUPR</i>
Estimated Non-Residential Expenditures	\$1,890,428	
Estimated Residential Expenditures	\$47,113,112	<i>Residential Municipal + Schools</i>
B. General Fund Budget by Function	Appropriation	Education Share
General Government	\$1,562,230	
Public Safety (Police, Fire, Dispatch)	\$3,720,177	
Education	\$28,341,785	<i>\$28,341,785 (see above)</i>
Public Works (Excluding Enterprise)	\$2,823,366	
Health & Human Services	\$289,674	
Culture & Recreation	\$358,477	
Debt Service	\$6,613,207	<i>\$5,092,169 (see above)</i>
Fixed Costs/Other	\$5,294,625	<i>\$3,706,238 (see above)</i>
General Fund Total	\$49,003,540	<i>\$37,140,192 (Education Total)</i>
C. Non-Residential by Function		Cost Allocation Factors
General Government	\$18,904	<i>1.0%</i>
Public Safety	\$831,788	<i>44.0%</i>
Education	\$0	
Public Works	\$680,554	<i>36.0%</i>
Health & Human Services	\$56,713	<i>3.0%</i>
Culture & Recreation	\$9,452	<i>0.5%</i>
Debt Service	\$94,521	<i>5.0%</i>
Fixed Costs/Other	\$198,495	<i>10.5%</i>
General Fund Total (Excluding Schools)	\$1,890,428	

Methodology Component	Data	Notes/Sources
D. Residential by Function		
General Government	\$1,543,325	
Public Safety	\$2,888,388	
Education	\$28,341,785	
Public Works	\$2,142,812	
Health & Human Services	\$232,961	
Culture & Recreation	\$349,024	
Debt Service	\$6,518,685	
Schools (Estimated)	\$5,092,169	
All Other	\$1,426,516	
Fixed Costs/Other	\$5,096,130	See note below
General Fund Total	\$47,113,112	Total minus nonresidential
Population (Census Est. 2004)	14,031	
K-12 Enrollment (2005)	3,404	
E. Residential Expenditures Per Capita/Per Student		
General Government	\$109.99	
Public Safety	\$205.86	
Education	\$9,369	FY06 Actual NSS
Public Works	\$152.72	
Health & Human Services	\$16.60	
Culture & Recreation	\$24.88	
Debt Service		
Schools	\$1,496	Per student, not per capita
All Other	\$101.67	
Fixed Costs/Other	\$84.91	Excludes schools

**Note: numbers may not add to totals due to rounding and other formula calculations not shown on this worksheet.*

5.2 Proportional Valuation Analysis: Ashland

Methodology Component	Data	Notes/Sources
A. Total General Fund Operating Budget	\$41,396,944	Town of Ashland
Less Education	\$19,856,282	
Less School Construction Debt	\$4,327,749	Estimated; FY05 Schedule A
Less Education Share, Fixed Costs	\$4,173,205	Estimated 65% Total
Total Municipal (Net of Education-Related Costs)	\$13,039,709	
Non-Residential Real Property Valuation	\$154,732,100	DOR
Total Real Property Assessed Valuation	\$2,266,351,700	DOR

Methodology Component	Data	Notes/Sources
Ratio	0.07	
Non-Residential Parcels	237	<i>DOR</i>
Total Parcels	6,260	<i>DOR</i>
Average Value: Non-Residential Parcel	\$652,878	
Average Value: All Parcels	\$362,037	
Ratio	1.80	
Refinement Coefficient (Cost Adjustment Factor)	1.50	<i>CUPR</i>
Estimated Non-Residential Expenditures	\$1,335,403	
Estimated Residential Expenditures	\$40,061,541	<i>Residential Municipal + Schools</i>
B. General Fund Budget by Function	Appropriation	Education Share
General Government	\$2,165,947	
Public Safety (Police, Fire, Dispatch)	\$4,431,481	
Education	\$19,856,282	<i>\$19,856,282 (see above)</i>
Public Works (Excluding Enterprise)	\$1,993,840	
Health & Human Services	\$312,586	
Culture & Recreation	\$368,184	
Debt Service	\$5,848,309	<i>\$4,327,749 (see above)</i>
Fixed Costs/Other	\$6,420,315	<i>\$4,173,205 (see above)</i>
General Fund Total	\$41,396,944	<i>\$28,357,235 (Education Total)</i>
C. Non-Residential by Function		Cost Allocation Factors
General Government	\$13,354	<i>1.0%</i>
Public Safety	\$587,577	<i>44.0%</i>
Education	\$0	
Public Works	\$480,745	<i>36.0%</i>
Health & Human Services	\$40,062	<i>3.0%</i>
Culture & Recreation	\$6,677	<i>0.5%</i>
Debt Service	\$66,770	<i>5.0%</i>
Fixed Costs/Other	\$140,217	<i>10.5%</i>
General Fund Total (Excluding Schools)	\$1,335,403	
D. Residential by Function		
General Government	\$2,152,593	
Public Safety	\$3,843,904	
Education	\$19,856,282	
Public Works	\$1,513,095	
Health & Human Services	\$272,524	
Culture & Recreation	\$361,507	
Debt Service	\$5,781,539	
Schools (Estimated)	\$4,625,231	

Methodology Component	Data	Notes/Sources
All Other	\$1,156,308	
Fixed Costs/Other	\$6,280,098	<i>See note below</i>
General Fund Total	\$40,061,541	<i>Total minus nonresidential</i>
Population (Census Est.; 2004)	15,528	
K-12 Enrollment (2005)	2,629	
E. Residential Expenditures Per Capita/Per Student		
General Government	\$138.63	
Public Safety	\$247.55	
Education	\$8,864	<i>FY06 Actual NSS</i>
Public Works	\$97.44	
Health & Human Services	\$17.55	
Culture & Recreation	\$23.28	
Debt Service		
Schools	\$1,759	<i>Per student, not per capita</i>
All Other	\$74.47	
Fixed Costs/Other	\$126.65	<i>Excludes schools</i>

**Note: numbers may not add to totals due to rounding and other formula calculations not shown on this worksheet.*

5.3 Household Size

Number of Bedrooms					
Housing Type	1 BR	2 BR	3 BR	4+ BR	Total
Alternative 1					
Unit Type	1 BR	2 BR	3 BR	4+ BR	Total
Estate Homes					
Single-Family Homes				2,173	2,173
Multi-Family Ownership Units	39	380	61		480
Duplex Condominium					
Apartments (Including Mixed Use)	25	255	47		328
Senior Residence					
Assisted Living					
Total Population	64	635	109	2,173	2,981
<i>*With weighted multipliers</i>					2,981
Alternative 2					
Unit Type	1 BR	2 BR	3 BR	4+ BR	Total
Estate Homes					
Single-Family Homes				1,218	1,218
Multi-Family Ownership Units		840			845
Duplex Condominium					
Apartments (Including Mixed Use)	37	389	78		504
Senior Residence	0	48	153		201
Assisted Living	122				122
Total Population	159	1,278	231	1,218	2,891
<i>*With weighted multipliers</i>					2,892
Alternative 3					
Unit Type	1 BR	2 BR	3 BR	4+ BR	Total
Estate Homes				30	30
Single-Family Homes			219	0	219
Multi-Family Ownership Units	72	860	142	0	1,074
Duplex Condominium			379	0	379
Apartments (Including Mixed Use)	51	383	67	0	502
Senior Residence					0
Assisted Living	122	0	0	0	122
Total Population	245	1,243	807	30	2,326
<i>*With weighted multipliers</i>					2,328

Note: this table includes Hopkinton and Ashland combined.

5.4 School-Age Children

Number of Bedrooms					
Housing Type	1 BR	2 BR	3 BR	4+ BR	Total
Alternative 1					
Unit Type	1 BR	2 BR	3 BR	4+ BR	Total
Estate Homes					
Single-Family Homes				689	689
Multi-Family Ownership Units	0	38	12		50
Duplex Condominium					
Apartments (Including Mixed Use)	0	21	12		33
Senior Residence					
Assisted Living					
Total Population	0	59	24	689	772
<i>*With weighted multipliers</i>					772
Alternative 2					
Unit Type	1 BR	2 BR	3 BR	4+ BR	Total
Estate Homes					0
Single-Family Homes				408	408
Multi-Family Ownership Units	0	90	0	0	90
Duplex Condominium					0
Apartments (Including Mixed Use)	0	33	19	0	53
Senior Residence	0	0	0	0	0
Assisted Living	0	0	0	0	0
Total Population	0	124	19	408	551
<i>*With weighted multipliers</i>					551
Alternative 3					
Unit Type	1 BR	2 BR	3 BR	4+ BR	Total
Estate Homes				9	9
Single-Family Homes			39		39
Multi-Family Ownership Units	0	92	27	0	119
Duplex Condominium	0	0	109	0	109
Apartments (Including Mixed Use)	0	32	18	0	50
Senior Residence					
Assisted Living					
Total Population	0	124	193	9	326
<i>*With weighted multipliers</i>					326

Note: this table includes Hopkinton and Ashland combined.

5.5 Adjustments for Marginal Cost

Cost Category	Growth Rate Multiplier		Population-Based Multiplier	
	High Rate	Low Rate ⁽¹⁾	High Rate	Condition
Residential Costs (Per Capita)				
General Government	1.00	0.26		
Public Safety ⁽²⁾	1.04	0.51	1.26	<i>Senior Housing</i>
			1.29	<i>Multi-Family Rental</i>
Public Works	1.01	0.75		
Health & Human Services	1.00	0.67		
Culture & Recreation	1.05	0.64	1.10	<i>Single-Family Homes</i>
Non-School Debt Service	1.10	0.50		
Fixed Costs/Other	1.65	1.05		
Public Schools				
Operating Costs (Per Student)	1.07	1.00		
School-Related Debt (Per Student) ⁽³⁾	1.04	1.00		

(1) Applies when service has reserve capacity to absorb growth.

(2) Adjustment factors for senior housing should be applied to emergency medical only; requires prior division of public safety category into police, fire and other components.

(3) Note: new school debt should not be calculated as the product of existing costs per student times the number of new students times the cost adjustment factor unless other information is unavailable. The more accurate way to estimate the cost impact of school debt is to (a) determine the amount of space required for the anticipated new student population, including cumulative student population growth elsewhere in the community, (b) prepare an estimated development pro forma and schedule of debt service payments to accommodate future space needs, and (c) assign a proportional share of the resulting debt service to the proposed development. The inclusion of debt service for schools also requires an adjustment to revenue for school building assistance from the state.

6.0 SOURCES

Town of Hopkinton.

Budget Summary, Fiscal Year 2006 (Operating, Enterprise)
Assessor's Parcel Database, Fiscal Year 2006.
Schedule A Report, Fiscal Year 2005.
Tax Recapitulation Sheet, Fiscal Year 2006.

Town of Ashland.

Assessor's Parcel Database, Fiscal Year 2006.
Omnibus Budget, Fiscal Year 2006.
Schedule A Report, Fiscal Year 2005.
Tax Recapitulation Sheet, Fiscal Year 2006.

Commonwealth of Massachusetts, Department of Revenue, Municipal Data Bank. Local Government Finance Data.

Assessed Values, 1988-2006.
Average Single-Family Tax Bill, 1990-2006.
Cherry Sheets, 1990-2006.
Debt Service, 2001-2005.
General Fund Expenditures, 1989-2005.
New Growth Revenue, 1992-2006.
Sources of Revenue, 1990-2006.
Tax Levy by Use Class, 1990-2006.
Tax Rates, 1990-2006.

New England School Development Council. Hopkinton, Massachusetts: Demography and Enrollment Projections. January 2005.

U.S. Department of Commerce, Bureau of the Census. Census 2000; 1990 Census of Population and Housing [Assorted Data Tables]. American FactFinder at <<http://www.census.gov/>>.

Appendix G
Public Forum on Development Options for the Weston Nurseries Property
Tuesday, March 7, 2006, 7:00 –9:30 PM
Elmwood School Cafeteria
14 Elm Street, Hopkinton

- 7:00 - 7:15 PM** **Maps Available for Viewing** – All early arrivals are encouraged to view the map series.
- 7:15 – 7:25 PM** **Welcome and introductions** – Finley Perry, Chair, Hopkinton Land Use Study Committee
- 7:25 – 7:35 PM** **Overview of Smart Growth Technical Assistance Grant** – Mark Racicot, Metropolitan Area Planning Council (MAPC)
- 7:35 - 7:50 PM** **Overview of Analyses to Date**– Judi Barrett, Community Opportunities Group, Inc.
- 7:50 – 8:05 PM** **Presentation of Project Maps**
- Economic development and housing, and transportation - Mark Racicot.
 - Natural resources and water – Joan Blaustein
- 8:05 – 8:15 PM** **Community Goals, Issues and Potential Land Uses**– Donna Jacobs, MetroWest Growth Management Committee
- Citizen Comments and Concerns**
This portion of the forum is designed to obtain citizen opinions on three important questions. There will be a brainstorming session on each of these three questions followed by a “show of hands” vote to assess priorities.
- 8:15 – 8:45 PM** *What areas of the site are the most important to preserve?* - Joan Blaustein
- 8:45 – 9:10 PM** *What are the potential land uses that would work well for the site and the region?* - Donna Jacobs
- 9:10 - 9:25 PM** *What are the impacts of future development on the site that are of the most concern?* – Mark Racicot
- 9:25 -9:30 PM** **Next steps** – Mark Racicot and Finley Perry

This public forum is funded by a Smart Growth Technical Assistance Grant from the Executive Office of Environmental Affairs.

**Public Forum on Development Options
for the Weston Nurseries Property**

Thursday, June 15, 2006

First Congregational Church of Hopkinton

- 7:00 - 7:10 PM** **Maps Available for Viewing** – All early arrivals are encouraged to view the map series.
- 7:10 – 7:20 PM** **Welcome and overview of project**– Finley Perry, Chair, Hopkinton Land Use Study Committee and Mark Racicot, Metropolitan Area Planning Council (MAPC)
- 7:20 –7:45 PM** **Overview of Three Development Concepts-** MAPC
- Possible Buildout Under Existing Zoning
 - Open Space Preservation Supported by Development
 - Smart Growth Development (40R) Density
- 7:45–8:15 PM** **Impacts of the Development Concepts**– MAPC
- Water
 - Transportation
 - Open space and wildlife
 - Economic Development
 - Housing
- 8:15 – 8:45 PM** **Fiscal Impacts of the Three Development Concepts**– Judi Barrett, Consultant.
- 8:45 –9:15 PM** **Public Comment**
- Reaction to the mix of uses.
 - Questions and concerns about the impacts.
 - Needs for further analysis during the E. Hopkinton Master Plan process.
- 9:15– 9:25 PM** **Implementation Strategies through Zoning** – Donna Jacobs, Director, MetroWest Growth Management Committee
- 9:25– 9:30 PM** **Next Steps and Wrap-Up**– MAPC

This public forum is funded by a Smart Growth Technical Assistance Grant from the Executive Office of Environmental Affairs.

**APPENDIX H
WATER AND WASTEWATER CALCULATIONS**

ESTIMATED WATER DEMAND FOR 3 DEVELOPMENT CONCEPTS					
Development Concepts	# of Units or sq. ft.	# Seats Restaurant	Population by Household Type	<u>Water Use Factors</u> Res. Gal/Day Per Capita & Office/Retail GPD per 1000 sq. ft. & Restaurant gpd/seat	Estimated Water Demand (GPD)
<i>Concept 1 - Possible Buildout Under Existing Zoning</i>					
Residential Units					
Estate Homes					
Single-Family Homes	530		2,057	80	164,560
Multi-Family Ownership Units	216		480	65	31,200
Duplex Condominium	0				
Apartments	144		328	65	21,320
Senior Residence	0				
Assisted Living	0				
Total dwelling units / Population	890		2,865		
Residential Water Demand					217,080
Retail space / Water Demand	0			0.05	-
Office space / Water Demand	0			0.075	-
Total Water Demand					217,080

ESTIMATED WATER DEMAND FOR 3 DEVELOPMENT CONCEPTS					
Development Concepts	# of Units or sq. ft.	# Seats Restaurant	Population by Household Type	Water Use Factors Res. Gal/Day Per Capita & Office/Retail GPD per 1000 sq. ft. & Restaurant gpd/seat	Estimated Water Demand (GPD)
Concept 2 -Open Space Preservation Supported by Development					
Residential Units					
Estate Homes					
Single-Family Homes	314		1,218	80	97,440
Multi-Family Ownership Units	380		845	65	54,925
Duplex Condominium	0				
Apartments	220		504	65	32,760
Senior Residence	124		201	50	10,050
Assisted Living	120		122	65	7,930
Total dwelling units	1,158		2,890		
Residential Water Demand					203,105
Retail space / Water Demand	25,000			0.05	1,250
Office space / Water Demand	40,000			0.075	3,000
Total Water Demand					207,355
Golf clubhouse (golf course alternative only)	40,000	300		35	10,500
Total Wastewater Flow w/ Golf Course					217,855

ESTIMATED WATER DEMAND FOR 3 DEVELOPMENT CONCEPTS					
Development Concepts	# of Units or sq. ft.	# Seats Restaurant	Population by Household Type	Water Use Factors Res. Gal/Day Per Capita & Office/Retail GPD per 1000 sq. ft. & Restaurant gpd/seat	Estimated Water Demand (GPD)
Concept 3- Smart Growth Development (40R Density)					
Residential Units					
Estate Homes	10		30	80	2,400
Single-Family Homes	80		219	80	17,520
Multi-Family Ownership Unit	480		1,074	65	69,810
Duplex Condominium	120		379	65	24,635
Apartments	220		502	65	32,630
Senior Residence	0				
Assisted Living	120		122	65	7,930
Total dwelling units	1,030		2326		
Residential Water Demand					154,925
Retail space/Water Demand	25,000			0.05	1,250
Office space/Water Demand	40,000			0.075	3,000
Total Water Demand					159,175
Golf clubhouse (golf course alternative)	40,000	300		35	10,500
Total Wastewater Flow w/ Golf Course					169,675

ESTIMATED WASTEWATER FLOWS FOR 3 DEVELOPMENT CONCEPTS

Development Concepts	# of Units or S.F.	# Seats Restaurant	1 BR Units	2 BR Units	3 BR Units	4 BR Units	Number of Bedrooms	Wastewater Flow (Title 5)
Concept 1 - Possible Buildout Under Existing Zoning								
Residential Units								
Estate Homes								
Single-Family Homes	530					530	2120	233,200
Multi-Family Ownership Units	216		22	172	22		432	47,520
Duplex Condominium	0							-
Apartments	144		14	116	14		288	31,680
Senior Residence	0							
Assisted Living	0							
Total dwelling units	890		36	288	36	530		
Total Bedrooms							2840	
Residential Wastewater Flow								312,400
Retail space/wastewater flow	0							
Office space/wastewater flow	0							
Total Wastewater Flow								312,400
Concept 2 - Open Space Preservation Supported by Development								
Residential Units								
Estate Homes								
Single-Family Homes	314					314	1256	138,160
Multi-Family Ownership Units	380		0	380	0		760	83,600
Duplex Condominium	0							-
Apartments	220		22	176	22		440	48,400
Senior Residence	124			32	92		340	37,400
Assisted Living	120		120				120	13,200
Total dwelling units	1,158		142	588	114	314		
Total Bedrooms							2,916	
Residential Wastewater Flow								320,760
Retail space/wastewater flow	25,000							1,250
Office space/wastewater flow	40,000							3,000
Total Wastewater Flow								325,010
Golf clubhouse (golf course alternative only)	40,000	300						10,500
Total Wastewater Flow w/ Golf Course								335,510

ESTIMATED WASTEWATER FLOWS FOR 3 DEVELOPMENT CONCEPTS

Development Concepts	# of Units or S.F.	# Seats Restaurant					Number of Bedrooms	Wastewater Flow (Title 5)
			1 BR Units	2 BR Units	3 BR Units	4 BR Units		
Concept 3- Smart Growth Development (40R Density)								
Residential Units								
Estate Homes	10					10	40	4,400
Single-Family Homes	80					80	320	35,200
Multi-Family Ownership Units	480		40	390	50		970	106,700
Duplex Condominium	120				120		360	39,600
Apartments	220		30	170	20		430	47,300
Senior Residence	0						0	-
Assisted Living	120		120				120	13,200
Total dwelling units	1,030		190	560	190	90		
Total Bedrooms							2240	
Residential Wastewater Flow								246,400
Retail space/wastewater flow	25,000							1,250
Office space/wastewater flow	40,000							3,000
Total Wastewater Flow								250,650
Golf clubhouse (golf course alternative only)	40,000	300						10,500
Total Wastewater Flow w/ Golf Course								261,150