

SECTION 1 LAND USE

	Page
1.1 Existing Land Use	1-1
Land Use Changes Since 1971	1-2
1.2 Development Capacity Under Existing Zoning	1-4
Impacts from Development	1-6
1.3 Land Use Strategies	1-7
Growth Management	1-7
1.4 Land Use Recommendations	1-10
Appendix:	1-11
Summary of Existing Zoning	
SRPEDD Buildout Analysis	

LAND USE

1.1 EXISTING LAND USE

The Existing Land Use Inventory map shows the distribution of various land uses throughout the Town of Carver. The map was prepared using 1991 land use coverage from MassGIS updated to account for recent development. Information about recent development was obtained from aerial photos, Planning Department records, and field surveys. The following table shows the area of land in the town in each land use category.

Table 1-1
Existing Land use

<u>Land Use Category</u>	<u>Area (Acres)</u>	<u>% of Town Area</u>	<u>% of Developed Area</u>
Residential	3,197.3	12.9	82.7
Commercial	112.5	0.5	2.9
Industrial	64.0	0.3	1.7
Public/Recreation	165.7	0.7	4.3
Transp./Utilities	<u>324.9</u>	<u>1.3</u>	<u>8.4</u>
Total Developed	3,864.4	15.6	100.0
Agriculture	6,726.2	27.2	
Vacant	<u>12,594.6</u>	<u>50.9</u>	
Total Undeveloped	19,320.8	78.1	
Water	<u>1,563.3</u>	<u>6.3</u>	
Total Town Area	24,748.6	100.0	

Source: MassGIS, Planning Department, 1997 aerial photos, Larry Koff & Associates

There are approximately 24,749 acres in the town of Carver, of which about 16% are developed. Developed land includes private residential and non-residential uses, as well as public uses and utilities. About 78% of the land in Carver is undeveloped, although much of this land cannot be developed because of wetlands or other constraints. (A summary of development constraints will at a later point be provided under the Buildout Analysis which follows.)

Private Residential

About 3,197 acres, or 83% of the developed area is in residential use. This includes single family residences as well as multifamily or other types of residences. Most of the residential development is of moderate density, with an average lot size of 1.35 acres per single family home (Town of Carver Assessor, 1999). Some of the more densely developed areas are concentrated in recent subdivisions in North Carver including South Meadow Village and a subdivision off of West street, and in South Carver, Pine Tree Village off of Wareham Street. Low density single family housing is located throughout the town along most existing roadways. There are only two multifamily developments in the town, both located in the north off of Route 58.

Private Non-Residential

About 176.5 acres, or 4.6% of the developed area is in private non-residential use. This includes all commercial and industrial uses. These uses are concentrated mostly in North Carver near the intersection of Routes 58 and 44. In addition there are commercial uses in village centers,

described in the Economic Development section, as well as a few businesses scattered outside of these centers, mainly along Route 58.

Public/Recreation

This category includes land occupied by public facilities, public and private recreation facilities, and lands owned by public agencies (other than for conservation purposes). Land in this category consists of about 166 acres, or 4.3% of the developed area in the town. Public facilities include public buildings, storage facilities, cemeteries, and waste disposal facilities. Recreation facilities include parks, playgrounds, ball fields, and public beaches.

Transportation/Utilities

About 325 acres of land in the town are occupied by the Plymouth Municipal Airport, and utility transmission lines which cross the northern part of the town. The area of local and state roads is not accounted for separately, but is included in the area of abutting land uses.

Undeveloped Land

Undeveloped land includes forested uplands, wetlands, agricultural land, and other open lands. The extensiveness of cranberry agriculture in Carver is the most distinguishing feature of the town's landscape. Land that is actively used in cranberry production occupies about 6,726 acres, or 27% of the town's total area. Undeveloped, forested land comprises just over half of the town's total area. The dominance of undeveloped open space in the town may not be immediately apparent because of development along the roadways. Much of this land is connected with cranberry growing activities, although a considerable amount may be developable at a future time, as described under the buildout analysis.

Land Use Changes Since 1971

A significant amount of growth has taken place in Carver over the past few decades. The most current land use inventory was compared with inventories for 1971, 1985 and 1991, which were also taken from the MacConnell land use surveys. As stated previously, the 1998 land use is based on the MacConnell survey for 1991, but is updated using more recent aerial photography and Planning Department records.

The following table shows a summary of land use changes over the time period, highlighting changes in the total amount of developed land, and changes in the amount of land devoted to residential and commercial/industrial use.

Table 1-2
Land Use Changes from 1971 to 1998⁽¹⁾

	<u>1971</u>	<u>1985</u>	<u>% change</u>	<u>1991</u>	<u>% change</u>	<u>1998</u>	<u>% change</u>
Total Developed Area	1,231	2,667	116.7	3,712	39.2	3,864	4.1
Residential	1,058	2,205	108.4	3,002	36.1	3,197	6.5
Commercial & Industrial	68	108	58.8	174	61.1	176	1.1
Population ⁽³⁾	2,420	6,988	188.8	10,590	51.5	11,220	5.9

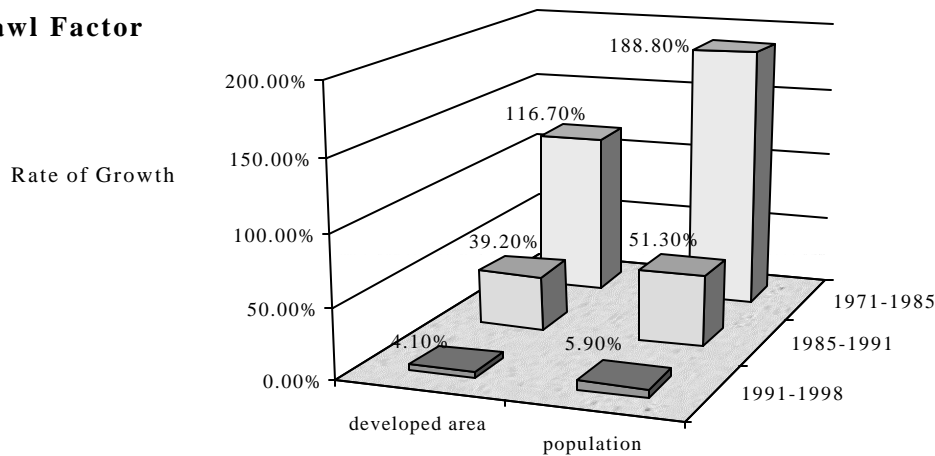
⁽¹⁾ Some improvements in measurement techniques took place between the dates of observation. The total town area was computed at 25,452 acres in 1971, and 25,455 in 1985, while it was computed at 10,350 in 1991 and 1998. In order to be comparable with the later data, the acreages reported for 1971 and 1981 are adjusted proportionately.

⁽²⁾ Source: US Census, 1970, 1980, 1990, Town Census, 2000.

Sprawl

Over the past several decades, the increase in population growth has outstripped the amount of newly developed residential land, as new residences occupy the minimum lot size allowed by zoning. In the late 1980's the rate of commercial development outstripped the rate of population growth by about 20%, although little commercial growth has occurred since 1991. The rapid consumption of land relative to population growth indicates an increase in suburban sprawl, impacting the rural character of the community. This trend was particularly notable in the decade between 1981 and 1991.

Sprawl Factor



The relatively slow rate of development in recent years is not caused by intentional changes in the Town's policy with respect to growth, but rather the lack of availability of developable land coupled with the profitability of cranberry agriculture until 1997. The decline in agricultural values and housing shortage in the region will encourage a renewed surge in development activity.

1.2 DEVELOPMENT CAPACITY UNDER EXISTING ZONING

A buildout analysis was completed for the Town of Carver in April, 2000 by SRPEDD.

The area of developable land within each zoning district was determined by subtracting protected open space, water and river front areas, and land which is already developed. Wetlands were assumed to be a partial constraint on development, allowing 30% of the development capacity allowed by zoning. The following table and map illustrate the land areas identified as having partial or absolute constraints on development. Wetlands are provided by MassGIS from USGS coverage. Land that is already developed is taken from the MassGIS 1991 land use layer, and updated to account for recent development using Planning Board records and recent aerial photography. Map 1-2 shows the constraints on development and the remaining developable land.

**Table 1-3
Constraints on Development**

Total Town Area	24,749
Developed Land	3,864
Protected Open Space, Water and Riverfront Areas	9285
Partially Developable Wetlands*	1,239
Developable Upland Area*	10,361

* Does not include Makepeace properties, grandfathered lots, or approved subdivisions

A buildout analysis is intended to indicate the total amount of development that could potentially take place throughout the town under existing zoning. The following limitations to this methodology should be taken into consideration:

- Market forces will determine the pace at which development takes place. Where soil conditions limit septic capacity, the availability and cost of alternative systems will also affect the rate of development. The buildout analysis does not provide a time-frame for reaching this level of development.
- It is not possible to determine the potential redevelopment capacity of parcels which are presently developed but under-utilized.
- The analysis assumes that all new development takes place at the maximum density by market and zoning requirements, which may not reflect the actual outcome of future development, thus the development capacity shown above may not be reached if and when all remaining land is developed.
- The extent of developable land is an approximation, since detailed parcel-level data is not available. Nevertheless, it is unlikely that a more precise measure of developable land would yield substantially different results.

The developable area was determined by zoning district, shown in Table 1-4, and then density regulations under the Zoning By-law were applied to determine the development capacity. Table 1-5 provides an estimate of the town-wide buildout capacity. Categories of land use include three types of residential development and business and industrial development. Other types of uses are assumed to fit within these general categories, for instance, a hotel would be a type of retail/service use¹. Map 1-3 shows the developable land by zoning district, with the Town divided into 3 sections. Appendix 1-1 provides a summary of the existing buildout regulations, while Appendix 1-2 shows the buildout analysis prepared by SRPEDD.

¹ In determining the buildout capacity for commercial and industrial use, it was assumed that portions of the development would be retail, office, manufacturing and warehousing, each of which have different parking requirements which result in different effective floor area ratios.

Table 1-4
Developable Area by Zoning District

<u>District</u>	<u>Total Acres</u>	<u>Development Capacity*</u>	
Residential Agricultural District (RA)	9,683.5	Single family	5,309 units
		Townhouse	360 units
		Mobile home park	230 units
General Business District	92.7	Single family	19 units
		Townhouse	10 units
		Business	1,463,000 s.f.
Highway Commercial District	101.6	Townhouse	10 units
		Business	1,303,100 s.f.
		Industrial	717,300 s.f.
Village District	73.1	Single family	607 units
		Business	3,086,300 s.f.
Industrial A District	386.7	Business	2,526,500 s.f.
		Industrial	5,824,100 s.f.
Industrial B District	18.3	Business	40,000 s.f.
		Industrial	359,600 s.f.
Airport District	159.7	Mobile home park	8 units
		Business	892,000 units
		Industrial	2,307,000 s.f.
Planned Tourism Commercial District	1,083.9	Single family	459 units
		Business	3,311,300 s.f.
Grandfathered unsized lots (estimate)		Single family	300
Approved subdivision lots not yet constructed		Single family	79
Potential buildout of Makepeace properties		Single family	590
		Townhouse	41 units
		Mobile home park	26 units

Source: Carver Buildout Analysis, SRPEDD 2000.

Table 1-5
Summary of Buildout Capacity

<u>Type of Land Use</u>	<u>Total</u>	<u>Development Capacity</u>		
		<u>North</u>	<u>Central</u>	<u>South</u>
Residential				
Single family	7,363 dwelling units	1,878 units	3,330	2,155 units
Townhouse	421 units	121 units	170	130 units
Mobile home	264 units	66 units	116	82 units
Nonresidential				
Business	12,622,200 s.f.	5,008,700 s.f.	5,416,800	2,196,700 s.f.
Industrial	9,208,000 s.f.	5,281,000 s.f.	2,307,000	1,620,000 s.f.

Impacts from Development

Under full buildout, this development capacity can result in an estimated 22,900 additional residents, or a 200% increase over the existing population of 11,220 persons⁽¹⁾. The number of school children may increase by about 4,400 persons⁽²⁾.

**Table 1-6
Residences at Full Buildout**

	<u>Existing</u>	<u>Potential Additional</u>	<u>Total at Full Buildout</u>
Single Family	3,025	7,363	10,388
Multifamily	139	421	560
Mobile Homes/Other	<u>1,134</u>	<u>264</u>	<u>1,398</u>
Total	4,298	8,048	8,404

⁽¹⁾ Assumes a household size of 3.62 persons per household for single family residences, 1.68 persons per household for multifamily residences, and 2.36 persons per household for mobile homes. Based on DHCD estimates.

⁽²⁾ Assumes 0.87 school-children per household for single family residences, 0.17 school-children per household for multifamily residences, and 0.35 school-children per household for mobile homes. Based on DHCD estimates.

1.3 LAND USE STRATEGIES

Growth Management Alternatives

Two objectives for growth management in Carver are 1) to reduce buildout, and 2) to reduce the impacts from development. Following are several strategies that the town can pursue independently or concurrently in order to meet these objectives.

Increase Minimum Lot Size

The Town should consider increasing the minimum lot size to two acres. This alone will result in a reduction of the potential residential buildout by as much as approximately 30%. Increasing the minimum lot size can have the adverse effect of consuming excessive open space at a faster rate, however it can also encourage the use of cluster development, protecting resources and open space, if combined with other changes to zoning and subdivision regulations described below.

Encourage/Require Cluster Development

Improvement of the cluster subdivision regulations may help to encourage the use of cluster provisions, as well as to ensure that cluster subdivisions are well designed. Minimum lot sizes and dimensions may be reduced, with allowances for shared septic systems and/or restrictions on the number of bedrooms that units may have. More stringent requirements for roads and drainage systems for all subdivisions may serve the dual purposes of protecting water resources, enhancing pedestrian mobility, and encouraging the design of cluster subdivisions to reduce infrastructure costs.

Density bonuses for developments that offer greater benefits to the community can provide another incentive for the use of cluster development. Exempting cluster subdivisions from an increase in the minimum lot size offers a built-in bonus for cluster development. Alternatively, bonuses may be conferred upon developments which offer a larger percentage of open space, protect an area of special interest to the community (identified in open space plan), or provide amenities such as affordable housing or recreational structures. Bonuses may consist of an increase in average density or the addition of a specified number of lots.

Recent State legislation has enabled towns to allow cluster subdivisions by right, instead of requiring a special permit. The requirement of a special permit poses a significant disincentive for developers to choose cluster subdivisions rather than traditional subdivision designs. The Town would need to change its bylaw in order to allow for cluster subdivision by right.

Some towns require cluster subdivision in certain zoning districts as an agricultural preservation tool. It is still unclear as to whether the requirement of cluster subdivision is legal if a special permit is required. However, if cluster is allowed by right, a cluster requirement may be more defensible. Many towns require the submission of a cluster site plan in addition to a traditional site plan. This provision helps to familiarize developers with the cluster subdivision concept, and encourage the use of cluster development.

Acquire Open Space

An aggressive open space acquisition strategy may payoff for local taxpayers, even in the short run, by reducing the cost of services the town must provide to new residents. Acquisition is also the most equitable and effective means of protecting the town's valuable natural resources. For every 100 acres of developable land that is protected, the buildout is reduced by about 58 homes under the existing zoning, and 40 homes under two-acre zoning.

An alternative to acquiring open space properties is to purchase their development rights. The land remains in private ownership, but is permanently protected from being developed. This may be less costly to the Town, while allowing agricultural use or other private passive uses of the land to continue.

Land Trust

A private non-profit agency can be established to acquire and manage open space parcels. The organization would also provide leadership to spearhead natural resource and agricultural protection efforts. It would be funded by government grants, as well as tax deductible contributions. The Town can help to establish and fund the land trust, but the agency would remain independent from local government.

APR/CR

Agricultural land can be permanently protected from development by the use of Agricultural Preservation Restrictions (APR), which are a form of Conservation Restriction (CR). Under this program, the land owner gives up the development rights of his property while retaining the rights to use the property for agricultural purposes. Land remains in private ownership. The development rights are donated to the Town and/or a private land trust organization under an agreement with the State.

As it is presently defined, the program is not applicable to wetlands used in cranberry production. A Cranberry APR program has been proposed, and is reported to be under development.

The donation of a conservation easement, as with the donation of land, is considered to be a tax-deductible contribution. Participation in this program can also lower the value of the property, providing an additional tax incentive. A public education campaign can inform landowners of the financial benefits of donating CR or APR easements.

Transfer of Development Rights

Transfer of Development Rights (TDR) is a zoning tool which allows landowners to sell the development rights of their properties to developers who will use them to increase the number of lots they can develop elsewhere in the town. "Sending areas" are areas from which development rights can be sold, while "receiving areas" are areas where development densities can be increased. In Carver, the Village Center districts would be appropriate receiving areas for development rights transfers. Sending areas could be anywhere else in the town, or limited to a specific district. A TDR bylaw should be stated in such a way as to ensure that lands from which the development rights are transferred are permanently protected from development.

Agriculture Preservation Zoning

The Zoning Bylaw can include a variety of measures to protect and support agricultural uses. These include requiring cluster site design to protect agricultural lands, requiring a buffer between residences and agricultural uses, protecting views of agricultural lands, and site plan review. Another option is to allow ancillary uses to agricultural operations, including small businesses to allow farmers to diversify their operations and seek supplemental income.

Agriculture Preservation Zoning may also include design guidelines and site plan review to ensure that landscaping, site design, roads and drainage systems are consistent with agricultural protection goals.

Nutrient Limiting Regulation

An alternative means of limiting development is to regulate the amount of nutrient loading that can result from development. This approach offers more flexibility than increasing the minimum lot size, while it directly addresses the problem of water resource degradation. The development of appropriate loading standards and a practicable regulatory framework must take into consideration the unique landscape and hydrology of Carver, and will require further study.

Table 1-8
Land Use Policy Options

<u>Policy</u>	<u>Buildout Impact</u>	<u>Open Space Impact</u>
Acquire open space ⁽¹⁾	- -	+ +
Change residential minimum lot size to two acres	- -	=
Encourage/require cluster residential development	=	+
General Wetlands By-law, increase buffers under Conservation Commission oversight	-	+ +
Expand Village Centers	+	=
Planned Unit Development	= or +	+
Bonus for Cluster/Flexible Zoning	=	+
As of right cluster residential development	=	+
Transfer of Development Rights	=	+ +
Agricultural Preservation Zoning	= or -	= or +
Nutrient Limiting Regulation	-	+
Design Guidelines/Performance Standards	=	=
Inspection Department to enforce zoning	=	=

Key: - Moderate reduction
 - - Substantial reduction
 + Moderate increase
 + + Substantial increase
 = No significant impact

1.4 LAND USE RECOMMENDATIONS

As explained in the Executive Summary and Section 8, Implementation, a 5 part strategy was developed for Carver, much of which focuses on shaping the future land use of the undeveloped areas in the town. Low density areas and higher density areas were identified, based upon the configuration of the town's most sensitive natural resources and the location of existing village centers and existing and future infrastructure.

Higher density areas are proposed to be located in North Carver, South Carver, around the Town Center, and adjacent to the future Route 44 corridor. A mixture of commercial, industrial and higher density residential uses would take place, corresponding to the character of development which already exists in each area. To support a higher density of development, these areas would eventually need to be served by public water. Service area boundaries would need to be defined, beyond which new development could not tie in to the dispersed public water system.

Specific strategies to implement the land use plan are outlined in Section 8, Implementation. Zoning changes in higher density areas would include extending commercial zoning, allowing higher density residences including townhouses and apartments over stores, enacting design guidelines and dimensional standards to encourage a more village-like atmosphere, and adopting standards for shared septic and water systems.

Outside of the higher density areas, the Town should seek to reduce the potential buildout throughout the rest of the town. A combination of the growth management strategies discussed in the previous section should be employed to achieve this, especially increasing the minimum lot size, improving the cluster by-law, acquiring open space, and transfer of development rights. Approximately 4,500 acres of land connecting valuable regional and local natural resources should be permanently protected through acquisition or other means.

See Action Plan map in the Executive Summary for a diagram of proposed land use. Maps 1-4 and 1-5 show the future land use at full buildout under existing zoning and under proposed growth management regulations.

APPENDICES

- Appendix 1-1 Summary of Existing Zoning Regulations
- Appendix 1-2 SRPEDD Buildout Analysis, April, 2000

Appendix 1-1
Summary of Existing Zoning Bylaw

Zoning District/ Alternative	<u>Allowed Uses</u>		Lot Size	Effective Density*	Dimensional Standards	Bonus Provision	Design Guidelines
	Residential	Commercial					
Residential-Agricultural (RA)	Yes	No	60,000 S.F. 70% upland	0.73/acre	150' Frontage, 50' setbacks, 30' side yard, 35' height	None	None
Village (V) Residential Use: Commercial Use:	Yes	Yes, SP	60,000 S.F. 20,000 S.F.	0.73 2.18	Same as RA 100' Frontage, 15' setbacks, 30' height	None	Commercial
General Business (GB)	Yes	Yes	40,000 S.F.	1.09	200' Frontage, 40' front yard, 25' setbacks, 40' height	None	Commercial
Highway Commercial (HC)	No	Yes	60,000	FAR?	250' Frontage 40' Setbacks 3 stories	None	Yes
Industrial "A" (IA)	No except mobile home park	Light Ind.	60,000	FAR?	150' Frontage 50' Setbacks 2.5 stories	None	Yes
Industrial "B" (IB)	No except mobile home park	Industry	60,000	FAR?	150' Frontage 50-30' Setbacks 2.5 stories	None	Yes
Airport (AD)	No except mobile home park	limited	40,000	FAR?	150' Frontage 40-30' Setbacks	None	No
Planned Tourist Commercial District (PTCD)	No	SP Tourist	1/60,000 S.F.	FAR?	150' Frontage 50' Setbacks 2.5 stories	None	No
Townhouse (Allowed in RA, GB, or HC Districts)	Yes	Yes (GB HC)	10 acre min., 5 units/structure, 2.5 bedrms x # of conventional lots	About .8	Underlying Zoning	Bonus for small units +/- density of underlying zoning	None
Flexible (Allowed in RA)	Yes	No	1/50,000 S.F.	0.87	Variable	Slight	None
Conservation ("Cluster", Allowed in RA)	Yes	No	1/30,000 S.F. min 50' frontage, 50% other dimensional regulations wetlands 25%	1.45	100' Buffer areas and 20% open space required	None	Open space requirement 20%
Mobile Home Park (Allowed in RA, IA, IB, AP)	Yes	No	100 acre minimum	?	75' Frontage 30' front yard 15' side yards	none	Special Permit

* Not accounting for acreage required by new streets and irregular lot shapes.