Income from the Land Use Change Tax for Seven New Hampshire Towns 1995-2000

December 2002

Cynthia L. Belowski
27 Lubberland Drive
Newmarket, NH 03857

Acknowledgements

I would like to thank the many people who provided guidance and willing assistance in my efforts to conduct this research and analysis:

The Statewide Program of Action to Conserve our Environment (S.P.A.C.E.), especially the Research Subcommittee, for providing the funding and giving me the opportunity to work on this research project.

Charles A. Levesque and Lindsey Santaniello, for getting me started and being there for my questions.

Dr. Douglas E. Morris, from the University of New Hampshire, for acting in an advisory capacity and reviewing the spreadsheets and draft report.

All of the willing and welcoming employees in each of the nine study towns of Amherst, Boscawen, Canterbury, Durham, Gilford, Haverhill, Londonderry, Madbury and Merrimack. This type of study would not be possible without their help and support in gathering the data.

Foreword

This research report, which is a continuation and update of earlier studies conducted by myself in 1989 and by Charles A. Levesque in 1995, was again supported by the Statewide Program of Action to Conserve our Environment (S.P.A.C.E.). This updating of the earlier research studies was undertaken by Cynthia Belowski, Antioch College master's candidate. I assisted Ms. Belowski at various stages of data collection and offered advice when record keeping procedures had changed over time in some towns. The calculations were performed using spreadsheet templates from the original study. Therefore, the methodology is identical for both studies and the results can be directly compared. The only difference is the prevailing economic conditions during the three periods of time that influence land values, administrative procedures that determine the land use tax, and time itself. I personally reviewed both a draft of this report and the data calculations which form the basis for it. From that review I can attest to the validity of the results contained in this study.

To assist the reader who wishes to compare the results between the three time periods, Ms. Belowski has provided a detailed comparative analysis. She has also extended and improved upon the earlier studies by questioning and eliciting comments from the town officials.

I would like to personally commend S.P.A.C.E.'s continuing interest in and support of research investigations on land use policy issues, in general, and current use taxation, specifically.

Dr. Douglas E. Morris
Associate Professor of Resource Economics

University of New Hampshire

November 11, 2002

Table of Contents

Tables

Executive Summary

In 1989 Dr. Douglas E. Morris of the University of New Hampshire published a study, which sought to determine if the 10% Land Use Change Tax (LUCT)—assessed when property comes out of current use—was enabling towns to recoup the abated taxes from the time that the land was in the Current Use Program. The study researched parcels that exited the program during the 1980-1987 period, and involved the towns of Amherst, Boscawen, Canterbury, Durham, Gilford, Haverhill, Londonderry, Madbury, Merrimack and Rollinsford.

Research of the 249 lots exiting the program revealed a total of $1,493,173 paid to the towns from the LUCT. Analysis of these returns determined that, not only did the towns recoup the abated taxes they realized an annualized rate of return of 56%. However, in his report Dr. Morris predicted: "As the length of time increases for parcels in [current use], the town's return may well diminish." (Page 11 Appendix A)

In 1995, the Statewide Program of Action to Conserve our Environment (S.P.A.C.E.) — seeking to validate the outcome of the original study—contracted with Innovative Natural Resource Solutions, to update the analysis for the years 1988-1994. The second study involved the same ten towns and revealed that 332 lots, representing 2,116 acres, had exited the Current Use Program. The average amount of time that these lots had been in current use was 11.4 years.

During the course of the current update an error was detected that affected certain spreadsheet calculations in the 1995 update. The adjusted analysis of the $2,681,221, recovered by the towns from the LUCT, determined that these towns realized an annualized rate of return of 35% from the proceeds.

Again, in 2002 S.P.A.C.E. endeavored to update the study for the years 1995-2000. The update was prepared by a masters candidate from Antioch New England Graduate School. The research and analysis completes the update for only seven of the original towns, because one did not have any parcels exiting current use and two lacked critical data, for the update period. The remaining seven towns still provide a good representative sampling of towns in the state with diversity in terms of growth, location and type of development.

For this update 719 lots, representing 1,582 acres, exited the Current Use Program in the seven towns. The average amount of time that these lots were in current use was 18 years. Analysis of the $3,160,505, recovered by the towns from the LUCT, revealed an annualized rate of return of 9.3%.

Overall, these towns are still recouping more than the taxes abated while the subject parcels were in current use. However, these results show that Dr Morris' prediction was correct—as the average number of years in current use increases the annual rate of return realized by the town's decreases.

The method used to determine the fair market value, on which to base the 10% LUCT, may impact the degree to which towns are able to recoup the abated taxes, from parcels exiting the Current Use Program. All but one town in this study reported determining the fair market value based on a comparative market analysis. The one, which had the lowest annualized rate of return at -9%, reported determining the fair market value by using the last ad valorem assessment and applying the equalization ratio.

Copies of *"Land Use and Growth in New Hampshire, III. Town Incomes from the Land Use Change Tax, 1980-1987"* by Dr. Douglas E. Morris and *"Land Use Change Tax Incomes from Ten Selected New Hampshire Towns 1988-1994"* by Charles A. Levesque are not included with this report. They are available by request by contacting S.P.A.C.E. 54 Portsmouth Street, Concord, NH 03301 (603) 224-3306 or up on the SPACE website at www.nhspace.org

Introduction

New Hampshire has had a provision, called the Current Use Program, for preferential assessments of undeveloped lands since 1973. This program allows for undeveloped land to be taxed at rates based on its current use, rather than the ad valorem assessment. Therefore, the provision allows a landowner relief from higher property taxes while the land is in the program.

In 2001 just over three million acres were enrolled in the Current Use Program in the state. This represents 52% of the total land base, and 59% of all taxable land. New Hampshire continues to be one of the fastest growing states in the Northeast. This distinction puts much of the open space land, especially in the southern tier of the state, at risk of development. The Current Use Program is an important tool that allows landowners, who would otherwise not be able to afford the tax burden, to keep their land in open space.

While a large percentage of the land in current use remains so, changes to non-qualifying uses do occur over time. The original statute, RSA 79-A, provides a means for municipalities to recoup the abated taxes from the property when it is removed from current use. This penalty, called the Land Use Change Tax (LUCT), is based on 10% of the fair market value of the property at the time of change.

In 1989 Dr. Douglas E. Morris of the University of New Hampshire's Department of Resource Economics and Community Development published a study as part of a series called Land Use and Growth in New Hampshire. The study, entitled *Town Incomes from the Land Use Change Tax, 1980-1987,* researched parcels exiting current use for the years 1980-1987 in ten selected towns and sought to determine if the 10% LUCT was adequate to ensure that municipalities were recouping the abated taxes. An analysis of the total LUCT collected revealed that, not only did the towns recoup the lost tax revenue; they realized an annualized rate of return of 56%. The original study is included in this document as Appendix A.

In 1995 the Statewide Program of Action to Conserve our Environment (S.P.A.C.E.), the not-for-profit organization that initiated the drive for a Current Use Program in New Hampshire in the late 1960's, funded an update of the study for the years 1988-1994. The update was conducted by Innovative Natural Resource Solutions, a private consulting firm. The report, entitled *Land Use Change Tax Incomes from Ten Selected New Hampshire Towns, 1988-1994*, revealed that the ten towns were still realizing a positive annual rate of return, in this case 35%. [1]

[1] During the course of the current study an error was detected that affected certain spreadsheet calculations in the 1995 update. For this update, the calculations have been rerun and all figures reported have been adjusted.

Again, in 2002 S.P.A.C.E. endeavored to update the study for the years 1995-2000. Neither the private consulting firm that conducted the 1995 update nor Dr. Morris was available to prepare the update. However, both agreed to provide direction in order to ensure that the methodology was consistent with the last two studies, and that the results were valid and comparable.

S.P.A.C.E. hired a masters candidate from Antioch New England Graduate School to update the study for the years 1995-2000. This report reviews the findings from this research.

Methodology

The methodology used in this and the previous two studies is identical and the towns involved in the research: Amherst, Boscawen, Canterbury, Durham, Gilford, Haverhill, Londonderry, Madbury, Merrimack and Rollinsford are the same. Therefore, the results of the three studies can be directly compared.

Initially, the ten towns were selected, because they had been involved in other current use research with Dr. Morris, were amenable to further research, and were experiencing land withdrawals from the Current Use Program. The ten towns were determined to be a good representative sampling of the towns across the state with diversity in terms of growth, location and types of development. The towns were not chosen randomly.

Although all ten towns were contacted and research initiated, it was necessary to eliminate three of the original towns from the study group for this update. Rollinsford did not have any lots coming out of current use during the update period; and the towns of Madbury and Amherst did not assess ad valorem rates for current use properties, at their last reassessment in 1994. The ad valorem is a critical data element for this analysis. Therefore, it was determined more prudent to eliminate these towns from the study than to estimate what the ad valorem rates, at reassessment, might have been. Given the variety of profiles that remain, for these seven towns, they are still considered to be a good representative sampling of the towns across the state.

Data Capturing Process

The process of collecting the data and running the spreadsheet calculations is relatively straightforward and easy to replicate. Although the manner in which data is kept in each town varies, in the end the basic elements are the same.

Each lot, that had been removed from the Current Use Program for the years in the study period, 1995-2000, was determined. This information was available from the Current Use – Land Use Change Tax Lien Release Forms. The data from these forms, which was entered into a *Microsoft Excel* spreadsheet, on a laptop computer, included:

- Map and Lot number
- Number of acres coming out of current use
- Tax year that the change was made
- Land Use Change Tax assessed
- Landowner names associated with the property.

The data was then sorted by map and lot, or by owner, in preparation to gather all of the back tax information for each lot. The current use assessed rate and the ad valorem assessments, for all lots, in each year that the lot was in the Current Use Program, were captured from the tax cards. This process involved going back in tax records to 1974.

For the seven towns involved in this update, 719 lots and 1,582 acres exited current use. The entire process of data collection took 151 hours, for an average of 2.7 days per town.

The summarized data derived from this process, detailed by town, can be seen in Table 3 in the **Results** section of this report.

The Model and Analysis

Using the Internal Rate of Return (IRR) function in *Microsoft Excel,* this analysis considers the annual tax difference between the taxes paid at the current use assessed rate, and the taxes that would have been paid, if the property were not in current use, as a cost to the town. Therefore, the cost is spread out over time. The return on the investment is seen as a lump sum at the end of the period, when the property is removed from current use, and the LUCT is assessed.

An example of the IRR for a lot in Merrimack is shown in Table 1. The example lot was in current use for 10 years, from 1986 to 1995. During that time the landowner paid $780 in property taxes. The **Full Value Rate** (or equalized tax rate) is used to calculate the **Taxes Paid**, because the Current Use Board sets assessment values for current use land annually, thereby enabling towns to keep current use land at 100% valuation.

If the lot had not been in current use the **Possible Taxes** would have been $90,346. In this case the landowner saved $89,566 in taxes—the difference between the **Possible Taxes** and the **Taxes Paid**. The annual savings for the landowner (**Taxes Not Paid**) is displayed in the **IRR Calc** column as a negative number, or a "cost" to the town. The LUCT that was assessed at the time of change was $110,100. This is seen as a lump sum return at the bottom of the **IRR Calc** column.

The $110,100 LUCT is $20,534 more than the $89,566 saved by the landowner, while the property was in the Current Use Program. In this scenario, the IRR function, which accounts for the time value of money, calculates an annualized rate of return of 5% for the town.

Table 1: Internal Rate of Return (IRR) Calculation for a lot in Merrimack

Acres Out	Tax Year	CU Assess	Full Value Rate	Taxes Paid	Ad valorem Assess	Local Tax Rate	Possible Taxes	Taxes Not Paid	IRR Calc
15.8	86	1516	0.01490	22.59	15800	0.03171	501.02	478.43	-478.43
	87	1516	0.01472	22.32	15800	0.03424	540.99	518.68	-518.68
	88	1516	0.01625	24.64	15800	0.03869	611.30	586.67	-586.67
	89	3602	0.01701	61.27	681707	0.01701	11595.84	11534.57	-11534.57
	90	3602	0.01780	64.12	681707	0.01695	11554.93	11490.82	-11490.82
	91	3602	0.02271	81.80	681707	0.01846	12584.31	12502.51	-12502.51
	92	4455	0.02475	110.26	681707	0.01847	12591.13	12480.87	-12480.87
	93	4455	0.02711	120.78	480162	0.02884	13847.87	13727.10	-13727.10
	94	4455	0.02935	130.75	480162	0.03089	14832.20	14701.45	-14701.45
	95	4455	0.03185	141.89	366908	0.03185	11686.02	11544.13	-11544.13
Totals				**$780**			**$90,346**	**LUC Tax =**	**$110,100**
								IRR=	**5%**

Those wanting a more in depth discussion of the mathematical calculations, for the internal rate of return model, should refer to page 2 in Appendix A of this report.

Once all IRR calculations were complete for each parcel coming out of current use, in a given town, the total results were tallied and a weighted average IRR for the town computed. It is important to use a *weighted* average, instead of a simple average of the IRR results. This ensures that extremes such as a 25% IRR for a $337 LUCT do not carry the same *weight* as a 5% IRR for a $120,100 LUCT. Similarly, negative values such as a -4% IRR for a $600 LUCT and -48% for a $26,847 LUCT do not carry the same *weight*. (A negative internal rate of return is the result of the 10% LUCT being less than the taxes that were saved.)

The weighted average IRR is derived by multiplying the LUCT, for each parcel, by the IRR for that parcel, and adding all of the results together. The total is then divided by the total LUCT, collected for the period, to derive a weighted average. Table 2 below uses a hypothetical Sometown, NH, with 5 lots coming out of current use, to demonstrate this process.

Table 2: Weighted Average Internal Rate of Return Calculations for Sometown, NH

Parcel	**Land Use Change Tax (LUCT)**	**Internal Rate of Return (IRR)**	**LUCT X IRR**	**Weighted Average Calculation**
1	$ 14,800	8%	1,184	
2	$ 5,300	-9%	-477	
3	$ 1,500	88%	1,320	
4	$ 2,500	-25%	-625	
5	$ 38,000	12%	4,560	**5,962 ÷ 62,100 =**
Totals	**$ 62,100**		**5,962**	**9.6%**

Two other data elements were manipulated for analysis: the average number of years lots were in current use, which is helpful in understanding the impact of time on the results; and the average number of acres per lot exiting the program, which provides insight into the changes in development density. The resulting data from these calculations can be seen in Table 3 in the **Results** section of this report.

Not included in the calculations were two lots that exited the program in the town of Merrimack. The lots came out of current use as a result of being purchased by the town. Therefore, no LUCT was levied. These lots represent a total of 128 acres and account for $146,920 in abated taxes, but are considered anomalies and not appropriate to this analysis.

The process of running the spreadsheet calculations took 74 hours, for an average of 1.3 days per town.

Results

After the calculations were run, the results for the seven towns were summarized, as seen in Table 3. The total LUCT collected for the seven towns during this 6 year period was $3,160,505. On an annualized basis this is $526,751 which represents a 110% increase over the last study and a 277% increase over the original study, with annualized LUCT totals of $250,423 and $139,546 respectively.

Using the sum of the resulting figure from the LUCT, times the weighted average IRR for each town, and dividing it by the total LUCT of $3,160,505, the overall weighted average IRR for all seven towns was derived. The result is an annualized rate of return of 9.3%, for this study.

Weighted average results, by town, range from a high of 22.3% in Londonderry to a low of -9% in Boscawen. Boscawen is the only town with a negative internal rate of return.

Table 3: Summarized Data for Land Use Change Tax Incomes for Seven Towns – 1995-2000

Town	**# Lots Exiting Current Use**	**Acres Exiting Current Use**	**Avg. # of Acres/Lot**	**Avg. # Years in Current Use**	**Total LUCT**	**Weighted Average IRR**
Boscawen	53	156	2.9	18.2	$95,079	-9.0%
Canterbury	33	123	3.7	18.7	$78,423	5.8%
Durham	53	85	1.6	16.9	$186,120	21.0%
Gilford	17	78	4.6	17.4	$53,974	10.4%
Haverhill	32	75	2.3	22.2	$26,183	2.0%
Londonderry	215	476	2.2	14.2	$1,119,624	22.3%
Merrimack	316	589	1.9	19.9	$1,601,102	0.2%
Totals/Avg.	**719**	**1582**	**2.2**	**18**	**$3,160,505**	**9.3%**

The data showed a wide range of IRR values for lots within each town, from an extreme of 193% in Londonderry to -59.8% in Durham. As a point of interest, the minimum and maximum IRR for each town are reported, with the weighted average, in Table 4.

Table 4: Weighted Average IRR by Town and Total with Min and Max Amounts

Town	**Number of Lots**	**Weighted Average IRR**	**Maximum IRR**	**Minimum IRR**
Boscawen	53	-9.0%	92.5%	-32.1%
Canterbury	33	5.8%	20.3%	-19.9%
Durham	53	21.0%	192.5%	-59.8%
Gilford	17	10.4%	93.7%	-22.5%
Haverhill	32	2.0%	25.1%	- 26.8%
Londonderry	215	22.3%	193%	-33.6%
Merrimack	316	0.2%	181%	-59.2%
Total	**719**	**9.3%**	**193%**	**-59.8%**

To understand what the 9.3% internal rate of return for this study period means, it is useful to compare it to the results from the last two studies. It is also useful, in understanding the trend, to compare the average number of years that the parcels have been in current use. Although the data for the average number of years in current use is not available from the original study—having been conducted for the years through 1987, just 13 years in to the program—one can reasonably assume that the average was less than 12 (the total average number of years found in the second study). Table 5 shows the comparative data. For this comparison, as with the others below, only the seven towns in this update are used from the previous two studies.

Table 5: Comparison of Average Number of Years in Current Use and Weighted Average IRR for all Three Studies

Town	**Average # Years in CU ***		**Weighted Average IRR**		
	Study 2	**Study 3**	**Study 1**	**Study 2**	**Study 3**
Boscawen	10.4	18.2	184.3%	412.0%	-9.0%
Canterbury	12.3	18.7	66.5%	19.2%	5.8%
Durham	14.3	16.9	73.6%	27.6%	21.0%
Gilford	12.7	17.4	105.0%	14.8%	10.4%
Haverhill	14.2	22.2	117.6%	8.2%	2.0%
Londonderry	8.7	14.2	85.2%	41.0%	22.3%
Merrimack	9.3	19.9	33.3%	35.6%	0.2%
Totals	**12**	**18**	**61.3%**	**35.2%**	**9.3%**

* Data for the average number of years in current use is not available from the original study—having been conducted for the years through 1987, just 13 years in to the program—one can reasonably assume that the average was less than 12.

Dr. Morris predicted in the original study that: "As the length of time increases for parcels in [current use], the town's return may well diminish." (page 11, *Town Incomes from the Land Use Change Tax, 1980-1987;* Appendix A) The above comparison confirms that prediction by demonstrating that, as the average number of years in current use increases, the IRR decreases. After an average of 18 years in current use, the result is a positive annualized rate of return of 9.3%. Overall, these towns are still recouping more than the taxes abated while the subject parcels were in current use.

Additional Observations

During the course of compiling the comparative data, there were observations made that could not go unnoticed, and are detailed here in Table 6. First, is the dramatic increase in the number of lots coming out of current use in Boscawen, Londonderry and Merrimack with increases of 757%, 827% and 575% respectively, over the last study.

It is also interesting to see how in Durham, Londonderry and Merrimack the average number of acres per lot has dropped significantly, to only 15%, 26% and 19% respectively, of the average size in the last study.

With these extremes, even though the total number of lots, 719, has tripled over the last study, the total number of acres, 1,582, has only increased by 11%. Londonderry and Merrimack, cited in both the above observations, are the two towns impacting this outcome. These are the two towns, in this study group, that are in the fast growth southern tier of the state and are close to Interstate 93.

Table 6: Comparison of Number of Lots, Total Acres and Average Acres per Lot

Town	**Total # of Lots**			**Total # of Acres***		**Avg Acres/Lot***	
	Study 1	**Study 2**	**Study 3**	**Study 2**	**Study 3**	**Study 2**	**Study 3**
Boscawen	17	7	53	23	156	3.3	2.9
Canterbury	42	34	33	104	123	3.1	3.7
Durham	24	27	53	282	85	10.4	1.6
Gilford	23	14	17	48	78	3.4	4.6
Haverhill	4	69	32	199	75	2.9	2.3
Londonderry	19	26	215	220	476	8.5	2.2
Merrimack	51	55	316	552	589	10.0	1.9
Total	**180**	**232**	**719**	**1428**	**1582**	**6.2**	**2.2**

* Data for the number of acres and average acres/lot was not available from the first study.

The predominant reason, observed in each town, for a change in use was for residential housing. The difference observed in Merrimack and Londonderry was the phenomenon of large tracts of land being subdivided into lots of less than an acre. Certainly, in towns without the infrastructure to support this type of density this phenomenon could not occur.

When representatives of the towns were asked how they were determining the land use change tax, all but one stated that they are arranging for a comparative market analysis of the property at the time of change. From this, the towns determine the fair market value for the land, based on the highest and best use, and apply the 10% LUCT to that value.

Boscawen was the one exception, and the only town with a negative annualized rate of return, -9%. They reported that, in order to simplify the process, they are using the last ad valorem assessment and applying the most recent equalization ratio. This method of determining the LUCT may be impacting Boscawen's ability to recoup the abated taxes from properties exiting the Current Use Program.

Conclusions/Observations

Following is a summarization of the conclusions and observations drawn from the results reported in the previous section:

- The results confirm Dr. Morris' prediction from the original study:

  "As the length of time increases for parcels in [current use], the town's return may well diminish." (Morris, page 11; Appendix A).

  This study demonstrates that, as the average number of years land is in current use increases, the annualized rate of return (IRR), from the 10% LUCT, decreases.

- After an average of 18 years in current use, the result is a positive annualized rate of return of 9.3%. Overall, these towns are still recouping more than the taxes abated while the subject parcels were in current use.

- Although the number of lots exiting the Current Use Program has tripled since the last update, the number of acres has only increased by 11%. This phenomenon is primarily driven by two fast growing towns in the southern tier, with close proximity to I93, and the infrastructure to support high density development.

- The method used to determine the fair market value, on which to base the 10% LUCT, may impact the degree to which towns are able to recoup the abated taxes, from parcels exiting the Current Use Program. All but one town in this study reported determining the fair market value based on a comparative market analysis. The one, which had the lowest IRR, at -9%, reported determining the fair market value by using the last ad valorem assessment and applying the equalization ratio.

References

Morris, D.E. "Land Use and Growth in New Hampshire, III. Town Incomes from the Land Use Change Tax, 1980-1987." RECD 89-5, Department of Resource Economics and Community Development, University of New Hampshire, Durham. 1989.

Levesque, C.A. "Land Use Change Tax Incomes from Ten Selected New Hampshire Towns, 1988-1994." Statewide Program of Action to Conserve our Environment, Concord, NH. 1995.

Current Use Board. State of New Hampshire Current Use Criteria Booklet for April 1,2002 – March 31, 2003. New Hampshire Department of Revenue Administration. 2002.

Professional Website Services, Register.com. Business Owners Toolkit; 9 Aug. 2002 <http://www.toolkit.cch.com>

Morris, D.E., Frick G.E., Weyrick R.R., Hill B.J. "Current Use in New Hampshire: A Fourteen Year Retrospective." Department of Resource Economics and Community Development and Forest Resources; Agricultural Experiment Station, University of New Hampshire, Durham. Research Report Number 115, June 1987.

NH Title V Taxation; Chapter 79-A Current Use Taxation, Miscellaneous; Section 79-A:25.

Duffy, Natalie, NH Department of Revenue Administration. Telephone conversation re current use data. November 27, 2002.

Gerlarneau, Shelley. "Re 2001 Current Use Report." Electronic copy of the DRA 2001 Current Use Report sent to the author. 3 December 2002.

Town Records. Records on current use lands maintained by the towns of Amherst, Boscawen, Canterbury, Durham, Gilford, Haverhill, Londonderry, Madbury and Merrimack