High Voltage Transmission Lines and Real Estate Markets in New Hampshire: A Research Report

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Table of Contents

1 Introduction 1

1.1 Objective of this Report 1

1.2 Organization of the Report...1

1.3 Overview of the Conclusions of the Report 2

1.4 Introductory Note on the Tension between the Empirical Evidence and the Public Perception of Market Value Effects...3

2 The Professional Literature 5

2.1 Introduction...5

2.1.1 Methodology..5

2.1.2 Organization of this Chapter..6

2.2 Residential Property 6

2.2.1 Proximity Effects 7

2.2.2 Visibility Effects 8

2.2.3 Encumbrance Effects..8

2.2.4 Other Issues Investigated 9

2.3 Commercial/Industrial Property...10

2.4 Vacant Land 12

2.4.1 Statistical Studies 12

2.4.2 Case Studies 13

2.4.3 Subdivision Studies..13

2.5 Attitudinal Studies 13

2.6 Conclusions..14

3 Overview of the New Hampshire-Specific Research Initiatives.................................16

3.1 Applicability of the Professional Literature in the New Hampshire Context 16

3.2 The Case Studies 16

3.3 The Subdivision Studies...17

3.4 The Market Activity Research...18

4 The Case Studies 19

4.1 Overview 19

4.2 Corridor #1 Case Studies 23

4.3 Corridor #2 Case Studies 25

4.4 Study Area #3 Case Studies 28

4.5 Case Study Conclusions..30

5 Subdivision Studies 32

5.1 Approach 32

5.2 Corridor #2 Subdivision Studies...33

5.2.1 Whitefield Subdivision Study 33
5.2.2 Sugar Hill Subdivision Study 35
5.2.3 Easton Subdivision Study 40
5.2.4 Woodstock Subdivision Study 42
5.2.5 Campton Subdivision Study 46
5.2.6 Holderness Subdivision Study 50
5.2.7 Franklin Subdivision Study 56
5.2.8 Canterbury Subdivision Study 59
5.2.9 Allenstown Subdivision Study 62
5.2.10 Deerfield Subdivision Study 64

5.3 Study Area #3 Subdivision Studies 67
5.3.1 Portsmouth Subdivision Study 67
5.3.2 Newington Subdivision Study 71
5.3.3 Greenland Subdivision Study 74

5.4 Subdivision Studies: Summary and Conclusions 77
5.4.1 Summary of Findings 77
5.4.2 Conclusions from the Subdivision Studies 83

6 Real Estate Market Activity Research 86

6.1 Methodology 86

6.2 Relationship of Sales Price to List Price by Location of Property 87

6.3 Days on Market by Location of Property 88

7 Summary and Conclusions 89

7.1 The Published Literature 89
7.1.1 Residential Property 89
1.1.1 Commercial/Industrial Property 89
7.1.2 Vacant Land 89
7.1.3 Conclusions 90

7.2 The New Hampshire Case Studies 90
7.2.1 Corridor #1 Case Studies 90
7.2.2 Corridor #2 Case Studies 90
7.2.3 Study Area #3 Case Studies 91
7.2.4 Overall conclusions from the New Hampshire Case Studies 91

7.3 The New Hampshire Subdivision Studies 92
7.3.1 Corridor #2 Subdivision Studies 92
7.3.2 Study Area #3 Subdivision Studies 92
7.3.3 Conclusions from the Subdivision Studies 92

7.4 The Market Activity Analysis 93

7.5 Overall Conclusions 94
7.5.1 There Is No Evidence of Consistent Measurable Effects of HVTL on the Market Value of Residential Real Estate 94
7.5.2 Explanation of the General Absence of Market Value Effects 94
7.5.3 Where There Are Market Value Effects, They Are Small 95
7.5.4 Where There Are Market Value Effects, They Decrease Rapidly With Distance 95

Appendices

Appendix A	Residential Property Studies
Appendix B	Commercial-Industrial Property Studies
Appendix C	Vacant Land Studies
Appendix D	Attitudinal Studies
Appendix E	Underwood Case Studies
Appendix F	Amidon Case Studies
Appendix G	Approved Subdivision Plans and Chain of Title Spreadsheets for the 13 Subdivisions Studied

1 Introduction

1.1 Objective of this Report

The overall goal of this report is to provide an empirical base from which to evaluate the potential impacts of high voltage transmission lines ("HVTL") on the market value of real estate in New Hampshire. The possible effects of high voltage transmission lines on the market value of real estate have been the object of a large body of research over the past 30 years and have been widely reported in the peer-reviewed, professional literature. These studies deal with a wide variety of geographies and HVTL corridor configurations.[1] The methodology employed in these studies is generally similar and their findings have remained consistent over an extended time period. The first objective of this Report is to summarize the findings of that group of studies that represent the most reliable methodological approaches and are most frequently referenced in the professional literature.

This report then addresses the extent to which the existing body of published research considers the geography, land use patterns and market forces of northern New England. Based on this analysis, the second objective of this Report is to supplement the body of published research with a set of New Hampshire-specific studies. The findings of these studies are useful in their own right as well as establishing the extent to which the larger body of published research has applicability to New Hampshire, i.e. is there general consistency in the findings of the two bodies of research.

1.2 Organization of the Report

The second chapter of this report summarizes the published literature on the market value effects of HVTL. It begins with a discussion of the methodological alternatives for measuring market value effects. Separate sections then address effects on residential property, commercial industrial property and vacant land. Finally, there is a brief review of opinion studies (as opposed to studies based on market data) which provides some useful insights into what appear to be inconsistencies between opinions with respect to market value effects and the empirical reality.

The third chapter of the report introduces three New Hampshire-specific research initiatives that have been carried out over the past two years. These are referred to as the "Case Studies", the "Subdivision Studies" and the "Market Activity Research".

The Case Studies focus on recent sales of improved residential lots along existing New Hampshire HVTL. They utilize a combination of field inspection, interview and appraisal methodologies to determine whether the transactions were affected by the HVTL, and if so, the nature and magnitude of the effect.

The Subdivision Studies look at the sale of unimproved lots in subdivisions where some of the lots are crossed by, or abut, an HVTL right-of-way ("ROW"). The timing of the sales and the prices at which the lots sold are then compared for the encumbered or abutting ("Subject") lots and lots not encumbered or

[11] The term "corridor configuration" will be used to include right-of-way ("ROW") width, number and voltage of the lines and structure type and height.

abutting ("Control") to gauge the effect of the HVTL. Any HVTL effects should be easiest to identify in the context of raw lot sales since there is no need to control for the value of the improvements from property to property.

The Market Activity Research examines sales of properties within a mile of an existing HVTL corridor. Data summarizing the ratio of sale price to list price and days on market are compared for properties at different distances from the HVTL to see if proximity has any systematic effect on these market indicators.

Chapter 4 provides a discussion of the methodology employed in the Case Studies and summarizes the results. The actual Case Studies are contained in Appendices E and F to this report.[2] The Case Studies are carried out in three areas. Twenty four are located along a corridor that extends from Littleton in the north to Pelham in the south and is referred to as Corridor #1. Twenty eight cases are along a smaller corridor that originates in Dummer in the north and proceeds south to Deerfield and is referred to as Corridor #2. Finally an additional six Case Studies are carried out along several short corridor segments in and around Portsmouth which is referred to as Study Area #3.

Chapter 5 turns to the Subdivision Studies. A total of 13 Subdivisions were studied. Ten are located along Corridor #2 and three are along corridors in Study Area #3. Title research was carried out for each subdivision to identify the pricing and timing of the original sale of lots by the developer. The original lot sales are then arranged chronologically to see if there are pricing or timing differences for Subject lots compared to Control lots.

Chapter 6 summarizes the Market Activity Research—the third New Hampshire-specific research initiative. Multiple Listing Service ("MLS") data on the ratio of sale price to list price and days on market ("DOM") are compared for groups of properties at different distances from an existing HVTL.

Finally, Chapter 7 summarizes the conclusions from the published literature and each of the three New Hampshire-specific research initiatives. This research provides a rich base of empirically-grounded evidence from which to examine the possible effect of HVTL projects on the market value of real estate in New Hampshire. Appendices A-D contain abstracts of the residential property studies, the commercial/industrial property studies, the vacant land studies and the attitudinal studies respectively. Appendices E and F contain the Case Studies reports. Appendix G contains the Subdivision Plan and Chain of Title spread sheet for each of the 13 subdivisions studied.

1.3 Overview of the Conclusions of the Report

There is consistency in the findings of the published literature and the New Hampshire specific research initiatives reported on here. Most importantly, there is no evidence to support the existence of consistent measurable effects of HVTL on real estate market values. The statistical literature finds effects in about half the studies and none in the other half. Where effects were found in the

[2] Appendix E: Underwood Case Studies and Appendix F: Amidon Case Studies.

professional literature, they were small, almost always less than 6% and they decreased rapidly with distance from the HVTL.

In the New Hampshire Case Studies, it was concluded that there were sale price effects in 17% of the cases and possible effects in an additional 19% of the cases. In the Subdivision Studies, effects were found in five of the 13 subdivisions studied. The New Hampshire Case Studies and Subdivision Studies both show that in the cases where there were effects, the effects were typically small and they decreased rapidly with distance. Where a sale price effect was observed, only one of the properties had a house that was more than 100 feet from the edge of the ROW. The Case Studies and Subdivision Studies support the idea that it is very close proximity combined with clear visibility of the HVTL that may lead to market value effects. Encumbrance by the easement could also cause market value effects if the way in which improvements could be sited on the lot was compromised. But these conditions were infrequent. In the majority of cases, there were no sale price effects.

It must also be noted that the existence of market value effects does not imply economic damages to the property owner. The owner at the time of easement purchase would have been compensated for market value effects. Further, if there were market value effects, subsequent owners would have purchased the property at a discount, so they would have suffered no economic damage.

1.4 Introductory Note on the Tension between the Empirical Evidence and the Public Perception of Market Value Effects

Before examining the published literature and the recent New Hampshire studies, it is useful to acknowledge, and to try to understand, the basis for the apparent inconsistency between the empirical evidence and the public perception of real estate value effects. The empirical evidence described in the remainder of this report makes it clear that real estate value effects cannot be presumed and that while there will be effects in some cases, these cases are infrequent and the effects are generally small. On the other hand, the public's perception of HVTL often seems to be that negative effects of HVTL on the value of real estate are a self-evident fact.

Part of the problem stems from the fact that if you focus purely on HVTL, most people would expect the direction of the effect on market value to be negative. But it does not follow that there is a discernible effect on market value. The effect on market value, if any, depends on the weight given the HVTL effect relative to all the other positive and negative variables that shape a property purchase decision. All other things being equal, the property without the HVTL would generally be preferred, but all other things are never equal. The interpretation of the published research is that even though transmission line issues have been a prominent concern in most of the communities studied, and even though the direction of effect on real estate value is generally negative, their presence is apparently not given sufficient weight by buyers and sellers of real estate to have had any consistent measurable effect on market value. We have intuition with respect to the direction of the effect but not the weight it is given by buyers and sellers of homes. Ultimately that has to be inferred from market data.

In addition, there are different perspectives from which individuals approach these issues. There is the "Market Value" perspective which investigates whether the price arrived at in a fair market sale[3] ("Fair Market Sale") is affected by an HVTL. This is an objective concept based on market data and is the perspective on which this report is based.

A second perspective can be referred to as the "Owner" perspective. This is the subjective perspective of the owner of an affected property who has an opinion of the personal implications of the HVTL. This might include a scenario where the removal of a tree has great personal significance or where a portion of a HVTL structure becoming visible causes tremendous harm in the subjective opinion of an individual property owner. In both of these scenarios, however, it's entirely possible that a prospective buyer, or, more generally, the market, would be oblivious to the change.

A third perspective is that of a non-owner who enjoys an affected resource (while hiking or driving for example) and feels that their use/enjoyment is impaired by the HVTL. This perspective can be referred to as the "Public" perspective.

Both the Owner and the Public perspectives are genuine and must be respected, but those coming from these perspectives often confuse the issue by claiming market value effects. In fact, they may claim market value effects that are of similar proportions to the effects they suffer from a subjective or public perspective, e.g. "the value of my property will be destroyed." The value of the property to them may be diminished, but whether the market value of the property has been affected is an empirical question that must be answered with market data. Based on the professional literature and the evidence presented below, it turns out that the subjective public and owner perspectives are frequently not reflective of what actually occurs in real estate markets.

[3] Fair market sale is shorthand for a sale consummated by a willing buyer and willing seller, at arm's length, both knowledgeable and typically motivated.

2 The Professional Literature

2.1 Introduction

2.1.1 Methodology

The most reliable evidence of the effect of HVTL on the market value of real estate compares fair market sales of properties that lie in close proximity to an existing line to sales of properties without HVTL influence. There are three approaches based on accepted appraisal practice to performing this comparison. These approaches can be applied in different study formats to address the research questions at issue. The three approaches are identified first. This is followed by a discussion of the study formats that are relevant to this report.

Paired Data Analysis. The first approach attempts to match the characteristics of a subject property within a claimed area of impact (the “Subject Area”) to the sale of a similar property outside the potential area of influence (the “Control Area”). For example, if a subject property, which lies immediately adjacent to a HVTL, sold for $149,000 and another property with the same value-determining characteristics as the subject property, except for the power line proximity, sold for $150,000, the conclusion could be drawn that the property value effects of the transmission line are insignificant.

Retrospective Appraisal Based on Control Properties. The second approach recognizes that a perfect match is unlikely and relies on standard residential appraisal sales comparison methodology. A subject property crossed by, abutting or proximate to a HVTL that has sold is retrospectively appraised (i.e., at the date of its historical sale) using comparable sales located outside of the HVTL area of influence. This recognizes that there are inevitably going to be differences among the Subject and Control Area properties and that these differences must be accounted for based on the appraiser’s experience in the market in question. For example, if the subject sold for $149,000 and the value implied by several comparable sales was $165,000, there may be an adverse influence of the high-voltage line on the value of the subject.

Multiple Regression Analysis of Large Numbers of Subject and Control Area Sales. The third approach, multiple regression analysis, uses statistical tools to try to isolate the effects of the HVTL from all of the other determinants of value. This is only possible with a relatively large number of Subject Area and Control Area sales. If the sale, property, and neighborhood data exist to carry out this approach, it is well-suited to identifying the independent effect of the transmission line, holding the other value-determining factors constant. In addition, it is the least subjective of the three potential approaches and is the only approach to give explicit measures of reliability, which helps the user determine what weight to give the results.

Survey Research has also been used to probe the attitudes towards, and perceptions of, HVTL by both property owners and by real estate professionals (appraisers, realtors, lenders). Although these studies may give relevant insights into the workings of the market, it is generally accepted that stated preference (what people say they would do) is no substitute for revealed preference (what people actually do as revealed in market transactions).

These approaches can be applied in different formats; three are relevant here-- statistical studies, case studies and subdivision studies. Most of the published professional literature is based on large scale statistical studies. These are able to determine whether there is a systematic measurable effect of HVTL on the market value of real estate. Their shortcoming is that they are giving an "average" result. The implication of the statistical analysis may be no effect, i.e. no consistent measurable effect, but that does not rule out the possibility of effect on some individual properties nor does it help identify the conditions under which individual properties might be affected.

This is where the case study approach has merit. In the case study format, the analyst uses a combination of field inspection, interviews and retrospective appraisal to look at individual transactions. Because the number of case studies is relatively small, it is more difficult to generalize from the results, but this approach has the virtue of potentially identifying circumstances where there is an effect or consequence that would not be detected in a statistical analysis.

A third format is the subdivision study which utilizes a paired sales approach. If the lots of a subdivision are generally similar in terms of size, view, vegetation, etc., but some are crossed by, or abut, an HVTL and some do not, the sale prices and chronology of sales associated with the two groups of lots can be compared and differences may be interpreted as the effects of the HVTL.

2.1.2 Organization of this Chapter

Historically, study of HVTL impact on property value has been focused on developed residential properties. These are usually in a suburban context where the density and homogeneity of development are such that there are enough sales of sufficiently similar properties that comparisons can be drawn between Subject Area and Control Area transactions. We begin, therefore, with a review of the published literature dealing with residential properties. This is followed by a discussion of the very limited literature on HVTL impacts on commercial/industrial properties. The literature dealing with HVTL effects on vacant land is then reviewed as are opinion studies based on survey research. The chapter concludes with a summary of the results of these studies.

2.2 Residential Property

The published literature dealing with the effects of HVTL on the market value of real estate is largely focused on improved residential properties. Typically, data is collected on a large number of home sales in urban or suburban locations. Characteristics of the homes (bedrooms, baths, garages, living space, etc.), the lot (size) and the neighborhood are controlled for statistically using multiple regression analysis. The sale data are then analyzed to determine whether the HVTL affected sale prices due to proximity of the lines, visibility of the lines or structures, encumbrance of the easement, or other characteristics of the lines. The methodology utilized in these studies is well-established and has changed little from the late 1980's to present.

There are extensive bibliographies summarizing the literature.[4] Some of this literature is over 30 years old, some deals with countries where the circumstances affecting HVTL and their consequences may be quite different from what might be expected in the United States and some does not measure up to the standards of current research methodology. For these reasons, the review here will discuss 11 studies that are most heavily referenced and cross-referenced by researchers in the field, that utilize accepted methodology, that deal with sales in the United States or Canada and that carry publication dates of 1988 or later. The 11 articles are identified and briefly described in Appendix A: Residential Property Studies. The findings of these studies are described below and are organized according to type of effect, i.e. proximity effects, visibility effects, encumbrance effects and others.

2.2.1 Proximity Effects

Five of the 11 studies found no effect on sale price associated with proximity to HVTL. Chalmers and Voorvaart (2009) found no proximity effects on sales studied in rural western Connecticut, in the suburbs of Hartford, Connecticut and Springfield, Massachusetts and in suburban neighborhoods south east of Boston. Kinnard, et al. (1988) came to the same conclusion based on the study of over 800 sales in Penobscot County, Maine. Similarly, Kinnard, et al. (1997) concluded no proximity effects of HVTL on residential sale prices based on analysis of over 4,000 sales in Las Vegas, Nevada. The same study team, Kinnard, et al. (1997), came to the same conclusion based on analysis of approximately 1,440 sales in St. Charles and St. Louis Counties, Missouri. Finally, Wolverton and Bottenmiller (2003) analyzed over 700 sales in Portland, Oregon, Seattle, Washington and Vancouver, Washington and found no effects on sale price as a result of proximity to HVTL.

Three of the 11studies identified effects that were small. Ignelzi and Priestley (1991) concluded that the HVTL effects were less than 1% for most properties based on their work on over 1,800 sales in eight California neighborhoods. Hamilton and Carruthers (1993) studied five residential neighborhoods in Vancouver, British Columbia and concluded that properties within 120 meters may suffer a 2-3% discount relative to control properties but that this discount did not extend beyond 120 meters. Bottenmiller and Wolverton (2013) reported on their analysis of over 500 sales in both Portland, Oregon and Seattle, Washington and found a discount of 1.65% for abutting properties in Portland and a 2.43% discount for abutting properties in Seattle.

A ninth study, Colwell (1990), looked at 200 sales in Decatur, Illinois over the period 1968-1978. For sales early in the period, he identified a discount of about 6% for properties within 100 feet of the HVTL centerline and 3% for properties between 100 and 200 feet but for sales towards the end of the study period, he found no such effect. Hamilton and Schwann (1995) looked at over 12,000 sales in four residential neighborhoods in Vancouver, British Columbia and concluded a 5.8% discount for properties abutting the HVTL easement and a 2.8% discount for properties not abutting, but within 200 meters of the HVTL.

Finally, Des Rosiers (2002) studied over 500 sales in the suburbs of Montreal, Quebec. For non-abutting properties, the negative effect of proximity reached a maximum of 5% in a zone 165-325 feet from the

[4] See Priestley (2009) or Jackson (2010).

HVTL. From 325 to 500 feet the negative effect fell to 4% and disappeared beyond 500 feet. This study also looked in detail at sales of abutting properties and found that abutting properties with a front view of a structure and abutting properties mid-span (where the conductors were only 37 feet above ground level) were discounted between 5 and 10%. However, properties in between the structure-facing and mid-span properties had premiums of the same order of magnitude or even greater in some cases due to enhanced views and open space advantages.

The conclusions that can be drawn from the above are widely shared by the researchers who have carried out this research or who have reviewed the literature.

- About half of the studies find negative proximity effects, half find none.
- Where they are found, they tend to be small (generally 1-6%).
- Where they are found, they tend to decrease rapidly with distance from the HVTL. They are usually very small beyond 200 feet and seldom extend beyond 500 feet from the HVTL.

2.2.2 Visibility Effects

In addition to studying the effect of HVTL proximity on the sale price of a property, seven of the 11 studies reviewed here also examined the extent to which the HVTL were visible from the property. Visibility is defined in various ways. Approaches include definition of explicit criteria based on physical inspection of the property, categorical variables that indicated whether structures were visible or not, a count of how many structures were visible, measurement of the distance to the nearest structure (or nearest visible structure) or some combination of the above.

Once proximity was accounted for, no sale price effects were found in five of the seven studies that considered visibility. There were two exceptions. Des Rosiers (2002) found that for non-abutting properties with a view of structures, there was a 3-7% premium. He thinks this reflects the fact that these properties had more expansive view sheds and that the net effect of the better view even with the view of the structures was positive. For abutting properties, the effects varied according to the location of the property along the line. Hamilton and Schwann (1995) on the other hand found that for abutting properties, view of a structure implied a 5.7% discount relative to a similar property without a structure view. For non-abutting properties, structure views had no effect on sale price.

Despite the assumption of many that visibility would have an important role in property value effects, that is not borne out in the statistical studies.

- Despite frequent attempts to measure the effect of HVTL visibility on property value, once the effect of proximity has been accounted for, visibility generally has no additional, independent effect.

2.2.3 Encumbrance Effects

Seven of the 11 studies did not address the issue of the effect on property value when the HVTL easement actually encumbered the property because their sales included only abutting properties. Encumbrance was addressed by the remaining four studies with Chalmers and Voorvaart (2009), Colwell

(1990) and Ignelzi and Priestley (1991) finding statistically significant but small negative effects on property value while Hamilton and Carruthers (1993) found a 2.5% premium for encumbered properties relative to unencumbered properties within 120 meters of a HVTL. Again, Hamilton and Carruthers attribute the positive result to the enhanced view shed and open space offered by the HVTL ROW.

- Encumbrance frequently has no effect on property value. In cases where there is an effect, the effect is small and in some cases may even be positive as the advantages of the ROW outweigh the disadvantages.

2.2.4 Other Issues Investigated

Appreciation

Bottenmiller and Wolverton (2013) and Wolverton and Bottenmiller (2003) explicitly addressed the question of whether properties abutting a HVTL corridor appreciated at a different rate compared to non-abutting properties. Their conclusion was that there was no difference in appreciation rates between abutting and non-abutting properties.

Higher-Valued versus Lower-Valued Properties

Bottenmiller and Wolverton (2013) and Des Rosiers (2002) both found some evidence of greater sensitivity to HVTL proximity for higher valued properties as compared to lower valued properties. Recall that Bottenmiller and Wolverton (2013) found that on average, abutting properties sold at a 2.4% discount relative to non-abutting properties in their Seattle sample. When the sample was split into the top quartile (average price $1,035,105) and the bottom three quartiles (average price $366,866), the higher priced abutting homes sold at a discount of 11.2% relative to the higher priced non-abutting homes. For the three lower quartiles, there was no difference between the abutting and non-abutting homes.

Chalmers and Voorvaart (2009) split their sample in half (above the median, below the median) but found no difference in the sensitivity of the two groups to the HVTL variables.

Before/After Construction

Almost all of the statistical research that has been done on the effect of HVTL on residential property values is based on analysis of sales taking place along an existing HVTL ROW, and in most cases, one that has been in place for a considerable period of time. As such, the conclusions from that research must be interpreted to indicate the long term or “eventual” adjustment to a HVTL corridor. The question arises, therefore, whether we know anything about the shorter term effects associated with the construction of a new corridor or upgrade of an existing corridor. This question is addressed by two of the studies.

Kinnard et al. (1997) analyzed sales over the period April 1, 1989 to March 31, 1996 occurring in Sun City, Nevada. The HVTL in question is a 138 kV line on 90 foot concrete structures that runs down the middle of an arterial street. The line was built during the study period with construction completed in August, 1991. Thus, there are nine quarters of “before” or “during” construction sales and 19 quarters of “after” construction sales. Analysis of the sales showed no effects of proximity to the line “before”, “during” or “after” construction.

The second study relevant to this question is Ignelzi and Priestley (1991). Their study period spanned 14 years and in three of the eight California subdivisions studied, an existing 115 kV line on 60 foot steel lattice structures was replaced by 165 foot tubular steel structures carrying both 115 kV and 230 kV lines. This allowed the effects of the HVTL to be measured both before and after construction. The results vary by neighborhood but, on average, there was a negative effect on property values in the four years after construction between 4% and 9%. After year 4, the negative effect disappeared. This study suggests that when construction occurs in an established neighborhood, there may be an adjustment period when values are affected but that this effect diminishes over time.

Voltage

Bottenmiller and Wolverton (2013) was the only study to give explicit consideration to the question of whether line voltage had any role in the sensitivity of property values to HVTL. Based on their analysis of Portland and Seattle sales, they find no evidence of differing sensitivity of sale prices of abutting relative to non-abutting properties based on line voltage.

Health concerns

Finally, publication of two epidemiological studies in 1993 together with preliminary release of the results in 1992 raised concerns about possible health consequences of EMF exposure.[5] Given the media attention these reports received, both Kinnard et al. (1997) and Des Rosiers (2002) tested to see if there was any differential sensitivity of residential property values to HVTL after the studies were published relative to the period before they were published. In both cases no differential sensitivity was observed.

2.3 Commercial/Industrial Property

The literature studying the effects of HVTL on commercial/industrial property is very limited. Chapman (1985) reports on his extensive personal experience as an appraiser in northern California, Nevada and Utah. Jackson, Pitts and Norwood (2012) undertake more conventional research methodologies in their empirical study of HVTL effects on commercial/industrial property in Wisconsin. Each is discussed below.

Chapman made it clear that analysis of any specific case requires a careful consideration of the line, the structures, the easement, and of the way in which they affect the use or utility of the property. His experience, based on a large number of assignments and over 100 interviews with market participants, was that properties could be heavily encumbered by a HVTL, but because of setback, coverage or floor area ratio restrictions, the HVTL, despite their conspicuous presence, frequently have no effect on what

[5] The two studies are (i) Feychting, Maria and Anders Ahlbom, “Magnetic Fields and Cancer in Children Residing Near Swedish High Voltage Power Lines,” *American Journal of Epidemiology* (1993) 138 (9): 467-481; and (ii) Floderus, Brigitta, et al., “Occupational Exposure to Electromagnetic Fields in Relation to Leukemia and Brain Tumors: A Case-Control Study in Sweden,” *Cancer Causes Control* (1993) 4: 465-476.

can be developed on the site and therefore, no effect on value. He offered several examples that illustrated that the HVTL affected the location of development on the site but not the ultimate build-out. He reported that he found no impact on value for typically shaped, level parcels encumbered with HVTL easements up to about 30% of the parcel's size in markets where coverage ratios were 50%. In cases where there was even larger encumbrance, the site plan may have been affected and the ultimate build-out may have been reduced. In these cases there was a corresponding adjustment in value.

Beyond issues associated with the way in which the site could be developed, Chapman's opinion was that there were no concerns with aesthetics and he has never found any effects on rents or the marketability of commercial/industrial properties. Finally, he reported on his investigation of potential interference of the HVTL with electronic instruments. He found no evidence of problems with computers and, although electron microscopes must be carefully "tuned" to avoid interference, users reported that "within building" sources were a much bigger issue than external sources.

Jackson, Pitts and Norwood (2012) looked at large numbers of commercial/industrial sales in the Milwaukee area for evidence of HVTL impacts on the value of the properties. They first report a regression analysis of 123 sales and are able to control for year of sale, gross floor area, building age, square footage of office space, sprinkler system, number of dock high doors, location and a categorical variable indicating whether the property was within 500 of a HVTL. This model had reasonable explanatory power and the categorical variable for HVTL proximity indicated a 34.7% premium. The authors were careful to point out that this should not be interpreted as a causal relationship. More likely, they suggest that HVTL proximity is a proxy for other locational factors (transportation or utilities access perhaps) that enhance value. In any event, there is no indication of an adverse effect of HVTL on value.

Jackson, et al. also carry out sales comparison analyses of two small apartment complexes, an office building and two undeveloped office land parcels. In each case the subject sale was proximate to HVTL (defined to be within 500 feet) and the control sales had no HVTL influence. After the control sales were adjusted for any non-comparable attributes, the adjusted sale prices were compared to the subject sale and in no case was there any market evidence indicating a discount due to HVTL proximity. The authors also report that interviews with market participants were consistent with the market evidence. In no case did the market participants indicate that the HVTL had any effect on the sale price in the transaction.

Although the published research on HVTL effects on commercial/industrial property is very limited, the evidence is sufficiently consistent that some generalizations can safely be made. Commercial/industrial properties are often referred to as income properties since their value depends largely on the net income they are capable of generating. There is no evidence of HVTL impacts on rents or marketability so the basic question is whether the HVTL imposes any physical constraint on the size or character of the development possible on an impacted property. In appraisal terms, if the highest and best use of the property is not affected and if the development potential of the property is not constrained, even though there may be a significant encumbrance on the property, there is no reason to expect value to be affected.

2.4 Vacant Land

The potential effects of HVTL on the value of vacant land present an interesting area of study because, to the extent that effects exist, they should be easier to identify without the diluting effects of improvements.[6] There are 6 studies in the professional literature and these are summarized in Appendix C. Five of these are statistical studies using multiple regression analysis and one utilizes a combination of case study and subdivision study approaches.

2.4.1 Statistical Studies

The 5 statistical studies are diverse both with respect to geography and land use. The properties studied are located in Saskatchewan, Montana, Wisconsin, Michigan and New York. The land uses include agriculture, forestry, recreation, wetlands and residential.

Four of these statistical studies found no effects of the HVTL on the sale price of the properties analyzed. Brown (1975) looks at sales of nearly 800 agricultural properties in Saskatchewan, Canada and concludes that the effect of HVTL on an agricultural property is apparently small enough that there is no apparent effect on market value. Jackson (2010) comes to the same conclusion based on the study of nearly 400 parcels in Wisconsin where the properties were classified according to land cover (open, wooded and wetlands). Mitchell (1996) studied the sales of 376 properties in the Hudson River Valley in New York which represented a mix of agricultural, residential, non-residential and planned unit development uses and found no HVTL effects. This study was unique in that it investigated sales that spanned a period before, during and after construction of the HVTL. Finally, Rigdon looked at the sales of 46 recreational properties in the Upper Peninsula of Michigan and found no effect of HVTL proximity on market value.

The only statistical study to identify effects of a HVTL on market value was Chalmers (2012a). As part of a larger study of HVTL effects on real estate markets in Montana, 183 sales of unimproved lots at Aspen Valley Ranches were analyzed. Aspen Valley Ranches is a 156 lot subdivision of 20 acre lots in central Montana. The subdivision is bisected by a double circuit 500 kV line on 185 foot self-supporting, steel lattice structures. Twenty six lots are crossed by the easement, many others have views of the line but there are also many lots that are totally screened from the line by topography or vegetation. Over the study period from 1987 to 2011, the average sale price was about $30,000. The regression analysis identified a discount of about 15%, other things being equal, out to a distance of 1000 feet from the centerline (which is roughly the width of one lot). There were no statistically significant effects on sale price beyond 1000 feet. The sensitivity of market value to the HVTL in this case is not surprising. The structures on this line are large and in many cases are the major differentiating feature of one lot from

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[6] Theoretically, locational attributes of a property should be capitalized into the value of the land and not affect the value of the improvements. For example, suppose a subdivision has two categories of lots, which sell at $40,000 and $50,000 respectively. If each is improved with a $200,000 home, and the pricing of the lots is a fair reflection of their relative desirability in the eyes of the market, the improved properties should have values of $240,000 and $250,000. If the $40,000 lots were discounted due to some negative externality, the 20% effect ($10,000 on a base of $50,000) might be relatively easy to discern in a study of raw lot sales, but much harder to identify in a study of improved properties where the effect would only be 4% ($10,000 on a base of $250,000).

another. Second, for many lots there is little flexibility in selection of a building site so, depending on the location of the line, the HVTL could be the dominant feature of the view shed. Third, although these lots are relatively large, their use tends to be exclusively residential. Finally, there have been, and continue to be, many lots on the market from which the HVTL are not visible.

2.4.2 Case Studies

Chalmers (2012b) reports on a major study along 500 kV lines that cross over 500 miles of Montana from the Colstrip power plants to the Idaho border. Data were collected on the sale of all properties within 500 feet of the centerline over the period 2000 to 2011. A total of 49 transactions were identified that met a Fair Market Sale criterion and these were studied with a combination of physical inspection, interviews of transaction participants and retrospective appraisal techniques. The land uses on these properties included agricultural with varying degrees of recreational influence, residential subdivisions, large acreage rural residential tracts and rural recreational tracts/cabin sites. Forty-eight of these transactions showed no evidence of the sale price being affected by the HVTL. Only a single property had an apparent market value effect due to the HVTL. That case was a property on a flat lot with a full frontal view of a 185 foot, self-supporting steel lattice structure carrying double circuit 500 kV lines. The property had an extended marketing period and eventually sold at a discount of about 25%.

2.4.3 Subdivision Studies

The other component of the Montana studies, Chalmers (2012b), was an analysis of the prices and timing of lot sales in subdivisions crossed by HVTL. Of the six subdivisions for which sales data were available, three of the subdivisions showed no evidence of the HVTL affecting the sale price of lots. In the other three, 14 lots out of a total of 81 lots appeared to have had their sale price affected by the HVTL. In the places where effects occurred, they were limited to encumbered or abutting lots with dominating views of the HVTL.

2.5 Attitudinal Studies

As analysis of HVTL ramped up in the 1980's and early 1990's, there was some emphasis on attitudinal studies of the way in which various stakeholders perceived transmission lines and their effects. Some of these were motivated as a supplement to recognized valuation methodologies, while it appears that others may have thought that surveys could be a valuation tool in their own right. The later position has been sufficiently discredited that there has been no published attitudinal research in the past 15 years or so dealing with perceptions of HVTL and their effects. In light of the literature surveyed above, it is interesting nevertheless to take a look at several of the prominent attitudinal studies. Six of these studies are summarized in Appendix D.

Four of these--Kinnard (1967), Kung and Seagle (1992), Priestley and Evans (1996) and Solum (1985) interviewed the owners of properties crossed by, or proximate to, HVTL. Delaney and Timmons (1992) surveyed appraisers and Kinnard (1967) also surveyed real estate professionals (realtors, appraisers, lenders and builders). Finally Morgan, et al. (1985) give an interesting perspective on how the risks associated with HVTL were perceived by the public at large.

The thrust of the survey questioning of property owners centers on whether the respondents were aware of the HVTL at the time of purchase, on whether the HVTL was viewed as a negative influence on the property and on whether the lines had any effect on their purchase decision or on the price they paid for the property. Like the research reported on in the previous sections of this chapter, these studies report consistent findings.

- A very high proportion of the respondents were aware of the HVTL at the time of purchase.
- Between 50% and 90% (more generally 75%- 85%) of the property owners have a negative attitude towards the HVTL.
- The negative perceptions center on health effects, aesthetics and property value effects, generally in that order.
- Of those with negative attitudes towards the HVTL, the vast majority (over 70%) report that their purchase decision and the price paid was not affected by the lines.

A particularly interesting contrast exists between the property owner responses and the responses of real estate professionals. Kinnard (1967) reported that realtors and appraisers were most likely to believe that HVTL negatively affect crossed properties (90% and 79%, respectively,) while lenders and builders were somewhat less likely to believe there was a negative effect (69% and 61%). Delaney and Timmons (1992) studied only appraisers but come up with a very similar result. They reported that 84% of appraisers anticipated a negative effect and that their average estimate of the magnitude was negative 10.2 % with a fair number of appraisers offering estimates considerably higher. The proportion of property owners and appraisers who thought there was a negative effect is quite similar, but very few property owners felt that their individual transaction was affected. The appraisers, on the other hand, at least in the early 1990's, felt there was a significant value effect, despite the rather substantial and convincing empirical evidence to the contrary.

2.6 Conclusions

Over the past 20 years, the literature increasingly recognizes multiple regression analysis as a reliable technique to investigate whether high-voltage transmission lines impact property values and, if so, to quantify the effect. As explained above, multiple regression has the significant advantage of not relying on the subjective judgment of the researcher. Rather, it represents an objective reflection of the data together with measures of reliability that attach to the results. As a result, there have been a large number of studies undertaken since the mid-1980's using large databases and statistical tools to investigate the effect of transmission lines on the market value of residential properties. Eleven of these studies form the core of the published literature and were discussed above. The results of these studies can be summarized as follows:

- Over time, there is a consistent pattern with about half of the residential studies finding no evidence of negative property value effects and half finding some.
- When effects have been found, they tend to be small; almost always in the range of 1-6%.
- Where effects are found, they decrease rapidly as distance to the lines increases.

- Two of the studies investigated the behavior of the effect over time and found that, if there were effects, they tended to dissipate over time as well.
- There doesn't appear to have been any change in the reaction of markets to high-voltage transmission line proximity after the 1992 Swedish health effects studies.

These general conclusions have characterized the appraisal and economic literature throughout the last 30 years and there do not appear to be any new or different trends showing in the data.

3 Overview of the New Hampshire-Specific Research Initiatives

3.1 Applicability of the Professional Literature in the New Hampshire Context

The published literature that addresses HVTL impacts on property values has been consistent in its conclusions as was summarized in the previous chapter. This suggests that the results have general applicability and provide a solid basis for consideration of potential HVTL impacts on property values in New Hampshire. Nevertheless, there may be differences in land use patterns, topography, vegetation or the behavior of market participants specific to New Hampshire that could affect the applicability of the generally consistent results reported in the published studies. Some perspective on this can be gained by looking at selected studies in the published literature particularly germane to the New Hampshire context.

Two of the study areas examined by Chalmers and Voorvaart (2009) are cases in point. Their Study Area #1 analyzed four neighborhoods in the suburbs of Hartford, CT and Springfield, MA. Based on statistical analysis of residential property sales in those neighborhoods, they reached the conclusion of no statistically significant effect of HVTL proximity or visibility on the market value of residential properties. This conclusion would have applicability to suburban neighborhoods in southern New Hampshire around the Concord, Manchester and Nashua urban areas. They also concluded no property value effects due to HVTL proximity or visibility based on analysis of sales in three neighborhoods in the western Connecticut Lakes Region centered around New Milford, their Study Area #2. These conclusions would have applicability to central New Hampshire between the White Mountain National Forest and Concord.

Another case is the research carried out by Kinnard, Geckler and Mitchell (1988) in Penobscot County, Maine. They looked at over 800 residential property sales and almost 600 vacant land sales and found no market value effects associated with proximity to a 345 kV transmission line. Many of the sales came from the suburbs of Bangor (population around 30,000 today), but others came from rural areas of the County. Again, this study area has definite similarities to central New Hampshire south of the White Mountain National Forest.

All of the research in this field is careful to acknowledge that, although supportable generalizations can be made based on the published research, application to specific properties, or to areas not previously studied, requires consideration of the particular characteristics of the properties or areas under consideration. Understanding this, three New Hampshire-specific initiatives were undertaken as part of this research project. These are referred to as the Case Studies, the Subdivision Studies and the Market Activity Research. Each is briefly introduced in the sections that follow.

3.2 The Case Studies

In a relatively homogeneous urban or suburban environment with an active housing market and good numbers of homes, some of which are potentially influenced by HVTL and others not, statistical analysis of large numbers of sales is a reliable way to determine whether or not HVTL are impacting market value. There are parts of southern New Hampshire that would meet these criteria, but much is already known from existing studies, some of which, as noted above, have important commonality with southern New Hampshire. The larger issue is that there is little or no research directly applicable to the part of the State north of Concord. In these areas, development densities are relatively low which means there are not a sufficient number of property sales in the same general area in a given time frame to make reliable statistical analysis possible.

An alternative to statistical analysis is the case study approach which relies on a detailed examination of an individual transaction potentially affected by a HVTL and draws a conclusion with respect to the effect of the HVTL on sale price and time on the market. A single case study is necessarily anecdotal, but when the results of many case studies are aggregated across different geographies and different physical relationships to the HVTL, useful generalizations can usually be drawn.

The case studies analyzed in this report are based on residential property sales that occurred along two major north/south transmission corridors and along several shorter corridors in the coastal area around Portsmouth. These will be referred to as Corridor #1, Corridor #2 and Study Area #3.

Corridor #1 originates at Littleton, travels southwest of White Mountain National Forest and then continues roughly parallel to, and west of, I-93 ending at Pelham at the Massachusetts border. Corridor #2 originates at Dummer and then proceeds west to Northumberland, then south through Whitefield, Sugar Hill and Easton to Woodstock where it generally follows I-93 south to Concord before turning to the southeast and proceeding to Deerfield. Study Area #3 includes sales along short corridor segments in several towns in a 10 mile radius of Portsmouth.

For Corridors #1 and #2, tax cards were reviewed for properties abutting or crossed by the HVTL ROW to identify sales that had occurred since the year 2010. These transactions were then vetted to determine that they were Fair Market Sales. This resulted in a total of 24 case studies on Line #1 and 28 on Line #2. For Study Area #3, recent sales of crossed or abutting properties were selected based on MLS data. This yielded a total of 6 case studies. The case studies are structured around four components—the facts of the sale, the physical relationship of the HVTL to the property and the improvements on the property, interviews with participants in the sale and an appraisal of the property. The appraised value was as of the date of sale based on comparable sales with no HVTL influence. This value is then compared to the actual sale price as an indicator of HVTL effect. Based on the above, conclusions are drawn for each individual case study. Finally, the individual case study results are aggregated and generalizations are drawn where appropriate.

3.3 The Subdivision Studies

The Subdivision Studies take a different approach. The influence of HVTL on real estate transactions should be most easy to identify in sales of raw land. HVTL are a locational factor that would potentially influence the value of an unimproved lot (as would any number of positive and negative locational influences on the value of a specific parcel of land). Once the lot is improved with a house, the value of the house and the land are aggregated and it becomes more difficult to identify the independent effect of the HVTL, if any.

Ten subdivisions were identified along Corridor #2 from the Town of Whitefield in the north to the Town of Deerfield in the south, and three subdivisions were identified in Study Area #3. In each case, some lots in the subdivision were either encumbered by the HVTL ROW or abutted the ROW and others were not. Title research was undertaken on a representative selection from each group of lots and the price and date of the original sale of the lot by the developer was identified. This provided the basis for an analysis of potential price effects as well as effects on the timing of the lot sales due to the HVTL corridor. The results for each subdivision were aggregated and generalizations drawn as appropriate.

3.4 The Market Activity Research

The final New Hampshire-specific research initiative looks at residential sales activity levels in 2013 and 2014 within one mile of Corridor #2. The sales are aggregated into three groups – properties crossed by or abutting the Corridor#2 ROW, properties from one to five hundred feet from the ROW and properties between 500 feet and one mile from the ROW. Various measures of market activity for each group are calculated on a quarterly basis including number of sales, days on market and ratio of sale price to list price. These measures provide an additional perspective on possible effects of the HVTL on the residential real estate market.

The Case Study research is described in chapter 4. The Subdivision Studies research is detailed in chapter 5 and the Market Activity research is summarized in chapter 6.

4 The Case Studies

4.1 Overview

The Case Study research involves detailed examination of recent sales of properties that are crossed by, or abut, an existing HVTL ROW.[7] Evidence relevant to the sale is collected and a conclusion is ultimately reached with respect to the effect, if any, of the HVTL on the sale price and the marketing time of the transaction.

The evidence is of three types:

a) First, there is a description of the physical relationship of the property to the HVTL and the ROW. This includes the location of the ROW on the property, the extent to which the property is encumbered by the ROW, distance from the house to the edge of the ROW, number of structures on the property, height and type of structures, distance from the house to the nearest structure, distance from the house to the most visible structure, visibility of the most visible structure, orientation of the house with respect to the HVTL and, in cases where view is an important attribute of the lot, impact of the HVTL on the view.
b) Second, interviews are held with participants to the transaction. These may include the listing broker, an appraiser who appraised the property at the time of the sale and occasionally, the buyer or seller of the property. The interviews try to identify the strengths and weaknesses of the property as seen by the market participants and their evaluation of whether there was any effect of the HVTL on the price at which the property sold or the time the property was on the market.
c) Finally, the property is appraised effective as of the date of the sale under the hypothetical assumption that the property is unaffected by HVTL. This is achieved by using comparable sales that are not influenced by HVTL. The appraised value (absent the influence of HVTL) is then compared to the sale price. If the appraised value exceeds the sale price, it may indicate a negative effect of the HVTL on the transaction.

Each of these categories of evidence is considered collectively and an overall conclusion is reached as to whether the HVTL impacted the sale price or the marketing time of the transaction. While one cannot generalize from a single Case Study, the effort described below covers a total of 58 sales occurring across a diverse representation of New Hampshire's geography and development patterns and does provide the basis for generalized conclusions.

The methodology employed starts by selecting an HVTL corridor or corridors and then identifies all residential property sales that are encumbered by, or abut, the corridor. Since recent sales are more

[7] Power lines of 69 kV or above are defined to be transmission lines and lines less than 69 kV are defined to be distribution lines. This report is focused on the potential effect of transmission lines on real estate markets but four of the 58 Case Studies and two of the 13 Subdivision Studies involve properties that abut, or are crossed by, a ROW containing 34.5 kV lines. When speaking generally about the research, we will continue to use the acronym HVTL but when discussing the particular cases with the 34.5 kV lines, they will be referred to as distribution lines.

amenable to analysis, most recent sales are selected first and then the selection process proceeds backwards in time until a sufficient number of sales has been identified. All of the sales analyzed occurred during the years 2010-2014.

The Portsmouth area required an exception to this procedure because there was no single HVTL that was long enough or passed through enough developed areas to generate a sufficient number of sales of properties crossed by, or abutting, the corridor. There were, however, several short corridor segments along which sales have occurred so we proceeded as follows. All New Hampshire towns within 10 miles of the center of Portsmouth were identified. Of the 12 municipalities in this area, seven included sales that were abutting or encumbered by HVTL corridors. This resulted in two recent sales from each of the following municipalities Dover, Durham, Greenland, Madbury, Newington, New Market and Portsmouth. eight of these were subsequently abandoned due to the uniqueness of the property or failure to meet the Fair Market Sale criteria. This left a total of six Case Studies in Study Area #3.

The three areas from which Case Study sales were drawn are described in more detail below:

Corridor #1: This corridor stretches from Littleton in the north to the Town of Pelham on the Massachusetts border. The ROW is typically 350 feet wide and contains a 450 kV DC line and two 230 kV lines. The 450 kV line is typically on 95 foot high steel lattice structures, while the 230 kV lines are typically on steel lattice structures about 65 feet high. Figure 4.1.1 shows a representative cross section of the corridor.

Figure 4.1.1 Photograph of Corridor #1 Cross Section

Corridor #2: This corridor extends from Dummer in the north to Deerfield in the southeast. It contains one, two or three 115 kV lines that are either on 55 foot wood H-frame structures or 75 foot steel poles. The ROW ranges from 150 feet to 375 feet in width. Figure 4.1.2 shows a representative cross section of the corridor.

Figure 4.1.2 Photograph of Corridor #2 cross section

Case Study Area #3: As explained above, in an attempt to increase representation in the coastal areas of southeast New Hampshire, power line corridors were examined in, and around, Portsmouth. The lines along which these properties are located include: 345 kV lines on 75 foot steel H-frame structures, 115 kV lines on 43 foot wood H-frame structures and 34.5 kV lines on 34 foot single wood poles. Representative cross sections of each are shown in Figures 4.1.3 – 4.1.5.

Figure 4.1.3 Photograph of Study Area #3 -- 345 kV Cross Section

Figure 4.1.4 Photograph of Study Area #3 -- 115 kV Cross Section

Figure 4.1.5 Photograph of Study Area #3 -- 34.5 kV Cross Section

A total of 58 sales was identified in these three locations—24 in Corridor #1, 28 in Corridor #2 and six in Study Area #3. Twenty two of the Corridor #1 and all of the Corridor #2 Case Studies were carried out by BC Underwood, LLC with appraisal assistance from Mark Correnti. Two of the Corridor #1 and all of the Study Area #3 Case Studies were prepared by Amidon Appraisal Company with appraisal assistance from The Stanhope Group. The Underwood Case Studies and the Amidon Case Studies are attached to this Report as Appendices E and F, respectively.

Since each of the three study areas include different HVTL corridor configurations (ROW width, line voltage, structure type and height), the Case Study evidence from each is first considered individually. The chapter concludes with a summary of the generalizations that can be drawn from the three study areas considered collectively.

4.2 Corridor #1 Case Studies

Corridor #1 is the widest corridor studied. Its width and the lines contained within the corridor vary, but typically it is 350 feet wide and contains three high voltage lines—a 450 kV DC line and two 230 kV lines. See Figure 4.1.1 above. It starts in Littleton, skirts the western edge of the White Mountain National Forest, and then proceeds to the southeast staying approximately five miles west of I-93 all the way to the Massachusetts border at the Town of Pelham.

The location and the results of the 24 Corridor #1 Case Studies are summarized in Table 4.2.1.

Table 4.2.1 Summary of the Corridor #1 Case Studies

Property Description						Encumbrance		Proximity			Visibility	Appraisal Evidence			Mkt Time		Interview Evidence		Conclusions	
Case Study #	Address	Town	Type	GLA (sq ft)	Lot Sz (ac)	Encumb (%)	# of Struct on Prop	Dist House to ROW	Dist Nearest Struct	Dist Most Visib Struct	Visibility of Most Vis Struct	Appraised Value Absent HVTL	Sale Price	Prem (+) Disc (-)	Days on Mkt	Town Ave DOM	Interview Evid of SP Effect	Interview Evid of Mkt Time Effect	Sale Price Effect Conclu	Mkt Time Effect Conclu
1	1314 Monroe Rd	Littleton	SFD	2,132	47.14	19.1	7	675	950	805	partial	$375,000	$400,000	5.80%	237	142	none	none	none	none
2	2477 Lime Kiln Rd	Haverill	MOD	870	8.44	71.1	5	153	395	395	clear	$108,000	$107,000	-0.90%	131	198	none	none	none	none
3	2464 Lime Kiln Rd	Haverill	MOD	1,404	1.31	38.2	0	101	280	280	clear	$112,000	$117,300	4.70%	566	193	none	possible	none	possible
4	208 Atwell Hill Rd	Wentworth	SFD	864	2.02	abuts	0	253	320	320	partial	$130,000	$126,000	-3.10%	50	160	none	none	none	none
5	287 Moosilauke Hwy	Wentworth	SFD	1,779	30	16.7	4	413	515	515	partial	$220,000	$225,000	2.30%	130	101	none	none	none	none
6	88 Sculptured Rocks I	Groton	SFD	1,367	0.9	abuts	0	177	272	272	partial	$120,000	$125,000	4.20%	238	192	none	none	none	none
7	816 Murray Hill Rd	Hill	SFD	2,872	33.3	15.6	4	448	565	na	none	$390,000	$365,000	-6.40%	828	231	none	none	none	none
8	81 West Shore Dr	Andover	SFD	1,530	5.9	25.4	0	781	850	na	none	$152,000	$143,000	-5.90%	175	89	none	none	none	none
9	45 West Shore Dr	Andover	SFD	1,512	7.4	0.1	0	910	975	na	none	$203,000	$230,000	13.30%	33	76	none	none	none	none
10	548 Racoon Hill Rd	Salisbury	SFD	768	4.9	20.4	0	953	1,045	na	none	$130,000	$136,000	4.62%	29	82	none	none	none	none
11	419 Racoon Hill Rd	Salisbury	SFD	1,344	2.5	abuts	0	160	239	na	none	$170,000	$160,000	-5.90%	15	126	none	none	possible	none
12	1143 Long St	Webster	SFD	1,370	26.69	71.2	15	19	190	190	clear	$160,000	$157,500	-1.60%	587	80	yes	yes	yes	yes
13	894 Hopkinton	Hopkinton	SFD	1,602	5.09	2	0	63	168	338	clear	$175,000	$180,000	2.86%	123	114	none	none	none	none
14	74 Horizon Dr	Goffstown	SFD	2,208	4.97	45.3	2	24	165	165	clear	$285,000	$273,500	-4.00%	112	75	yes	none	yes	yes
15	21 Bixby Farm Lane	Bedford	SFD	2,180	2.6	76.9	1	60	357	357	clear	$400,000	$365,000	-8.80%	1	78	yes	none	yes	none
16	8 John Goffe Dr	Bedford	SFD	2,360	1.35	45.3	0	164	242	242	clear	$340,000	$345,000	1.50%	2	78	none	none	none	none
17	15 Bixby Farm Lane	Bedford	SFD	2,546	1.51	13.2	0	260	300	300	partial	$420,000	$430,000	2.40%	1	89	none	none	none	none
18	1 Southgate Dr	Bedford	SFD	2,049	1	2	0	49	110	110	clear	$360,000	$349,900	-2.80%	48	92	none	none	none	none
19	19 Bixby Farm Lane	Bedford	SFD	1,921	2.72	73.5	2	88	260	260	partial	$350,000	$344,400	-1.60%	36	94	none	none	none	none
20	54 Pilgrim Dr	Bedford	SFD	2,434	1.84	0.5	0	423	485	na	none	$382,000	$381,000	-0.30%	25	75	none	none	none	none
21	7 Hawkview Rd	Hudson	SFD	1,954	1.22	abuts	0	25	274	274	partial	$278,000	275,000	-1.10%	76	77	none	none	none	none
22	29B Lund Dr	Hudson	DUP	1,926	1.12	62.5	0	240	480	480	partial	$200,000	$213,900	7.00%	17	79	none	none	none	none
A1	9 Autumn St	Windham	SFD	1,800	2.1	49	1	93	321	321	partial	$320,000	$287,000	-10.30%	189	100	yes	yes	yes	yes
A2	57 Kienia Rd	Hudson	SFD	2,128	1.5	11.9	0	247	469	469	partial	$295,000	$284,900	-3.42%	6	53	none	none	possible	none

Eighteen of the twenty four cases (75%) concluded that the HVTL had no sale price effect and twenty (83%) concluded no marketing time effect. In the four cases with indicated sale price effects, the effects were small. Each property is heavily encumbered, 46% to 71% of the lot area, and, most notably, each of the houses is located within 100 feet of the edge of the ROW. The 9 Autumn Street property (CS #A1) has some screening which acts to reduce the visibility of the structures but the other three properties have clear views of the HVTL. These properties all had houses very close to the ROW, were heavily encumbered, and three of the four cases had clear views of the lines. Table 4.2.2 shows the Corridor #1 Case Study Results arrayed by visibility and proximity.

Table 4.2.2 Corridor #1 Sale Price Effects by Visibility and Proximity[8]

	0 to 100 feet	101 to 300 feet	301 feet or greater
No HVTL Visibility		P	N,N,N,N,N,N
Partial Visibility	N,N,Y	N,N,N,N,P	N
Clear Visibility	Y,N,Y,Y,N	N,N,N	

It is equally instructive to look at the characteristics of properties for which there was no apparent effect of the HVTL on the sale price. Looking at the top row of Table 4.2.2, there are seven cases with no structure visibility and in no instance was it concluded that there was an effect of the HVTL on the sale price. Similarly, looking at the right two columns, there are 16 instances of sales where the house was 101 feet or more from the edge of the ROW and in no case was it concluded that there was a sale price effect.

In summary, sale price effects in the 24 Corridor #1 Case Studies were infrequent, small and only occurred where there was close proximity, i.e. less than 100 feet from the house to the edge of the ROW combined with partial or, more often, clear HVTL visibility.

Marketing time effects were even less frequent. It was concluded that the HVTL extended the marketing time in only three cases. There were several comments by the brokers with reference to reduction in the number of interested buyers but rarely was there any material effect on the marketing period. Further, there were references to several buyers who saw the corridor as an asset to the property.

4.3 Corridor #2 Case Studies

Corridor #2 contains one or more 115 kV lines in a ROW that is usually between 150 feet and 225 feet in width. The structures are typically wood H-frame with heights of about 55 feet or steel poles with heights of about 75 feet. See Figure 4.1.2 above. It originates in the Town of Dummer in the north, proceeds generally west to Northumberland, then south through Franconia Notch generally following the I-93 corridor to Concord where it turns east and terminates in Deerfield. It should be noted that

[8] N represents a Case Study with no sale price effect. P represents a Case Study with possible sale price effect and Y represents a Case Study for which a negative effect on sale price was identified.

portions of this corridor are proposed to be the location of the southern 103 miles of the overhead Northern Pass HVTL. Since that project first received widespread publicity in 2010, and since all of the Corridor #2 Case Studies involve properties that sold in 2010 or later, the Case Studies may also include any effects on the real estate market of public awareness of the proposed Northern Pass Project.

Table 4.3.1 summarizes the 28 Case Studies of properties abutting or crossed by Corridor #2 that sold during or subsequent to 2010.

Table 4.3.1 Summary of Corridor #2 Case Studies

Property Description						Encumbrance		Proximity			Visibility	Appraisal Evidence			Mkt Time		Interview Evidence		Conclusions	
Case Study #	Address	Town	Type	GLA (sq ft)	Lot Sz (ac)	Encumb (%)	# of Struct on Prop	Dist House to ROW	Dist Nearest Struct	Dist Most Visib Struct	Visibility of Most Vis Struct	Appraised Value Absent HVTL	Sale Price	Prem (+) Disc (-)	Days on Mkt	Town Ave DOM	Interview Evid of SP Effect	Interview Evid of Mkt Time Effect	Sale Price Effect Conclu	Mkt Time Effect Conclu
23	224 Portland St	Lancaster	SFD	1,400	24.01	10.4%	1	655	743	na	none	$290,000	$317,500	9.5%	397	218	none	none	none	none
24	2220 NH Rte 117	Sugar Hill	SFD	1,701	10.12	abuts	0	369	435	435	partial	$250,000	$235,000	-6.0%	197	329	none	none	possible	none
25	216 Hadley Rd	Sugar Hill	SFD	2,081	6.84	4.4%	0	257	320	320	partial	$325,000	$340,000	4.6%	328	161	yes	yes	possible	yes
26	354 Garnet Hill Rd	Sugar Hill	SFD	1,164	14.5	41.4%	3	199	350	350	partial	$219,000	$225,000	2.7%	161	135	yes	yes	possible	possible
27	798 NH Rte 18	Sugar Hill	SFD	664	2.18	27.5%	3	132	150	150	clear	$66,000	$67,000	1.5%	300	181	none	none	none	possible
28	150 Sundance Rd	Woodstock	SFD	1,464	1.81	55.3%	0	24	165	165	partial	$225,000	$230,000	2.2%	47	99	yes	none	possible	none
29	261 Daniel Webster Hwy	Woodstock	MOD	924	5.7	73.7%	4	16	25	25	clear	$80,000	$87,500	9.4%	45	189	none	none	none	none
30	321 Lost River Rd	Woodstock	SFD	1,024	3	3.3%	0	1,057	1,220	na	none	$250,000	$245,000	-2.0%	30	168	none	none	none	none
31	1710 NH Rte 175	Thornton	SFD	1,152	1.25	3.2%	0	28	118	360	clear	$140,000	$115,000	-17.9%	475	160	yes	yes	yes	yes
32	173 Sunrise Hill Rd	Thornton	SFD	1,056	1.44	6.9%	0	106	296	296	clear	$168,000	$148,500	-11.6%	255	149	yes	yes	yes	yes
33	47 Trapper Rd	Campton	MOD	1,620	1	abuts	0	143	285	285	partial	$117,000	$117,000	0.0%	212	180	none	none	none	none
34	723 NH Rte 175	Campton	SFD	1,380	1.4	2.1%	0	103	238	238	clear	$150,000	$141,000	-6.0%	36	163	none	none	possible	none
35	74 Trapper Rd	Campton	MOD	1,140	1	40.0%	0	24	223	223	partial	$118,000	$118,500	0.4%	80	160	none	none	none	none
36	313 Mount Prospect Rd	Holderness	SFD	2,846	6.43	abuts	0	244	320	429	partial	$334,000	$327,500	-1.9%	336	156	none	yes	none	yes
37	81 Sargent Rd	Holderness	SFD	6,083	5	36.0%	1	133	200	200	partial	$740,000	$760,000	2.7%	883	194	yes	yes	possible	possible
38	849 NH Rte 132	New Hampton	SFD	1,350	1.02	58.8%	0	131	260	288	partial	$157,000	$164,500	4.8%	38	138	none	none	none	none
39	696 Coolidge Woods Rd	New Hampton	SFD	1,264	5.4	11.1%	0	194	434	na	none	$200,000	$200,000	0.0%	226	157	yes	yes	possible	possible
40	226 Salisbury Rd	Franklin	SFD	1,469	5.24	7.6%	0	256	308	308	partial	$174,000	$176,000	1.1%	21	115	none	none	none	none
41	76 Lark St	Franklin	MOD	1,040	1.01	75.2%	1	0	202	202	clear	$73,000	$65,000	-11.0%	16	87	none	none	yes	none
42	575 Oak Hill Rd	Northfield	SFD	1,998	50	10.0%	5	920	1,022	na	none	$170,000	$165,000	-2.9%	5	99	none	none	none	none
43	23 Battis Crossing Rd	Canterbury	SFD	1,440	5.4	14.8%	1	441	521	na	none	$205,000	$205,000	0.0%	156	115	none	none	none	none
44	41 Hoit Rd	Concord	SFD	1,624	1.94	61.9%	2	7	100	237	clear	$209,000	$180,000	-13.9%	106	78	yes	yes	yes	yes
45	569 Mountain Rd	Concord	SFD	1,344	6.3	abuts	0	269	407	407	partial	$196,000	$198,000	1.0%	112	97	none	none	none	none
46	16 Brookwood Dr	Concord	SFD	2,144	1.71	58.5%	1	51	118	118	clear	$235,000	$237,000	0.9%	105	96	none	yes	none	possible
47	86 Oak Hill Rd	Concord	SFD	638	2.34	21.4%	1	23	110	110	clear	$109,000	$115,000	5.5%	34	93	none	none	none	none
48	534 Cross Country Rd	Pembroke	SFD	2,024	5.83	1.7%	0	33	190	190	partial	$259,000	$250,000	-3.5%	159	71	none	none	none	none
49	50 Mt. Delight Rd	Allenstown	DUP	2,216	7.15	1.0%	1	849	957	na	none	$266,000	$285,000	7.1%	22	101	none	none	none	none
50	39 Haynes Rd	Deerfield	SFD	1,872	6.76	29.6%	3	30	92	92	partial	$239,000	$245,000	2.5%	121	164	possible	possible	possible	posible

Corridor #2 was similar to Corridor #1 in terms of the percentage of cases for which it was concluded that there was a negative effect of the HVTL on the sale price. Four of the twenty eight cases, about 14%, attributed a negative sale price effect to the HVTL. The difference from Corridor #1 is that there were eight cases (29%) where it was concluded that there was a possible sale price effect leaving sixteen (57%) cases where it was concluded that there was no sale price effect. Most of the cases where it was concluded that there had been a possible effect reflected broker opinion that there had been a sale price effect but the appraisal evidence did not support that opinion.

As was true for Corridor #1, the four properties that experienced quantifiable sale price effects were very close to the corridor (three of the four had houses within 30 feet of the ROW) and three of the four had significant HVTL visibility. Table 4.3.2 shows the Corridor #2 Case Study results arrayed by structure visibility and proximity.

Table 4.3.2 Corridor #2 Sale Price Effects by Visibility and Proximity[9]

	0 to 100 feet	101 to 300 feet	301 feet or greater
No HVTL Visibility			N,N,N,N,N
Partial Visibility	P,N,P	P,P,N,N,N,P,N,P,N,N	P
Clear Visibility	N,Y,Y,Y,N,N	N,Y,P	

This closely parallels the Corridor #1 Case study results. The top two rows contain a total of nineteen cases in which the lines were not visible or only partially visible and in no instance was a negative effect on sale price concluded. Similarly, looking at the two columns to the right, there are nineteen cases where the house is located 101 feet or more from the edge of the ROW and in only a single case is there determination of a price effect (and that house is only 106 feet from the ROW).

In summary, a conclusion of negative effect of the HVTL on sale price in the 28 Corridor #2 Case Studies was infrequent and only occurred where there was a combination of close proximity and clear HVTL visibility. Like Corridor #1, close proximity without visibility and visibility without close proximity did not result in sale price effects.

Marketing time effects were concluded affirmatively in five cases (18%) and concluded as possible in six others (21%). In seventeen cases (61%) it was concluded that the HVTL did not affect marketing time.

4.4 Study Area #3 Case Studies

The third group of Case Studies came from several HVTL corridors in a relatively small area around Portsmouth as shown in Figures 4.1.3 – 4.1.5. The Case Studies are included in Appendix F and are summarized in Table 4.4.1.

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[9] N represents a Case Study with no sale price effect. P represents a Case Study with possible sale price effect and Y represents a Case Study for which a negative sale price effect was identified.

Table 4.4.1 Summary of Study Area #3 Case Studies (update)

Property Description						Encumbrance		Proximity			Visibility	Appraisal Evidence			Mkt Time		nterview Evidenc		Conclusions	
Case Study #	Address	Town	Type	GLA (sq ft)	Lot Sz (ac)	Encumb (%)	# of Struct on Prop	Dist House to ROW	Dist Nearest Struct	Dist Most Visib Struct	Visibility of Most Vis Struct	Appraised Value Absent HVTL	Sale Price	Prem (+) Disc (-)	Days on Mkt	Town Ave DOM	Interview Evid of SP Effect	Interview Evid of Mkt Time Effect	Sale Price Effect Conclu	Mkt Time Effect Conclu
A3	7 Pinewood Circle	Greenland	SFD	1,821	4.192	37.9%	0	114	309	309	partial	$469,000	$459,900	-1.9%	30	95	none	none	none	none
A4	85 Ridgecrest Drive	Greenland	SFD	1,872	1.91	23.6%	3	0	71	71	clear	$428,000	$391,935	-8.4%	117	93	none	none	yes	none
A5	146 Durham Point Road	Durham	SFD	4,187	13.4	4.70%	1	243	290	290	partial	$635,000	$635,000	0.0%	71	87	none	none	none	none
A6	175 Odiorne Point Road	Portsmouth	SFD	4,120	1.59	28.3%	1	175	234	234	partial	$1,140,000	$1,090,000	-4.4%	319	63	none	none	possible	possible
A7	178 New Road	Newmarket	SFD	1,400	2.21	19.0%	1	11	73	73	clear	$229,000	$213,000	-7.0%	169	65	none	none	yes	yes
A8	229 Back Road	Dover	SFD	996	1.1	49.1%	0	66	282	346	clear	$179,000	$178,000	-0.6%	21	78	none	none	none	none

Of the six Case Studies, negative sale price effects were identified in two cases and possible sale price effects in one other. Negative effects on marketing time were identified in one case and identified as possible in one other. Although the number of cases is small, it is useful to look at the results in the context of proximity and visibility measures as shown in Table 4.4.2.

Table 4.4.2 Study Area #3 Sale Price Effects by Visibility and Proximity[10]

	0 to 100 feet	101 to 300 feet	301 feet or greater
No HVTL Visibility			
Partial Visibility	N	N,N,P	
Clear Visibility	Y,Y		

The results are similar to those for Corridors #1 and #2. The two properties for which there was a conclusion of negative sale price effect had homes adjacent to the ROW in one case and 11 feet distant in the other, with clear visibility of the lines.

4.5 Case Study Conclusions

Looking at the 58 Case Studies collectively:

- Sale price effects are infrequent—10 cases out of 58 (17%) identified a negative sale price effect with another 11 cases (19%) identifying a possible sale price effect. 37 cases or 64% concluded no sale price effect.
- Where sale price effects were found, they appear to have been small.
- Sale price effects decrease very rapidly with distance. Only one of the 10 cases had a house located more than 100 feet from the edge of the ROW and seven were within 30 feet.
- With only one exception, close proximity had to be combined with clear visibility of the HVTL for there to be a sale price effect.[11]
- Of those properties that combined very close proximity and clear visibility, eight of the 14 had a sale price effect (57%) and six did not (43%).
- The cases with sale price effects not only had homes close to the ROW but they were often forced to be close to the ROW because the developable portion of the lot was constrained by the location of the ROW on the property.
- Marketing time effects were also infrequent. It was concluded in 41 (70%) of the 58 cases that there was no marketing time effect of the HVTL.

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[10] N represents a Case Study with no sale price effect. P represents a Case Study with possible sale price effect and Y represents a Case Study for which a negative effect on sale price was identified.

[11] This result is not inconsistent with the finding reported in Chapter 2 that visibility generally had no effect on market value once proximity was accounted for. Apparently, the combined effect of very close proximity and clear visibility is so infrequent that there is generally no consistent measurable effect of visibility in the statistical studies. That does not preclude the finding here that for a very small number of properties, the combined effect of very close proximity and clear HVTL visibility increases the likelihood of a sale price effect.

Review of the Case Studies suggests several possible explanations for the results. They include:

- The HVTL are often screened by topography or vegetation.
- Given typical lot shape and ROW location across the back of the lot, there is no sale price effect because the wooded acreage at the back of a lot has little utility or value.
- The case study interviews indicate that market participants see HVTL corridors as having positive attributes, associated with the open space, as well as negative attributes.
- The New Hampshire housing stock is generally quite heterogeneous so you don't often have the "all other things being equal, I'll take the property without the HVTL" scenario. HVTL are just one of many property attributes that are weighed in making purchase decisions.

5 Subdivision Studies

5.1 Approach

The objective of the Subdivision Studies is to identify residential subdivisions that are representative of the diversity in land use and development patterns along HVTL corridors in New Hampshire. The criteria for subdivision selection are twofold. First, the lots need to be generally similar in terms of size, views, access, etc. Second, the subdivision needs to have some lots that are encumbered by, or abut, a HVTL corridor while others do not.

Based on these criteria, 10 subdivisions were selected from Corridor #2 and three from Study Area #3 around Portsmouth. Potential subdivisions were identified based on the number of similar sized lots combined with the location of the ROW relative to the subdivision. Since the objective was to get a geographically representative set of subdivisions, if a town had multiple candidate subdivisions, a single subdivision was chosen for analysis. The 13 subdivisions selected for analysis are listed in Table 5.1. The table also identifies the number of lots studied, the dates of the first and last lots sold and whether the subdivision contained single family detached dwellings ("SFD") or modular dwellings ("MOD").

Table 5.1 Summary of Subdivisions Studied

Town	Subdivision Name	Date of First Lot Sale	Date of Last Lot Sale	# of Lots Studied	Type
Whitefield	John Matthews SD	7/24/1986	5/22/1987	10	SFD
Sugar Hill	Nason Farm SD	11/2/1985	6/15/2003	7	SFD
Easton	Pepper Brook SD	9/6/1996	7/18/2001	15	SFD
Woodstock	Lost Valley SD	12/12/1970	9/14/1979	23	SFD
Campton	Central Park Estates SD	12/10/1991	5/9/2003	12	MOD
Holderness	Heritage Hill SD	1/19/1967	9/12/1986	23	SFD
Franklin	Ceres Timberland Properties SD	6/27/2001	5/23/2002	6	SFD & MOD
Canterbury	Bella Villa SD	10/5/1976	3/25/1985	8	SFD
Allenstown	Woodridge SD	6/25/2001	8/21/2013	11	SFD
Deerfield	Haynes Farm SD	3/26/1984	1/28/1993	18	SFD
Portsmouth	Tucker's Cove SD	1/4/1999	4/21/2004	21	SFD
Newington	Coleman Estates SD	10/27/1989	7/10/1992	7	SFD
Greenland	Woodland Grove SD	12/26/1995	11/16/2001	9	SFD

Having identified the candidate subdivisions, each was visited in the field to evaluate the similarity of the lots and to photograph representative lots. Tax maps were collected and a determination was made of the number of lots to be studied in each subdivision. It was often the case that all lots in the subdivision were identified for analysis. In other cases, there were more control lots (not encumbered or abutting) in the subdivision than necessary for analysis, so lots most like the encumbered or abutting lots were chosen for analysis. The number of lots studied ranged from a low of six in the City of Franklin to a high of 39 in the Town of Woodstock.

Tax cards were collected for all the lots to be studied and spreadsheets created for each subdivision which identified the lot by map and lot number, size of lot, date of improvements, current owner and book/page and date reference for the deed transfer to the current owner. The chain of title was then established for each lot back to the original sale of the lot by the developer from records maintained in the deed registry for the county in which the subdivision is located. The chain of title information for each lot was entered onto the subdivision spreadsheet along with the date and consideration associated with each ownership transfer. The subdivision plan and chain of title spreadsheet for each subdivision is in Appendix G.

The next step was to prepare a summary table for each subdivision which listed the lots chronologically by the date of the lot sale together with the sale price, the size of the lot and the relationship of the lot to the HVTL. If the lot was encumbered, the acreage encumbered and the percent of the lot represented by that acreage was shown. It was then possible to analyze the sale prices of the encumbered or abutting lots relative to the Control lots. It was also possible to analyze the timing associated with the sale of the two categories of lots. Conclusions were drawn with respect to the effect, if any, of the HVTL on the prices and timing of lot sales in the subdivision. It was also possible in some cases to offer explanations for the presence or absence of HVTL effects.

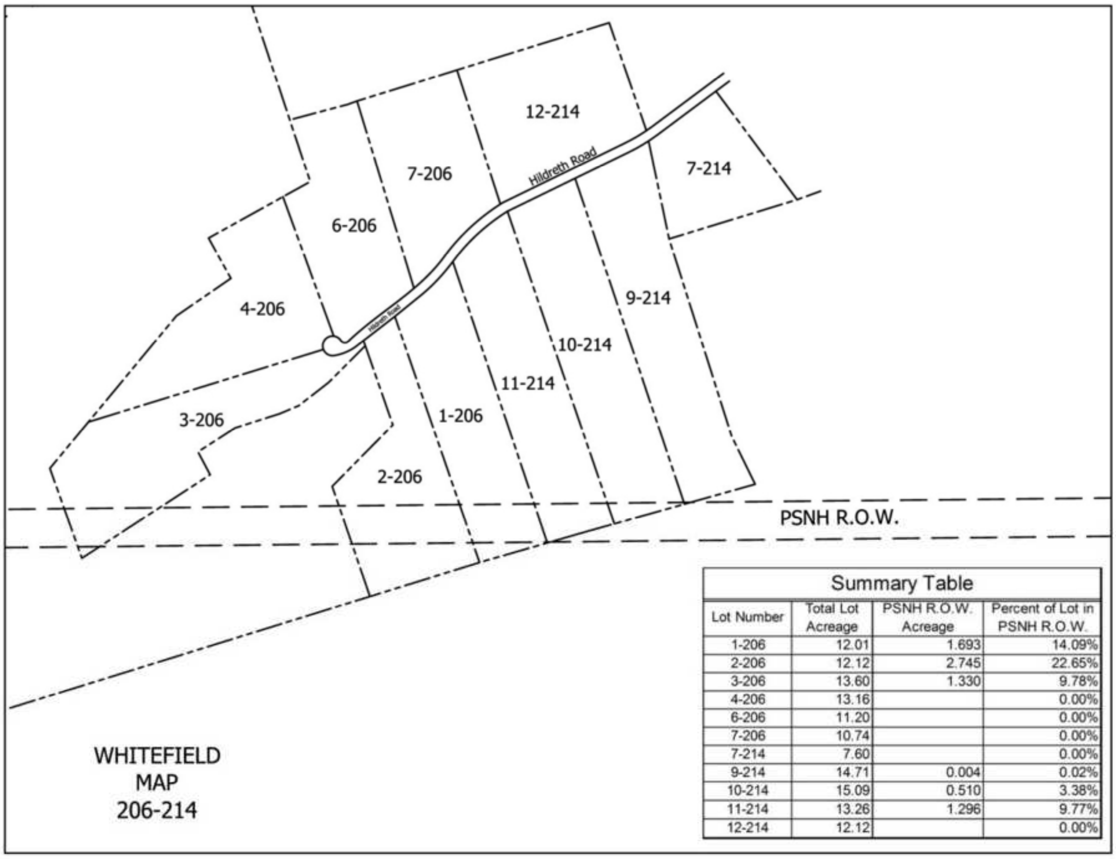
The studies of 10 subdivisions located along Corridor #2 are presented in Section 5.2 followed by the studies of the three subdivisions in Study Area #3 in Section 5.3. The chapter concludes with a summary of the findings together with conclusions that can be drawn from the research.

5.2 Corridor #2 Subdivision Studies

5.2.1 Whitefield Subdivision Study

The Whitefield Subdivision was developed by John Matthews and approved by the Whitefield Planning Board on November 2, 1982. The subdivision plan is in Appendix G. The subdivision is located about four miles northeast of Whitefield with access from State Route 116. It contains 10 lots of similar size ranging from 10 to 15 acres and one additional, a-typically sized lot (7.6 acres) which was not studied. Of the 10 studied, the smallest lot is 10.74 acres and the largest is 15.09 acres. The subdivision is accessed by a private cul-de-sac (Hildreth Road) so the lots were not able to be examined or photographed from the ground. Google Earth shows that they are heavily wooded and that the improvements tend to be on the third of the lot fronting Hildreth Road. Figure 5.2.1.1 shows the subdivision as it is represented on the Town of Whitefield tax maps 206 and 214.

Figure 5.2.1.1 John Matthews Subdivision, Town of Whitefield, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
1-206	12.01	1.693	14.09%
2-206	12.12	2.745	22.65%
3-206	13.60	1.330	9.78%
4-206	13.16		0.00%
6-206	11.20		0.00%
7-206	10.74		0.00%
7-214	7.60		0.00%
9-214	14.71	0.004	0.02%
10-214	15.09	0.510	3.38%
11-214	13.26	1.296	9.77%
12-214	12.12		0.00%

As shown in the figure, the subdivision is crossed by a PSNH ROW. The ROW is 190 feet wide, containing a 115 kV transmission line supported by wood, H-frame structures that are approximately 55 feet tall[12]. The ROW encumbers six of the 10 lots studied. Two of the six have very minor encumbrance, less than 4% of the lot area; two have encumbrance of about 10%; and two are more heavily encumbered, 14% and 23% respectively. Of the four with a larger encumbrance, all have at least one structure on the property. Figure 5.2.1.1 also contains a table showing lot acreages and the extent to which lots are encumbered by the ROW.

Tax cards were collected for each of these 10 lots and from the tax card it was possible to identify the current owner and the book and page of the transfer to the current owner together with the name of the grantor and the consideration. This information was used to trace the chain of title back to the original sale of the lot by the developer. The spreadsheet summarizing the chain of title for each lot is in Appendix G. The original sales of the lots were then arranged in chronological order in Summary Table 5.2.1.1 which facilitates analysis of both price effects and timing effects.

[12] All structure heights in this and subsequent sections are approximate.

Table 5.2.1.1 Whitefield Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Whitefield	214	9	7/24/1986	$10,000	14.71	.004/.02%	Very small portion of 190' ROW crosses back corner of lot
Whitefield	214	12	7/26/1986	$12,500	12.12	None	
Whitefield	214	10	8/23/1986	$12,750	15.09	.510/3.38%	Small portion of 190' ROW crosses back of lot.
Whitefield	214	11	9/2/1986	$12,250	13.26	1.296/9.77%	Portion of 190' ROW crosses back of lot. One 55' H-Frame structure (115 kV) on property.
Whitefield	206	3	9/19/1986	$12,750	13.6	1.330/9.78%	190' ROW cuts through back of lot. Two 55' H-Frame structures (115 kV) on property boundaries.
Whitefield	206	4	10/25/1986	$11,250	13.16	None	
Whitefield	206	6	10/25/1986	$11,250	11.21	None	
Whitefield	206	7	11/18/1986	$12,000	10.74	None	
Whitefield	206	1	11/26/1986	$11,990	12.01	1.693/14.09%	190' ROW cuts through back of lot. One 55' H-Frame structure (115 kV) located on property
Whitefield	206	2	5/22/1987	$13,500	12.12	2.745/22.65%	190' ROW cuts through middle of lot. One 55'H-Frame structure (115 kV) on property.

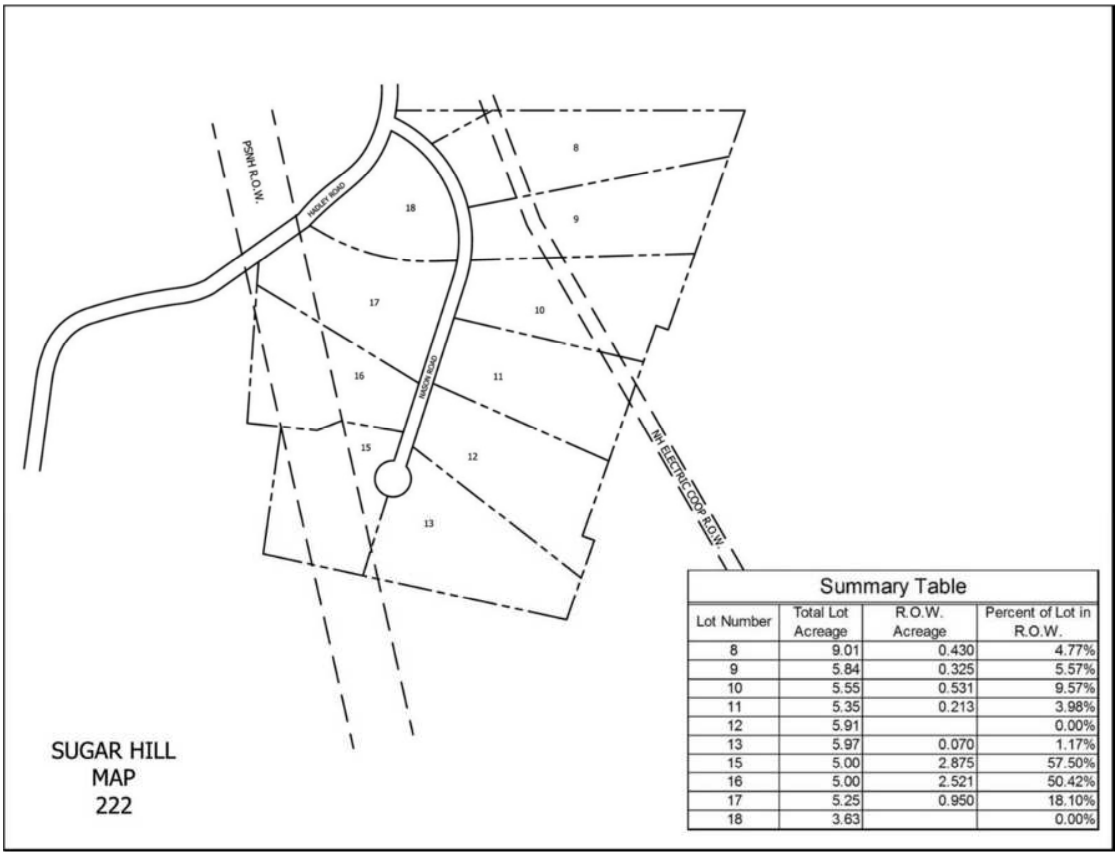
Looking at price first, the lowest price, $10,000, was for the first lot sold and the highest, $13,500, was for the last lot sold. The other eight lots all sold in the $11,000 to $13,000 range. The overall mean was $12,024 with the six encumbered lots selling for slightly more on average, $12,207, compared to the four unencumbered lots which sold for an average price of $11,750. The sale of the 10 lots was very quick. The first of the 10 lots sold on July 24, 1986 and the last on May 22, 1987, a total of about 10 months. In fact, nine of the 10 sold in a four month period following the first sale. There was no difference on average in the absorption period of the encumbered and unencumbered lots—the average for both was 2.5 months following the first sale.

The conclusion here is straightforward. There is no apparent effect of the HVTL on either the prices at which the lots sold or on the timing associated with their sales. One suspects that the rear acreage of these lots played little role in the use and utility of the properties and that the HVTL were, therefore, of no consequence. This interpretation is supported by inspection of assessment practices in the town. The one acre site for residential properties is valued at $35,000 while additional acres of the property are valued at $108 per acre for unmanaged timber.

5.2.2 Sugar Hill Subdivision Study

The Sugar Hill Subdivision was originally planned by Philip Strumsacker and was approved by the Town of Sugar Hill Planning Board on July 2, 1985. The subdivision plan is in Appendix G. The subdivision has a total of 22 lots and is located about a mile southeast of Sugar Hill with access from Hadley Road. The lots vary in size but are typically between five and six acres. Some of the lots are accessed directly from Hadley Road with the others accessed from the Nason Road cul-de-sac. The lots are heavily wooded with the exception of lots 17 and 18 which appear to be the location of the original farmstead and have considerable open ground. In this study, the 10 lots serviced by the Nason Road cul-de-sac are analyzed since that is the section of the subdivision most affected by the HVTL. Figure 5.2.2.1 shows the portion of the subdivision studied here as it is represented on the Town of Sugar Hill tax map 222.

Figure 5.2.2.1 Portion of Nason Farm Subdivision, Town of Sugar Hill, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	R.O.W. Acreage	Percent of Lot in R.O.W.
8	9.01	0.430	4.77%
9	5.84	0.325	5.57%
10	5.55	0.531	9.57%
11	5.35	0.213	3.98%
12	5.91		0.00%
13	5.97	0.070	1.17%
15	5.00	2.875	57.50%
16	5.00	2.521	50.42%
17	5.25	0.950	18.10%
18	3.63		0.00%

As shown in Figure 5.2.2.1, the lots studied here are crossed by a 225 foot wide PSNH ROW which contains a 115 kV transmission line supported on 55 foot wood H-frame structures. The ROW encumbers four of the lots. There is a nominal encumbrance on lot 13, lot 17 has an 18.1% encumbrance and lots 15 and 16 are encumbered 57.5% and 50.4% respectively. Further, lot 15 is severed almost exactly through the middle of the lot which leaves a one acre remnant that is developable. The encumbrance on lot 16 takes the back half of the lot which leaves a two acre remnant fronting on the cul-de-sac.

There is a second easement that affects these lots. The New Hampshire Electric Coop has a 50 foot ROW carrying a 12 kV line on 35 foot tall wood pole structures that crosses lots 8,9,10 and 11. The extent of the encumbrance on these lots varies in the range of 4% – 10%.

The title research on these 10 lots is detailed on the spreadsheet contained in Appendix G. Several of the original lot sales contained preexisting improvements so could not be used and one sale was to a subsequent developer and could not be considered a Fair Market Sale. That left seven transactions which are summarized chronologically in Table 5.2.2.1. Lot 16 sold twice prior to being improved and both sales are included in the table. Unfortunately, the sales occur over an 18 year period which makes the analysis very difficult, but there are two groups of three sales each that occurred in sufficiently similar time frames as to warrant discussion.

Table 5.2.2.1 Sugar Hill Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Sugar Hill	222	13	11/2/1985	$22,898	5.97	.07/1.17%	225' ROW cuts across rear corner of lot
Sugar Hill	222	15	7/16/1986	$12,500	5	2.875/57.5%	225' ROW crosses through middle of lot. One 55' H-frame structure (115 kV) on lot.
Sugar Hill	222	12	5/23/1987	$30,260	5.91		
Sugar Hill	222	16	6/1/1998	$22,050	5	2.521/50.42%	225' ROW crosses through back half of lot. Two 55' H-frame structures (115 kV) on lot.
Sugar Hill	222	16	6/6/2001	$15,000	5	2.521/50.42%	225' ROW crosses through back half of lot. Two 55' H-frame structures (115 kV) on lot.
Sugar Hill	222	11	2/8/2003	$15,000	5.55	.213/3.98%	50' ROW crosses back corner of lot
Sugar Hill	222	9	6/15/2003	$15,000	5.84	.325/5.57%	50' ROW crosses through front half of lot.

The first group consists of three sales that took place between November, 1985 and May, 1987. The sales include lot 12 which is unencumbered, lot 13 which is only affected by a .07 acre encumbrance on the rear corner of the lot and lot 15 which has a 57.5% encumbrance with the ROW splitting the lot into two unencumbered parcels of about one acre each. Figure 5.2.2.2 shows in more detail how the ROW affects Lot 15. It leaves only a very awkwardly shaped parcel of a little over an acre (21.75% of the total lot area) on which improvements could realistically be developed.

Figure 5.2.2.2 Effect of the ROW on Lot 15

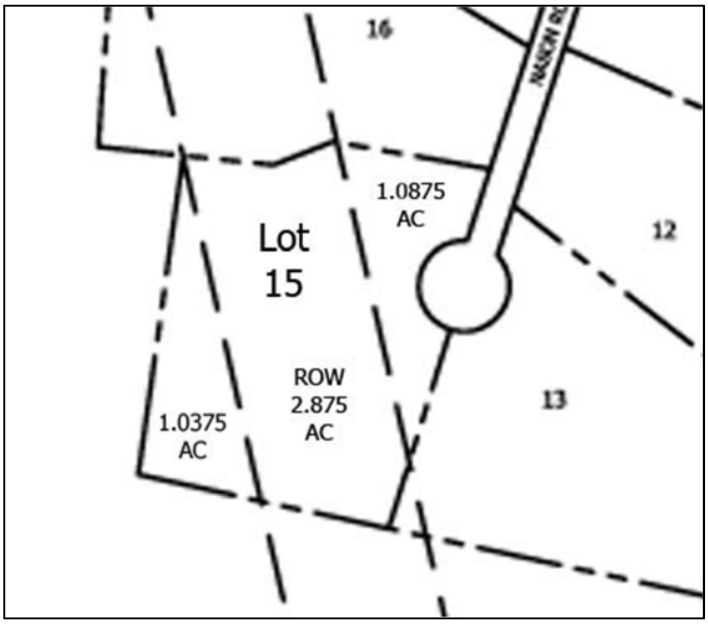


Figure 5.2.2.3 is a photograph of lot 15 showing the small development site at the front of the parcel backed up against the HVTL easement.

Figure 5.2.2.3 Photograph of Lot 15 (encumbered) as Improved (taken 7/15/2014)

The average sale price of lots 12 and 13 was $26,500. Lot 15 on the other hand, the heavily encumbered lot, sold for $12,500. The ratio of its sale price to the average price of lots 12 and 13 (47.2%) is in the same approximate proportion as the percent of the lot unencumbered (42.5%).

The second group of sales took place over the period June, 2001 to June, 2003. Lots 9, 11 and 16 all sold over this period and they all sold for exactly the same price -- $15,000. But lots 9 and 11 have minor encumbrances of 4%-5% due to the distribution line easement, while lot 16 has an encumbrance of 50.4% due to the HVTL easement. Further, lot 16 sold at the beginning of this two year period and it was a period of generally increasing real estate prices[13]. Figure 5.2.2.4 shows a photograph of Lot 16 as improved.

Figure 5.2.2.4 Photograph of Lot 16 (encumbered) as Improved (taken 7/15/2014)

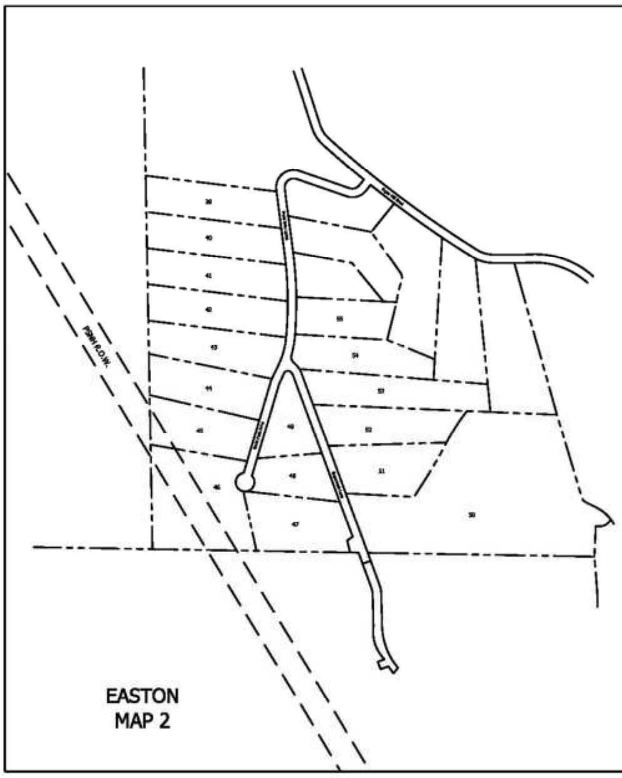
There does not seem to be a timing issue associated with the more heavily encumbered lots. Lot 15 was the second lot to sell while lot 16 was the first of the group of three to sell in the early 2000's. The implications with respect to pricing are interesting. Where the siting of the improvements are towards the front of the lot and the easement only affects the rear wooded portion of the lot, the evidence of Lot 16 suggests no price effect. On the other hand, for lot 15 where the only buildable portion of the site was severely constrained by the ROW forcing an unobstructed view of the transmission line and one of the structures from the home site, there was a reduction in the sale price roughly in proportion to the degree of encumbrance.

[13] "All-Transactions House Price Index for New Hampshire", US Federal Housing Finance Agency, 11/25/2014.

5.2.3 Easton Subdivision Study

The Pepper Brook Subdivision was developed by David Shepard and approved by the Easton Planning Board on April 21, 1994. The subdivision plan is in Appendix G. The subdivision consists of 26 lots most of which are a little more than 5 acres. The subdivision is heavily wooded. The subdivision is accessed from Sugar Hill Road, a little less than 2 miles north of the Easton town center. Figure 5.2.3.1 shows the subdivision as it is represented on the Town of Easton Tax Map 2.

Figure 5.2.3.1 Pepper Brook Subdivision, Town of Easton, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
39	5.03		0.00%
40	5.19		0.00%
41	5.48		0.00%
42	5.42		0.00%
43	5.48		0.00%
44	5.44		0.00%
45	5.26	0.512	9.73%
46	9.90	3.347	33.81%
47	5.42		0.00%
48	3.21		0.00%
49	3.26		0.00%
50	26.33		0.00%
51	5.13		0.00%
52	5.26		0.00%
53	6.10		0.00%
54	4.69		0.00%
55	3.62		0.00%

As shown on Figure 5.2.3.1, a 225 foot ROW containing a 115 kV transmission line on wood pole structures about 55 feet tall crosses the southwest corner of the subdivision. Two lots are encumbered, one about 10% and one nearly 34%. The title research identified 16 useable lot sales. The spreadsheet detailing the title research is in Appendix G. The 16 sales are arranged chronologically in Table 5.2.3.1.

Table 5.2.3.1 Easton Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Easton	2	54	9/6/1996	$20,000	4.69	0	
Easton	2	45	11/17/1997	$29,500	5.26	.512/9.73%	225' ROW crosses back corner of lot.
Easton	2	48	4/15/1998	$30,000	3.21	0	
Easton	2	44	5/11/1998	$21,800	5.44	0	
Easton	2	39	9/3/1998	$32,500	5.03	0	
Easton	2	43	11/6/1998	$30,000	5.48	0	
Easton	2	41	11/16/1998	$30,000	5.48	0	
Easton	2	47	12/10/1998	$30,000	5.42	0	
Easton	2	40	2/22/1999	$30,000	5.19	0	
Easton	2	46	3/3/1999	$28,500	9.9	3.347/33.81%	225' ROW bisects the lot. Two wood 55' H-frame structures on lot.
Easton	2	53	4/12/2000	$35,000	6.1	0	
Easton	2	42	7/5/2000	$32,000	5.42	0	
Easton	2	55	4/23/2001	$39,500	3.62	0	
Easton	2	51	6/22/2001	$39,500	5.13	0	
Easton	2	49	6/22/2001	$39,500	3.26	0	
Easton	2	52	7/18/2001	$39,000	5.26	0	

After an initial sale in 1996, nine lots sold rapidly from November 1997 to March 1999. The less encumbered lot (lot 45) sold at the beginning of that period and the heavily encumbered lot (lot 46) sold at the end of that period. A year passed with no sales and then the remaining six lots sold over the period April 2000 to July 2001. The predominant sale price through 1999 was $30,000. From 2000 forward, $39,000 was the predominant price.

Lot 45 suffered no adverse timing effects and its sale price was consistent with the sale prices of unencumbered lots. The other encumbered lot (lot 46) had a small price effect even though the development options for that lot are severely constrained by the location of the ROW. The unencumbered triangle at the rear of the lot is approximately 2.8 acres and the developable portion at the front of the lot is about 4.1 acres. This is smaller than the lots typical of this subdivision yet it sold for 95% ($28,500) of the prevailing price at that time of $30,000.

Figure 5.2.3.2 shows a photograph of Lot 48 as improved which gives a feel for the character of the subdivision.

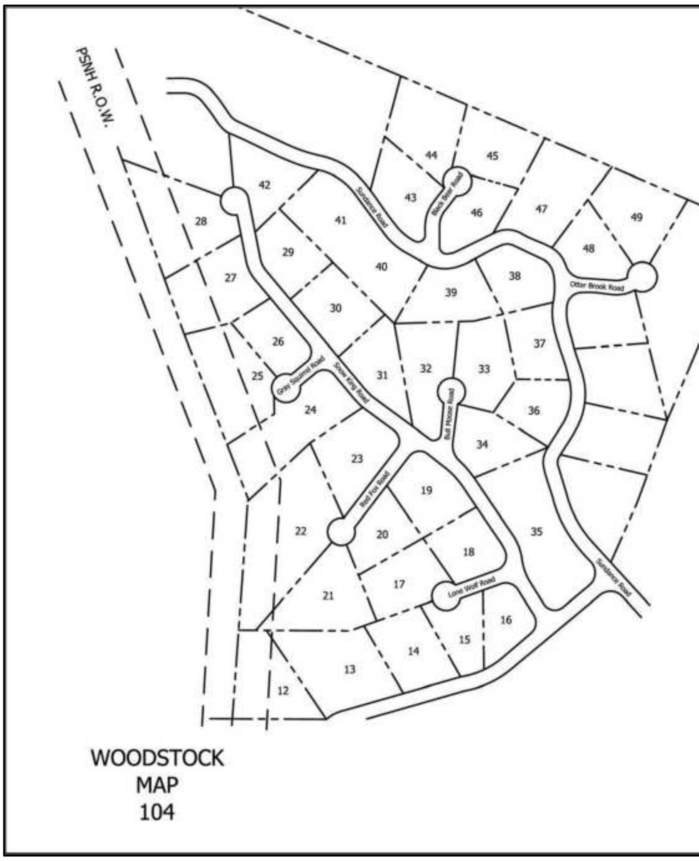
Figure 5.2.3.2 Photograph of Lot 48 (unencumbered) as Improved (taken 7/15/2014)

Review of the tax cards for the lots in the Pepper Brook Subdivision indicates a value of $112,500 for the one acre residential site and $3,000 per acre for all additional land in the ownership. The excess acreage adds incremental value at the rate of 2.7% per acre relative to the site value implying that the rear of the property has a barely discernible effect on the value of the lot.

5.2.4 Woodstock Subdivision Study

The Woodstock Subdivision was developed by Thomas Kneeland, Frederick O'Neill and David Sweeney and was approved by the Woodstock Planning Board on October 25, 1970. The subdivision plan is in Appendix G. The subdivision is located a little less than two miles west of Lincoln with access from Lost River Road (Route 112). The original subdivision plan shows 58 lots but some were subsequently combined and the current Woodstock tax map shows 54 lots. With a couple of exceptions, the lots are of similar size ranging from 1 to 2 acres. A total of 38 lots were studied. Figure 5.2.4.1 shows the subdivision as it is represented on the Town of Woodstock Tax Map 104.

Figure 5.2.4.1 Woodstock Subdivision, Town of Woodstock, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
12	1.937	0.838	43.28%
13	2.030	0.006	0.30%
14	1.296		0.00%
15	0.900		0.00%
16	0.860		0.00%
17	1.188		0.00%
18	1.036		0.00%
19	1.264		0.00%
20	1.047		0.00%
21	1.726	0.046	2.67%
22	2.997	1.257	41.94%
23	1.462		0.00%
24	2.000	0.579	28.95%
25	1.820	1.167	64.10%
26	0.986		0.00%
27	1.692	0.666	39.38%
28	2.006	1.069	53.29%
29	1.046		0.00%
30	1.259		0.00%
31	1.131		0.00%
32	1.421		0.00%
33	1.329		0.00%
34	1.136		0.00%
35	2.460		0.00%
36	1.000		0.00%
37	1.022		0.00%
38	1.078		0.00%
39	1.277		0.00%
40	1.276		0.00%
41	1.405		0.00%
42	1.103		0.00%
43	1.144		0.00%
44	1.438		0.00%
45	1.240		0.00%
46	1.033		0.00%
47	1.774		0.00%
48	1.159		0.00%
49	1.514		0.00%

As shown in the figure, the subdivision is crossed by a PSNH ROW on its west border. The ROW is 225 feet wide, containing a 115 kV transmission line supported by wood, H-frame structures that are approximately 55 feet tall. The ROW encumbers eight of the 38 lots studied. Two of the eight have very minor encumbrance while the others are heavily encumbered. Figure 5.2.4.1 contains a table showing lot acreages and the extent to which lots are encumbered by the ROW.

Tax cards for each of the 38 lots studied were collected to identify current owners. This provided the starting point from which to work the chain of title back to the original lot sale by the developer. The spreadsheet summarizing the chain of title for each lot is in Appendix G and it describes a complicated history. Shortly after the subdivision was approved, the Lost Valley Corporation was created and some of the lots were transferred to the Corporation and subsequently deeded out of the Corporation, others are deeded individually by the developers. In addition there are many transfers among the developers, their spouses and related trusts. Finally, New England Merchants National Bank (the "Bank") filed suit in late 1979 against the developers and the Bank ended up with 11 lots which were sold over subsequent years. A further complication is that the encumbered lots 22, 24 and 25 in Figure 5.2.4.1 involve combinations and realignments of lots in the original subdivision plan.

Two categories of sales of the unimproved lots were identified. From 1970 to 1979 there were 29 sales by the developer or developer entities. From late 1979 forward, there were sales by the Bank and a few additional developer sales. The Bank sales do not meet the criteria of a Fair Market Sale so the analysis focused on the developer sales that took place over the 1970 to 1979 time period. Table 5.2.4.1 shows these sales listed in chronological order.

Table 5.2.4.1 Woodstock Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Woodstock	104	14	12/12/1970	$4,500	1.3	0	
Woodstock	104	26	9/28/1972	$8,500	0.99	0	
Woodstock	104	17	6/15/1973	$6,500	1.17	0	
Woodstock	104	16	10/19/1973	$6,000	0.86	0	
Woodstock	104	23	10/30/1973	$6,500	1.46	0	
Woodstock	104	36	8/4/1974	$1,500	1	0	
Woodstock	104	18	8/5/1974	$4,800	1.04	0	
Woodstock	104	19	8/5/1974	$4,500	1.26	0	
Woodstock	104	37	8/5/1974	$4,800	1.02	0	
Woodstock	104	32	8/19/1974	$4,800	1.42	0	
Woodstock	104	47	8/26/1974	$4,500	1.77	0	
Woodstock	104	42	9/26/1974	$4,500	1.1	0	
Woodstock	104	40	10/3/1974	$4,500	1.28	0	
Woodstock	104	31	10/3/1974	$4,500	1.13	0	
Woodstock	104	39	10/23/1074	$4,500	1.28	0	
Woodstock	104	28	1/5/1976	$4,500	2.01	1.069/53.29%	225' ROW crosses back of lot.
Woodstock	104	12	5/11/1976	$6,000	1.94	.838/43.28%	225' ROW crosses back of lot
Woodstock	104	46*	11/13/1977	$7,500	1.5	1.042/69.64%	225' ROW crosses back of lot.
Woodstock	Sub Plan	47**	11/13/1977	$4,500	1.42	.704/49.58%	225' ROW crosses back of lot.
Woodstock	104	43***	3/25/1978	$5,300	1.14	0	
Woodstock	104	44***	3/25/1978	$5,300	1.44	0	
Woodstock	104	45	6/30/1979	$5,500	1.24	0	
Woodstock	104	27	9/14/1979	$5,500	1.69	.666/39.38%	225' ROW crosses back of lot.

*Lot 46 (as shown on the original subdivision plan in Appendix G) is now lot 25 but it was 14,000 sq. ft. smaller than lot 25 as it exists today. As shown in Table 5.2.4.1, it sold for $7,500 on 11/13/77.
** Lot 24 is a consolidation of two of the original lots—lots 47 and 48. The lot 48 portion remains the same but the lot 47 portion is reduced relative to its original size by about 14,000sq.ft. Lot 47 sold for $4,500 on 11/13/77.
***Lots 43 and 44 were sold together for $10,600. They are shown in the table as each having been sold for $5,300 as there is no basis for allocating the purchase price otherwise.

As shown in the table, five lots sold in the early 1970's and then 10 sold in 1974, all of which were unencumbered. Four encumbered lots then sold in 1976 and 1977 followed by three unencumbered and one encumbered in 1978 and 1979. On average, the unencumbered lots sold in 4.5 years from 1970 and the encumbered lots 7.0 years.

There doesn't appear to be any price differentiation between the encumbered and unencumbered lots. The encumbered lots averaged $5,600 and the unencumbered lots $5,055. Since there was a slight upward trend in prices over the period, the fact that the encumbered lots sold later accounts for most of the difference in the average price. The encumbered lots were also larger on average—1.71 ac. compared to 1.22 ac. for the unencumbered lots—but the increase in size of .49 ac. was smaller than the average area encumbered of .86 ac. This means that the unencumbered portion of these lots averaged only .85 ac., quite a bit smaller than the totally unencumbered lots.

Figure 5.2.4.2 and Figure 5.2.4.3 are photographs of two of the most heavily encumbered lots—lots 22 and 25. Lot 22 is a combination of two lots, lots 49 and 51 on the original subdivision plan, that were sold together by the New England Merchants National Bank on 12/31/1985 for $14,000. Because this was a bank sale, it is not analyzed in Table 5.2.4.1. Lot 25, which was originally sold as lot 46 in the subdivision plan as explained in the footnote to Table 5.2.4.1, was 70% encumbered with less than .5 ac. unencumbered and available for development. Despite the constrained development area and the fact that the conductors are visible above the tree line from the street, this lot sold for $7,500 on 11/13/1977.

Figure 5.2.4.2 Photograph of Lot 22 (encumbered) as improved (taken7/15/2014)

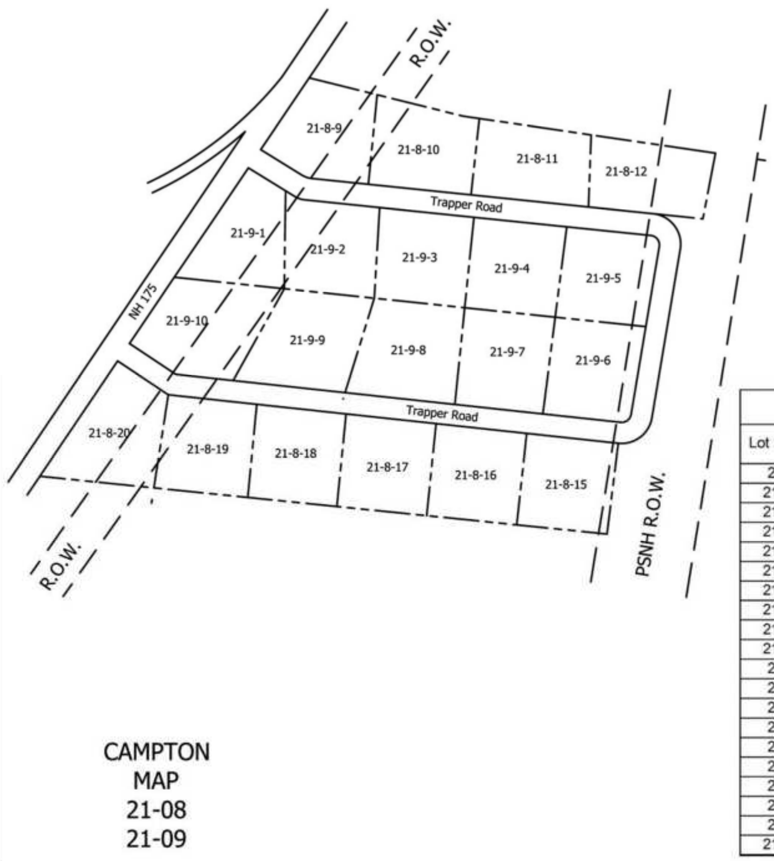
Figure 5.2.4.3 Photograph of Lot 25 (encumbered) as Improved (taken 7/15/2014)

Review of the tax cards for the lots in the Woodstock Subdivision indicates a value of $85,000 for the residential site and $3,000 an acre for all additional land in the ownership. The excess acreage adds incremental value at the rate of 3.53% per acre relative to the site value, implying that the rear of the property has little effect on the value of the lot.

5.2.5 Campton Subdivision Study

The Central Park Estates Subdivision was developed by Frederick E. Brown and approved by the Campton Planning Board on April 10, 1980. The subdivision plan is in Appendix G. The subdivision consists of 20 lots most of which are exactly one acre although a few are slightly larger. All of the residential improvements in the subdivision are modular homes and the lots are heavily wooded. The subdivision is accessed from State Route 175 about 5.5 miles south of the Campton town center. Figure 5.2.5.1 shows the subdivision as it is represented on the Town of Campton tax maps 21-08 and 21-09.

Figure 5.2.5.1 Central Park Estates Subdivision, Town of Campton, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	R.O.W. Acreage	Percent of Lot in R.O.W.
21-8-9	1.02	0.332	32.69%
21-8-10	1.00	0.142	14.20%
21-8-11	1.00		0.00%
21-8-12	1.00	0.435	43.49%
21-8-15	1.00	0.073	7.29%
21-8-16	1.00		0.00%
21-8-17	1.00		0.00%
21-8-18	1.00		0.00%
21-8-19	1.00	0.143	14.30%
21-8-20	1.14	0.367	32.17%
21-9-1	1.00	0.216	21.55%
21-9-2	1.00	0.275	27.52%
21-9-3	1.00		0.00%
21-9-4	1.00		0.00%
21-9-5	1.00	0.150	14.95%
21-9-6	1.00	0.154	15.30%
21-9-7	1.01		0.00%
21-9-8	1.14		0.00%
21-9-9	1.15		0.00%
21-9-10	1.22	0.519	42.54%

As shown on Figure 5.2.5.1, the subdivision is crossed by two power line easements. The larger of the two on the right side of the subdivision is a 225 foot wide PSNH ROW containing a 115 kV line supported on 55 foot tall, wood, H-frame structures. The second is a 100 foot wide ROW containing a 34 kV line supported on 35 foot wood poles. In total, 11 lots are encumbered and nine are not. The extent of the encumbrance ranges from a low of 7% to a high of 43% with a fairly even distribution over this range.

Although there are 20 lots in the subdivision, the title research identified only 12 useable lot sales. This is because there was a bulk sale of 10 lots in 2001 and most of those were subsequently sold with modular homes included in the sale. The spreadsheet detailing the title research is in Appendix G. The 12 useable sales are arranged chronologically in Table 5.2.5.1.

Table 5.2.5.1 Campton Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Campton	21/08	9	12/10/1991	$20,000	1.02	.332/32.69%	100' ROW cuts across rear corner of lot
Campton	21/09	2	2/18/1993	$6,000	1	.275/27.52%	100' ROW cuts through middle of lot. One xx' wood pole structure on lot
Campton	21/09	9	9/27/1993	$5,000	1.15		
Campton	21/08	11	8/15/1995	$7,500	1		
Campton	21/08	12	8/15/1995	$7,500	1	.435/43.49%	Portion of 225' ROW runs alongside of lot.
Campton	21/09	3	8/28/1998	$11,000	1		
Campton	21/09	8	10/31/2000	$22,400	1.14		
Campton	21/09	5	5/24/2001	$20,000	1	.15/14.95%	Portion of 225' ROW runs alongside of lot
Campton	21/09	7	11/30/2001	$30,000	1.01		
Campton	21/09	6	5/31/2002	$33,000	1	.154/15.30%	Portion of 225' ROW runs alongside of lot
Campton	21/08	15	8/14/2002	$34,900	1	.073/7.29%	Portion of 225' ROW runs alongside of lot
Campton	21/08	19	5/9/2003	$40,000	1	.143/14.3%	100' ROW cuts across corner of lot

These sales took place over a 12 year period from late 1991 to the middle of 2003. The first lot sold had about a third of the lot encumbered and sold for considerably more than others in the early 1990's. In the time period February, 1993 to August 1995 there were four sales. Two of these were heavily encumbered, 27% and 43%, respectively and the other two were not encumbered. They all sold for similar prices although the two encumbered lots sold for an average of $6,750 while the two unencumbered lots sold for an average of $6,250. A photograph of one of the encumbered lots, map 21/08, lot 12 is shown in figure 5.2.5.2. The orientation of the unit and the heavy screening suggests little or no effect of the HVTL on the use or utility of the property.

Figure 5.2.5.2 Photograph of Map 21/08, lot 12 (encumbered) as Improved (taken 7/14/2014)

A second cluster of six sales took place over the period October, 2000 to May, 2003. Four of these lots were encumbered in the range of 7-15% and two were unencumbered. The encumbered lots sold at an average price of $31,975 while the unencumbered lots sold at an average price of $26,200. Figure 5.2.5.3 shows a recent photograph of one of the encumbered lots in this group. Again, orientation of the improvements to the street combined with vegetative screening may explain the apparent absence of any price effect due to the HVTL.

Figure 5.2.5.3 Photograph of Map 21/09, Lot 6 (encumbered) as Improved (taken 7/14/2014)

Analysis of the Central Park Estates Subdivision in the Town of Campton suggests no price or timing effects due to the HVTL. The sales of the encumbered lots were interspersed with the sale of unencumbered lots very evenly over the 12 year period. Further, the encumbered lots sold at prices that were as good as, or better than, the unencumbered lots.

5.2.6 Holderness Subdivision Study

The Heritage Hill Subdivision was first mapped in 1965 and the initial phase was approved by the Holderness Planning Board in 1968 and the second phase in 1974. The sales history of the subdivision stretches over 20 years from 1967 to 1986 under three different developer groups. The initial developers were Walter and Dagmar Davis. They sold their interest in 1972 to Daniel Ryder and Glen Kiedaisch. In 1976, Glen Kiedaisch sold his half interest to William J. Crane, William F. Crane and Francis Crane. The Phase II subdivision plan is attached in Appendix G.

The subdivision is located about 1.5 miles east of Plymouth with access from State Route 175. There are 23 lots studied including the lots on both sides of Hob Knob Lane, on both sides of Trivett Lane and the lots enclosed by the Heritage Road Circle. The lots range from one to two acres. Figure 5.2.6.1 shows the 23 lots as they are represented on the Town of Holderness tax map 224.[14]

[14] Lot 55 results from the combination of lots 55and 56. For purposes of comparability to the other lot sales, this sale at $16,000 for the two lots is treated as sales of the two individual lots at $8,000 each.

Figure 5.2.6.1 Portion of Heritage Hill Subdivision, Town of Holderness

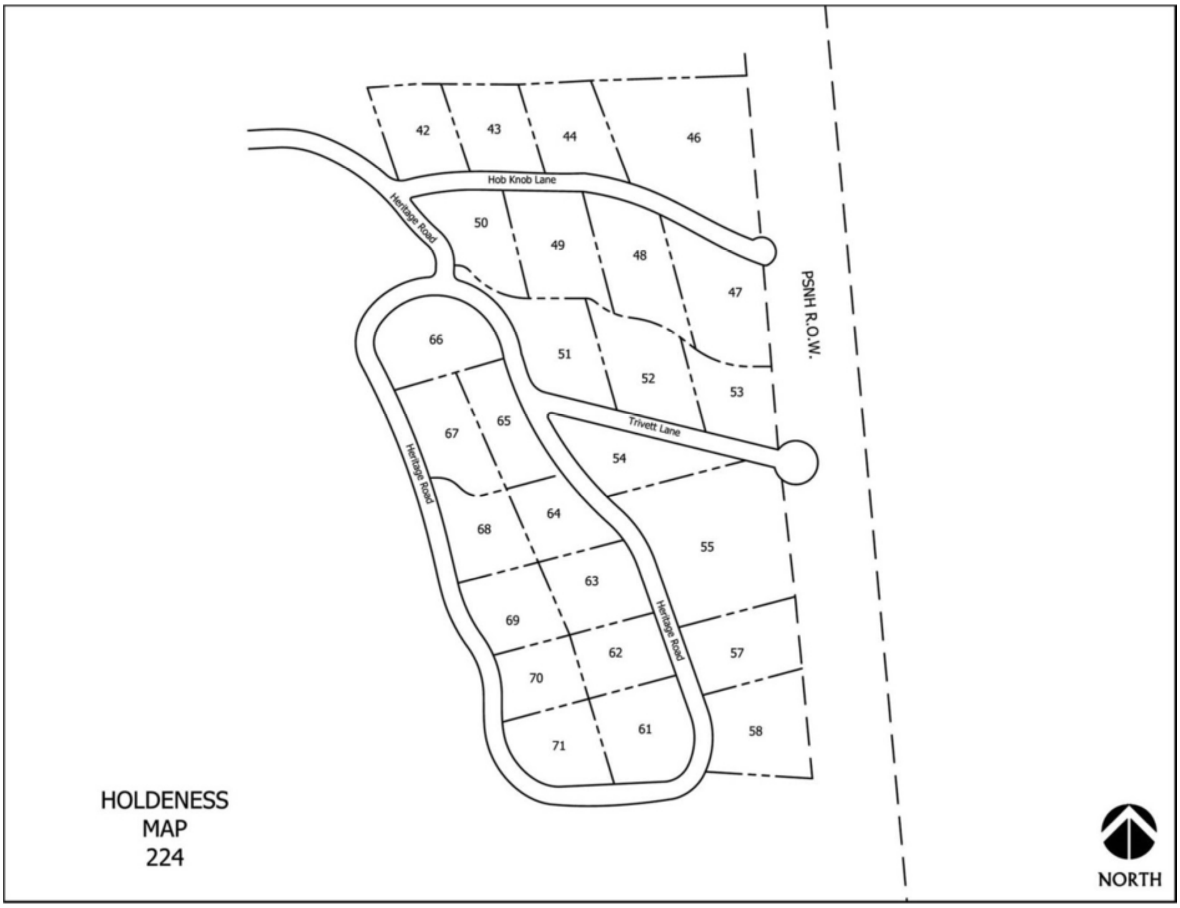


Figure 5.2.6.1 shows that seven of the lots studied abut a PSNH ROW. The ROW is 225 feet wide and contains a 115 kV line supported on wood H-frame structures with a typical height of 55 feet. Title research was carried out on the 23 lots and the spreadsheet summarizing that work is contained in Appendix G. The sales of the lots are arranged chronologically in Table 5.2.6.1.

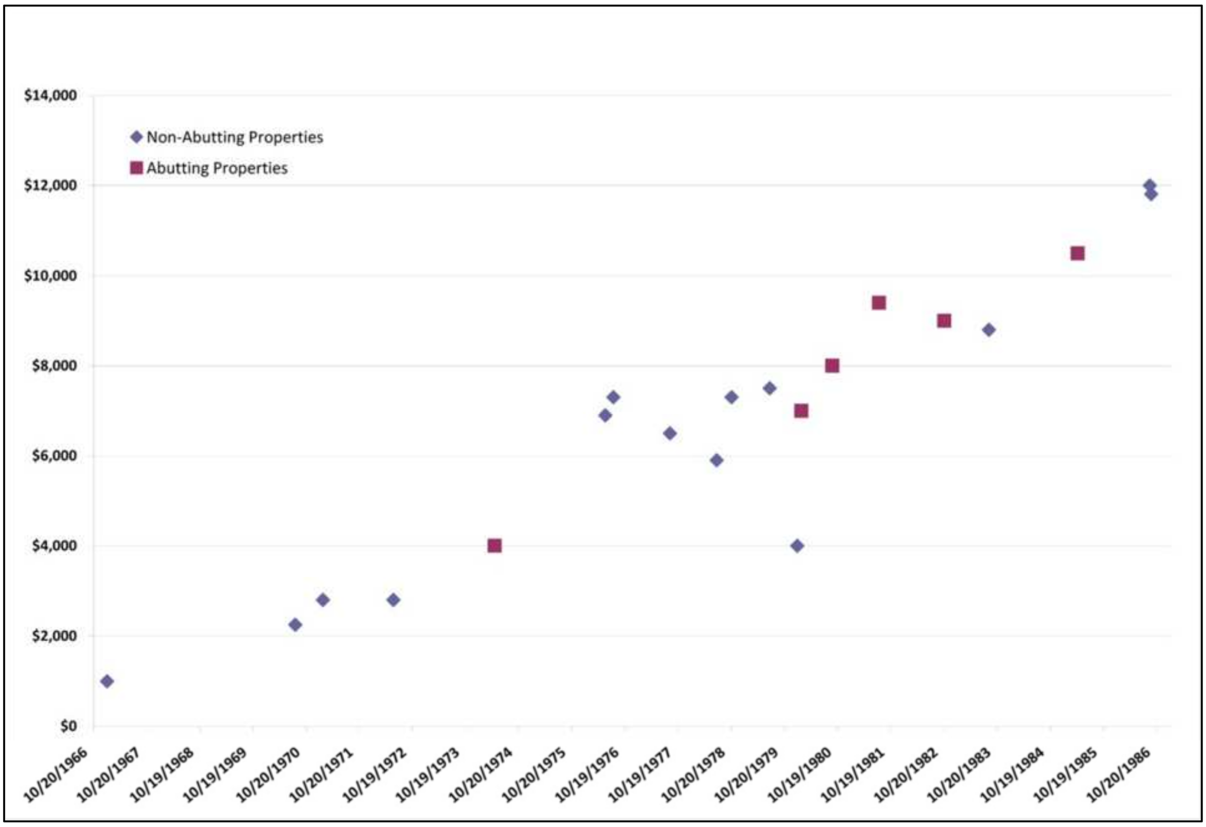
Table 5.2.6.1 Holderness Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Holderness	224	50	1/19/1967	$1,000	1.3	None	
Holderness	224	42	8/5/1970	$2,250	1.2	None	
Holderness	224	48	2/11/1971	$2,800	1.6	None	
Holderness	224	44	6/9/1972	$2,800	1.2	None	
Holderness	224	47	5/6/1974	$4,000	1.8	None	abuts 225' PSNH ROW
Holderness	224	67	6/4/1976	$6,900	1.32	None	
Holderness	224	66	7/30/1976	$7,300	1.45	None	
Holderness	224	69	8/22/1977	$6,500	1.17	None	
Holderness	224	70	7/10/1978	$5,900	1	None	
Holderness	224	51	10/20/1978	$7,300	1.54	None	
Holderness	224	71	7/9/1979	$7,500	1.2	None	
Holderness	224	61	7/9/1979	$7,500	1.511	None	
Holderness	224	64	1/14/1980	$4,000	1	None	
Holderness	224	46	2/12/1980	$7,000	3.19	None	abuts 225' PSNH ROW
Holderness	224	55	9/11/1980	$16,000	3.51	None	abuts 225' PSNH ROW
Holderness	224	62	7/29/1981	$9,400	1.05	None	
Holderness	224	58	7/29/1981	$9,400	1.64	None	abuts 225' PSNH ROW
Holderness	224	57	10/20/1982	$9,000	1.41	None	abuts 225' PSNH ROW
Holderness	224	52	8/23/1983	$8,800	1.57	None	
Holderness	224	53	4/25/1985	$10,500	1.18	None	abuts 225' PSNH row
Holderness	224	65	9/2/1986	$12,000	1.13	None	
Holderness	224	68	9/12/1986	$11,810	1.21	None	

As noted earlier, the sale of these lots stretched over 20 years under three different developer groups. The first group (1967 to November, 1972) sold four lots over the six year period. The second group (November, 1972 to July, 1979) sold eight lots over the 6 ½ year period. Sales accelerated somewhat under the third group (July, 1979 to September, 1986) with the remaining 11 lots sold in a little over seven years. The summary table suggests that the abutting lots may have sold a little slower on average than the non-abutting lots. The average number of years after the first sale was 11.3 years for the non-abutting properties and 13.4 for the abutting properties.

It is difficult to analyze the lot prices because of the long period over which sales took place. Market conditions obviously changed greatly over that 20 year period and there is no reliable way to adjust for those changes. Figure 5.2.6.2 plots the prices paid over time and the overall, steady upward trend appears to apply equally to the abutting and non-abutting lots.

Figure 5.2.6.2 Lot Prices Over Time for Abutting and Non-abutting Lots



The photographs that follow help explain the apparent absence of any price effect associated with the abutting lots. Figures 5.2.6.3 and 5.2.6.4 show two non-abutting lots while Figures 5.2.6.5 and 5.2.6.6 show two abutting lots. Given the siting of the homes on the lots and the vegetative cover, there does not appear to be any significant difference in the use or utility of the two sets of lots.

Figure 5.2.6.3 Photograph of Lot 48 (non-abutting) as Improved (taken 7/14/2014)

Figure 5.2.6.4 Photograph of Lot 71 (non-abutting) as Improved (taken 7/14/2014)

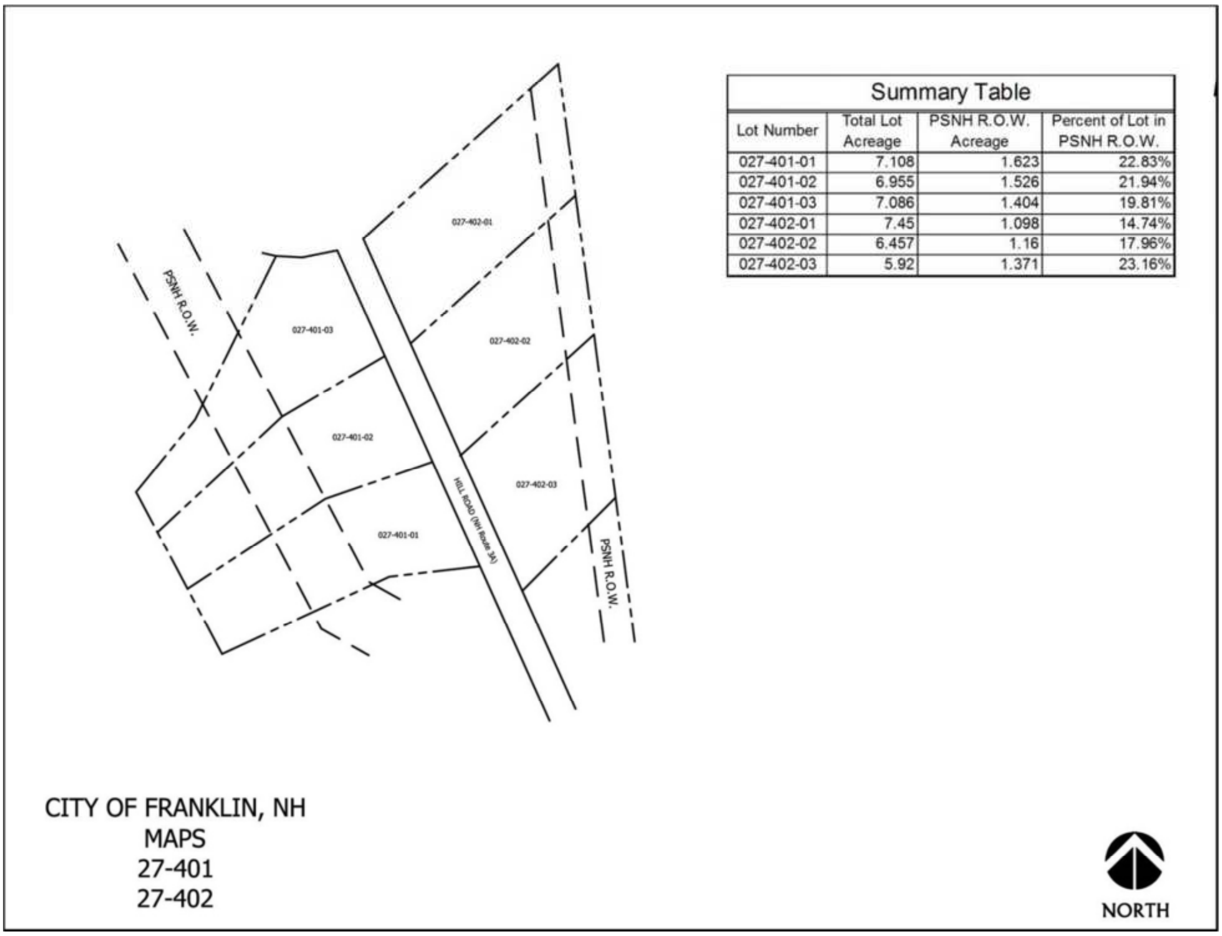
Figure 5.2.6.5 Photograph of Lot 47 (abutting) as Improved (taken 7/14/2014)

Figure 5.2.6.6 Photograph of Lot 53 (abutting) as Improved (taken 7/14/2014)

5.2.7 Franklin Subdivision Study

The Ceres Timberland Properties Subdivision is a small six lot subdivision approved by the Franklin Planning Board on September 22, 2001. The subdivision plan is in Appendix G. It straddles Route 3A about five miles north of the City of Franklin. The lots are of similar size, six to seven acres, and have direct access from Route 3A (Hill Road). Figure 5.2.7.1 shows the subdivision as it is represented on the Town of Franklin tax maps 27-401 and 27-402.

Figure 5.2.7.1 Ceres Timberland Properties Subdivision, Town of Franklin, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
027-401-01	7.108	1.623	22.83%
027-401-02	6.955	1.526	21.94%
027-401-03	7.086	1.404	19.81%
027-402-01	7.45	1.098	14.74%
027-402-02	6.457	1.16	17.96%
027-402-03	5.92	1.371	23.16%

As shown on Figure 5.2.7.1, The Subdivision is crossed by two PSNH ROWs. One is 225 feet wide and contains a 115 kV line on 55 foot tall wood H-frame structures. This line cuts through the midsection of the three lots on the west side of Hill Road. The other ROW is 112 feet wide and is no longer in use. The line in this corridor was a 69 kV line on wood H-frame structures. It was de-energized in the mid-1980's. This unused ROW is along the rear border of the three lots on the east side of Hill Road and amounts to open space with substantial areas of re-vegetation similar to the adjoining lands.

The original sales of the six lots are arranged chronologically in Table 5.2.7.1. The spreadsheet detailing the title research is in Appendix G.

Table 5.2.7.1 Franklin Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Franklin	27-402	2	6/27/2001	$27,500	6.46	1.16/18%	unused 112' ROW forms the rear border of the lot
Franklin	27-402	1	7/27/2001	$25,000	7.45	1.098/15%	unused 112' ROW forms the rear border of the lot
Franklin	27-402	3	10/27/2001	$24,000	5.92	1.371/23%	unused 112' ROW forms the rear border of the lot
Franklin	27-401	3	3/5/2002	$25,000	7.09	1.404/20%	225' ROW cuts through middle of lot.
Franklin	27-401	1	3/21/2002	$25,000	7.11	1.623/23%	225' ROW cuts through middle of lot. One 55' H-frame structure on lot
Franklin	27-401	2	5/23/2002	$25,000	6.95	1.526/22%	225' ROW cuts through middle of lot. One 55' H-frame structure on lot

The three lots with the unused ROW sold between June and October of 2001 while the three lots bisected by the larger ROW with the 115 kV line sold between March and May of 2002. This suggests the market may have had some preference for the lots with the smaller, unused ROW forming the rear border of the property relative to the lots with the larger, active ROW bisecting the property. It does not suggest, however, any significant market resistance to the lots with the larger ROW. This is corroborated by the fact that the six lots sold for nearly the same price. The first sale was a little higher and the third a little lower and the other four all sold for $25,000.

Figures 5.2.7.2 and 5.2.7.3 give some insight with respect to the apparent insensitivity of market value to the presence of large electric transmission rights of way.

Figure 5.2.7.2 Photograph of Map 27-402 Lot 3 (encumbered by unused ROW) as Improved (taken 7/14/2014)

Figure 5.2.7.3 Photograph of Map 27-401 Lot 2(encumbered) as Improved (taken 7/14/2014)

Figure 5.2.7.2 shows a lot on the east side of Hill Road crossed in the rear by the smaller, unused ROW while Figure 5.2.7.3 shows a lot on the west side of Hill Road crossed by the larger ROW. In both cases,

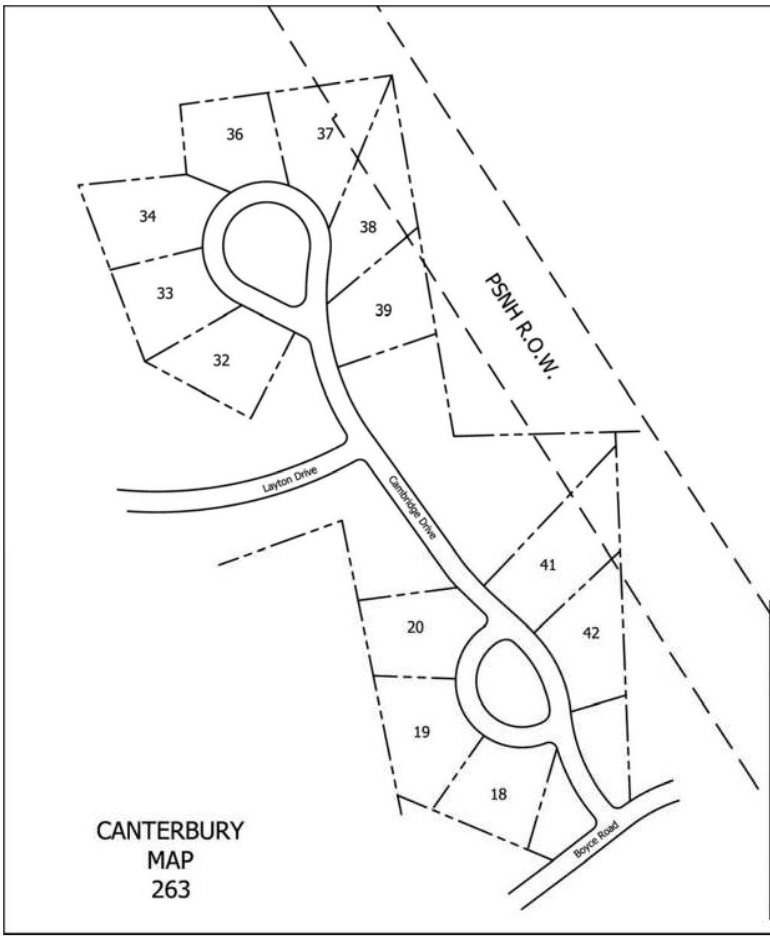
the improvements are located to the front of the lot. Further, the vegetation is sufficiently tall, dense and close to the improvements that there is no visual access to the middle or rear of the lot which carries the implication that the rear of the lot has very little to do with the use or utility of the property. Finally, it is worth noting that overhead distribution lines often dwarf any visual effect of the HVTL.

Review of the tax cards for this subdivision indicates that the assessor assigns $40,000 to the residential site and $1,100 to each additional acre. This means that excess acreage adds incremental value at the rate of 2.75% per acre relative to the site value implying the rear of these lots has a barely discernible effect on the value of the property.

5.2.8 Canterbury Subdivision Study

The Bella Villa Subdivision was developed by Sylvester DeMaggio and was approved by the Canterbury Planning Board. The plan was recorded on May 19, 1976. The subdivision plan is in Appendix G. The subdivision is located two miles northeast of Penacook just on the east side of I-93. The subdivision is accessed from Boyce Road. The original subdivision plan shows 20 lots as does Canterbury Tax Map 263. The lots are arranged in three clusters and the two eastern clusters containing 12 lots are analyzed here. The lots are uniform in size ranging from 1.0 to 1.5 ac. Figure 5.2.8.1 shows the subdivision as it is represented on the Town of Canterbury Tax Map 263.

Figure 5.2.8.1 Bella Villa Subdivision, Town of Canterbury, New Hampshire



Summary Table			
Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
18	1.16		0.00%
19	1.20		0.00%
20	1.18		0.00%
32	1.16		0.00%
33	1.09		0.00%
34	1.32		0.00%
36	1.09		0.00%
37	1.36	0.396	29.09%
38	1.33	0.582	43.77%
39	1.18	0.030	2.50%
41	1.54	0.392	25.47%
42	1.10	0.014	1.25%

As shown in the figure, the subdivision is crossed by a PSNH ROW on its east border. The ROW is 250 feet wide and contains two 115 kV transmission lines. One is supported by wood, H-frame structures that are approximately 45 feet tall. The second is now on steel monopoles about 75 feet in height but, at the time of the sales studied here, it would have been on wood H-frame structures. The ROW encumbers five of the 12 lots studied. Two of the five have very minor encumbrance while the others range from 25% to 45%. Figure 5.2.8.1 contains a table showing lot acreages and the extent to which lots are encumbered by the ROW.

Tax cards for each of the 12 lots studied were collected which identify current owners and provide the starting point from which to work the chain of title back to the original lot sale by the developer. The spreadsheet summarizing the chain of title for each lot is in Appendix G. Apparently, Sylvester DeMaggio sold 19 of the 20 lots to Castlewood Homes, Inc. on October 14, 1976 just five months after the subdivision plan was recorded. A year later on October 5, 1977, Castlewood Homes sold 18 lots to Luke Smith. Luke Smith and related parties then appear to have marketed the lots over the next 10 years. Table 5.2.8.1 summarizes the eight Fair Market Sales involving the lots analyzed.

Table 5.2.8.1 Canterbury Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Canterbury	263	20	10/5/1976	$8,500	1.18	0	
Canterbury	263	41	6/30/1978	$11,500	1.54	.392/25.47%	250' ROW crosses back of lot.
Canterbury	263	33	1/28/1984	$12,000	1.09	0	
Canterbury	263	34	8/3/1984	$12,200	1.32	0	
Canterbury	263	38	2/5/1985	$13,500	1.33	.582/43.77%	250' ROW crosses back of lot.
Canterbury	263	36	2/22/1985	$13,500	1.09	0	
Canterbury	263	32	3/6/1985	$6,100	1.16	0	
Canterbury	263	39	3/25/1985	13,500	1.18	.030/2.50%	250' ROW crosses back of lot.

There do not appear to be any timing or price effects on the encumbered relative to the unencumbered lots. The only anomaly is the very low price paid for Lot 32, an unencumbered lot. Since there is no obvious explanation, it is likely that there were atypical motivations in the transaction, i.e. this was probably not a Fair Market Sale. The encumbered lots were a little larger on average (1.35 acres) than the unencumbered lots (1.17 acres) and the difference (.18 acres) was similar to the average area encumbered (.20 acres).

Figures 5.2.8.2 and 5.2.8.3 show current photographs of two of the encumbered lots, Lot 37 which is 29.07% encumbered and Lot 42 which is 1.25% encumbered.

Figure 5.2.8.2 Photograph of Lot 37 (encumbered) as Improved (taken 7/14/2014)

Figure 5.2.8.3 Photograph of Lot 42 (encumbered) as Improved (taken 7/14/2014)

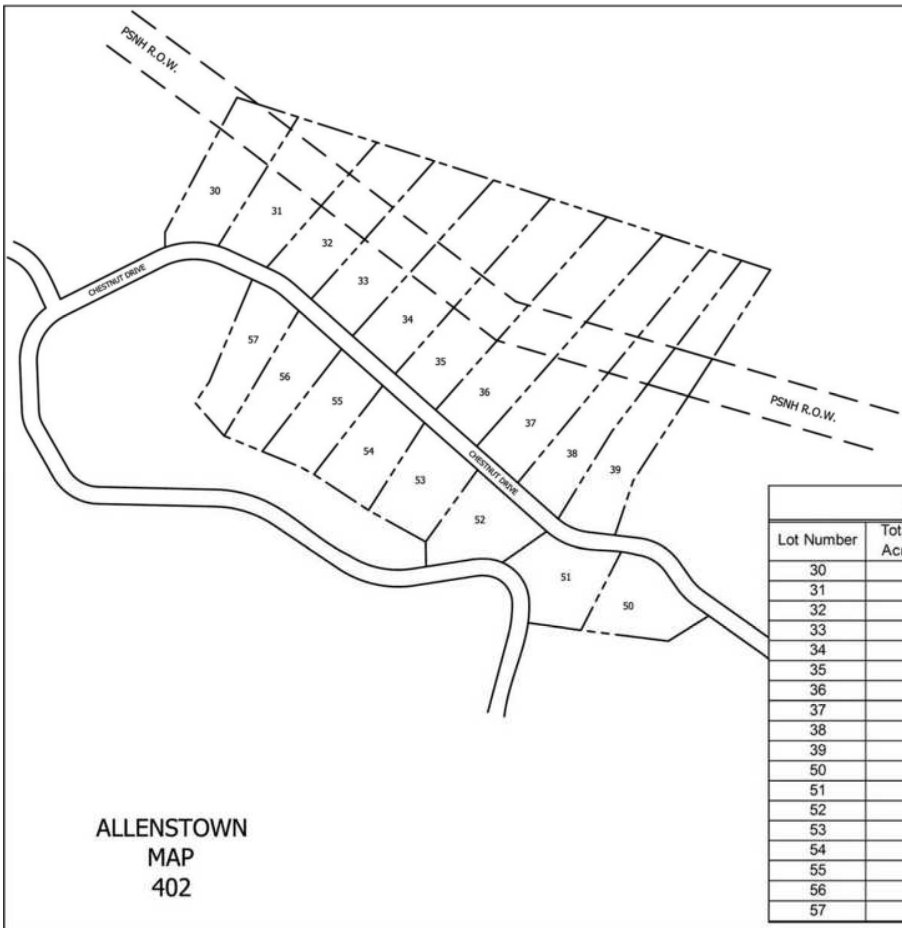
Review of the tax cards for the Bella Villa Subdivision showed that the home sites were assessed at $75,000 and that additional acreage was valued at $3,000 per acre. Valuing the excess acreage at 4% per acre relative to the site value reinforces the fact that the excess acreage at the rear of the lot has a relatively small impact on the overall value of the property.

5.2.9 Allenstown Subdivision Study

The Woodridge Estates Subdivision was approved by the Allenstown Planning Board on August 16, 2003. The subdivision plan is in Appendix G. The portion of the subdivision studied here consists of 18 lots. The lots on the south side of Chestnut Drive are two acres while the lots on the north side range from about three acres to 4.5 acres. The development area of the lots on the north side is constrained by a PSNH easement and by extensive wetlands as shown on the subdivision plan in Appendix G. The implication is that the developable portion of the lots on the north side of Chestnut Drive is in fact smaller than on the south side running about 1.73 acres on average.

The subdivision is located about 2.5 miles east of Allenstown and is accessed by Deerfield Road. Figure 5.2.9.1 shows the subdivision as it is represented on the Town of Allenstown Tax Map 402.

Figure 5.2.9.1 Woodridge Estates Subdivision, Town of Allenstown, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
30	2.67	0.726	27.19%
31	3.10	0.853	27.52%
32	2.80	0.668	23.86%
33	3.32	0.684	20.60%
34	3.68	0.682	18.53%
35	4.05	0.669	16.52%
36	4.48	0.731	16.32%
37	4.46	0.663	14.87%
38	3.77	0.485	12.86%
39	3.99	0.493	12.36%
50	2.00		0.00%
51	2.00		0.00%
52	2.00		0.00%
53	2.01		0.00%
54	2.00		0.00%
55	2.00		0.00%
56	2.00		0.00%
57	2.00		0.00%

As shown on Figure 5.2.9.1, a 150 foot wide transmission line easement crosses the lots on the north side of Chestnut Drive. The title research identified 11 useable lot sales. The spreadsheet detailing the title research is in Appendix G. The 11 sales are arranged chronologically in Table 5.2.9.1.

Table 5.2.9.1 Allenstown Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Allenstown	402	30	6/25/2001	$60,000	2.67	.726/27.19%	Back of lot crossed by 150' ROW. 75' Steel monopole structure carrying 115 kV line on property.
Allenstown	402	54	2/24/2005	$100,000	2.00	none	
Allenstown	402	37	6/16/2005	$100,000	4.46	.663/14.87%	Center of lot crossed by 150' ROW.
Allenstown	402	31	10/21/2005	$110,000	3.1	.853/27.52%	Back of lot crossed by 150' ROW.
Allenstown	402	57	8/2/2006	$74,800	2	none	
Allenstown	402	50	9/14/2006	$104,500	2	none	
Allenstown	402	55	10/20/2006	$75,000	2	none	
Allenstown	402	33	10/20/2006	$75,000	3.32	.684/20.6%	Center of lot crossed by 150' ROW.
Allenstown	402	56	6/15/2007	$105,000	2	none	
Allenstown	402	36	7/27/2007	$80,000	4.48	.731/16.32%	Middle of lot crossed by 150' ROW. 75' Steel monopole structure carrying 115 kV line on property.
Allenstown	402	39	8/21/2013	$65,000	3.99	.493/12.36%	Middle of lot crossed by 150' ROW. 75' Steel monopole structure carrying 115 kV line on property border.

After an initial sale in 2001, nine lots sold in the 2 ½ year period from February, 2005 to July, 2007. Four of the lots sold were crossed by the HVTL and five were not. The sale prices fluctuated between $75,000 and $100,000 but there is no indication that the encumbered lots faced any market resistance. The timing of sales appears random and the average price for the two groups of lots was nearly identical -- $91,250 for the encumbered lots and $91,860 for the unencumbered lots.

Lot 36 is one of the heavily encumbered lots and is shown in the photograph below.

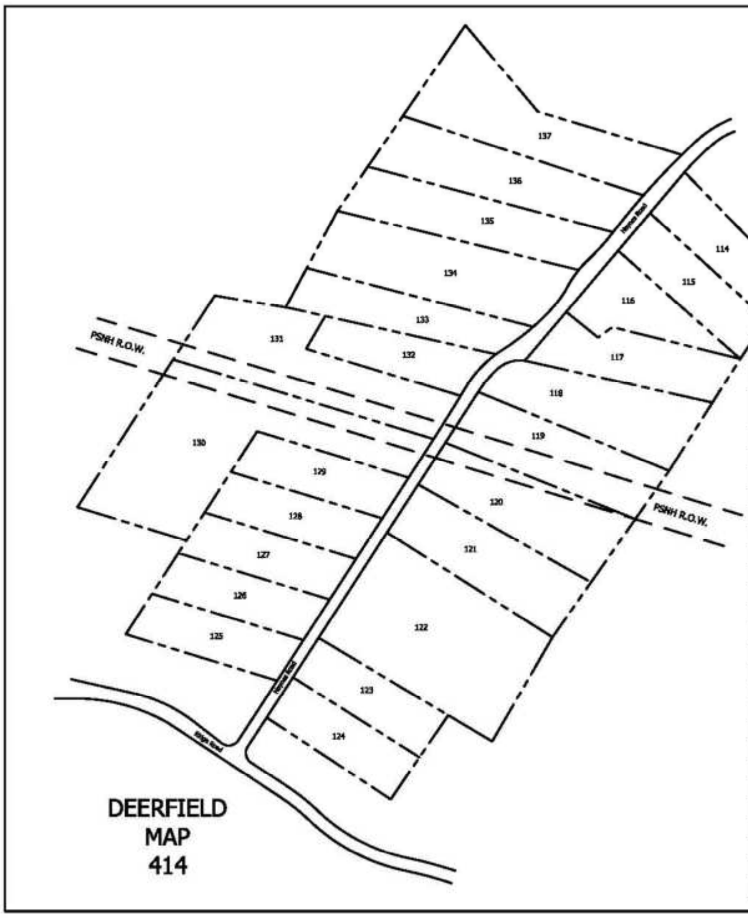
Figure 5.2.9.2 Photograph of Lot 36 (encumbered) as Improved (taken 7/15/2014)

Review of the tax cards for the lots in the Woodridge Estates Subdivision indicates a base value of $65,500 for two acre home sites with an additional $2,500/acre for all additional land in the ownership. The excess acreage adds incremental value at the rate of 3.8% per acre relative to the site value implying that the rear of the property has a barely discernible effect on the value of the lot.

5.2.10 Deerfield Subdivision Study

The Haynes Farm Subdivision was developed in the mid-1980's. Several developers were involved over the course of the development but most of the lots were established in a plan approved by the Deerfield Planning Board on December 18, 1985. That subdivision plan as well as one earlier and four subsequent, smaller subdivisions are in Appendix G. The portion of the subdivision north of Ridge Road consists of about 30 lots most of which range in size from three to five acres. The lots tend to be long with narrow street frontage on Haynes Road and are heavily wooded. The portion of the subdivision studied lies on either side of Haynes Road. It is located about three miles west of the Deerfield town center and is accessed by Ridge Road. Figure 5.2.10.1 shows the subdivision as it is represented on the Town of Deerfield Tax Map 414.

Figure 5.2.10.1 Haynes Farm Subdivision, Town of Deerfield, New Hampshire



Summary Table

Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
114	3.02		0.00%
115	3.14		0.00%
116	3.05		0.00%
117	3.77		0.00%
118	5.00		0.00%
119	5.00	2.330	46.60%
120	5.00	0.773	15.46%
121	5.00		0.00%
122	9.71		0.00%
123	3.00		0.00%
124	3.01		0.00%
125	3.00		0.00%
126	3.00		0.00%
127	3.00		0.00%
128	3.00		0.00%
129	3.00		0.00%
130	10.71	2.016	18.82%
131	6.76	2.015	29.81%
132	3.07		0.00%
133	3.33		0.00%
134	6.25		0.00%
135	5.00		0.00%
136	5.03		0.00%
137	6.20		0.00%

As shown on Figure 5.2.10.1, a 150 foot wide transmission line easement crosses the middle of the subdivision. Four lots are encumbered. Three of the four have about two acres in the ROW. The title research identified 17 useable lot sales. The spreadsheet detailing the title research is in Appendix G. The 17 sales are arranged chronologically in Table 5.2.10.1.

Table 5.2.10.1 Deerfield Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Deerfield	414	133	3/26/1984	$17,000	3.33	None	
Deerfield	414	131	2/13/1986	$25,000	6.76	2.015/29.81%	Half of the 150' ROW is the south border of the lot. It reduces unencumbered frontage on Haynes Road from 200' to 125'. Three 75' monopole structures on the property carry 115 kV lines.
Deerfield	414	132	3/13/1986	$29,000	3.07	None	
Deerfield	414	129	3/13/1986	$29,000	3	None	
Deerfield	414	128	3/13/1986	$29,000	3	None	
Deerfield	414	127	3/13/1986	$29,000	3	None	
Deerfield	414	126	3/13/1986	$29,000	3	None	
Deerfield	414	125	3/13/1986	$29,000	3	None	
Deerfield	414	130	3/18/1986	$25,000	10.71	2.016/18.82%	Half of the 150' Row is the north border of the lot. It reduces unencumbered frontage on Haynes Road from 200' to 125'.
Deerfield	414	136	11/7/1986	$42,500	5.03	None	
Deerfield	414	137	11/7/1986	$47,000	6.2	None	
Deerfield	414	135	11/26/1986	$40,500	5	None	
Deerfield	414	116	10/13/1987	$44,000	3.05	None	
Deerfield	414	117	10/13/1987	$44,000	3.77	None	
Deerfield	414	114	1/26/1988	$47,500	3.02	None	
Deerfield	414	119	8/8/1988	$37,000	5	2.33/46.60%	150' Row is south border of lot. Two 75' steel monopole structures carrying 115 kV line on property
Deerfield	414	115	9/28/1990	$33,000	3.14	None	

After an initial sale in 1984, eight lots sold in February and March of 1986 including two of the heavily encumbered lots. The other six lots were part of a bulk sale to Applevale, Inc., a home builder. Applevale paid $29,000 for each of the six lots, all of which were three acres. Lot 131 was larger, 6.76 acres, but the ROW encumbered 35% of the lot including a significant reduction in the developable portion of the lot fronting on Haynes Road. It was purchased for $25,000, a 14% discount relative to the price paid by Applevale, but a modest allowance given the impact of the ROW on the development area of the lot. Lot 130 was also larger, 10.71 acres, and also sold for $25,000 with the same implications of the ROW for the development area of the lot as was the case for Lot 131.

After a pause in sales, over the 13 month period from November, 1986 through January, 1988, another six lots sold, all at prices in the $40,000’s. There were two sales in late 1988 and 1990 at significantly lower prices. A heavily encumbered lot (119) sold in late 1998 for $37,000 while an unencumbered lot (115) sold for $33,000 in 1990. Given the extended time periods, it is not possible to determine whether

Lot 119 was discounted, but if it was, the amount was minor compared to the fact that nearly half of the lot is in the ROW.

In summary, the pricing effects seem to be limited to a possible 14% discount on Lots 130 and 131 both of which experienced substantial effects on the development area of the properties due to the narrowing of their unencumbered frontage on Haynes Road. There does not appear to be any effect of the HVTL on the timing of lot sales.

Figure 5.2.10.2 shows a photograph of Lot 130 as improved taken from Haynes Road.

Figure 5.2.10.2 Photograph of Lot 130 (encumbered) as Improved (taken 7/15/2014)

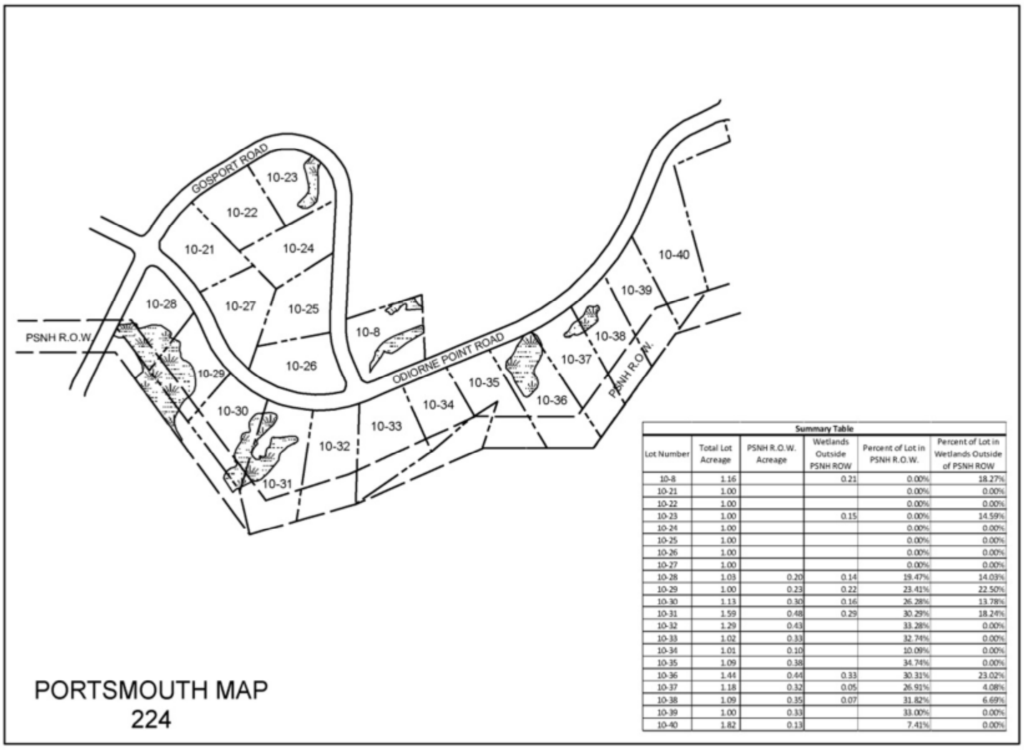
Review of the tax cards for the lots in the Haynes Farm Subdivision indicates a value of $96,000 for three acre home sites with an additional $2,500/acre for all additional land in the ownership. The excess acreage adds incremental value at the rate of 2.6% per acre relative to the site value implying that the rear of the property adds little to the overall value of the property.

5.3 Study Area #3 Subdivision Studies

5.3.1 Portsmouth Subdivision Study

The Tucker's Cove Subdivision Plan was approved by the City of Portsmouth Planning Board on August 13, 1996. The subdivision includes 49 lots with considerable frontage on Tucker's Cove and Sagamore Creek which bound the subdivision on the northeast. The subdivision is a little less than two miles southeast of the Portsmouth City Center and is accessed from Elwyn Road. Most of the lots fall into the range of 1 to 1.5 acres. Figure 5.3.1.1 shows the portion of the subdivision studied here as it is shown on Portsmouth City Tax Map 224. Only the southwestern portion of the subdivision has been studied here as the northeastern portion includes lots with water frontage or significantly greater water influence. As shown in the Figure, a 100 foot wide PSNH ROW crosses all of the lots on the south side of Odiorne Point Road. The ROW contains a single 34.5 kV distribution line on 34 foot tall wood poles. The encumbrance varies but generally is in the 20% to 35% range. In addition, several of the lots have wetlands which affect the location and extent to which the lot can be developed. In total there are 18 useable lot sales. The spreadsheet detailing the title research is in Appendix G. The sales are arranged chronologically in Table 5.3.1.1.

Figure 5.3.1.1 Tucker's Cove Subdivision, City of Portsmouth, New Hampshire



Summary Table					
Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Wetlands Outside PSNH ROW	Percent of Lot in PSNH R.O.W.	Percent of Lot in Wetlands Outside of PSNH ROW
10-8	1.16		0.21	0.00%	18.27%
10-21	1.00			0.00%	0.00%
10-22	1.00			0.00%	0.00%
10-23	1.00		0.15	0.00%	14.59%
10-24	1.00			0.00%	0.00%
10-25	1.00			0.00%	0.00%
10-26	1.00			0.00%	0.00%
10-27	1.00			0.00%	0.00%
10-28	1.03	0.20	0.14	19.47%	14.03%
10-29	1.00	0.23	0.22	23.41%	22.50%
10-30	1.13	0.30	0.16	26.28%	13.78%
10-31	1.59	0.48	0.29	30.29%	18.24%
10-32	1.29	0.43		33.28%	0.00%
10-33	1.02	0.33		32.74%	0.00%
10-34	1.01	0.10		10.09%	0.00%
10-35	1.09	0.38		34.74%	0.00%
10-36	1.44	0.44	0.33	30.31%	23.02%
10-37	1.18	0.32	0.05	26.91%	4.08%
10-38	1.09	0.35	0.07	31.82%	6.69%
10-39	1.00	0.33		33.00%	0.00%
10-40	1.82	0.13		7.41%	0.00%

The sales took place fairly evenly over the period from 1999 to early 2004. Looking at similar time periods when there were both encumbered and unencumbered sales, three comparison periods can be identified in Table 5.3.3.1. -- the six sales that took place in 1999, the two sales in 2000 and the ten sales that took place from 2001 on.

In the first period, the two encumbered lots sold at an average price of about $100,000 while the four unencumbered lots sold for an average of about $150,000. This implies a $50,000 or 33% discount from the unencumbered average. But looking back at the subdivision map, the unencumbered lots (lots 22, 23, 24, 25) are relatively unaffected by wetlands, while the two encumbered lots (lots 30 and 31) have significant wetlands. A conclusion with respect to the effect of the lines must account, therefore, for the possible effect of the wetlands.

Looking at Table 5.3.1.1, the effect of the wetlands can be inferred from the sale of six lots in a 14 month period from September 28, 2001 to December 3, 2002.

Table 5.3.1.1 Portsmouth Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Wetlands outside ROW (ac/%)
Portsmouth	224	25	1/4/1999	$150,000	1		
Portsmouth	224	22	3/10/1999	$140,000	1		
Portsmouth	224	30	4/30/1999	$97,900	1.13	.3/26.28%	.16/13.78%
Portsmouth	224	23	6/8/1999	$150,000	1		.15/14.59%
Portsmouth	224	24	9/14/1999	$165,000	1		
Portsmouth	224	31	10/8/1999	$104,533	1.59	.48/30.29%	.29/18.24%
Portsmouth	224	32	3/30/2000	$125,000	1.29	.43/33.28%	
Portsmouth	224	8	5/12/2000	$160,000	1.16		.21/18.27%
Portsmouth	224	26	3/30/2001	$180,000	1		
Portsmouth	224	28	9/28/2001	$160,000	1.03	.20/19.47%	.14/14.03%
Portsmouth	224	34	10/1/2001	$225,000	1.01	.10/10.09%	
Portsmouth	224	37	7/8/2002	$230,000	1.18	.32/26.91%	.05/4.08%
Portsmouth	224	33	7/30/2002	$235,000	1.02	.33/32.74%	
Portsmouth	224	29	9/9/2002	$150,000	1	.23/23.41%	0.22/22.5%
Portsmouth	224	38	12/3/2002	$238,933	1.09	.35/31.82%	.07/6.69%
Portsmouth	224	39	5/15/2003	$235,000	1	0.33/33.00%	
Portsmouth	224	40	8/8/2003	$230,000	1.82	.13/7.41%	
Portsmouth	224	36	4/21/2004	$225,000	1.44	.44/30.31%	.33/23.02%

All six of these lots are similarly affected by the ROW but lots 28 and 29 have significant wetlands while the other four (lots 33, 34, 37, 38) have little or no wetlands. Further, the two wetlands affected lots sold for an average of $155,000 while the lots free of wetlands issues sold for $232,000, a $77,000 discount or 33%. Going back to the difference observed in the sale price of lots 30 and 31 relative to lots 22, 23, 24 and 25, it appears that the entire 33% discount could be attributable to the wetlands, not the distribution lines.

This result is, however, inconsistent with a pair of sales in 2001. Lot 32 with ROW encumbrance and no wetlands sold for $35,000 less (22%) than lot 8 which had no encumbrance but did have 18% of the lot in wetlands.

From 2001 on, there was only a single sale of an unencumbered lot at $180,000 while the six encumbered lots averaged $214,000 over the remainder of the period. This represents a premium of $34,000 or 19% over the sale price of the unencumbered lots. There are no subsequent sales of unencumbered lots after March 30, 2001 for purposes of comparison, but it is clear from the data that only 6 months or so after the sale of unencumbered lot 26 for $180,000, the encumbered lots were generally selling at around $230,000 except for the two wetlands affected lots (28 and 29). As a result, over the entire 1999 to 2004 period, the encumbered lots sold for an average of $188,000 while the unencumbered lots averaged $157,500. Some of this 20% difference is attributable to increases in real estate prices over the period. It's possible that there was some effect of the distribution lines on the sale prices of these lots, but most of the apparent effects early in the sales period appear to be due to wetlands effects. Subsequently, the encumbered lots sold at very strong prices in spite of their substantial encumbrance.

The timing of the lot sales does indicate a preference for the unencumbered lots. They sold out in an average of a little less than a year, while the encumbered lots averaged about three years on the market. It must be noted, however, that the lots on the north side of Odiorne (the unencumbered lots) had fewer wetland issues and also may have benefitted from greater proximity to the waterfront and the water front access easements.

Figures 5.3.1.2 and 5.3.1.3 show photographs of an encumbered and unencumbered lot respectively.

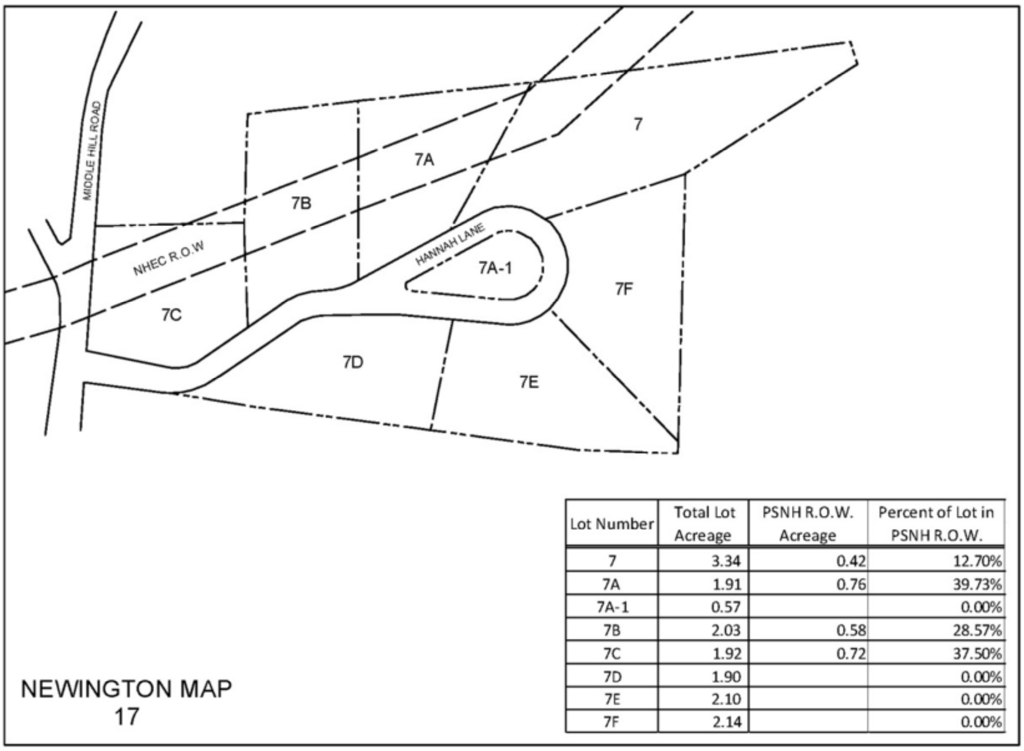
Figure 5.3.1.2 Photograph of Lot 10-24 (unencumbered) as Improved (taken 3/13/15)

Figure 5.3.1.3 Photograph of lot 10-39 (encumbered) as Improved (taken 3/13/15

5.3.2 Newington Subdivision Study

The Coleman Estates Subdivision was approved by the Newington Planning Board on May 5, 1988. Sales took place from late 1989 to July, 1992. The subdivision is located about one quarter of a mile northeast of the Newington town center and is accessed from Nimble Hill Road. It consists of seven lots most of which are about two acres in size. Figure 5.3.2.1 shows the subdivision as it is shown on the Town of Newington Tax Map 17.

Figure 5.3.2.1 Coleman Estates Subdivision, Town of Newington, New Hampshire



Lot Number	Total Lot Acreage	PSNH R.O.W. Acreage	Percent of Lot in PSNH R.O.W.
7	3.34	0.42	12.70%
7A	1.91	0.76	39.73%
7A-1	0.57		0.00%
7B	2.03	0.58	28.57%
7C	1.92	0.72	37.50%
7D	1.90		0.00%
7E	2.10		0.00%
7F	2.14		0.00%

As shown in the Figure, a 100 foot wide PSNH ROW crosses four of the lots in the subdivision. The ROW contains a 34.5 kV distribution line on 34 foot wood poles. Lot 7 is about 13% encumbered while lots 7A, 7B and 7C are encumbered in the 30% to 40% range. In fact, because the ROW passes through the midsection of these three lots, the effective decrease in the development area is in the range of44% to 66%.[15] The title research identified seven useable lot sales. The spreadsheet detailing the title research is in Appendix G. The seven sales are arranged chronologically in Table 5.3.2.1.

Table 5.3.2.1 Newington Subdivision Study Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	ROW Encumbrance (ac/%)	Description of ROW location
Newington	17	7F	10/27/1989	$72,000	2.14		
Newington	17	7C	11/27/1989	$58,000	1.92	.72/37.50%	ROW bisects lot
Newington	17	7A	5/1/1990	$37,500	1.91	.76/39.73%	ROW bisects lot
Newington	17	7	5/3/1990	$48,000	3.34	.42/12.70%	ROW crosses back corner of lot
Newington	17	7B	5/3/1990	$37,047	2.03	.58/28.57%	ROW bisects lot
Newington	17	7D	5/4/1990	$52,500	1.9		
Newington	17	7E	7/10/1992	$76,000	2.1		

[15] The area between the ROW and Hannah Lane is .64 acres, .69 acres and 1.07 acres for Lots 7A, 7B and 7C respectively.

With one exception, the sales all took place in an eight month window from October, 1989 to May, 1990. There doesn't appear to be any pattern in the timing of the sale of the encumbered lots relative to the unencumbered lots. One of the unencumbered lots sold first followed by the four encumbered lots with the two remaining unencumbered lots selling last. The average price for the encumbered lots was $45,100 while the unencumbered lots sold for $66,800 on average. This was a discount of about 32% compared to the 59% average effective reduction in developable acreage for these lots.

Figures 5.3.2.2 and 5.3.2.3 show photographs of an encumbered and unencumbered lot respectively.

Figure 5.3.2.2 Photograph of Lot 7E (unencumbered) as Improved (taken 3/13/15)

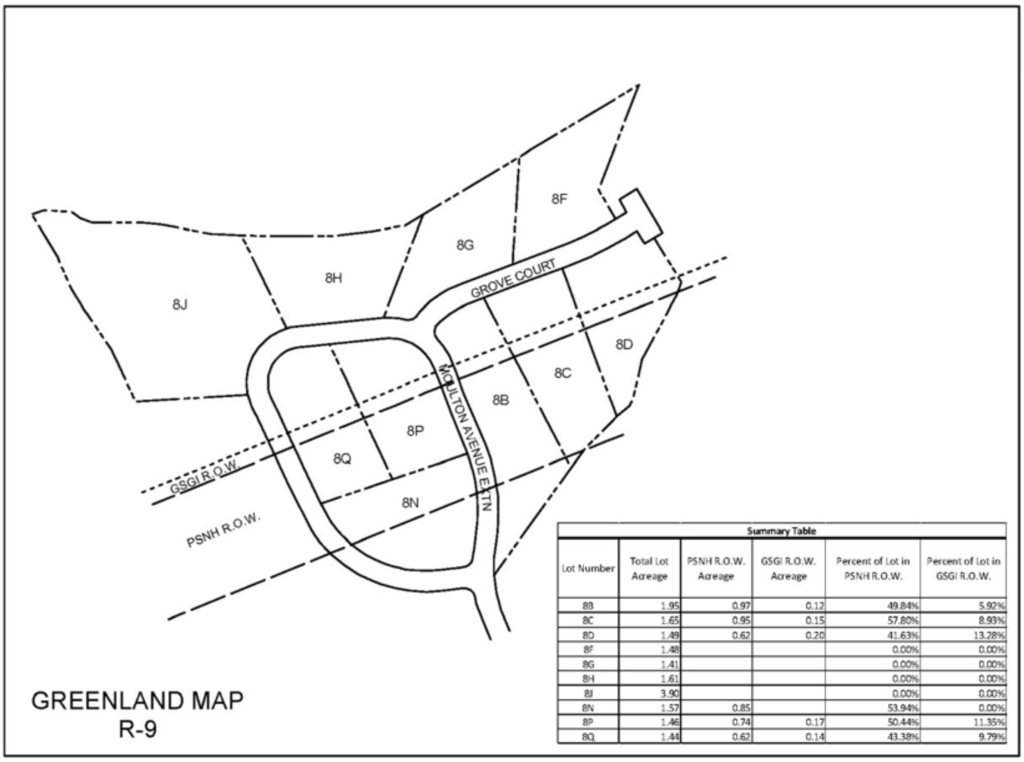
Figure 5.3.2.3 Photograph of Lot 7A (encumbered) as improved (taken 3/13/15)

5.3.3 Greenland Subdivision Study

The Woodland Grove Subdivision was approved by the Greenland Planning Board on June 9, 1987. The sale history of the lots studied stretches over the period December, 1995 to November, 2001. The developer was Hartmann Construction Corp. The subdivision plan is attached in Appendix G.

The subdivision is located a little less than one mile southeast of the Greenland Town Center. It is accessed from Post Road, State Highway 151. As shown on Figure 5.3.3.1, there are 10 lots studied as they are represented on the Town of Greenland Tax Map R9. Most of the lots are about 1.5 acres and as shown on the Figure, six of the 10 are heavily encumbered by a PSNH ROW. The ROW is 265 feet wide and contains 3 lines. There are two 115 kV lines, both on 43 foot tall wood H-Frame structures, and a 34.5 kV line on 34 foot tall wood poles. In addition the ROW is bordered on the north by a 30 foot wide Granite State Gas pipeline ROW. The combined effect of the two utility easements is to encumber between one-half and two-thirds of the six affected lots.

Figure 5.3.3.1 Woodland Grove Subdivision, Town of Greenland, New Hampshire



Title research was carried out on the 10 lots and the spreadsheet summarizing that work is contained in Appendix G. The sales of the lots are arranged chronologically in Table 5.3.3.1. The sale of Lot 8G is not included as the title research indicated that it was not a Fair Market Sale. The table shows the unencumbered acreage for each lot as well as the number of structures on each lot.

Table 5.3.3.1 Greenland Subdivision Summary

Town	Map	Lot	Purchase Date	Price	Size (ac)	PSNH Encum-brance (ac/%)	Gas PL Encum-brance (ac/%)	Unencum-bered (ac/%)	Structures on lot
Greenland	R9	8N	12/26/1995	$65,000	1.57	.85/53.94 %		.72/45.86%	0
Greenland	R9	8J	12/17/1997	$85,000	3.9			3.9/100%	
Greenland	R9	8F	4/27/1998	$79,000	1.48			1.48/100%	
Greenland	R9	8P	8/7/1998	$60,000	1.46	.74/50.44 %	.17/11.35 %	.55/37.67%	3
Greenland	R9	8H	9/22/1998	$88,000	1.61			1.69/100%	
Greenland	R9	8Q	3/31/2000	$80,000	1.44	.62/43.38 %	.14/9.79%	.68/47.22%	1
Greenland	R9	8D	8/16/2000	$80,000	1.49	.62/41.63 %	.20/13.28 %	.67/44.97%	4
Greenland	R9	8C	5/29/2001	$90,000	1.65	.95/57.80 %	.15/8.93%	.55/33.33%	1
Greenland	R9	8B	11/16/2001	$80,000	1.95	.97/49.84 %	.12/5.92%	.86/44.10%	0

After an initial sale in late 1995, four of the lots sold in a condensed time frame from December, 1997 to September, 1998. The remaining four sold over a two year period in the years 2000 and 2001. In the first period, three of the lots were unencumbered while one was 63.2% encumbered and had three structures on the property. Of the 1.46 acres of the encumbered lot, only .55 acres were outside the ROW and developable. It sold for $60,000 while the 3 unencumbered lots sold for an average of $84,000, a discount approaching 30% but not nearly in proportion to the extent of the encumbrance. The last four lots to sell were encumbered in the range of 52.8% to 66.7% and three of the four had structures on the property. They sold for an average of $82,500. Overall, the encumbered lots sold at an average price of $75,800 while the unencumbered lots sold for $84,000 on average, approximately a 10% difference. For the encumbered lots, the average size of the developable acreage was .67 acres while for the unencumbered lots the average size was 2.33 acres, approximately a 71% difference.

The encumbered lots appear to have faced some market resistance. Measuring from the first sale in late 1995, the unencumbered lots averaged 28 months to sell while the encumbered lots averaged 46 months, an 18 month difference in favor of the unencumbered lots.

Figures 5.3.3.2 and 5.3.3.3 show photographs of a representative encumbered and unencumbered lot respectively.

Figure 5.3.3.2 Photograph of Lot 8G (unencumbered) as Improved (taken 3/13/15)

Figure 5.3.3.3 Photograph of Lot 8D (encumbered) as Improved (taken 3/13/15)

5.4 Subdivision Studies: Summary and Conclusions

5.4.1 Summary of Findings

The objective of the Subdivision Studies is to identify residential subdivisions that are representative of the diversity in land use and development patterns across New Hampshire with some lots that are encumbered by, or abut, a HVTL ROW while others do not. Since these are unimproved lots, if there are effects of the ROW on the marketability of the lots, it should be possible to discern differences in the pricing of the two groups of lots or in the rate at which the two groups of lots sold.

In fact, if there are effects, they should be easiest to detect in the context of the Subdivision Studies. First, the effect is not diluted by the value of the improvements. Since improvements commonly account for 60 to 75% of the total value of a residential property, locational factors could have a significant effect on the value of the site but the relative effect on the value of the improved property would be much smaller and perhaps difficult to detect. Second, a key to locational factors affecting site value is the availability of substitutes, some with the locational factor, and some without it. In the context of HVTL, this is much more likely at the point of lot sales than after homes have been built. In the subdivisions studied here, as the subdivision was developed, there were lots encumbered or abutting the HVTL and there were other similar lots without the HVTL influence that provided a good substitute for someone looking to avoid the HVTL. Once homes are built, you are less likely to have close substitutes with and without the HVTL and so the effect, if any, is harder to identify.

5.4.1.1 Findings from the Corridor #2 Subdivision Studies

The findings for each of the 10 subdivisions along Corridor #2 are summarized in Table 5.4.1.1. It was possible to identify a total of 133 sales by the developers of these subdivisions and 51 of these sales involved encumbered or abutting lots. Seven of the 51 were abutting and 44 were encumbered. Five of the 10 subdivisions had some sales after the year 2000 while the others were fairly evenly divided between the 1970's, 80's and 90's. The extent of the encumbrance varied but there were several instances of lots encumbered in the 30% to 70% range. Findings with respect to pricing are discussed first followed by discussion of timing effects.

Table 5.4.1.1 Summary of findings: Corridor #2 Subdivision Studies

Town	Subdivision Name	Date of First Lot Sale	Date of Last Lot Sale	# of Lots Studied	Type	Typical Lot size	# of encumbered or abutting lots	Range of Encumbrance	Location of ROW on Lot	Evidence of Timing Effects	Evidence of Price Effects	Assessor site value	Assessor excess land value/AC	Ratio of Excess value/AC to Site Value
Whitefield	John Matthews SD	7/24/1986	5/22/1987	10	SFD	12 AC	6	.02% to 22.65%	In every case, the ROW was at the rear of large, heavily wooded lots.	No evidence of timing effects.	No effect of encumbrance on sale price.	$35,000	$108	0.30%
Sugar Hill	Nason Farm SD	11/2/1985	6/15/2003	7	SFD	5 AC	6	1.17% to 57.5%	Generally at the rear of wooded lots	No evidence of timing effects	No effect on sale price with the exception of one lot that is severed leaving only a 1 AC parcel that was developable at the front of lot. Only 42.5 % of lot unencumbered. Sold for 47% of comparable lots.	$64,000	$1,500	2.34%
Easton	Pepper Brook SD	9/6/1996	7/18/2001	15	SFD	5.5 AC	2	9.73% to 33.81%	One lot bisected with 33.81% encumbrance and building area compromised.The other crossed at rear of lot.	No evidence of timing effects.	Bisected lot has appears to have suffered a 5% discount relative to lots with fewer development constraints.	$112,500	$3,000	2.67%
Woodstock	Lost Valley SD	12/12/1970	9/14/1979	23	SFD	1.25 AC	5	39.38% to 69.64%	The ROW crosses the rear of wooded lots but the encumbrance is substantial and the lots are small.	Encumbered lots averaged 7 years to sell while unencumbered sold in an average of 4.5 years.	No observable price effects. The encumbered lots had smaller development area than the unecumbered lots. They were larger on average by .49 AC compared to average encumbrance of .89 AC.	$85,000	$3,000	3.53%
Campton	Central Park Estates SD	12/10/1991	5/9/2003	12	MH	1.0 AC	7	7.29% to 43.49%	There are two ROW. Both run along the sides of lots. Lots are wooded but small and the encumbrance on many is significant.	No evidence of timing effects	No evidence of price effects. Encumbered lots sold at prices as good, or better, than unencumbered lots.	$43,560	$2,500	5.74%
Holderness	Heritage Hill SD	1/19/1967	9/12/1986	23	SFD	1.5 AC	7	No encumbered lots	ROW borders the Subdivision. There are 7 abutting lots.	Average sale time for abutting lots was 13.4 years. For non-abutting the average was 11.3 years.	No evidence of price effects. Abutting lots are about .3 AC larger than non-abutting lots.	$45,500	$5,600	12.31%
Franklin	Ceres Timberland Properties SD	6/27/2001	5/23/2002	6	SFD & MH	7 AC	6	14.74% to 23.16%	Lots are heavily wooded. The 225' ROW cuts through the middle of 3 lots. An abandoned 112' ROW borders the other 3 lots.	All 6 sold in 11 months although the lots bordered by the inactive ROW sold before the lots bisected by the 225' active ROW.	No evidence of price effects	$40,000	$1,100	2.75%
Canterbury	Bella Villa SD	10/5/1976	3/25/1985	8	SFD	1.25 AC	3	2.50% to 43.77%	lots are heavily wooded. A 250' ROW crosses back of three lots.	No evidence of timing effects.	No evidence of price effects. The encumbered lots were .18 AC larger than the unencumbered lots. This is similr to the average area encumbered of .20 AC.	$75,000	$3,000	4.00%
Allenstown	Woodridge SD	6/25/2001	8/21/2013	11	SFD	2-4.5 AC	6	12.36% to 27.52%	Lots are long, narrow and heavily wooded. 150' ROW significantly reduces development area	No evidence of timing effects	No evidence of price effects. the encumbered and unencumbered lots sold for the same average price. The encumbered lots were larger but the development area was significantly smaller than the unencumbered lots.	$65,000	$2,500	3.80%
Deerfield	Haynes Farm SD	3/26/1984	1/28/1993	18	SFD	3 AC	3	18.82% to 46.60%	Lots are long and narrow.150' ROW significantly narrows the development area fronting haynes Road.	No evidence of timing effects	Two heavily encumbered lots with significant reduction in site development area sold for 14% less than unencumbered lots	$96,000	$2,500	2.60%

- Price Effects

Of the 51 lots either encumbered by, or abutting, Corridor #2, four showed evidence of price effects. In three cases the effects were small, 5% for one sale in Easton and 14% for two sales in Deerfield. The Easton lot had a 34% encumbrance and the two Deerfield lots were encumbered 19% and 30% respectively. The only other sale showing a price effect was in Sugar Hill where there was a 47% discount. This was a five acre lot with almost three acres encumbered across the middle of the lot, leaving only a one acre development site between the ROW and the street access. Similarly, the development area of the two Deerfield lots was very narrow (200 feet) and the ROW took 75 feet leaving a very constrained area in which to site improvements. The other 47 sales showed no price effects despite the fact that many were heavily encumbered. Overall, price effects were rare. In the three cases where there was a significant effect, development of the lots was severely compromised by the HVTL. Further, in every case, the percentage discount was less than the percentage of the lot encumbered.

- Timing Effects

In seven of the subdivisions, the encumbered or abutting lots sold at the same rate, or in some cases faster, than the control lots. In the other three subdivisions, the average for the encumbered lots was longer. In the City of Franklin the difference was only a matter of a few months as all of the sales took place in 11 months. In Holderness the sales period stretched over a very long period and the encumbered lots averaged 13.4 years while the control lots sold in an average of 11.3 years. The only subdivision where there was a large difference was in the Town of Woodstock where the average marketing time for the encumbered lots was seven years and 4.5 years for the unencumbered lots.

- Lot Size

There were four subdivisions (in the Towns of Woodstock, Holderness, Canterbury and Allenstown) where there was no evidence of price effects but where the encumbered or abutting lots were larger on average than lots not crossed by, or adjacent to, the corridor. In the Town of Woodstock, the HVTL crosses the back of several lots and the encumbered lots are .49 acres larger on average than the unencumbered lots. The average encumbrance is .89 acres, so while the total lot size is larger, the unencumbered portion is smaller by .40 acres yet there was no evidence of price effects. In the Town of Canterbury, the HVTL also crossed the back of several lots. There the average area encumbered, .20 acres, was similar to the increased size of the encumbered lots, .18 acres, so the unencumbered portion of both groups of lots was similar and, again, there was no evidence of price effects.

The subdivision in the Town of Holderness had no encumbered lots but several lots were adjacent to the HVTL and they were about .30 acres larger than the average of the non-abutting lots, 1.28 acres. Finally, in the Town of Allenstown, the subdivision had several lots that were bisected by the HVTL. These lots averaged 3.63 acres but the combination of the HVTL across the center of the lots and wetlands at the rear of the lots left only 1.75 acres on average of development land between the access road and the ROW. This compared to a two acre average for the unencumbered lots which sold at the same price.

5.4.1.2 Findings from the Study Area #3 Subdivision Studies

The 10 subdivisions that were studied along Corridor #2 provided evidence from 10 New Hampshire towns stretching from Whitefield in the north to Deerfield in the south. The sales included in these studies occurred over a substantial period of time and represent many of the State's population centers with the exception of the southeastern, coastal portion of the State. To represent that area of the State, three subdivisions were found within a 10 mile radius of the center of Portsmouth. There were 34 lot sales in the three subdivisions identified for study and 22 of these lots were encumbered by a ROW. The time periods involved included the early 1990's, the late 1990's and the early 2000's. Table 5.4.1.2 summarizes the findings for the three Study Area #3 subdivisions.

Table 5.4.1.2 Summary of Findings: Study Area #3 Subdivision Studies

Town	Subdivision Name	Date of First Lot Sale	Date of Last Lot Sale	# of Lots Studied	Type	Typical Lot size	# of encumbered or abutting lots	Range of Encumb-rance	Location of ROW on Lot	Evidence of Timing Effects	Evidence of Price Effects
Greenland	Woodland Grove	12/26/1995	11/16/2001	9	SFD	1.5 AC	6	53% to 67%	one-half to two-thirds of lot encumbered by PSNH ROW and gas pipeline ROW.	Yes. All but one lot sold in 4 year period but unencumbered lots sold in about half the time as the encumbered lots.	Over the entire period, the encumbered lots sold for about 10% less than the unencumbered lots but their development area averaged only .67 acres compared to an average of 2.33 acres for the unencumbered lots, a 71% difference.
Newington	Coleman Estates	10/27/1989	7/10/1992	7	SFD	2 AC	4	13% to 40%	ROW bisects lot leaving a development area at the front of the lot of only one-third to one-half the original lot size.	No.	Yes. The encumbered lots sold for about 30% less than the unencumbered lots but their development area averaged only .80 acres compared to an average of 2.05 acres for the unencumbered lots--a 59% difference.
Portsmouth	Tucker's Cove	1/4/1999	4/21/2004	18	SFD	1 AC	12	7% to 33%	PSNH ROW crosses the rear of the lots. In addition, wetlands occupy an additional 15% to 20% of the area outside the PSNH ROW of many of the encumbered lots	Yes. The lots all sold in a little over 5 years. The lots encumbered by the PSNH ROW were on the market an average of 3 years, while the unencumbered lots averaged 1 year on the market.	There was a possible price effect due to the HVTL but there is good evidence that the effect was in response to the wetlands on the properties. Over the 5 years as a whole, the encumbered properties sold for about 20% more on average than the unencumbered properties due to the fact that they sold later and that this was a period of rising prices.

- Price Effects

The Greenland and Newington Subdivisions were similar in that there were negative price effects for the encumbered lots although the price effects were small compared to the reduction in the development area of the affected properties. For Woodland Grove in Greenland, there was a 10 % discount in price but the development area of the encumbered lots was 71% less on average than the unencumbered lots. For the Coleman Estates Subdivision in Newington there was a 30% discount in price but the development area of the encumbered lots was 59% less on average than the unencumbered lots. For Tucker's Cove in the City of Portsmouth, the price effect was less clear. Most of the price effect appeared to be due to wetlands on the properties and not the lines. In fact, the encumbered properties ended up for selling for 20% more on average than the unencumbered properties due in part to the fact that they sold later in a period of rising real estate prices.

Overall, the lots in Study Area #3 were smaller (1 to 2 acres), were of greater value and did not have acreage in addition to the home site (what we called excess acreage) which was characteristic of many of the subdivisions studied in Corridor #2.

- Timing Effects

There were timing effects observed at two of the three subdivisions studied. In both the Greenland and Portsmouth subdivisions, the heavily encumbered lots sold less quickly than the unencumbered lots. There were no timing effects observed at the Newington subdivision.

- Lot Size Effects

Despite the large encumbrances on the affected lots in each of the three subdivisions, there was no significant difference in the size of the encumbered versus the unencumbered lots. This results in the portion of the encumbered lots available for development being much smaller for the encumbered than the unencumbered lots.

5.4.2 Conclusions from the Subdivision Studies

Investigation of the lot sale history at 10 New Hampshire subdivisions along Study Corridor #2 indicates a general lack of marketability issues associated with lots encumbered by, or abutting, a HVTL ROW. Timing issues were apparent in only three of the ten subdivisions and two of those were minor. Price effects were even less frequent. In the sale of 51 lots encumbered by, or abutting, a HVTL ROW, there was an apparent price effect in only four cases. It should be reiterated that these conclusions are in some cases based on a small number of sales and there could have been other factors that influenced these transactions that have not been identified here. Nevertheless, the general absence of timing and pricing effects evident here indicates that there is no consistent measurable effect of the HVTL on the marketability of affected lots. This suggests two questions. Why weren't these lot sales more sensitive to the HVTL and can any generalizations be drawn from the small number of cases in which effects were found?

The lots in the 10 subdivisions were generally in excess of one acre. Four subdivisions were in the 1 to 1.5 acre range, two in the 2 to 4.5 acre range and four in the 5 to 12 acre range. A typical lot was a five acre elongated rectangle with relatively narrow frontage and substantial depth. The improvements were almost uniformly oriented to the frontage and set back from the frontage no more than 200 feet.

The backs of the lots were heavily vegetated and the vegetation was seldom more than 50 to 100 feet from the back of the house. Further, the satellite imagery shows no evidence of access to, or utilization of, the rear of the lot. The "excess" acreage to the rear of the lot appears to add little or no utility or value to the property as a whole. A property's value appears to depend on the acre or so devoted to the home site with little utility or value going to the remaining acreage.

The extremely low value, and by implication lack of use and utility, of the rear acreage is corroborated by looking at the way land is valued in the tax assessment process. In New Hampshire, the assessment process is carried out at the town level and there is considerable variation in terms of format and practice but Table 5.4.2.1 shows a consistent pattern. Excess land is typically valued between 2% and 4% of site value on a per acre basis.

Table 5.4.2.1 Relative Value of Excess Acreage Compared to Site Value

Town	Assessor Site Value/Acre	Assessor Excess Land Value/Acre	Excess Land/Site Value
Whitefield	$35,000	$108	0.30%
Sugar Hill	$64,000	$1,500	2.34%
Easton	$112,500	$3,000	2.67%
Woodstock	$85,000	$3,000	3.53%
Campton	$43,560	$2,500	5.74%
Holderness	$45,500	$5,600	12.31%
Franklin	$40,000	$1,100	2.75%
Canterbury	$75,000	d$3,000	4.00%
Allenstown	$65,500	$2,500	3.82%
Deerfield	$96,000	$2,500	2.60%

This helps explain the absence of price and timing effects in the Corridor #2 subdivision lot sales. The used and value generating portion of the lot is the small enclave at the front of the lot where the residence is developed. The rear of the lot plays little role in the value calculation and the presence, therefore, of a HVTL ROW in the rear portion of the lot apparently has little impact on the marketability of the lot.

In each of the four lots where there was a price effect, the lot was bisected and the development area of the remaining portion of the lot between the HVTL and the lot frontage was constrained and awkwardly shaped compared to other lots in the subdivision. In spite of the seriousness of the impact, in three of these four cases, the discount was 14% or less.

The findings for the three subdivisions in Study Area #3 appear to reflect the reality in the southeast area of the State of smaller lots, higher land prices and a general lack of lower valued, "excess" land. In the Greenland and Newington subdivisions, the development area of the encumbered lots averaged

60% to 70 % smaller than the unencumbered lots and sold for 10% to 30% less. The affected lots in the Portsmouth Subdivision were more similar to the Corridor #2 lots. The encumbrance was smaller, 10% to 25%, and was at the back of the lot. These lots were also affected by wetlands which appear to have affected their value.

Consistent with the Corridor #2 findings, it appears that there have to be constraints on the development options for a site before HVTL become a price issue. Or, put another way, the encumbrance has to impinge on the portions of the lot important to the siting of the home for there to be an impact on value.

With respect to marketing time, there was no effect discerned in eight of the 13 subdivisions studied. In the five cases where there was an effect, two were small (Holderness and Franklin) and the other three had lots that were heavily encumbered by the HVTL ROW (Woodstock, Greenland) or by a combination of the ROW and wetlands (Portsmouth).

6 Real Estate Market Activity Research

6.1 Methodology

The previous chapters presented detailed information on individual transactions or groups of transactions which involved properties either encumbered by, or abutting, a HVTL in New Hampshire. These sales were evaluated relative to the sales of similar properties that were not affected by a HVTL. The studies of these transactions are able to address both potential effects on the sale price of the affected properties and the time required to sell the property relative to unaffected properties.

Additional evidence on these questions was pursued by analyzing recent Multiple Listing Service ("MLS") data. MLS data was collected for all residential property sales within one mile of the Corridor #2 ROW beginning on January 1, 2013 and continuing to December 31, 2014. Data were first collected for all sales occurring in towns for which some portion of the town falls within the one mile criterion of the research. The location of the property sold was then determined and straight line distance to the ROW was measured from satellite imagery. In some cases it was not possible to identify the location of the property from the MLS data and in those cases the sale was not analyzed. It was possible to determine the location for approximately 95% of the properties.

The sales were then categorized by distance into three groups—encumbered or abutting, 1 foot to 500 feet and 500 feet to one mile. Table 6.1 shows the number of sales analyzed for each of these three locations for 8 full quarters starting in the first quarter of 2013.

Table 6.1 Number of Residential Transactions by Distance Zone

	Number of Residential Transactions by Distance Zone[16]		
	Abutting/ Encumbered	1-500 Feet	More than 500 Feet
2013 Q1	4	4	40
2013 Q2	10	8	66
2013 Q3	9	8	76
2013 Q4	5	11	60
2014 Q1	3	4	32
2014 Q2	3	12	65
2014 Q3	2	15	103
2014 Q4	6	9	95

The sales of encumbered properties averages about five per quarter, properties located 1 foot to 500 feet about nine per quarter and properties located 500 feet to one mile about 67 per quarter.

There are two measures of market activity that can potentially shed light on pricing and timing issues. The MLS data describe both the listing price of the property and the sale price. The ratio of the sale

[16] The following property types are included: Single-Family Residential, Condo, Multi-Family, and Mobile/Manufactured Housing.

price to the listing price ("SP/LP") is taken as an indication of the strength of the market with significant shortfalls of sale prices relative to listing prices indicative of buyer resistance. Second, the MLS data describe the days the property was on the market ("DOM") under the current listing and again, relatively high DOM would be an indication of buyer resistance. Both measures are examined below.

6.2 Relationship of Sales Price to List Price by Location of Property

It must be recognized that some properties were listed several times with successively lower list prices implying a larger discount from the original listing price than indicated by the ratio of the sale price to the list price under the current listing. Nevertheless, real estate professionals routinely look at the SP/LP ratio as an indicator of market strength with a high ratio indicating an active market with strong demand and a low ratio associated with a slow market with weak demand.

Figure 6.1 shows quarterly averages for the SP/LP data for the three groups of locations for 2013 and 2014.

Figure 6.1 Average Sale Price to List Price Ratio

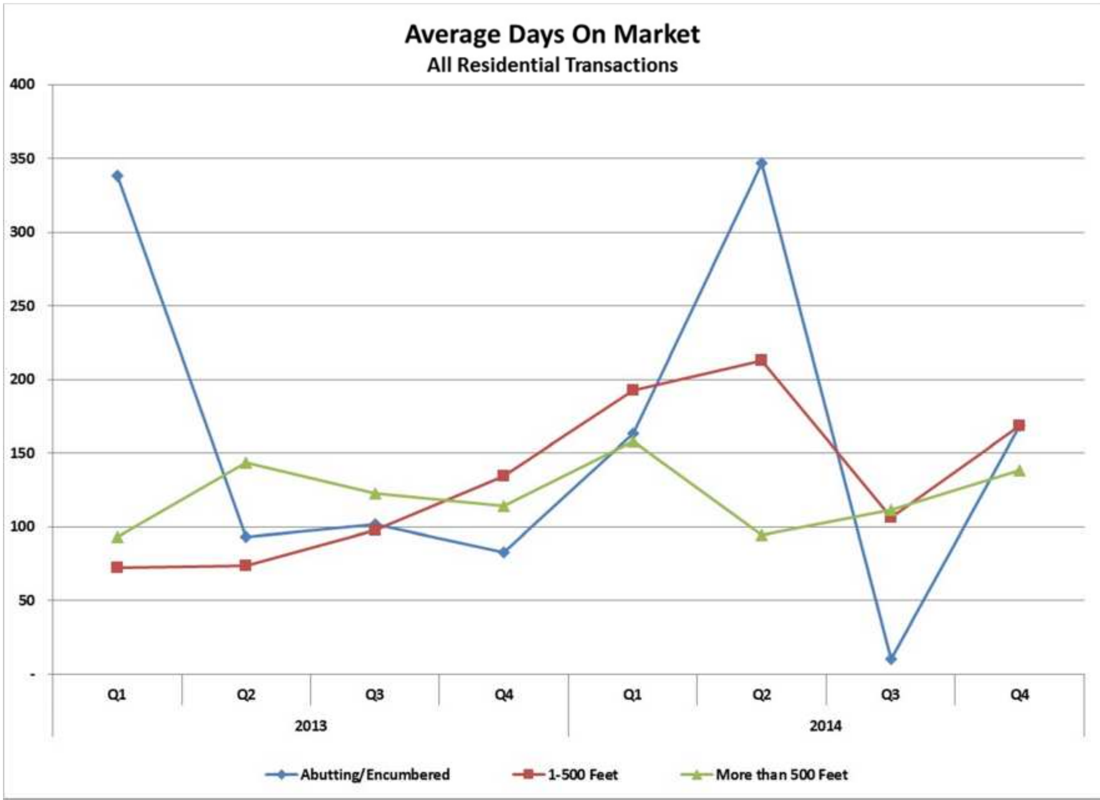
The figure shows that the sales of the encumbered properties tend to have the same or higher SP/LP ratio than either of the other two location groups. The proximate properties have a more mixed relationship to the more distant properties, lower in some quarters, similar in several and higher in others. The number of observations in each quarter is small so not too much should be read into these results, but there is no indication of any systematic market disadvantage of the encumbered properties or the proximate properties relative to the more distant group.

6.3 Days on Market by Location of Property

As with the SP/LP ratio, DOM describes the market experience of the property under its current listing. In the case of properties that have been listed more than once, DOM underestimates marketing time. Nevertheless, DOM is recognized as a good indicator of market strength with low DOM implying an active market with strong demand and a high DOM indicating a slow market with weak demand.

Figure 6.2 shows quarterly averages for DOM for the three groups of locations for 2013 and 2014.

Figure 6.2 Average Days on Market



In six of the eight quarters, average DOM was the same or lower for the abutting/encumbered properties compared to the other two groups. In the other 3 quarters, DOM was higher for the encumbered properties. No analysis has been carried out on these individual sales except to note that the averages for the abutting/encumbered properties for both Q1 in 2013 and Q2 in 2014 were very much influenced by a single transaction (in Q1, 2013 a single property was on the market for 468 days and in Q2, 2014, a single property was on the market for 649 days). The proximate properties have lower DOM than the more distant properties about half the time and higher DOM about half the time. Again, caution must be used in drawing conclusions based on relatively small numbers of observations, but there appears to be no systematic tendency for the DOM of the abutting, encumbered or proximate properties to be greater than for properties at a greater distance from the HVTL.

7 Summary and Conclusions

7.1 The Published Literature

7.1.1 Residential Property

There is an extensive published literature addressing the effects of HVTL on the market value of residential properties. Chapter 2 of this report focused on the most widely quoted of these studies that are relatively recent and deal with study areas in the United States and Canada. These studies all rely on the statistical analysis of the sales of large numbers of residential properties located at different distances from a HVTL corridor. Attributes of the house and lot are controlled for statistically so that possible effects of HVTL (proximity, visibility and encumbrance) can be examined. The results of these studies of improved residential properties have been remarkably consistent over time and in different geographies.

- About half of the studies found negative proximity effects, half find none.
- Where they are found, they are small, usually in the 1%-6% range.
- Where they are found, they decrease rapidly with distance from the HVTL.
- Two of the studies found that where there were effects, they decreased over time as well.
- Once proximity has been accounted for, visibility generally has no additional independent effect.
- Encumbrance frequently has no effect on market value. When there is an effect, it is small.
- There is mixed evidence on whether higher value properties are more vulnerable to HVTL effects.

1.1.1 Commercial/Industrial Property

The professional literature on commercial/industrial property is much more limited but the evidence is sufficiently consistent that some generalizations can be made.

- There is no evidence of effects on marketability or rents.
- Effects only occur if the HVTL constrain the size of the development possible on an affected site.

7.1.2 Vacant Land

There are six prominent studies of vacant land in the published literature. Five of these are statistical and one uses a Subdivision Study approach.

- Four of the statistical studies found no effect of the HVTL on market value.
- One statistical study found a 15% effect on the value of 20 acre lots within 1,000 feet (approximate width of one lot) of double circuit 500 kV lines on 185 foot steel lattice structures. The HVTL were in most cases the principal differentiating feature of the lots and there were many lots on the market from which the HVTL were not visible.
- The six subdivision studies showed half of the subdivisions with no effect on lot sale prices. In the other three subdivisions, effects were limited to lots immediately adjacent to, or crossed by, the HVTL Corridor. In one of these, the two affected lots were larger but there was no sale price

effect. In another, there was a single lot that sold for 50% less than adjacent lots and the HVTL proximity was a significant contributing factor. In the third case, there was a 30% effect on heavily encumbered lots with an extremely intrusive three line HVTL corridor.

7.1.3 Conclusions

These general conclusions have characterized the published literature throughout the past 30 years and there do not appear to be any new or different trends showing in the data. It should be noted that two of the studies have particular relevance to New Hampshire. Chalmers and Voorvaart (2009) looked at Springfield, Massachusetts and Hartford, Connecticut suburbs and found no effects of proximity or visibility on the market value of residential properties. Likewise, Kinnard et al. (1988) came to the same conclusion based on a large number of residential and vacant land sales in Penobscot, Maine.

7.2 The New Hampshire Case Studies

7.2.1 Corridor #1 Case Studies

Eighteen of the twenty four cases (75%) concluded no sale price effect and twenty (83%) concluded no marketing time effect. In the four cases with indicated sale price effects, the effects were small. Each is very heavily encumbered, 46% to 71%, and, most notably, each of the houses is located within 100 feet of the edge of the HVTL ROW.

It is equally instructive to look at the characteristics of properties for which there was no apparent effect of the HVTL on the sale price. There are seven cases with no HVTL visibility and in no instance was it concluded that there was an effect of the HVTL on the sale price. Similarly, there are 16 sales where the house was 101 feet or more from the edge of the HVTL ROW and in no case was it concluded that there was a sale price effect.

In summary, sale price effects in the 24 Corridor #1 Case Studies were infrequent, small and only occurred where there was close proximity, i.e. less than 100 feet from the house to the edge of the ROW combined with partial or, more often, clear HVTL visibility.

Marketing time effects were even less frequent. It was concluded that the HVTL may have extended the marketing time in only three cases. There were several comments by brokers with reference to a reduction in the number of interested buyers due to the HVTL, but rarely did there appear to be any material effect on the marketing period. Further, there were references to several buyers who saw the corridor as an asset to the property.

7.2.2 Corridor #2 Case Studies

The Corridor #2 Case Study results were similar to the Corridor #1 results. Four of the 28 cases, about 14 %, attributed an adverse sale price effect to the HVTL. The difference from Corridor #1 is that there were eight cases (29%) where it was concluded that there was a possible sale price effect leaving 16 (57%) cases where it was concluded that there was no sale price effect. Most of the cases where it was concluded that there had been a possible effect reflected broker opinion that there had been a sale price effect but the appraisal evidence did not support that opinion.

The conditions under which effects did not occur were also similar to the Corridor #1 Case study results. There were nineteen cases in which the lines were not visible or only partially visible and in no instance was an adverse effect on sale price concluded. Similarly, there were nineteen cases where the house was located 101 feet or more from the edge of the HVTL ROW and in only a single case was there a price effect.

In summary, conclusions of negative effect of the HVTL on sale price in the 28 Corridor #2 Case Studies were infrequent and only occurred where there was a combination of close proximity and clear HVTL visibility. Like Corridor #1, close proximity without visibility or visibility without close proximity did not result in sale price effects.

Marketing time effects were concluded affirmatively in five cases (18%) and concluded as possible in six others (21%). In 17 cases (61%) it was concluded that the HVTL did not affect marketing time.

7.2.3 Study Area #3 Case Studies

Of the six Case Studies in Study Area #3, sale price effects were concluded in two cases and possible sale price effects in one other. Effects on marketing time were concluded affirmatively in one case and possible in one other.

The results are similar to those for Corridors #1 and #2. The only properties for which there was a conclusion of sale price effect had homes adjacent to the ROW in one case and 11 feet distant in the other, with clear visibility of the lines.

7.2.4 Overall conclusions from the New Hampshire Case Studies

Looking at the 58 Case Studies collectively:

- Sale price effects are infrequent—10 cases out of 58 (17%) concluded an adverse sale price effect with another 11 cases (19%) concluding a possible sale price effect. Thirty-seven cases or 64% concluded no sale price effect.
- Where sale price effects were concluded, they appear to have been small.
- Sale price effects decrease very rapidly with distance. Only one of the 10 cases had a house located more than 100 feet from the edge of the ROW and seven were within 30 feet.
- With only one exception, close proximity had to be combined with clear visibility of the HVTL for there to be a sale price effect.
- Of those properties that combined close proximity and clear visibility, eight of the 14 had a sale price effect (57%) and six did not (43%).
- The cases with sale price effects not only had homes close to the HVTL ROW but they were often forced to be close to the ROW because the developable portion of the lot was constrained by the location of the ROW on the property.
- Marketing time effects were also infrequent. It was concluded in 41 (70%) of the 58 cases that there was no marketing time effect of the HVTL.

7.3 The New Hampshire Subdivision Studies

7.3.1 Corridor #2 Subdivision Studies

A total of 133 lot sales in 10 subdivisions that were crossed by, or adjacent to, Corridor #2 was studied. Of these, 51 sales involved lots that were crossed by, or abutted, the HVTL ROW. The pricing and timing of the sale of the affected lots were then compared to the market experience of the lots not crossed by, or abutting, the ROW.

- Price effects were rare. Only four of the 51 sales showed any evidence of price effects. In the three cases where there was a significant price effect, the development area of the lot was severely constrained by the location of the HVTL ROW.
- Timing effects were also infrequent. In seven of the 10 subdivisions, the encumbered or abutting lots sold at the same rate, or in some cases faster, than the control lots. There was only a single subdivision where the average marketing time was significantly longer for the encumbered or abutting lots compared to the unencumbered lots.
- In four of the subdivisions for which there was no evidence of price effects, the lots were larger. In three of the four, despite being larger, the actual development area was smaller than the unencumbered lots yet they sold at the same price.

7.3.2 Study Area #3 Subdivision Studies

In order to increase the geographic representativeness of the New Hampshire studies, three subdivisions were selected for analysis in an area in, and around, Portsmouth. There were 34 lot sales in the three subdivisions identified for study and 22 of these lots were encumbered by a power line ROW.

- There were price effects in two of the three subdivisions although the effects were small compared to the decrease in the development area of the affected properties. The price discounts ranged between 10% and 30% but the reduction in the development area of the affected lots ranged from 60% to 70%.
- There were also marketing period effects in two of the three subdivisions. The heavily encumbered lots sold less quickly than the unencumbered lots.
- Average lot size was very similar for the encumbered and the unencumbered lots with the result that the portion of the encumbered lots available for development was very much smaller than for the unencumbered lots.

7.3.3 Conclusions from the Subdivision Studies

A total of 13 New Hampshire subdivisions was studied to see how sale prices and marketing times of lots encumbered by, or abutting, a HVTL ROW compared to otherwise similar lots that were unencumbered by the ROW.

Subdivision Studies offer the most straightforward context in which to try to identify market effects of HVTL. Since the presence of HVTL is a locational factor, like having a golf course view (in the case of a positive externality) or being located close to an airport (in the case of a negative externality), its effect on value (positive or negative) will be capitalized into the value of the land. Thus, if there is an effect of HVTL on market value, it should show up in the sale prices of the unimproved lots. Second, to the extent there is an effect of the HVTL, it will be easier to identify without the confounding effect of the value of the improvements.

- The most important conclusion from the Subdivision Studies was that, despite very large areas of encumbrance ranging as high as 40% to 70% of the lot area, in eight of the 13 subdivisions there was no apparent effect of the HVTL on the prices at which lots sold or in the marketing time associated with the sale of encumbered or abutting lots.
- Where there were effects, it was generally the case that there were serious constraints imposed by the HVTL ROW on the development area of the lot. Further, the discount in price tended to be small compared to the proportion of the lot encumbered. Specifically, in the Portsmouth area, the development area of the encumbered lots tended to be 60% to 70% smaller than the unencumbered lots but sold for only 10% to 30% less.
- The three subdivisions in Study Area #3 compared to the 10 Subdivisions in Corridor #2 tended to be smaller, higher valued and characterized by less “excess land”. This resulted in a more frequent price effect when there was very large encumbrance than was the case with the Corridor #2 subdivisions. Apparently the larger Corridor #2 lots with lower valued “excess Land” were more likely to be able to absorb the HVTL ROW encumbrance with no decrease in sale price.

It must also be remembered, as was pointed out in Chapter 1, that although heavily encumbered lots may sometimes experience a reduction in value, the owner of the property at the time the easement was purchased was compensated for any reduction in value so there was no economic damage at that time. Further, if there was a market value effect, subsequent buyers of the lots would have purchased at a discount so they suffered no economic damage.

7.4 The Market Activity Analysis

A final initiative undertaken in this research was to analyze indicators of market strength available in MLS data for properties in different locations relative to an HVTL corridor. All properties reported as sold by the MLS for calendar years 2013 and 2014 that were located within 1 mile of HVTL Corridor #2 were identified. These sales were placed in one of three categories based on their location relative to the HVTL—abutting/encumbered, one foot to 500 feet or 501 feet to one mile. Two indicators of market strength were then compared for the three groups of sales—the ratio of sale price to list price (SP/LP) and days on market (DOM).

Although the number of observations in the abutting/encumbered and one foot to 500 feet zones were small causing considerable variability from quarter to quarter, the SP/LP ratio for the abutting/encumbered properties tended to be the same or higher than for the other two location groups. The proximate properties had a more mixed relationship to the more distant properties, lower in some quarters, similar in several and higher in one. Again, not too much should be read into these results given the small number of quarterly observations, but there does not appear to be any systematic market resistance to the abutting/encumbered or proximate properties relative to the more distant group.

DOM describes the market experience of a property under its current listing. It is recognized as a good indicator of market strength with low DOM implying an active market with strong demand and a high DOM indicating a slow market with weak demand. DOM was generally lower for the abutting/encumbered properties relative to the other two groups. The proximate properties had a lower DOM than the more distant properties about half the time and a higher DOM half the time. Again, one must be cautious in drawing conclusions based on the small number of observations, but there appears to be no systematic tendency here for the DOM of the abutting/encumbered or proximate properties to be greater than for properties at a greater distance from the HVTL.

7.5 Overall Conclusions

7.5.1 There Is No Evidence of Consistent Measurable Effects of HVTL on the Market Value of Residential Real Estate

- Half of the large statistical studies in the professional literature conclude no effect.
- The two large statistical studies most relevant to New Hampshire (Chalmers and Voorvaart (2009) and Kinnard et al. (1988)) conclude no effect.
- New Hampshire Case Studies of 58 recent residential property sales in which the property either abutted or was crossed by an HVTL ROW concluded in 64% of the cases that there was no effect of the HVTL on sale price.
- New Hampshire Subdivision Studies of raw lot sales concluded no price effect for the encumbered or abutting lots in eight of the 13 subdivisions studied.
- Analysis of MLS data on sale price to list price ratios and days on market indicated no marketing disadvantage to encumbered or abutting properties.

Likewise, there is no evidence of consistent measurable effects of HVTL on the market value of commercial/Industrial properties or on vacant land.

7.5.2 Explanation of the General Absence of Market Value Effects

The behavior of real estate market participants is a function of a very large number of considerations that influence different people in different ways. Therefore, the most accurate method of assessing effects is to observe the result of the interactions of all the participants as they are revealed in actual transactions. Nevertheless, based on the perspective gained from the Case Study and Subdivision Study research, we are able to identify considerations that may be responsible for the absence of market value effects.

- HVTL corridors are often screened by vegetation or topography.
- Despite significant encumbrance, HVTL corridors often only affect the rear of lots that contribute little utility or value to the property.

- The character and condition of the improvements to the property (house, yard, etc.) tend to dominate the attributes of the lot in determining the market value of the property.
- With many of the larger rural acreages, other lot characteristics (access, views, vegetation, water, etc.) dominate the HVTL effects.
- HVTL effects are most likely in the situation where there are similar properties except for the HVTL. This condition seldom holds in New Hampshire due to variability of terrain and the generally heterogeneous housing stock, i.e. the HVTL are seldom the principal differentiating factor between properties.
- The HVTL corridors have positive attributes associated with open space as well as negative attributes.

The conclusion is that even though the presence of a HVTL corridor is generally perceived to be a negative attribute of a property, the weight attached to this particular attribute compared to all the other considerations that go into market decisions is apparently too small to have any consistent measurable effect on the market value of the real estate.

7.5.3 Where There Are Market Value Effects, They Are Small

Despite significant encumbrance by the HVTL ROW and close proximity of the corridor to the house site for some properties, where market value effects are found, they are small.

- In those cases where the large statistical studies found market value effects, they were typically in the range of 1-6%.
- In the 58 New Hampshire Case Studies , there were only three sales where the evidence suggested that the sale prices may have been affected by more than 10%
- Similarly with the New Hampshire Subdivision Studies, there were very few lot sales for which it was concluded that the sale price was affected by more than 10%.
- Where there was an effect, it was generally the case that the lot was sufficiently encumbered by the HVTL ROW that siting of the house was constrained and not able to avoid being close to the corridor or to avoid the visual intrusion of the structures.

7.5.4 Where There Are Market Value Effects, They Decrease Rapidly With Distance

The evidence suggests that where there are market value effects, they dissipate very quickly as distance to the corridor increases.

- When market value effects were found in the large statistical studies, they usually had disappeared once the distance from the property to the HVTL ROW exceeded 500 feet.
- The New Hampshire Case Studies appeared even more sensitive to distance. There was only a single home further than 100 feet from the ROW boundary that showed a market value effect and most were within 30 feet of the ROW.
- Although the New Hampshire Subdivision Studies deal with sales of unimproved lots, significant market value effects were associated with cases where the HVTL ROW constrained the lot so as to force subsequent improvements to be close to the ROW boundary.

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