

16<sup>TH</sup> Pacific Rim Real Estate Conference  
Wellington, New Zealand  
24 – 27 January 2010

**AN UPDATE ON THE LATEST LITERATURE – THE EFFECT OF HIGH VOLTAGE  
TRANSMISSION LINES ON PROPERTY VALUES.**

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*Abstract.*

*This report provides an update on the current literature, in relation to the impact of High Voltage Transmission Lines (HVOTLs) on property values.*

*The bulk of research, has been carried out in America and Canada with limited research in England and New Zealand. An analysis of the literature reveals varying legal requirements in the placement and ongoing maintenance of the HVOTLs, between the different countries.*

*Any effect on property values can be derived from two main components. The first would be due to the size of the structure as it is difficult to not accept that there will be a visual impact. The second is a fear for personal safety, which may be in the form of an immediate safety concern with the structure or lines falling and causing damage, or a fear of adverse health effects from the electromagnetic field generated or perceived by nearby residents.*

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## **Introduction**

The impact of 'external effects' on property values is becoming an important issue to all New Zealanders. Government social policy has placed an increasing emphasis on shifting responsibility back onto the community for facilities, such as Community Housing. These facilities are being placed in residential areas throughout New Zealand. Telecommunication advancement in the form of High Voltage Overhead Transmission Lines (HVOTLs) and Cellnet transmitters have also put pressure on where to site the necessary structures. These structures are necessary within neighbourhoods but fall under the "Not in My Back Yard Syndrome" (NIMBY). Residents know that the structure is necessary but they don't want it near their property. This currently poses a problem in the valuation of properties, as it is unknown what effect these structures have on property values.

Property values play an important role in the market place. They provide information for willing buyers and willing sellers, provide input in legal cases, set the rating tax base, as well as form the predominant wealth base for most New Zealanders. For this information to serve its purposes it needs to be correct and reflect the impact of external effects. This latter aspect has posed and still poses a major problem for property valuers.

Current research in this area is predominantly in the United States of America and Canada. In New Zealand some work has been done on the effect of

HVOTL's and Community Housing on property values. Most of the research has used multiple regression analysis to isolate the effect of the external effect variable from other variable affecting property values. On the whole this approach has not been successful, as it has been difficult to isolate the 'effect' variable. Another reason for the low success has been the small sample size of sales. Others have tried various variable transformations but to date none of these have proved to be successful.

The law in New Zealand, with regard to the placement of the sites, and the disclosure of their existence, is quite different from the USA and Canada. Within New Zealand there are a large number of houses that have been built directly underneath the HVOTLs with the Pylon sited on private property. In the USA and Canada, they have transmission line corridors where there is no structure allowed within so many metres of the corridor (this distance varies between different States).

Understanding the effects of HVOTLs on property values is important to electricity companies in helping plan the routing of these and for determining fair compensation to property owners. The owners of affected properties also want to understand the magnitude of impacts.

### **The HVOTLs study**

This case study examines the effects of HVOTLs on residential property values in the suburb of Newlands, Wellington which has two sets of HVOTLs crossing the suburb. Both lines have 26 metre high pylon towers with lines carrying 110KV.

New Zealand is somewhat unique in that the HVOTLs pass over the top of housing and not over an easement or right of way adjacent to the property, as is the case in the United States of America and Canada. In the Newlands area where the pylons are on privately owned land the electricity company,

Transpower, has an existing use right under the Resource Management Act 1991. These legal access differences have made direct comparison between North America and New Zealand studies difficult. In North America the transmission line corridor effectively distances the lines and pylons from the homes, whereas in New Zealand, as mentioned, pylons can be sited within metres of a house, with the lines transcending these.

### **The Newlands Area**

Newlands is a medium cost dormitory suburb situated approximately 5-10 minutes drive north of Wellington city. It is of a hilly terrain and the HVOTLs were built on ridges within the suburb making them very prominent.

The suburb has panoramic views of the Hutt Valley, downtown Wellington and Wellington harbour. A major detracting feature of the area is its exposure to southerly winds that the city is renowned for, Although the suburb is predominantly single family residential housing there are some multi-unit houses and a small commercial shopping centre.

A large section of the suburb has low voltage overhead power distribution and overhead telephone lines which is a prominent feature in local views. A limitation determined since concluding this research, was the presence of rumours amongst local residents and real estate agents that either one or both lines were to be removed in the near future. This may have influenced the purchasers decision and purchase price. Subsequent to this study the section of the Khandallah - Haywards line through Newlands has been removed. Transpower has no reported plans to remove the Khandallah - Takapau line.

## **2. Literature Review**

There have been only a limited number of studies carried out on the impacts that community houses have on property values. These studies have been predominantly undertaken in the United States of America.

A study undertaken in the United States of America, by Dear (1977) concluded that although there was some increase in property market activity in the vicinity of twelve Philadelphia mental health facilities, the anticipated decline in sales prices did not materialize. Moreover, the changes which did occur were associated with general market trends rather than with the impact of any specific facility.

Breslow (1976) undertook a study of seventeen community mental health facilities in White Plains New York, and found an absence of property value effects. Breslow suggests that communities can absorb a limited number of group homes without measurable effects.

Goodale and Wickware (1979) examined the property effect of group homes in the Ottawa region for ex-prisoners, mentally retarded and children. They concluded that there was no evidence either of property values or of marketability being adversely affected by the presence of group homes in residentially zoned neighbourhoods.

Dear and Taylor (1982) said that there are problems associated with the study of community house impacts. The first problem being a difficulty associated with the need to define a relevant impact area for analysis. A too narrowly defined area tends to underestimate the extent of the property value externality and a too broadly defined area risks diluting the property value impact. The second problem is controlling for "noise" in the data analysis. It is impossible to hold all other variables constant while selected impact indicators are being examined. Hence, sale price may be more influenced by property condition than by the introduction of a new facility. The third problem is one of scale. As a community house is only one house amongst a number of houses it is easy for the effects to

be submerged by general market conditions, especially as the effect will diminish with increased distance from the community house. The fourth problem is obtaining a control area which exactly duplicates the study area. The final problem Dear (1982) discusses is the way in which the data is discounted for various inconsistencies, such as inflation or other market impacts over the period that the data is collected.

The Dear and Taylor study in 1982 looked at an impact area with a radius of 400 metres, broken up into 100 metre intervals. Sales were obtained for two years prior to the community house opening and then two years after. A regression analysis was carried out using the sale price as the dependant variable with three sets of control factors being included as the independent variables. The presence of a community house was treated in two different ways. First, they used a dummy variable to state whether a community house was present in the area. Second, they used a variable showing distance from the community house. A regression using the dummy variable, with no distance variable included, showed a small significant effect. However once the distance variable was included this effect disappeared, suggesting that the price effect cannot be conclusively linked to the presence of a facility.

Dear (1992) published a paper on the NIMBY (Not In My Backyard) syndrome, where he examines the nature of typical opposition arguments and the factors that determine community attitudes. He found that most residents concede that there is a need to have “noxious” facilities including community or group housing, but not near their homes, hence the term “not in my backyard”. The community opposition tends to be cyclical in nature with periods of intense and frequent disputes, followed by extended calms. A previous study that Dear had undertaken in 1976 said that each incident of locational conflict seems to follow a three stage cycle. The first stage of the cycle is ‘Youth’; this is when the news of the proposed house surfaces. The second stage is ‘Maturity’ which is when the debate begins, with both sides gathering support and putting their case forward. This is the stage where concerns about property value declines will be voiced,

along with the perceived threat to personal safety. The third and final stage is 'Old Age'. This is the period towards the end of the conflict if it has been a long drawn out procedure. Typically, at this stage, some kind of arbitration process is adopted, using professional or political resources. Both sides make concessions, or victory tends to go to those with the persistence and stamina to last the course.

*"None of the studies on real estate transactions in the vicinity of human service facilities has demonstrated a property value decline that could clearly be linked to the facility. (Dear and Taylor 1982) Property value changes tend to be associated with broader market movements, such as changes in interest rates or the arrival of large scale property developments nearby, like a new shopping mall. In some instances, neighbourhood property values have actually increased because the facility was so well maintained or renovated that it had a beneficial effect on its neighbours."*(Dear 1992)

A universal factor in all NIMBY conflicts relates to geographical proximity (Smith 1981). The proximity factor should be obvious but is often underestimated. The closer residents are to an unwanted facility, the more likely they are to oppose it. Opposition runs high among those on the same block as a proposed facility. Two to six blocks away, neighbours interest or awareness declines to the point of indifference.

A survey in 1990 by the Daniel Yankelovich Group revealed the following profile of the typical NIMBY advocate: high income, male, well educated, professional, married, homeowner, living in large city or its suburbs. According to this survey, the single best predictor of opposition is income: The more affluent tend to be less welcoming.

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