6. Review of Property Value Impacts at Rapid Transit Stations and Lines
1.0 Introduction

Economic theory predicts that access to transportation services should be capitalized into property values. This technical memorandum reviewed literature related to property impacts in proximity to rapid transit stations and lines. It concludes that there is a positive relationship between property values and station location, as well as a possible negative impact to single family homes along the line due to nuisance impacts.

This memorandum examines research literature in selected cities across North America, including Greater Vancouver, regarding changes in property values that have resulted from major rapid transit improvements. This memorandum is presented in three sections:

- Introduction;
- Literature Review - providing a description of each project, findings and comments; and,
- Conclusions.

2.0 Literature Review

2.1 Overview

This technical memorandum presents summaries related to four research reports:

- “Transit Case Studies for the City of Hillsboro, LRT Station Area Study 1995” (a compilation of relevant case studies);


- “Light Rail Transit Impacts in Portland: The First Ten Years.” Transportation Research Board 78th Annual Meeting (1999); and,
The research reports quantified property value impacts based on three comparison techniques, with each one having both advantages and disadvantages:

- Before and after operation comparisons;
- Distance comparisons;
- Multiple regression analysis.

Each document is summarized in the following sections.

2.2 Research Report 1: Transit Case Studies for the City of Hillsboro, LRT Station Area Study 1995.

Description

This report completed by Economics Research Association in 1995, did a literature review upon property value and rental income impacts of transit stations. The report selected a number of case studies presenting empirical data that we have referenced as part of this review. The case studies addressed various factors impacting property values, such as occupancy, rental rates, etc. Appendix A summarizes the case studies reviewed.

Findings

Relevant empirical data identified by the case studies are presented below:

1. Residential Property Values

- In Washington D.C., based on 1980 sale prices, the value of land was estimated to be $6 to $8 (US) per square foot greater within the impact areas of a Metro station than in a non-station location. (The size of the impact area and the percentage increases were not described);
• In Toronto, based on 1991 data, the Sheppard Subway case study determined that the sale prices of condominiums was higher near the subway station:

<table>
<thead>
<tr>
<th>Proximity to Station</th>
<th>Price Increases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent to the station</td>
<td>20% higher</td>
</tr>
<tr>
<td>Along major roads within 460 metres, and along minor roads within 300 metres</td>
<td>10% higher</td>
</tr>
<tr>
<td>Within 600 metres</td>
<td>5% higher</td>
</tr>
</tbody>
</table>

• In Philadelphia, house values near stations along the Lindenwold High Speed Line were 6.4% higher than house values in non-station locations;

• The San Diego LRT, between 1989 and 1991 had an estimated 5% positive benefit on the overall occupancy of apartment properties adjacent to LRT stations.

2. Commercial Property Values

• A review of various transit systems in North America found that rent premiums of 10% were commonly reported near stations for commercial and office uses;

• At the Lafayette station in San Francisco, constructed in 1970, between 1963-68 average assessed commercial land values in the station area increased 13% annually, whereas in the control area beyond the station they increased by only 3.6% annually;

• In the Central Business District of Washington D.C., between 1977 and 1980, a rental rate premium of $2.00(US) per square foot per year was observed for office space adjacent to Metro stations, while a $1.00 (US) per square foot premium was observed one block from them.

Comments

1. Residential Property Values - The case studies illustrate that, although distances vary depending upon the case study reviewed, land sales prices, rental rates, and in a number of instances, occupancy rates for medium and high-density residential units were higher near rapid transit stations;

2. Commercial Property Values - The case studies reviewed identified higher land and property sales prices and higher office rental rates for commercial properties located near rapid transit stations.

**Description**

Chapter 6 of this report uses a statistical model to analyse the effect of transit upon commercial property values.

**Findings**

The report found that the average value of a commercial property increases as proximity to transit increases.

**Comments**

The results presented are consistent with a previous study completed in 1995 by Parsons Brinckerhoff Quade and Douglas that found that in Washington D.C., commercial properties within 1,000 feet of a transit station had a premium value of $2.00 to $4.00 (US) per square foot.


**Description**

This paper examined how LRT during its first decade of operations in Portland, Oregon has affected auto ownership, transit mode share, development density and property values.

**Findings**

The research report suggests that proximity to LRT can have two different effects on property values:

- Increasing property values in closer proximity to LRT stations; and,
- Decreasing property values in proximity to LRT lines between stations due to nuisance affects.

Chen, Ruffle and Dueker (1997) examined this impact on single family homes along the eastside corridor in Portland, using the distance to a rail station as a proxy for accessibility and the distance to the line itself as a proxy for nuisance impacts. The results indicated that the median price for housing decreased as the distance from a station increased, as follows:
### Distance from Station vs Decrease in Value

<table>
<thead>
<tr>
<th>Distance from Station</th>
<th>Decrease in Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 ft.</td>
<td>-2.4%</td>
</tr>
<tr>
<td>400 ft.</td>
<td>-5.1%</td>
</tr>
<tr>
<td>600 ft.</td>
<td>-7.4%</td>
</tr>
<tr>
<td>800 ft.</td>
<td>-8.5%</td>
</tr>
<tr>
<td>1000 ft.</td>
<td>-9.7%</td>
</tr>
</tbody>
</table>

**Comments**

Overall, this study confirmed the results of similar studies that a positive relationship between residential property values and station location exists.

### 2.5 Research Report 4: Impact of Skytrain on Surrounding Real Estate Values 2000.

**Description**

In 1986, when Skytrain operations opened in the City of Vancouver, owners of many abutting properties complained that the nuisance impacts of Skytrain were greater than expected. Due to these complaints, the BC Ombudsman’s office undertook a review to assess these complaints and subsequently released a report dated November 1987. The report defined five major concerns:

- Loss of Privacy;
- Loss of View and Shadowing Impacts;
- Excessive Noise;
- Community Acceptance or Perception of the Skytrain; and,
- Decrease in Property Values.

In 2000, BCAA undertook a comparison of properties sold adjacent to Skytrain, with those sold in surrounding neighbourhoods with similar characteristics to determine if a price differential existed. Seven sales were identified adjacent to the Skytrain guideway in the Collingwood neighbourhood in East Vancouver. These sales were compared to other sales within the same neighbourhood. For each property BCAA noted the relative location to the guideway (i.e. shadowing impact), the orientation of the property to the guideway (i.e. privacy), the elevation of the guideway (i.e. privacy, view), and the mitigating measures implemented, if any (i.e. earthberm, fencing, landscaping - noise and view).
Findings

Based on the review:

- The values of properties adjacent to sections of the guideway that are below grade or are shielded by earthberms had not changed in any significant or measurable way;

- Properties adjacent to areas affected by shadows from the elevated guideway sold for approximately 5% to 10% less than comparable properties not affected by the guideway;

- The empirical data suggested that the market turnover rate of properties that abut the guideway is not significantly different from other properties in the neighbourhood; and,

- The rate of appreciation or depreciation of property values was not significantly different in the two groups of properties;

Comments

This survey is not considered statistically valid due to the limited number of sales evaluated. However, it illustrates the negative effects upon property values due to the nuisance impacts abutting an elevated guideway.

3.0 Conclusions

The findings illustrate that overall, the introduction of rapid transit stations into communities has had a positive benefit to both residential and commercial properties near stations, however, values have decreased for single family properties abutting rapid transit lines.

Specifically:

- The values of single family medium density residential properties were higher near a station;

- The values of commercial properties were higher near a station;

- The values of single family residential properties abutting elevated sections of a rapid transit line were lower due to nuisance impacts;
Table 1 summarizes the findings:

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Transit Facility</th>
<th>Station Location</th>
<th>Along Guideway Segments between Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Medium/High Density</td>
<td>+ Benefit of 0-5%</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>Residential Single Family</td>
<td>+ Benefit of 0-5%</td>
<td>- Potential negative of 5-10%</td>
<td>na</td>
</tr>
<tr>
<td>Industrial</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>+ Within 1000ft. of transit station premium of $2-4 (US) per sq. ft.</td>
<td>na</td>
<td>na</td>
</tr>
</tbody>
</table>

Legend:

- Positive impact
- Negative impact
na Not assessed part of the review
## Appendix A

### TRANSIT CASE STUDIES: IMPACTS ON PROPERTY VALUE AND RENTAL INCOME

**BENEFITS OF TRANSIT STATION AREA PROXIMITY:**

## RESIDENTIAL

<table>
<thead>
<tr>
<th>CASE STUDY</th>
<th>OBJECTIVE / METHODOLOGY</th>
<th>FINDINGS</th>
</tr>
</thead>
</table>
| Assessment of changes in property values in transit areas | **Objective:** Impact of transit on surrounding land values.  
**Methodology:** Review of existing literature and telephone discussions. Review considered transit systems in Washington, San Francisco, Atlanta, Philadelphia, Baltimore, Miami, Denver, Portland, San Diego, Toronto, Calgary. | Changes in residential land value and rents vary dramatically from (and within) one city to another, and by type of housing. Medium density units located close to stations have more frequently and consistently experienced higher property value gains resulting from rapid transit than single family. |
| Study of BART’s Effects on Property Prices and Rents | **Objective:** Address BART’s effects on residential and commercial property prices and rents.  
**Methodology:** Multiple regression analysis, carried out on eight case studies. Study evaluated pre-service and post-service impacts. Data included comparable land sales, rents, interviews with real estate brokers, etc. | Report illustrates that at three stations, residential property’s proximity to a BART station had a positive effect on its value prior to service, and two stations experienced long-term increases in property prices once service began. |
| The Effect of the Washington Metro on | **Objective:** Undertake a series of econometric models of real estate values | For multi-family structures confirmed the positive effect of proximity to a station on |

## RESIDENTIAL

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<tr>
<td>Urban Property Values. Final report.</td>
<td><strong>Objective</strong>: Review MetroRail’s system contributions to land values at two station areas (Virginia Square, Pentagon City).&lt;br&gt;<strong>Methodology</strong>: Commercial and residential property data obtained from assessors, property homebuilders, developers, etc., supported through interviews. Properties located near and more distant from the stations were compared, and Metro premiums identified.</td>
<td>Virginia Square - (1979 sales prices) a location premium of $9.50 (US) per square foot of living space was calculated for condominiums near the station. &lt;br&gt;Pentagon City - (1980 sales prices) value of residential land was estimated to be $6 to $8 (US) higher per square foot at a station location, than a non-station location.</td>
</tr>
<tr>
<td>MetroRail Impacts on Washington Area Land Values&lt;br&gt;<strong>Source</strong>: Walter Rybeck, 1981</td>
<td><strong>Objective</strong>: Detailed analysis of the benefits to land owners near existing stations was conducted in the “area of intense impact” (the four corners adjacent to the stations), condominium market values. The estimated elasticity of price with respect to distance to nearest station indicates that the effect of distance to a Metro station on multi-family prices declined rapidly with increasing distance.</td>
<td>In the “area of intense impact” (the four corners adjacent to the stations), condominium</td>
</tr>
<tr>
<td>Sheppard Subway Financing Study. Final</td>
<td><strong>Objective</strong>: Review MetroRail’s system contributions to land values at two station areas (Virginia Square, Pentagon City).&lt;br&gt;<strong>Methodology</strong>: Commercial and residential property data obtained from assessors, property homebuilders, developers, etc., supported through interviews. Properties located near and more distant from the stations were compared, and Metro premiums identified.</td>
<td>Virginia Square - (1979 sales prices) a location premium of $9.50 (US) per square foot of living space was calculated for condominiums near the station. &lt;br&gt;Pentagon City - (1980 sales prices) value of residential land was estimated to be $6 to $8 (US) higher per square foot at a station location, than a non-station location.</td>
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## Appendix A

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#### BENEFITS OF TRANSIT STATION AREA PROXIMITY:

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<td><strong>Report.</strong> Source: IBI / Coopers &amp; Lybrand Consulting, 1991</td>
<td>examined. <strong>Methodology:</strong> Using 1991 data, authors compared real estate values of properties within three “benefit zones” and estimated premiums or values associated with proximity to the Sheppard subway stations.</td>
<td>sale prices were higher by 20% per unit than non subway station area condominiums. In the “area of impact” or within 460m from subway stations on primary streets, and 300m in both directions along secondary streets, condominium sales prices were 15% higher per unit than non subway station condo prices. In the “area of influence” or 600m in each direction from subway stations and along the major and secondary streets, condominium sales prices were 5% per unit higher than non subway station condo prices.</td>
</tr>
<tr>
<td>Sacramento Regional Transit District Preliminary Benefit Report Source: Kreiger &amp; Stewart Incorporated, 1992</td>
<td><strong>Objective:</strong> Feasibility of using Assessment District to finance extension of rail line. <strong>Methodology:</strong> Report discussed the increases in property values, lease rates, and retail sales resulting from transit improvements.</td>
<td>Empirical evidence supporting an increase in property values. In Philadelphia, values of residential properties located in close proximity (proximity not defined) to the Lindenwold High Speed Line stations were higher by approximately 6.4% to average house prices as compared to non-station residential properties. (findings based on a regression analysis with an approximate margin of error of 40%)</td>
</tr>
</tbody>
</table>

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<th>CASE STUDY</th>
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</table>
| Analysis of the Impact of Light Rail Transit on Real Estate Values | **Objective:** Examine the impact of the light rail transit system on real estate values in San Diego.  
**Methodology:** Data on 2500 properties was collected March 15, 1989 to October 31, 1991. Values along existing rights of way, including stations, were compared to the value of similar properties (of the same neighbourhoods, land use, size and condition) located further from the line. | The San Diego LRT has an estimated 5% positive benefit on overall occupancy (a capitalized value of about 2,920 (US) per unit), in apartment properties adjacent to the LRT stations. |
| A Study of Housing Built near Rail Transit Stations: Northern California | **Objective:** examination of rents in transit based housing projects within a ¼ mile radius of transit stations.  
**Methodology:** Data collected for housing project rents, at different distances, and customer surveys. | The rents of transit based housing projects (apartments) were higher than almost all the rents of similar projects not near transit stations (proximity not defined). 
A survey of developers indicated that six out of nine respondents reported that station proximity had increased rent or sales of housing projects. |

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**TRANSIT CASE STUDIES: IMPACTS ON PROPERTY VALUE AND RENTAL INCOME**

**BENEFITS OF TRANSIT STATION AREA PROXIMITY:**

**COMMERCIAL**

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**Methodology:** Review of existing literature and telephone discussions. Review considered transit systems in Washington, San Francisco, Atlanta, Philadelphia, Baltimore, Miami, Denver, Portland, San Diego, Toronto, Calgary. | Commercial and office rental rates have increased with proximity to transit stations. Rent premiums of 10% are commonly reported in the vicinity of stations. |
| Study of BART’s Effects on Property Prices and Rents | **Objective:** Address BART’s effects on residential and commercial property prices and rents  
**Methodology:** Multiple regression analysis carried out on eight case studies, data included comparable land sales review and rents, interviews with real estate brokers, etc. | Results proved that commercial properties distance to a BART station had a positive effect on office rents during the post BART service period. Results also supported some benefits of being located near to BART stations in terms of higher property prices during the pre-service or anticipatory period. |
| Land use and Transportation Study Transit Impact at | **Objective:** Detailed analysis of the changes in assessed value in station areas for period 1963 –1968. Study is limited to description | From 1963 to 1968 average assessed commercial land value in the station area increased by 65% (13% growth per annum) |

**Source:** Information extracted from report entitled Transit Case Studies for the City of Hillsboro LRT Station Area Study. Economics Research Associates.
# Appendix A

## TRANSIT CASE STUDIES: IMPACTS ON PROPERTY VALUE AND RENTAL INCOME

### BENEFITS OF TRANSIT STATION AREA PROXIMITY:

### COMMERCIAL

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<th>CASE STUDY</th>
<th>OBJECTIVE / METHODOLOGY</th>
<th>FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LaFayette Station Area</td>
<td>of the impact of the station at site selection stage as construction did not begin until 1970.</td>
<td>while in the control area (an area of similar development characteristics but which would not be served by BART) the average assessed value increased by only 18% (3.6% per annum).</td>
</tr>
<tr>
<td><em>Source: Stanford Research Inst., 1970</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Effect of the Washington Metro on Urban Property Values. Final report</td>
<td><strong>Objective</strong>: Undertakes a series of econometric models of real estate values estimated for land parcels over a period of Metro’s development.</td>
<td>The coefficient on the variable for distance to the nearest Metro station was negative and significant, indicating commercial properties further away from Metro stations sold for lower prices. Further, the effect of distance to a Metro station on commercial property prices declines rapidly with increasing distance.</td>
</tr>
<tr>
<td><em>Source: Centre for Transportation Studies MIT, 1978</em></td>
<td><strong>Methodology</strong>: Utilize data on single family, multi-family and retail between 1969 to 1976 consolidating transaction prices and measuring distance to station.</td>
<td></td>
</tr>
<tr>
<td>MetroRail Impacts on Washington Area Land Values</td>
<td><strong>Objective</strong>: Review MetroRail’s system contributions to land values at two station areas.</td>
<td>Central business district - Rental rate premium of $2 per square foot per year for office space immediately adjacent to Metro stations and $1 per square foot per year for space one block away were calculated.</td>
</tr>
<tr>
<td><em>Source: Walter Rybeck, 1981</em></td>
<td><strong>Methodology</strong>: Commercial and residential property data obtained from assessors, homebuilders, developers, etc. Supported through interviews compared near and more</td>
<td></td>
</tr>
</tbody>
</table>

Source: Information extracted from report entitled Transit Case Studies for the City of Hillsboro LRT Station Area Study. Economics Research Associates.
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<tr>
<th>CASE STUDY</th>
<th>OBJECTIVE / METHODOLOGY</th>
<th>FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit Joint Development in the United States: A Review of and Evaluation of Recent Experiences and an Assessment of Future Potential  &lt;br&gt; <em>Robert Cervero Urban Mass Transit 1991</em></td>
<td><strong>Objective:</strong> Study effects of transit service on commercial real estate performance indicators: office rents, absorption, vacancy.  &lt;br&gt; <strong>Methodology:</strong> Data collected over 12-year period 1978-1989.</td>
<td>The report indicates that rents of offices located near stations in Washington, Atlanta were on average higher than the rents of comparable offices further away from the stations. The benefit of proximity to rapid transit stations on stations area office rents was long term extending from before to after station opening.</td>
</tr>
<tr>
<td>Sacramento Regional Transit District Preliminary Benefits Report  &lt;br&gt; <em>Source: Kreiger &amp; Stewart Incorporated, 1992</em></td>
<td><strong>Objective:</strong> Feasibility of using assessment district to finance extension of LRT.  &lt;br&gt; <strong>Methodology:</strong> Report discussed the increases in property values, lease rates, and retail sales resulting from transit improvements.</td>
<td>Report documents increase in the values of land and properties located near rapid transit stations, but also provides evidence of increased commercial activity and real estate development in station areas.</td>
</tr>
</tbody>
</table>

Source: Information extracted from report entitled Transit Case Studies for the City of Hillsboro LRT Station Area Study. Economics Research Associates.