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ECONOMIC CONSULTANTS

**Estimates for the Proposed Supplementary Development
Contribution Scheme for Metro North**

Report to Dublin City Council

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Executive Summary

1. This report provides an estimate of the impact of the proposed Metro North on relevant property values in Dublin City and recommendations for the design of a Supplementary Development Contribution Scheme (SDCS) to part-finance the Metro. The relevant property in the study area have been identified as properties suitable for development or redevelopment with the life of a 30 year SDCS that lie within 1 km of the proposed Metro route.
2. The estimated impact on property values is based on the views of estate agents in the area and in other areas of Dublin where major investments in transport infrastructure have been completed and review of material from other studies.
3. A total of 247.3 ha will be subject to the SDCS. The research indicated that the Metro will have a positive impact on property prices, although this is difficult to quantify. The impact is likely to be greatest on residential property and on retail property in the inner city with somewhat lower impacts on commercial property. The total impact is estimated at between €1.07 and €1.73 billion.
4. The levy rate set under the scheme must be set at a level that will raise adequate revenue to part-finance the infrastructure, but must be proportionate to the service that is provided by the Metro and the increase in property values that has been calculated, and must not divert development from the city to other areas.
5. Two potential rating schemes were considered to meet these criteria:
 - rates equal to the Luas B1 rate indexed to 2007 at 5% per annum;
 - rates to ensure that the value of the revenue will not exceed 20% of the increase in property values.
6. Having assessed the implication of the various rates, the following rates are recommended for 2007:

Residential	€2,540 per unit
Commercial	€22.35 per m ²
Retail	€32.20 per m ²

The rates identified for residential and non-retail commercial development are consistent with the Luas B1 and Fingal schemes while the retail rate is 11% above the Fingal rate. The rationale is the relatively higher value of retail property in the inner city where most of the forecast retail development is located.
7. These rates should be indexed at 5% per annum. The estimated present value of the SDCS using these parameters is €113.2 million.

1. Introduction

This report has been prepared as an input to the design of a Supplementary Development Contribution Scheme (SDCS) to part finance the Metro North infrastructure from St. Stephen's Green to the city's boundary with Fingal at Ballymun. Under Section 49 (1) of the Planning & Development Act 2000, Planning Authorities may include conditions when granting planning permission requiring the payment of a contribution towards the costs of providing a specified piece of public infrastructure. The legislation requires that the spatial area to which the Scheme will apply is specified in designing the scheme for the contributions. For the purposes of this study, this has been defined as approximately 1km from the route and the relevant areas have been identified by Dublin City Council.

Section 49 allows for considerable flexibility in designing schemes but it is important to show that the projects qualifying for inclusion under such a scheme must provide a direct benefit to any development that is subject to the SDCS. It is also necessary in the interests of good governance that the scheme is designed and is implemented in a manner that is transparent, certain, equitable and efficient, and that it is appropriate to the particular development in question. This is achieved through clearly setting out in advance the basis of the levy and its application. These requirements are addressed in this report in the form of 3 tasks. These are to:

- Provide an estimate of the benefits in the form of enhanced property values for property that will be included within the SDCS that will arise as a result of the Metro being constructed. This property is defined as areas where development of redevelopment is forecast to be undertaken during the 30 year life of the SDCS. These areas have been identified by Dublin City Council.¹
- Identify the optimum rate of levy
- Identify optimal levy rates for alternative types of development i.e. residential, commercial and retail.

It should be noted that the nature of these tasks means that precise numerical values are possible for parameters such as the recommended levy and indexation rates, but that estimation of the potential impact of the Metro on property prices and property markets is a more subjective exercise so that a range of values is used.

Section 2 of this report covers the first of these tasks and discusses the potential impact of the Metro on property values. The rationale is that this is a reflection of the benefit of the Metro. Section 3 identifies levy rates for the different types of development and provides recommendations on levy rates in year 1 and subsequent indexation. Section 4 summarises the results and structures the conclusions according to the tasks identified.

¹ Statements and forecasts regarding current and potential land usage are based directly on information provided by Dublin City Council for the sole purposes of this report and the consultants have not undertaken research on this aspect of the study. As a result, nothing in this report should be interpreted as either a commitment or a recommendation in relation to current or potential aspects of land usage.

2. Evaluation of Property Benefits

2.1 Assessment of Impact on Values

Approach and Methodology

Section 49 requires that a planning authority designing a SDCS must clearly identify the new infrastructure and the benefits that will accrue as a result of this infrastructure being in place. The benefit that will arise will depend on the amount of property in question, the current value of this property and the change in value as a result of the Metro. The study area has been defined by Dublin City Council as property within 1 km distance from the proposed route for Metro North. This is in accordance with international study and experience, and existing Section 49 schemes. As a result, only property within this catchment area that is forecast to be likely to be developed or redeveloped with the 30 year lifetime of the SDCS has been assessed.

This section examines the likely impact of the Metro on these property values. Three approaches are used to provide an estimate of the potential impact on property values:

- Expert opinion obtained through consultations with estate agents in the city to identify their views on the potential impact;
- Interviews with estate agents and others in property development in the Dundrum and Sandyford areas, where the Luas Green Line operates, and along the Luas Red Line from Crumlin to Tallaght.
- Review of material from other studies.

While it is possible that planning applications may be compiled and permission for development granted as a result of the Metro being developed, the valuation of the impact of the infrastructure on property values does not identify this as the basis for increased values. Rather, the value arises as a result of the increased benefits to residents and visitors to the study area and businesses located in the area. These benefits mean that property owners are willing to pay more for their houses and premises as reflected in market prices. The methodology identifies the increase in these values as the benefit for a number of reasons. First, it avoids an assumption that any change of zoning and usage takes place because of, and only because of, the investment in the infrastructure. In the context of a 30 year time horizon and the rapid development of the city, including a number of new transport and other infrastructural developments, this assumption would certainly be open to question. Second, the purpose of this valuation is to identify a basis for the application of a levy under the SDCS. Under the legislation this levy is applicable when planning permission is finalised and this implies that the decision to allow a change of use has already been made well in advance. Finally, and arguably most importantly from the point of view of designing and implementing the SDCS, the levy is essentially a tax and, as argued below, the tax will fall on final purchases and business

operators². The value of the levy that is accessed can only be a proportion of the value that is perceived by the final purchasers – otherwise they would not pay it by not buying property in the area. It is important that the calculation does not include value that has accrued to property owners far removed from those paying the levy, and does not suggest that this value could be included in calculating the potential take from the Scheme.

In summary, the calculation is not based on the increase in the value of land when a decision is made to facilitate development or redevelopment but on the impact of the Metro in increasing the value of the buildings that will be constructed. This approach is in keeping with the rationale for Section 49 which stresses the importance of identifying the direct impact of the infrastructure and with the objectives of this report.

Expert Opinion

A number of estate agents working in the city centre and the north side of the city were contacted in order to get an insight into the potential impact of the Metro on property values in the study area. There is general agreement that the Metro would have a positive impact on prices. However, it is very difficult to isolate this effect and most were hesitant to identify any particular percentage increase. In addition, the impact in the city centre may be limited as there is already good access to public transport. The general view was that although potential house purchasers are aware of the proposed infrastructure and that it would influence prices, any impact would be relatively small compared to the impact of the wider economic outlook that is driving the market. The main driver of prices in the residential sector in particular will remain the supply of new houses relative to the ongoing buoyant levels of demand. In other words, prices will be determined to a much greater extent by factors such as interest rates, the rate of new supply and overall economic conditions.

Views were generally quite conservative in terms of the likely impact of the Metro on commercial and office prices. Infrastructure such as the Metro is seen as likely to have the greatest impact where new office parks are being developed for high value service and knowledge industries. With a few exceptions, these areas will tend to be outside the City area in the suburbs. However, there is greater potential for retailing in the inner city as improved public transport will improve its ability to draw in customers from the suburbs. The impact is likely to be less in the outer city where the benefits of the Metro will be at least partly offset by its potential to divert customers towards the city. In summary, therefore, the Metro is expected to have a positive effect on residential prices with a lower impact on commercial property, the exception being retailing in the city centre where a significant positive impact is possible.

² In other words, it will be passed on to home owners and business operators who may be able to pass it on to their customers. Whether they do so will be a business decision depending on economic conditions. To argue otherwise would be to argue that potential purchasers were unwilling to pay for the benefits that accrue from accessing the Metro.

While generally viewing the likely impact as positive, respondents were unwilling to identify precise numbers in terms of the likely size of the impact on residential prices but accepted suggestions that the impact on residential prices would likely be in the region of 5 to 10% although the impact in the inner city would be lower as it is already relatively well served by public transport. The impact on commercial property would be somewhat below this.

An issue of considerable importance is that there was widespread agreement that a levy along the lines implemented in the Luas B1 area would not have any noticeable detrimental impact on the property market. General economic conditions are of much greater importance and proximity to the Metro would add to the attractiveness of the properties. While these views are expressed against the background of a very vibrant market currently, the easy acceptance of the idea in principle is important and underlines the strongly held view that property purchasers would be willing to pay for improvements in local public transport.

Expert Opinion from Areas Served by the Luas

Respondents along the Luas lines expressed similar difficulties in attempting to identify the precise impact of the infrastructure on property prices in adjacent areas. However, the estate agents were clear that the impact had been positive. Proximity to the Luas is used as a marketing tool although there is no agreement in relation to the distance from the line where this is important with respondents varying between 1km and 3km in terms of the area influenced. All agreed that the impact would extend to at least 1km. There is also general agreement that the greatest impact of the Luas on prices was seen once the infrastructure became operational when a real acceleration in prices was perceived.

It is particularly difficult to assign a rise in prices to the Luas along the Green Line where the completion of the M50, the Dundrum Shopping Centre and the new employment opportunities in the Sandyford area are all very important. There was a strong feeling that the impact of the Luas depended on the total package offered by the area. In this respect, while it is not possible to identify transport infrastructure separately, improved access to the city and along its route is an important element in the general upgrading of the city.

The situation along the Red Line is somewhat different in that it tends to serve a more settled area for most of its length. Here agents were more willing to see the impact as something in isolation. Prices all along the line have risen rapidly with slightly faster rises along the older more settled areas. One observation of relevance is that the Luas made housing in some areas attractive to people who would not have otherwise considered the area i.e. the area comes to be seen as qualitatively superior. Easy access to the city, as distinct from access only to local facilities, is now a key marketing issue in many areas outside the M50. It is expected that the Metro will have a similar impact on the North side of the city.

The Luas has also had an impact on commercial decisions but not necessarily on the value of commercial premises with the likely exception of the Sandyford area. In this case, a concentration on the development of knowledge-intensive industries means that there is a considerable premium from high quality supporting services such as rapid commuter transport. However, road infrastructure was seen to be a much more important consideration for industry in Tallaght although rents for office space have risen.

When pushed to place a precise percentage on the impact of the Luas on prices, most estate agents said that it was not possible to net out a single element in the development of the Sandyford area although all accepted that a rise in the region of 5 to 10% would not be an exaggeration for residential property and that it could be greater in the long run. There is no perception that the levy to fund the B1 extension would impact negatively on the rate or the type of development given the over-riding perception that the area is now a highly attractive location for knowledge businesses and workers.

Respondents along the Luas Red Line were somewhat more inclined to identify the Luas as a distinct element in the development of the area and assign an impact. Many accepted that prices have been boosted by 10% in settled areas as a result of the Luas, particularly since it began operation. The rise might be greater and ongoing and some impact was seen before operation so that a greater rise in values is possible although none would assign an increase above 15% in values as a result of the infrastructure. In all cases, the impact on commercial property prices was seen as lower with limited impact on general industrial property although it is perceived that the Luas has had a positive impact on retail businesses, and thus property values, in Tallaght.

Published Material

Although it is clear that the link between investment in infrastructure and property values is an important issue, particularly given the trend towards the joint sharing of costs that underlies the introduction of Section 49, there is actually very little comparable published research that concludes unequivocally that specified property prices rose as a result of a particular piece of infrastructure let alone research that puts a value on the increase.

There is a long standing general acceptance that, in theory, “*any improvement in transportation infrastructure is capitalized into land values in a short – term urban partial equilibrium*” (Mills, 1972). Many empirical studies have tested this theoretical premise using different techniques in a range of locations and have provided contrasting results. Some studies have found a significant positive impact on property values. It is estimated that the Helsinki Metro developed in the 1980s increased house prices within a 1km limit by 6% but that the increase was less in the immediate vicinity of stations due to noise and congestion³. In the case of Hong Kong it has been estimated that the light rail system increased apartment prices by 3% within an equivalent radius of a 10 minute walk

³ Laakso, S. (1992) ‘Public Transportation Investment and Residential Property Values in Helsinki’. *Scandinavian Housing and Planning Research*, Vol. 9, pp. 2170229

from a station⁴. The strongest effects appear when the transport infrastructure is in place over a considerable period. For example, research has found that distance from a metro station was a key determinant of rents for apartments in Washington DC with each one-tenth of a mile extra distance resulting in a decrease in rent of 2.5%⁵. However, elsewhere in the US, it was found that development of the Miami Metrorail had only a marginal effect on house prices over the longer term. In this case it would appear that accessibility was only marginally improved and subsequent development did not take place as expected emphasising the point that the investment in itself might not provide the expected benefits.

In the UK, the Manchester Metrolink has been found to have had only a marginal impact on prices of nearby houses with adverse effects thought to have counteracted the gains⁶. The same study found a more complicated picture in Sheffield. Prices were estimated to have risen modestly before construction work began on the Supertram system but this had disappeared by 1993 and a fall in values of 3% was recorded. However, a later study found that by 1996 a small rise in prices could be attributed to the new transport infrastructure⁷. It is notable that this cycle would appear to be correlated with house prices in the UK in general in this period suggesting that the impact of new infrastructure may be to magnify gains in a rising market but that there may be little impact in a relatively quiet market. Further afield, a study in Taipei found that there was a significant impact of new infrastructure on prices but that the impact of the subway system on prices varied from location to location depending on factors such as distance from the city centre and building type⁸.

Some work has also been undertaken in advance of investment in the proposed Crossrail project in London. This study estimated that the value of the property stock in the relevant area would increase by 5-10% once completed⁹. The study appears to see this as a once-off effect on the area and did not examine the enhanced development opportunities for the area, presumably since the route was through an already developed area where considerable redevelopment had already taken place or would occur in any case. This estimate would appear to be towards the upper end of the results found by researchers for operational systems. However, considerable positive price effects have been found in relation to the Jubilee Line Extension on London Underground in 1999¹⁰.

⁴ So, H., R. Tse, and S. Ganaesan (1998) 'Estimating the Influence of Transport on House Prices: Evidence from Hong Kong. *Journal of Property Valuation and Investment*, Vol. 15, pp.40-47

⁵ Benjamin, J. and G. Stacy Sirmans (2001) 'Mass Transportation, Apartment Rent and Property Values'. *Journal of Real Estate Research* Vol. 12, pp. 1-12

⁶ Forest, F., J. Glen and R. Ward (1996) 'The Impact of a Light Rail System on the Structure of House Prices'. *Journal of Transport Economics and Policy*, Vol. 30, pp. 15-29

⁷ Henneberry, J. (1998) 'Transport Investment and House Prices' *Journal of Property Valuation and Investment*, Vol 16 pp. 144-158

⁸ Lin, J. J., and C. H. Hwang (2004) Analysis of Property Prices Before and After the Opening of the Taipei Subway System. *Annals of Regional Science*, Vol. 38 pp687-704

⁹ Hillier Parker (2002) *Crossrail: Property Value Enhancement*. Report prepared for Canary Wharf Group

¹⁰ *Rail Business Intelligence*, Issue 247 June 2005 and Jones Lang La Salle Report for Transport for London (2004). The former report provided estimates of increased property values of £2.1 billion within 1km of the Canary Wharf station but the latter estimated only £78 million in the case of the Southwark station.

The conclusions of the available literature are in line with the views of estate agent in that improved infrastructure does generally provide a benefit to property values in the vicinity, but that it is very difficult to identify this in respect of a particular parcel of land and a particular investment because the timing may be due to cycles in property prices arising from interest rates changes and economic conditions. Changing tastes and demographics may also submerge the effect. Overall, the impact will depend on associated developments, such as retail opportunities and environmental enhancement, and planning permissions that allow the values to be released.

Conclusions

The views of estate agents and evidence from areas close to the Luas support the expectation that the Metro will have a positive impact on property prices, although this is difficult to quantify. While some early impact is likely, the greatest impact is likely to be seen once the system is operational. This will be seen in residential values and office and commercial property values where high-tech services are located. Retailing in the city centre is also likely to benefit although the impact along the route outside the city is less certain. There is potential for the impact to be ongoing in the sense of a long term increase in the growth rate of property values rather than a once-off gain. The overall impact will depend on the ongoing development of the city, of which Metro is just one element. While changes in property prices will depend on general developments in the economy, it is expected that areas close to the Metro will fare better than the market in general. Internationally, it is widely accepted that there are benefits but these have been difficult to identify in practice and estimates have varied widely. Studies suggest that a 10% rise would appear to be high but the extent of the gain will depend on the benefits of the infrastructure in terms of easing congestion, improving accessibility and facilitating or incentivising further property development. The extent of the deficiency in Dublin's transport infrastructure means that it is reasonable to expect that the potential gain is towards the higher end of the range in line with what is expected from the Crossrail project in London.

This analysis suggests that the impact on residential property prices is likely to be at least 5% but that a rise of 10% while possible in the outer city may be excessive for the inner city where the impact will be less. However, the full impact may take some time to be seen. As a result, the calculation below uses two rates of 5% and 8% for residential property.

The impact on commercial property will depend on the type of property in question. For office and similar commercial properties, rises somewhat below those for residential property are likely. The calculation uses high and low rates of 3% and 6% in the calculation.

Assessing the likely impact on retailing is more complex as car transport will remain important for areas outside the city centre and there is also potential for diversion from

local business to the city centre as access is improved. Accepting that there are particular difficulties in estimating the impact that should be attributed to the Metro on retail values the calculation below uses a range of 3 to 5% for the impact on areas in the outer city and 6 to 8% for inner city areas¹¹.

These estimates are summarised in Table 2.1.

Table 2.1: Projected Ranges for Impact of Metro on Property Values

Residential	5 to 8%
Office/high tech commercial	3 to 6%
Retail (Inner city)	6 to 8%
Retail (Outer city)	3 to 5%

2.2 Property Base and Valuations

Property Stock in Study Area

The study area totals 1,409 hectares. However, only 17.5% of this area has been identified by Dublin City Council as having potential for development or redevelopment and therefore subject to the SDCS,. This amounts to 247 ha. The data allow for this property to be identified by location and categorised by use as residential, office commercial and retail. These areas are shown in Table 2.2.

Table 2.2: Locations and Areas Subject to SDCS (ha)

Location	Total Area	Area in SDCS	Category of Use		
			Residential	Commercial	Retail
Ballymun FDA	23	8	4	2	2
Phibsborough/Mountjoy FDA	41	20	10	8	2
Grangegorman FDA ¹²	33	20	1	19	
Markets FDA	22	15	10	3	2
Marrowbone Land FDA	8.5	8.5	7	1.5	
Ship Street FDA	8.5	4	4	~	
Newmarket FDA	6	6	6		
Z5 Zoning	178	17.8	8	4	5.8
Z6 Zoning	48	48	28.8	18.2	1
Z10 Zoning	17	17	11.9	5.1	
Retail Core	6	6			6
Development Sites	77	77	77		
Total	468	247.3	167.7	60.8	18.8

¹¹ The inner city area is comprised of the Markets FDA, the part of Marrowbone FDA that is within the study area, the retail core and the Z5 zone.

¹² Grangegorman FDA excluding Z10

For valuation, it is necessary to translate these areas into numbers of residential units and square metres of commercial space. Dublin City Council forecast that residential areas will be developed at a rate of 120 units per ha in these areas. Commercial and retail development plot ratios will depend to an extent on location and the forecast is for development to provide 30,000m² per ha in the outer city and 35,000m² in the inner city. This provides the development estimates shown in Table 2.3

Table 2.3: Forecast Development Subject to SDCS

Location	Residential(Units)	Commercial (m ²)	Retail (m ²)
Ballymun FDA	480	60,000	60,000
Phibsborough/Mountjoy FDA	1,200	240,000	60,000
Grangegorman FDA	120	570,000	
Markets FDA	1,200	105,000	70,000
Marrowbone Land FDA	840	52,500	
Ship Street FDA	480		
Newmarket FDA	720		
Z5 Zoning	960	140,000	203,000
Z6 Zoning	3,456	546,000	30,000
Z10 Zoning	1,428	153,000	
Retail Core			210,000
Development Sites	9,240		
Total	20,124	1,866,500	633,000

Property Values

With a projected density of 120 units per ha, it is clear that the new residential development foreseen in the study area will comprise apartments. It is assumed that these will be 2 bedroom units on average. A survey was undertaken of such properties currently on sale and recently sold on the north side of Dublin dividing the region into the inner and outer city areas. The average price was €400,000 in the inner city and €360,000 in the outer area.

Commercial property prices were derived for 4 categories: commercial property i.e. offices in the inner and in the outer city and retail premises in the inner and outer city. Annual yields for commercial properties are currently estimated at 5% for office, and 3.79% for retail for Ireland as a whole¹³. Vacancy rates and construction rates for office space outside prime areas remain quite high with the result that there is quite a range. Currently, city centre office rents are in the range €300 to €450 per m². At 5% yield this translates into a sale value of €6,000 to €9,000 per m². This gives a mid-point estimate of €7,500 per m² for the city centre commercial space. Office rents in the outer city are lower but in a tighter range of about €200 to €270 per m². With 5% yield, this gives an average value of €4,700 per m².

¹³ Society of Chartered Surveyors (2006) *SCS/IPD Irish Property Index*.

A very large range in rents also exists in the case of retail. Retail properties are available for in the region of €400 to €500 per m² per annum on the edges of the prime areas but double this and above is sought for a small minority of leading properties. The average of a range of properties in the main shopping areas was €700 per m² per annum. Away from the main shopping areas, retail space is achieving in the region of €300 per m². A value of €500 per m² per annum is used giving a property value of €13,200 per m² for retail property in the inner city. In the outer city area, smaller retail outlets in prime locations have achieved rents of over €500 per m² inferring a market price of about €14,000 per m² at the average yield. However, these are the exception and including a wider range of retail properties indicates that an appropriate value for high street retail property would be in the region of €9,000 per m² with €5,000 per m² for other retail property. The average of these last estimates is used to indicate a value of €7,000 per m² for retail development in the outer city study area. However, it is recognised that there is a very large range with some prime locations worth well above this.

Potential Increase in Value

Applying these estimates to the property base that is subject to the SDCS, as contained in Table 2.3, provides the estimates of the potential impact of the Metro for the high and low range. The results are contained in Table 2.4 if the impact is at the low end of the range identified in Table 2.1.

Table 2.4: Estimated Impact of Metro on Values with Low Impact (€m)

Location	Residential	Commercial	Retail
Ballymun FDA	8.64	8.46	12.60
Phibsborough/Mountjoy FDA	21.60	33.84	12.60
Grangegorman FDA	2.16	80.37	0.00
Markets FDA	24.00	23.63	55.44
Marrowbone Land FDA	16.80	11.81	0.00
Ship Street FDA	8.64	0.00	0.00
Newmarket FDA	12.96	0.00	0.00
Z5 Zoning	19.20	31.50	160.78
Z6 Zoning	62.21	76.99	6.30
Z10 Zoning	25.70	21.57	0.00
Retail Core	0.00	0.00	166.32
Development Sites	166.32	0.00	0.00
Total	368.23	288.17	414.04

Table 2.5 shows the increase in values if the impact is at the high end of the range identified.

Table 2.5: Estimated Impact of Metro on Values with High Impact (€m)

Location	Residential	Commercial	Retail
Ballymun FDA	13.82	16.92	21.00
Phibsborough/Mountjoy FDA	34.56	67.68	21.00
Grangegorman FDA	3.46	160.74	0.00
Markets FDA	38.40	47.25	73.92
Marrowbone Land FDA	26.88	23.63	0.00
Ship Street FDA	13.82	0.00	0.00
Newmarket FDA	20.74	0.00	0.00
Z5 Zoning	30.72	63.00	214.37
Z6 Zoning	99.53	153.97	10.50
Z10 Zoning	41.13	43.15	0.00
Retail Core	0.00	0.00	221.76
Development Sites	266.11	0.00	0.00
Total	589.17	576.33	562.55

This valuation shows a range of €1.07 to €1.73 billion for the impact of the Metro on property values in the areas subject to the SDCS. These increases are split fairly evenly between the different categories of property with a slightly higher percentage accruing to retail using the low impact estimate as shown in Table 2.6.

Table 2.6: Value Created by Property Type (%)

	Residential	Commercial	Retail
Low Impact	34.4%	26.9%	38.7%
High Impact	34.1%	33.4%	32.6%

3. Recommended Levy Rates

3.1 Basis for Application of Levy

The levy can be applied either as a fixed flat rate across the area or it can be related to underlying property values within the area. The former is clearly simpler to apply, consistent and transparent and would not provide any incentive for developers to distort the location of development within the area to avail of lower rates. The downside is that it may mean that less valuable property is subject to the same rate as other property, a situation that would be addressed by applying variable rates. This might be particularly important in the case of retail where inner city values and assessed impacts are higher than in other areas. However, it is recommended that a flat rate should be applied so as not to introduce any risk that retailing might be diverted from the city centre. On balance, the benefits outweigh the costs with a flat rate as internal distortion will not occur and it is easily understood. However, different rates should be used according to the category of the development proposed. Three rates are proposed below representing residential, commercial and retail development.

The second decision is whether the levy should be applied on the basis of the underlying property i.e. € per hectare, or on the basis of the actual area developed i.e. € per housing unit or per m² for commercial property. The former approach provides some degree of certainty in relation to projections of future revenue streams since the areas to which the levy will be applied are known. With the latter, the revenue stream would be related to the plot ratios and densities achieved and these are somewhat less certain in advance. In other areas where Section 49 schemes have been designed the former approach provides an incentive for developers to increase the plot ratios and densities of development. However, this is not considered to be important in the city area where high densities are likely to be achieved due to the shortage of development space. Overall, given that the areas in question are small, it is more appropriate that the levy is applied on a per unit basis for residential development and a m² basis for commercial and retail. This will also assist in maximising the potential take of the scheme as higher densities will increase its value.

Based on Table 2.3 the forecasts of future development to which the levies will be applied are shown in Table 3.1.

Table 3.1: Areas for Application of Levies

Residential Units	20,124
Commercial (m ²)	1,866,500
Retail (m ²)	633,000

3.2 Levy Rate

Criteria for Consideration

Although there is no ideal comparable situation for ‘pricing’ the levy, it is possible to identify a number of standards that the levy adopted must meet. In line with general principles of taxation the levy must:

- be set at an appropriate level to raise the finance required;
- be justified in terms of the service provided;
- be enforceable without undue diversion of activity and distortion of the economy; and
- be proportionate so as to recognise the realities of the tax base and the risks and uncertainties that exist.

In terms of the project under consideration, these can be expressed as a number of criteria that the levy rate set under the scheme must meet. These are:

- The levy must be set at a level that will raise revenue with a present value that is adequate to finance in part construction of the infrastructure;
- The amount raised must be proportionate to the service that is provided in terms of the number of passengers that will use the Metro when compared to other systems;
- The levy must not inhibit the ongoing development and redevelopment of Dublin City given the high probability that there will be at least one complete property cycle during the 30 year time horizon where different areas will compete for development;
- The present value of the projected revenue must be a portion of the increase in property values that has been calculated so as not to distort locational decisions.

Level of Finance Required:

The first criterion that the levy must raise a particular proportion of the cost is not dealt with in this report. To design the levy when emphasising this would risk working back from the conclusion to see what rate might provide this value rather than analysing what rate the area can be expected to bear so as to provide a revenue stream taking due recognition of the potential and risks involved. However, this is a matter for consideration by the Council in reviewing the conclusions of this report and in subsequent decisions relating to the design of the Scheme.

Service Provided:

A Contribution Scheme for financing the Luas B1 extension has been developed. It can be argued that the levy should be set at a level that reflects the service that will be provided as a means of ensuring consistency. This approach was used to identify a levy rate for the proposed SDCS for Phase 1 of the Navan Dublin Railway Line. In this case, peak transit was estimated at 6 trains per hour – 50% of the Luas B1 estimate – so the levy was set at 50% of the Scheme for Luas B1.

Planning for the Luas B1 Scheme modelled demand with a 5-minute headway at peak and 10 to 15 minutes at off-peak times using the DTO model. This identified hourly demand of 6,629 persons in peak times and 1,967 off-peak with incremental demand as a result of the extension estimated at 1,238 per hour peak and 367 off-peak¹⁴. The capacity on the Luas Green line to Sandyford is currently 4,500 persons in one direction based on 40 metre trams at 4 minute intervals. Recent work estimates that 7,500 trips one way would be generated on Metro North in both the morning and evening peaks with a total daily ridership of 37,500 on the average weekday¹⁵. This work estimated that the potential for total annual ridership would be over 1.5 times updated projections for the Luas Green Line and other estimates have suggested figures above this. Clearly, therefore, the proposed Metro would be expected to provide a service superior on this measure to the Luas B1. However, this analysis does not indicate an appropriate levy for the levy as it would suggest values up to twice those used in other SDCSs. This would risk placing the city area at a disadvantage in terms of its attractiveness as a location for development. Thus, while Luas B1 offers a comparable situation in some respects, this criterion would not be a constraint to adopting a higher rate. However, this criterion does mean that the Dublin City SDCS should be consistent with the Fingal SDCS.

Minimise Diversion and Distortion:

The value of the Scheme will depend on the levy rate applied and on the amount and timing of the development that takes place. While the purpose of the levy is to raise finance, it is relevant to view it in terms of the overall competitiveness of the city as a location for future development. This might be particularly relevant in a period of relative downturn in property markets. The rates set for the Luas B1 scheme in 2003 were €250,000 per ha for residential development and €570,000 per ha for commercial development indexed at 5% per annum. In 2007 values, these rates equate to €304,000 per ha for residential development and €693,000 per ha for commercial development. It is necessary to ensure that the rate set for Metro North would not be perceived in a difficult economic environment as placing the city at a relative disadvantage that could displace the development.

Proportionality:

The legislation is designed to allow the providers of infrastructure to access part of the value created in property. As a result, the revenue obtained must be a percentage of the value created for the people who ultimately pay the levy. Failure to do so would greatly increase the risks associated with the potential for development to be displaced. It is necessary to keep the proportion of the overall value that accrues to the Council not only below the overall amount but well below it. The levy may be viewed as akin to a capital gains tax and, as such, the rate should not exceed 20% of the value created in commercial property. However, it should be lower in the case of residential property given that capital gains tax is not charged on primary residences.

¹⁴ *An Economic and Planning Assessment of an Extension to LUAS Line B to Cherrywood & Shankhill.* Report by Peter Bacon & Associates, McHugh Town Planners and Steer Davies Gleave, January 2000.

¹⁵ Private correspondence with Roughan & O'Donovan Consulting Engineers.

Potential Diversionary Impact of the Levy

The payment of the levy imposes a cost on either the current owners (or some future owners) of undeveloped land or land suitable for redevelopment that must be met at the time of the development. However, it may be possible for this cost to be passed on to the final owners e.g. homebuyers, once the land is developed. While it is not possible to predict with certainty the extent to which this will occur, economic theory gives some indication of where the incidence of the levy will fall. This is described in the Appendix to this report. The conclusion is that the impact of the levy will depend on the ability of developers to pass it on to purchasers without affecting demand i.e. the price elasticity of demand.

Consultations with estate agent indicate that the impact of the levy would be small and quite easily absorbed in the residential sector although there could be some impact in the commercial sector. The retail sector could be sensitive as it competes with the growth of suburban centres but the Metro will have a positive impact on the city as a retail centre so this should not be excessive provided the levy is not set excessively high. Preliminary indications for areas where a SDCS has been developed also suggest that there would be a limited impact. As a result, it would appear that there would only be a limited direct impact from introducing the levy assuming that recent conditions are maintained. The potential for the wider economic environment to change would appear to be far more important.

Levy Rate in Year 1

The need to ensure that the levy reflects the service provided is not a constraint as mentioned above while it is not possible at this stage to assess whether the revenue will be adequate given that cost estimates have not been published for the Metro. As a result, it is possible to identify two potential rating schemes:

- rates equal to the Luas B1 rate indexed to 2007 at 5% per annum. This would result in levies of €2,540 per residential unit at 120 units per ha and €22.35 per m² for commercial and retail development¹⁶;
- rates to ensure that the value of the revenue will not exceed 20% of the total value arising due to increased property values in any category, when assessed at the lower end of the range identified above. This would result in a residential rate of not more than €3,600 per unit, a commercial levy of €28.20 per m², and a retail rate of €42 per m². These maximum rates are approximately 42%, 26% and 88% respectively above the Luas B1 rate.

This analysis places lower and upper values on the appropriate levy. It is clear that the recommended rate must achieve a balance between raising adequate finance, remaining proportional to the value created and not diverting development from the area. In the case of residential development it is considered that the need to remain consistent with

¹⁶ This assumes an average plot ratio of 3.1 for commercial development i.e. 31,000 m² per ha.

other areas with a SDCS in place should be given priority particularly since the logic underlying the second approach is not relevant as capital gains tax is not payable on residential property. The recommended rate is therefore €2,540 per unit.

In the case of non-retail commercial development the evidence would suggest that the relatively low projected impact of the Metro on values and the competition from newly developed business parks on the city periphery – particularly in the light of forecast developments in the Sandyford and Swords areas which the Luas and Metro will serve – could make this sector sensitive to high levy rates. To avoid this, it is again recommended that the levy used should be consistent with the Luas B1 and Fingal rates. The recommended rate is therefore €22.35 per m².

The situation with regard to retail is not so clear. The proposed Fingal scheme recognises that the higher property values in the retail sector provide a rationale for a higher rate than in the case of commercial property. In addition, retail development in such an area is less prone to diversion as it will follow residential development to the area. Thus, the latter argument above is relevant and the proposed rate is set at 35% above the rate in the Luas B1 scheme. This argument is also valid in the case of Dublin inner city where the Metro is expected to have a significant positive impact on retailing. However, the impact will be a lot less noticeable in the outer city. Furthermore, the argument in relation to diversion that was relevant in Fingal does not apply in the city centre as retailing does not depend primarily on the local population but on attracting customers from other areas. Therefore, there is potential for diversion of development. To strike a balance, it is recommended that the levy for retailing is set at the mid-point of the two rates identified above, i.e. at €32.30 per m². This is 11% above the proposed rate for the Fingal area. However, the potential impact of the Metro on retailing is greater in the inner city area where most of the proposed retailing development is forecast. Furthermore, as shown in Table 3.3, this rate still represents a relatively modest proportion of the value created as retail accounts for about 1/3 of the value identified but only 18% of the estimated levy raised.

The recommended rates on the basis of these considerations are shown in Table 3.2.

Table 3.2: Recommended Levy Rates in 2007 Prices

Category	Rate
Residential	€2,540 per unit
Commercial	€22.35 per m ²
Retail	€32.20 per m ²

These rates will be indexed. Different indexation factors are available. The Luas B1 scheme adopted a flat rate of 5% per annum with no reference to wider developments such as the possibility that inflation might exceed this rate. On the other hand, Cork County Council has indexed the levy to the rate of consumer inflation. However, there is no definitive reason why the index should be the CPI and property prices have outperformed this index for a prolonged period and the most recent projections are that a rate of price increase closer to 5% is likely for housing over the medium term.

Furthermore, services inflation is higher than the CPI and the Metro is a service. On balance, there would appear to be a more persuasive argument that the index rate should not be linked to the CPI but should exceed this rate. A key issue is the wish to preserve the real value of revenue i.e. to try to ensure that the impact of discounting is offset by the indexation. As a result, the recommendation is that the Council should index the levy at 5% per annum.

It is necessary to discount all future flows to a base year when assessing the yield from the SDCS. A discount rate of 5% per annum has been recommended by the Department of Finance since the early 1990s¹⁷. This has approximated the rate paid on public debt in Ireland in the past – repayment of which is assumed to represent the alternative use, and thus the opportunity cost, of public funds. While it is possible to argue a case for alternative rates, these arguments do not provide a definitive reason to conclude that the 5% per annum discount rate recommended by the Department of Finance is not appropriate, although an argument can be made for a lower rate. The recommended discount rate is 5% per annum.

Applying an indexation rate of 5%, the present value of the stream of payments from the SDCS when discounted at 5% per annum is €113.2 million¹⁸. This will arise as shown in Table 3.3.

Table 3.3: Levy by Property Type

	Residential	Commercial	Retail	Total
Value (€million)	51.11	41.72	20.38	113.21
% of total	45.1%	36.8%	18.0%	

Comparing this with Table 2.6 above shows that the levy on retail development is somewhat low as a percentage of the value created when compared to other types of development. However, the rate is already above what is proposed for the Fingal area and the rate used in the Luas B1 scheme. Achieving some element of consistency with these schemes is important and a high levy on retail in the city could divert retail development from the area. In doing so it would undermine the value created by the Metro which relies on the attractiveness of the city as a retail location. There is, therefore, a balance to be found between extracting a consistent part of the value created and not placing the city at a relative disadvantage in attracting development.

¹⁷ Department of Finance (1994) *Guidelines for the Appraisal and Management of Capital Expenditure Proposals in the Public Sector*

¹⁸ This assumes a even rate of development over the whole period and that all the identified lands are developed.

4. Conclusions

The Terms of Reference for this project were based on providing the answers to 3 questions set by Dublin City Council. These questions centred on identifying the potential impact of the proposed construction of the Metro North on property prices along its route and providing advice and estimates to be used in designing a SDCS to part finance this infrastructure. The methodologies employed are described in detail in the text and are summarised in this section along with the conclusions drawn from the results obtained.

Task 1: Estimate the benefit arising in terms of increased property values as a result of the construction of Metro North in the context of developing a SDCS

Three approaches were used to provide an estimate of the potential impact on property values:

- Consultations with estate agents to identify their views on the potential impact;
- Views of estate agents in other areas of Dublin where major investments in transport infrastructure have been completed.
- Review of material from other studies.

The study area is defined in accordance with international study and experience and existing Section 49 schemes as property that will be suitable for development or redevelopment within the next 30 years and is within 1 km distance from the proposed Metro route. A total of 247.3 ha will be subject to the SDCS.

The research indicated that the Metro will have a positive impact on property prices, although this is difficult to quantify. This analysis suggests that the impact on residential property prices will be greatest with somewhat lower impacts on non-commercial property. Retail property in the inner city is likely to experience a significant positive impact. The research produced the estimates shown in Table 4.1.

Table 4.1: Projected Increase of Property Values

	Percentage	€m, low impact	€m, high impact
Residential	5 to 8%	368.23	589.17
Commercial	3 to 6%	288.17	576.33
Retail (inner city)	6 to 8%	414.04	562.55
Retail (outer city)	3 to 5%		
Total		1,070.43	1728.05

This means that the Metro will increase the value of property subject to the SDCS by between €1.07 and €1.73 billion.

Task 2: Identify the optimum rate of levy to maximise revenue within market constraints

The levy rate set under the scheme must meet a number of criteria. These are:

- It must be set at a level that will raise revenue with a present value that is adequate to finance in part construction of the infrastructure;
- The amount raised must be proportionate to the service that is provided by the Metro;
- It must not inhibit the competitive position of the city by diverting development to other areas;
- The present value of the projected revenue must be an appropriate portion of the increase in property values that has been calculated.

The requirement for the levy to raise a particular percentage of the cost of the infrastructure is not used to identify an appropriate rate. In terms of the service provided, recent work has estimated that the potential for total annual ridership on the Metro will be much greater than updated projections for the Luas Green Line. Thus, this criterion would not be a constraint on adopting a higher rate than used under the Luas B1 scheme. The levy must therefore be a balance between raising 20% of the value created and not placing the city at a disadvantage relative to other areas where a SDCS is proposed. This issue of remaining consistent with other areas is stressed. This gives rise to two potential rating schemes:

- rates equal to the Luas B1 rate indexed to 2007 at 5% per annum. This would result in levies of €2,540 per residential unit at 120 units per ha and €22.35 per m² for commercial and retail development;
- rates to ensure that the value of the revenue will not exceed 20% of the total value arising due to increased property values in any category. This would result in a residential rate of not more than €3,600 per unit, a commercial levy of €28.20 per m², and a retail rate of €42 per m².

Task 3: Advise on the appropriate levy rates for alternative types of development

The recommended rates on the basis of these considerations are shown in Table 4.2.

Table 4.2: Recommended Levy Rates in 2007 Prices

Category	Rate
Residential	€2,540 per unit
Commercial	€22.35 per m ²
Retail	€32.20 per m ²

The rates identified for residential and non-retail commercial development are consistent with the Luas B1 and Fingal schemes. The retail rate is 11% above the Fingal rate. The rationale is the greater potential impact of the Metro on the value of inner city retail property. The levy should be applied on a per unit basis for residential and per m² for

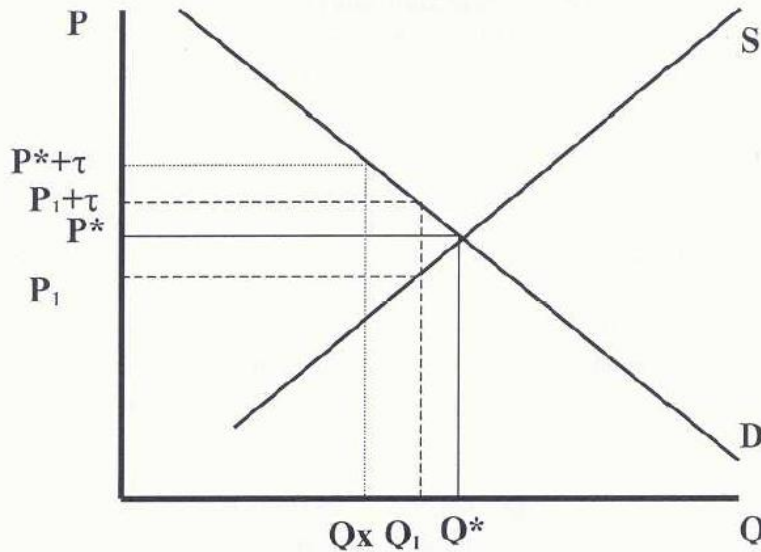
commercial and retail development. These rates are in 2007 prices and should be indexed at 5% per annum.

The estimated present value of the SDCS using these parameters is €113.2 million.

Appendix: Impact of a Levy on Demand

Consider the market for a representative good as is illustrated in Figure 1. Demand (D) and Supply (S) are equated at a price P^* with Q^* representing the quantity that is traded on this market. At P^* the market clears and there is no pressure on price to change. The market is said to be in equilibrium.

Figure 1: Incidence of a Levy

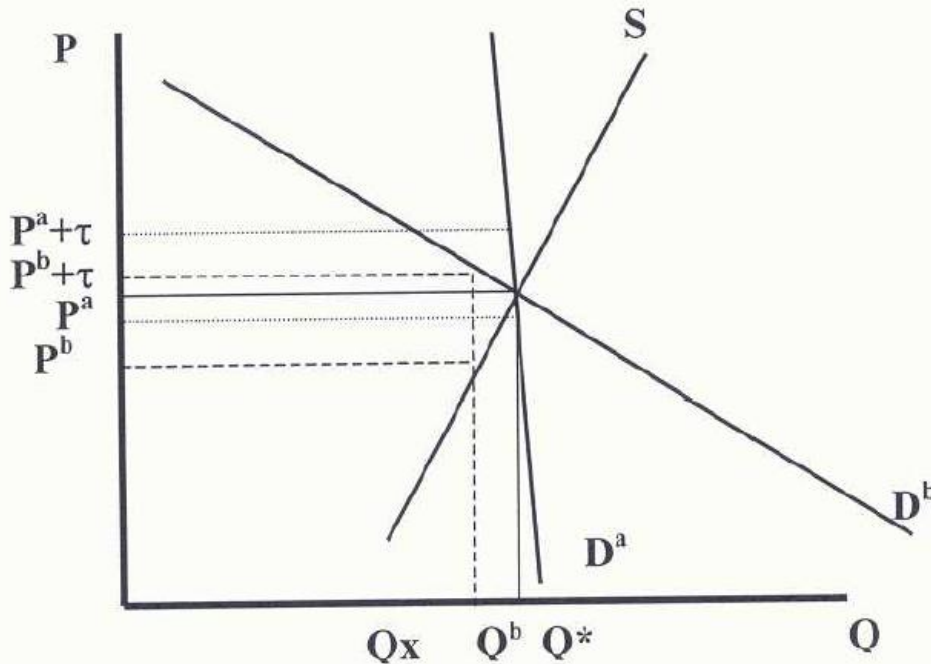


Assume that a levy is introduced. The value of this levy is τ . The first impact is to increase the price to $P^* + \tau$, with the suppliers continuing to receive P^* and the Council receiving τ per unit sold. However, it is clear that at this price demand (Q_x) is now less than supply, which has not changed. In a market with excess supply there will be downward pressure on price that will not be eliminated until price falls sufficiently so that demand equals supply. This happens where the market price is $P_1 + \tau$ with the supplier now receiving P_1 . Q_1 is traded in this market. Clearly this price is less than P^* , although $P_1 + \tau$ is still above P^* . As a result, it can be said that only part of the tax or levy is being passed on to the final purchasers with part being paid by suppliers. There is some fall in the quantity traded and a rise in the final price.

The extent of the change in quantity and price will depend on the responsiveness of supply and demand to the change. This is measured by elasticity. If the response is low then the good in question is said to be inelastic with respect to price. In a diagram, this would be indicated by a steep supply or demand curve. Consider Figure 2. Demand curve D^a is relatively inelastic compared to demand D^b . (Note that the supply curve is also drawn fairly steep as this is likely to be representative of the situation in the property market i.e. supply does not change greatly in the short to medium term as a result of a change in price). This has a major impact on the incidence of the tax. It is clear that with D^a the market price $p^a + \tau$ is further above p^a than would be the case if demand curve D^b were to be used. In other words, where elasticity of demand is low, suppliers would be

able to pass on the tax to the final purchasers. The quantity traded does not fall much but the final price rises more than with an inelastic demand.

Figure 2: Impact of the Levy and Elasticity



This means that the incidence of the levy will depend primarily on the price elasticity of demand on the part of final purchasers. Measuring this in the case of housing is complicated for two reasons. First, expectations in regard to future developments in the housing market are important in determining demand. Thus, demand can change - and the elasticity of demand can be quite volatile - even when market price is unchanged in absolute value. But market price may have changed relative to expected future values. This is extremely difficult to capture in empirical research. Second, the housing and property markets are not homogenous but are a whole series of markets. Property varies considerably depending on location, quality and other factors. Thus, each development, is in a sense, a once off. However, this is important in a general sense since it means that close substitutes to a particular piece of property may not be available, although other properties may be available. This has the general effect of reducing elasticity.

This analysis has a further important implication also. When the tax is imposed, the quantity of goods traded in the market fell. This effect is known as the deadweight burden of taxation. Where there is an elastic response, the impact of this distortion is considerable and the deadweight loss can be considerable. However, with an inelastic response the impact is lessened. Indeed, in the extreme case where elasticity is zero, the loss is also zero in this market. In other words, buyers accept the higher price as they feel they are still getting sufficient value to entice them to buy, even though the price is above its price in the absence of the levy.