

Tauranga City & Western Bay of Plenty Retail & Commercial Strategy

Peer Review

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1 Introduction

Phil McDermott Consultants Ltd was asked to peer review the report *Tauranga and Western Bay of Plenty Retail and Commercial Study* (Property Economics, 2007). In particular, the review was to:

1. Examine the methodology used and the data inputs to ensure that the underlying research is a sound basis for decision making, and
2. Review the policy directions and recommendations made and provide comment on their appropriateness, having regard for the research undertaken.

1.1 Terms of Reference

The September 2006 Study Brief set out the aims of the retail and commercial study as being to:

- *Investigate Tauranga's and the Western Bay of Plenty's retail and commercial land use change and describe the drivers for change in the next 10 years*
- *Identify future floor space needs and planning policy responses given the expected population growth, land use and transport patterns*
- *Identify the roles and functions of various retail and commercial centres across Tauranga and the Western Bay of Plenty*
- *Prepare a high quality set of policy recommendations on the commercial and retail sectors in Tauranga and a scenario based 'toolkit' to implementing positive change to supporting the visions and principles of SmartGrowth, Tauranga Tomorrow and SmartFutures and the objectives outlined on page 2 of this report. (page 3)*

It was set in the context of SmartGrowth principles, including:

- *Tauranga CBD remains the heart of the sub-region with an emphasis on specialty shopping, entertainment, cultural facilities, residential living and employment*
- *Other town centres continue in their service roles and provide social and cultural centres for the community*
- *New communities include accessible centres providing a range of retail, service and recreation facilities*
- *Town centres provide social and cultural values that go beyond the commercial interests of retailers and other businesses. There is a case for public investment to maintain and enhance these values*
- *Opportunities for Live, Work and Play are actively promoted.*
- *The need to optimise land use is recognised (page 3)*

Existing neighbourhoods are to be reinforced and new ones made "sustainable", with the city centre being a strong central hub for the city, and town centres as the hearts of communities and promoting local identity.

The project was divided into four stages (page 4):

- A. *An environmental scan of trends in retail and commercial sectors*
- B. *A statement of the existing situation in the Western Bay of Plenty District and in more detail Tauranga City areas.*
- C. *A projection of future demand and supply projections – gap analysis*
- D. *Identification of toolkit to obtain scenario based outcomes (page 5).*

Detailed task and information requirements were provided, along with centre definitions and examples. Consequently, the Brief was prescriptive, effectively seeking the consultants to align and assess information on retail and office development with the directions prescribed by SmartGrowth.

In particular, the Brief states that the *current trend of*;

- *reasonably unfettered big box and mall development*
- *low intervention on established centres*
- *Continued development of strip and out of centre commercial and retail development, and*
- *Use of industrial land sites*

is not compatible with SmartGrowth, Tauranga Tomorrow or Smart Future principles. Therefore a short narrative of the risks of continuing such an approach is needed, but not a detailed investigation as a scenario (page 7).

In effect, the Brief called for the assembly of information to assess how far these trends and prospects align with a particular outcome, and how policy might be used to promote that outcome given current and anticipated market development. Hence, the consultants were asked to adopt a “centres-based” approach through which it is assumed that particular outcomes can be pursued.

A supplementary brief was prepared in August 2007 seeking additional research into retail and office activity in industrial and residential zones, floorspace and land forecasts, and modelling of changes, mainly by way of trade diversion, that would occur as a result of changes in demand and supply in the future.

These various requirements will have shaped the consultant report, constraining the options that could be considered to those largely compatible with the existing strategy, shaped largely by the determination within SmartGrowth of where people should live in the future and the likely role of particular centres.

1.2 Overall Approach

The consultants’ report first outlines national and international retailing and office trends by way of background (Section 5) and uses this as a foundation for retail and office distribution policy (Section 6).

It then outlines the existing study area centre hierarchy (section 7) before describing trends in “key market data” (Section 8) and presenting forecasts of floorspace and land demand (section 9). This is followed by gravity-model based assessment of potential trade diversion with the introduction of additional floorspace. Conclusions are provided by way of a discussion of issues, constraints and future directions (Section 13), with proposals for implementation and recommendations in Section 14.

The Appendices contain transcripts of stakeholder interviews and data for individual centres.

2 Principal Conclusions

A draft of this peer review was prepared and discussed with Property Economics.

Three areas were covered:

1. Clarification of areas which were not clear in the original report or where some additional detail with respect to sources, methods and models would clarify the analysis or increase confidence in the results and conclusions reported;
2. Discussion of the notion of a hierarchy of centres, how it enhances understanding of retail and office markets in the study area, and how it might – and should – develop in the future, and
3. Discussion about the role of regulation, and especially (A) the scope and capacity of plan development through the Resource Management Act to reconcile the broad objectives of SmartGrowth with market trends where these appear to diverge; (B) the capacity of zoning to bring about specific spatial outcomes; (C) the costs and consequences of doing so; and (D) the relationship of these outcomes to SmartGrowth objectives.

The second and third points relate both to the approach in the Property Economics report and to the position that the SmartGrowth might choose to adopt. However, the present review suggests that such a position is neither definitive nor easily resolved by analysis alone.

As a result of these discussions, Property Economics have made some modifications to the original report. This peer review has also been revised, although in the interests of efficiency no further review has been undertaken of the revised Property Economics report. Consequently some of the points of detail noted in this review may no longer apply.

The following two sections advance the conclusions reached through the peer review with reference to the two key objectives set for it. An overall conclusion is advanced in Section 2.3 and more detailed discussion presented in Sections 3, 4 and 5. .

2.1 Methodology and Data

Objective: *Examine the methodology used and the data inputs to ensure that the underlying research is a sound basis for decision making*

The **data** is drawn mainly from official sources, Statistics New Zealand (employment by sector, consented floorspace), Quotable Value New Zealand (floorspace), and Tauranga and Western Bay of Plenty councils (population projections). This is complemented by survey data sourced to Property Economics (floorspace by activity, rentals).

The data is from conventional and appropriate sources. However, there is minimal detail regarding timing, coverage, qualifications, time of survey and comparability across sources, which can influence the interpretation of resulting analyses.

The **methodology** comprises mainly the presentation in tables through which the characteristics of the centre hierarchy can be deduced by comparison of their relative performance on various indicators (rental levels, floorspace and employment growth, capacity and density). The sets of centres in each table are not always compatible and interpretation and explanation of the data within the text is limited. Information is provided as much as a foundation for developing a set of expected or likely outcomes for future development. The Appendices consolidate data on a centre by centre basis.

Retail floor area demand is derived from population projections provided through to 2056 by the client. The methodology underlying the population projections is not discussed or referenced, on the grounds that it is covered elsewhere in the SmartGrowth documentation. The client provided one projection for consideration: the omission of a discussion of the underlying population and household assumptions and the absence of sensitivity testing can be seen as a limitation of this analysis and requires consideration of the source demographic analyses and documentation.

The estimation of floorspace requirements based on the population projections (number of households multiplied by average household incomes → allocation of retail spend by category → estimation of floorspace demand using turnover:floorspace ratios by retail sector, allowing for 1% growth in spending per year) is conventional and acceptable. Limited detail or discussion impedes independent assessment of the reasonableness or impact of the underlying assumptions and consequent outcomes to be made. Data on current and typical

(or desirable) turnover per square metre is being provided to help assess the results or their implications. Benchmarking will help in assessing the overall conclusions.

Discussion of the underlying **drivers of retail** demand and floorspace or centre expansion (and contraction) is limited, despite the commentary on retail trends in the United States and New Zealand, which outlines structural changes that could change the nature of retailing. The components and distribution of population change and income distribution are also taken as given, although they will change with demographic and economic shifts in the study area and influence commercial floorspace outcomes. There is no discussion of possible changes in spending behaviour or in the composition of demand as a result of the changing demographic, social and economic composition of the catchment, and changes in tastes and technology. While such changes are difficult to predict, some assessment of the sensitivity of floorspace to them would be helpful.

It appears that current spending *patterns* (i.e., the coefficients allocating spending among categories of consumption and retail and related activities) are assumed to be constant over 50 years, for which projections are provided (Table 12) the only changes considered being in the quantum of demand. Given the difficulty of predicting the underlying behaviours both of consumers and the retail sector, this can only be adopted as a benchmark, around which consideration of likely and desirable outcomes might take place. As it stands, the presentation gives an impression of precision and perhaps even inevitability that our knowledge of the future of both supply and demand in the retail sector hardly justifies.

Despite the long-term projections, spending is allocated across catchments of households for only ten years (Table 13) and centres (so presumably, also, catchments) for 20 years (Table 18). These shorter time frames are an implicit acknowledgement of the long-term uncertainty.

Household convenience spending is grouped according to discrete catchments which relate broadly to the major centres (Appendix 6). This is defensible if we assume convenience spending takes place predominantly through single-purpose trips to the nearest centre and not as part of multi-purpose trip making (as is often the case). Multi-purpose travel for work, school travel, comparison shopping, recreation or social purposes would, however, see significant out-of-catchment spending and favour centres at principal destinations or on major arterials (such as Cameron Rd).

Comparison spending is not allocated by catchment because it generates longer trips and tends to be concentrated within the hierarchy and therefore less dependent on proximity between household and centre. Consequently, it is considered in, and critical to, the regional context through its impact on malls, town centres, large format retail centres and the CBD.

The level and distribution of non-residential shopping, covering intermediate demand directed to the retail sector and demand from visitors, was not discussed in the report but is understood to have been included.

The potential for **trade diversion** is estimated using a gravity model (in this case ten years out, to 2016), which is a standard approach. Gravity modelling enables both convenience and comparative spending to be allocated among centres. Details regarding coverage, zones used, distance decay factor, whether allocation is travel time, cost or distance based were limited in the report.¹ The ten year time frame is limiting, and no sensitivity tests are reported. However, it has been set up as a tool for use by the council which will have assumptions documented and provide a basis for testing scenarios dealing with different patterns of development.

Employment projections for office activities are derived from population projections, using coefficients relating labour supply to total population, and the application of floor area ratios per worker. Land demand is derived from the resulting floor-space estimates using an indicative and reasonable Floor Area (coverage) Ratio of 0.4.

Employment densities are not reported but can be derived from the results reported. They appear reasonable, if on slightly the high side in the business services sectors (which may reflect the lower order services provided in Tauranga compared with larger cities). The reference to densities in the CBDs of large cities is not especially relevant (Appendix 3) and, in any case, the range is too large to be useful. The incremental growth in Western Bay of Plenty is likely to be spread over a range of quite different small and mainly low- or medium-rise centres and sites and densities would be expected to rise only slowly.

In any case, there are question marks over the office projection methodology: it would be preferable to forecast demand by sector and translate that into a

¹ Based on discussion with Property Economics,, our understanding is that there were 200 origin zones in the model, and road distance is the measure of separation among them and the centres.

requirement for employees. In some sectors, such as education, health, community and personal services, the demand for labour will be influenced primarily by population growth and structure, and will justify some demand assessment on this basis. Others, especially the business services that drive demand for office space within centres, will reflect the performance of the regional economy and more broadly based changes in economic structure.

On these grounds, the forecast of office space is arbitrary and indicative only.

Capacity assessment is based on (1) applying employment densities to existing zoned areas in the centres; and (2) inspection of a range of industrial and commercial areas (Appendix 8). This leads to a subjective but reasonable assessment of the potential to absorb additional investment in offices.

Stakeholder interviews are reported by means of “transcripts of key quotes”. The report does not provide a list of interviewees and time of interview, nor indicate how representative or otherwise the “key quotes” are. It does not attribute them in terms of the position or stake of the interviewee. No assessment or narrative is provided to place them in context. This has been justified on the basis of respondent privacy, but additional information is necessary to give substance and weight to the comments elicited. As they stand, the client (politicians and officials) may align comments with their understanding and assess them accordingly, although how far they have informed the conclusions and recommendations in the report is not clear.

In conclusion, while the data sources appear appropriate and the methodology reasonable, the documentation and application of the methodology raise doubts about the veracity of the results presented and conclusions drawn.

2.2 Policy Directions

Review the policy directions and recommendations made and provide comment on their appropriateness, having regard for the research undertaken.

The **policy directions** are informed by the primary research described in 2.2 above and sections 3, 4 and 5, below.

The policy direction proposed may be best summarised by the following extract:

“The District Plan and SmartGrowth objectives explicitly support a centres based strategy. The District Plan rules are however unlikely to achieve these objectives, and this is evident in recent development patterns. While a range of recent strategic recommendations are considered in the body of the report, a key recommendation is the creation of an umbrella policy framework linking urban form, transportation and urban amenity. This will incorporate specific policy for the role and function of centres, the expansion of such centers, and provision of further detail as to criteria assessing the establishment of new centres. Establishing a set of commercial sub-zones based on activity centre types is integral to this policy framework.” (p6)

And the claim that

“local government has a key role in achieving sustainable development through spatial strategies that promote the vitality and viability of existing centres. The Resource Management Act (RMA) reflects this principle and provides the legislative foundation and requirement for spatial strategies”.

A range of objectives “regarding spatial strategies for retail and office development” is then advanced, including (among others):

“Plan for the growth and development of existing centres” (p6)

And

“Define a network and hierarchy of centres each performing their roles to meet the needs of their catchment” (p7)

And

“Focus development in, and plan for the expansion of, existing centres as appropriate, and at the local level identify appropriate sites for future development” (p7).

There is a range of other objectives but those cited above capture the direction, which tends to be focused on consolidation of development on the existing centres, promoting a hierarchical relationship among them (and with any new centres), and doing so primarily through a regulatory approach.

This direction is reflected in the recommendations, which include (among others):

"Manage the introduction of new retail floorspace into the market. Test the impacts of proposed developments with the Gravity Model and Retail Impact Assessments" (p8).

And

*"Define retail centre hierarchy based on existing, consented and proposed centres
"Establish a set of sub-zones within the Commercial zones, that support the establishment of a retail hierarchy" (p8)*

And

"Define an office centre hierarchy (in conjunction with the retail centre hierarchy) based on existing, consented and proposed centres

"Establish a set of sub-zones within the Commercial zones, that support the establishment of an office hierarchy" (p9)

The policy direction and recommendations are questioned here on three grounds:

1. The discussion of trends and issues does not provide the theoretical support or sufficient evidence of precedence from elsewhere (see Section 3, below);
2. The analysis is insufficiently robust to provide empirical support for a hierarchical approach (see Sections 4 and 5, below);
3. The suggestion that a statutory approach based on district planning under the Resource Management Act is justified to impose a particular spatial structure on future commercial activity by means of a prescribed hierarchy of centres is debatable in principle, and unlikely to be achieved in the study area in practice given the ambiguous nature of the evidence brought to bear.

The third point is not discussed further except to observe that implementing detailed hierarchical zones and sub zones under the RMA is likely to be contentious, difficult to achieve when it is required to deflect market trends, and unlikely to offer a reasonable degree of certainty with respect to the outcomes sought. While this is the recommended approach in the Property Economics report, the costs have not been assessed relative to the possible value of benefits, further undermining the grounds for adopting it.

The value of adopting of a hierarchy-based policy framework for anticipating or managing the growth of commercial activity in the SmartGrowth area has not been demonstrated,

If the argument for a hierarchical centres-based approach to retailing is accepted, a second decision needs to be made: whether or not this policy should be implemented by defining the elements of the hierarchy and using statutory methods to determine what activities should go where and, through the definition of zones and sub-zones, presumably through the Plan Review (or a Plan Change) process. While recommending it, the retail and commercial strategy report does not provide the grounds for this policy approach because it does not (and was not necessarily required to) include an assessment of its cost and the probability of achieving the desired outcomes from it relative to alternative policy positions.

2.3 From Regulation to Facilitation

A centralised approach focused on analysis, monitoring, and regulating activity via a centre hierarchy is likely to be costly and potentially counterproductive. It invites legal challenge when, ideally, the councils can work with key players in the market to achieve the outcomes desired.

An alternative approach could directly and individually develop strategies for key centres, reflecting each one's current and potential role, built and natural endowment, developmental issues, land ownership, built stock and investment plans, and SmartGrowth objectives. Information on capacity and possible future demand contained in the Property Economics report can contribute to such an approach on a centre-by-centre basis.

The strategy can be implemented via a mix of approaches, including prioritising the location and timing of public investment in infrastructure and amenities, encouraging redevelopment among private stakeholders as appropriate, land purchase and release, and application of RMA principles to protect environmental quality. A strategic approach should set priorities on where and what public investment is justified, and when it should be scheduled, in relation to SmartGrowth outcomes.

This approach can be implemented as much through the LTCCP and annual planning mechanisms as through statutory planning methods.

It would enable issues affecting discrete town centres (Te Puke, Katikati, Waihi Beach), the CBD, the Cameron Rd "spine" (including the Tenth and Eleventh Avenue precinct) to be addressed directly on the basis of local and regional context. A potential short- to medium-term oversupply to the east and south of Tauranga and the vitality and capacity of established centres are issues which can be dealt with according to the methods most appropriate to their individual

circumstances. The gravity model is just one tool that can be brought to bear in this process. The process might also benefit from direct discussion, negotiation and joint planning among relevant landowners, developers and councils, via their SmartGrowth representation.

At the same time, general provisions and standards in the relevant residential and commercial zones could provide the flexibility and environmental standards necessary to meet changing needs for convenience shopping and decentralised employment as the community grows and expectations change.

3 Retail Trends

Section 5 (“National & International Retail & Office Trends”) makes a range of general and specific observations with only limited referencing or verification. While Property Economics’ expertise provides the authority, the positions advanced are not definitive and need to be related more systematically to the SmartGrowth context. More documentation and illustration would be helpful. While interesting, “how Americans shop and how they are entertained” (pp13-16) is not related in the report to the situation in Western Bay of Plenty.

The discussion of New Zealand trends is similarly generalised and undocumented. The same observations can be made about the discussion of office trends. No attempt is made to draw out those most likely to be relevant in the current case.

A relatively extended discussion on “In-centre versus Out-of-Centre Theory” (p22–27) supports “the economic benefits associated with the centralisation of office and retail activity (or conversely the disbenefits associated with its agglomeration)”.² This presumably provides the basis for aligning the study conclusions with the SmartGrowth principles listed in the Brief (see Section 1.1 above).

However, this follows a discussion which identifies the significance of office decentralisation in Auckland, Christchurch and Wellington (p20), together with out-of-centre retailing, web-based shopping, the potential development of hyper stores, the increasing scale of supermarkets and the emergence of lifestyle centres nationally (p17), all trends which could counter centralisation. The implication of such tendencies is that there are producer and consumer benefits from patterns of investment that do not necessarily support the centralisation associated with a hierarchy-based approach.

The Property Economics report does not demonstrate that current and potential future oversupply reflects enduring market failure which requires intervention to resolve, or which might be resolved by such intervention. Rather, imbalances in supply reflect the impossibility of timing incremental capacity to match incremental demand or, perhaps, simply the competitive process through which new and innovative investment progressively displaces “old” capital)

² Given that “centralisation” and “agglomeration” refer to similar and related spatial outcomes, the latter presumably is a typing error – the meaning of the sentence suggests it should be, instead, “decentralisation” or “dispersal”.

The consequent discussion (section 5.6) does not satisfactorily resolve the conflict between market and policy directions. Nor does it provide evidence to support the policy position adopted.

Consolidation, Density and Efficiency

Reference to an "extensive search of work concerning the economic benefits attributable to agglomeration" under the "Office" heading refers to work dealing with "business activity" rather than offices specifically and appears to be based on the "most relevant 11 assessed in this report", which are not referenced.

The discussion does refer to Harris and Ioannides (2000), in support of high density development. However, the "three succinct statements" attributed to them are presented by the original authors as hypotheses rather than as a summary of findings as stated in the Property Economics report (p23). In the original paper they are offered as "three possible relationships between population density and income" across rather than within metropolitan areas.

Harris and Ioannides analysed different income levels as a surrogate for productivity across US metropolitan areas ranging in size from 56,735 to 10,636,702 people in 1990. They indicate that "absolute population is an important variable to include in any model of productivity" and that "leaving it out only risks misspecification". On these grounds, the relationships they hypothesise cannot be assumed to operate at the intra-urban level in the Bay of Plenty. Further, they suggest that the 0.6 elasticity of density identified by Ciccone and Hall (1996), whereby a doubling of density is associated with a 6% increase in productivity, is an upper bound and can only be reliably replicated with cross-sectional rather than time-series (panel) data.

Quite apart from the small impact and the fact that their analysis compares large metropolitan areas not centres within cities, the Harris and Ioannides work raises questions over the suggestion that cause and effect runs from density to productivity (and not the other way round). On the basis of their analysis, Harris and Ioannides simply confirm that there are grounds for "the continued empirical study of the role of density in determining productivity. ... we have been able to illustrate some important benchmarks for studies of urban productivity, while confirming the benchmark of 6% for the effect of density" (Harris and Ioannidis, pp17-18).

The claim in the report, that "centres with lower densities have lower income and productivity levels in all sectors of employment" (p23) cannot be supported by

the Harris and Ioannides paper because of the level of generalisation, scale at which it is pitched, and because it does not deal with sector effects. Indeed, most of the literature which indicates income or productivity advantages associated with agglomeration does so based on comparison of large area units (cities, metropolitan areas, regions) across nations (e.g., Ciccone and Hall, 1996; Ciccone, 2002).

Disentangling local sector effects is difficult. In any case, Dranton and Puga (2002) suggest that there is a shift from cities specialising by sector (a traditional explanation for localisation economies) to specialisation by function, demonstrated by the emergence "of separate business centres and manufacturing cities (p29).

Much of the literature on agglomeration has, in fact, been directed at manufacturing. In an exception, Brulhart and Mathys (2007) analysed productivity in ten broad sectors across 245 regions in Europe. Only two sectors, though, manufacturing and financial services, were considered "strong candidates for productivity effects" (p12). The authors found "no statistically significant evidence of long-run effects from density or region size" for the Wholesale and Retail and the Hotel and Restaurant sectors (p13).³ This is not surprising as these are traditionally low skill and low income sectors, with only limited technical differentiation, even though they are subject to economies of scale at the individual store level. ⁴

The results of a wide variety of research, therefore, appear context and research design specific, at biggest, and contradictory, at worst.

The literature does not provide adequate evidence to support the proposition that consolidation of retail and office activity within cities lifts productivity. That does not mean that there are no external economies of scale available in these sectors from concentration; but the literature cited by Property Economics and others (e.g., Ascari, 2007) does not justify a planning prescription greater local densities.

³ By focusing on just two sectors, Brulhart and Mathys do find a higher coefficient of density than Ciccone (at 13% compared with 6%), and suggest it is increasing over time. It is interesting though, that "manufacturing activities, subject to internal dispersion forces, benefit from proximity to large markets, whereas financial services exhibit strong agglomeration forces while being less reliant on proximity to large markets in general".

⁴ This contrasts with Graham's (undated) analysis of the relative productivity of single plant firms across the UK. which suggests an elasticity of 0.041 (4.1%) for retailing and wholesaling.

More generally, confusing agglomeration economies estimated across large samples of cities or regions, generally in North America or Europe, with the possible benefits of concentrating or consolidating retail and office activities within centres within a single urban area threatens to undermine rather than justify policies to promote higher land use densities or, more generally, consolidation of investment on existing centres as a source of economic efficiency.⁵ Indeed, a generalised “centres” approach which commences without an appreciation of local character and context risks creating infrastructure and congestion costs acting against efficiency.

The inclusion in the sub-region of large areas of non-urban land and discrete settlements also confuses the issue of developing and describing a commercial centre hierarchy, to the extent that the latter works at two levels. An inter-urban hierarchy is about relationships among places with different functional and economic bases, and about the rank size and catchments of discrete settlements. The distribution of economic activity among towns and cities of different size can be explained through work emanating (originally) from Christaller’s central place theory.

By contrast, an intra-urban hierarchy deals with relationships among employment or retail centres within contiguous urban areas organised, traditionally, around the CBD. The distribution of centres within an urban area may be explained with reference to Alonso’s analysis of urban land use based on accessibility, and especially his bid-rent theory, and articulated with respect to retail activity by Berry (1966).

There are a number of other claims made by Property Economics which can also be debated. The claim, for example, that “agglomeration benefits decrease as one locates further from the centre of agglomeration” (p23) must be qualified in terms of the relative size of the agglomeration, the distances involved, and the quality of communications (including transport and information) infrastructure. No empirical evidence is presented although observation of mall development, out-of-zone and large format retailing, and the location of hypermarkets and super-stores generally suggests that economies of scale have been secured over

⁵ Empirical research indicates a weak association between location and productivity in New Zealand and productivity, but this is contingent (e.g., associated with small firms, or with the public rather than private sector; Mare and Timmins, 2006). A literature survey for the MED concluded that “New Zealand policy makers aiming to raise productivity should include a focus on the conditions that allow its largest city to successfully grow in size”. (Crawford, 2006, ii)

the past fifty years at localities where land costs are lower, which tend to be further from the centre.

It is difficult to draw any general conclusions regarding a particular spatial structure or trend that might be used to either forecast or prescribe a future centre structure for the study area from the discussion of theory or the international literature.

The evidence presented in the report (see Section 5 below) points to the continuing domination of the CBD as a diverse employment and retail centre, complemented by the development of the adjoining Tenth/Eleventh Ave precinct; the continuing strength of some well located secondary centres, and the emergence of one and potentially more sub-regional centres closer to the urban edge.

There are diverse responses to changes taking place or that might take place in retailing, with lifestyle and convenience perhaps replacing the more utilitarian approach associated with mall development. At the same time, large footprint stores are likely to pursue the scale advantages traditionally associated with malls. These various influences may reinvigorate traditional centres in some places, and undermine them in others. New development can occur equally in the fringes – with investors drawn by the availability of space – or in the centres, reflecting the traditional value of accessibility.

4 The Retail Hierarchy

This section discusses some of the evidence presented in the report regarding the current and anticipated spatial pattern of retailing (“Existing Centre Hierarchy: Retail and Office”)

A series of tables is presented covering employment and floorspace, organised according to a 22 centre retail hierarchy.⁶ This is described in terms of the size and activity attributes of the centres, and comprises the CBD, Eleventh Avenue as a combination strip-neighbourhood centre, one regional centre (Bayfair), one sub-regional centre (Fraser Cove), 5 town centres, 3 supermarket based neighbourhood centres and 5 neighbourhood centres, 2 large format centres, and one local centre (pp.30-32).

The space allocation on which this classification and the underlying distribution across 13 activity categories is sourced to the Property Economics survey undertaken for the analysis (Table 2). Jointly these centres account for around 246,600 sqm, with non-centre retailing accounting for a further 35,980 sqm.⁷

Some discussion would be useful of how the discrete town centres, which are evolving from being rural service centres (Te Puke and Katikati) and a holiday centre (Waihi Beach) fit into the hierarchy. Waihi Beach, for example, is around 55km from the Tauranga CBD and 20 km from Katikati. It is only 10 km from Waihi town, which had 400 employees in the retail sector in 2005 (Business Directory, Statistics New Zealand), compared with only 95 in Waihi Beach.⁸ It is difficult to assess the impact of future spending by Waihi Beach residents without reference to nearby Waihi. Katikati is 27km from Waihi and 35 km from Tauranga CBD.

Te Puke is 25km from the CBD, but only around 12km from Palm Beach (Papamoa), and much more likely to fall within the sphere of urban influence than Waihi Beach and even Katikati.

The relationship of the ex-urban centres with the hierarchy as defined is unlikely to be the same as or similar to other town centres located within or on the edge

⁶ 20 in the present discussion, with Bureta excluded (with data only for 55 office employees in 2005). Recently developed Fashion Island (for which there is little data) is combined with adjacent Palm Beach.

⁷ Figures are rounded to the nearest 100 sqm to avoid confusion from differences between the sum of several rows and columns and the marginal totals in the table.

⁸ It is noted that this is considerably less than the figure for retailing in the original Property Economics Report and underlying the following discussion.

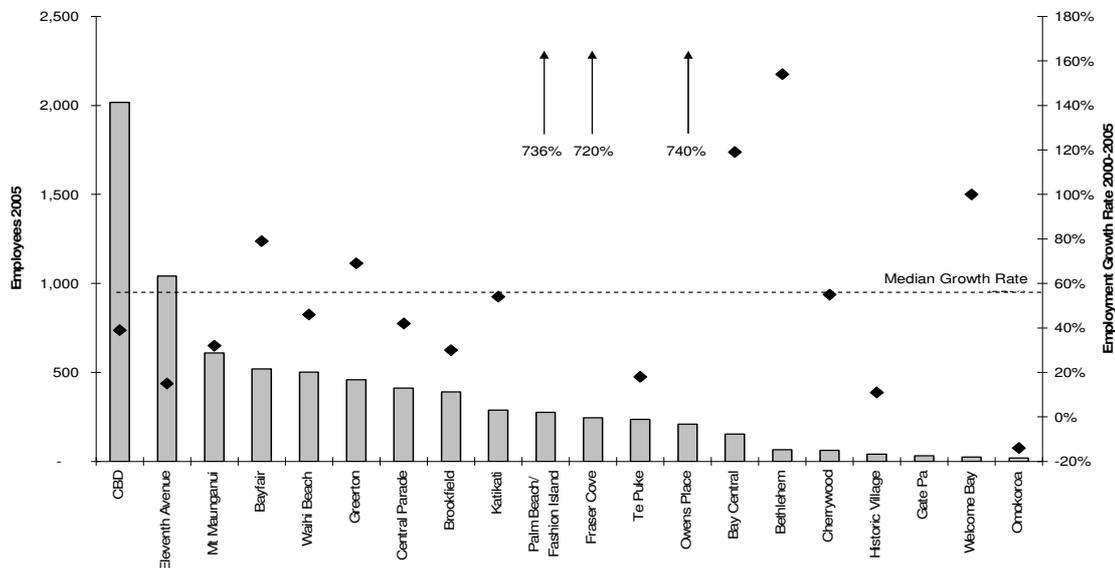
of the urban area, such as Palm Beach itself, Greerton, Bethlehem or Brookfield. They have been included because of the likely role of the CBD in meeting the higher order retail and service needs of their residents and the potential for large centres in and around Tauranga to meet comparison shopping and other needs (and potentially limiting local commercial development as a result).for the CB

Size and Growth Within the Hierarchy

The hierarchy described by PE is illustrated in Figure 1, below. Three key features stand out – the rapid rate of growth overall (apparently 52% more employees in just five years across the centres), the dominance of the central area (the CBD and Tenth/Eleventh Ave), and the strong contrasts in growth rates among centres

The central area, comprising the CBD and Tenth/Eleventh Avenue, dominates total employment, accounting for 41% in total. Mt Maunganui accounts for another 8% and Bayfair 7%. If Waihi Beach, Katikati and Te Puke are omitted, the CBD and Tenth/Eleventh Ave account for 47% of urban retail employment, Mt Maunganui 9% and Bayfair 8%.

Figure 1: Retail Hierarchy 2005



Source: Property Economics

While Bayfair grew well ahead of the median, the other three larger, established centres experienced relatively slow growth. Indeed, there does not appear to be any foundation in recent statistics to the suggestion that “Tenth Avenue experienced strong growth due to many new large format retailers establishing”.

The area's growth of 15% was well behind the centre median (54%) and overall centre growth of 52%. Also, Tenth/Eleventh Avenue accounted for just 1% of new retail floorspace consented between 2000 and 2005 (Table 8, page 37).

Although the newer and more peripheral locations, Palm Beach/Fashion Island, Owens Place, Fraser Cove, have higher growth rates, the central and established areas still dominate retailing. Given its scale, even with a slow growth rate the CBD accounted for 22% of overall growth, Tenth/Eleventh Ave another 5% and nearby Bay Central 3%.

Palm Beach/Fashion Island and Bayfair accounted for 9% each, and Fraser Cove for 8%. The established centres to the south and west tend to more modest rates. Welcome Bay has a high growth rate based on a small base. Omokoroa declined slightly.

Changes in Floorspace

The floorspace consented between 2000 and 2005 would have accounted for 34% of 2005 capacity if fulfilled, suggesting expansion behind employment growth (Table One, below). However, consented floorspace will not all have been put in place. So the rate of actual expansion would be slower again. (In a number of centres, the share of consented floorspace exceeded what was currently in place, confirming this lag; e.g., Central Parade, Gate Pa and Greerton).

Outside the centres, consented floorspace accounted for 67% of the total floorspace, so clearly the relative pressure is greatest there. Consented floorspace amounted to 29% of the actual 2005 figure within centres. Consideration of floorspace relative to employment growth leads to three conclusions. First, there has been some consolidation and an increase in productivity over the five years. Second, there is a significant amount of floorspace in the pipeline, which is presented as potentially destabilizing to the existing retail hierarchy in the Property Economics report. Third, one quarter of consented space is outside the centres, corresponding with one quarter share of total floorspace, but this will represent a much more significant gain (67% compared with 29%).

Table One Floorspace Consented 2000-2005

	Retail			
	sqm	Units	Share of New	Share of 2005
CBD	5,049	18	5%	9.2%
Bay Central	5,939	5	6%	54.6%
Tenth	1,014	6	1%	3.7%
Historic Village			0%	0.0%
Fraser Cove	12,985	5	14%	59.4%
Gate Pa	17,798	7	19%	151.1%
Greerton	955	6	1%	9.2%
Cherrywood	145	1	0%	7.7%
Bureta			0%	
Brookfield			0%	0.0%
Bethlehem	3,799	2	4%	105.9%
Welcome Bay			0%	0.0%
Mt Maunganui	3,030	8	3%	15.6%
Central Parade	4,601	10	5%	162.9%
Bayfair	719	3	1%	2.8%
Owens Place	3,452	3	4%	43.4%
Palm Beach	94	2	0%	0.5%
Fashion Island	10,630	6	11%	
Te Puke	684	1	1%	5.7%
Omokoroa			0%	0.0%
Katikati			0%	0.0%
Waihi Beach	225	1	0%	9.7%
Outside Zone	24,262	57	25%	67%
Subtotal Centres	71,119	84	75%	29%
Total	95,381	67	100%	34%

Source: Property Economics

Vacancy Rates

Around 12,700 sqm was already vacant across the 20 centres at the time of the survey, a 4.6% vacancy rate overall. Vacancy was only 0.6% out-of-centre, compared with 5.1% within the centers. Even this varied substantially within centres. The vacancy rate at time of survey was 20% for Palm Beach/Fashion Island (presumably reflecting the recent opening of the latter and, it has been suggested, poor positioning of the center), 10% at Mt Maunganui, and 9.2% in the CBD. The CBD accounted for 39% of all vacant space.

The non-urban centres – Te Puke, Katikati and Waihi Beach – had low vacancy rates (1.4%, 1.3% and zero, respectively). In contrast to the CBD, Tenth/Eleventh Avenue had a rate of only 1.4% suggesting that accessibility and mixed use, large format nature of retailing in the area is finding favour with the market.

The regional centre of Bayfair and subregional centre of Fraser Cove recorded zero vacancy, as did most neighbourhood centres. The implication is that high growth rates are placing pressure on peripheral centers and, to a lesser extent,

the CBD and Mt Maunganui. Elsewhere, the rates are low, indicating some pressure on floorspace.

Proposed Additions

According to Property Economics plans for proposed centres would add more than 200,000 sqm (p31). This is mainly on the periphery of the urban area, with Wairakei (Modena) and Te Tumu in the east having a total of over 100,000 sqm consented or proposed; Tauriko to the southwest has a proposal for a 60,000 sqm regional centre. Significant expansions are planned for Bayfair (20,000 sqm) and Bethlehem (20,000 sqm). If some or all of these go ahead, the tendency towards growth towards the edge of the urban area will accelerate.

Rentals

Retail (18 centres) and office (14 centres) rentals are given. The variation in rentals is significant within and between centres. For example, it is suggested that retail rentals range between \$500 and \$1,350 in Bayfair, and \$240 and \$600 in the CBD. At the other end of the scale, the rents may be as low as \$120 at Gate Pa and Bethlehem and \$150 in a number of other centres. An understanding of the current performance of centres would be assisted by discussion of movements in rentals and benchmarking, or comparison with other centres.

Accessibility

A map of shoppers at different centres based on a number plate survey (Figure 2, Section 8.4) indicates "no major constraints relating to accessibility". While clustering of shoppers around centres is evident, it is also apparent that shoppers travel across the urban area for their shopping.

Some more discussion of the detail of the survey (timing, numbers covered) and what it illustrates would assist in contextualization and comparison of the centres.

"Anecdotal evidence" is referred to suggest that parking may be a barrier to using the CBD.

It is also claimed that "access to a sufficient amount and quality of convenience retail floorspace in suburban localities is generally quite low, on account of the proliferation of convenience retail on Cameron Rd". This is a critical point insofar as the analysis points to over-supply and the risk that this will be exacerbated in the near future. The implication is that the strength of Cameron Rd undermines the prospect for convenience shopping elsewhere.

The claim is not supported by any further discussion or disaggregation, and begs the question that Cameron Rd may be a highly accessible and effective location for convenience shopping, including shopping by visitors to the area. As a major thoroughfare it would cater well to shopping in the course of multiple purpose trips and to visitors, for example.

Convenience Retail Floorspace Demand and Supply

The consultants use one set of household projections as supplied by Tauranga District Council and Western Bay of Plenty District Council, average household incomes and retail spend, both sourced from Statistics New Zealand. Representative turnover per square metre ratios are used at sector level, but not sourced or described.

While this is an area in which Property Economics specialise, sufficient detail about coverage and assumptions are important so that the uncertainty surrounding the results can be weighed up and their sensitivity to movements in the underlying drivers (e.g., variations in population growth; changes in income distribution, shifts in retail economics, etc) can be appreciated. The additional information would ideally include discussion of population and household projections, their currency, the underlying drivers, and contingencies.

As it stands, the analysis points to a current (2006) 22% excess of supply relative to floorspace sustainable on the basis of current household demand which, it is understood, includes provision for visitor and non-household or seasonal demand.

Reference is made to catchment-by-catchment balances, with catchments defined on the basis of Census Area Units grouped according to their nearest centre.

Cross-city travel for shopping may reveal differences in the quality and ambience of different centres that are not revealed by the statistics, or the tendency to travel to shop in association with other activities – employment, ferrying passengers, or recreation. This could explain, for example, the apparent oversupply at Bayfair and the Central area for convenience shopping and, to a lesser extent, at Mt Maunganui and Katikati (Table 13).

Undersupply is evident at Maketu and Papamoa, Brookfield and Cherrywood, Welcome Bay and Poike.

Centres or groupings of centres are discussed, individually with some suggestion as to their suitability or otherwise for expansion. The discussion is reasonable, although more consideration could be given to the impact of visitor spending in

some centres (Mt Maunganui) and wider catchment, not household and visitor demand in others (Te Puke, Katikati).

The discussion is prescriptive and precise, and only partially qualified; e.g,

"... an expansion to the Brookfield centre is sustainable based on the local catchment and should therefore be provided" (p42)

"It is recommended that the Cherrywood centre is expanded to enable it to fully meet the convenience retail needs of this community"

Katikati ...This indicates an additional 289 sqms will be sustainable by 2016"

Omokoroa ..."This indicates an additional 741 sqms will be sustainable by 2016" (p43.

The conclusion is that:

"In general, ... there is currently an oversupply of convenience retail floorspace at the regional level. The oversupply will be absorbed over the next 10 years and an additional 3,565 sqms will be required". While planned centres will meet this need, some particular communities will require convenience retail capacity supplied away from the large centres" (p45).

Comparison Retail

No equivalent analysis is undertaken for comparison shopping which is characterised by concentration in the upper levels of the hierarchy and overlapping catchments. This is covered, subsequently in the gravity modelling and in general discussion.

The current supply (174,000 sqm) is seen to be 16,000 sqms above sustainable demand, and forecast to increase by 43 sqm to 217,000 sqm by 2016 (with the potential to go to 310,000 based on current consents and proposals). This underpins a key conclusion,

"a significant current and potential future over-supply of comparison retail floorspace, generated in large part by new shopping mall and large format retail development in suburban locations"(p45):

At this stage of the analysis, then, two conclusions appear to be emerging. The first is that the retailing on Cameron Rd undermines the convenience role of local

centres and the proliferation of suburban space represents a potentially significant supply of comparison shopping.

Retail Gravity Modelling

The gravity model is based on the population and spending projections used to estimate demand-supply balance. It covers both comparison and convenience spending. No parameters were provided in the original report (e.g., number of spatial units used, distance decay factor). Sensitivity testing is limited to comparing two rates of floorspace expansion rather than possible different mixes of expansion (e.g., favouring expansion of existing sites versus new developments, or one set of new developments versus another). In this respect, the analysis responds to current knowledge rather than testing alternative futures and outcomes. These may be treated as “base case” results for the councils should they wish to use the model to test alternative configurations.

The model indicates that the known, planned or proposed additional floorspace will be absorbed by 2026 and productivity will have returned to \$5,513/sqm (cf \$5,905 in 2006) under both scenarios. In terms of movements in productivity – turnover:floorspace ratios – Bethlehem emerges as the centre most under threat from known, current plans (with productivity down by 34%). In practice, this would most likely be manifest in falling rents and a changing mix of uses as a result.

The model suggests that the greatest impacts of the assumed development path will be to reduce the performance of Bethlehem from an estimated \$8,762/sqm to \$5,723/sqm. While this raises questions over the expansion proposed for Bethlehem itself, a fall of this magnitude, if it did occur, would more or less bring Bethlehem into line with other centres. In practice, there are measures that centres may take to avoid this.

A number of centres are expected to improve performance, including Fraser Cove and Gate Pa, both relatively strong performers in 2006, and Tenth Avenue. Overall, the additional area planned or proposed would reduce average productivity from \$6,077 to \$5,923 (in 2006 dollar terms), a modest shift over a twenty year period given the likely impact of measurement and especially forecasting uncertainty.

The report shows a total rather than average shift of -6.6%. However, apart from Bethlehem, only Fraser Cove records this level of loss of performance, and it still

retains a reasonably healthy level of productivity, \$800/sqm ahead of the average across all centres (Table Two).

Table Two: Modelled Changes in Retail Productivity, 2006-2026

	\$/sqm 2006	\$/sqm 2026	Shift \$/sqm	% Shift
CBD	\$5,636	\$5,771	\$135	2.4%
Bay Central	\$6,157	\$6,256	\$99	1.6%
Tenth	\$5,949	\$6,187	\$238	4.0%
Gate Pa	\$7,039	\$7,403	\$364	5.2%
Greerton	\$5,045	\$5,173	\$128	2.5%
Fraser Cove	\$6,348	\$6,726	\$378	6.0%
Bethlehem	\$8,762	\$5,723	-\$3,039	-34.7%
Mt Maunganui	\$5,775	\$5,709	-\$66	-1.1%
Bayfair	\$6,929	\$6,789	-\$140	-2.0%
Owens Place	\$6,826	\$6,774	-\$52	-0.8%
Palm Beach/Fashion Island	\$5,160	\$5,182	\$22	0.4%
Te Puke	\$4,749	\$4,569	-\$180	-3.8%
Katikati	\$4,620	\$4,736	\$116	2.5%
Average	\$6,077	\$5,923	-\$105	-1.7%

Source: Property Economics, p50

Our interpretation of the consequences of these changes differs from that of Property Economics. The shifts illustrated are probably sufficient to see some significant changes in the performance of individual centres or modification of how much floorspace is constructed, when and where, or a combination of the two responses. However, over the twenty year time frame this does not point to a significant loss of advantage to the consumer as a result of the possible redistribution of retail space.

Outside Bethlehem, current plans and proposals if all completed will apparently lead to an excess of floorspace to the east where, already, Palm Beach/Fashion Island is performing poorly. If all proposed space planned is developed here, we would expect some repositioning of existing centres (as planned by Bayfair). There may be some grounds for the councils seeking to align timing of major retail expansion in the Papamoa area generally with population growth, but this need not be considered within the context of regional retail hierarchy.

PE suggests that "Environment Court case law indicates that impacts greater than 15% are considered to be a 'more than minor' effect ... [and that this] raises concern for the vitality and viability of existing centres under an aggressive growth scenario" (p50). It is not clear whether the 15% refers to impacts across all centres or should be applied selectively across individual centres. In the current case, the impacts on current productivity are minor on both these grounds, with the exception of Bethlehem, which is, in any case, some distance

from where the bulk of additional capacity is currently anticipated (other than its own).

Given the flexibility of market-based investment the major determinant of disruption to existing centres is associated more with the timing rather than the quantum of investment currently proposed

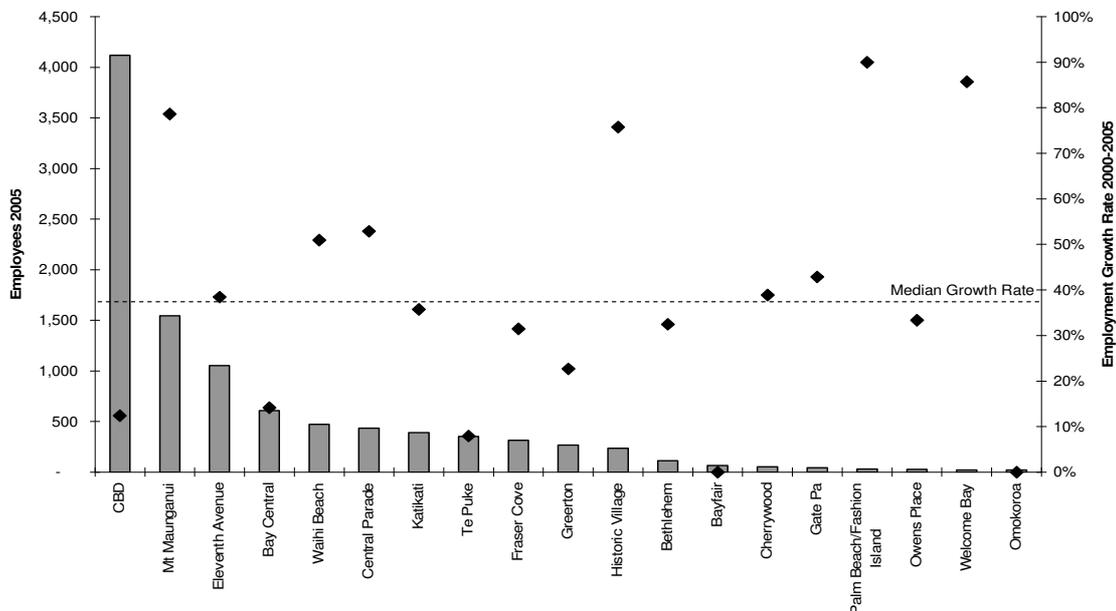
5 Office Activity

Analysis of office floor area is based on Quotable Value NZ data for 22 centres (191,500 sqm) and space outside centres (454,940 sqm), mainly education (80%) and health (13%). Within centres, education accounts for 18% and health 9%.

Excluding office and health premises, there was 141,020 sqm of “mainstream” office space within centres (72%), and 31,640 sqm without (18%). A further survey by Property Economics identifies 40,720 sqm of out-of-centre space compared with QV’s 31,640 sqm (Table 5 of Table 4). Of new space consented between 2000 and 2005 (33,730 sqm or equivalent to 30% of the 2005 total), 41% was outside the centres, 29% in the CBD and 15% in the Tenth/Eleventh Ave precinct. The CBD accounted for 49% of office space in the Centres, Tenth/Eleventh Ave for 25%.

The analysis of office employment appears to incorporate health and education services, because 52% is located outside the centres. If we analyse simply the centres, the focus is on office activities. Some 41% of centre-based office employment is in the CBD, 11% in Tenth/Eleventh Avenue and 6% in Bay Central, 58% in the central area in total. 15% is in Mt Maunganui (Figure 2).

Figure 2: Office Hierarchy 2005



The CBD and Bay Central recorded low rates of growth, while Tenth/Eleventh Ave, at 38% gain over five years, grew just ahead of the centre median. Nevertheless, these three centres still accounted for 30% of centre growth

between 2000 and 2005. Office employment in Mt Maunganui grew by 79% and accounted for 24% of total growth, or 37% of centre growth. While no new office space was consented in Mt Maunganui, 1,640 sqm was consented at nearby Central Parade, an area in which employment more than doubled over five years, to over 430 employees.

Office employment growth continues to favour two areas –CBD “and surrounds” and Mt Maunganui “and surrounds”. While rapid growth was recorded outside the centres, it appears that this may have been driven by health and education services.

Also, decentralised office development may reflect changing work behaviour; (working from home grew by 18% or 510 persons within Tauranga between 2001 and 2006), or a preference for smaller, accessible suburban offices although, as noted in the report, Tauranga does not have the mass to support an office park. The latter might mark a change in the way business is conducted and a shifting service employment structure. These tendencies point to greater employment flexibility and reduced commuter transport. It is not clear that this tendency is disadvantageous in resource planning terms, and that policy measures are required to enforce a greater density or concentration of office employment.

In any case, the Property Economics report indicates that there is substantial office land distributed around Tauranga, so that the only outstanding issue is whether constraints should be placed on offices in residential areas. This will require additional consideration of the impact of changing work practices and the benefits of reducing commuting against any disadvantages arising from a greater mix of uses in residential areas. The Property Economics Report does not advance this issue.

It does suggest that low rentals relative to other cities are a disincentive to development of new space, especially in the CBD where land fragmentation and carparking issues may be further barriers. Low rentals and relatively high vacancies (9% in the CBD and 10% in Mt Maunganui, p52) suggest, however, that the issue may be one of weak demand. Without an analysis of regional economic structure and changing work practices, there is no basis for promoting any particular spatial pattern of office development is justified. The suggestion that restricting out-of-town centre office development will promote the growth of the CBD (p53) cannot be sustained without such additional analysis.

6 Conclusions

The original Property Economics report omitted detail on methodology and data which made assessment of both analyses and conclusions difficult. These sorts of deficiency have been indicated in this report – and been addressed in a revised report by PE following discussion.

Given this adjustment, it can be concluded that the data and methods used are standard and provide a useful snapshot of the office and retail sectors in the study area and a reasonable assessment of the impact of current plans and one forecast of population.

However, these are areas of considerable uncertainty and the terms of reference did not anticipate the sensitivity or scenario testing that would have been appropriate to determine how robust or otherwise the projected outcomes are.

In addition, potential changes in economic structure, retail structure, and work practices have not been explored sufficiently to provide confidence in the sorts of outcomes projected. In particular, the conclusions that “the single biggest issue facing the development of Tauranga’s centres is the decentralisation of the retail market” and that proposed developments (which vary in status and for which information is limited) will likely lead to “an oversupply of retail floorspace [and] devalue a significant amount existing impact in existing centres, impacting on the social and economic wellbeing, and spread retail spend thinly across the region, leading to an underperforming retail market, and centres that are not vibrant” are stated more definitively than the analysis justifies.

The assessment that can be made from the information presented might be along the following lines:

- The study area has been subject to rapid retail growth and with this some gains in productivity in the recent past;
- This growth has favoured established central suburban areas in convenience goods but has probably favoured newer and larger centres, and centres closer to the urban edge in comparison goods;
- The CBD has retained its dominance in both retailing and office activity, although this has spilt over into the adjoining Tenth/Eleventh Avenue precincts, perhaps calling for an urban design response establishing strong linkages within the wider area;

- Slower relative growth is unlikely to undermine this dominance but coupled with rapid growth elsewhere, could see some significant functional changes in the CBD, suggesting opportunities for repositioning it (e.g., as the region's administrative, cultural, recreational and entertainment centre, supplementing and supplemented by higher order services and specialty retailing and residential activity);
- Retail competition will increase in the eastern area if all present plans go ahead. Similarly, there are likely to be impacts on Bethlehem and other western/Cameron Rd centres as a result of Tauriko going ahead.
- There is some decentralisation of office employment, mainly to the Mt Maunganui area among centres, but most notably to areas outside centres. This may reflect the very broad definition of offices on the one hand, and the growing tendency to work from or close to home as a result of more flexible forms of employment (broadband-based, contractual rather than waged, small firms operating in professional, creative and trading sectors, etc).

The Property Economics Report, favouring a more "integrated" based on promoting through planning a hierarchy of centres clearly demarcated by size, function and location looks to a more prescriptive and codified approach to planning the future of centres which seeks to impose and sustain a particular order among them. This impedes the flexibility that might arise from an approach that addresses the amenity of individual centres, infrastructure and urban design issues, focuses on local context, and acknowledging the likelihood of significant although often unpredictable changes over the next twenty years and beyond.

References

- Alonso W (1964) *Location and Land Use*, Harvard University Press
- Ascari Partners (2007) *Assessing Agglomeration Impacts in Auckland: Linkages with Regional Strategies*, Report to the Auckland Regional Council
- Berry, B (1967) *Geography of Market Centres and Retail Distribution*, Prentice Hall, Englewood Cliffs
- Brulhart M and Mathys N A (2007) "Sectoral Agglomeration Economies in a Panel of European Regions" *Discussion Paper 6410*, Centre for Economic policy Research, London
- Ciccone A (2002) "Agglomeration effects in Europe" *European Economic Review* 46

- Ciccone A and Hall R E (1996) "Productivity and Density of Economic Activity"
American Economic Review, 86,1.
- Crawford R (2006) The Effects of Agglomeration on Economic Activity: The Empirical Evidence on Mechanisms and Magnitudes *Occasional Paper* 06/03, Ministry of Economic Development, Wellington
- Duranton G and Puga D (2002) "From Sectoral to Functional Urban Specialization" (2002) *Working Paper* 9112, National Bureau of Economic Research, Cambridge, Massachusetts
- Graham D J (Undated) "Investigating the link between productivity and agglomeration for UK industries *Working Paper*, Centre for Transport Studies, Imperial College, London
- Harris and Ioannides (2000) "Productivity and Metropolitan Density" Department of Economics, Tufts University
- Mare D and Timmins J (2006) "Geographic concentration and firm productivity" *Motu Working Paper* 06-07, Motu Economic and Social Research, Wellington
- Property Economics (2007) Tauranga City & Western Bay of Plenty Retail & Commercial Strategy, report to Tauranga City Council & Western Bay of Plenty District Council