



## **RESEARCH PAPER**

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# **Supply and demand in the Penang housing market: Assessing affordability**

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Stuart MacDonald,  
Head of City, Urbanisation & Environment Penang Institute

**[stuartmacdonald@penanginstitute.org](mailto:stuartmacdonald@penanginstitute.org)**

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## **Executive summary**

The extent to which the housing supply and demand factors are well understood in Penang is unclear. This paper examines some of the recent trends observed in the market and the impact of these trends on house prices and affordability. The paper concludes with a series of recommendations to further develop knowledge and understanding of the housing market in Penang, to develop a housing demand model that reflects the needs of the current and future population and to develop a detailed range of key indicators for assessing housing affordability.

## **Supply and demand**

There is a concentrated distribution of housing stock on the island, with a clear distinction between high rise property on the island and low rise or landed property on the mainland. Housing stock has increased by over 20% over the past five years, however growth rates has been slowing down in recent years, with stock growth dropping from an annual growth rate of 4.7% to 2.2%. Over the past 5 years the island has also seen a 38% decline in construction, while the mainland conversely has seen a 5% increase. The Housing and Population Census however shows that this supply has not matched demand, with a suggested oversupply of 21%, which grew significantly between 1991 and 2000 in all districts. Housing supply and demand needs to be much better understood to promote a more sustainable housing market in Penang.

## **Property prices**

The average house price in Penang has increased by 50% in the past 5 years, and increases in the state average price have been driven by property on the island. Most property types are between 2 and 8 times more expensive on the island compared to the mainland, and projections based on the past five years historical rates of growth, will see the island become significantly more expensive. However, the exponential growth in property prices on the island has overshadowed the growth in prices on the mainland, where terraced property has increased by up to 25% over the past five years, and 30% increases in the cost of semi detached and detached property have been witnessed. The average price of a flat is projected to increase by up to 24% by 2014 and condominiums are projected to grow at a similar rate. The impact of these price rises on different segments of society need to be much better understood.

## **Affordability**

If house price inflation continues on the past five years' historical rates and wage rate inflation remains as it has done over the past few years, especially for middle income groups, the issue of house price affordability will become more acute. Local Penangite's housing options are reducing and will continue to reduce as house price inflation continues to outpace increases in income. The overall impact of this is to push lower and increasingly middle income groups off the island towards the mainland. In developing more affordable housing, housing policies should extend beyond providing basic living accommodation, and should also be about ensuring that people have access to jobs, have a high quality of life and can minimise their negative environmental impacts and reduce their cost of living. 'Affordable' housing requires a definition which is sustainable moving forward.

## **Conclusions**

A significant mismatch between supply and demand leads to an unsustainable housing market, Penang needs to understand its internal housing market in much greater detail, and at a lower spatial level, so that future policies and development approvals are evidence-based and reflect the full range of demand factors. A housing demand model should consider the needs of all groups within society, addressing the affordability gap which will act as an inhibitor of economic development. Penang should link housing supply and demand to wider development strategies, as attracting and retaining 'knowledge workers' is central to the state's ambition to become a high income, international city.

- Recommendation 1      Develop a housing research function
- Recommendation 2      Develop a robust housing demand model
- Recommendation 3      Drawing on best practice,<sup>1</sup> develop a robust set of affordability indicators, including economic, social and environmental indicators.

## Introduction

*“Scarcity of land for residential holdings has led to escalating costs and prices of housing. This government will seek ways to bring affordable housing to the Penang people (while)... enhancing the quality of life of the house owners”.*

Chief Minister, Lim Guan Eng made the above comment in his opening speech following election victory, giving the issues of housing and affordability a high priority. This paper examines the supply and demand for housing in Penang, followed by an examination of recent trends in property prices. The paper goes on to utilise this data with local income data to develop an understanding of current and future housing affordability in Penang.

This paper is organised into the following 3 sections:

- Section 1: Supply & demand;
- Section 2: Property prices;
- Section 3: Affordability.

## Section 1: Supply & demand

### Housing stock

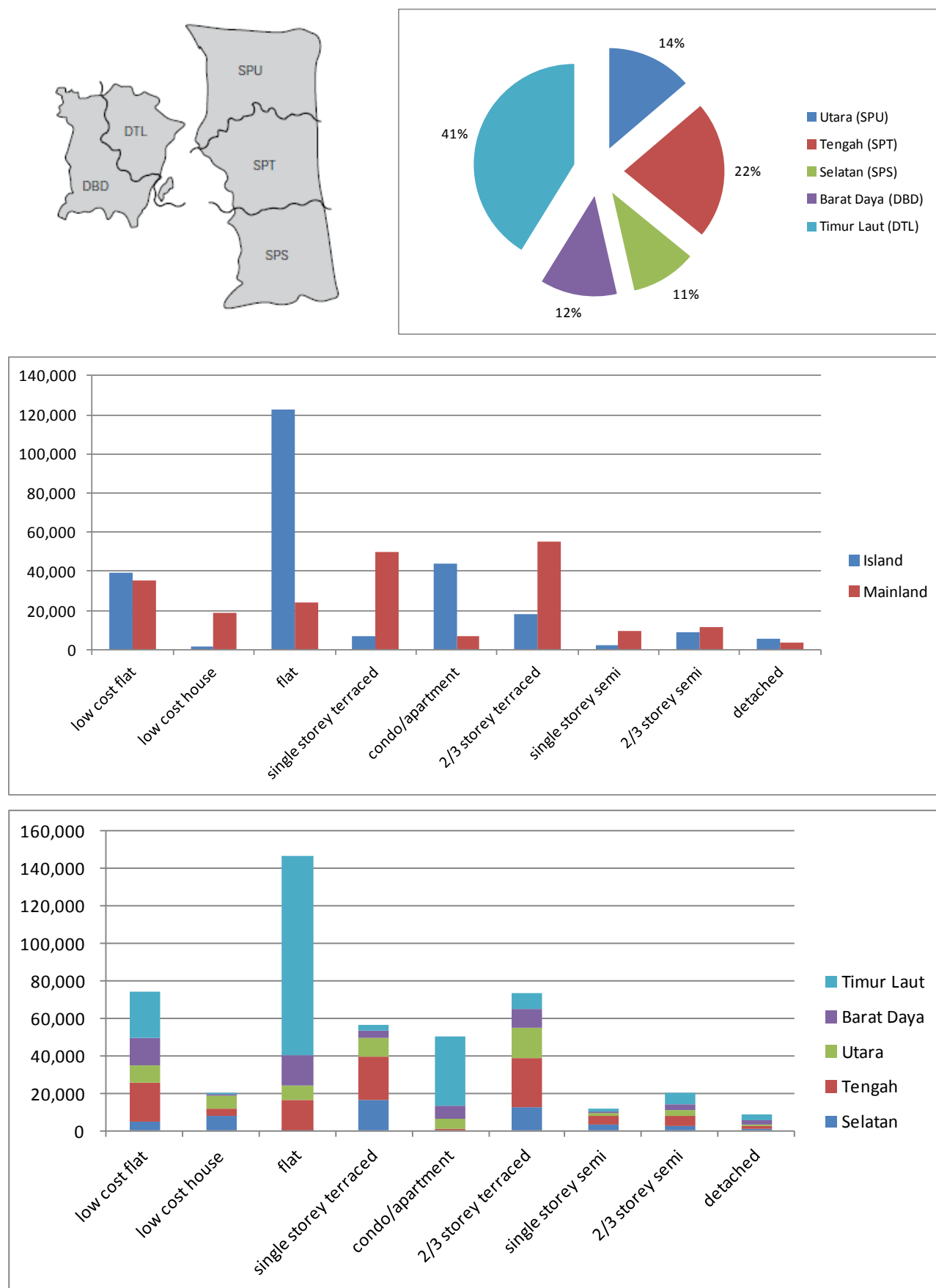
Housing stock is the total number of residential units, the state of Penang has 468,278<sup>2</sup> housing units and growth in housing stock is important to accommodate Penang's growing population and to facilitate growth in the economy. The Penang Structure Plan (PSP) 2020, forecasts a population growth from 1.6 million in 2010 to 2 million by 2020, with 40% of this population anticipated to reside on the island and Penang has set a target of doubling per capita income by 2020<sup>3</sup>.

### Concentrated distribution

There is a concentrated distribution of housing stock in the North East district on the island (Timur Laut), which is home to 41% of the state's housing. A further 12% is located in Barat Daya and the island in total accounts for 53% of housing stock, but only 28% of the land mass. On the mainland, Seberang Perai Tengah (where Butterworth and Bukit Mertajam are located) contains 22% of all housing stock, while Seberang Perai Utara (14%) and Seberang Perai Selatan (11%) complete the picture (see charts in figure 1). Exploring distribution by housing type, there is a clear distinction between high rise property on the island and low rise or landed property on the mainland. Flats constitute the largest property type, with 83% of these on the island, and 74% in Timur Laut. Terraced property is the largest stock component on the mainland, 47% of property is single storey and 2/3 storey terraced properties, the majority of this stock is located in Seberang Perai Tengah.

**Figure 1 - Distribution of housing stock in Penang State, Quarter 1 2011**

Source: NAPIC/DoS Proxy

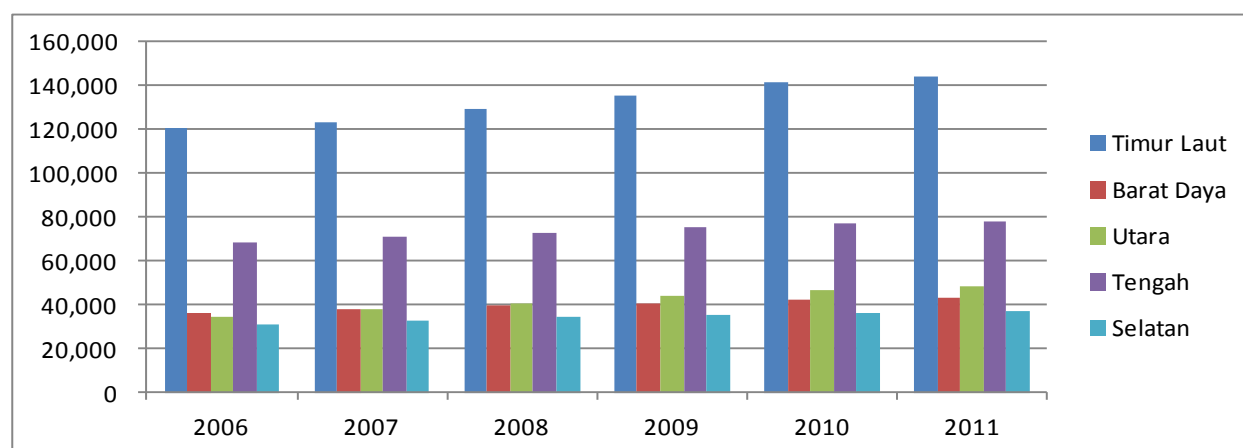


## 20% Stock growth

Housing stock has increased by 21.3% over the past five years<sup>4</sup> and stock growth has been equally evident on Penang island (20.6%) and on the mainland (22.2%)<sup>5</sup> and all districts have seen a growth in stock (see figure 2). However, at a district level stock growth has been concentrated in the north east of the island. Between 2006 and 2011, an additional 15,774 flats and 5,391 condominiums have been added to the stock of Timur Laut, equal to 34% of all new housing in Penang over the last five years. The next largest stock increase has been seen in Seberang Perai Tengah, where 2/3 storey terraced property has increased by 4,119 units (a 26.9% increase in that district) equivalent to 6.6% of all new housing over the last 5 years.

**Figure 2 - Housing stock growth, Q1 2006 – Q1 2011**

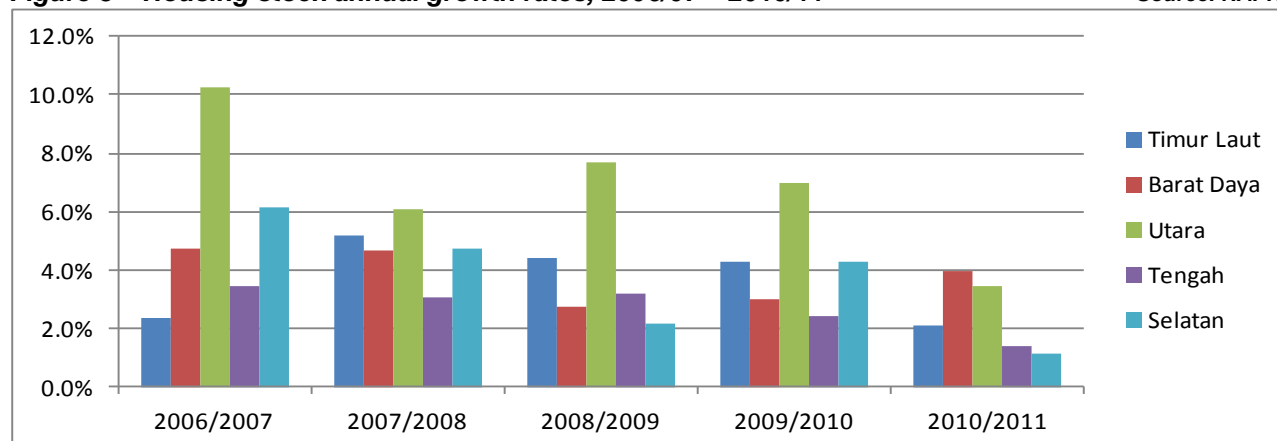
Source: NAPIC



The rate of growth however has been slowing down in recent years, dropping from an annual growth rate of 4.7% to 2.2%. Between 2006 and 2007 housing stock on the mainland grew by 5.8% and between 2007 and 2008 housing stock on the island grew by 5.1%. However, between 2010 and 2011 stock grew by only 2.5% on the island and 1.9% on the mainland. At a district level stock growth rates have fallen most significantly in Seberang Perai Utara, falling from 10% growth between 2006 and 2007 to 3% growth between 2010 and 2011. In Timur Laut on the island, the rate of growth has fallen from 5.2% per annum in 2007/08 to 2.1% per annum in 2010/11 and in Barat Daya the annual growth has fallen from 4.7% to 3.9% over the same time period (see figure 3).

**Figure 3 – Housing stock annual growth rates, 2006/07 – 2010/11**

Source: NAPIC

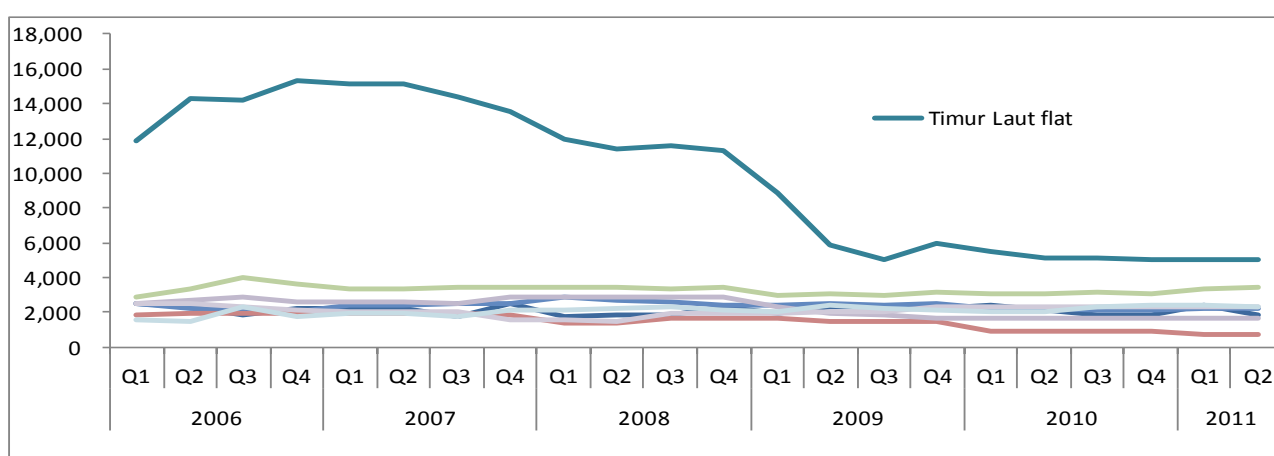


### Slowing future stock growth

Over the past 5 years the island has seen a 38% decline in construction, while the mainland conversely has seen a 5% increase. At a district level, the construction rate has seen significant decline in Seberang Perai Utara (down by 25.9%), while construction rates have increased by 14% in Seberang Perai Tengah and 40.5% in Seberang Perai Selatan. It is however in Timur Laut where the construction level changes are most significant (down 47.7%), where the number of units under construction has fallen sharply since the middle of 2007, dropping from 20,000 units to around 10,000 units. Examining drops in the level of construction by housing type, reveals that the story is almost exclusively one of a decline in the construction of flats, with a 57.6% decline in the number of flats under construction in Timur Laut.

**Figure 4 - Housing under construction by housing type (Q1 2006 – Q2 2011)**

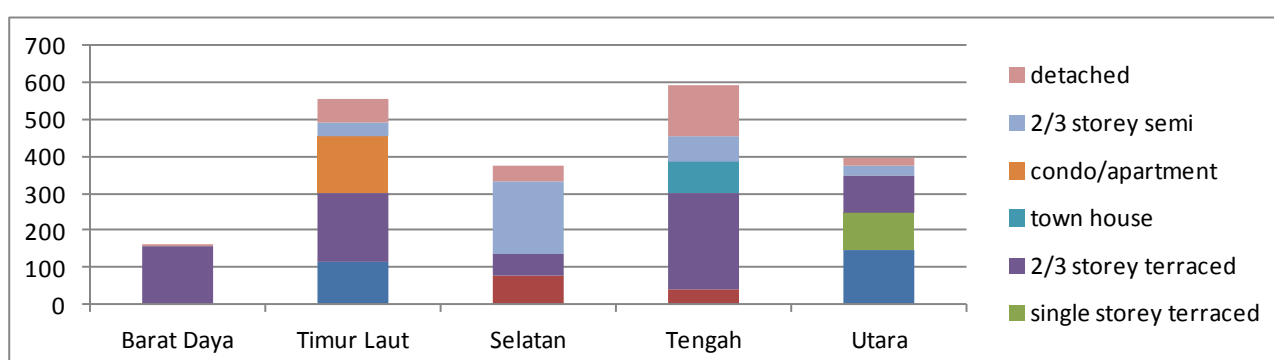
Source: NAPIC



The story of new planned housing tells a similar story, with the number of units planned falling in the over the last five years by 60.8%. The number of units planned has dropped from 5,543 in 2006 (Q1) to 2,173 in 2011 (Q2). However, over the previous three quarters planned supply has increased from around 1,000 units to over 2,000 units, driven by small increases across all districts. Seberang Perai Tengah has the most units in planned supply at close to 591, followed by Timur Laut with 554. 2/3 storey terraced property, (the majority in Seberang Perai Tengah) is the largest category of units planned with 766 units. Planned supply of flats in Timur Laut has significantly declined over the past five years, from a high of 1,720 units in early 2006 to a current 116 units.

**Figure 5 – New planned supply by housing type (Q1 2006 – Q2 2011)**

Source: NAPIC

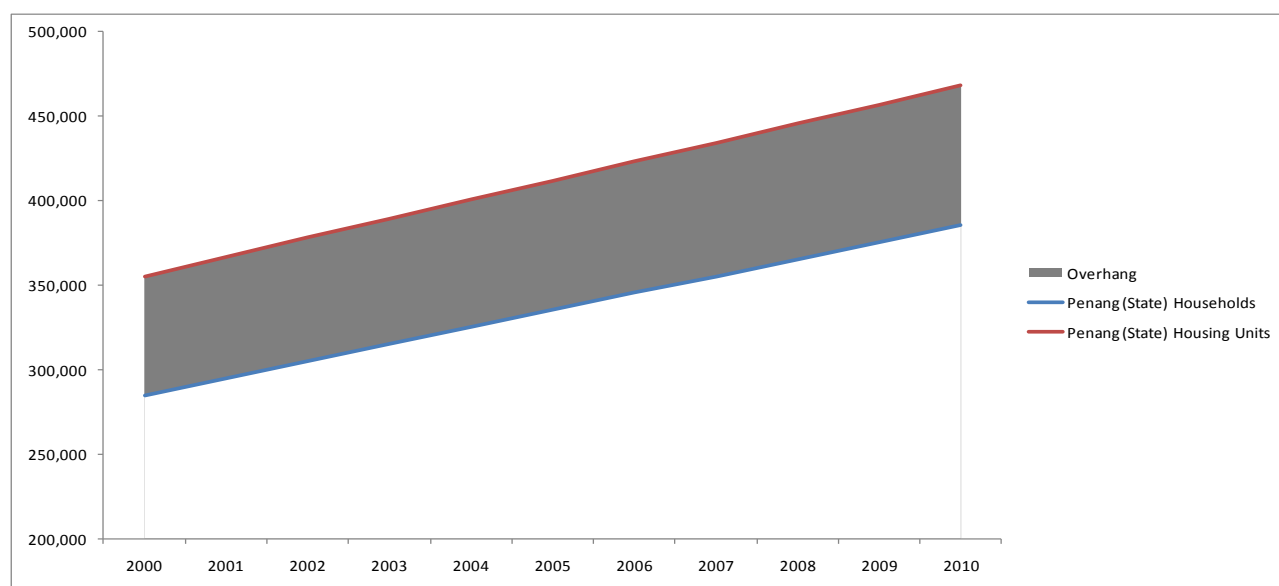




## Excess supply? – a property overhang

The Housing and Population Census, the most extensive data source where housing units and households are measured (completed at 10 yearly intervals), showed that in 2000 there were 284,969 households and 385,658 housing units in Penang, which is an excess of 100,689 housing units. Ten years later (Population and Housing Census 2010) the census showed that the number of households in Penang had increased to 385,658 (a 35.3% increase since 2000) while the number of housing units increased to 468,278 (a 21.4% increase), which still leaves an excess of 82,620 housing units; or 21.4% more housing units than there are households.

**Figure 6 - Property overhang in Penang 2000 – 2010 (Households v Housing Units)** Source: DoS Census

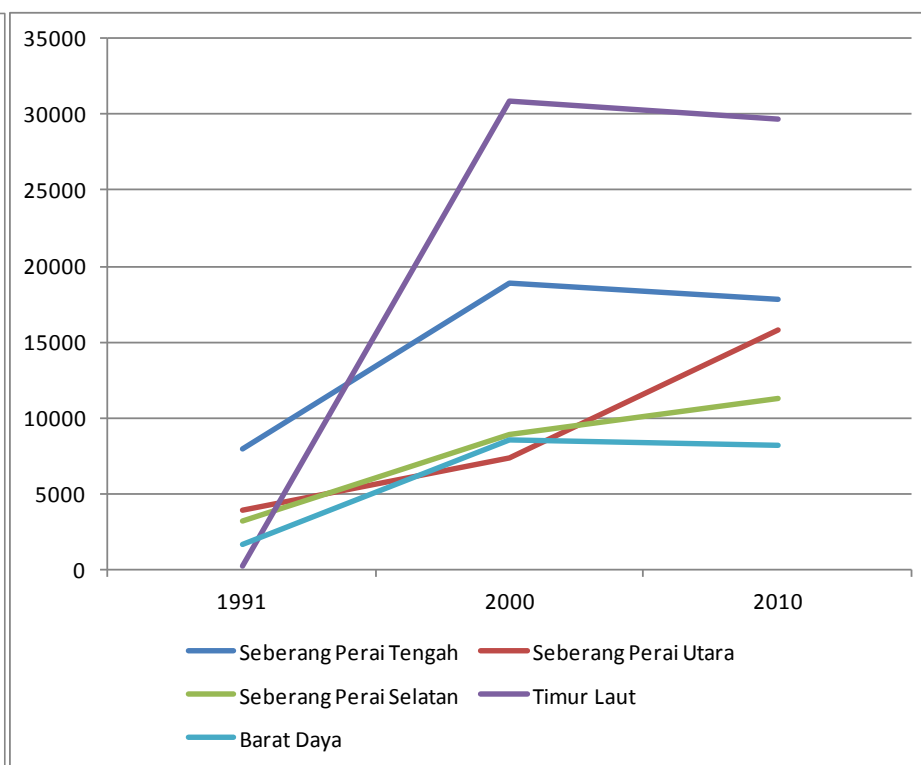
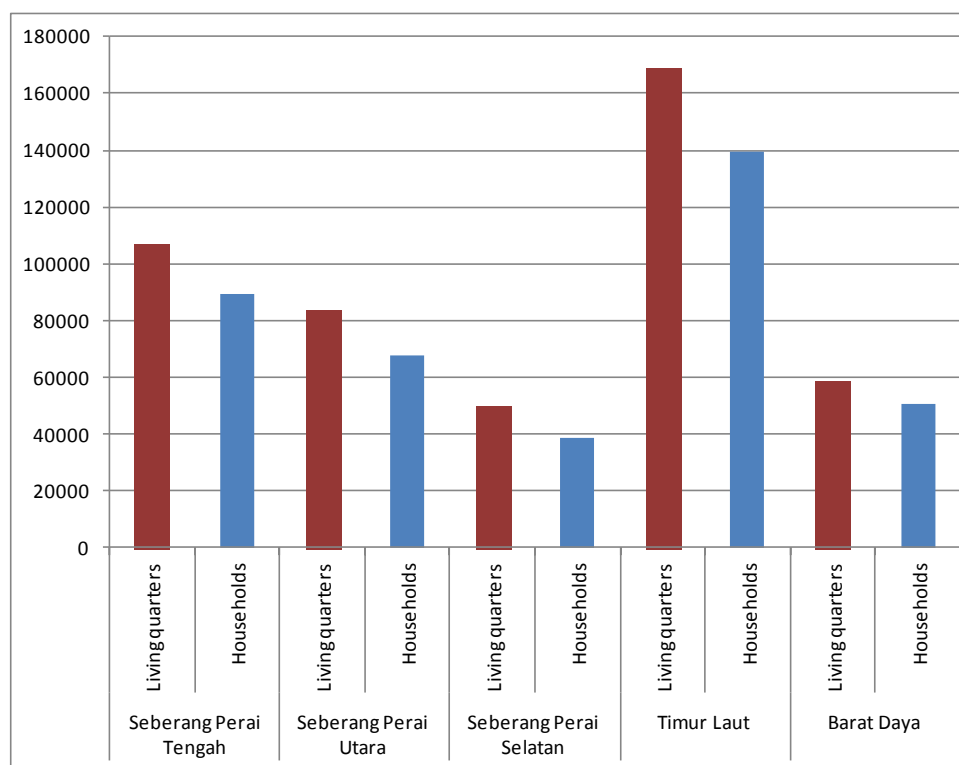


Exploring the number of housing units and households across districts is more revealing (see figure 7). Timur Laut which has the most housing stock also has the biggest 'overhang', with 29,683 more housing units than households. However, in percentage terms, Seberang Perai Selatan (which has the lowest volume of stock), has the highest percentage of 'overhang' with 22.4% more housing units than households. Examining this pattern over time shows that this level of 'overhang' has grown significantly since 1991 in all districts, but the most significant growth has been in Timur Laut between 1991 and 2001, where more than 30,000 units above the number of households were recorded (see figure 7).

Understanding this oversupply is essential, the number of unsold properties does not explain such a significant oversupply, and this needs to be unpicked to establish the reliability of the Housing and Population Census data which raises a number of questions about an 'oversupply', are these properties vacant e.g. unsold or on the open market or are these properties owned by people not recorded by the Census e.g. absent landlords, foreign owners or institutions, those renting to students or medical tourists.

**Figure 7 - Property overhang in Penang over time and by district (Households v Living Quarters)** Source: DoS Census

	Seberang Perai Tengah			Seberang Perai Utara			Seberang Perai Selatan			Timur Laut			Barat Daya		
	Living quarters	Households	Overhang	Living quarters	Households	Overhang	Living quarters	Households	Overhang	Living quarters	Households	Overhang	Living quarters	Households	Overhang
1991	55,618	47,739	7,879	48,112	44,182	3,930	19,550	16,383	3,167	79,631	79,467	164	26,562	24,892	1,670
2000	84,543	65,623	18,920	59,343	51,965	7,378	34,901	26,043	8,858	131,568	100,711	30,857	45,081	36,561	8,520
2010	106,971	89,160	17,811	83,597	67,815	15,782	50,069	38,854	11,215	169,077	139,394	29,683	58,564	50,435	8,129



## **Understanding demand**

Housing demand in Penang appears to be limited to a housing needs analysis based on the does the Penang Structure Plan (PSP) 2020, which forecasts a population growth from 1.6 million in 2010 to 2 million by 2020, with 40% of this population anticipated to reside on the island. However, a housing demand model is required that goes beyond the analysis and projections of housing needs. Housing needs are modelled on demographic change, however this needs to include a whole range of factors from household formation to family size (within and between differing ethnic groups), looking at birth and death rates, divorce rates, and marriages, but also needs to account for net migration which in a Penang context includes examination of incoming foreign buyers/investors in the higher end of the market, and cheap foreign labour in the lower end of the market in addition to natural patterns of migration. These factors are significantly related to global and local patterns of economic development and need to be built into housing demand models.

Modelling housing demand also needs to take into account a wider range of economic factors within the local market, such as household income, the price of incoming housing supply, the location of incoming supply, and the availability of financing, and the impact of changing policies related to housing sale and purchase, such as Real Estate Property Gains tax. Modelling demand also requires an examination of tenure and the elasticity of the supply of houses in the private rented sector. It is unclear if demand for housing is understood at this level within Penang, and a housing demand model needs to be constructed to better reflect the needs of the population.

## **Summary**

There is a concentrated distribution of housing stock on the island, with a clear distinction between high rise property on the island and low rise or landed property on the mainland. Housing stock has increased by over 20% over the past five years, however growth rates has been slowing down in recent years, dropping from an annual growth rate of 4.7% to 2.2%. Over the past 5 years the island has also seen a 38% decline in construction, while the mainland conversely has seen a 5% increase. The Housing and Population Census shows that this supply has not matched demand, with a suggested oversupply of 21%, which grew significantly between 1991 and 2000 in all districts. A housing demand model needs to be constructed which takes account of a much wider range of factors, and better reflects the needs of the current and future population and supports the state's future economic development in a more sustainable fashion.

## **Section 2: Property prices**

The average house price in Penang has risen by 53.9% in the past five years (and 89.6% in the past seven years). This following section explores trends in average property prices in Penang, utilising NAPIC data, average prices are established for property types by district, allowing a spatial assessment of increases in property prices.

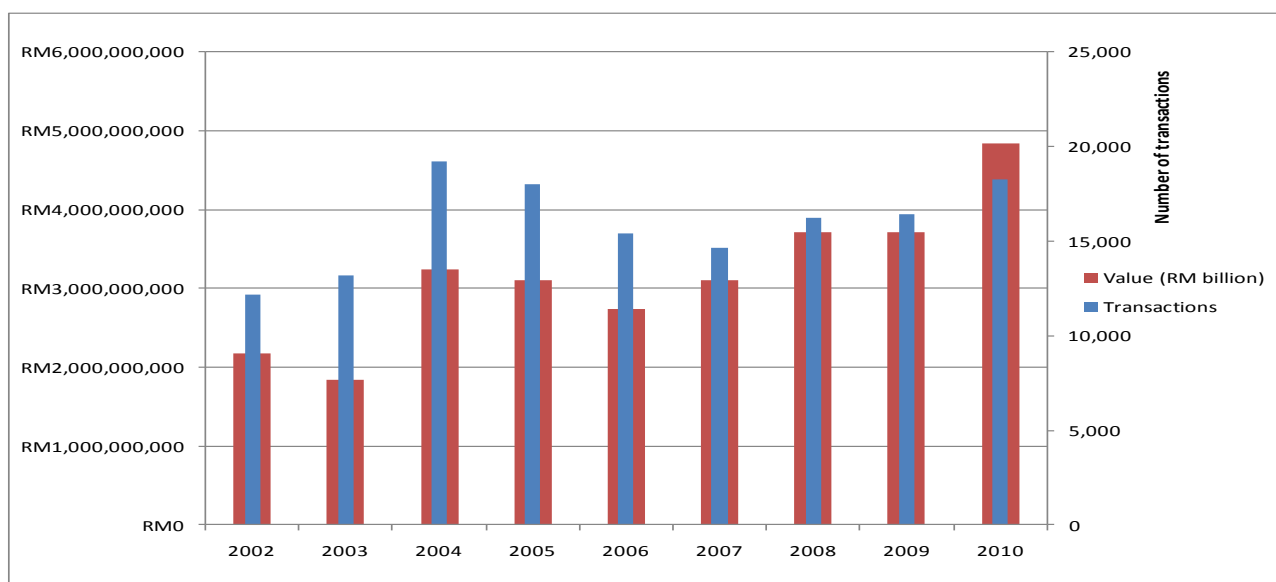
## Housing transactions and transaction values up

The number of housing transactions in Penang increased significantly from around 12,000 per year in 2002 to over 19,000 per year in 2004, however from 2004 to 2006 the total number of transactions fell, but since then the total number of transactions has again been growing, with 18,234 transactions in 2010. The jump in transactions between 2009 and 2010 represented a 10.9% increase on transaction figures which had been static between 2008 and 2009 (blue bars in figure 8).

By examining housing transactions and transaction values (red bars) together, we are able to see the pressures displayed on the average cost of housing. The increase in the number of transactions since 2007 has been accompanied with a significant growth in total transaction values. The total value of all transactions increased from RM3.7bn to RM4.8bn between 2009 and 2010, a growth of 29.9% in a period when the total number of transactions increased by 10.9%.

**Figure 8 - Number and value of housing transactions in Penang (2002 – 2010)**

Source: NAPIC

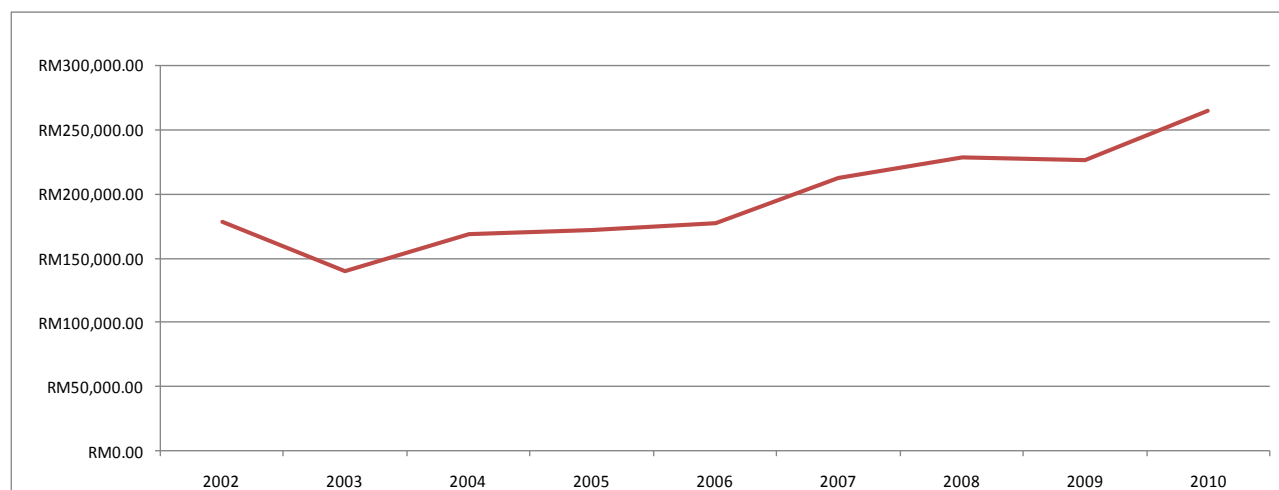


## House prices up 50% in 5 years

As the growth in transaction values outpaces the growth in the number of transactions, the result is increasing house prices. The average house price in Penang has risen from RM140,000 in 2003 to RM265,010 in 2010, equal to a 89.6% increase in seven years. Prices have risen dramatically since 2005, increasing by 53.9%.

**Figure 9 - Average house price in Penang (2002 – 2010)**

Source: NAPIC



### Growth in the highest price bands

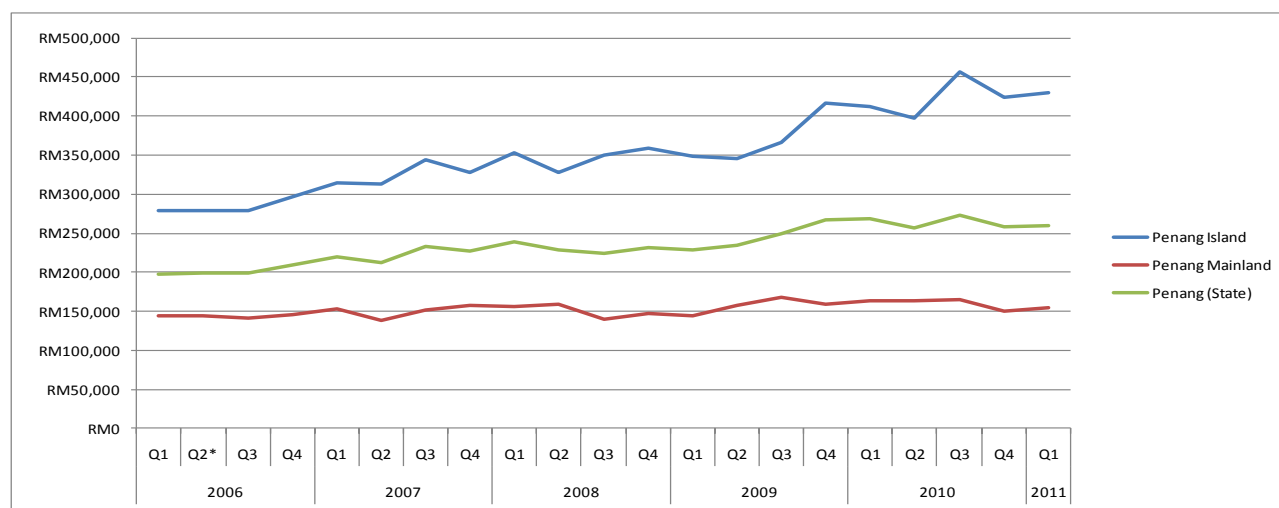
In unpicking this growth in house prices, we can look at NAPIC data for property transactions by value. There has been significant growth in transactions of housing in the highest price bands, so for example, the sales of property costing between RM250,000 and RM500,000 has increased from 461 units in 2006 (Q1) to 1,033 units in 2011 (Q1), an increase of 125% in five years. Property transactions between RM500,000 and RM1mil increased from 115 to 412, a growth of 258% over the same time period, while the number of RM1mil plus property transactions also increased significantly, from 33 to 141, a 327% increase<sup>6</sup>.

### Divergent island & mainland prices

We can also start to unpick these average price rises by examining transactions spatially. The following chart (figure 10) separates the island from the mainland, while also displaying the Penang average property price. This clearly shows that the increases in the Penang average price is being driven by property on the island, with the average island price significantly above the average, and the mainland price significantly below.

**Figure 10 - Average prices in Penang State, Island and Mainland (Q1 2006 – Q1 2011)**

Source: NAPIC




## House prices by district and housing type

This following section looks to unpack the growth in house prices further by examining trends within specific housing types and across each of the 5 districts in Penang. Full tables demonstrating 5 year increases, 12 month increases and projected 3 year increases can be found in appendix 1.

### Low cost housing

- Differential** - The price of low cost flats varies significantly across the state, with a low cost flat in Barat Daya more than double the cost in Seberang Perai Selatan. A low cost house on the island is up to 8 times the cost of a low cost house on the mainland.
- 5 year change** - The price of low cost flats have actually fallen or remained relatively static over the past 5 years, with drops of between 10% and 18% on the mainland. Low cost houses however have shot up in price on the island. On the mainland, the central district of Seberang Perai Tengah has also seen an 18% price increase in low cost houses over the past 5 years, however the two districts furthest from the island have actually seen falling prices in this category.
- Projections** - Projecting prices forward (linear) over the next three years (2014) suggests that a low cost flat would cost in the region of RM75,000 in Barat Daya, RM65,000 in Timur Laut and around RM45,000 on the mainland, this is potentially a further 10% increase in Barat Daya and 6% increase in Timur Laut. In terms of low cost houses, on current growth rates the price in Timur Laut could reach in excess of RM500,000 in the next few years, a 51% increase on today's prices, and RM182,816 in Barat Daya (a 108% increase).

**Figure 11 – Low cost housing prices 2006 & 2011**

Property type		District	Q1 2006	Q1 2011	% change
	Low cost flat	Timur Laut	RM62,000	RM60,652	-2%
		Barat Daya	RM67,417	RM68,468	2%
		Utara	RM46,552	RM42,093	-10%
		Tengah	RM44,862	RM36,815	-18%
		Selatan	RM35,217	RM31,481	-11%
	Low cost house	Timur Laut	RM147,500	RM355,000	141%
		Barat Daya	RM60,000	RM88,000	47%
		Utara	RM53,889	RM43,344	-20%
		Tengah	RM85,686	RM100,755	18%
		Selatan	RM64,571	RM59,655	-8%

## High rise housing

- **Differential** - There are huge differentials in the cost of flats and condominiums between the island and the mainland, with flats on the island 30% more expensive than the mainland and condominiums are up to 6 times more expensive on the island.
- **5 year change** - Flats have increased in price significantly on the island, with 22% and 28% price increases respectively in Timur Laut and Barat Daya, however 82% and 78% price increases have been witnessed for condominiums over the past five years. The average price of a condominium/apartment ranges from RM69,080 in Seberang Perai Tengah to RM450,286 in Timur Laut. The significant price increase in Timur Laut is reflected by the emerging category of super condominium, with an increasing number of high end developments on the island.
- **Projections** – The average price of a flat is projected to increase across 4 of 5 districts (insufficient data exists for Selatan). In Timur Laut a linear projection would put the price of a flat at over RM160,000 by 2014, a potential 22% increase on today's prices, a 10% increase in Barat Daya is projected, while prices in Seberang Perai Utara and Seberang Perai Tengah are projected to increase by a further 24% and 12% respectively. Condominiums are projected to grow at a similar rate, with an average condominium in Timur Laut reaching RM563,000 (25% up), Barat Daya RM400,000 (22% up) and on the mainland RM136,500 in Seberang Perai Utara (14% up) and RM95,094 in Seberang Perai Tengah (38% up).

**Figure 12 - High rise housing prices 2006 & 2011**

Property type		District	Q1 2006	Q1 2011	% change
	Flat	Timur Laut	RM107,820	RM132,059	22%
		Barat Daya	RM102,676	RM131,441	28%
		Utara	RM85,357	RM93,333	9%
		Tengah	RM70,233	RM71,781	2%
		Selatan	-	-	
	Condominium/ apartment	Timur Laut	RM247,887	RM450,286	82%
		Barat Daya	RM184,156	RM328,619	78%
		Utara	RM123,636	RM119,940	-3%
		Tengah	RM99,444	RM69,080	-31%
		Selatan	-	-	

## Terraced property

- **Differential** – Single storey terraced property is around 3 times more expensive on the island, compared to the mainland while 2/3 storey terraced property is between 2.4 and 4 times more expensive on the island than the mainland.
- **5 year change** - Terraced property has increased in price across Penang, however most significantly on the island, with single storey terraced property increasing by 34% in Timur Laut and

52% in Barat Daya over the past 5 years. Smaller rises have been evident on the mainland, with 14% and 19% increases in Seberang Perai Selatan and Seberang Perai Tengah, 4% in Seberang Perai Utara. 2/3 storey terraced property has increased in price faster, with 66% and 70% increases in price evident in this property type on the island over the past five years. Again mainland increases have been smaller, with a 25% increase in Seberang Perai Utara, 15% in Seberang Perai Tengah and 7% in Seberang Perai Selatan, the most southern district.

- **Projections** - On recent trends the price of a single storey terraced property could rise to over half a million Ringitt in Timur Laut in the next few years (38% up on today's prices) while a 2/3 storey property could expect to reach RM835,000 (21% up) with prices in Barat Daya not far behind. The prices of terraced property on the mainland have however remained relatively static, with only 2/3 storey terraced property in Utara projected to rise significantly by 2014 (up 13%).

**Figure 13 - Terraced property prices 2006 & 2011**

Property type	District	Q1 2006	Q1 2011	% change
 Single storey terraced	Timur Laut	RM286,410	RM382,553	34%
	Barat Daya	RM201,613	RM306,250	52%
	Utara	RM121,028	RM126,010	4%
	Tengah	RM108,889	RM130,000	19%
	Selatan	RM90,894	RM103,352	14%
 2/3 storey terraced	Timur Laut	RM415,909	RM688,742	66%
	Barat Daya	RM334,583	RM569,829	70%
	Utara	RM186,026	RM232,805	25%
	Tengah	RM195,815	RM225,992	15%
	Selatan	RM156,316	RM166,542	7%

### **Semi detached and detached property**

- **Differential** - Single storey semi detached property is up to 3.7 times more expensive on the island than the mainland. 2/3 storey semi detached property is between 2 and 3 times more expensive on the island as compared to the mainland while detached property is between 1.5 and 5.8 times more expensive on the island compared to the mainland.
- **5 year change** – Timur Laut has seen a 66% increase in the cost of single storey semi detached property. Seberang Perai Utara and Seberang Perai Selatan have seen increases of 32% and 21% respectively; however Seberang Perai Tengah has seen only a 1% increase in the price of this property type. For 2/3 storey semi detached property, the biggest increases have been witnessed again on the island, with prices increasing by 43% in Timur Laut and 59% in Barat Daya. 2/3 storey semi detached property on the mainland has however increased by 14% in Seberang Perai Utara, 16% in Seberang Perai Tengah and 7% in Seberang Perai Selatan. Over the past 5 years detached property has increased most significantly on the mainland in Seberang Perai Selatan, where the average price has nearly doubled (increasing by 95%), in Timur Laut property prices have increased



by 74% and in Seberang Perai Tengah by 32%. Lower increases of 9% have been observed in Barat Daya and 8% in Seberang Perai Utara.

- Projections** – On current growth rates, a single storey semi will reach in excess of RM750,000 in Timur Laut (up 37%) and RM340,000 in Barat Daya (up 53%) by 2014. Prices in Seberang Perai Utara have also been increasing and could reach RM223,000 by 2014 (up 35%), while prices in Seberang Perai Tengah and Seberang Perai Selatan have been relatively static on recent trends. 2/3 storey semi detached property could average RM1.3 million in Timur Laut (up 35%), RM900,000 in Barat Daya (up 23%) while mainland prices could be expected to increase by between 5% and 9%. Detached property could average RM2 million in Timur Laut (up 16%) and in Seberang Perai Utara this property type is projected to reach RM388,000 (up 32%), while other districts may see much smaller rises.

**Figure 14 - Semi detached and detached property prices 2006 & 2011**

Property type		District	Q1 2006	Q1 2011	% change
	Single storey semi	Timur Laut	RM338,235	RM562,381	66%
		Barat Daya	RM251,667	RM222,222	-12%
		Utara	RM125,556	RM165,200	32%
		Tengah	RM182,632	RM185,283	1%
		Selatan	RM124,348	RM150,690	21%
	2/3 Storey semi	Timur Laut	RM666,607	RM955,870	43%
		Barat Daya	RM458,947	RM729,200	59%
		Utara	RM311,667	RM356,757	14%
		Tengah	RM305,313	RM355,043	16%
		Selatan	RM229,737	RM245,806	7%
	Detached	Timur Laut	RM989,574	RM1,721,429	74%
		Barat Daya	RM555,385	RM603,571	9%
		Utara	RM272,143	RM293,636	8%
		Tengah	RM304,167	RM402,647	32%
		Selatan	RM200,000	RM389,583	95%

## Summary

The average house price in Penang has more than doubled in the past 5 years, with the number of housing transactions increasing by more than 10% between 2009 and 2010, and the value of these transactions growing by nearly 30%. Increases in the average price is being driven by property on the island, with most property types between 2 and 8 times more expensive on the island compared to the mainland. Further projections based on the past five years historical rates of growth will see the island become significantly more expensive, however the exponential growth in property prices on the island overshadows the growth in prices on the mainland.

Terraced property has increased by up to 25% over the past five years on the mainland, and 30% increases in the cost of semi detached and detached property have been witnessed. The average price of a flat is projected to increase in Seberang Perai Utara and Seberang Perai Tengah by a further 24% and 12%

respectively by 2014. Condominiums are projected to grow at a similar rate, with an average condominium on the mainland increasing in price by 14% in Seberang Perai Utara and 38% in Seberang Perai Tengah by 2014, and this is without taking account of the affect higher prices on the island will display on the mainland, through greater spillover pressures on prices. While the mainland is significantly cheaper than the mainland, it has still seen significant growth in the average price of property, and will continue to see significant pressures on house prices on current trends.

### **Section 3: Affordability**

The average house price in Penang has risen significantly, however increases in household income have not risen at the same rate. Issues of affordability and housing stress become central to larger and larger sections of society when property prices increase significantly faster than incomes.

A common criterion for property purchase in Malaysia is that the monthly mortgage instalment should not be more than one-third of the gross monthly household income, which defines income 'affordability'. A household spending more than 30% of its income on housing can be considered under housing stress, and under "extreme" housing stress if it's spending exceeds 50%. Housing stress has a negative impact on the economy; as other areas of consumption are reduced, the household; implications on financial security, social participation and health; and the environment; as future development seeks out cheaper locations more distant from sites of employment and people are forced into longer commutes using fossil fuel dependant transport. This following section looks at the growth in household incomes and the extent of cost of living increases which have placed pressure on housing affordability.

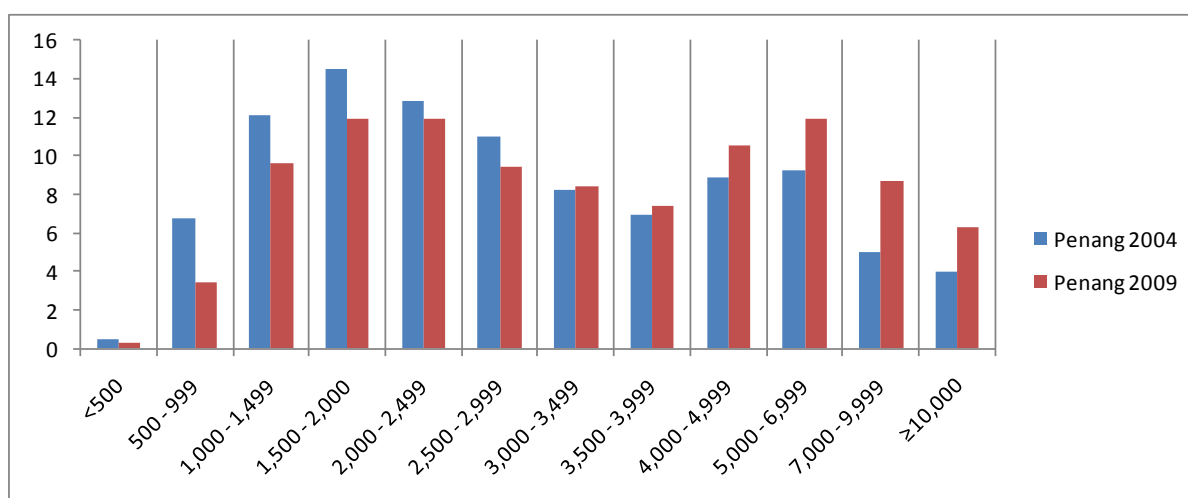
#### **Growth in household income**

The national mean monthly household income registered at RM4,025 per month in 2009 and only three states ranked above the national average, Selangor with a mean monthly household income at RM5,962 per month, Kuala Lumpur with RM5,488 per month and Penang with RM4,407 per month. Selangor and Kuala Lumpur therefore have a mean household income which is 26% and 20% respectively, higher than in Penang. The average monthly household income in Penang grew from RM3,531 in 2004 to RM4,407 in 2009<sup>1</sup>, equal to a 25% growth over 5 years.

The percentage of households in Penang with an income under RM3,000 fell from 57.7% to 46.6%, while the percentage of households with an income in excess of RM5,000 increased from 18.3% to 26.9%. However, the percentage of households earning between RM3,000 and RM5,000 grew by only 2.5% over 5 years, moving from 24% in 2004 to 26.5% of households in 2009.

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<sup>1</sup> The latest available data, Department of Statistics Household Income Survey, 2009

**Figure 15 – Household income in Penang, 2004 & 2009**

In understanding income it is common practice to divide the population into segments of 20%, or quintiles, which allows an understanding of income in the lowest 2 quintiles (often defined as low income), the middle quintile (and often also the 4<sup>th</sup> quintile) are defined as middle income groups, while the 5<sup>th</sup> quintile is defined as the higher income group. Figure 17 demonstrates income quintiles for both Penang and Kuala Lumpur, highlighting the differing income ranges across income groups.

**Figure 18 – Income quintiles for Penang and KL, 2009**

Quintile	Penang	KL
Low income group (1 <sup>st</sup> & 2 <sup>nd</sup> quintile)	Less than RM2,700	Less than RM3,700
Middle income group (3 <sup>rd</sup> & 4 <sup>th</sup> quintile)	RM2,700 – RM6,200	RM3,700 – RM8,000
High income group (5 <sup>th</sup> quintile)	More than RM6,200	More than RM8,000

Examining the salary levels of middle income professions over the previous 4 years, demonstrates that wage growth has been relatively static, which supports a view that middle income groups are being squeezed by lack of growth in wages, while facing increasing costs of living and declining housing affordability.

**Figure 19 – Salary growth of middle income professions 2006/07 to 2009/10**

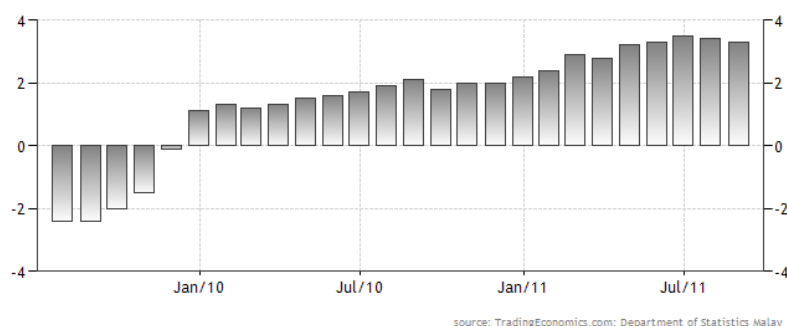
Source: Kelly Services



### Increasing cost of living

The cost of living has been rising in Malaysia over the past few years, as it has across the world. While short term fluctuations in prices occur due to speculation or seasonal effects such as good or bad harvests, the underlying trend in the cost of living is upward. This is a global issue and is due to many factors, including an expanding world population, growing affluence in emerging economies driving competition for resources, depletion of natural resources (such as fossil fuels, minerals and metals), alternative uses of agricultural land, such as for bio fuel (in particular in the US), and also changing climatic conditions globally which make food supplies less stable.

The inflation rate demonstrates changes in price levels over time, and as the inflation rate increases, there is an equal decrease in the purchasing power of money. There has been growing pressure on the rate of inflation in Malaysia since early 2010, with the rate increasing to 3.3% in August 2011. From 2005 to 2010, the average inflation rate was 2.77 percent. Increases in the cost of living are driven by food supply, public transportation and housing.

**Figure 20 – Malaysian inflation rates (July 2009 – September 2011)**


source: TradingEconomics.com; Department of Statistics Malaysia

## Food

Increases in food prices are felt by all, but are disproportionately felt by the poorest in society who spend the highest percentage of their income on food, however the middle income group which has seen little growth in income over the previous 5 years also face significant pressures. The Consumer Price Index tracks the cost of key food groups and over just a 12 month period (August 2010 to August 2011), food prices increased by 4.7%, with all sub groups increasing in price with the exception of vegetables. Fruits increased by 4.8%, milk and eggs by 5.4%, fish and seafood increased by 6.7% and meat increased by 7.4%.

**Figure 21 – Consumer price index (Food) - Aug 2010 – Aug 2011**

Source: DoS

Sub-group	% change Aug 2010 to Aug 2011
<b>Food</b>	<b>4.7</b>
Rice, Bread & Other Cereals	1.6
Meat	7.4
Fish & Seafood	6.7
Milk & Eggs	5.4
Oils and Fats	0.7
Fruits	4.8
Vegetables	-0.2
Sugar, Jam, Honey, Choc. & Confectionery	10.9
Food Products n.e.c.	6.7
Food Away From Home	4.9
Coffee, Tea, Cocoa & Non-Alcoholic Beverages	2.8

## Transport

Increasing fuel prices are a major concern for cost of living as when fuel costs more, the cost of transportation will increase which subsequently leads to more expensive goods and services for everyone. Malaysia subsidises petrol, diesel and gas each year, however since July 2010, RON97 has floated with government controlled revisions reflecting the global crude oil prices. As a result the cost of a litre of petrol has increased by 33% in the space of 11 months, adding additional pressures to household budgets. Non food items have increased by 2.7% over the 12 month period (August 2010 to August 2011), with transport costs overall increasing by 4%.

**Figure 21 – Consumer price index (non food) - Aug 2010 – Aug 2011**

Source: DoS

Group	% change Aug 2010 to Aug 2011
Clothing and Footwear	0.1
Housing, Water, Electricity, Gas & Other Fuels	2
Furnishings, Household Equip. & Routine Household Maintenance	2.1
Health	2.9
Transport	4
Recreation Services & Culture	3
Education	2.2
<b>Non-Food</b>	<b>2.7</b>

### Declining housing affordability

The median house price to median income ratio is a commonly used indicator of housing affordability, its simplicity allows international comparison, in Penang the median house price is RM265,010 while the median household income is RM52,844 (RM4,407 per month), a multiple of 5. In 2006 the average median house price to median income ratio was 4.

However looking at affordability on the island the multiples increase to 8.1 (Average island price M429,440 / RM52,844), up from 6.6 five years ago. In the United States the housing affordability index was static at about 3 times average salary between 1965 and 2000, and then this rose to 5.8 in six years from 2000 to 2006 resulting in a housing boom and bust and triggering the greatest financial crisis since the Great Depression of 1929. In the United Kingdom, the housing problem was even worse with median house price at 11 times household income prior to the 'credit crunch' in 2008. The following table in figure 22 outlines the affordability of each income quintile in Penang in terms of mortgage lending, which hovers around an annual income multiple of 4.5 .

**Figure 22 – Affordable mortgage borrowing**

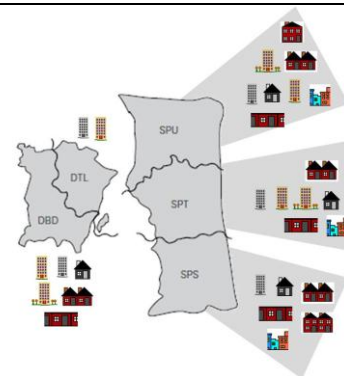
Quintile	Monthly income	Mortgage borrowing with 5% deposit, 30 year mortgage @ BLR	Income multiple
1 <sup>st</sup> Quintile	Up to RM1,800	Up to RM100,000	4.6 upwards
2 <sup>nd</sup> Quintile	RM1,800 to RM2,700	RM100,000 to RM150,000	4.6
3 <sup>rd</sup> Quintile	RM2,700 – RM3,800	RM150,000 to RM200,000	4.4 - 4.6
4 <sup>th</sup> Quintile	RM3,800 – RM6,200	RM200,000 to RM350,000	4.4 – 4.7
5 <sup>th</sup> Quintile	RM6,200 +	RM350,000 +	4.7 upwards

Different financial institutions in Malaysia have different criteria in calculating the repayment capacity, however most work on the basis of 1/3<sup>rd</sup> of gross household income for mortgage expenses, and the margin of financing can go as high as 95% of the value of the house and the length of a loan can range from 30 years or until the borrower reaches age 65 (or any other age as determined by the financial institution). Using income data and average house prices with existing finance availability in Malaysia the housing options of those earning under RM6,200 (low and middle income groups) are explored by income quintile in figure 23.

**Figure 23 – Housing options by income quintile in Penang, 2011**

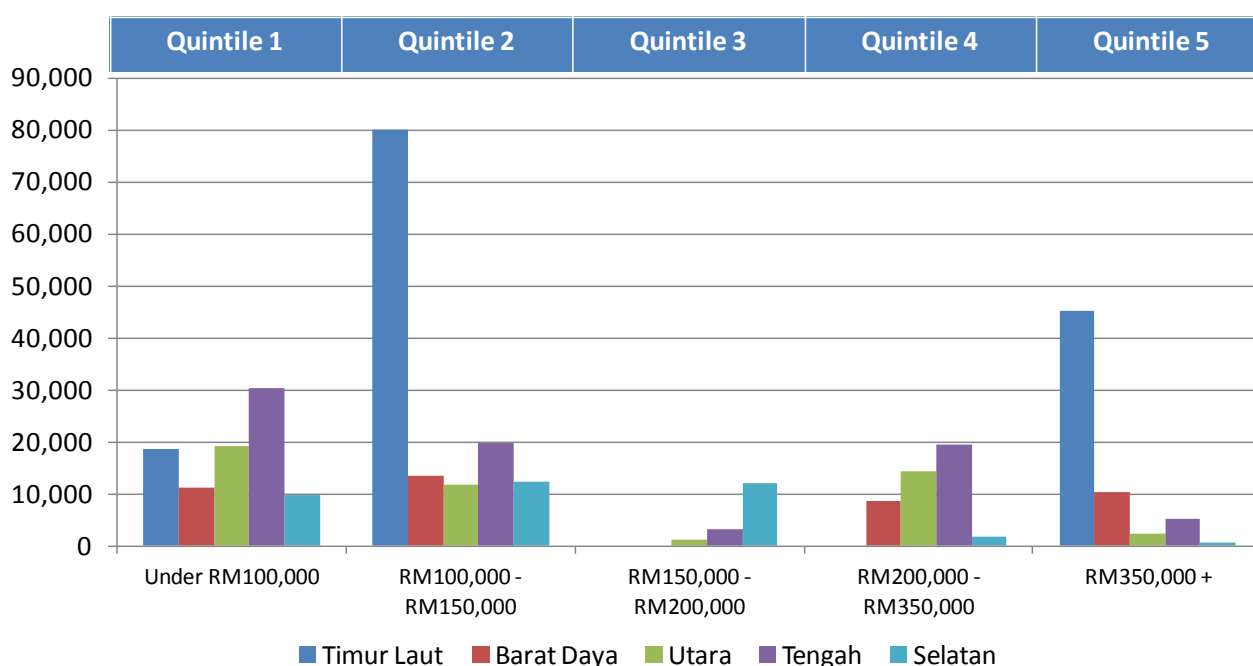
<p>1<sup>st</sup> quintile (RM0 – RM1,800) – 20% of households in the lowest quintile have limited housing options on the island, with low cost flats an option and in Barat Daya a low cost house would be affordable. However, on the mainland a flat is affordable in Seberang Perai Utara and Seberang Perai Tengah and a condominium is affordable in Seberang Perai Tengah.</p>	
<p>2<sup>nd</sup> quintile (RM1,800 – RM2,700) – 20% of households earn between RM1,800 and RM2,700 a month, housing options that open up to this group in addition to the first quintile include flats on the island and single storey terraced property on the mainland. Condominiums also become affordable for this group in Seberang Perai Utara and Seberang Perai Tengah.</p>	
<p>3<sup>rd</sup> quintile (RM2,700 – RM3,800) – Households in the 3<sup>rd</sup> income quintile that earn between RM2,700 and RM3,800 have no additional housing options on the island over the 2<sup>nd</sup> quintile (displaying an affordability gap), however on the mainland, in all districts, single storey semi detached property becomes affordable and in Seberang Perai Selatan 2 or 3 storey terraced property is affordable.</p>	

4<sup>th</sup> quintile (RM3,800 – RM6,200) – Households in the 4<sup>th</sup> quintile have additional options of single storey terraced property and single storey semi detached property in Barat Daya on the island, but have no additional housing options in Timur Laut. 2 or 3 storey terraced property becomes affordable in Seberang Perai Utara and Seberang Perai Tengah while 2/3 storey semi detached property becomes affordable in Seberang Perai Selatan and detached property becomes affordable in Seberang Perai Utara.



From this analysis we can see that lower income groups have few housing options and even middle income groups have few options on the island. Only the 4<sup>th</sup> income quintile (upper middle income) can afford a condominium on the island, while family sized property remains out of reach for even this group. Each income quintile however has significantly more housing options on the mainland, however larger family sized properties, such as 2 or 3 storey terraced property only become affordable for those in the 3<sup>rd</sup> and 4<sup>th</sup> income quintiles. Figure 24 further demonstrates the distribution of housing units by district and by quintile affordability, and it is clear that the 3<sup>rd</sup> and 4<sup>th</sup> income quintiles have far fewer housing options.

**Figure 24 – Housing distribution by quintile affordability**





By 2014 based on current growth rates in house prices and income, the lowest income quintile will no longer be able to afford a flat in Seberang Perai Utara or a low cost house in Barat Daya. The 2nd quintile income group will no longer be able to afford a flat in Timur Laut or a low cost house in Barat Daya. While for the 3rd quintile (RM2,700 – RM3,800), a single storey semi detached property in Seberang Perai Utara becomes unaffordable by 2014 based on current growth rates. The upper middle income quintile (4<sup>th</sup>) will no longer have the option of a condominium or single storey terraced property in Barat Daya by 2014 as these will have increased out of affordable range. In Seberang Perai Utara, the only district where a detached house is affordable for this income quintile, this also will no longer be affordable by 2014 on current trends.

## **Summary**

If house price inflation continues on the past five years' historical rates and wage rate inflation remains as it has done over the past few years, especially for middle income groups, the issue of house price affordability will become more acute. People's housing options across the first 4 income quintiles are reducing and will continue to reduce if house price inflation continues. The overall impact of this is to push lower and increasingly middle income groups off the island towards the mainland. Those with families have even fewer options. The concern should be what impact this will have, not only on the lower and aspiring middle classes (socially), but also the economy of Penang and its environment, as the workers essential in transforming Penang into a high income and knowledge economy are forced into long commutes and increasing congestion, making Penang a less desirable place to live.

In developing more affordable housing, housing policies should extend beyond providing basic living accommodation, and should also be about ensuring that people have access to jobs, have a high quality of life and can minimise their negative environmental impacts and reduce their cost of living. 'Affordable' housing requires a definition which is sustainable moving forward, so that property is not simply developed which is smaller and smaller but fits within the median house price to median income ratio. 'Affordable' housing should be defined by its suitability for families, access to amenities, sites of employment and connections to public transportation networks. It should be as 'green' as possible, helping to make property affordable into the future, as cost of living continues to rise, as resources continue to become more scarce.

## **Conclusions**

The extent to which the housing supply and demand factors are well understood in Penang is unclear. There is argued to be a mismatch of housing stock with demand, with significant oversupply. Condominiums are argued to be in oversupply on the island, while low cost housing is argued to be sufficient in three of the five districts, yet money is being invested in low cost housing in these areas<sup>7</sup>. Oversupply suppresses rental prices (which assessment rates are calculated on), depresses the prices of unsold property and will have a larger negative impact on property prices should there be a housing market deflation. The prices of prime properties in Dubai for example have fallen by 50% or more since the debt crisis of 2009 where there was a significant oversupply, and so caution should be taken.

Housing data needs to be collated and examined in much greater detail, and at a lower spatial level, and house price rises and affordability need to be much better understood. Future policies and development approvals need to be evidence-based as Penang is in danger of affecting future economic development if issues of housing supply and demand are not rapidly linked to wider development strategies. Penang state government should initially invest in developing its knowledge and understanding of the state housing market, so that it may further develop a robust housing demand model informed by a wider range of demand factors.

By using population forecasts, household income data, and stock volumes within 'affordable' price ranges (data collected for this paper) we can see a huge mismatch in the supply and demand for property on the basis of income groups. Significant caution needs to be taken with this rough calculation, as many factors are not considered or controlled for<sup>8</sup>, however it does start to identify the potential scale of the issue. Each income quintile has 76,024 households (20%), therefore:

- The low income group, the 1<sup>st</sup> and 2<sup>nd</sup> quintiles (which has a household income of less than RM2,700 per month) is made up of 152,048 households who can afford property costing under RM150,000. According to NAPIC stock and transaction data, there are 306,896 properties with an average price which is under RM150,000, which is double the number of households for which this stock is within the affordability range. If stock volume remains as it is today, using the PSP population forecast for 2020, there will still be an oversupply of 116,420 units for this income group.
- The middle income group, the 3<sup>rd</sup> and 4<sup>th</sup> quintiles (which has a household income of between RM2,700 and RM6,200) is also made up of 152,048 households (40%) who and can afford property between RM150,000 and RM350,000, of which, according to NAPIC there are 81,966 units, half the required units for this income group, and by 2020 this undersupply will grow to 108,510 units if current stock remains the same.

This crude analysis starts to display the problems in supply and demand, with middle income groups likely forced into sub optimal housing choices by a lack of supply in the market, which then drives up the price of available housing, and explains why a low cost house in Timur Laut is an average of RM355,000.<sup>2</sup>

Housing demand models should consider the needs of all groups within society, and the affordability gap for middle income groups in the 3<sup>rd</sup> and 4<sup>th</sup> quintile may well act as an inhibitor of future economic development, as these groups seek employment opportunities in locations where property is more desirable/affordable.

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<sup>2</sup> Throw into the mix the housing needs of 225,000 foreign workers, with only 400 units of hostel accommodation and the low cost housing sector starts to display some serious issues to be addressed.

## **Recommendations**

### **Recommendation 1 – Develop a housing research function**

There is no one agency that holds a comprehensive picture of the housing situation in Penang.<sup>9</sup> The state needs to develop a research function with a specific focus on housing. National data sources need to be analysed alongside local sources, and issues with data collection and its reliability should be probed and understood in greater detail.

### **Recommendation 2 - Develop a robust housing demand model**










Data on incoming supply including price and location, housing approvals, overhang by property type, price and location, and vacant properties are all required, along with more robust data on housing demand, from demographic factors such as household formation, to understanding housing purchasers, second home owners and statistics and data on foreign ownership, the availability of financing (levels of indebtedness), examination of tenure and the elasticity of the supply of houses in the private rented sector, all of which should be tracked and forecasted on a regular basis. The impact of Federal policies need to be considered in any model, such as the potential impact of Loan to Value ratios on third mortgages, and increases in the Real Estate Property Gains tax.

### **Recommendation 3 - Drawing on best practice,<sup>10</sup> develop a robust set of affordability indicators, including economic, social and environmental indicators.**










The most widely used and cited indicator of home ownership affordability is the median house price to median income ratio. Its use is recommended by the World Bank and the United Nations for its simplicity and comparability. Penang however needs to develop a more detailed range of key indicators for assessing housing affordability in Penang, examining the impact of price developments on different segments of society, and the overall affordability of differing locations. Understanding this can support the development of evidenced-based policy making and inform future planning and development approaches. Penang can develop a housing affordability index which considers more than just the median house price to median income ratio<sup>11</sup> and the state should require all new developments to consider links to public transport (in relation to the forthcoming Halcrow study which is expected to present a modal shift ratio target), but also accessibility of key sites of employment, e.g. Bayan Lepas, George Town.

## Appendix 1 – Changes in property prices










### Price changes over 5 years

Property type		District	Q1 2006	Q1 2011	% change
	Low cost flat	Timur Laut	RM62,000	RM60,652	-2%
		Barat Daya	RM67,417	RM68,468	2%
		Utara	RM46,552	RM42,093	-10%
		Tengah	RM44,862	RM36,815	-18%
		Selatan	RM35,217	RM31,481	-11%
	Low cost house	Timur Laut	RM147,500	RM355,000	141%
		Barat Daya	RM60,000	RM88,000	47%
		Utara	RM53,889	RM43,344	-20%
		Tengah	RM85,686	RM100,755	18%
		Selatan	RM64,571	RM59,655	-8%
	Flat	Timur Laut	RM107,820	RM132,059	22%
		Barat Daya	RM102,676	RM131,441	28%
		Utara	RM85,357	RM93,333	9%
		Tengah	RM70,233	RM71,781	2%
		Selatan	-	-	-
	Single storey terraced	Timur Laut	RM286,410	RM382,553	34%
		Barat Daya	RM201,613	RM306,250	52%
		Utara	RM121,028	RM126,010	4%
		Tengah	RM108,889	RM130,000	19%
		Selatan	RM90,894	RM103,352	14%
	Condominium/ apartment	Timur Laut	RM247,887	RM450,286	82%
		Barat Daya	RM184,156	RM328,619	78%
		Utara	RM123,636	RM119,940	-3%
		Tengah	RM99,444	RM69,080	-31%
		Selatan	-	-	-
	2/3 Storey terraced	Timur Laut	RM415,909	RM688,742	66%
		Barat Daya	RM334,583	RM569,829	70%
		Utara	RM186,026	RM232,805	25%
		Tengah	RM195,815	RM225,992	15%
		Selatan	RM156,316	RM166,542	7%
	Single storey semi	Timur Laut	RM338,235	RM562,381	66%
		Barat Daya	RM251,667	RM222,222	-12%
		Utara	RM125,556	RM165,200	32%
		Tengah	RM182,632	RM185,283	1%
		Selatan	RM124,348	RM150,690	21%
	2/3 Storey semi	Timur Laut	RM666,607	RM955,870	43%
		Barat Daya	RM458,947	RM729,200	59%
		Utara	RM311,667	RM356,757	14%
		Tengah	RM305,313	RM355,043	16%
		Selatan	RM229,737	RM245,806	7%
	Detached	Timur Laut	RM989,574	RM1,721,429	74%
		Barat Daya	RM555,385	RM603,571	9%
		Utara	RM272,143	RM293,636	8%
		Tengah	RM304,167	RM402,647	32%
		Selatan	RM200,000	RM389,583	95%

### Price changes over 12 months

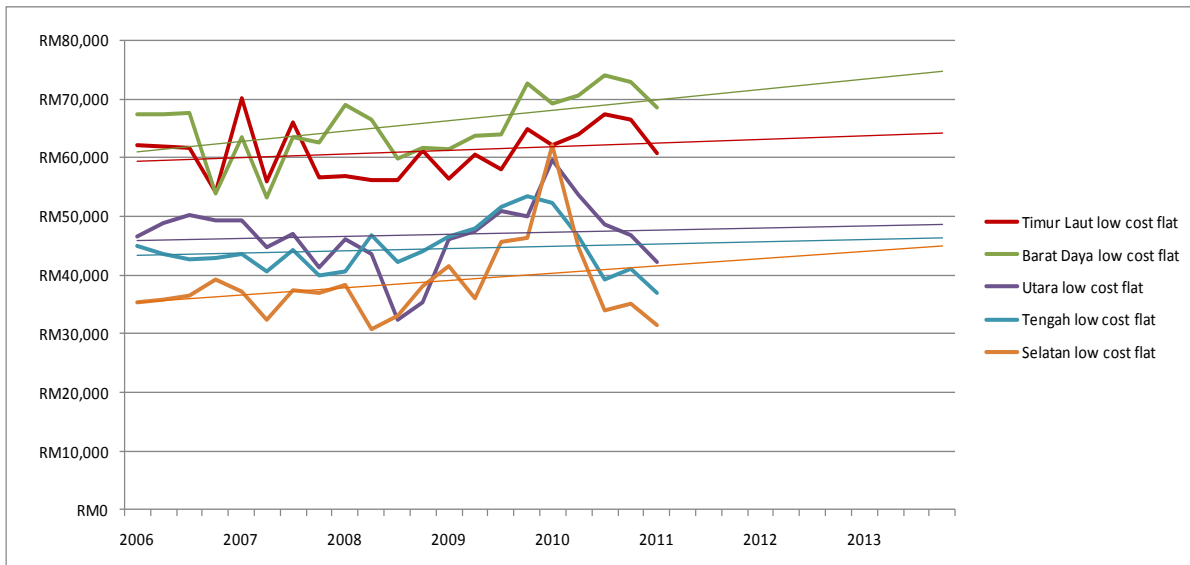
Property type		District	Q1 2010	Q1 2011	% change
	Low cost flat	Timur Laut	RM63,934	RM60,652	-5%
		Barat Daya	RM69,101	RM68,468	-1%
		Utara	RM59,615	RM42,093	-29%
		Tengah	RM52,162	RM36,815	-29%
		Selatan	RM62,222	RM31,481	-49%
	Low cost house	Timur Laut	RM277,778	RM355,000	28%
		Barat Daya	RM76,667	RM88,000	15%
		Utara	RM62,069	RM43,344	-30%
		Tengah	RM90,816	RM100,755	11%
		Selatan	RM67,727	RM59,655	-12%
	Flat	Timur Laut	RM137,451	RM132,059	-4%
		Barat Daya	RM118,889	RM131,441	11%
		Utara	RM98,235	RM93,333	-5%
		Tengah	RM82,069	RM71,781	-13%
		Selatan	-	-	-
	Single storey terraced	Timur Laut	RM421,091	RM382,553	-9%
		Barat Daya	RM301,500	RM306,250	2%
		Utara	RM142,182	RM126,010	-11%
		Tengah	RM127,576	RM130,000	2%
		Selatan	RM94,483	RM103,352	9%
	Condominium/ apartment	Timur Laut	RM415,036	RM450,286	8%
		Barat Daya	RM274,305	RM328,619	20%
		Utara	RM126,667	RM119,940	-5%
		Tengah	RM117,059	RM69,080	-41%
		Selatan	-	-	-
	2/3 Storey terraced	Timur Laut	RM632,763	RM688,742	9%
		Barat Daya	RM563,511	RM569,829	1%
		Utara	RM242,979	RM232,805	-4%
		Tengah	RM229,372	RM225,992	-1%
		Selatan	RM177,297	RM166,542	-6%
	Single storey semi	Timur Laut	RM583,667	RM562,381	-4%
		Barat Daya	RM322,500	RM222,222	-31%
		Utara	RM255,625	RM165,200	-35%
		Tengah	RM181,600	RM185,283	2%
		Selatan	RM129,333	RM150,690	17%
	2/3 Storey semi	Timur Laut	RM973,415	RM955,870	-2%
		Barat Daya	RM684,634	RM729,200	7%
		Utara	RM358,889	RM356,757	-1%
		Tengah	RM321,636	RM355,043	10%
		Selatan	RM271,579	RM245,806	-9%
	Detached	Timur Laut	RM1,781,724	RM1,721,429	-3%
		Barat Daya	RM431,053	RM603,571	40%
		Utara	RM270,909	RM293,636	8%
		Tengah	RM301,714	RM402,647	33%
		Selatan	RM326,500	RM389,583	19%

**Projected property prices to 2014**

Property type		District	Q1 2011	Q1 2014	% change
	Low cost flat	Timur Laut	RM60,652	RM64,446	6%
		Barat Daya	RM68,468	RM75,184	10%
		Utara	RM42,093	RM48,590	15%
		Tengah	RM36,815	RM46,419	26%
		Selatan	RM31,481	RM45,188	44%
	Low cost house	Timur Laut	RM355,000	RM536,304	51%
		Barat Daya	RM88,000	RM182,816	108%
		Utara	RM43,344	RM56,918	31%
		Tengah	RM100,755	RM103,623	3%
		Selatan	RM59,655	RM68,038	14%
	Flat	Timur Laut	RM132,059	RM160,955	22%
		Barat Daya	RM131,441	RM144,786	10%
		Utara	RM93,333	RM115,276	24%
		Tengah	RM71,781	RM80,358	12%
		Selatan	-	-	-
	Single storey terraced	Timur Laut	RM382,553	RM527,520	38%
		Barat Daya	RM306,250	RM431,677	41%
		Utara	RM126,010	RM121,476	-4%
		Tengah	RM130,000	RM127,933	-2%
		Selatan	RM103,352	RM109,795	6%
	Condominium/ apartment	Timur Laut	RM450,286	RM563,004	25%
		Barat Daya	RM328,619	RM399,885	22%
		Utara	RM119,940	RM136,592	14%
		Tengah	RM69,080	RM95,094	38%
		Selatan	-	-	-
	2/3 Storey terraced	Timur Laut	RM688,742	RM835,920	21%
		Barat Daya	RM569,829	RM734,305	29%
		Utara	RM232,805	RM263,764	13%
		Tengah	RM225,992	RM233,679	3%
		Selatan	RM166,542	RM173,574	4%
	Single storey semi	Timur Laut	RM562,381	RM768,458	37%
		Barat Daya	RM222,222	RM339,263	53%
		Utara	RM165,200	RM223,296	35%
		Tengah	RM185,283	RM158,400	-15%
		Selatan	RM150,690	RM150,997	0%
	2/3 Storey semi	Timur Laut	RM955,870	RM1,287,266	35%
		Barat Daya	RM729,200	RM894,241	23%
		Utara	RM356,757	RM327,251	-8%
		Tengah	RM355,043	RM371,205	5%
		Selatan	RM245,806	RM267,631	9%
	Detached	Timur Laut	RM1,721,429	RM2,003,251	16%
		Barat Daya	RM603,571	RM598,609	-1%
		Utara	RM293,636	RM388,256	32%
		Tengah	RM402,647	RM440,017	9%
		Selatan	RM389,583	RM367,087	-6%

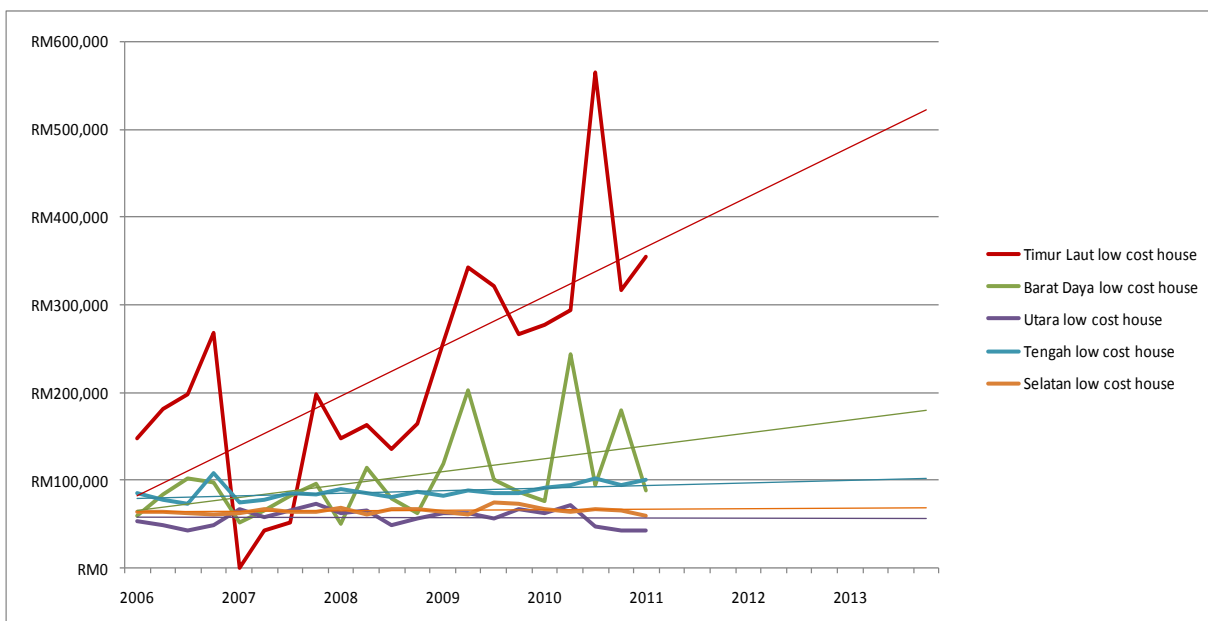
**Average cost of low cost flats by district (2006 – 2014 projected)**

Source: NAPIC



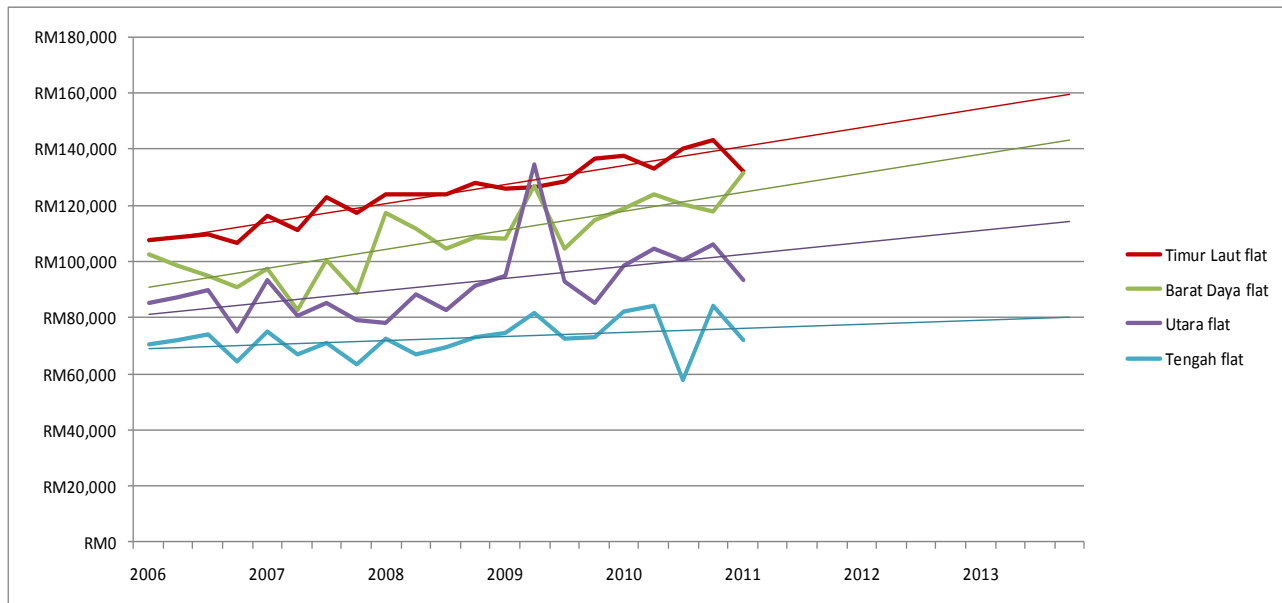
**Average cost of low cost house by district (2006 – 2014 projected)**

Source: NAPIC



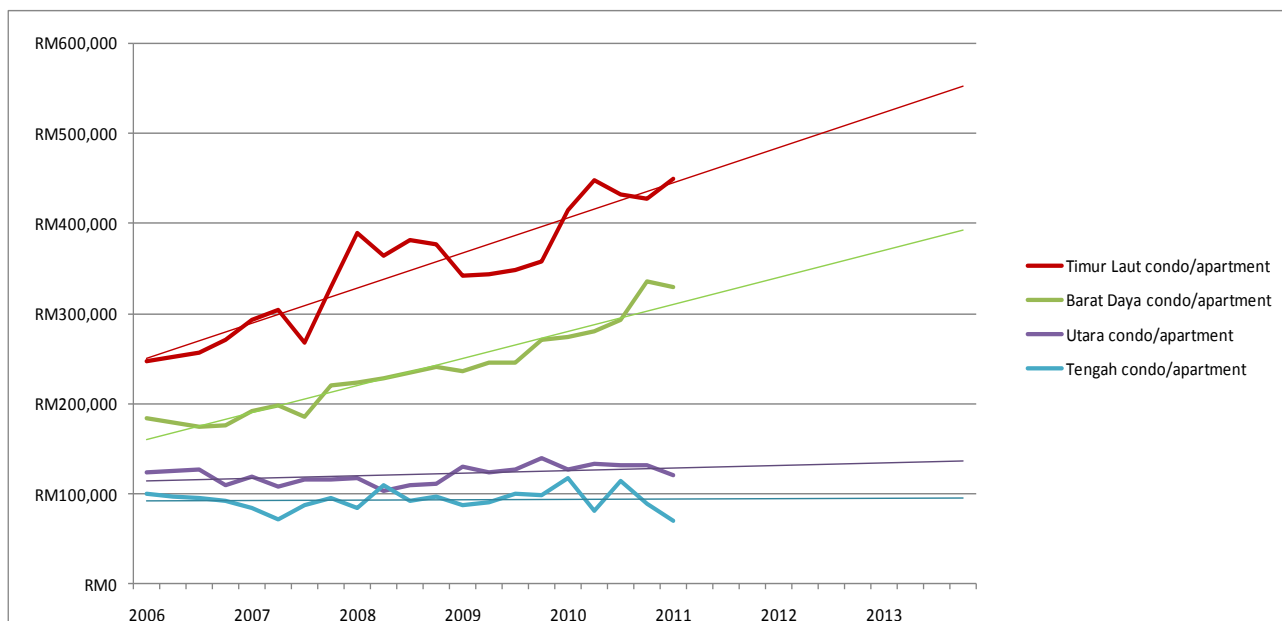
**Average cost of a flat by district (2006 – 2014 projected)**

Source: NAPIC



**Average cost of a condominium/apartment by district (2006 – 2014 projected)**

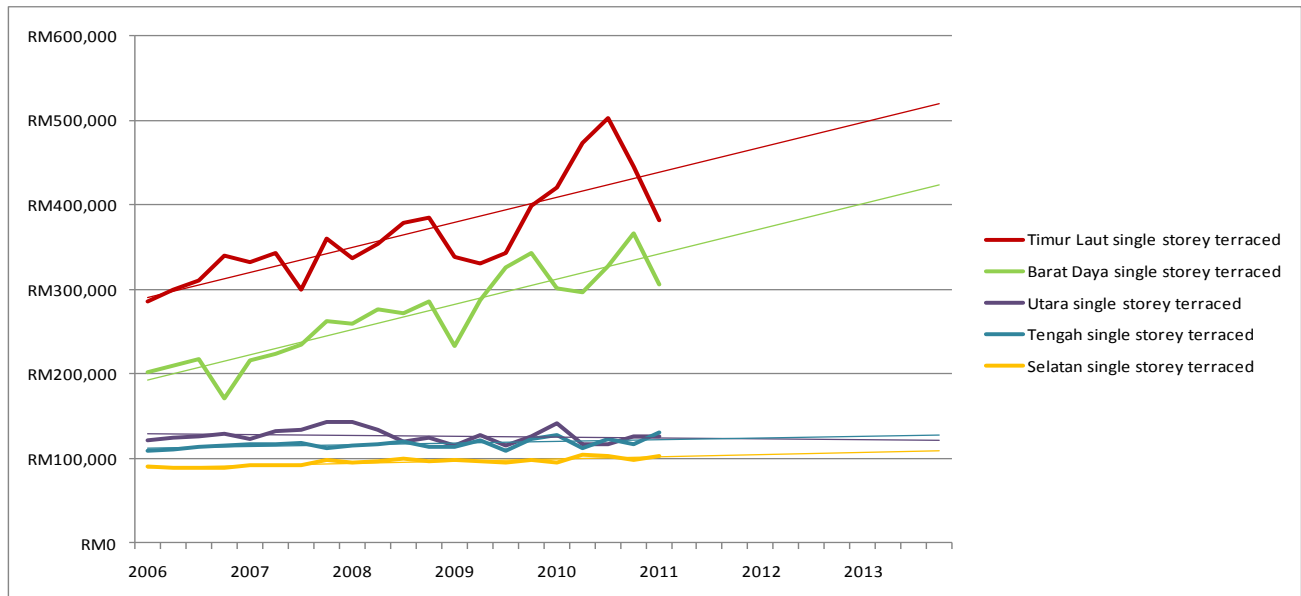
Source: NAPIC





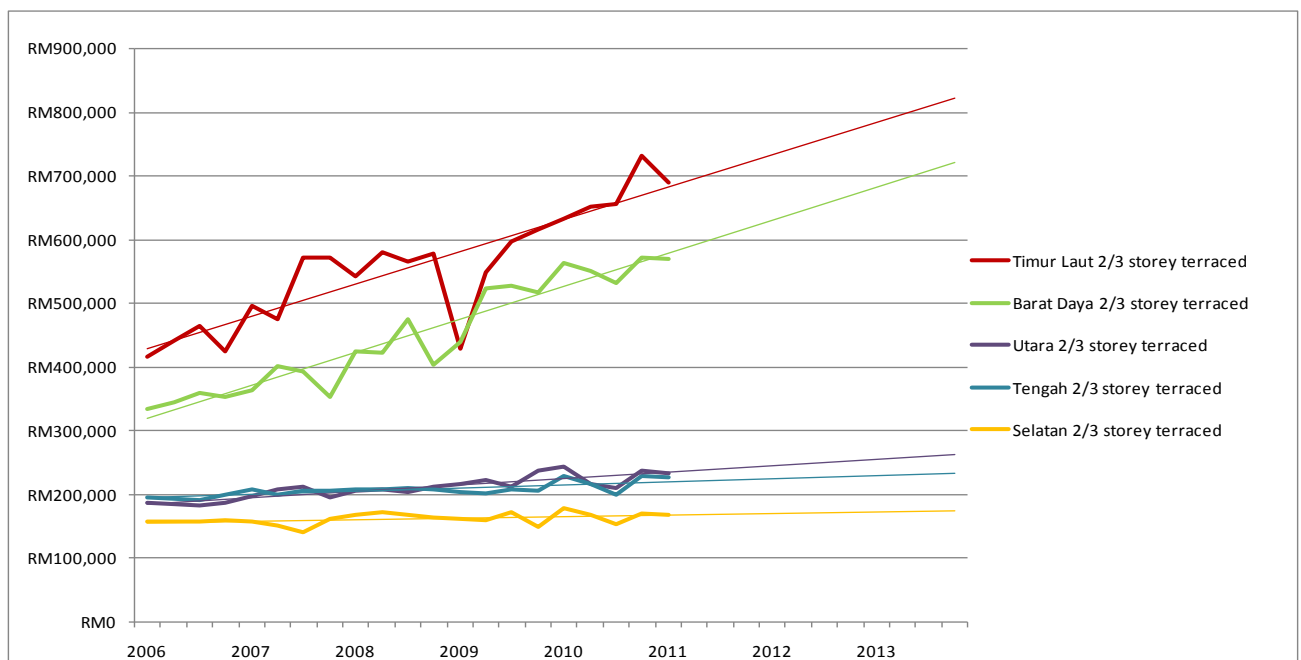
**Average cost of a single storey terraced by district (2006 – 2014 projected)**

Source: NAPIC



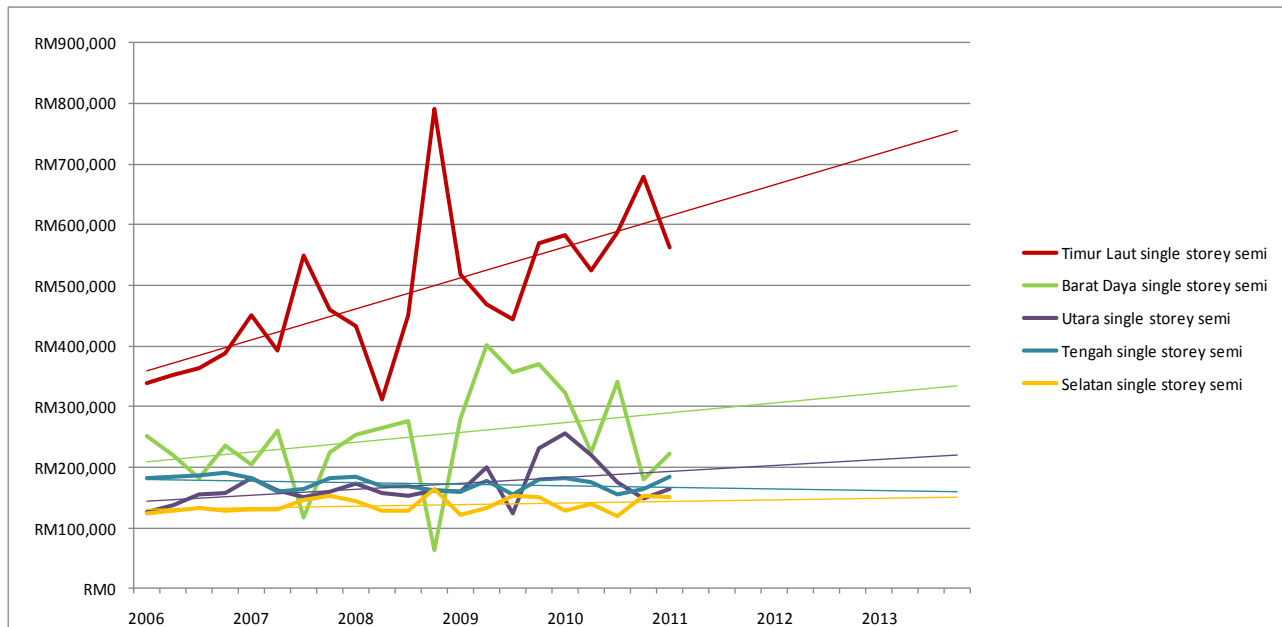
**Average cost of a 2/3 storey terraced by district (2006 – 2014 projected)**

Source: NAPIC



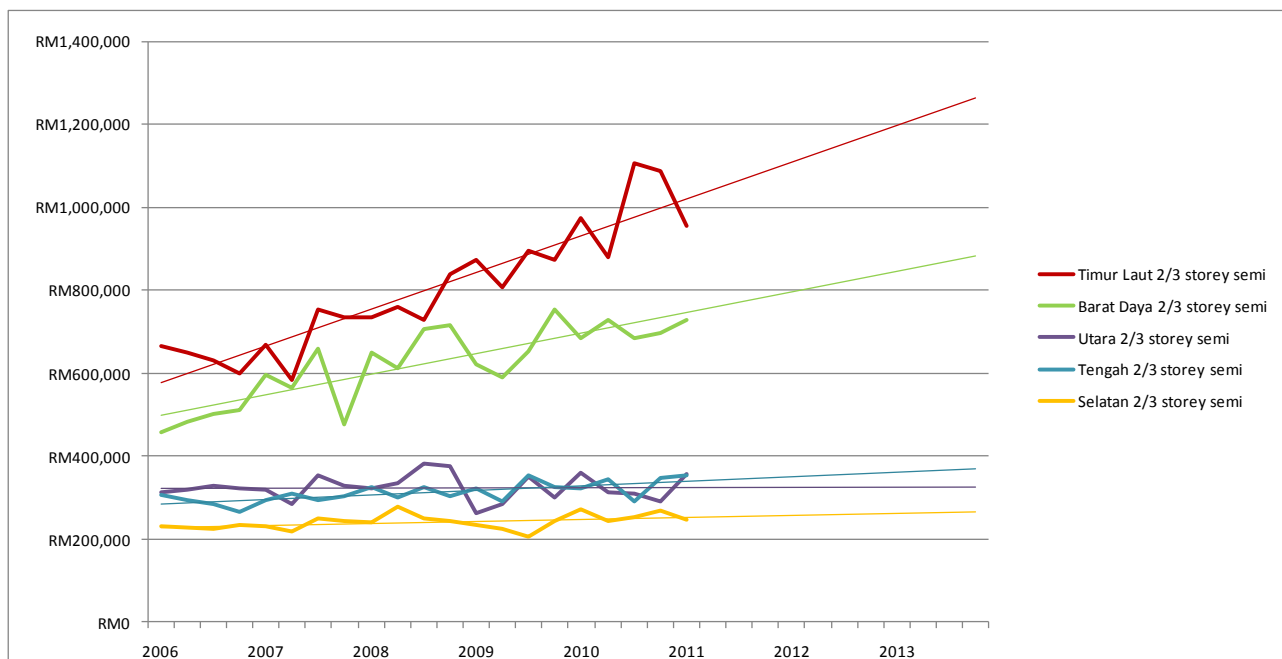
**Average cost of a single storey semi detached by district (2006 – 2014 projected)**

Source: NAPIC



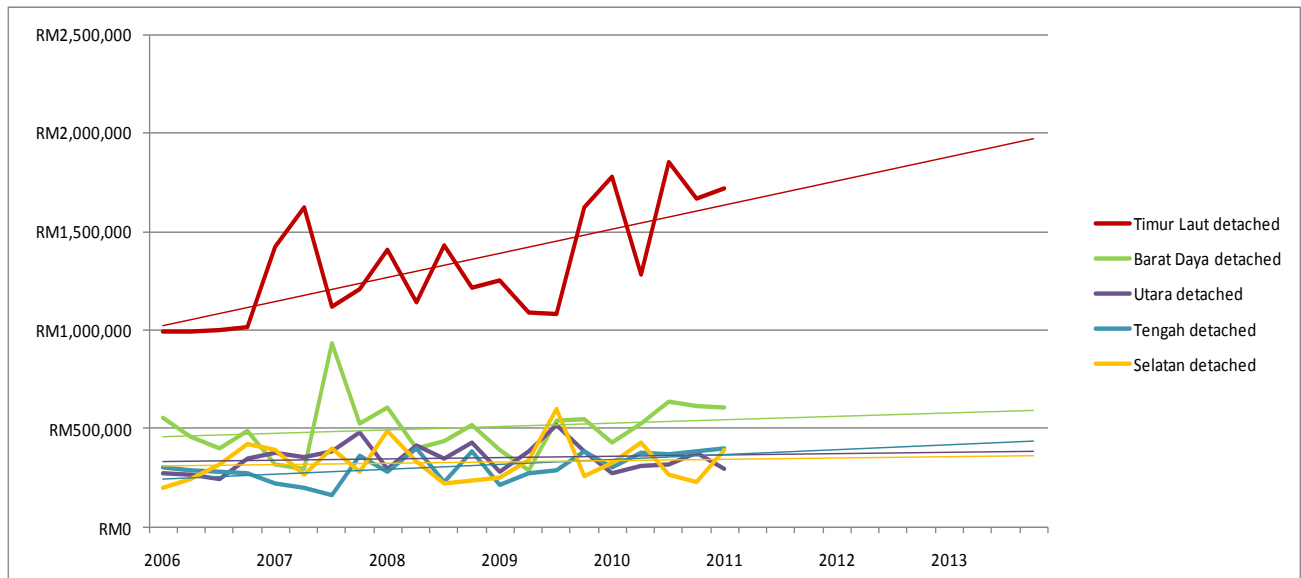
**Average cost of a 2/3 storey semi detached by district (2006 – 2014 projected)**

Source: NAPIC



**Average cost of a detached by district (2006 – 2014 projected)**

Source: NAPIC



## Endnotes

- <sup>1</sup> See Center for Real Estate at Massachusetts Institute of Technology, [Online] Available at: [www.rics.org/site/download\\_feed.aspx?fileID=3487&fileExtension=PDF](http://www.rics.org/site/download_feed.aspx?fileID=3487&fileExtension=PDF), (Accessed July 2011)
- <sup>2</sup> Housing and Population Census 2010, Department of Statistics
- <sup>3</sup> Speech by Lim Guan Eng at PKR fund raising dinner “The Development And Economic Future Of Penang” on Monday, 10th May 2010, [Online] Available at <http://dapmalaysia.org/english/2010/may10/lge/lge1096.htm> (Accessed Oct 2011)
- <sup>4</sup> NAPIC data is only collected from private sector developers and does not include public housing or government quarters. The Housing Census reports a stock level 39.39% higher than NAPIC, which is used as a proxy indicator in this study. Using a regressive linear calculation between the two census dates (2000 and 2010) it indicates a 13.7% growth in stock between 2005 and 2010.
- <sup>5</sup> With stock increasing from 156,656 to 188,914 (an increase of 20%) on the island and increasing from 133,961 to 163,747 (an increase of 20.7%) on the mainland.
- <sup>6</sup> The top bracket of RM1mil plus needs to be unpacked further, as the number and value of properties above RM1mil has grown significantly. The average price of a property in this bracket was in excess of RM2mil in Q4 2009, and has not fallen below RM1.5mil since prior to 2006. It is recommended that NAPIC be lobbied to introduce higher brackets in the dissemination of data so that trends in this extremely high value property can be better monitored.
- <sup>7</sup> The Star, March 12, 2009
- <sup>8</sup> This estimate does not take account of the following factors: Any disproportional growth in population segments, and has not looked at growth trends for population segments. Does not take account for any growth in income between 2010 and 2020. Does not take account that middle income households will be smaller than average. Does not take account of trends towards smaller households over time. Does not take account of stock growth in the price band we are considering to establish 2020 demand. Uses NAPIC data on stock, so does not include all stock. Does not take into account house price inflation.
- <sup>9</sup> Goh Ban Lee (2009) “Social Justice and the Penang housing question”, Penang Economic Monthly, August 2009.
- <sup>10</sup> See Center for Real Estate at Massachusetts Institute of Technology, [Online] Available at: [www.rics.org/site/download\\_feed.aspx?fileID=3487&fileExtension=PDF](http://www.rics.org/site/download_feed.aspx?fileID=3487&fileExtension=PDF), (Accessed July 2011)
- <sup>11</sup> CNT has developed a new and more comprehensive way of thinking about the cost of housing and true affordability by exploring the impact that transportation costs associated with the location of the housing have on a household's economic bottom line. This builds off CNT's research into Location Efficiency—which led to Location Efficient Mortgages (LEMs)—reinforcing the relationship between urban form, housing site selection and transportation costs. See <http://www.cnt.org/tcd/ht>