

# Parking Relocation Cost Rollover

## Executive Summary

In the last five years we witnessed a continuous increase of the size of the University of Houston both in undergraduate and graduate enrollment as well as in the faculty and staff. The growth of UH's population expanded the number of instructional activities and research projects conducted on the main campus. New buildings were constructed primarily on land previously dedicated to parking. Consequently, parking is lost while the need for parking space continues to increase. To accommodate the overall demand for parking, Parking and Transportation (P&T) completed the construction of three new parking garages (Welcome Garage, Stadium Garage, East Garage) during the last three years with a fourth garage underway (the 1A garage). Under current rules P&T is an auxiliary department, so it has to fully cover its operational cost including the cost for replacing lost parking space by building new garages. However, as we document below, this scheme strains the ability of P & T to provide sufficient and affordable parking for the campus. In fact our analysis shows that the addition of the garage on lot 1A which will shortly be under construction and of another one which will commence in 2014 will spark two successive rate increases in parking fees at the order of 13% each unless some action is taken to offset the new garage construction cost (see our technical analysis section for more details about this and other figures). We also show that the need for these two garages is exclusively driven by the elimination of numerous surface lots.

Therefore, and in order to mitigate the effect of this policy we recommend that

- To control the growth of parking costs due to the construction of new garages we propose that a certain small portion of the construction expenses for any new building on campus should be set aside for to fund the construction of any new garages.

This practice is not new. In fact, the president in her Fall 2012 message to the UH community proposed to initiate the deferred maintenance fund for to pay for the regular keep up cost of our buildings on campus. This practice can be adopted for the construction of parking garages, otherwise students and employees will have to bare unilaterally the cost of the construction of new garages and in doing so they will essentially share part of the cost of new parking space construction.

**Comment [RM1]:** Provide some numbers to support this statement.

**Comment [RM2]:** Provide some numbers to support this statement.

## Technical Analysis

Excluding parking structures, building projects between 2007 and 2011 cost almost 0.5 billion dollars. The net cost of replacing parking displaced by new building construction is \$28M. When interest paid on this debt over a period of 20 year period is considered, the cost increases by another 2.6M. This increase in parking related cost must be paid for by increases in parking permits, the primary source of income to P & T. Based on the cost of the garages and the interest on the debt it is estimated that on average each permit must increase by \$60 and this increase must be maintained for 20 years. When consider as cost per parking place, the cost to replace a space lost due to new building construction is 9500/space. When bond interest is included the cost rises to 15000/space. For instance, 400 parking places were eliminated when the new Biomedical Sciences was erected. To replace these spaces and to accommodate the increased demand for parking that will result from the personnel working in the building and the increase in residential parking from the construction of the cougar village, P&T is adding a 1500-space new parking garage next to the Welcome Center Garage in lot 1A. In particular, the 400 parking spaces lost to the new Biomedical Building are being replaced with 400 costlier spaces than the original ones located in this new garage. The total replacement cost of these 400 spaces amounts to 27% of the total cost of the planned garage.

Under the assumption of normal growth of the university population it appears to be plausible that one garage would have been necessary assuming no other loss of parking land spaces. However, a two garage scenario would seem better in order to cover long term parking space demand. In fact, in 2005 when only surface lots existed, 15247 parking spaces were available. At the end of FY2011 the actual demand was 17039 spaces. The latter figure includes the extra demand due to the increase of the campus activity. This activity is primarily driven by the availability of more teaching and research space which enabled the expansion of such activities. Hence, in order to cover the necessary increase in parking demand some surface lots would have been used for building garages on them. Given the size of the garages we built an extra two garages would have covered the needs of our campus *if no* surface lots were used for non-garage construction. This work hypothesis is supported by our projections and actual growth for parking demand and supply as Figure 1 indicates. Under this assumption the construction cost of these two garages should have been fully covered by P&T because there would have been no other way to serve its customers. To guarantee the validity of our projections for parking demand, we indicate that based on the actual data from 2002 until 2011, the correlation coefficient between projections for demand and actual demand is 0.86.

**Comment [RM3]:** Someone needs to verify these cost calculations.

**Comment [RM4]:** data needs to be verified.

**Comment [RM5]:** number needs verification

**Comment [RM6]:** check this figure

**Comment [RM7]:** I dont see where this number comes from.  $400/1500=0.27$

**Comment [RM8]:** I dont understand this paragraph. Is it arguing that 2 additional garages will be needed in the future in addition to the 4 garages we have or are under construction or is it saying that 2 garages should have been planned for instead of the current 1 that is just beginning (garage 1A).

*In short, we could have survived with two garages for some time, but instead we are building two new ones in order to supply enough spaces to meet the demand for parking space as surface lots are used for new academic and student housing buildings.*

**Impact of garage construction on the cost of parking permits:** For the reasons we explained above, in our analysis below, we choose to adopt the two garage work hypothesis. To fully comprehend the impact of the parking land replacement cost one only needs to inspect the plot of the portion of the aggregate garage construction cost per year in Fig. 2. Compare this cost with the baseline operational cost which assumes the construction of one or two garages only in order to cover the regular increase in demand due to UH's growth (Fig. 2). The differences between the green curve and the red or the blue curve and the red curve marked with braces in Fig. 2 need to be covered by P&T clients under current regulations obligating P&T to assume the entire cost of its operation and development projects.

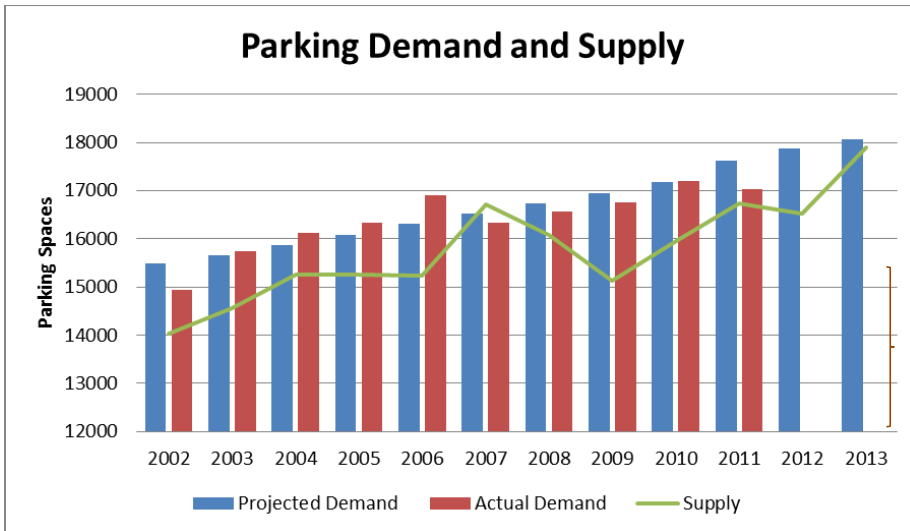
The \$5M-funding gap between the operational baseline two-garage cost and the projected operational cost with four garages marked by the red curly brace for FY14 and FY15 in Fig. 2 and for all subsequent years until 2032 represents a net 36% increase in P&T's net operating cost that is a direct subsidy to the undertaken building projects paid by the auxiliary service to its parent organization. These \$5M/year for the next 20 years aggregate to \$100M in direct subsidies to UH's building projects or a 10% subsidy to the *total cost of these projects*. This difference between the two curves, red and green precisely depicts the reason which will drive the parking rate increases at unprecedented high levels (Fig. 3) at a time that students and employees see their disposable incomes shrinking or becoming stagnant or in the best case grow at a *much slower rate*.

This analysis reveals that in order to control the imminent jump in FY14 and FY15 of the cost of parking permits a form of compensation to P&T from UH needs to be given at the amount of \$2.5M/year for the next 20 years (red brace in Fig.2). Since income generated by these garages will flow in the coffers of P&T in order to cover part of the cost at roughly the order of 900K/year it seems reasonable that a non-permit income of \$1.6M/year needs to be generated for the next 20 years. This roughly gives us \$32M, almost the cost of two garages or a 6.4% of the total cost of all building projects undertaken between 2007 and 2011.

*TPAC recognizes the uncertainty this situation causes to our community and it firmly believes that the administration's practice to ignore the need to subsidize parking garages in lieu of using parking land for new building projects amounts to forcing UH-employees and UH-students to contribute part of their incomes to subsidize UH's development.*

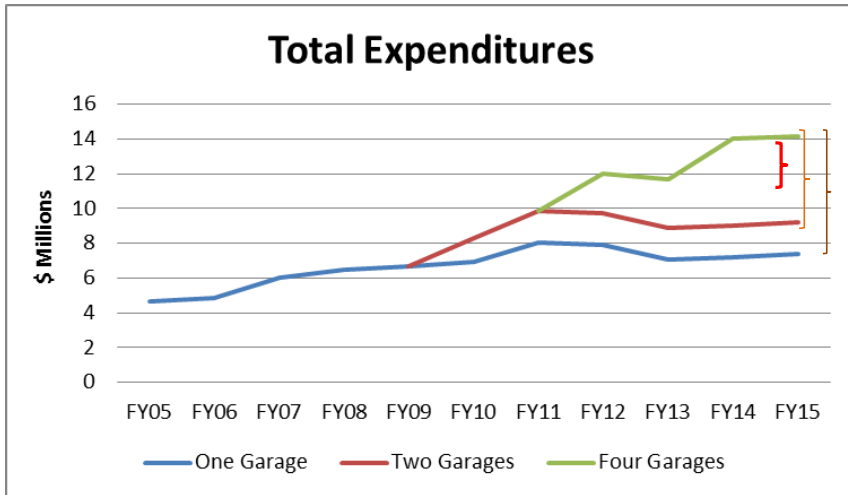
- Based on this analysis a 6.4% transportation infrastructure deferred development cost should be priced in the cost of every new campus building which is not a parking garage

in order to defray the construction cost of new parking facilities and mass transportation terminals on campus and ultimately stabilize the primary driver of parking permits cost increases.



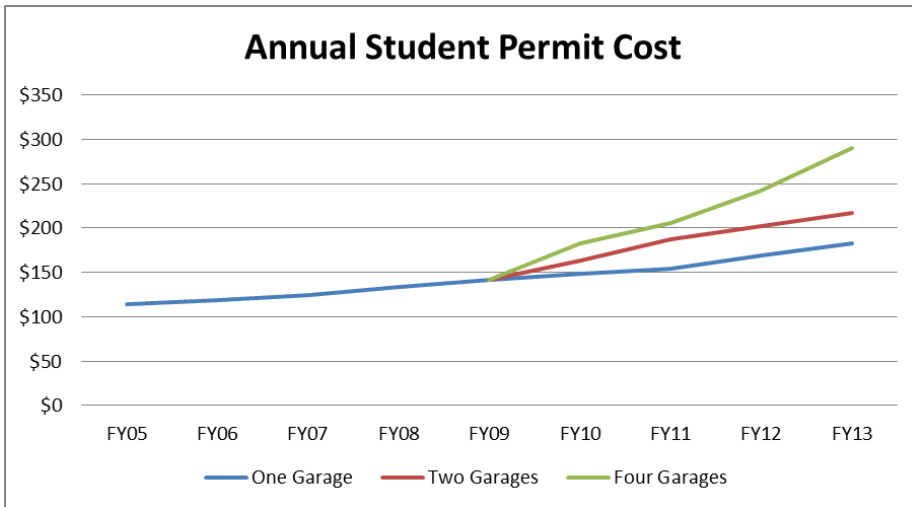
**Figure 1.** Parking demand and supply, actual data and projections. The brown bracket shows the full capacity of the surface lots without any garages as they were in 2004 when we reached the maximum surface lot capacity. Any demand above the top of the brown bracket's level must be accommodated in parking garages. Thus, there is only one way to increase the supply of parking space: built new garages.

**Comment [RM9]:** Where did these projections come from?



**Figure 2.** Expenditure growth scenarios with one, two or four garages. Net operational cost increases are adjusted based on a 3% inflation rate. Note that the brown bracket represents a jump of almost 50% in the P&T operational cost between the no garage and the four-garage scenarios. This is quite consistent with the fact that 50% of the cost of each parking permit services P&T garage annual debt.

**Comment [RM10]:** I dont understand this graph. Are these expenditures that occurred for example in 2005 we built the first garage, and in 2009 we built a second garage. This analysis is not at all clear.



**Figure 3.** Observe the increase in the slope of the green curve (actual permit cost projections) in FY12-14. This indicates accelerating permit cost increases compared to the baseline scenario (red and blue curves) where the increase rate stabilizes to a 7% per year (baseline increase

should be 3%/year with no changes in demand and supply) as opposed to a 13%/year which is the slope of the green line at FY13.