

# 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 (up 4,400) as well as in the number of faculty and staff (up 89). The growth of UH's population expanded the number of instructional activities and research projects conducted on the main campus. To accommodate this growth, new buildings were constructed primarily on land previously dedicated to parking. Consequently, parking was lost while the need for parking space increased. Under current rules, Parking and Transportation Services (PTS) is an auxiliary department and is thus required to fully cover its operational cost. Surface parking lost to new building construction was replaced by the construction of parking garages. PTS completed the construction of three new parking garages (Welcome Garage, Stadium Garage, East Garage) during the last six years. A fourth garage (the 1A lot Garage) is now underway. However, as is documented below, this scheme strains the ability of PTS to provide sufficient and affordable parking for the campus and to maintain all of its facilities. In fact, in order to avoid large increases in permit rates PTS has nearly eliminated maintenance from its budget. Analysis shows that the addition of the garage on lot 1A (construction began September 2012) and the addition of another planned for 2015 will spark an increase in parking fees on the order of 15% each year unless action is taken to offset the new garage construction cost (see our technical analysis section for additional details). We also show that the need for these new garages is exclusively driven by the elimination of numerous surface lots.

- To control the increase in parking costs due to the construction of new garages we propose to establish a Transportation Infrastructure Development Fund where 4% of the net construction cost of any new buildings on campus should be allocated to and set aside primarily for the construction of new garages and transportation infrastructure in general.

This practice is not unprecedented. In fact, the president in her Fall 2012 message to the UH community, proposed to initiate the deferred maintenance fund to pay for the regular maintenance cost of our buildings on campus. Additionally, other universities recompense their parking services for lost parking spaces in order to provide additional parking (See Table 3 below). This practice should be adopted to support the construction of parking garages at UH, otherwise students and employees will have to bear unilaterally the cost of the construction of new garages and in doing so they will essentially share part of the cost of the growth of the university.

# Parking Relocation Cost Rollover

## Detailed Problem Description and Proposal

Parking prices at the University of Houston (UH) have doubled since 2006 (see Table 1 below). This cost increase is a burden on students, staff, and faculty. A majority of these campus citizens have no alternative to driving, given the inadequacy of public transportation to service outlying communities or give working students the flexibility to pursue an education while financially supporting themselves. Even with the new metro lines, Parking and Transportation Services (PTS) projects only 5% of the campus commuters will be using alternative forms of transportation to driving. Campus citizens are faced with a tough choice of paying a high price for parking or giving up their job or education at UH. Thus, demand for reasonably priced parking will likely continue given the many benefits of working and studying at UH.

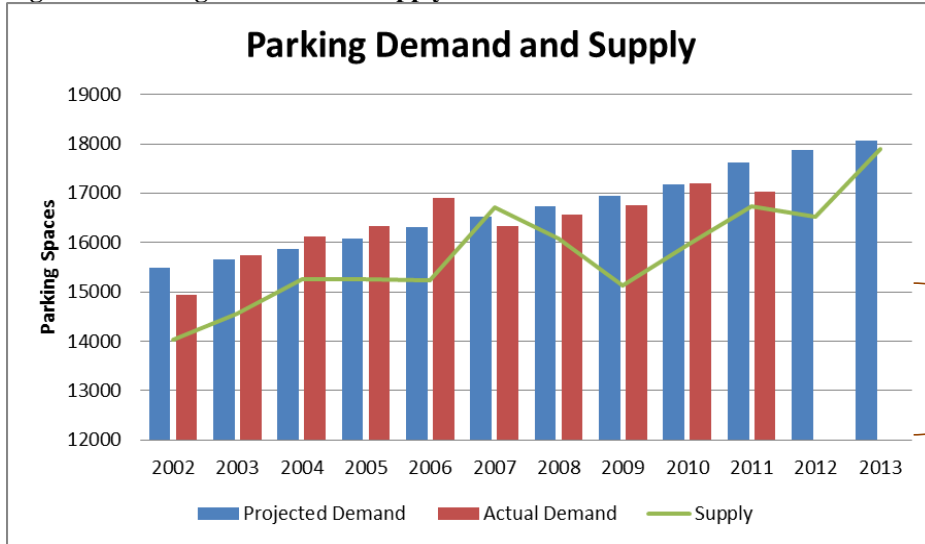
**Table 1: Cost of Parking from 2006–2012**

	Fall 06	Fall 07	Fall 08	Fall 09	Fall 10	Fall 11	Fall 12
Student Commuter Annual Permit Rate	\$124	\$133	\$142	\$183	\$206	\$242	\$290
Student Commuter Annual Accumulative Increase (%)		7.3%	14.5%	47.6%	66.1%	95.2%	133.9%
Faculty/Staff Ungated Annual Permit Rate	\$217	\$232	\$248	\$285	\$314	\$361	\$433
Faculty/Staff Ungated Annual Accumulative Increase (%)		6.9%	14.3%	31.3%	44.7%	66.4%	99.5%

**Note:** these categories make up the bulk of parking permit sales, Cumulative ate increases for this period are typical of the other parking options offered.

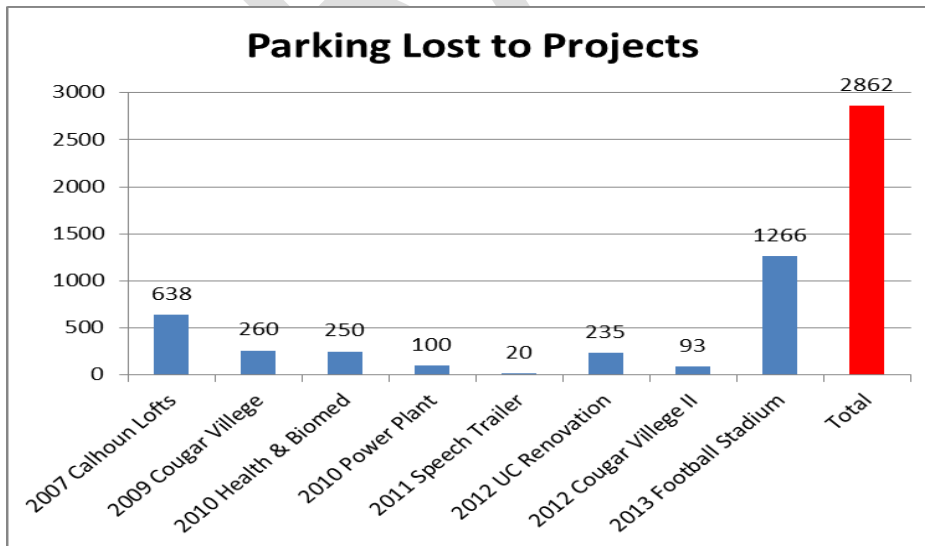
The rise in prices has been primarily driven by the construction of multi-level parking garages by PTS. Three factors are responsible for the construction of these garages. First, the community that is the University of Houston has grown significantly in the last decade. In fact, in 2005 when only surface lots existed, 15247 surface parking spaces were available, which met parking demand (see Figure 1). At the end of FY2011, the actual demand increased to 17039 spaces but only 16734 spaces were readily available. Secondly, new buildings have been built to accommodate a greater number of faculty, staff and students, thus increasing the demand for parking. Many of these buildings have been constructed on top of existing surface parking lots to take advantage of their location and their lack of encumbrance with existing structures. This construction has thus resulted in diminished parking availability in the presence of increased parking demand. Table 2 below shows how new buildings have consumed existing parking spaces. Thirdly, the landlocked nature of the University of Houston prevents expansion and construction of new surface lots. Thus, the only option to meet the growing demand for parking is the construction of expensive garages.

**Figure 1: Parking Demand and Supply**



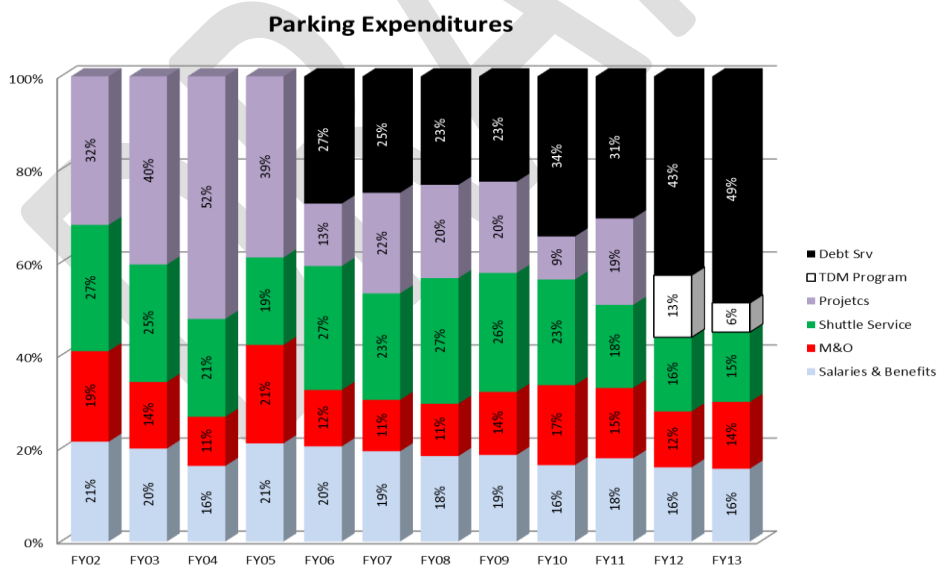
**Notes:** “Projected Demand” figures were created by PTS 1 to 2 years prior to year noted. The correlation coefficient between projections for demand and actual demand is 0.86. The brown bracket shows the full capacity of the surface lots without any garages (as they were in 2004) when the maximum surface lot capacity was reached. Any demand above the top of the brown bracket’s level has had to be met with parking garages.

**Table 2: Parking Spaces Lost per Building**



While the average cost for the creation of a parking spot in a surface lot is \$2,800, a single parking spot in the garages is acquired at a much higher average price of \$9,500 (\$15,000/space when debt service on the construction is included). As a consequence, the garages acquired to date (Welcome Center Garage, \$20,798,439; East Garage, \$17,659,047, Stadium Garage, \$24,432,532; and “1A garage,” \$16,574,825) have been extremely expensive construction projects undertaken by PTS. To pay for these projects, bonds have been issued to cover the construction costs. As PTS is an auxiliary organization and is thus required to be self-sufficient, the payment of the bond principal and interest (i.e., debt service) is born exclusively by university citizens who drive to campus through the purchase of a parking permit. As Figure 2 shows, the percentage of PTS’s budget dedicated to debt service has increased explosively in the last 4 years. The consequent of this change has been drastic cuts in parking maintenance projects and other services and significant increases in parking permit rates. As the construction of additional garages is already being included in UH’s plans for growth, the debt service percentage will grow and parking prices are likely to double again in the next 5 to 6 years. This increase runs counter to UH’s goal of providing an affordable education to students. It further places a significant financial burden on faculty and staff whose salaries have not increased to keep pace with rate increases. In fact, the parking fees paid by the university’s community are directly subsidizing the growth of the university, rather than the university bearing these costs itself.

**Figure 2: The Breakdown of PTS Expenditures by Category**



To alleviate this burden on the campus community, the Transportation and Parking Advisory Committee (TPAC) is proposing that a fixed 4% of a new building’s cost be dedicated to providing parking to accommodate the increased demand for parking for the building’s residents and offset the loss in surface lot parking spaces. This proposal has

precedent in UH's required 2% of building cost set aside for "deferred maintenance," the 1% set aside for public art, and the practice of many institutions to compensate their parking auxiliaries for parking spaces lost as shown in Table 3. As many of the surface lots around UH have already been built upon, TPAC felt that a percentage of new building costs (determined in technical analysis below) would both help pay the onerous debt service and provide funds toward the new garages that will be required to accommodate additional growth. Thus UH will take full responsibility for its own growth.

**Table 3: Compensation of Universities for Lost Parking Spaces**

School	Garage Replacement	Surface Replacement
UCLA	Actual replacement cost	Actual replacement cost
UC Berkeley	\$20,000/sp	N/A
Harvard	\$21/net sf of building	\$21/net sf of building
UNC Chapel Hill	\$15,000/sp	N/A
NC State	\$13,000/sp	N/A
U of Nebraska	\$9,200/sp	N/A
Cornell	\$7,800/sp	N/A
U of Idaho	\$5,000/sp	N/A
U of Arizona	\$10,000/sp	N/A
UC Boulder	\$1,500/sp	N/A
U of Florida	\$5,000/sp	N/A
U of Arkansas	\$17,500/sp	\$6,000/sp surface
Montana State U	N/A	\$2,500/sp

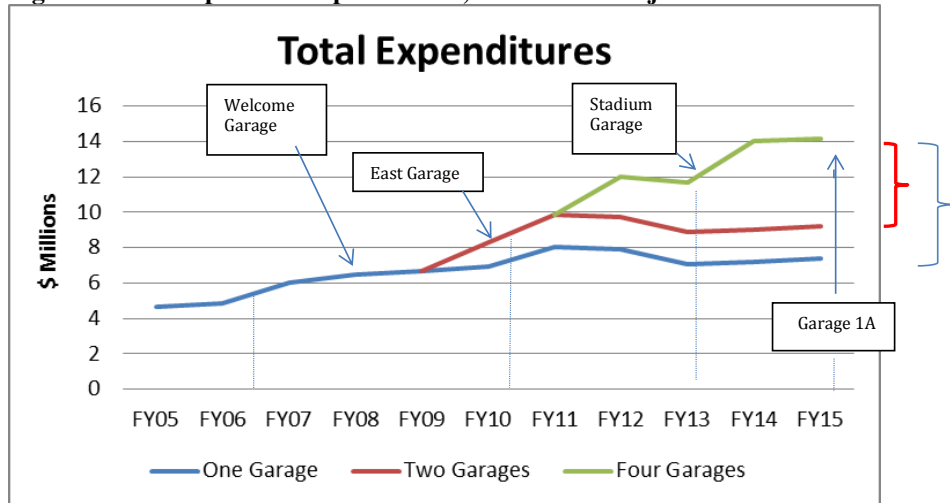
## Technical Analysis to Determine Percentage Rate Proposed

The 4% figure was derived in the following manner:

Given the growth of the university population, the construction of one parking garage would have been necessary even if no loss of surface parking spaces had occurred. A two-garage scenario (building only the Welcome and East Garages) would have better covered the long-term parking space demand in this hypothetical scenario. As seen in Figure 1 above, the parking demand in 2011 was approximately 17,000. The difference between 17,000 and the historical maximum of surface parking spaces (about 15,000) is about 2000. Thus, at least one 2000-space garage would be needed to accommodate the extra demand if no surface lots were lost. Of course, in order to build the garage, surface parking would have been consumed. Given the size of the garages being built, *two* garages (Welcome and East Garages) would actually be needed to cover the campus' parking demand and the loss of surface lots to a new garage *if no additional* surface lots were used for non-garage construction. According to this hypothesis, the construction cost of the first two garages (Welcome Garage and East Garage) should have been fully covered by PTS because there would have been no other way to serve its customers. *Therefore, we conclude that the construction of the Stadium Garage and of the Lot IA Garage is a direct result of the loss surface lot parking used for new academic and student housing buildings.*

**Impact of additional garage construction on the cost of parking permits:** To fully comprehend the impact of the surface parking replacement cost, one only needs to inspect the plot of the contribution of the aggregate garage construction cost per year in Figure 3 (green line). Compare this cost with the baseline operational cost, which assumes the construction of only one or of only two garages (blue or red lines, respectively). The differences between the green curve and the red or the blue curve that are marked with braces are the *net added costs* of replacing the parking spaces lost from the construction of new buildings on surface lots. This cost has been fully passed on to PTS clients (the campus commuters) under current regulations obligating PTS to assume the entire cost of its operation and development projects.

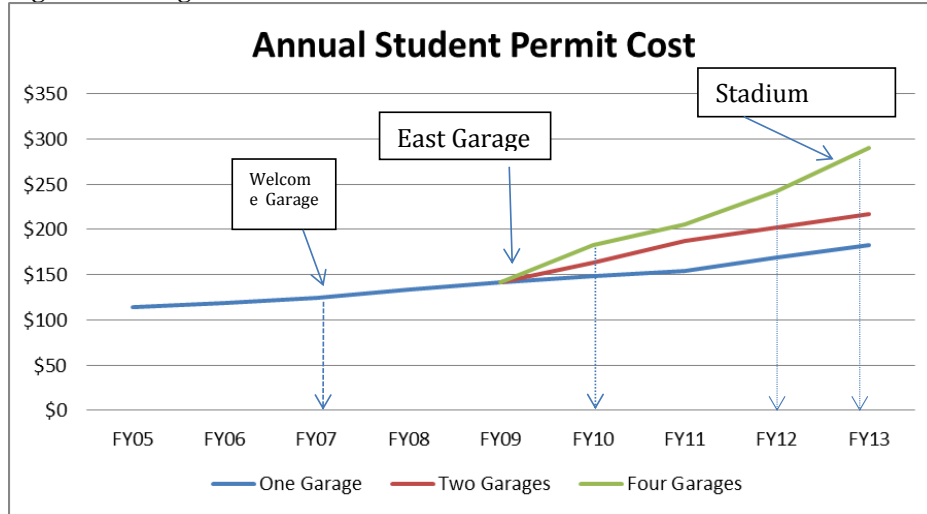
**Figure 3: PTS Expenditures per Annum, Actual and Projected**



**Notes:** Expenditure growth scenarios with one, two or four garages. The date of completion for each garage is indicated. The financial impact of debt service for the garage begins with construction initiation. Net operational cost increases are adjusted based on a 3% inflation rate. Note that the red bracket (\$5 million) represents a jump of over 50% in the PTS operational cost between the two garage (\$9 million) and the four-garage (\$14 million) scenarios.

The \$5M-funding gap between the operational baseline two-garage scenario cost (red curve in Figure 2) and the projected operational cost with four garages (green curve in Figure 2) for FY14 and FY15 in Figure 3 and for all subsequent years until 2032 represents a 50% increase in PTS's operating expenditures. This increase is why 50% of the cost of each parking permit now services annual PTS garage debt. The additional costs, which are marked by the red brace, are in effect a subsidy of the building projects paid by the auxiliary service (PTS) to its parent organization (UH). This increase would have been even larger if routine maintenance of surface lots had not been practically phased out. \$5 million per year for the next 20 years aggregate to \$100 million paid to replace parking lost to UH's building projects or, from a different perspective, a 10% subsidy to the *total cost of these projects* (the total construction costs of the buildings in Table 2 are \$500,802,855). Furthermore, the increase in expenditures from the garage construction represented by the green line in Figure 4 illustrate the reason that parking rate increases have occurred at unprecedentedly high levels, with more price hikes yet to come at a time that students and employees see their disposable incomes failing to rise proportionately.

**Figure 4: Garage Construction Has Accelerated the Increase in Permit Prices**



**Notes:** Observe the increase in the slope of the green curve (actual permit cost projections) in FY12-14. This indicates accelerating permit cost increases (13% per year at FY13) compared to the baseline scenarios, in which the increase rate stabilizes to a 7% per year (red curve) or 3% per year (blue curve).

This analysis reveals that in order to control an imminent jump in parking permit rates in FY14 and FY15 (i.e., to maintain FY12 PTS expenditures), a form of support for garage debt service to PTS is needed in the amount of \$2.5M/year for the next 20 years. Since some income from visitor and event parking in the garages will be generated by PTS at roughly \$900,000 per year, the remaining non-permit income of \$1.6 million per year would need to be generated from UH for the next 20 years, assuming additional garages are not built. The total amount over this period, \$32 million, represents 6.4% of the total cost of all building projects undertaken between 2007 and 2013.

Based on this analysis, in order to mitigate future impacts on the cost of parking permits due to the construction of new buildings on surface lots, a 4% transportation infrastructure deferred development cost should be priced in the budget of every new campus building which is not a parking garage. This action will defray the construction cost of new parking facilities and mass transportation terminals on campus and will ultimately negate the primary cause of parking permit cost increases.

**Comment [EIP1]:** This % does not contradict the 10% mentioned above. It only gives a hint of what is required from now on in order to control permit price hikes. It also shows that PTS swallows 3.6% of non-garage building cost and in fact, we are willing to forfeit 6% of all up to date non garage construction. We may have to add something to this effect to reconcile the 6.4% and the 10% to stress that we are still taking a bit hit for something we are not responsible for.

**Comment [RM2]:** I agree some addition is needed here.