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CREDIT OPINION
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Update

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City of Houston, TX

Update to Discussion of Key Credit Factors

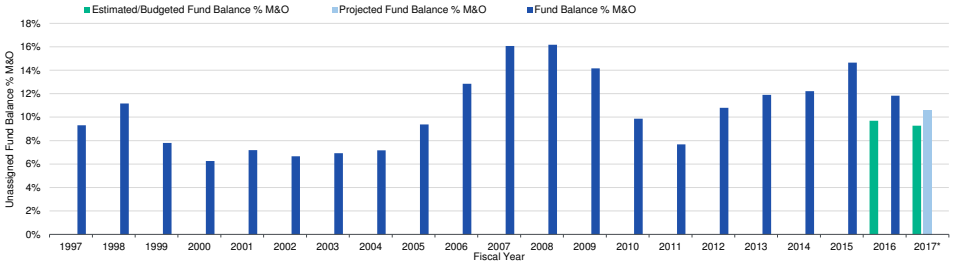
Summary Rating Rationale

The City of Houston's Aa3 rating reflects a large and regional economy whose recent performance has been tempered by decreases in oil prices, and underperforming revenues, contributing to a weakened but still adequate financial performance. Additional considerations reflect high fixed costs, large unfunded pension liabilities (among the highest in the nation), as well as property tax caps. Also considered is the city's current reform plan, which if approved, could positively impact the city's long term fiscal position, and stabilize the credit profile.

The Aa3 GOLT rating is the same as the Moody's internal assessment of the issuer's hypothetical general obligation unlimited tax (GOULT) debt, reflecting the available taxing headroom when considering the city's total tax rate, and the city's ability to adjust the debt service tax rate sufficient to cover debt service, in any given year, despite restrictions imposed by Propositions 1 and H.

The city has approximately $3 billion in general obligation limited tax bonds. The outlook is negative.

Exhibit 1
General Fund "1000" Balance Expected to Weaken Slightly in FY 2017



General Fund "1000" is largest sub-fund in General Fund reported in CAFR. M&O expenses do not include debt service.
Source: City of Houston, TX FY 2017 Budget, and January 2017 Monthly Financial Report

Credit Strengths

» Large and robust economy, regional economic center with global leadership in oil and gas that supports professional and technical jobs

» City's pension reform plan, under new mayor, has potential to positively and materially impact city's fixed costs, and long term financial trajectory; Mayor continues to express commitment to approaching voters to lift property tax cap within the next 12 months

» Job performance (year over year change in employment), though slowed considerably, remains positive with only three contractions (each less than 0.50%) in the past three years, driven by activity in non-energy sectors

» Positive demographic trends and development initiatives contribute to assessed valuation growth

» Adopted financial ordinance improves minimum General Fund levels, sets expectation regarding unbudgeted fund balance, demonstrates city's commitment to improving fiscal health

Credit Challenges

» Weakened economic and financial performance with persistent employment and sales tax collections softening, due to the prolonged decreases in oil prices

» Cost structure includes high fixed costs that are expected to continue over the medium term, absent any pension reform or contribution increases

» Significantly limited revenue raising flexibility with restrictions imposed by Proposition 1 and H; offsetting the potential effects of positive assessed valuation trends

» Population growth drives increased demand for services

Rating Outlook

The negative outlook reflects the continued and sustained weakness in economic and sales tax performance contributing to a subsequent budget shortfall for fiscal 2017, as stagnant investment in personnel and capital abounds in the area, despite stabilizing oil prices. The negative outlook also reflects rapidly increasing pension costs and liabilities additionally pressuring the city's budget. These costs, absent approval of a pension reform package, which is currently being debated in the legislative session, could materially alter the long term trajectory of the city's fiscal health. The outcome of the legislative session will be a key credit consideration moving forward.

Factors that Could Lead to an Upgrade

» Stabilized economy with a return to strong growth; improvement in employment performance and other economic indicators

» Adoption of a sustainable plan to manage pension liabilities that do not threaten city's fiscal health; structurally balanced operations with full pension contribution

» Removal of revenue cap, providing city with flexibility to capture growth in assessed values

» Strong operating performance with a trend of surpluses to boost the reserve position, and increase liquidity

Factors that Could Lead to a Downgrade

» Lack of sustainable plan to address growing pension liability

» Further and material economic deterioration beyond current conservative projections

» Failure to manage challenges related to underperforming revenues either through revenue flexibility, reduced spending or a combination thereof, leading to a reduction in reserves

Key Indicators

Exhibit 2

Houston (City of) TX	2012	2013	2014	2015	2016
Economy/Tax Base					
Total Full Value ($000)	$ 145,042,978	$ 152,522,477	$ 168,098,829	$ 187,196,332	$ 204,461,001
Full Value Per Capita	$ 68,824	$ 71,449	$ 77,537	$ 84,410	$ 89,042
Median Family Income (% of US Median)	76.4%	76.2%	77.0%	77.3%	77.3%
Finances					
Operating Revenue ($000)	$ 1,912,810	$ 2,047,296	$ 2,139,006	$ 2,330,177	$ 2,332,968
Fund Balance as a % of Revenues	8.5%	17.3%	15.8%	18.4%	12.4%
Cash Balance as a % of Revenues	15.4%	17.2%	16.5%	16.7%	17.4%
Debt/Pensions					
Net Direct Debt ($000)	$ 3,513,299	$ 3,449,829	$ 3,423,997	$ 3,352,992	$ 2,970,503
Net Direct Debt / Operating Revenues (x)	1.8x	1.7x	1.6x	1.4x	1.3x
Net Direct Debt / Full Value (%)	2.4%	2.3%	2.0%	1.8%	1.5%
Moody's - adjusted Net Pension Liability (3-yr average) to Revenues (x)	N/A	3.5x	3.9x	4.1x	4.8x
Moody's - adjusted Net Pension Liability (3-yr average) to Full Value (%)	N/A	4.7%	4.9%	5.1%	5.4%

Source: City of Houston, Moody's Investors Service

Recent Developments

The city's pension reform package is being considered during the current legislative session, following City Council's and the three pension plans original approval in the fall of 2016. The outcome of the legislative session will dramatically impact the city's near to long term fiscal position.

Credit Considerations

Economy and Tax Base: Local Economy Gained Momentum in Fall of 2016, AV Performance Remains Strong

Houston's large economy, which has been relatively resilient in the past two years, remains vulnerable to the energy sector. Employment is unlikely to stabilize and gain positive momentum until oil prices improve, despite developments in non-oil sectors including retail, health care, tourism and transportation via Port Houston (Aaa). Moody's estimates oil prices will remain low between $40 to $60 per barrel for both Brent and West Texas Intermediate (WTI) crude in 2017, and which coupled with geopolitical risks, could hamper growth in the energy sector.

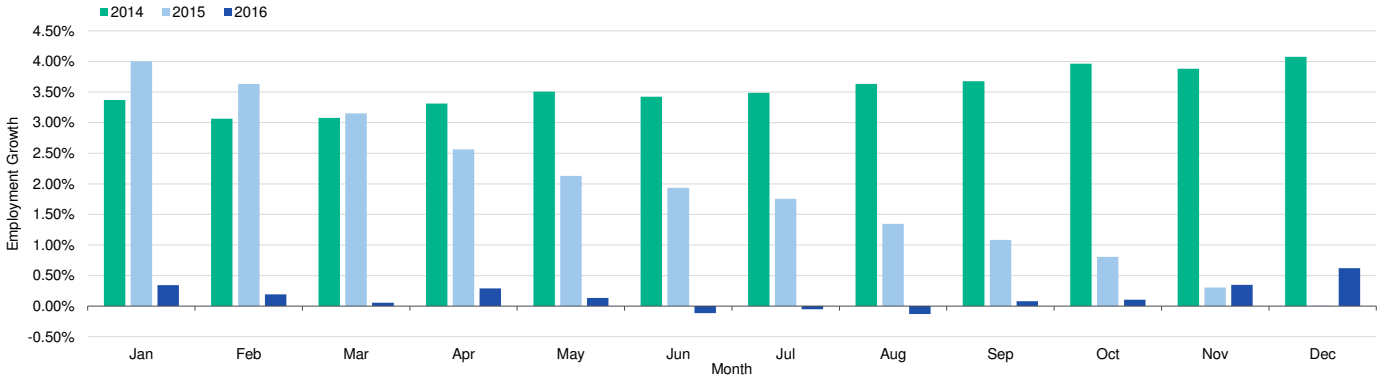
Houston remains the global flagship center for the oil and gas industry with companies engaging in production, refining, and transportation. Wages for energy related jobs[1] in Houston's metropolitan statistical area (MSA) accounted for 17.6% of total employment compared to the nation's 3% in 2015, per the Bureau of Labor Statistics. Some of the subsectors have fared worse than others since oil prices declined. For example, as of Q3 2016, support activities for mining and construction, and mining and oil and gas field machinery manufacturing declined 18% and 13.3% over the prior year, respectively. By contrast, chemical manufacturing, and petroleum and coal products manufacturing, which are experiencing a big boom in the eastern portion of the city, experienced a 13.3%, and 9.2% increase respectively. Downstream petrochemical activity in the Gulf of Mexico, is particularly strong, with an estimate of over $20 billion in projects, although some projects start winding down this year (2017). However, recent announcements including Exxon Mobil Corporation's (Aaa negative) $20 billion expansion in US gulf coast refining projects, are positive for the city. Nevertheless, with the high concentration in total energy jobs, the city's employment performance has softened considerably within the past two years since oil prices began their initial descent in the late summer of 2014, and even, modestly contracted, in fiscal 2016. The negative growth reversed in fall of 2016, as oil prices began to stabilize (see Exhibit 3).

The oil industry is yet to recover, although prices have stabilized within recent months as oil supply has reduced. While the Organization of the Petroleum Exporting Countries (OPEC) members and non-OPEC members are reviewing the possibility of extending the current oil output cut, the importance of the industry's fundamental change within the past decade should not be understated. New technology including horizontal drilling and fracking, and shale oil in north America has allowed access to the commodity at lower lead times, and greater flexibility to control production, resulting in more profitable investments even at lower

prices. These factors could very well signal that lower oil prices are here to stay. Some companies in Houston will benefit from this, particularly those with diversified operations. Others, such as the oilfield service providers, will remain challenged, which could impede strong recovery in Houston over the next 18 - 24 months.

Exhibit 3

Houston's Employment Growth Has Slowed Considerably Within the Past Two Years



Oil Prices Began Their Initial Descent in Late Summer 2014
Source: Bureau of Labor Statistics

Positively, growth in non-energy sectors continues to ensure the city remains the regional economic center; estimated daytime population increased 27.9% per the 2010 American Community Survey. The health care industry's ongoing projects are worth approximately $3 billion and are spread throughout the metro area, including $2.4 billion in the Texas Medical Center alone, the largest medical complex in the world. Port Houston (Aaa, no outlook) remains the largest port in the US in terms of overall tonnage and second largest in terms of foreign tonnage, and continues to experience relatively stable container traffic. The January 2017 unemployment rate of 5.5%, was higher than the state's and nation's. Wealth indicators remain below the nation with an estimated 2015 median family income of 77.3%, and a per capita income of 98.5%. Population growth in the city is steady with the US Census reporting an increase of 7.5% in 2010, over the prior 10 years; estimates since then show an increase of 5.6% to 2.2 million people, making Houston the fourth largest city in the US.

Historical strong population growth, and investments have resulted in assessed valuation performance averaging a strong 8.9% annually over the past five years. Despite the downturn, assessed values continued their trend of impressive growth increasing 8.7% in fiscal 2017 to a substantial $222.2 billion following a 9.2% increase in the prior year. Moody's expects assessed values to continue to grow, although the growth will likely be tempered by sluggishness in the energy industry.

Financial Operations and Reserves: Persistently Negative Sales Tax Collections Challenge City's Finances; Longer Term Fiscal Health Will be Impacted by Outcome of Current Pension Reform Plan, and Limited Revenue Raising

Houston's financial profile is challenged in the near term, as sales taxes collections have remained negative, and are yet to stabilize following the downturn in the energy sector. Thus far, annual sales tax decreases have been more modest (less than 5% in fiscal 2016) than the decrease in oil prices (see Exhibit 4). However rising budgetary obligations and the city's current reserve position, which is narrower than peers, affords little flexibility should negative revenue performance persist through the next 12 to 18 months.

Exhibit 4

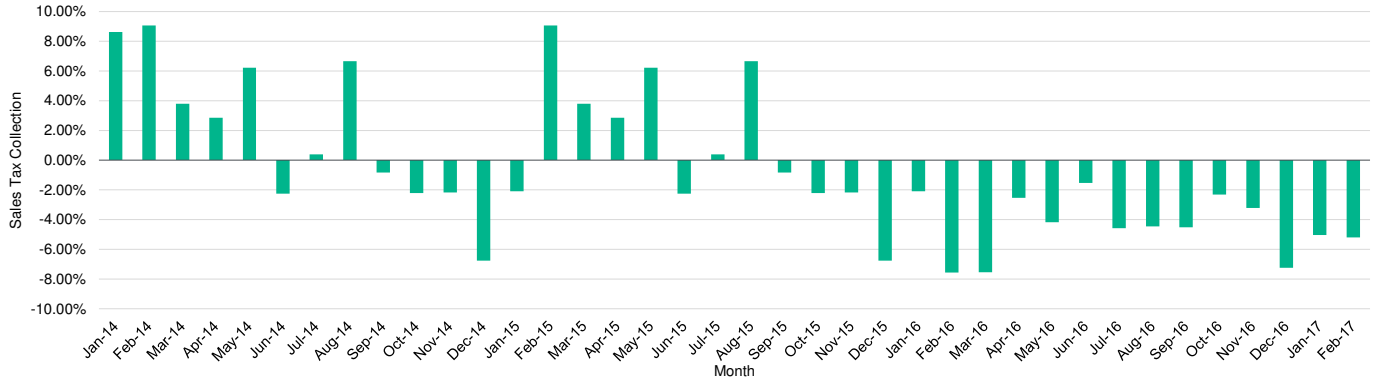
Annual Sales Tax Collections Fell More Modestly Than Oil Prices in FY 2016

Source: Texas Comptroller, US Energy Information Administration

The city's recent financial history, prior to fiscal 2016, included operating surpluses and deficits despite strong economic performance. In the aftermath of fiscal 2011, the city benefited from strong revenue performance, and significant expenditure reductions, improving its reported General Fund performance. However, also during that period, the city was structurally challenged by rising pension obligations which were in part managed by "Meet and Confer" agreements for the municipal and police pension plans, resulting in contributions that were below actuarially defined rates. The rising budgetary challenges, were exacerbated in 2014 as oil prices tanked, and the economy began to contract, resulting in falling monthly sales tax receipts (see Exhibit 5), the city's largest revenue source at 28.2% of fiscal 2016 operating revenues, behind property taxes at 47.1%. Sales tax performance is important to the city, as the city is subject to property tax revenue limitations dictated by Propositions 1 and H, [2] which resulted in $53 million less (about 2.4% of budgeted expenditures, including debt service) in property tax revenues in fiscal 2016.

Exhibit 5

Monthly Sales Tax Allocation Have Been More Negative Than Positive in the Past Two Years



Source: Texas Comptroller

The cumulation of the events resulted in a General Fund draw of $82.3 million, reducing the total available balance to $246.3 million (an adequate 10.4% of General Fund revenues). Including the Debt Service fund, total available reserves were $290 million (12.4% of operating revenues). The General Fund as reported in the audit includes several sub funds. The main operating fund of the city, "General Fund 1000", is the largest of the sub funds, and reported an ending balance of $236.9 million. The balance was more positive than both the Controller's and finance department's projection of $179.2 million, and $192 million, respectively, reflecting cost reduction initiatives implemented during the year.

In January 2016, voters elected a new Mayor, who has championed shared sacrifices and a commitment to increased fiscal responsibility, while addressing the city's rising fixed costs. Under the administration, the City of Houston passed a fiscal 2017 budget under conservative assumptions, and kept reserves in line with the 7.5% policy (city's goal is much higher at between 9% - 10%),

despite utilizing $10 million in reserves and reducing the General Fund 1000 down to $186.7 million. Some of the key assumptions include a 3.3% reduction in sales taxes, with oil prices going as low as $18.79 per barrel in Q2 2017. The budget also included reduced expenditures including eliminating vacant positions, allowing the city to largely close an original budget gap of approximately $160 million. The January 31, 2017 monthly report, reflects an ending General Fund 1000 balance of $213.8 million, the finance department's balance is $2.6 million higher. Since then, the finance department has revised its assumptions down to $211 million, as an asset sale, will likely not be realized until fiscal 2018.

The city's financial performance has been structurally imbalanced due to pension contributions that have fallen short of required contributions, on an aggregate for the three pension plans. However, since the adoption of the fiscal 2017 budget, the Mayor has pushed a pension reform package that was approved by all pension plans, as well as City Council in the fall of 2016. The plan is currently being debated during the legislative session, and has the potential to cap the city's exposure to rising pension costs and improve annual contribution rates, which will be credit positive for the city. The outcome of the legislative session for Houston's pension plan will have significant implications for the city.

LIQUIDITY

Total General Fund cash as reported in fiscal 2016, was $244.3 million (10.3% of General Fund revenues). Including the Debt Service Fund, total operating cash was $405.7 million (17.4% of operating revenues).

Debt and Pensions: Outcome of Pension Reform Will Affect Credit Profile

The combined city's debt and pension numbers, are high, when compared to similarly rated credits. The pension profile will be dramatically impacted by the outcome of the current pension reform, being debated during the legislative session.

On a direct debt basis, the city's debt profile is manageable with a burden of 1.5% on a fiscal 2017 valuation. Including the number and size of the county, school districts, and municipal utility districts that share the same tax base, the overall debt is elevated at 5.2%. In fiscal 2016, the direct debt incorporated the city's $2.3 billion in general obligation limited tax obligations, $523.4 million in pension obligations, (with an additional $58.2 million supported from the utility system, $3.7 million supported by the convention and entertainment facilities, and $2 million supported by the airport), $99.9 million in general commercial paper obligations, and $16.4 million in certificates of obligations. Payout is below national medians with 63.5% of principal retired in 10 years. The city's adopted capital improvement plan (CIP) calls for $518.9 million in general obligation bonds. The debt profile is expected to remain manageable given Moody's expectation of continued albeit slower, taxable value growth over the medium term.

DEBT STRUCTURE

The city's debt service schedule calls for a modest increase in debt service through fiscal year 2018, before descending annually until final maturity in 2043. As mentioned above, the city utilizes a commercial paper program ($99.9 million of the $875 million was outstanding as of June 30, 2016) for capital purposes, in anticipation of periodic long term bond issues. External liquidity for the program is provided by seven banks.

The city issues a tax and revenue anticipation note (TRAN) annually for cash flow purposes given that a majority of the revenues are derived from property taxes generally received by February 1st, and cash begins to run narrow by the summer. In fiscal year 2016, the city issued $230 million which was repaid by the end of the fiscal year. Officials expect annual issuance of TRANS sized between $150 and $250 million, will continue in the near to medium term.

DEBT-RELATED DERIVATIVES

The city is not party to any tax backed derivative agreements or swap exposure.

PENSIONS AND OPEB

The city's current pension liability, is elevated and outsized when compared to peers. The city maintains three pension plans: Houston Municipal Employees Pension System, Houston's Police Officer Pension System, and Houston's Firefighters Relief and Retirement Fund. Absent pension reform, budgetary pressure relating to underfunding of the city's three pension systems is expected to increase and remain a challenge for the city, particularly in light of statutory revenue limitations. Historically, the city's contributions to the municipal employee and police officer systems are dictated by “Meet and Confer” agreements. Over the past five years, the contractually required amounts have been paid for the Municipal and Police systems. However, these amounts fall short of the annual required contribution (ARC). For the Firefighter System, state law requires the city's contribution to be the greater of two times

the firefighters' contribution, or a rate determined actuarially once every three years with no flexibility for negotiation. The city has historically contributed over 100% of the ARC, with the exception of fiscal 2013.

Houston is currently defending a pension reform plan that was originally approved by the three pension plans and City Council in fall 2016. The proposed pension plan, if approved, would reduce Houston's substantial pension liabilities through benefit changes and would cap the city's future contribution rates, which would be credit positive.

Under the plan, the investment rate of return will reduce to 7% for all three plans, and in aggregate accrued benefits would be reduced by 30%. The plan also includes changes to future benefit provisions, such as cost-of-living adjustments (COLAs) and deferred option retirement accounts (DROP), and calls for the city to make the actuarially determined contribution, in order to amortize the unfunded liabilities over 30 years, an improvement over the city's historical levels. The plan does require a cash infusion of $1 billion dollars via pension obligation bonds (POBs) which does not currently require voter approval.

If approved by the state, the benefit reforms would reduce net liabilities across the city's pension plans by approximately $2.5 billion. However, the POBs carry an additional budget risk for the city in the event that plan investments do not outperform the city's interest cost on the debt. The city would also retain responsibility for paying off the pension bonds and unfunded liabilities in place as of June 2016.

Although, the city would mitigate its budgetary exposure by sharing risk with employees. Under the risk sharing mechanism, if the city's costs to amortize newly generated unfunded liabilities exceed specified contribution caps, the package establishes a number of actions, including higher employee contributions and further benefit reductions to bring the city's costs within the caps.

There are currently two bills for the City of Houston moving through the legislative session with the same structure, described above, for reform. However, one bill (Senate Bill 2190) requires voter approval for issuance of pension obligation bonds, while the other bill (House Bill 43) does not require voter approval for the issuance of pension obligation bonds. The outcome of the current legislative session will have significant impact on the city's near and long term financial trajectory, and pension burden.

In fiscal 2016, Moody's adjusted net pension liability (ANPL) for the city, under our methodology for adjusting reported pension data, was a total of $14.1 billion, net of self supporting contribution. This liability is an elevated 6.06 times of operating revenues, including the General and Debt Service funds. The ratio is also a high 6.91% of the city's assessed valuation. The three year average ANPL was 4.77 times operating revenues or 5.44% of the full valuation. Moody's ANPL reflects certain adjustments we make to improve comparability of reported pension liabilities. The adjustments are not intended to replace the city's reported contribution information, or the reported liability information of the statewide cost-sharing plans, but to improve comparability with other rated entities.

For fiscal 2016, the city recognized total pension expense of $347.5 million, 14.9% of operating fund revenues, net of any self supporting contribution based on Moody's allocation of pension expense, derived from the city's balance sheet. The city's fiscal 2016 contribution rate was also less than the Moody's calculated “tread water” level of approximately $489.6 million. The “tread water” indicator measures the annual government contribution required to prevent the reported net pension liability from growing, under reported assumptions. Contributions above this level cover all net pension liability interest plus pay down some principal; this is stronger from a credit perspective compared to contributions below this level. Ratios comparing government contributions to the “tread water” level and “tread water” costs to government revenues shed light on budgetary fixed cost burdens.

The city offers other post employment benefits (OPEB) to its employees and the benefits are currently funded on a pay as you go basis. In fiscal 2016, the city paid 19.2% ($38.5 million) of the annual OPEB cost. At fiscal year end, the unfunded OPEB liability was $2.1 billion.

Fixed costs including pensions, debt service and other post employment benefits (OPEB) totaled $834.2 million, a high 35.6% of operating expenditures in fiscal year 2016.

Management and Governance; New Administration Enacts Plan to Address Fiscal Challenges

Texas Cities have an Institutional Framework score of Aa, which is high compared to the nation. Institutional Framework scores measure a sector's legal ability to increase revenues and decrease expenditures. Property taxes, one of the sector's major revenue sources are subject to a cap, which cannot be overriden. However, the cap of $25 per $1,000 of assessed values with no more than $15

allocated for debt,still allows for significant revenue-raising ability. Unpredictable revenue fluctuations tend to be minor, or under 5% annually. Across the sector, fixed and mandated costs are generally greater than 25% of expenditures. Texas is a Right to Work state, providing significant expenditure-cutting ability. Unpredictable expenditure fluctuations tend to be minor, under 5% annually.

Houston's institutional framework is more restrictive due to the property tax revenue caps imposed by voters from Propositions 1 and H. However, the city maintains expenditure flexibility.

The city has a mayor-council form of government, in which the Mayor and sixteen member City Council serve as the legislative body. Eleven council members are elected by district and five council members are elected at-large. A new Mayor, Controller and Council began their tenure in January 2016, and the present term of office for all elected officials expires in January 2020. The administration, under the new Mayor, begun implementing a plan to stabilize the city's fiscal position. Some initiatives such as tighter budgetary controls, conservative revenue forecasting have already been implemented, while others, particularly that related to pension reform, one of the key initiatives that will stabilize future financial performance, is awaiting state approval. Despite this, the recent positive actions taken by the Mayor and management to put the city on a more positive financial trajectory are viewed as favorable, and signal a change from the past. If achieved, these actions will put the city on a path to fiscal stability.

The city demonstrates good governance by multiyear capital and financial planning with financial plans going out at least five years, and capital plans going out longer. The city also increased its reserve policy to a minimum of 7.5% and added a $20 million budget stabilization fund to improve its liquidity position at fiscal year end; the city intends to mange to a 9% minimum reserve level. The Mayor also recently signed an executive order to improve financial transparency and communication within city departments.

Legal Security

The bonds are secured by a direct and continuing annual ad valorem tax, levied against all taxable property within the limits prescribed by law.

Obligor Profile

The City of Houston is the largest city in the state, and fourth largest city by population in the U.S.. Located in Harris County, the city is home to an estimated 2.2 million people. Some of its main economic drivers include energy and resources, manufacturing, and logistics.

Methodology

The principal methodology used in this rating was US Local Government General Obligation Debt published in December 2016. Please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

Endnotes

1 Jobs include those coded as oil & gas extraction, support activities for mining, oil & gas pipeline construction, petroleum & coal products manufacturing, chemical manufacturing, plastics and rubber products manufacturing, mining and oil & gas field machinery manufacturing, petroleum merchant wholesalers and pipeline transportation.

2 Proposition 1 limits revenue increases to the lesser of population growth plus inflation, or 4.5%. Proposition H allows the city to raise revenues by $90 million above the Proposition 1 limit for public safety issues.

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