

## Revenue Forecasting Methodology

The University of Memphis forecasters independently prepare quarterly reports of revenue updates and forecasts for use in the internal decision-making done in the City of Memphis Finance Department. The forecasts have two areas of focus: forecasts for the current fiscal year's end-of-year revenues and forecasts for the next fiscal year and for each year out for ten years.

A team of three Ph.D. economists report on current economic trends that influence the City of Memphis. National, state and local economic indicators receive full discussion in both an oral presentation and written documents. These perspectives are essential for the finance department to understand and respond to a second area of focus. In the second part of the quarterly report, the team prepares numerical forecasts for the current fiscal year's end-of-year revenues, for the next fiscal year, and for each year out for ten years.

The forecasts are for more than fifty revenue variables, including total revenue for the city's general fund, subgroups of revenue sources, and individual revenue sources. The format of the forecast involves a median forecast as the single most likely value and a high/low range to indicate the degree of uncertainty. Also, for the most important single revenue sources and for total revenue, there is a more detailed risk analysis. This involves developing a downside risk assessment expressed as the probability that revenues will be at or below important levels.

The smallest revenue sources are forecasted with autoregressive, integrated, moving average models estimated with monthly or annual data that extends back to 1968 in some cases. Major revenue sources get forecasts from at least two alternative statistical models. For some variables, seasonal patterns are so reliable that end-of-year totals are accurately predicted from year-to-date data used in some of the quarterly updates. For longer-term forecasts, entirely different models are necessary.

For some of the revenue sources, national and regional economic indicators are useful to add to short and long term forecast accuracy. These statistical models are combinations of autoregressive, integrated, moving average (ARIMA) modeling and regression analysis. Although some series are estimated with single equation models, others have simultaneous equation models.

Stochastic simulations of the short- and long-term models generate empirical estimates of the probability distributions for the revenue sources. These distributions are reported both for the current fiscal year and the next fiscal year. These simulation results are used to report the high/low ranges for the revenue sources and the detailed risk analyses. The high/low range end points are defined to cover the middle 50 percent of the estimated distributions for the forecasted variables. They are, in fact, the first and third quartiles that surround the median forecast. These intervals are reported for detailed lists of revenue sources, for subcategories of the general fund, and for total revenue.

The simulation results are the basis for more detailed risk analysis of total revenue, the property tax, and the sales tax. These risk reports give the quartiles and median, plus all the deciles. For example, the first decile in the forecast distribution for total revenue is the level of revenue such that there is a 10 percent probability that revenue will be at or below that level. In addition, the risk analysis estimates the probability that revenues will be at or below key levels, such as the previous year's level and the level anticipated in the operating budget. This risk analysis is a downside risk description, giving the probability that end-of-year revenue will be short of specified values.

## ■ operating budget

Sources of Revenue	FY 2013 Actual	FY 2014 Adopted	FY 2014 Forecast	FY 2015 Adopted
Local Taxes	420,613,389	420,285,627	431,644,266	413,749,012
State Taxes	58,997,574	54,070,000	57,803,253	55,425,000
Licenses and Permits	10,563,089	10,222,500	11,683,300	10,997,500
Fines and Forfeitures	12,286,950	14,500,000	13,700,476	13,575,000
Charges for Services	1,303,407	1,362,500	1,232,835	1,315,000
Use of Money and Property	303,212	349,000	338,225	335,000
Federal Grants	934,442	0	934,442	0
State Grants	164,901	0	164,901	0
Other Revenues	6,317,626	6,911,911	4,598,063	3,475,000
Transfers In	57,485,879	72,113,000	80,108,999	72,839,000
<b>Total Revenues/Transfers</b>	<b>568,970,469</b>	<b>579,814,538</b>	<b>602,208,766</b>	<b>571,710,512</b>
Division Revenues	46,328,869	46,668,029	46,615,188	46,208,040
<b>Total Revenue\Other Sources</b>	<b>615,299,338</b>	<b>626,482,567</b>	<b>648,823,954</b>	<b>617,918,552</b>

## ■ issues & trends

This brief synopsis discusses obvious changes in the revenue categories listed above. A more detailed discussion of revenues budgeted for FY 2015 is presented in the budget overview section.

The general or unallocated operating revenue budget for the FY 2015 budget totals \$571.7 million. This represents a small revenue decrease of \$8.1 million; a -1.4% decrease from the FY 2014 adopted budget. This is the result of the property tax revenue, our largest revenue source, being reallocated to the Debt Service Fund to match the increased cost of debt servicing. Therefore while the property tax growth added revenues to the City, the movement of that growth to the Debt Service Fund reflects a lower amount available for general expenditure use.

Our second largest revenue source, State Taxes is budgeted at \$55.4 million for FY 2015. This is 2% or \$1.3 million above the FY 2014 adopted budget. State revenues for the local options sales tax has shown some growth that is anticipated to continue into the FY 2015 budget year.

Other sources of revenue that decreased from the FY 2014 adopted budget to the FY 2015 adopted budget were Fines and Forfeitures, \$-1.0 million, and other revenues \$-3.4 million. Fines and forfeiture revenue should increase for future years while other miscellaneous revenue for FY 2014 has a one-time expectation that will not reoccur in FY 2015.

Transfers -In include the MLGW in -lieu of tax payment, and State Street Aide. These are expected to remain relatively flat year over year.

The divisional revenues are also anticipated to remain relatively flat but steady.

## Detail

Sources of Revenue	FY 2013 Actual	FY 2014 Adopted	FY 2014 Forecast	FY 2015 Adopted
<b>Local Taxes</b>				
Ad Valorem Tax - Current	243,863,418	242,945,457	251,343,200	236,835,750
Ad Valorem Tax - Current Sale of Receivables	12,787,098	12,500,000	14,787,013	13,000,000
Ad Valorem Tax Prior	1,852,564	4,000,000	1,160,403	2,400,000
Ad Valorem Tax - Prior One Time Assessment	172,371	0	12,010	0
Special Assessment Tax	122,910	130,000	166,642	160,000
Property Taxes Interest & Penalty	4,315,720	4,200,000	4,200,000	4,200,000
Bankruptcy Interest & Penalty	182,297	162,000	174,177	170,000
Interest & Penalty - Sale of Tax Rec	1,459,062	1,400,000	1,910,430	1,400,000
PILOT's	4,468,531	5,000,000	5,873,397	5,000,000
State Appointment TVA	7,574,020	7,500,000	7,353,958	7,400,000
Local Sales Tax	98,115,440	100,000,000	100,455,856	100,000,000
Beer Sales Tax	16,596,286	16,500,000	17,189,648	17,500,000
Alcoholic Beverage Inspection Fee	4,563,225	4,200,000	4,615,331	4,500,000
Mixed Drink Tax	3,137,895	2,800,000	1,563,540	1,500,000
Gross Rec Business Tax	11,423,954	10,500,000	11,344,642	10,500,000
Bank Excise Tax	259,819	200,000	200,000	200,000
Franchise Tax - Telephone	1,357,727	900,000	1,355,024	1,400,000
Cable TV Franchise Fees	4,301,711	4,300,000	4,318,190	4,450,000
Misc Franchise Tax	753,972	750,000	814,075	750,000
Interest, Penalties & Commission	232,876	200,000	200,000	200,000
Business Tax Fees	1,184,054	1,000,000	1,162,191	1,100,000
Warrants and Levies	129	300	300	300
Misc Tax Recoveries	1,572,434	782,000	1,139,547	782,000
MLGW/Williams Pipeline	315,874	315,870	304,690	300,962
<b>Total Local Taxes</b>	<b>420,613,389</b>	<b>420,285,627</b>	<b>431,197,732</b>	<b>413,749,012</b>
<b>State Taxes</b>				
State Sales Tax	44,714,256	44,400,000	45,492,764	45,500,000
Telecommunication Sales Tax	55,159	40,000	64,628	60,000
State Income Tax	12,286,312	7,700,000	10,300,000	7,900,000
State Shared Beer Tax	319,824	315,000	313,745	315,000
Alcoholic Beverage Tax	296,567	290,000	307,817	300,000
Spec Petroleum Product Tax	1,325,455	1,325,000	1,324,299	1,350,000
<b>Total State Taxes</b>	<b>58,997,574</b>	<b>54,070,000</b>	<b>57,803,253</b>	<b>55,425,000</b>

## Detail

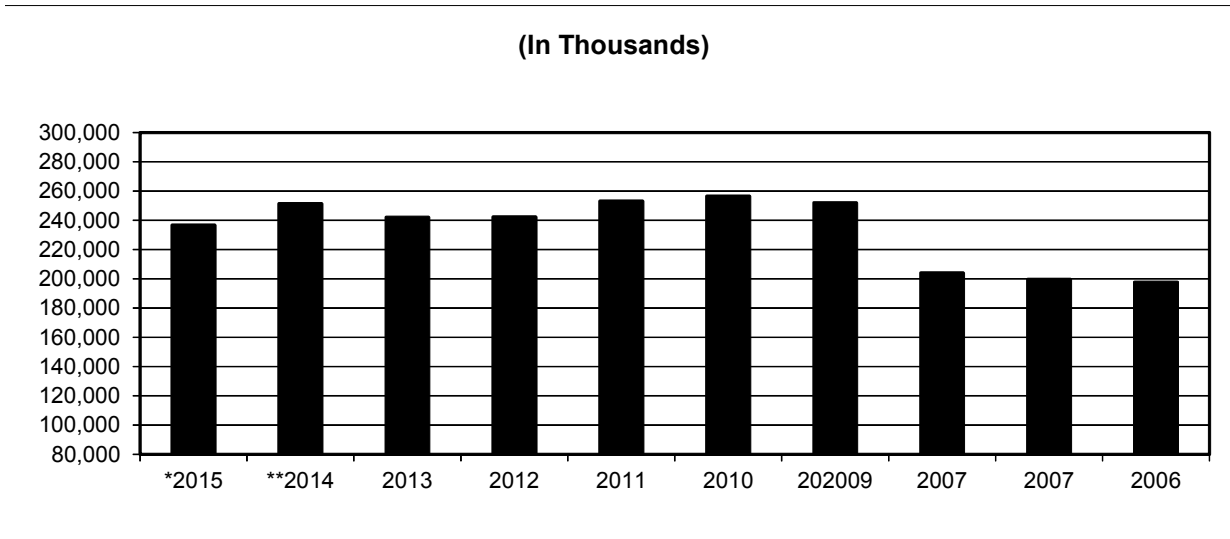
Sources of Revenue	FY 2013 Actual	FY 2014 Adopted	FY 2014 Forecast	FY 2015 Adopted
<b><u>Licenses and Permits</u></b>				
Auto Registration Fee	10,056,535	9,700,000	11,171,437	10,500,000
Liquor By Ounce License	179,219	204,000	161,715	180,000
Taxi Drivers License	22,547	20,000	21,771	20,500
Gaminy Pub Amus Perm Fee	16,059	13,500	12,600	13,500
Wrecker Permit Fee	11,050	10,000	11,700	11,000
Misc Permits	75,035	70,000	104,228	72,500
Beer Application	61,450	65,000	59,850	60,000
Beer Permit Privilege Tax	141,195	140,000	140,000	140,000
<b>Total Licenses and Permits</b>	<b>10,563,089</b>	<b>10,222,500</b>	<b>11,683,300</b>	<b>10,997,500</b>
<b><u>Fines and Forfeitures</u></b>				
Court Fees	5,616,904	8,100,000	6,498,845	6,400,000
Court Costs	6,299,508	6,000,000	6,757,250	6,800,000
Fines & Forfeitures	72,070	100,000	104,833	85,000
Beer Board Fines	93,054	100,000	75,550	75,000
Arrest Fees	205,414	200,000	263,998	215,000
<b>Total Fines and Forfeitures</b>	<b>12,286,950</b>	<b>14,500,000</b>	<b>13,700,476</b>	<b>13,575,000</b>
<b><u>Charges for Services</u></b>				
Parking Meters	394,618	800,000	317,641	500,000
MLG&W Rent	110	0	194	0
Parking Lots	315,000	315,000	315,000	315,000
Tax Sales Attorney Fees	593,899	247,500	600,000	500,000
<b>Total Charges for Services</b>	<b>1,303,407</b>	<b>1,362,500</b>	<b>1,232,835</b>	<b>1,315,000</b>
<b><u>Use of Money and Property</u></b>				
Interest on Investments	120,799	175,000	108,817	115,000
Net Income/Investors	63,653	59,000	124,553	100,000
State Litigation Tax Commission	118,760	115,000	104,855	120,000
<b>Total Use of Money and Property</b>	<b>303,212</b>	<b>349,000</b>	<b>338,225</b>	<b>335,000</b>
<b><u>Federal Grants</u></b>				
Federal Grants - Others	934,442	0	934,442	0
<b>Total Federal Grants</b>	<b>934,442</b>	<b>0</b>	<b>934,442</b>	<b>0</b>
<b><u>State Grants</u></b>				

## Detail

Sources of Revenue	FY 2013 Actual	FY 2014 Adopted	FY 2014 Forecast	FY 2015 Adopted
TEMA Reimbursement	164,901	0	164,901	0
<b>Total State Grants</b>	<b>164,901</b>	<b>0</b>	<b>164,901</b>	<b>0</b>
<b><u>Other Revenues</u></b>				
Miscellaneous Auctions	2,151,121	2,000,000	1,807,254	2,000,000
Sale Of Capital Assets	1,481,008	0	25,488	0
City Property Damage Reim	143,131	100,000	102,374	100,000
Miscellaneous Income	630,125	3,536,911	244,775	100,000
Sewer Fund Cost Allocation	1,075,000	1,075,000	1,075,000	1,075,000
Court Reimbursement	44	0	78	0
Cash Overage/Shortage	2,157	0	415	0
Insurance Refund	65,794	0	552,386	0
FNMA Service Fees	6	0	0	0
Recovery Of Prior Year Expense	769,327	200,000	790,299	200,000
<b>Total Other Revenues</b>	<b>6,317,626</b>	<b>6,911,911</b>	<b>4,598,069</b>	<b>3,475,000</b>
<b><u>Transfers In</u></b>				
In Lieu Of Taxes-MLGW	51,439,591	52,139,000	55,639,000	52,139,000
In Lieu Of Taxes-Sewer	4,746,288	3,874,000	5,245,043	4,600,000
Oper Tfr In - State Street Aid	0	14,800,000	14,924,956	14,800,000
Oper Tfr In - New Arena Fund	0	0	1,600,000	0
Oper Tfr In - Sewer Operating/CIP	1,300,000	1,300,000	1,300,000	1,300,000
Oper Tfr In-Midtown Corridor	0	0	1,400,000	0
<b>Total Transfers In</b>	<b>57,485,879</b>	<b>72,113,000</b>	<b>80,108,999</b>	<b>72,839,000</b>
<b>Total Revenues\Transfers</b>	<b>568,971,423</b>	<b>579,814,538</b>	<b>602,208,766</b>	<b>571,710,512</b>

**Current Property Tax**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	236,836	-6.34%	2010	256,602	1.81%
2014	251,343	4.49%	2009	252,036	23.59%
2013	242,000	-0.15%	2008	203,937	2.19%
2012	242,361	-4.24%	2007	199,564	0.92%
2011	253,100	-1.36%	2006	197,740	26.26%



\* FY 2015 Adopted

\*\* FY 2014 Forecast

Property Tax is the largest source of revenue for the City. Property assessments are made by the Shelby County Tax Assessor based on the estimated appraised value and the following property classifications:

Residential and Farm Real Property = 25% of Appraised Value

Personal Property = 30% of Appraised Value

Commercial and Industrial Real Property = 40% of Appraised Value

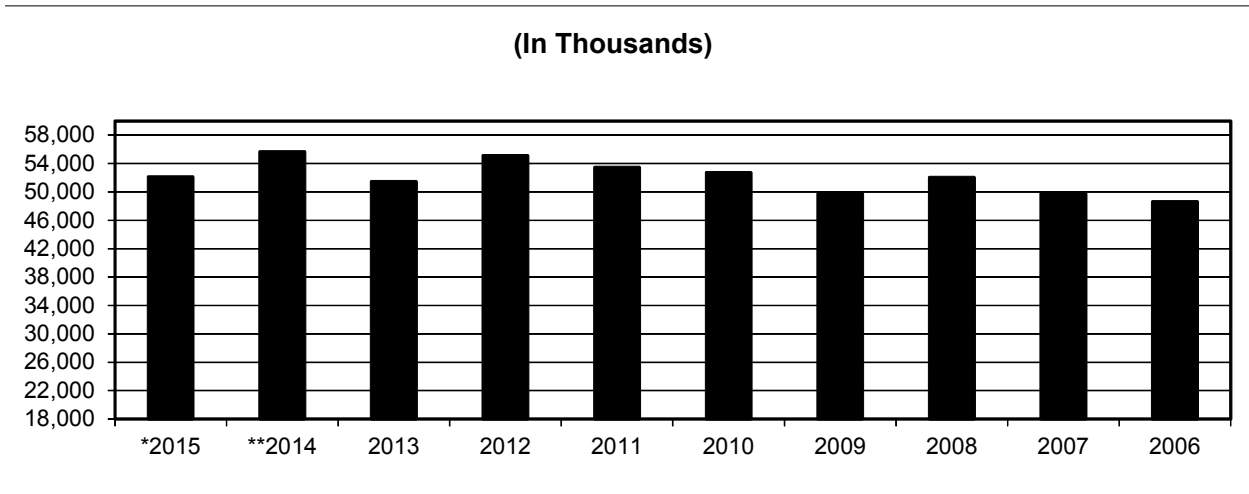
Public Utilities and Railroads = 55% of Appraised Value Assessed by Tennessee Regulatory Authority (TRA).

Tax bills originate from, and collections are made by, the City Treasurer's Office, based on the tax rate set by the City Council and applied to the assessment rolls provided by the County Assessor and the TRA. Taxes are due and payable when the tax bills are mailed, normally July 1, and become delinquent sixty days thereafter, normally September 1. About 95% of the taxes are collected in the first four months of tax mailings. Through fiscal year 2013 City Schools and the Debt Service Fund share proceeds of this tax. Beginning in fiscal year 2013, City Schools merged with County schools and was not allocated City property tax. There are no restrictions on property tax increases. However, tax rates are approved by Ordinance.

Major Influences: Annexations, Appraisals, Development and Population changes

In lieu of Tax - MLGW

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	52,139	-3.67%	2010	52,698	5.95%
2014	55,639	5.22%	2009	49,737	-4.42%
2013	51,439	-6.65%	2008	52,036	4.58%
2012	55,105	3.06%	2007	49,759	2.36%
2011	53,469	1.46%	2006	48,610	11.49%



\* FY 2015 Adopted

\*\* FY 2014 Forecast

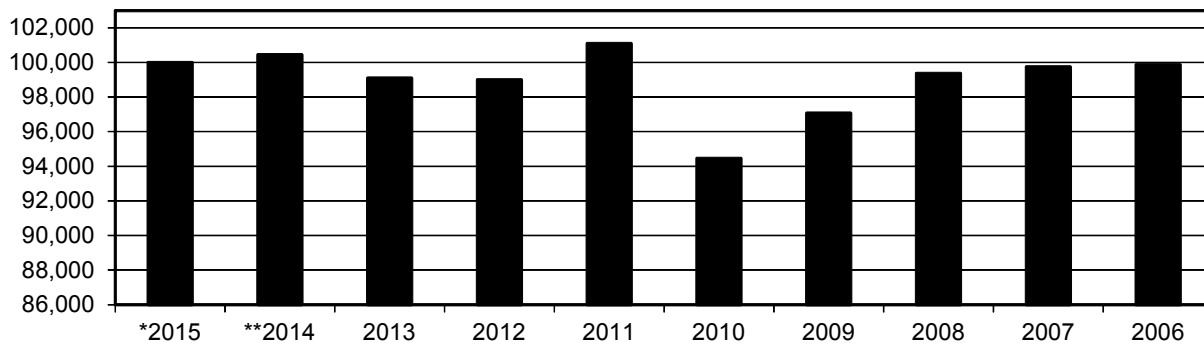
The Memphis Light Gas and Water Division makes in lieu of property tax equivalent payments as provided by the Municipal Electric System Tax Equivalent Law and the Municipal Gas System Tax Equivalent Law, both of which provide a uniform formula for establishing such payments. This revenue is limited to the calculation defined in the state law. The increase from 1999 to 2000 onward is based on the implementation of the 1988 gas tax calculation. T.C.A. 7-52-307 and T.C.A. 7-39-404.

Major Influences: Municipal Electric/Gas System Equivalent Tax Laws

**Local Sales Tax**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	100,000	-0.45%	2010	94,462	-2.68%
2014	100,455	1.37%	2009	97,065	-2.32%
2013	99,100	0.10%	2008	99,371	-0.36%
2012	99,000	-2.08%	2007	99,733	-0.14%
2011	101,100	7.03%	2006	99,875	4.84%

(In Thousands)



- \* FY 2015 Adopted
- \*\* FY 2014 Forecast

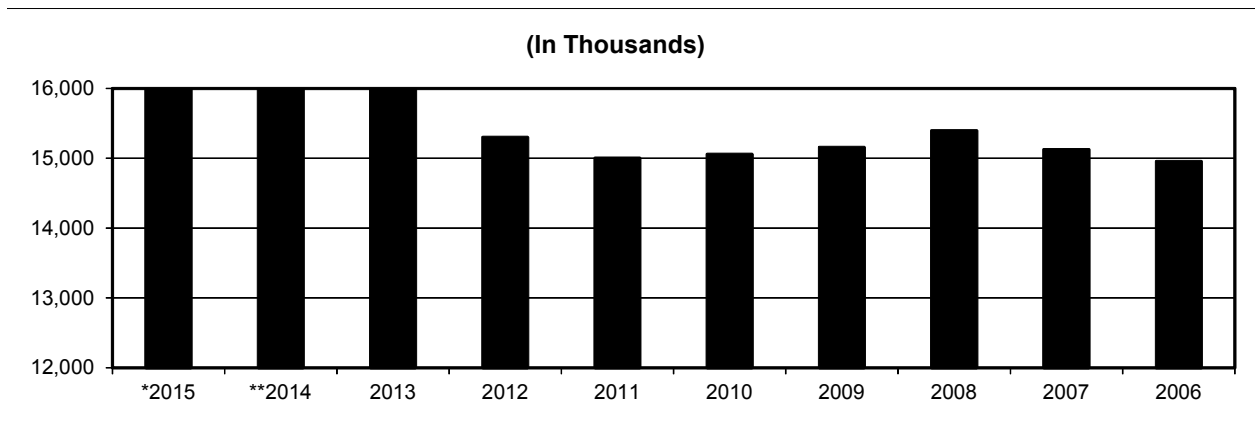
This, the second largest revenue source for the City, is charged on gross proceeds derived from retail sales or use of tangible personal property and certain specific services. It is computed at 2.25% of the amount of each transaction with one half of the proceeds allocated to education. The rate was last changed in 1984 from 1.5% to 2.25%.

Major Influences: Annexation, Population changes and Taxable Sales



**Beer Sales Tax**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	17,500	0.49%	2010	15,057	-0.66%
2014	17,190	5.55%	2009	15,157	-1.53%
2013	16,500	9.27%	2008	15,392	1.77%
2012	15,100	0.67%	2007	15,125	1.14%
2011	15,000	-0.38%	2006	14,954	2.28%



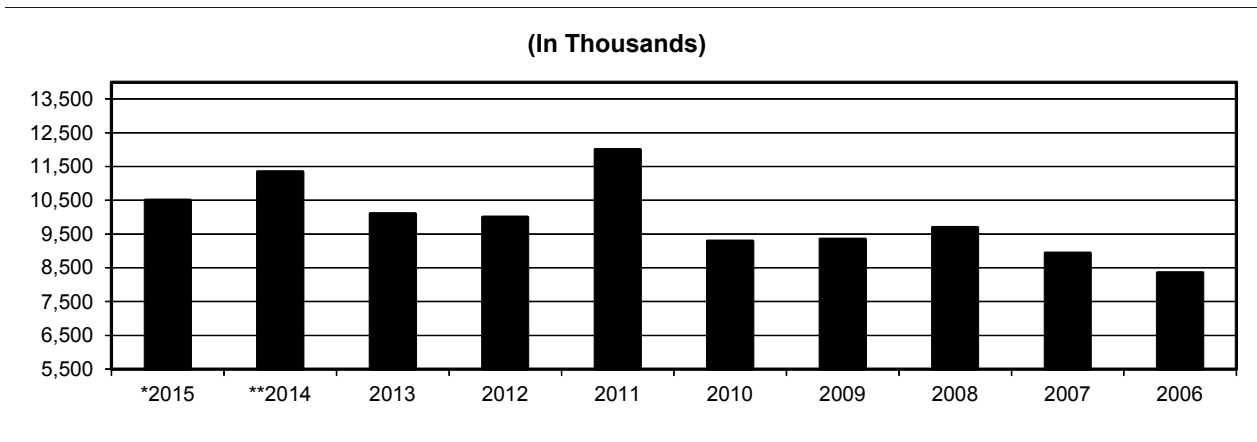
\* FY 2015 Adopted  
 \*\* FY 2014 Forecast

Beginning in 2014, this beer tax is imposed at \$35.60 per barrel of retail purchases from licensed wholesalers. Prior to fiscal 2014, this tax was levied at 17% on the sale of beer to wholesale. Fees are remitted to the City by wholesalers on a monthly basis. . T.C.A. 57-6-1 (FY201) and T.C.A. 57-5-103 (prior to FY2013)

Major Influences: Wholesaler quantities and Consumption Rates

**Gross Receipts Business Tax**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	10,500	-2.78%	2010	9,292	-0.58%
2014	11,345	6.93%	2009	9,346	-3.57%
2013	10,100	1.00%	2008	9,692	8.47%
2012	10,000	-16.67%	2007	8,935	6.98%
2011	12,000	29.14%	2006	8,352	5.15%



\* FY 2015 Adopted  
 \*\* FY 2014 Forecast

This is a privilege tax on the exercise of most business sales, consisting of two parts:

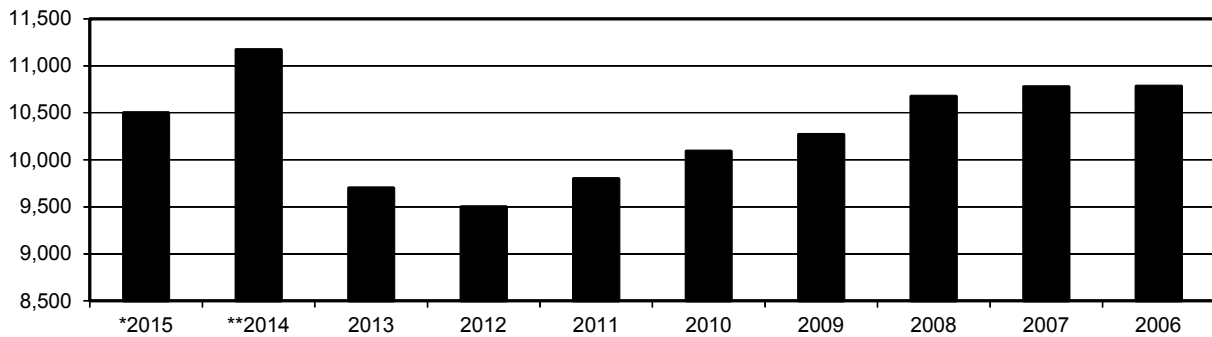
\$15 minimum annual license fee  
 Tax on gross receipts (wholesale and retail) of the covered business activities.

Business activities are divided into five classifications, with each classification having different tax rates and taxable periods. Remittances from department stores, auto dealers, restaurants and drug stores, representing almost one-half of total receipts, are collected in the last two months of the fiscal year. Each county and/or incorporated municipality in which such a business, business activity, vocation or occupation is conducted may levy a business tax not exceeding the rates established by state law. T.C.A. 67-4-704. Major Influences: Economy, Consumer Price Index and Gross Receipts

**Auto/Vehicle Registration-Inspection Fee**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	10,500	-4.89%	2010	10,093	-1.73%
2014	11,171	13.81%	2009	10,271	-3.80%
2013	9,700	2.11%	2008	10,677	-0.92%
2012	9,500	-3.06%	2007	10,776	-0.05%
2011	9,800	-2.90%	2006	10,781	2.95%

(In Thousands)



\* FY 2015 Adopted  
 \*\* FY 2014 Forecast

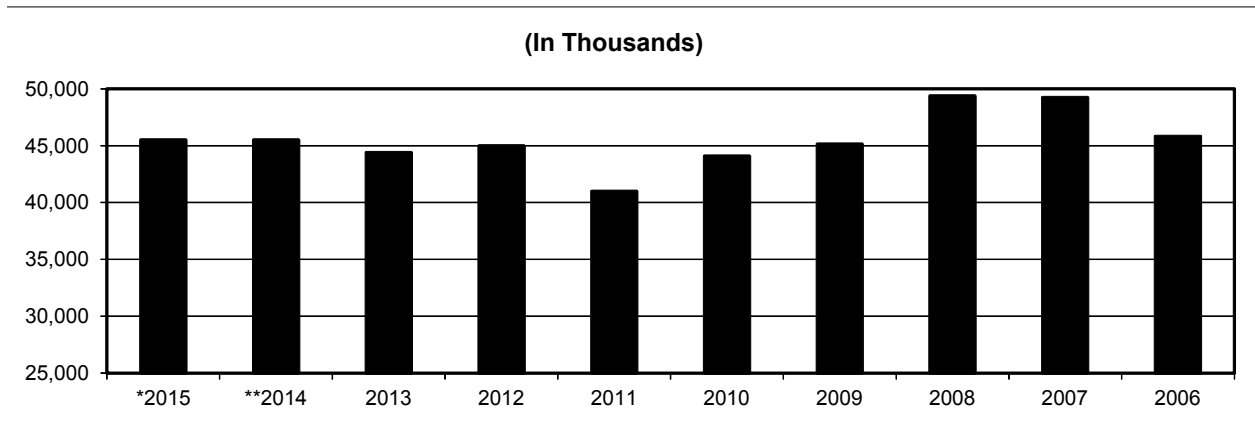
All residents of the City who own/operate a motor vehicle or motorcycle for business or pleasure must register the vehicle with the City's registration agent and pay an annual registration fee as follows:

- Motorcycle \$10.00 (private)
- \$21.00 (commercial)
- Passenger motor vehicle \$30.00
- Dealers, manufacturers, transporters \$21.00 to \$325.00
- Freight vehicles, depending on weight \$114.00 to \$452.00
- Combined farm and private truck \$30.00 to \$376.00

The County Court Clerk remits collections to the City after deducting a collection fee.  
 Major Influences: Auto Sales, Vehicle registrations

**State Sales Tax**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	45,500	0.86%	2010	44,082	-2.32%
2014	45,493	2.48%	2009	45,131	-8.61%
2013	44,400	-1.33%	2008	49,381	0.28%
2012	45,000	9.76%	2007	49,244	7.49%
2011	41,000	-6.99%	2006	45,814	11.18%



\* FY 2015 Adopted  
 \*\* FY 2014 Forecast

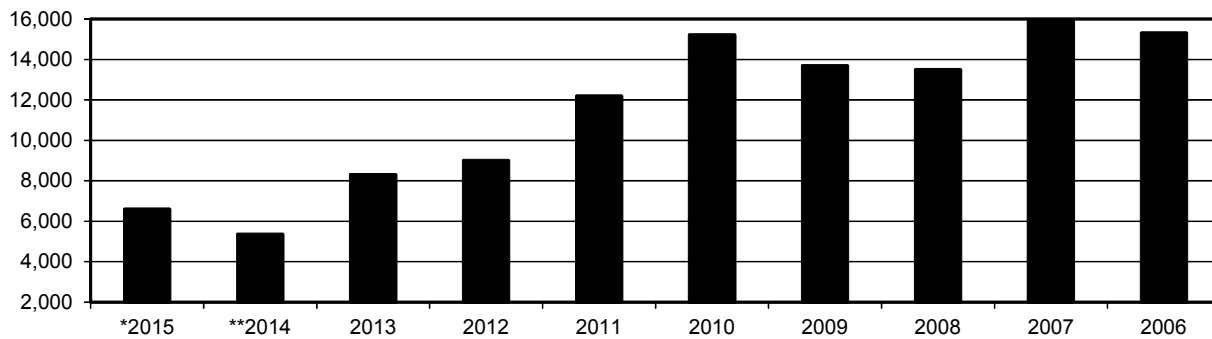
This is the largest state shared revenue the City receives. The current rate is 7.0% and is charged on each transaction described in the Local Sales Tax, 1.0% goes to the State's General Fund. Of the 6.0%, 0.5% goes to education. Municipalities receive approximately 4.5925% of collections on 5.5% of the 6%, which is allocated among the municipalities on a per capita basis. Changes in fees requires General Assembly vote, T.C.A. 67-6-103.

Major Influences: Population (relative to State) and Taxable Sales

**Delinquent Property Tax w/ Interest**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	6,600	4.71%	2010	15,211	11.14%
2014	5,360	-24.06%	2009	13,686	1.43%
2013	8,300	-7.78%	2008	13,493	-17.96%
2012	9,000	-26.23%	2007	16,447	7.42%
2011	12,200	-19.79%	2006	15,311	2.89%

(In Thousands)



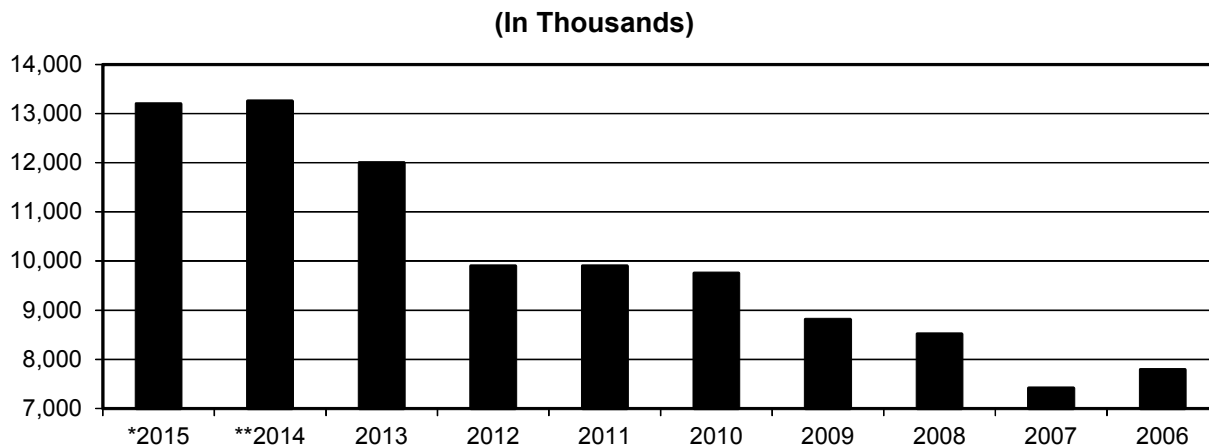
\* FY 2015 Adopted  
 \*\* FY 2014 Forecast

Property taxes that are not paid in the fiscal year in which they are assessed are recorded as delinquent tax receipts when they are paid in subsequent years. Between 95% to 97% of property taxes are paid in the year of assessment and approximately 40% to 50% of delinquent taxes are collected the first fiscal year they become delinquent. Delinquent payments carry an additional penalty and interest. The decline in delinquent property tax revenue for previous years reflects that the City has initiated a sale of its delinquent property taxes to an outside vendor.

Major Influences: Economy and Appraisals

**Court Costs/Fines**

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	13,200	-4.41%	2010	9,755	10.70%
2014	13,256	15.08%	2009	8,812	3.46%
2013	12,000	21.21%	2008	8,517	14.85%
2012	9,900	0.00%	2007	7,416	-4.76%
2011	9,900	1.49%	2006	7,787	-18.74%



- \* FY 2015 Adopted
- \* FY 2014 Forecast

The City Court Clerk collects all City Courts fines, including court costs, fine assessments, and forfeitures in lieu-of-court appearances. Remittances are made to the City monthly. Traffic violation fines and court costs are set by the City Council. A portion of the collections is earmarked to the City Board of Education for driver education sources. Fees require Ordinance change and Council approval, Section 11-24-25 Memphis Code.

Major Influences: Population (Demographics), Crime Rate and Enforcement

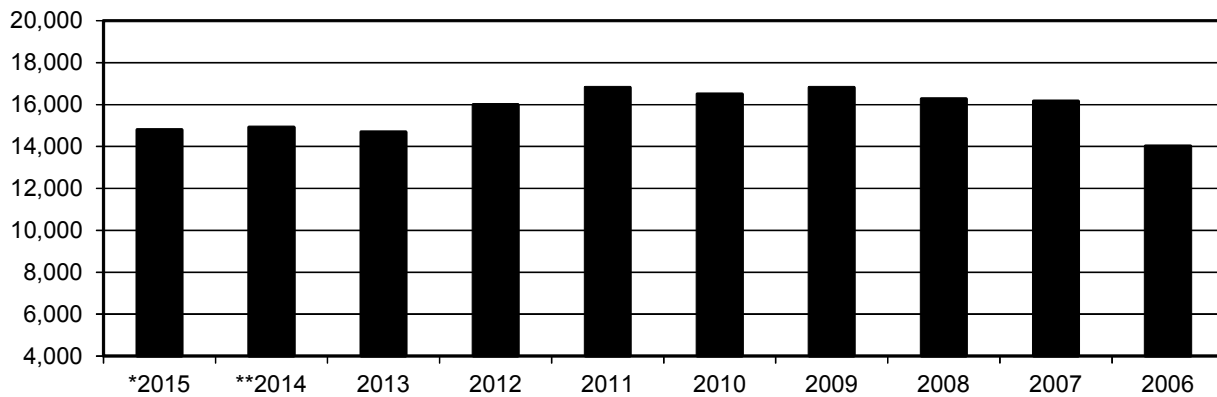
# GENERAL FUND

# GENERAL FUND REVENUES

## Municipal State Aid

Year	Amount	% Inc/Dec	Year	Amount	% Inc/Dec
2015	14,800	-1.08%	2010	16,500	-1.85%
2014	14,925	1.78%	2009	16,811	3.33%
2013	14,700	-8.13%	2008	16,270	0.66%
2012	16,000	-4.82%	2007	16,163	15.29%
2011	16,811	1.88%	2006	14,019	1.28%

(In Thousands)



\* FY 2015 Adopted

\*\* FY 2014 Forecast

Local share of state gasoline and other motor fuel taxes comprising the Gasoline Tax, the Diesel Tax, the Liquefied Gas Tax on vehicles, the Compressed Natural Gas Tax, and the Prepaid User Diesel Tax. Distribution is based upon population. Revenue is distributed monthly by the state. T.C.A. 67-3-202, T.C.A. 67-3-1309

Major Influences: Population and Gasoline Sales



