



**A Report to the
Audit Committee**

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**Audit of Office of Management and
Budget Revenue Forecasting**

January 22, 2016

Metropolitan
Nashville
Office of
Internal Audit

EXECUTIVE SUMMARY

January 22, 2016



Why We Did This Audit

The ability to forecast revenues accurately is a critical component in the annual budget process for the Metropolitan Nashville Government.

What We Recommend

Emerging trends and practices recommended by governmental professional associations should be considered such as:

- Establishing forecasting goals.
- Increasing the use of statistical analysis.
- Piloting multi-year revenue projections.
- Soliciting a broad perspective of expertise from internal and external participants.

For more information on this or any of our reports, email Mark.Swann@nashville.gov

AUDIT OF OFFICE OF MANAGEMENT AND BUDGET REVENUE FORECASTING

BACKGROUND

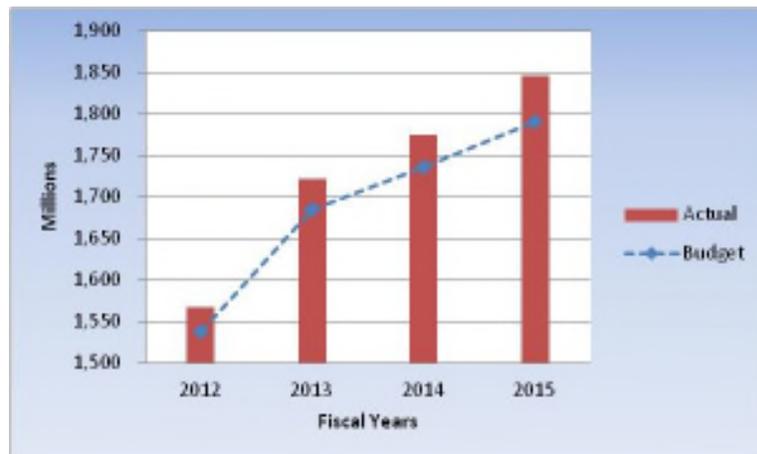
Revenue forecasting is the process whereby entities endeavor to ascertain the amount of revenue that will be available for various programs during a specific period in the future. There are many different revenue forecasting methodologies available with historical trend analysis being by far the most common observed in local government entities.

OBJECTIVES AND SCOPE

The audit scope includes May 1, 2013, through April 30, 2015. The objectives of the audit are to:

- Determine if revenue estimates are methodically and systematically established.
- Determine if sources of information used to project revenues are complete, accurate, and reasonable.
- Determine if revenue estimates are systematically reviewed for reasonableness.
- Determine if peer jurisdictions practices could enhance the forecasting process.

Exhibit 1 – Total Government Funds Revenue Budget versus Actual by Fiscal Year (Detail in Appendix C)



Source: Metropolitan Nashville Budget Ordinances and Comprehensive Annual Financial Reports as of June 30, 2015

WHAT WE FOUND

The Office of Management and Budget relies primarily on historical trend analysis along with professional judgment of employees embedded within departments to develop revenue forecast. A guiding principal is to forecast revenue conservatively to help ensure potential revenue shortfalls do not disrupt approved budgeted services.

GOVERNANCE

The operating budget is developed through the gathering of information that establishes objectives and priorities for the city, which creates a financial plan for the operations of the government for the fiscal year. Many of the government's financial affairs are set by the Metropolitan Nashville Charter and other laws, resolutions, and rules. The Mayor's Office, Finance Department, Office of Management and Budget, agency officials, and the Metropolitan Nashville Council are the major participants. Section 6.02, Preparation of Annual Operating Budget, of the Metropolitan Nashville Charter states:

"The Finance Director shall obtain from all officers, departments, boards, commissions and other agencies for which appropriations are made by the metropolitan government, or which collect revenues for such government, such information as shall be necessary for him to compile the annual operating budget; and it shall be the duty of all such officers, departments, boards, commissions and agencies to furnish the director such information as he may require at such time or times and in such form as the director may prescribe."

Anticipated revenues and available fund balances must equal the sum of budgeted expenditures for each fund. Both the Metropolitan Nashville Charter and Tennessee law prohibit deficit spending.

The Metropolitan Nashville Charter states that the Director of Finance is ultimately the party responsible for projecting revenue estimates.

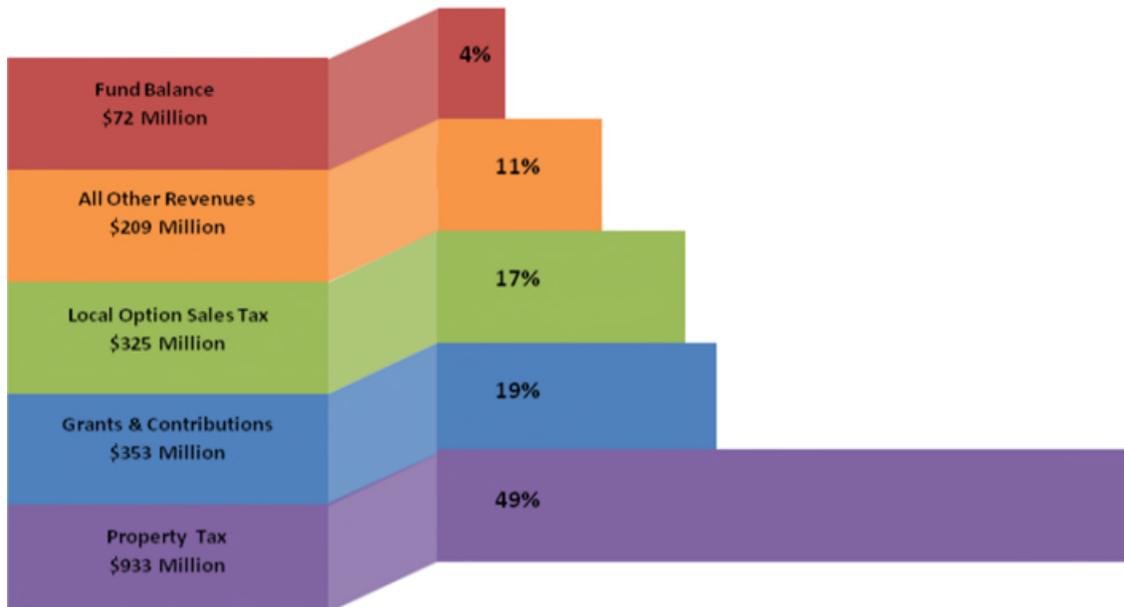
BACKGROUND

The budget process begins in January when Metropolitan Nashville Government entities begin to generate estimates of revenue and expenditures for the upcoming fiscal year. The various departments work with and submit estimates to the Department of Finance by mid-February. The Finance Director and her staff will review budgetary submissions, discuss budget issues and set priorities. Department heads will meet with the Mayor and Finance Director to discuss budget submissions and any concerns or major initiatives the individual departments may have. Based on the information presented, the Mayor and Finance Director will generate the Mayor's Recommended Operating Budget and present it to the Metropolitan Nashville Council by May 1.

The Metropolitan Council will then conduct public hearings with each department to discuss the budget. The recommended budget must pass three readings. The Metropolitan Nashville Charter establishes June 30 as the deadline for the Metropolitan Nashville Council to adopt a budget for the upcoming fiscal year.

Exhibit 2 on the next page shows the largest sources of revenue for the general government are property taxes, grants and contributions, and sales taxes of \$933 million, \$353 million, and \$325 million in fiscal year 2015 respectively.

Exhibit 2 - Fiscal Year 2015 \$1.9 Billion Budget Revenue Sources



Source: Metropolitan Nashville's Budget Book-Revenues: All Budgetary Funds
Appendix 1: Financial Schedule FY 2015

The size and complexity of estimating revenue sources vary significantly across the government. The Metropolitan Nashville Government does have methodical and systematic methods in place for projecting revenues. Those methods mostly consist of performing trend analysis using historical data, combined with professional judgment and expertise.

There are many different qualitative and quantitative methodologies for estimating revenues including trend analysis, consensus forecasting, regression analysis, and exponential smoothing. At the local jurisdiction level, the most common methodology used in revenue forecasting is historical trend analysis coupled with professional judgment. The methodology used to forecast sales tax or revenue from an enterprise fund may be very different from those used to forecast property taxes that are less elastic. Moreover, sophisticated models relying on volumes of data and statistical analysis may produce estimates that are no better than far more simplistic methodologies.

There have been efforts to provide guidance in this discipline. In February 2014, the Governmental Finance Officers Association published *GFOA Best Practice: Financial Forecasting in the Budget Preparation Process*. Additionally, in September 2014, the Center on Budget and Policy Priorities published *Improving State Revenue Forecasting: Best Practices for a more Trusted and Reliable Revenue Estimate*. These publications were written to provide a summary of the various methodologies, emerging trends, and current best practices. A summary of which may be viewed in Appendix B.

Exhibit 3 through Exhibit 8 describe the revenue forecasting process, methodology, and significant inputs along with actual outcomes for fiscal years 2012, 2013, and 2014 for property taxes, sales and use taxes, and other departmental revenue.

Exhibit 3 - Property Tax Projection Process

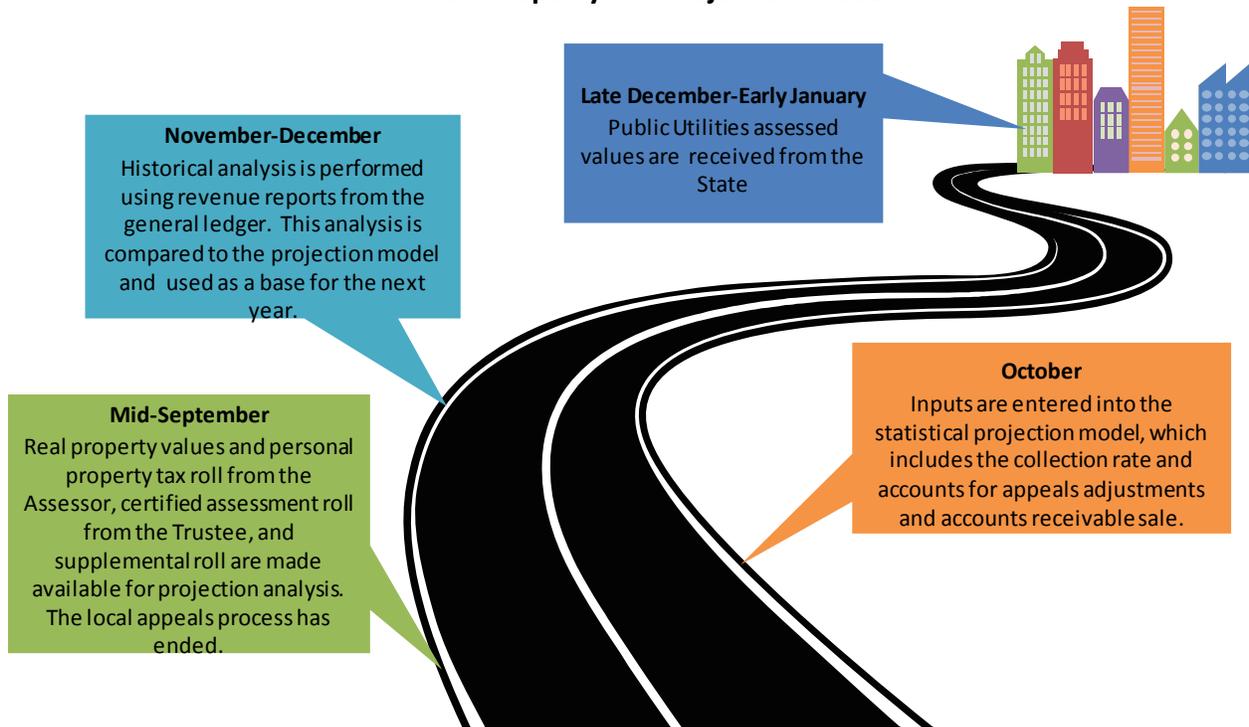
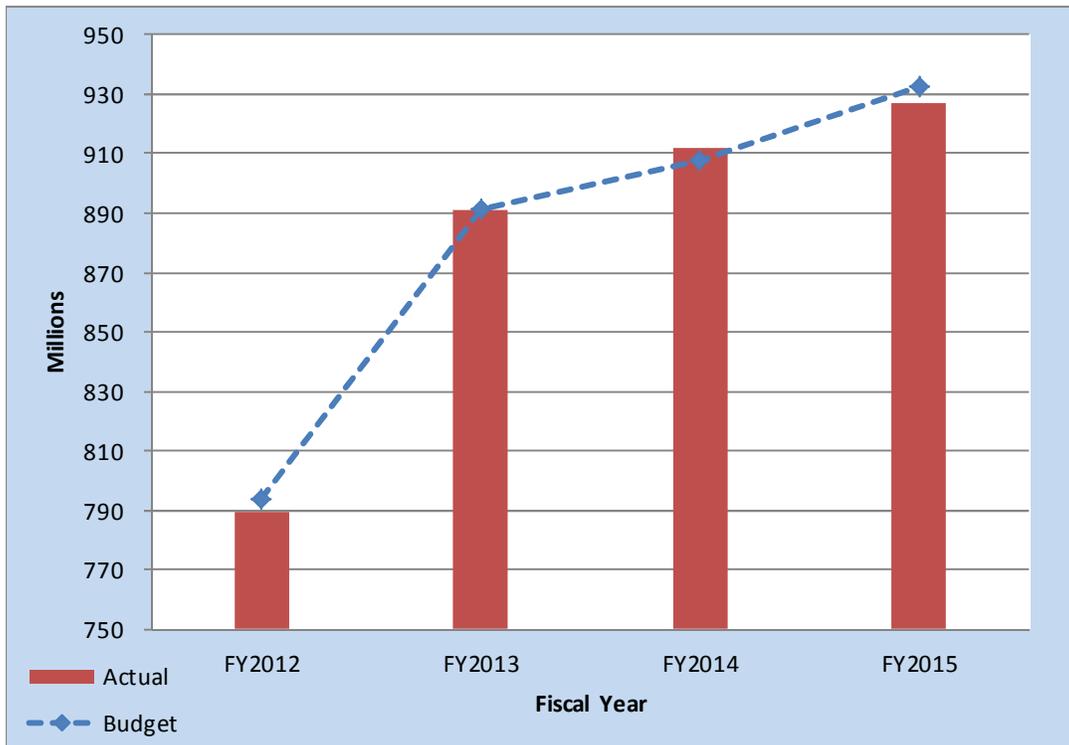


Exhibit 4 – Property Tax Budget versus Actual Fiscal Years 2012 to 2015 As of June 30, 2015



Source: Metropolitan Nashville Budget Ordinances and Comprehensive Annual Financial Reports

Exhibit 5 - Sales and Use Tax Projection Process

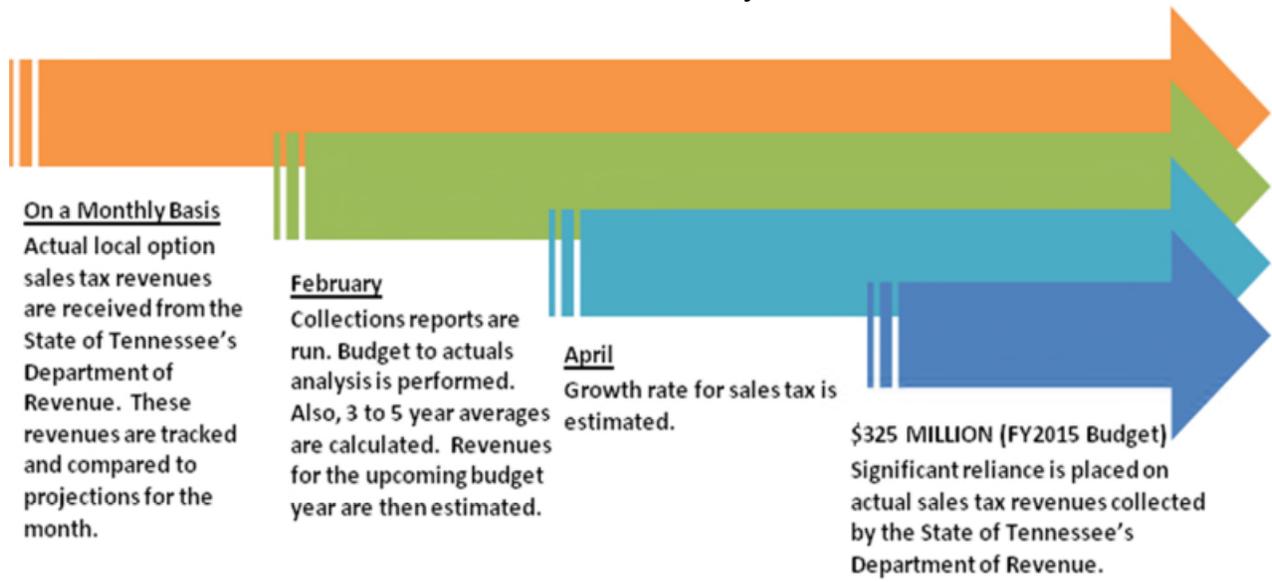
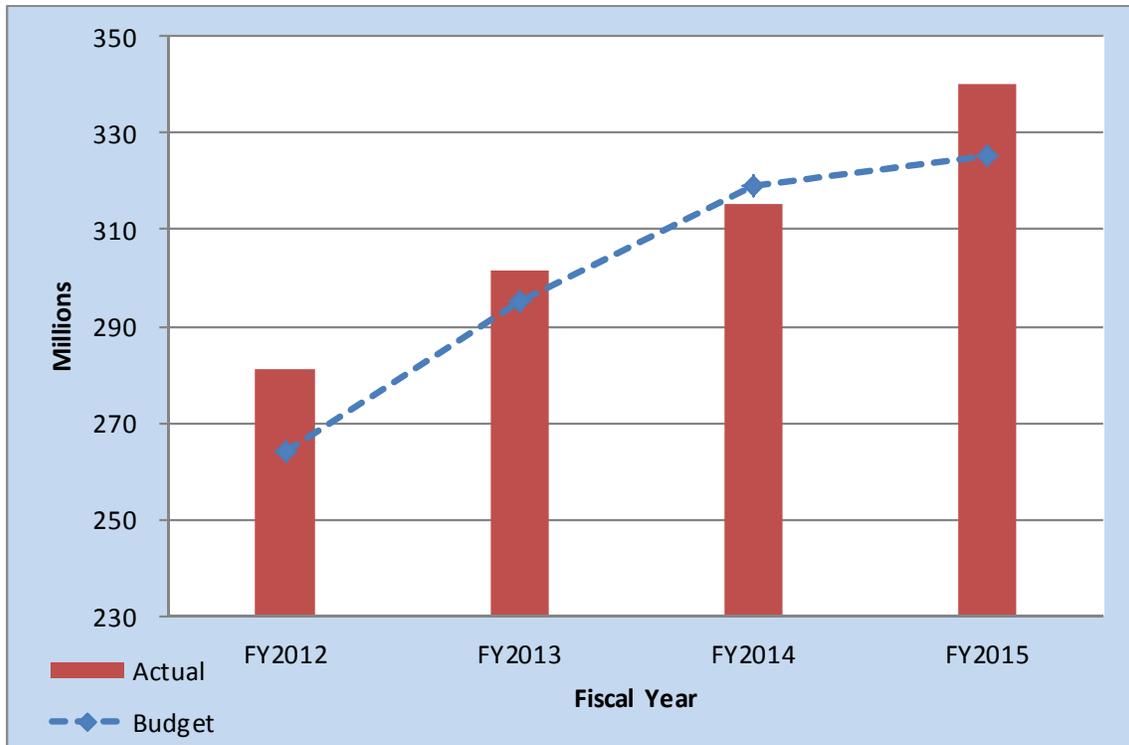


Exhibit 6 – Sales and Use Tax Budget versus Actual Fiscal Years 2012 to 2015 As of June 30, 2015



Source: Metropolitan Nashville Budget Ordinances and Comprehensive Annual Financial Reports

Exhibit 7 - Typical Department Revenue Forecasting Process

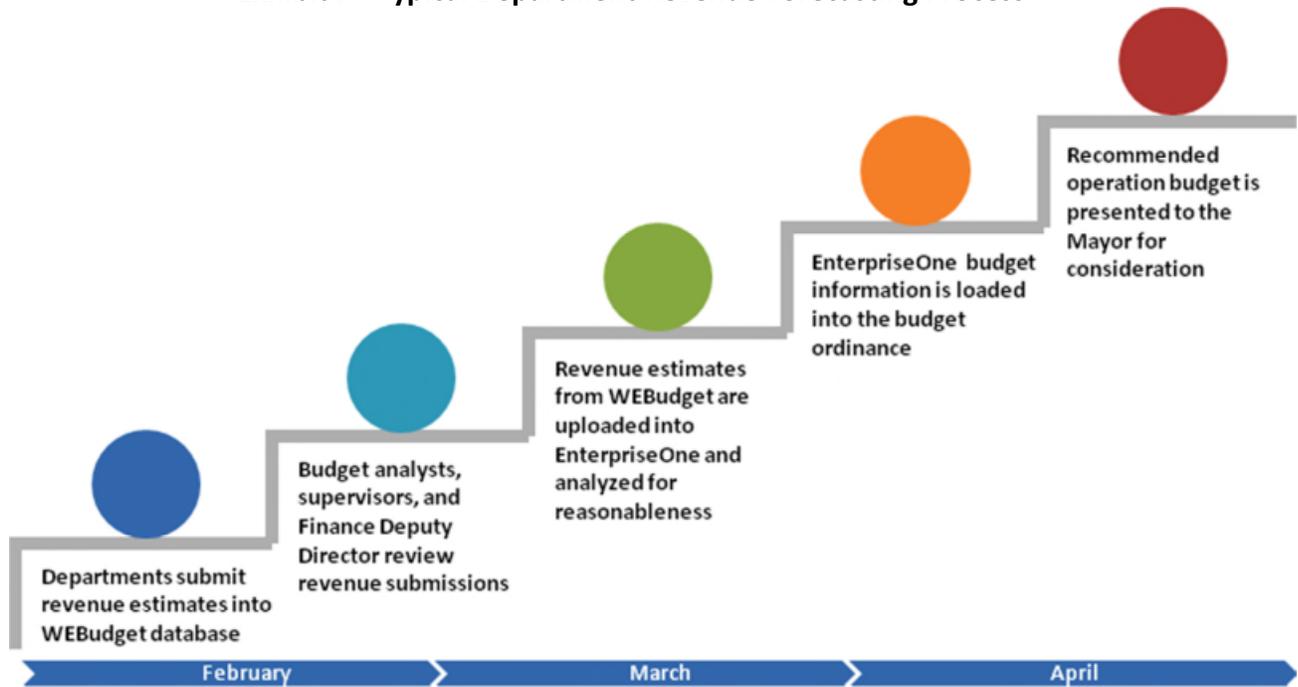
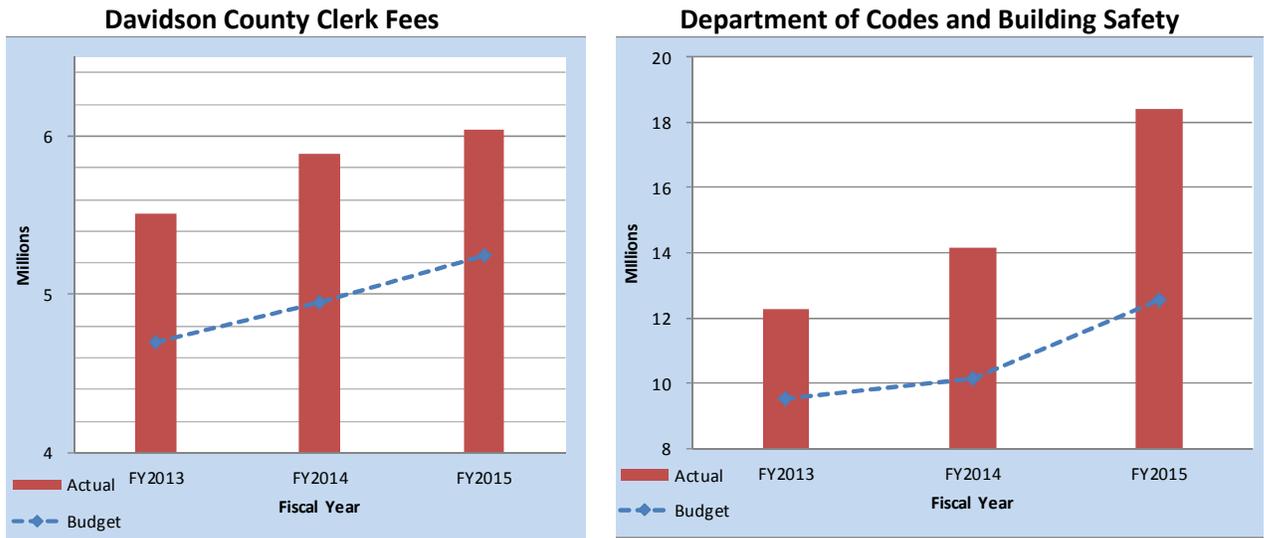


Exhibit 8 – Department Revenue Budget versus Actual Fiscal Years 2013 to 2015 As of June 30, 2015



Source: Metropolitan Nashville JD Edwards EnterpriseOne Financial System

OBJECTIVES AND CONCLUSIONS

1. *Are controls in place to facilitate proper management of revenue projections?*

Generally yes. The Office of Management of Budget has reasonable controls in place to effectively facilitate management of revenue projections in accordance with the Metropolitan Nashville Charter, resolutions, and policies. However, there are some improvements based on emerging trends that could be implemented that may enhance management review of revenue projections. (See Observation A.)

Supporting Objectives and Conclusions

a. *Are revenue projections methodically and systematically generated as determined by set criteria?*

Generally yes. Revenue forecasting methods are in line with what other jurisdictions are doing. However, there are emerging trends in the field of revenue forecasting, endorsed by government-related finance organizations, which could be utilized to possibly enhance the accuracy of the projections submitted. (See Observation A.)

b. *Are the inputs used to project revenues complete, accurate, and reasonable?*

Yes. The Office of Management and Budget, along with departments, boards, commissions, and agencies mostly rely on historical data from EnterpriseOne, Metropolitan Nashville Government's accounting management system, to project revenues for the annual budget. An annual external audit is conducted related to the financial transactions processed by EnterpriseOne. Some other systems impacting the tracking of revenue include:

- AssessorPro - Assessor of Property
- TaxMan (recently replaced with eGovernment) – Office of Trustee
- TN Clerk – Davidson County Clerk's Office
- Kiva (being replaced with CityWorks)– Codes Department
- Revenue Collector – Circuit Court Clerk Traffic Violation Bureau
- enQuesta – Metro Water Services

c. *Are revenue projections systematically reviewed for reasonableness and approved by management?*

Generally yes. Revenue projections submitted by departments, boards, commissions, and agencies are reviewed by the Office of Management and Budget and Finance Director before being submitted to the Mayor and Metropolitan Nashville Council for approval. However, some additional controls around the review of projections are needed. (See Observation A.)

d. *Is the revenue forecasting methodology used by the Metropolitan Nashville Government similar to other comparable jurisdictions?*

Yes. A peer review of six local government jurisdictions showed similar revenue forecasting techniques being used as the ones utilized by the Metropolitan Nashville Government.

AUDIT OBSERVATION

The Committee of Sponsoring Organizations of the Treadway Commission, Internal Control – Integrated Framework (COSO), Control Environment component recommends management and the board of directors establish mechanisms to communicate and hold individuals accountable for the performance of internal control responsibilities and implement corrective action as necessary. The audit observation listed is offered to assist management in fulfilling their internal control responsibilities.

Observation A – Emerging Trends

The management of the revenue forecasting process may be improved by considering the following emerging trends:

1. *Forecasting Goals* - Establish goals related to the accuracy of revenue forecasting to enhance the precision of projections. The establishment of specific forecasting goals; for example revenue projections should fall within plus or minus five percent of actual revenue realized, would encourage departments to hone their projection accuracy that in turn will enhance the quality of the revenue forecast.
2. *Increase the Use of Statistical Analysis* - An increase in the use of quantitative and qualitative statistical analysis methods, where applicable, could improve the accuracy and transparency of the revenue forecasting process and enhance professional judgment. Appendix B provides examples of statistical methods.
3. *Multi-Year Revenue Projections* - Multi-year projections for larger revenue streams such as property tax, sales tax, and so forth can be beneficial to decision makers. The multi-year budget allows management to assess future financial inflows and prepare better for any potential reduction or increase in inflows.
4. *Advisory Assistance* - Solicit a broad perspective of expertise from both internal and external participants, thereby leveraging the experience and knowledge base of other forecasters. Advisors could assist in the following matters:
 - Recommend guidelines and criteria for reviewing.
 - Monitor estimates and emerging trends or possible changes to the financial environment that could have a material effect on revenue forecasting.
 - Provide guidance on specific methodology, qualitative or quantitative that may help revenue forecasting.
 - Review the reasonableness of revenue estimates, assumptions, and inputs along with actual to budget results.

Criteria:

- COSO, Control Activities–Principle 10–The organization selects and develops control activities that contribute to the mitigation of risks to the achievement of objectives to acceptable levels.
- Governmental Finance Officers Association, *GFOA Best Practice Financial Forecasting in the Budget Preparation Process*
- The Center on Budget and Policy Priorities, *Improving State Revenue Forecasting: Best Practices for a more Trusted and Reliable Revenue Estimate.*

Recommendation for management of the Metropolitan Nashville Finance Department to enhance the revenue forecasting process by:

Reviewing the cited emerging trends and considering which ones offer the best possible improvement to the management of the revenue forecasting process.

GOVERNMENT AUDITING STANDARDS COMPLIANCE

We conducted this compliance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our observations and conclusions based on our audit objectives.

METHODOLOGY

To accomplish our audit objectives, we performed the following steps:

- Interviewed key personnel within the Office of Management and Budget, as well as other various Metro Nashville departments, boards, commissions and agencies.
- Reviewed and analyzed documentation for compliance with the Tennessee Code Annotated, Metropolitan Nashville Code of Laws, and other applicable laws, regulations, and policies.
- Evaluated internal controls currently in place.
- Considered risk of fraud, waste, and abuse.
- Considered information technology risks.

AUDIT TEAM

Kimberly Smith, In Charge Auditor

Bill Walker, CPA, CIA, Quality Assurance

Mark Swann, CPA, CIA, CISA, ACDA, Metropolitan Auditor



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

MEGAN BARRY
MAYOR

DIRECTOR OF FINANCE
METROPOLITAN COURTHOUSE
ONE PUBLIC SQUARE, SUITE 106
NASHVILLE, TENNESSEE 37201
(615) 862-6151
(615) 862-6156 FAX

Mr. Mark Swann
Metropolitan Auditor
Office of Internal Audit
404 James Robertson Parkway
Nashville, TN 37219

Re: Audit of Office of Management and Budget Revenue Forecasting

Dear Mr. Swann:

This letter acknowledges the Finance Department's receipt of the above referenced report. We have reviewed your observations of emerging trends and practices as recommended by various professional associations, and agree that these should be evaluated and considered for inclusion in our revenue forecasting process.

We will consider each of the identified trends as we prepare revenue forecasts over the next three budget preparation cycles and assess if the methods recommended contribute to the improvement of the accuracy of Metro revenue projections. We intend to be able to provide information to Internal Audit on the practices considered. Additionally, we will formally update our forecasting process, when in Metro's best interest, during the three-year review period.

We appreciate the methodology used in reviewing our revenue forecasting process, particularly the cooperative effort in developing the final report, and considering our input and concerns during the entire process.

Sincerely,

A handwritten signature in cursive script, appearing to read "Talia Lomax-O'dneal".

Talia Lomax-O'dneal

APPENDIX A – MANAGEMENT RESPONSE AND CORRECTIVE ACTION PLAN

We believe that operational management is in a unique position to best understand their operations and may be able to identify more innovative and effective approaches, and we encourage them to do so when providing their response to our recommendations.

Recommendation	Concurrence and Corrective Action Plan	Proposed Completion Date
<i>Recommendation for management of the Metropolitan Nashville Finance Department to enhance the revenue forecasting process by:</i>		
<p>A. Reviewing the cited emerging trends and considering which ones offer the best possible improvement to the management of the revenue forecasting process.</p>	<p>Agree. We will consider each of the identified trends as we prepare revenue forecasts over the next three budget preparation cycles and assess if the methods recommended contribute to the improvement of the accuracy of Metro revenue projections.</p>	<p>We will formally update our forecasting process, when in Metro’s best interest, during the three-year review period ending 6/30/2018</p>

APPENDIX B – REVENUE FORECASTING QUALITATIVE AND QUANTITATIVE METHODS

Qualitative Methods	
The analysis assumes that a forecaster that has expertise in projecting revenues can best estimate future revenues by using historical information, in addition to knowledge about how certain changes in the environment, will affect revenue.	
Naive forecasting	Involves projecting revenue based on the most recent period; this method is simple to use, as well as inexpensive. This is the method that is most often used by the Metropolitan Nashville Government, as well as other comparable local governments.
Expert forecasting	Produces revenue projections based on the informed opinion of experts who have knowledge about the environment and how various factors may affect certain revenue sources.
Consensus forecasting (Steering Committee)	A group of individuals reaches an agreement collectively based on previous patterns, experience, and knowledge of historical events; all members of the group have equal standing, so no one individual dominates the process and biases the forecast.
Quantitative Methods	
Historical data is used to project future revenues and create accurate forecasts to the extent that the historical data trends continue into future years.	
Trend Analysis	Determines a growth pattern based on the historical trend; the rate of change from year to year is applied to the previous year's actual revenue to arrive at the future year's revenue projection.
Regression Analysis	Uses relationship between independent and dependent variables to predict future revenues; ideal as long as the relationship between the variables is consistent at various levels.
Time Series Analysis	Revenue projection is based on historical data collected at specific time intervals, such as quarters, months, years, etc., in hopes of discovering a pattern or trend in the data.
Econometric Analysis	Like regression analysis uses relationships between independent and dependent variable to project revenues, except that economic factors that impact a particular revenue source are used to project revenues.
Exponential Smoothing	Applies weight to the most recent data when using actual and budgeted revenues from the previous year to project revenues.

APPENDIX C – REVENUE FORECASTING BUDGET VERSUS ACTUAL FOR FISCAL YEARS 2012, 2013, 2014, AND 2015

	Variance From Budget				Variance From Budget			
	FY14 Budget	FY 14 Actual	\$ Amt Over/(Under)	% Over/-Under	FY15 Budget	FY15 Actual	\$ Amt Over/(Under)	% Over/-Under
Property Taxes	907,949,000	912,177,106	4,228,106	0%	932,820,800	926,748,306	(6,072,494)	-1%
Local Option Sales Tax	319,134,000	315,478,743	(3,655,257)	-1%	325,324,600	340,076,515	14,751,915	5%
Other Taxes, Licenses & Permits	110,896,200	128,381,133	17,484,933	16%	119,554,300	141,505,638	21,951,338	18%
Fines, Forfeits & Penalties	11,533,200	13,316,270	1,783,070	15%	11,662,300	12,186,876	524,576	4%
Revenues from Use of Money or Property	-	804,439	804,439	na	-	1,060,396	1,060,396	na
Other Governm't Agencies	336,687,000	351,071,768	14,384,768	4%	350,920,600	363,107,815	12,187,215	3%
Commissions & fees	12,949,500	14,790,053	1,840,553	14%	13,948,000	13,627,359	(320,641)	-2%
Charges for Service	33,672,800	32,436,270	(1,236,530)	-4%	32,814,800	33,784,160	969,360	3%
Compensation from Property	1,615,100	3,232,910	1,617,810	100%	2,411,500	11,213,136	8,801,636	365%
Contributions & gifts	655,300	1,617,045	961,745	147%	574,800	951,798	376,998	66%
Miscellaneous	1,584,000	1,722,474	138,474	9%	1,609,000	1,946,992	337,992	21%
Total Fund Revenues	1,736,676,100	1,775,028,211	38,352,111	2%	1,791,640,700	1,846,208,991	54,568,291	3%

	Variance From Budget				Variance From Budget			
	FY12 Budget	FY 12 Actual	\$ Amt Over/(Under)	% Over/-Under	FY13 Budget	FY 13 Actual	\$ Amt Over/(Under)	% Over/-Under
Property Taxes	793,717,900	789,208,816	(4,509,084)	-1%	891,567,000	890,788,056	(778,944)	0%
Local Option Sales Tax	264,196,600	281,294,521	17,097,921	6%	294,945,800	301,430,612	6,484,812	2%
Other Taxes, Licenses & Permits	109,014,700	113,669,403	4,654,703	4%	109,967,900	121,987,529	12,019,629	11%
Fines, Forfeits & Penalties	12,977,700	12,997,327	19,627	0%	11,945,500	13,173,645	1,228,145	10%
Revenues from Use of Money or Property	-	219,740	219,740	na	-	411,570	411,570	na
Other Governm't Agencies	314,291,700	321,447,903	7,156,203	2%	328,485,500	341,786,549	13,301,049	4%
Commissions & fees	13,515,400	15,355,507	1,840,107	14%	14,049,500	15,590,951	1,541,451	11%
Charges for Service	27,884,400	27,655,209	(229,191)	-1%	30,312,100	30,007,776	(304,324)	-1%
Compensation from Property	883,900	2,319,075	1,435,175	162%	2,190,100	3,288,851	1,098,751	50%
Contributions & gifts	713,300	1,199,102	485,802	68%	703,600	1,556,751	853,151	121%
Miscellaneous	1,572,000	1,818,763	246,763	16%	1,584,000	1,611,729	27,729	2%
Total Fund Revenues	1,538,767,600	1,567,185,368	28,417,768	2%	1,685,751,000	1,721,634,019	35,883,019	2%