

STATE OF WEST VIRGINIA

**FULL PERFORMANCE EVALUATION OF THE
DEPARTMENT OF TAX AND REVENUE**

**The Department of Tax and Revenue
Provides Reasonably Accurate
Forecasts of the General Revenue Fund**

**OFFICE OF LEGISLATIVE AUDITOR
Performance Evaluation and Research Division
Building 1, Room W-314
State Capitol Complex**

**CHARLESTON, WEST VIRGINIA 25305
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November 2000

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November 2000

WEST VIRGINIA LEGISLATURE
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Antonio E. Jones, Ph.D.
Director

November 12, 2000

The Honorable Edwin J. Bowman
State Senate
129 West Circle Drive
Weirton, West Virginia 26062

The Honorable Vicki V. Douglas
House of Delegates
Building 1, Room E-213
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305-0470

Dear Chairs:

Pursuant to the West Virginia Sunset Law, we are transmitting a Full Performance Evaluation of the *Department of Tax and Revenue*, which will be presented to the Joint Committee on Government Operations on Sunday, November 12, 2000. The issue covered herein is "*The Department of Tax and Revenue Provides Reasonably Accurate Forecasts of the General Revenue Fund.*"

Let me know if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "John Sylvia".

John Sylvia
Director

JS/wsc

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Executive Summary

Issue Area 1: The Department of Tax and Revenue Provides Reasonably Accurate Forecasts of the General Revenue Fund.

The Research Division within the Department of Tax and Revenue has provided the *official* General Revenue estimates since 1990. The General Revenue forecast is performed seven months in advance of the upcoming fiscal year. The General Revenue fund consists primarily of major tax revenue of the State such as Consumer Sales Tax, Personal Income Tax, Corporate Net Income Tax, B & O Tax, Business Franchise Tax, Insurance Tax and Severance Tax. These taxes represent approximately 95% of the General Revenue Fund, while the other 5% is a combination of lesser taxes, fees, and transfer payments.

The Research Division’s goal is to provide General Revenue estimates within roughly 1% of actual collections, in which the Division has been reasonably close to achieving since FY 1990. Another goal of the Research Division is to provide estimates that will be met or slightly exceeded by actual collections. As Table 1 illustrates, the Division has achieved this secondary goal in nine of the last eleven years.

Table 1				
General Revenue Fund Forecast				
Fiscal Year	Original Estimates	Actual Collections	Difference	Percent Error
FY 2000	\$2,664,159,000	\$2,638,495,566	\$(25,663,434)	-1.0%
FY 1999	\$2,587,400,000	\$2,617,867,778	\$30,467,778	1.2%
FY 1998	\$2,450,000,000	\$2,503,343,024	\$53,343,024	2.2%
FY 1997	\$2,354,730,000	\$2,424,772,739	\$70,042,739	3.0%
FY 1996	\$2,283,300,000	\$2,333,678,630	\$50,378,630	2.2%
FY 1995	\$2,215,100,000	\$2,308,673,931	\$93,573,931	4.2%
FY 1994	\$2,106,500,000	\$2,118,335,379	\$11,835,379	0.6%
FY 1993	\$2,051,845,000	\$2,042,688,492	(\$9,156,508)	-0.4%
FY 1992	\$1,914,900,000	\$1,926,510,843	\$11,610,843	0.6%
FY 1991	\$1,836,100,000	\$1,877,340,250	\$41,240,250	2.2%
FY 1990	\$1,723,400,000	\$1,746,111,319	\$22,711,319	1.3%
11 Year Total	\$24,187,434,000	\$24,537,817,951	\$420,023,835	1.7%

Source: Department of Tax & Revenue, Research Division. The total difference is the sum of the absolute values.

West Virginia also compares favorably with other states in achieving reasonably accurate forecasts. In a survey of 15 states conducted by Arkansas’ Bureau of Legislative Research, West Virginia was ranked sixth (one being best) in forecasting error of general revenues. The survey was also conducted in FY 1997 and FY1996, in which West Virginia ranked fifth and eighth respectively.

Although General Revenue funds are forecasted with reasonable accuracy, certain components of the General Revenue fund are difficult to forecast. These components consist mainly of business taxes, such as the Corporate Net Income Tax, Severance Tax, and the B & O Tax. These components can significantly influence the forecasting error, mainly due to their high volatility and the little economic trend pattern that they follow. As the table below illustrates, the Corporate Net Income Tax has been significantly over-forecasted in eight of the last eleven years. The Division needs to improve its understanding of business taxes through greater collection of current tax information in order to reduce the risk of significantly under-forecasting general revenues.

**Table 3
Corporate Net Income Tax Forecast**

Fiscal Year	Original Estimates	Actual Collections	Difference	Percent Error
FY 2000	\$153,000,000	\$117,005,073	(35,994,927)	-23.5%
FY 1999	\$170,000,000	\$167,694,828	(\$2,305,172)	-1.4%
FY 1998	\$153,100,000	\$140,105,619	(\$12,994,381)	-8.5%
FY 1997	\$148,500,000	\$160,649,491	\$12,149,491	8.2%
FY 1996	\$130,950,000	\$156,258,039	\$25,308,039	19.3%
FY 1995	\$127,000,000	\$145,362,694	\$18,362,694	14.5%
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FY 1991	\$143,000,000	\$115,397,503	(\$27,602,497)	-19.3%
FY 1990	\$152,000,000	\$148,129,304	(\$3,870,696)	-2.5%
11 Year Total	\$1,559,250,000	\$1,479,545,277	\$191,345,171	12.3%

Source: Department of Tax & Revenue, Research Division. The total difference is the sum of the absolute values.

Review Objective, Scope, and Methodology

The Research Division is a subdivision within the Tax Division. The Research Division is responsible for providing fiscal policy and revenue estimates to the governor, Department of Administration, legislature and individuals.

Objective

The objective of this review is to examine the process and accuracy in which the General Revenue fund and its sub-components are forecasted.

Scope

The scope focuses on General Revenue forecasts since Fiscal Year 1990 when the Division's forecasts became the State's official forecast. Primary concern was on the accuracy of General Revenue forecasts. Secondary concern was on certain components, such as business taxes, of the General Revenue fund which can affect the accuracy of General Revenue forecasts.

Methodology

The Research Division provided the Legislative Auditor's Office with a 22 year history of the General Revenue fund forecast and its sub-components. These components included the Consumers Sales Tax, Personal Income Tax, Corporate Net Income Tax, B & O Tax, Franchise Tax, Severance Tax, and Other Revenues. The forecasted data contained estimated revenues, actual collections, difference of actual collections from forecasted revenues, and percent over/under actual collections from estimated forecasts for the 22 year history. General Revenue forecasts were compared with other state's General Revenue forecasts to determine how West Virginia compared with other states. Also, the Research Division's performance goals were used to determine the effectiveness of the General Revenue forecasts. Sub-components of the General Revenue forecast were evaluated to analyze the affect these components have on the overall accuracy of the General Revenue forecast. An evaluation of the regression models was made to determine the strength of these models in forecasting the Personal Income tax and the Consumer Sales tax. Every aspect of this review complied with **Generally Accepted Government Auditing Standards**.

Issue Area 1: The Department of Tax and Revenue Provides Reasonably Accurate Forecasts of the General Revenue Fund.

The Research Division within the Department of Tax and Revenue performs forecasts of the State’s General Revenue fund seven months in advance of the upcoming fiscal year. Since fiscal year 1990, the Division’s estimates have generally been accepted as the official General Revenue fund forecast. In addition to the preparation of the final General Revenue forecast in November of each year, the Research Division provides the Governor’s Office with monthly reports of net collections and a quarterly economic overview.

The General Revenue fund consists primarily of major tax revenue of the State such as Consumer Sales Tax, Personal Income Tax, Corporate Net Income Tax, B & O Tax, Business Franchise Tax, Insurance Tax and Severance Tax. These taxes represent approximately 95% of the General Revenue Fund, while the other 5% is a combination of lesser taxes, fees, and transfer payments. The General Revenue Fund represents approximately 40% of the State’s total budget.

The Research Division’s goal is to provide General Revenue estimates within roughly 1% of actual collections. A secondary objective is to utilize a conservative economic forecast scenario to produce estimates that are ultimately equal to or less than actual collections. The Division would prefer to err on the side of under-forecasting actual revenues rather than over-forecasting. A small year-end surplus is preferable to a year-end deficit for the Legislature.

Since FY 1990 when the Division’s estimates represented the State’s official forecast, **the Division has been reasonably close to achieving its 1% goal on average.** Table 1 illustrates that on average, the absolute value of the difference between actual collections and estimated revenue has been 1.7% of the forecasted amount.

Table 1: General Revenue Fund Forecast

Fiscal Year	Original Estimates	Actual Collections	Difference	Percent Error
FY 2000	\$2,664,159,000	\$2,638,495,566	\$(25,663,434)	-1.0%
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11 Year Total	\$24,187,434,000	\$24,537,817,951	\$420,023,835	1.7%

Source: Department of Tax & Revenue, Research Division. The total difference is the sum of the absolute values.

For individual years, the forecast error over or under actual revenues has ranged from -1% to 4.2%. Table 1 also illustrates that the Division has met its goal of erring on the side of under-forecasting actual collections in all but two of the eleven years (FY1993 and FY2000). Nonetheless, these two years were no more than 1% off actual collections which is in the boundaries of the goal of the Research Division.

West Virginia Compares Favorably with Other State Forecasts

In a survey report conducted by Arkansas' Bureau of Legislative Research in 1999 on the comparisons of revenues and estimates, West Virginia was ranked sixth (one being best) out of fifteen states surveyed in forecasting error of general revenues in FY1998 (See Figure 1). The survey was also conducted in other years.

Figure 1

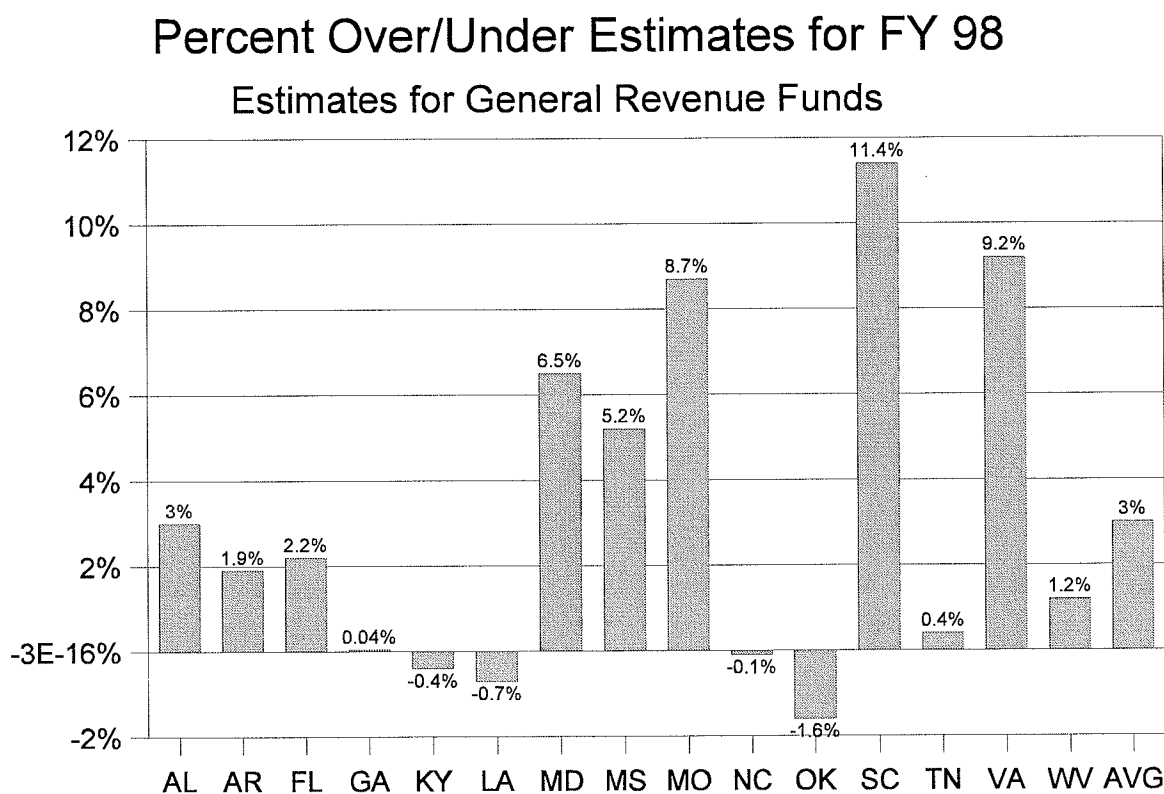


Table 2 shows that West Virginia has compared well each year of the survey.

Table 2:

Fiscal Year	Rank (Among 16 States)	Percent Over (-)/Under (+) Actual
1998	6 th *	1.2%
1997	5 th	3.0%
1996	8 th	2.2%

*FY 1998 rank is 6th among 15 states.

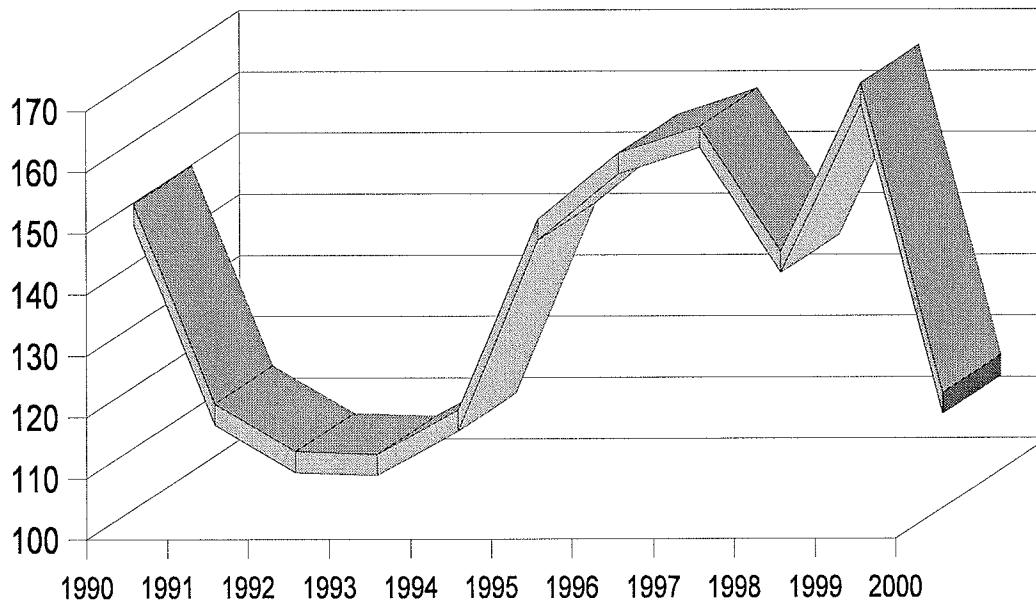
Subcomponents of General Revenue are Difficult to Estimate

Despite the success of producing reasonably accurate forecasts of the general revenue fund, certain components of General Revenue are difficult to forecast. These components consist mainly of business taxes, which can significantly contribute to the forecasting error of the General Revenue fund. The problem with estimating some business taxes is that they exhibit little trend patterns, they can be highly volatile, and they can be influenced by specific events related to only a few (usually large) taxpayers. This can be seen in the Corporate Net Income Tax illustrated in Figure 2.

Figure 2

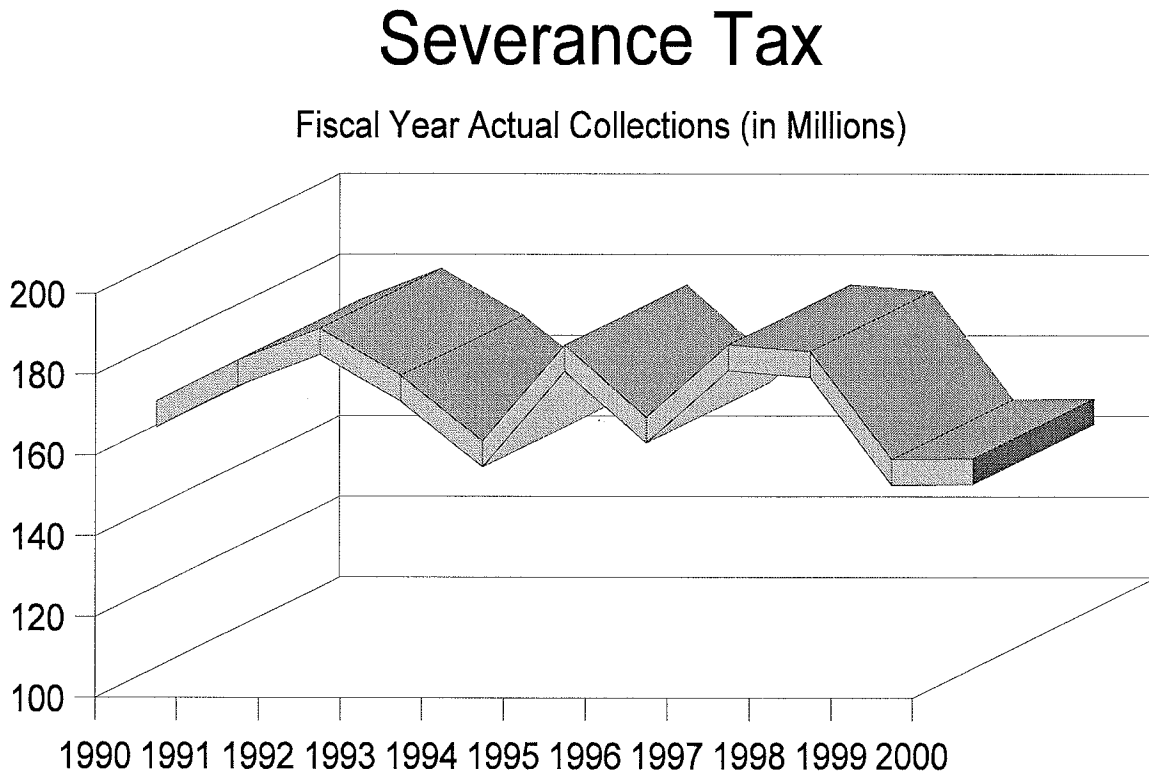
Corporate Net Income Tax

Fiscal Year Actual Collections (in Millions)



The Severance tax is also volatile and follows no discernable trend. This can be seen in Figure 3.

Figure 3



Revenue Forecasting Process

The Research Division uses simple regression equations, time series analysis and tax return databases as tools for forecasting revenues. Regression analysis are used to forecast revenues for the two largest taxes, the Personal Income Tax and Consumer Sales Tax. These are the only two taxes that use regression analysis. This is a statistical approach in which economic variables that correlate with the tax revenues are used to predict changes in the Sales tax and Personal Income tax. The variables used in the regression analysis for the Personal Income Tax and Consumer Sales Tax are the wages and salaries component of total state personal income, and the inflation rate (Consumer Price Index). These two variables provide relatively strong explanatory power with respect to variations in the two respective taxes. Time series (or trend) analysis is often used to forecast excise and license taxes within the general revenue fund. This is an approach in which actual collections are arranged in a sequence of time periods to observe the pattern of change over time. This pattern may provide insight into the direction and magnitude of next year's collections.

In addition to statistical approaches, the Division incorporates forecasts and trend data on various State and National economic variables in order to have a sense of the direction the State and National economies are heading. The national economic forecast is provided through a contract with Standard & Poor's DRI. A scaled-down regional economic service is also obtained from Standard and Poor, a State economic forecast is provided by West Virginia University, and an economic forecast from the Federal Energy Information Administration is used.

As mentioned previously, a primary weakness in the Division's ability to provide reasonably accurate revenue projections is its forecast of some business taxes. The Corporate Net Income tax and the Business and Occupation tax rely on tax return data, past experience, and any unique factors the Division becomes aware of associated with the largest taxpayers. The Division also uses Standard and Poor's forecast on national corporate profits to forecast the Corporate Net Income tax. The Research Division indicated that because of the complexity of the corporate tax return, the volume of information in these returns, and the limitations of the business tax computer system, the Tax Department does not compile a large amount of reliable statistics from corporate returns during the normal process of receiving them. Consequently, the Research Division must compile a database of corporate return statistics from a sample of returns. However, the Division indicated that resource limitations allow this sample to be compiled once every three years. Generally, the tax year that is compiled in the sample is two years prior to the year it was compiled. This means that the tax return database can be outdated during the three years it is used in the forecast.

Table 3 illustrates that the forecast error for the Corporate Net Income tax is over 12% for the 1990-2000 period. Furthermore, **in eight of the last eleven years the Division has significantly over-forecasted actual collections.** Fortunately, in some years these errors are offset by other taxes. Nevertheless, the error rate of the Corporate Net Income tax can significantly contribute to the overall error rate of the General Revenue fund. The Division needs to improve its understanding of business taxes through greater collection of current corporate return data.

Table 3
Corporate Net Income Tax Forecast

Fiscal Year	Original Estimates	Actual Collections	Difference	Percent Error
FY 2000	\$153,000,000	\$117,005,073	(35,994,927)	-23.5%
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11 Year Total	\$1,559,250,000	\$1,479,545,277	\$191,345,171	12.3%

Source: Department of Tax & Revenue, Research Division. The total difference is the sum of the absolute values.

Conclusion

The Research Division within the Department of Tax and Revenue is to be commended for providing the Legislature with reasonably accurate forecasts of the General Revenue fund. The Division has also been successful in erring on the side of projecting less than actual collections to avoid a deficit position.

A primary weakness of the forecast process is the forecast of business taxes. The error rates of the Corporate Net Income tax, the Severance tax and the Business and Occupation tax can be relatively high and contribute significantly to the overall error rate of the General Revenue forecast. The Corporate Net Income tax appears to present the greatest amount of difficulty in that in eight of the last eleven years the Division has over-forecasted actual revenues.

The Division is hindered in forecasting the Corporate Net Income tax because of limited tax return data which are important in forecasting this tax. Because of the complexity of the corporate tax return, the volume of information, and the limitations of the business tax computer system, the Tax Department does not compile a large amount of reliable statistics from corporate returns. Consequently, the Research Division compiles a database of corporate return statistics from a sample of returns. However, the Division indicates that resource limitations allow it to compile this database every three years. Since the tax year of the sample is two years earlier, and the sample is compiled every three years, the sample statistics can become outdated for forecasting purposes.

A continuation of relatively high error rates and over-forecasts of the Corporate Net Income tax and other business taxes runs the risk of experiencing a large over-forecast of the General Revenue fund. For example, for the forecast of fiscal year 2000, the Division over-forecasted

General Revenue by more than \$25 million. Table 4 indicates that three taxes, Personal income, Sales, and the Business Franchise tax were under-forecasted by over \$35 million. While the Corporate Net Income tax, the B&O tax, the Severance tax and other revenues were over forecasted by more than \$61 million. The corporate tax by itself completely offset the under-forecast of the other three taxes. As the table indicates, the Corporate and Severance taxes were the major contributors of the over-forecast of General Revenues.

Table 4			
Under and Over Forecast of FY 2000 General Revenues			
Tax	Total Under-forecast	Tax	Total Over-forecast
Consumer Sales Tax	\$1,996,851	Corporate Net	-35,994,927
Personal Income Tax	\$25,520,755	B&O Tax	-9,705,112
Business Franchise Tax	\$8,288,394	Severance Tax	-12,825,866
		Other Revenue	-2,943,529
Totals	\$35,806,000		-61,469,434

The consequences of large over-forecasts are significant for the Legislature. To reduce this risk, the Tax Department should give consideration in developing a system in which important reliable statistics from the corporate tax return are compiled during the processing of these returns. In lieu of a computer system, the Department may want to consider contracting for services to compile two separate samples each year, one for the most recent and complete tax year, and the other for the tax year currently being processed. It is understood that in the tax year being processed, many large corporations receive extensions to file their tax return after the due date. This may prevent many large corporations from being included in the sample of the tax year being processed. However, the Research Division may find current return information for the tax year being processed to be helpful, regardless of the size of the corporations that have filed. In any case, provisions to obtain current corporate tax return data could help the Research Division avoid significant over-forecasts of the General Revenue fund.

Recommendation: 1

The Tax Department should consider developing a method in which current corporate tax return data can be available to the Research Division for its forecast of the General Revenue Fund. Consideration should be given to a computer system that can compile important corporate tax return statistics as returns are being processed, or contracting for services to compile an annual sample of tax returns of the tax year being processed and/or of the most recent completed tax year.

APPENDIX A

Transmittal Letter to Agency

WEST VIRGINIA LEGISLATURE
Performance Evaluation and Research Division

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Antonio E. Jones, Ph.D.
Director

October 27, 2000

Ron Stone, Deputy Tax Commissioner
State Capitol Complex
Building 1, Room W-300
1900 Kanawha Blvd., East
Charleston, WV 25305-0842

Dear Mr. Stone:

Attached is a copy of the report on the Forecasting Process within the Research Division. We anticipate having this report for the November interim which will be held on November 12, 2000. We would need to receive your written response to the report by Friday, November 3, 2000 in order to have it included with the report. I would like to tentatively schedule an exit conference for Wednesday, November 1 to discuss any concerns about the report you may have. Please contact me if you feel there will be a need for an exit conference, and if so what would be a convenient time.

Sincerely,

A handwritten signature in cursive script that reads "John Sylvia".

John Sylvia
Research Manager

_____ *Joint Committee on Government and Finance* _____

