

T50T01
TEDCO – Maryland Technology Development Corporation

Operating Budget Data

(\$ in Thousands)

	<u>FY 15</u>	<u>FY 16</u>	<u>FY 17</u>	<u>FY 16-17</u>	<u>% Change</u>
	<u>Actual</u>	<u>Working</u>	<u>Allowance</u>	<u>Change</u>	<u>Prior Year</u>
General Fund	\$18,692	\$19,667	\$19,467	-\$200	-1.0%
Adjusted General Fund	\$18,692	\$19,667	\$19,467	-\$200	-1.0%
Special Fund	0	16,387	7,345	-9,043	-55.2%
Adjusted Special Fund	\$0	\$16,387	\$7,345	-\$9,043	-55.2%
Adjusted Grand Total	\$18,692	\$36,055	\$26,812	-\$9,243	-25.6%

- The fiscal 2017 allowance for the Maryland Technology Development Corporation (TEDCO) includes general funds of approximately \$19.5 million, a small decrease of \$200,000. There were small reductions to several of the corporation's programs for cost containment purposes.
- Special funds were added to the corporation's budget in fiscal 2016 due to the transfer of the Maryland Venture Fund (MVF) from the Department of Commerce (Commerce). The fiscal 2017 allowance reflects a significant decline in available funds under the MVF.
- The corporation does not report personnel data through the State budget system because its employees are not State employees. However, the corporation reports that it has 21 full-time positions and 6 part-time positions. This includes 6 positions that were added in fiscal 2016 due to the transfer of additional responsibilities to the corporation.

Note: Numbers may not sum to total due to rounding.

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Analysis in Brief

Major Trends

Significant Increase in Follow-on Funding: A measure of success of the corporation's Technology Commercialization Fund is the extent to which recipients can ensure follow-on funding. In fiscal 2015, there was a significant increase in the amount of downstream funding secured by recipients.

Progress under the Maryland Innovation Initiative: The Maryland Innovation Initiative, created by Chapter 450 of 2012, is designed to combine the technology transfer expertise of TEDCO and the research expertise of the State's research universities to speed commercialization opportunities. The corporation tracks the number of start-up companies that are formed as a result of the program's funded projects.

Issues

Expanded Responsibilities and the Maryland Economic Development and Business Climate Commission: Chapter 141 of 2015 codified several actions that were recommended by the Maryland Economic Development and Business Climate Commission. Notably, the legislation transferred MVF to the corporation from Commerce and expressed the intent that the BioMaryland Center be likewise transferred. This action aligns the State's early stage business development efforts under TEDCO. **The Department of Legislative Services (DLS) recommends that TEDCO comment on the status of the transferred programs and how it is integrating the new services into its portfolio. TEDCO should also comment on how it plans to continue the services of the BioMaryland Center given the limited resources. DLS also recommends that TEDCO comment on how it will ensure that the federal funds under the State Small Business Credit Initiative (SSBCI) continue to be deployed in a timely and efficient manner. Finally, DLS recommends budget language that restricts funds until TEDCO submits a report on returns to the MVF; including returns that accrue specifically from the InvestMaryland program and the SSBCI program.**

Maryland Stem Cell Research Program: In fiscal 2015, the Stem Cell Research Program supported 29 research grants that were approved from 179 applications. Funding for the program has consistently fallen over several rounds of cost containment actions. However, interest in the program remains high. **DLS recommends that TEDCO brief the budget committees on the activities under the Maryland Stem Cell Research Program, including the impact of the low award rate.**

Recommended Actions

1. Adopt narrative requesting a report on how to improve the Maryland Innovation Initiative.
2. Add language restricting funds until a report is submitted on investment returns.

Updates

TEDCO Capital Partners: In 2013, the corporation created a series of investment funds designed to provide venture investments for very specific types of recipients. Private fundraising enabled the capitalization of two of the planned funds. However, in 2015, the TEDCO Board of Directors decided to not move forward with this initiative and to concentrate instead on its expanded responsibilities.

Major Grants: Committee narrative, included in the 2008 *Joint Chairmen's Report*, requested a complete listing of award recipients for all deals or projects closed in fiscal 2008. The corporation is continuing to provide this information for subsequent years.

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Analysis of the FY 2017 Maryland Executive Budget, 2016

TEDCO – Maryland Technology Development Corporation

Operating Budget Analysis

Program Description

The Maryland Technology Development Corporation (TEDCO) was launched in 1998 to help commercialize the results of scientific research and development conducted by higher education institutions, federal laboratories, and private-sector organizations. TEDCO also aims to promote new research activity and investments that lead to business development in Maryland.

To achieve its goals, TEDCO provides nonequity investments to early stage technology businesses, and it funds development and patenting of new technologies at research universities. TEDCO also develops linkages with federal research facilities in the State and helps companies pursue research funds from federal and other sources. The corporation's role was expanded in fiscal 2016 with the enactment of Chapter 141 of 2015 to transfer the operation of the Maryland Venture Fund (MVF) and the biotechnology grant program from the Department of Commerce (Commerce).

In 2001, TEDCO was authorized to create, manage, and provide funds for the statewide Maryland Technology Incubator Program. Technology business incubators offer start-up companies physical office space, research space, and an array of business services in hopes of generating new research and jobs.

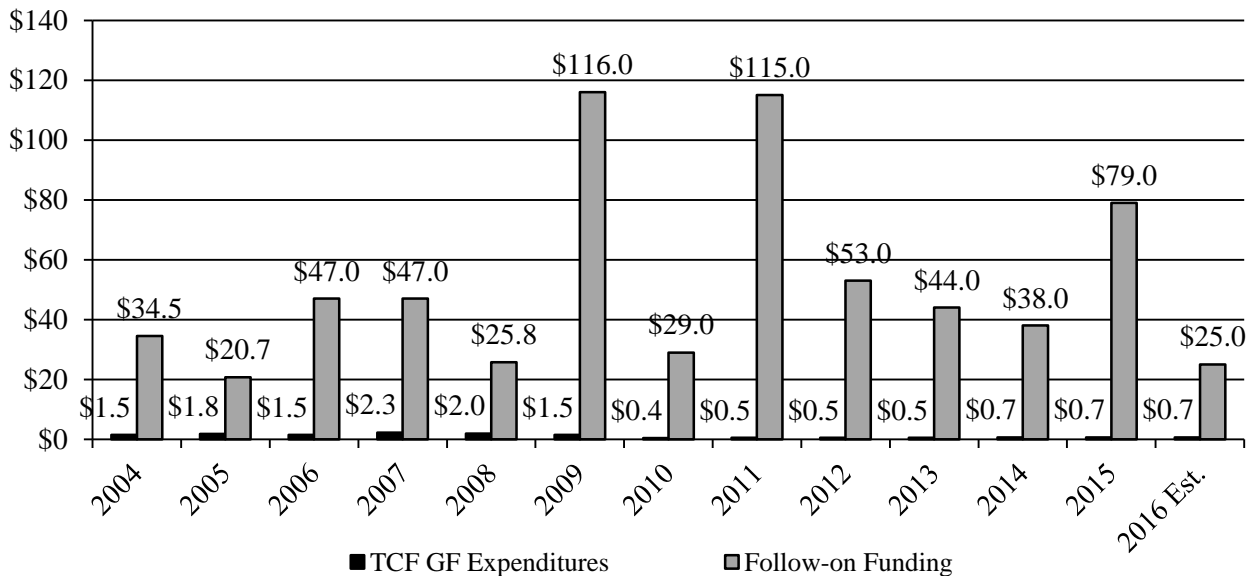
TEDCO supports stem cell research and development at Maryland's research universities and private-sector research corporations in accordance with the Maryland Stem Cell Research Act of 2006. The Maryland Stem Cell Commission established an independent scientific peer review committee to review, evaluate, rank, and rate research based on procedures and guidelines that give consideration to scientific, medical, and ethical implications.

Performance Analysis: Managing for Results

1. Significant Increase in Follow-on Funding

The Technology Commercialization Fund (TCF) provides seed investments to early stage technology companies that are economically viable but do not yet have the scale needed for a venture capital investment. A measure of success for the TCF is the ability of funded start-ups to obtain follow-on funding for commercialization. The primary sources of follow-on funds include federal grants, venture capital and other equity investments. TEDCO tracks leveraged funds for at least five years for each TCF recipient. **Exhibit 1** shows follow-on funding for the TCF recipients relative to the amount of general fund investment in the program.

Exhibit 1
Follow-on Funding for Recipients of
TEDCO Investments
Fiscal 2004-2016 Est.
(\$ in Millions)



GF: general funds
TCF: Technology Commercialization Fund
TEDCO: Maryland Technology Development Corporation

Note: Follow-on funding is measured for companies receiving TCF awards in that fiscal year.

Source: Maryland Technology Development Corporation; Governor's Budget Books, Fiscal 2007-2016

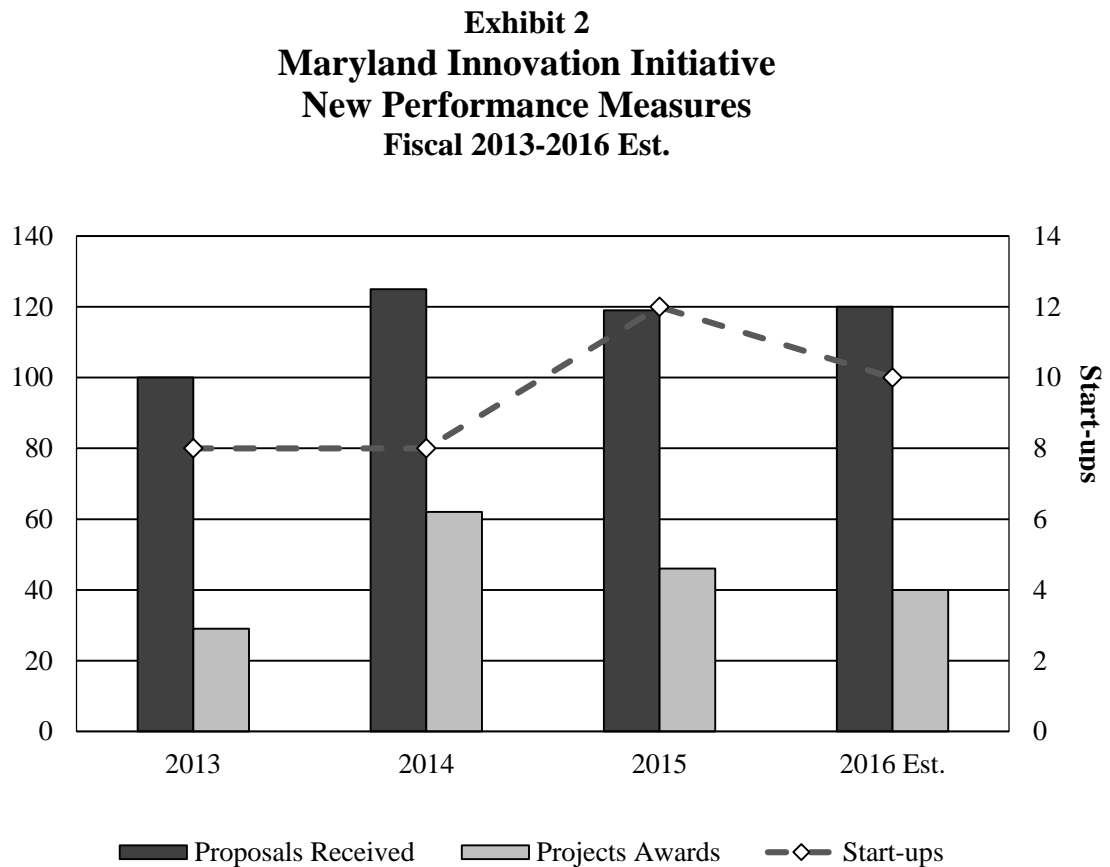
This measure is of particular importance to the corporation because success in raising downstream funding is a key criterion in evaluating second award proposals. It should be noted that the TCF program is supplemented by nonbudgeted funds from the corporation's reserve funds, and that follow-on funding reflects the impact of the entire investment by the corporation. As shown in Exhibit 1, general funds have declined from a high mark of \$2.3 million in fiscal 2007 to \$662,000 in fiscal 2016. It does not appear that this decline has significantly dampened follow-on funding for the corporation's grantees. In fact, follow-on funding increased significantly in fiscal 2015.

This measure only tracks the cumulative total of downstream funding. This data may be skewed if a small number of grant recipients are inordinately successful in obtaining follow-on funding. It does not necessarily measure the long-term success rate of the companies that benefit from the program's

funding. The corporation should consider the inclusion of additional performance measures that would mitigate any distortion of the data, including the number of companies that have stayed in operation in the State for seven or more years.

2. Progress under the Maryland Innovation Initiative

At the suggestion of the Department of Legislative Services (DLS), TEDCO has begun reporting new measures that demonstrate the progress of the Maryland Innovation Initiative (MII). MII, created by Chapter 450 of 2012, is designed to combine the technology transfer expertise of TEDCO and the research expertise of the State's research universities to speed commercialization opportunities. The program is meant to encourage a foundation from which start-up companies may be formed. **Exhibit 2** shows the number of proposals received under the program, the number of proposals that were awarded funds, and the number of start-up companies formed as a result of the funded innovation.



Source: Maryland Technology Development Corporation

As shown, in fiscal 2015, the program was able to increase the number of start-ups formed as a result of the technology research that was funded through the program. It is expected that as the program matures, more innovations will reach the state of commercialization, thereby increasing the number of start-ups. While these measures demonstrate the promise of previously unrealized commercialization, it is again important to understand the long-term success rate of these start-ups. To the extent that the data allows, the corporation should add a measure on the percentage of funded start-ups that remain in business.

Fiscal 2016 Actions

Cost Containment

The corporation participated in the fiscal 2016 across-the-board cost containment initiative. This resulted in a reduction of \$307,000, which was taken from the original appropriation for the Maryland Stem Cell Research Program.

Proposed Budget

As shown in **Exhibit 3**, the majority of the fiscal 2017 allowance is budgeted as a general fund grant of \$19.5 million. Programmatically, the general fund allowance includes funds for: the TCF, the Maryland Industrial Partnership Program, the Rural Business Initiative, the Cyber Security Investment Fund (CIF), the BioMaryland Grant program, the MII, and the Maryland Stem Cell Research Program. The corporation allocates the remaining general funds across its operational needs. Special funds are included in the corporation's budget for the first time in fiscal 2016 due to the transfer of the MVF. Although not reported through the State budget system, the corporation also has nonbudgeted funds that include investment earnings, event income, and grants.

Exhibit 3
TEDCO Budget
Fiscal 2015-2017
(\$ in Thousands)

	<u>2015</u>	<u>Working 2016</u>	<u>Allowance 2017</u>	<u>Change</u>
General Funds				
Operations				
Salaries and Wages	\$1,757	\$1,417	\$2,052	\$635
Contractual Services	45	45	41	-3
Equipment	12	12	17	5
Other operational costs	887	637	63	-574
Operations Subtotal	\$2,701	\$2,110	\$2,173	\$63
Programs				
Maryland Technology Commercialization Fund	\$490	\$663	\$600	-\$63
Technology Validation Program	0	0	0	0
Maryland Industrial Partnership Program	400	350	300	-50
Rural Business	0	500	500	
Cyber Security Investment Fund	800	900	900	
BioMaryland Grants	0	1,151	1,101	-50
Maryland Innovation Initiative	4,900	4,900	4,800	-100
Stem Cell Research Fund	9,400	9,093	9,093	
Programs Subtotal	\$15,990	\$17,557	\$17,294	-\$263
General Fund Total	\$18,691	\$19,668	\$19,467	-\$200
Special Funds				
Enterprise Fund		\$15,055	\$6,000	-\$9,055
Enterprise Fund Administration		1,332	1,345	12
Special Fund Total		\$16,387	\$7,345	-\$9,043
Grand Total	\$18,691	\$36,055	\$26,812	-\$9,243

Source: Maryland Technology Development Corporation

TEDCO Traditional Programs

The TCF and the Technology Validation Program (TVP) were two of TEDCO's original programs. Funding has fluctuated for the programs; however, the programs remain central to the mission of the corporation.

TCF

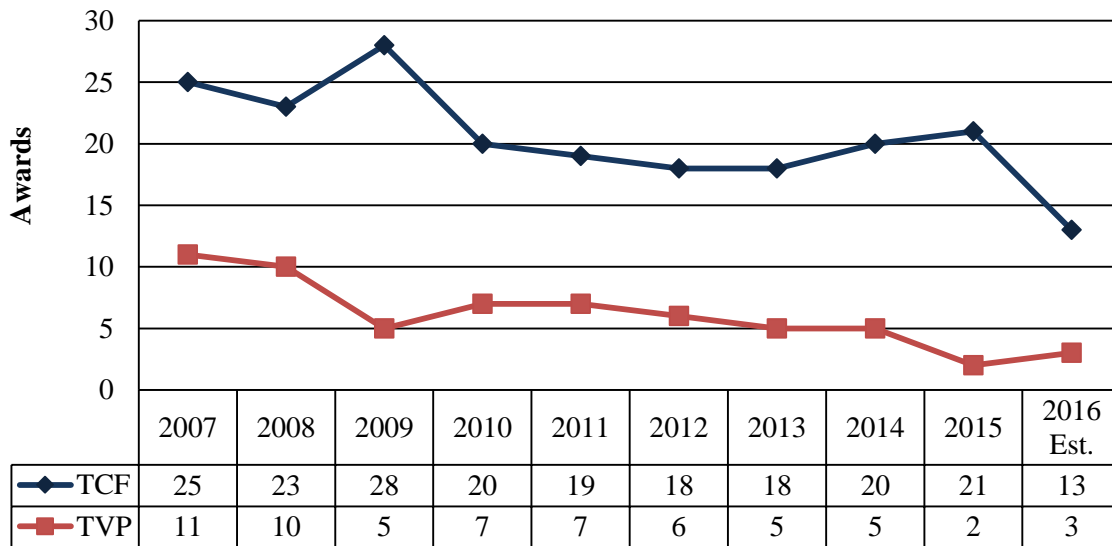
This program awards seed funding to early stage companies that partner with universities or federal laboratories in Maryland, to companies that are tenants in technology incubators, or to participants in TEDCO's Rural Business Innovation Initiative. The \$100,000 awards are meant to develop and commercialize technology products of Maryland early stage companies. The fiscal 2017 allowance includes approximately \$600,000 in general funds to support the program. However, the corporation advises that it will supplement the State funds with over \$1 million of its own nonbudgeted funds. The corporation does not report on its nonbudgeted funds. Therefore, the extent to which it can subsidize its programs is unclear.

TVP

This program provides funds for proof-of-principle studies that confirm the commercial viability of a technology and/or market analyses to establish that a technology meets a significant market need. Initial awards can be up to \$50,000. General funds for the program ceased in fiscal 2010; however, the corporation advises that it will support the program with about \$170,000 of its own nonbudgeted funds.

Exhibit 4 shows the number of program awards under both of these programs. These two programs represent the traditional TEDCO programs that have been funded with general funds. The corporation has consistently reported the awards from these programs through the State's Managing for Results (MFR) process. Funding is concentrated in the TCF program. A decline in the TVP is evident due to the lack of general funds and due to the advent of the Maryland Innovation Program, which provides similar services to the State's research institutions.

Exhibit 4
TCF and TVP Awards
Fiscal 2007-2016 Est.



TCF: Technology Commercialization Fund
TVP: Technology Validation Program

Source: Maryland Technology Development Corporation; Governor's Budget Books: Fiscal 2008-2016

Maryland Innovation Initiative

The fiscal 2017 allowance includes \$4.8 million in general funds for MII, a reduction of \$100,000 from fiscal 2016. MII, created by Chapter 450, is designed to combine the technology transfer expertise of TEDCO and the research expertise of the State's research universities to speed commercialization opportunities. To qualify for participation in the initiative, each university must provide funds annually. Funds may be used to (1) provide grant funding to a qualifying university-based entrepreneur, or other start-up entity to promote the commercialization of technology developed in whole or in part by a qualifying university; (2) pursue grant funding for the initiative or its qualifying universities; (3) develop and implement guidelines for technology transfer; and (4) identify projects at qualifying universities that may be viable for commercialization.

TEDCO began making MII awards in fiscal 2013. As of January 2016, over 164 awards have been made. According to data submitted through the MFR process, awards have resulted in 28 start-up companies with 10 additional start-ups expected in both fiscal 2016 and 2017. Total awards have been dispersed to the participating institutions as follows:

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- The Johns Hopkins University (JHU) – 75;
- Morgan State University – 5;
- University of Maryland, College Park (UMCP) – 30;
- University of Maryland, Baltimore – 36; and
- University of Maryland Baltimore County – 18.

There is a marked difference in the distribution of grants among the institutions. JHU commands almost 46% of the grants and over 47% of grant funding. The top three institutions garner 88.7% of program funding.

Maryland Industrial Partnership Program

The fiscal 2017 allowance includes \$300,000 in general funds for the Maryland Industrial Partnership program. This reflects a reduction of \$50,000 from fiscal 2016. This program is designed to accelerate commercialization by matching funds for university-based research projects that help companies develop new products. Prior to 2010, these funds were budgeted in the Maryland Higher Education Commission and passed through to UMCP. Given TEDCO's expertise with technology commercialization, it was deemed a better fit to be overseen by the corporation. Through the encouragement of intent language in the fiscal 2011 budget bill, TEDCO became more involved in the dissemination of these grants to all State four-year public institutions, not just University System of Maryland (USM) institutions. Two members of the TEDCO staff are included in both the review and approval processes. It should be noted that UMCP contributes about \$1 million to the program each year.

Other Programs

The fiscal 2017 allowance includes \$900,000 in general funds to be dedicated to the CIF; matching the appropriation from fiscal 2015. The CIF provides up to \$225,000 to support projects that advance a technology toward commercialization. Specifically, the funds are meant to move their technology further along the commercialization pathway, increase the company's valuation, and lead to follow-on investment for further growth and sustainability. In fiscal 2015, the corporation made nine awards out of the available funding.

The fiscal 2017 allowance includes \$500,000 in general funds to be dedicated to the Rural Business Initiative (RBI). The RBI is designed to provide technical and business assistance to small and early stage technology-based companies that are located in rural Maryland. This assistance is provided by regional mentors that are contractual staff under TEDCO. TEDCO reports that 215 companies received mentoring services through this program in fiscal 2015.

Special Funds: New to TEDCO

The fiscal 2016 working appropriation and the fiscal 2017 allowance reflect the transfer of the MVF to TEDCO from Commerce, pursuant to Chapter 141. Prior to fiscal 2016, the budget of the corporation consisted of a general fund grant from the State and the corporation's own nonbudgeted funds. The addition of special funds will necessitate greater reporting through the State's central budget system.

The fiscal 2016 working appropriation reflects the remaining proceeds from tax credit auctions under the InvestMaryland program, *i.e.*, the State supported venture capital program. The decline in the fiscal 2017 allowance demonstrates that most of the funds under InvestMaryland have been deployed. More information about the transfer of this program is available under the Issues section of this analysis.

Issues

1. Expanded Responsibilities and the Maryland Economic Development and Business Climate Commission

In fiscal 2014, the President of the Senate and the Speaker of the House appointed a private-sector commission to examine the structure, funding, and efficacy of the State's current economic development activities. The Maryland Economic Development and Business Climate Commission (Augustine Commission) had a charge to make policy and funding recommendations to improve the State's business climate and competitiveness. The commission recommended that State programs to assist early stage companies be aligned within TEDCO. Chapter 141 effectuated that recommendation and transferred these programs to TEDCO's purview.

Maryland Venture Fund

Specifically, by budget amendment in fiscal 2016, the MVF (also known as the Enterprise Fund) was transferred from Commerce to TEDCO. The MVF provides capital through equity purchases for start-up companies that are developing innovative technologies. Investments are limited to 25% of the company's total equity and require a three-to-one outside investor match. Individual investments, except those made in venture capital limited liability companies, are limited to \$500,000 and may not exceed 15 years in duration. Beginning in fiscal 2013, this program became the means for the implementation of the InvestMaryland program. This is a State-supported venture capital program that was funded through an auction of a tax credit against the insurance premium tax for insurance companies. A portion of these funds are invested in-house and a portion are invested by private venture funds on behalf of the State. To date, no significant returns on these investments have accrued back to the fund. The fund balance worksheet for the program shows equity returns of \$1.5 million in fiscal 2016. However, it does not distinguish if these returns are due to the InvestMaryland program or to the legacy investment program of the Enterprise Fund, or, in fact, to any source of funding.

Another source of funds for the program is the State Small Business Credit Initiative (SSBCI). In 2011, Commerce was awarded a total of \$23 million from the U.S. Department of the Treasury in support of this initiative. This federal program was designed to utilize existing State economic development programs to increase the capital available to small businesses. The federal funds were originally made available in three tranches to be utilized in the following programs: the Maryland Industrial Development Financing Authority (MIDFA), the Maryland Small Business Development Financing Authority (MSBDFA), and the MVF. However, over several years, Commerce had various difficulties in deploying the funds; especially under the MIDFA and MSBDFA programs. The U.S. Department of the Treasury expressed dissatisfaction with the slow deployment of the funds. In fact, Commerce was at risk of forgoing the third tranche of the funds if it did not commit the remainder of the first tranche and the full second tranche by June 2015. To address this issue, Commerce developed an alternative deployment plan that reallocated the bulk of funds to the MVF, the program most likely to commit the funds. The demand for venture funding far outpaced the demand for loans and loan guarantees. Commerce worked to actually commit the funds from the first two tranches and developed a pipeline for the third. The third installment is provided in the allowance for Commerce.

As a technical matter, it must be first budgeted within Commerce and then transferred to TEDCO and the MVF. Commerce and TEDCO have entered into an inter-agency agreement to ensure the proper administration and oversight of the program.

BioMaryland Center

The Augustine Commission also recommended the transfer of the BioMaryland Center to TEDCO. The focus of the center was to provide resources and grant funding to early stage biotechnology companies. Although not a codified program, Chapter 141 expressed the intent of the General Assembly that the program be transferred to TEDCO. However, only the grant portion of the program was transferred. No funding for support services or staff was transferred. Commerce retained the licenses and access to four market research databases for Maryland biotechnology entrepreneurs developing business plans and funding applications. The databases include information regarding licensing opportunities, target markets, completion, federal approval statuses, and clinical trials. However, Commerce does not intend to transfer these databases to TEDCO, or to renew their licenses. Commerce does intend to reallocate the funding associated with those databases (approximately \$120,000) to a different biotechnology related initiative. Anecdotal evidence before the Augustine Commission suggested that, while the information contained in the databases is helpful, physical access to it was prohibitive and time consuming. It is not clear how, or if, TEDCO will continue with the databases, or how it will otherwise provide support services to early stage biotechnology companies as intended by the Augustine Commission.

DLS recommends that TEDCO comment on the status of the transferred programs and how it is integrating the new services into its portfolio. TEDCO should also comment on how it plans to continue the services of the BioMaryland Center given limited resources. DLS also recommends that TEDCO comment on how it will ensure that the federal SSBCI funds continue to be deployed in a timely and efficient manner that would satisfy the U.S. Department of the Treasury. Finally, DLS recommends budget language that restricts funds until TEDCO submits a report on returns to the MVF, including returns that accrue specifically from the InvestMaryland program and the SSBCI program.

2. Maryland Stem Cell Research Program

The Stem Cell Research Fund was established by Chapter 19 of 2006 to support stem cell research and development at Maryland research institutions or private companies. The Stem Cell Research Commission reviews the proposed research process for applicant projects and makes recommendations to the TEDCO board about research grant awards. The research commission includes 15 members, as directed by statute, who include the Attorney General or designee, patient advocates, individuals with experience in biotechnology, scientists who work for USM and JHU and do not engage in stem cell research, bioethicists, and individuals with expertise in biomedical ethics as it relates to religion. Several commission members work at institutions that are applying for funding. Therefore, the commission has adopted conflict of interest guidelines to help members avoid inappropriately influencing commission decisions.

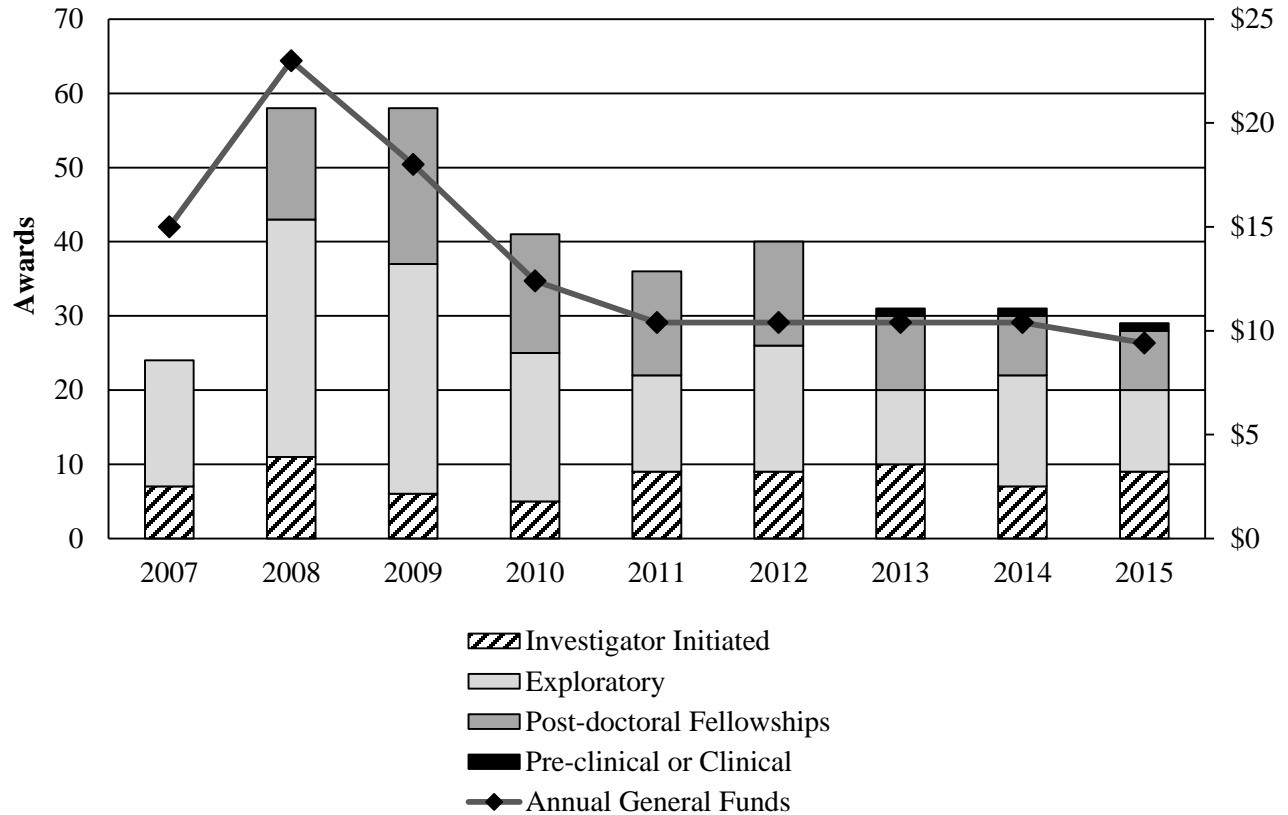
The fiscal 2017 allowance includes \$9.1 million in general funds to support grants under the Stem Cell Research Fund. This matches the level for fiscal 2016 adjusted for cost containment. This is the lowest amount of annual funding since the inception of the program. The commission is authorized to award four types of grants, the fourth of which was just introduced in fiscal 2012.

- **Investigator-initiated Research Grants** are designed for investigators with preliminary data and well established research in the stem cell field. The maximum annual grant amount is \$200,000 a year, for up to three years.
- **Exploratory Research Grants** are designed for investigators who are new to the stem cell field and for exploratory projects without preliminary data. The maximum annual grant amount is \$100,000 a year, for up to two years.
- **Post-doctoral Research Grants** are for exceptional pre-doctoral students and post-doctoral fellows who wish to conduct post-doctoral research on human stem cells in the State with maximum support of \$55,000 a year, for up to two years.
- **Pre-clinical or Clinical Research Grants** are for for-profit companies that wish to conduct research using human stem cells to further medical therapies. Applicants for pre-clinical research grant awards may request up to \$500,000 of direct costs, for up to three years. Applicants for clinical research grant awards may request up to \$750,000 of direct costs, for up to three years.

Exhibit 5 shows the history of the general funds and grant awards under the program. Most of the available funds are granted for exploratory research. However, the number of these grants is declining while the number of post-doctoral grants remains fairly constant. Because the maximum awards for post-doctoral grants are smaller, it allows the corporation to provide more grants with the same or reduced amount of funding. Funding for the program was \$9.4 million in fiscal 2015. In that year, the fund received 179 applications for funding and approved 29: 8 investigator-initiated research grants, 11 exploratory research grants, 9 post-doctoral grants, and 1 pre-clinical research grant. The commission was only able to fund 16% of applications, the lowest award rate since the program was created.

DLS recommends that TEDCO brief the budget committees on the activities under the Maryland Stem Cell Research Program, including the impact of the low award rate.

Exhibit 5
Stem Cell Research
History of Funded Awards
Fiscal 2007-2015
(\$ in Millions)



Source: Maryland Technology Development Corporation

Recommended Actions

1. Adopt the following narrative:

Distribution of the Maryland Innovation Initiative: The Maryland Innovation Initiative is designed to speed commercialization opportunities that develop out of the State’s research universities. As of January 2016, the Maryland Technology Development Corporation (TEDCO) has made over 164 awards. According to data submitted to the Managing for Results process, awards have resulted in 28 start-up companies, with 10 additional start-ups expected in both fiscal 2016 and 2017. Total awards have been dispersed to the participating institutions as follows:

- The Johns Hopkins University (JHU) – 75;
- Morgan State University – 5;
- University of Maryland, College Park – 30;
- University of Maryland, Baltimore – 36; and
- University of Maryland Baltimore County – 18.

The committees are concerned that there is a marked difference in the distribution of grants among the institutions. JHU commands almost 46.0% of the grants and over 47.0% of grant funding. The top three institutions garner 88.7% of program funding. The committees, therefore, request that TEDCO, with input from the participating universities, report on potential causes and changes to the program to address the skewed distribution. The report should suggest any legislative or administrative modifications to improve the performance of the program.

Information Request	Author	Due Date
Report on changes to the Maryland Innovation Initiative	TEDCO	December 1, 2016

2. Add the following language to the special fund appropriation:

, provided that \$100,000 of this appropriation made for the purpose of business investments may not be expended until the Maryland Technology Development Corporation submits a report detailing the current and expected equity investment earnings under the Enterprise Investment Fund. The report should include the delineation of the earnings associated with the

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InvestMaryland program, including the earnings related to private venture firm investments and in-house investments. The report shall be submitted to the budget committees no later than December 1, 2016, and the budget committees shall have 45 days to review and comment. Funds restricted pending the receipt of the report may not be transferred by budget amendment or otherwise to any other purpose and shall be canceled if the report is not submitted to the budget committees.

Explanation: The State has made significant commitments to its early stage equity investment programs. It is therefore important to have a robust understanding and a comprehensive means of performance measurement of the State investment. This language will establish a new standard for reporting the return on investment under the Maryland Venture Fund.

Information Request	Authors	Due Date
Report on investment earnings	Maryland Technology Development Corporation in consultation with the Department of Budget and Management	December 1, 2016

Updates

1. TEDCO Capital Partners

In fall/winter 2012/2013, TEDCO issued a series of announcements regarding the creation of a family of investment funds, or TEDCO Capital Partners. The family of funds was meant to offer four different investment funds, capitalized with private funds, which would provide venture capital for very specific types of recipients. Only two of the planned funds raised capital:

- The Propel Baltimore Fund was created through a partnership between TEDCO, the Abell Foundation, and the France-Merrick Foundation. The fund, which has capital commitments of \$5.2 million, will provide up to \$220,000 as an angel investment in early stage technology companies located in Baltimore City. The fund has made nine investments.
- The Veterans Opportunity Fund is currently raising \$10.0 million in private equity capital to provide funds for entrepreneurs who served in the U.S. Armed Forces. To date, the fund has raised \$1.5 million and has made two investments.

In summer 2015, the TEDCO Board of Directors made the decision to end this initiative. Instead, the board determined that the corporation should shift its focus and concentrate on the added responsibilities related to the MVF and the biotechnology grant program. The staff of the MVF (and TEDCO's partner venture firm) will continue to manage the existing investments. The corporation is no longer raising private capital toward the funds.

2. Major Grants

Committee narrative included in the 2008 *Joint Chairmen's Report* requested a complete listing of award recipients for all deals closed or projects approved in fiscal 2008. The corporation is continuing to provide this information for subsequent years. **Exhibit 6** shows such awards for all of TEDCO's programs, including those funded with general, federal, or nonbudgeted funds. Some programs, such as the Stem Cell Research Program, award funds over multiple years, therefore, funding levels do not necessarily match appropriation amounts.

Exhibit 6
Maryland Technology Development Corporation
Award Recipients
Fiscal 2015

	<u>Award Amount</u>
Cyber Investment Fund	
Strajillion Inc	\$100,000
Protenus Inc	100,000
RidgeBack Network Defense Inc	100,000
Jedvice LLC	100,000
Topaz Research Inc	100,000
Point3 Security Inc	100,000
Efflux Systems	100,000
Bricata	100,000
QIP Partners LLC	100,000
	\$900,000
Incubator Assistance	
Towson Global	\$10,000
FITCI	10,000
Bethesda Green	10,000
BHI	10,000
Eastern Shore Entre Ctr – hotDesks	9,690
CIC	8,500
Betamore	10,000
Montgomery County	30,000
UMBC	20,000
Emerging Technology Center	20,000
Maryland Center for Entrepreneurship	25,000
UMCP	11,810
	\$175,000
Rural Business Innovation Initiative	
CARE2	\$7,365
AH Pharma	7,000
Autumn Horizons	4,760
Autumn Horizons	2,674
Enterprise 101	7,500
OPS	6,500
Nautic Air	7,436
Automony Engine	7,000
Gavenlli	7,961
Chesapeake Plastics	7,900
Harmonix Lab	7,497
Elite Image Works	861

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	<u>Award Amount</u>
Phycin	7,724
RoosterBio	7,426
Arusha Control	4,326
	\$93,930
Joint Technology Transfer	
Grey Matter LLC	\$75,000
N5 Sensors Inc	75,000
	\$150,000
Maryland Innovation Initiative	
emocha Mobile Health Inc	\$100,000
UMB – Coop	100,000
UMB – Dubowitz	100,000
AsclepiX Therapeutics LLC	100,000
UMB – Tropello	99,625
UMB – Khanna	100,000
UMCP – Lejuez	100,000
JHU – Hardaway	15,000
UMBC – Dusman	150,000
respEQ Inc	100,000
JHU – Zachos	100,000
UMB – Kanstatopoulos	100,000
JHU – Hartman	100,000
ITVMD, LLC	14,676
JHU APL – Rizk	100,000
UMCP – Chen	100,000
UMBC – Banerjee	149,399
Morgan – Aslan	15,000
GripBoost LLC	100,000
JHU – Slusher	100,000
JHU – Sukumar	100,000
JHU – Pasricha	100,000
JHU – Benkoski	95,000
UMCP – Khaligh	100,000
Tauros Engineering LLC	15,000
UMB – Xu	100,000
JHU APL – Torruellas	86,000
JHU APL – Feldman	99,211
Revolve Biotechnologies Inc	100,000
JHU – Dong	100,000
JHU – Gordon	100,000

T50T01 – TEDCO – Maryland Technology Development Corporation

	<u>Award Amount</u>
UMB – Webb	100,000
UMB – Zimmer	15,000
MycoInnovation	15,000
JHU – Le	100,000
JHU – Allen	149,955
MycoMed	100,000
UMB – ZSX Medical	14,000
JHU – Sonavex	100,000
JHU – Walston	15,000
JHU – Yarema	99,432
JHU – Luo	100,000
UMCP – Jewell	150,000
UMCP – Arencia	100,000
UMBC – Geddes	100,000
JHU – Cooney	149,843
UMCP – Cao	100,000
Morgan – Lee	100,000
MF Fire Benefit LLC	100,000
UMB – Njar	100,000
JHU – Green	100,000
JHU – Chatterjee	100,000
UMBC – Bieberich	15,000
JHU – Hager	100,000
GlycoMantra Inc	150,000
JHU – Dinglasan	100,000
Anacrusis Inc	100,000
	\$5,212,141
Patent Assistance Program	
MycoMed	\$10,000
Vixar	10,000
	\$20,000
Technology Commercialization Fund	
Autonomy Engine LLC	\$100,000
Sol Vista Consulting LLC	100,000
Kitchenology	100,000
Opia Holdings Inc	100,000
RedShred LLC	100,000
Vitus Animal Health	100,000
Lessoncast Learning LLC	100,000
TenantRex, LLC	100,000

T50T01 – TEDCO – Maryland Technology Development Corporation

		<u>Award Amount</u>
	Vheda Inc	100,000
	JPLC Associates LLC	100,000
	Mindoula Health Inc	100,000
	Avhana LLC	100,000
	Theraly Pharmaceutical	100,000
	Sparks Dynamics LLC	100,000
	Admit Advantage	100,000
	PPMLITE LLC	100,000
	Cobrain Company	100,000
	Cureveda LLC	100,000
	Vixiar Medical Inc	100,000
	Kinglet Inc	100,000
	Quantified Care LLC	100,000
		\$2,100,000
Technology Validation Program		
	UMCES – Li	\$40,000
	Manta BioFuels	10,000
	Poseidon Analytics	10,000
	AAS Inc	9,000
		\$69,000
Total		\$8,720,071
Stem Cell Research Fund		
Investigator-Initiated		
UMB	Feldman	\$655,500
UMCP	Fisher	655,500
JHU	Garza	640,000
UMB	Kaetzel	655,500
JHU	Koliatsos	655,500
JHU	Kwon	655,500
JHU	Maragakis	655,353
JHU	Song	655,500
		\$5,228,353
Exploratory		
JHU	Burns	\$200,000
UMCP	Cao	218,500
JHU	Dawson	218,500
UMB	Gong	218,500

T50T01 – TEDCO – Maryland Technology Development Corporation

		<u>Award Amount</u>
JHU	Johnston	218,237
JHU	Kraitchman	218,500
Kennedy Krieger	Li	218,500
JHU	Wang	218,500
JHU	Wen	218,500
JHU	Xian	218,500
Kennedy Krieger	Ying	218,500
		\$2,384,737
Post-Doctoral Fellowship		
JHU	Chamling	\$110,000
JHU	Ehmsen	110,000
UMB	Datla	110,000
JHU	Lorenzini	110,000
UMB	Sharma	110,000
JHU	Uosaki	110,000
JHU	Yoo	110,000
JHU	Yoon	110,000
JHU	Zhu	110,000
		\$990,000
Pre-Clinical		
MaxCyte Inc	Schon	\$475,000
		\$475,000
Stem Cell Totals		\$9,078,090

JHU: The Johns Hopkins University

Kennedy Krieger: Hugo Moser Kennedy Krieger Research Institute

UMB: University of Maryland, Baltimore

UMBC: University of Maryland Baltimore County

UMCES: University of Maryland Center for Environmental Science

UMCP: University of Maryland, College Park

Source: Maryland Technology Development Corporation

Current and Prior Year Budgets

Current and Prior Year Budgets TEDCO – Maryland Technology Development Corporation (\$ in Thousands)

	<u>General Fund</u>	<u>Special Fund</u>	<u>Federal Fund</u>	<u>Reimb. Fund</u>	<u>Total</u>
Fiscal 2015					
Legislative Appropriation	\$19,073	\$0	\$0	\$0	\$19,073
Deficiency Appropriation	-1,000	0	0	0	-1,000
Cost Containment	-381	0	0	0	-381
Budget Amendments	1,000	0	0	0	1,000
Reversions and Cancellations	0	0	0	0	0
Actual					
Expenditures	\$18,692	\$0	\$0	\$0	\$18,692
Fiscal 2016					
Legislative Appropriation	\$18,516	\$0	\$0	\$0	\$18,516
Budget Amendments	1,151	16,387	0	0	17,539
Working					
Appropriation	\$19,667	\$16,387	\$0	\$0	\$36,055

Note: Numbers may not sum to total due to rounding.

Fiscal 2015

The original fiscal 2005 appropriation was decreased due to a negative deficiency that reduced funding for the Maryland Stem Cell Research Program by \$1 million. TEDCO was also subject to statewide across-the-board cost containment reductions in fiscal 2015. At a meeting of the Board of Public Works in early January 2015, \$381,463 of the corporation's general funds were withdrawn.

Conversely, the original fiscal 2015 appropriation increased by \$1 million due to a budget amendment that transferred the funds from Commerce (formerly the Department of Business and Economic Development) to TEDCO to fund the newly created CIF. This transfer is a result of language in the fiscal 2015 budget bill that restricted the funds in Commerce's appropriation to be used only by TEDCO to benefit the new program.

Fiscal 2016

The original fiscal 2016 appropriation was altered significantly due to the impact of Chapter 141, which transferred the operation of the MVF (\$16.4 million in special funds) and the Maryland Biotechnology grant program (\$1.2 million in general funds). The funds were transferred by budget amendment. The fiscal 2017 allowance also reflects the full funding of the programs.

Audit Findings

Audit Period for Last Audit:	May 22, 2012 – January 6, 2015
Issue Date:	June 2015
Number of Findings:	0
Number of Repeat Findings:	0
% of Repeat Findings:	n/a
Rating: (if applicable)	n/a

The audit did not disclose any findings.

Object/Fund Difference Report
TEDCO – Maryland Technology Development Corporation

<u>Object/Fund</u>	<u>FY 15 Actual</u>	<u>FY 16 Working Appropriation</u>	<u>FY 17 Allowance</u>	<u>FY 16 - FY 17 Amount Change</u>	<u>Percent Change</u>
Objects					
08 Contractual Services	\$ 0	\$ 0	\$ 12,093	\$ 12,093	N/A
12 Grants, Subsidies, and Contributions	18,691,729	36,054,919	26,799,919	-9,255,000	-25.7%
Total Objects	\$ 18,691,729	\$ 36,054,919	\$ 26,812,012	-\$ 9,242,907	-25.6%
Funds					
01 General Fund	\$ 18,691,729	\$ 19,667,480	\$ 19,467,480	-\$ 200,000	-1.0%
03 Special Fund	0	16,387,439	7,344,532	-9,042,907	-55.2%
Total Funds	\$ 18,691,729	\$ 36,054,919	\$ 26,812,012	-\$ 9,242,907	-25.6%

Note: The fiscal 2016 working appropriation does not include deficiencies or reversions. The fiscal 2017 allowance does not include contingent reductions.

Fiscal Summary
TEDCO – Maryland Technology Development Corporation

<u>Program/Unit</u>	<u>FY 15 Actual</u>	<u>FY 16 Wrk Approp</u>	<u>FY 17 Allowance</u>	<u>Change</u>	<u>FY 16 - FY 17 % Change</u>
01 Tech. Development, Transfer and Commercialization	\$ 3,591,729	\$ 4,774,480	\$ 4,674,480	-\$ 100,000	-2.1%
03 Maryland Stem Cell Research Fund	9,400,000	9,093,000	9,093,000	0	0%
04 Maryland Innovation Initiative	4,900,000	4,900,000	4,800,000	-100,000	-2.0%
05 Cyber Security Investment Fund	800,000	900,000	900,000	0	0%
06 Enterprise Fund Administration	0	1,332,439	1,344,532	12,093	0.9%
07 Enterprise Investment Fund	0	15,055,000	6,000,000	-9,055,000	-60.1%
Total Expenditures	\$ 18,691,729	\$ 36,054,919	\$ 26,812,012	-\$ 9,242,907	-25.6%
General Fund	\$ 18,691,729	\$ 19,667,480	\$ 19,467,480	-\$ 200,000	-1.0%
Special Fund	0	16,387,439	7,344,532	-9,042,907	-55.2%
Total Appropriations	\$ 18,691,729	\$ 36,054,919	\$ 26,812,012	-\$ 9,242,907	-25.6%

Note: The fiscal 2016 working appropriation does not include deficiencies or reversions. The fiscal 2017 allowance does not include contingent reductions.