



Debt Affordability Analysis

The Patrick-Murray Administration's capital investment program continues to be guided by three key principles: (1) affordability, (2) strategic prioritization of capital investments, and (3) transparency. The Commonwealth faces a backlog of needed capital projects; at the same time, it faces the constraints of a challenging, albeit improving, economic climate and a high debt burden. In light of these challenges, it is as critical as ever that the Commonwealth take a disciplined approach to capital budgeting that is guided by the three principles stated above.

The Patrick-Murray Administration is the first Administration to develop a debt affordability analysis and policy to ensure that the amount of debt issued to fund the capital investment program is kept to affordable levels. The debt affordability analysis is formally updated each year. This report is the Administration's fifth publication of the debt affordability analysis and five-year capital investment plan. With respect to strategic prioritization of capital investments, the Patrick-Murray Administration is the first to engage in a thorough process of reviewing and prioritizing capital investment needs and developing a comprehensive five-year capital investment plan within the fiscal constraints prescribed by the debt affordability analysis and policy. Finally, with respect to transparency, the Administration publishes its debt affordability analysis and its five-year capital investment plan (www.mass.gov/eoaf) in order to enhance public understanding of the Commonwealth's capital investment program and thereby improve public discourse and accountability with respect to the capital budget.

This debt affordability analysis addresses the first of the key principles guiding the Administration's approach to capital budgeting – affordability. The debt affordability analysis detailed below is an update to the analysis published in September 2010. The Administration will continue to update this analysis at least annually to inform its annual capital budgeting process.

In setting the annual administrative bond cap, the Administration has established a policy which sets a cap that will ensure debt service does not exceed 8% of annual budgeted revenues. By keeping total annual debt service within this limit, the Administration will be able to maximize needed capital investments while ensuring that debt service levels remain affordable.

For purposes of constraining growth in debt, the Administration has placed another restriction on its debt capacity model: growth in the annual bond cap for the regular capital program is limited to not more than \$125 million each year (excluding carry forwards of unused bond cap from prior years). This limit will apply even if in some years the actual revenue growth projection provides capacity to issue a greater amount of debt. This additional constraint ensures stable and manageable growth and avoids taking on an unaffordable long-term debt burden on the basis of unusually robust short-term revenue growth.



State tax revenues declined at an historic rate over the course of the recession. Fiscal year 2009 state tax revenues were ultimately \$2.7 billion less than the original fiscal year consensus revenue forecast, and fiscal year 2010 revenues were revised downward a net of \$419 million from the original fiscal year consensus revenue forecast. While fiscal year 2011 tax collections were relatively robust, total tax revenues were still less than the fiscal year 2008 level.

In addition to reflecting the current fiscal environment, it is important that the debt affordability analysis continue to be based in part on longer-term, historic trends rather than simply being reactive to current economic conditions. Trends reflecting experience over time are particularly relevant in the context of evaluating the affordability of long-term debt issued to fund investments in long-lived capital assets pursuant to a multi-year capital investment plan.

This debt affordability analysis is consistent with the basic analytical approach presented in the debt affordability analyses published previously. All of the underlying assumptions have been reviewed and, where appropriate, updated to reflect new information and revised outlooks.

Based on the debt affordability analysis and policy described in more detail below, the Administration has set the annual borrowing limit - or “administrative bond cap” – to fund the Commonwealth’s regular capital budget for fiscal year 2012 at \$1.75 billion. This is the same bond cap level for fiscal year 2012 that was projected in the five-year capital investment plan published in September 2010. When compared to the five-year capital investment plan published by the Patrick-Murray Administration in December 2008, this updated debt affordability analysis results in a reduction of \$250 million of planned borrowing for fiscal year 2012, reflecting the changed economic conditions. As this analysis demonstrates, the planned bond cap levels for fiscal years 2012 through 2016, together with the continuation of the planned borrowings for the accelerated bridge program and self-supporting project financings, represent an affordable level of new debt that will allow the Commonwealth to responsibly invest in the general capital infrastructure needs of the state.

Introduction

The Commonwealth borrows funds through the issuance of bonds and notes to fund the large majority of its capital investments. The issuance of bonds and notes to fund capital projects must be approved by a two-thirds vote of each house of the Legislature. The Governor determines the timing and amount of any authorized debt issuances. At the request of the Governor and with his approval, the State Treasurer is responsible for the issuance of the debt. The Governor, through the Executive Office for Administration and Finance (A&F), approves and manages the capital budget and the allocation of debt proceeds to pay the costs of authorized projects.



In addition to direct debt¹, the Commonwealth has a number of other debt-like, long-term liabilities. These liabilities include contract assistance payments and contingent liabilities. Contract assistance payments are made by the Commonwealth to some independent authorities and political subdivisions of the state to support all or a portion of the debt service on certain bonds issued by such entities. Some of these contract assistance payment liabilities of the Commonwealth are secured by a general obligation pledge of the Commonwealth and others are subject to annual appropriation by the Legislature.² Contingent liabilities of the Commonwealth exist with respect to certain debt issued by independent authorities and agencies of the Commonwealth. These obligations are expected to be paid by the issuing entities, but the Commonwealth has guaranteed payment of debt service or replenishment of reserves if expected payment sources are inadequate.³

Statutory Debt Limits

Legislation enacted in December 1989 restricts the amount of the Commonwealth's outstanding direct debt.⁴ This legislation imposed a "statutory debt limit" of \$6.8 billion in fiscal year 1991 and set the limit for each subsequent year at 105% of the previous fiscal year's limit. The statutory debt limit is calculated according to certain rules⁵ and excludes several direct and contingent obligations of the Commonwealth.⁶ The statutory debt limit on "direct" debt during fiscal year 2011 was

¹ "Direct" debt includes general obligation debt (secured by a pledge of the full faith and credit of the Commonwealth), special obligation debt (secured by a pledge of receipts credited either to the Commonwealth Transportation Fund, formerly the Highway Fund, or to the Convention Center Fund), and federal grant anticipation notes (secured by a pledge of federal highway construction grants).

² General obligation contract assistance liabilities (which, like general obligation debt, must receive two-thirds approval of the Legislature) include certain payments to the Massachusetts Water Pollution Abatement Trust, the Massachusetts Development Finance Agency, and the Massachusetts Department of Transportation, as successor to the Massachusetts Turnpike Authority. Budgetary contract assistance liabilities (which are the result of certain capital leases and other contractual agreements) include payments on behalf of the Route 3 North Transportation Improvements Association and the Saltonstall Building Redevelopment Corporation Project.

³ Contingent liabilities of the Commonwealth exist with respect to certain debt obligations of the Massachusetts Bay Transportation Authority, the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority, the University of Massachusetts Building Authority, the Massachusetts State College Building Authority, the Massachusetts Housing Finance Agency and regional transit authorities.

⁴ M.G.L. Chapter 29, Section 60A.

⁵ The statutory debt limit is calculated under the statutory basis of accounting, which, unlike GAAP, measures debt net of underwriters' discount, costs of issuance, and other financing costs. In addition, the statutory debt limit excludes bonds that are refunded by the proceeds of Commonwealth refunding bonds once those refunding bonds have been issued.

⁶ Debt not counted in the calculation of the statutory debt limit includes: certain Commonwealth refunding and restructuring bonds issued in 1991, federal grant anticipation notes, special obligation bonds, debt issued by certain counties that has been assumed by the Commonwealth, bonds issued to pay operating notes of the Massachusetts Bay Transportation Authority or to reimburse the Commonwealth for advances to the Massachusetts Bay Transportation Authority, certain debt issued to fund costs of the Central Artery/Tunnel project, bonds issued to finance the Massachusetts School Building Authority and bonds and notes issued to finance the accelerated bridge program. Contract assistance payments, lease payments, and contingent liabilities are also excluded.



approximately \$18.0 billion, and the Commonwealth's outstanding direct debt subject to that limit was \$15.6 billion.⁷

Legislation enacted in January 1990 imposes a limit on debt service appropriations in Commonwealth operating budgets.⁸ No more than 10% of total budgeted appropriations may be spent on debt service (both interest and principal) on Commonwealth general obligation debt in any fiscal year. Payments on debt not subject to the statutory debt limit described above are also excluded from the debt service limit. As of June 30, 2010, budgeted debt service on debt subject to this limit was approximately \$1.89 billion, representing 6.2% of total budgeted expenditures, which were approximately \$30.4 billion.⁹

Administrative Bond Cap

The statutory debt limit and debt service limits represent only an upper limit on the amount of direct debt the Commonwealth may incur, and they do not count many types of Commonwealth debt and debt-like obligations (e.g., contract assistance payment liabilities). Since fiscal year 1991, A&F has established an "administrative bond cap" to limit annual bond issuance to affordable levels. However, growth in the bond cap has not always been based on transparent, analytical measures of affordability. Prior to the Patrick-Murray Administration, certain bonds issued outside of the stated cap do not appear to have been taken into account in determining debt affordability or in setting the annual bond cap (e.g., \$1 billion of bonds issued during fiscal years 2005 and 2006 to support the Massachusetts School Building Authority).

Existing Debt Burden

Since the Patrick-Murray Administration instituted rigorous debt affordability policies, the Commonwealth's rankings in terms of debt burden have improved by several measures from what the Administration inherited. Nevertheless, the Commonwealth's debt burden remains among the highest in the nation by certain measures. Moody's Investors Service ranks Massachusetts fourth in total net tax-supported debt, sixth in total gross tax-supported debt (down from third in 2007), second in net tax-supported debt as a percentage of personal income, and second in net tax-supported debt per capita (down from first in 2007).¹⁰ Standard and Poor's Massachusetts rankings are similar: second in tax-supported debt per capita (down from first in 2007), third in tax-supported debt as a percentage of personal income (down from second in 2007), and fourth in total tax-supported debt.¹¹

⁷ Commonwealth of Massachusetts Information Statement, March 15, 2011.

⁸ M.G.L. Chapter 29, Section 60B.

⁹ Commonwealth of Massachusetts Information Statement, March 15, 2011.

¹⁰ Moody's Investors Service, "2011 State Debt Medians Report", May 25, 2011.

¹¹ Standard and Poor's, "2011 State Debt Review", May 25, 2011.



It is important to note, however, that these measures include certain debt issued by entities other than the Commonwealth for which the Commonwealth is not liable (e.g., \$4.7 billion of outstanding debt issued by the Massachusetts School Building Authority, as of June 30, 2010). In addition, these measures favor other states that have stronger county governments and other political subdivisions that issue debt to finance capital improvements that are financed by state government in Massachusetts. In fact, in the most recent U.S. Census Bureau report on the matter, Massachusetts ranked 50th out of the 50 states in terms of local debt as a percent of total debt (local and state debt)¹², indicating that relative to other states, many of the capital needs of the entire state are borne by the Commonwealth itself. Based on this statistic, it is safe to assume that Massachusetts would likely rank lower when measuring debt as a percentage of personal income or per capita if both state and local debt were taken into account.

In light of the Commonwealth's large outstanding debt burden and significant need for capital investment, the Patrick-Murray Administration evaluated the administrative bond cap immediately after taking office in connection with the fiscal year 2008 capital planning process and the publication of the FY2008-2012 Five-Year Capital Investment Plan. This examination and analysis focused on the affordability of the Commonwealth's current obligations and its capacity to support additional debt obligations. This report represents the fourth annual update of the analysis and the results inform the FY2012-2016 Five-Year Capital Investment Plan.

Methodology and Model for Analysis

Consistent with prior years' analysis, this updated analysis evaluates the affordability of issuing new debt, taking into account the Commonwealth's existing debt service and contract assistance payment obligations. In this analysis, affordability is measured by determining the annual amount of debt service and other debt-like payment obligations as a percentage of budgeted revenues. This measure (debt service as a percent of budgeted revenues) is a commonly accepted standard for measuring debt capacity. It provides a true indication of the relative cost of Commonwealth debt by taking into account the actual payment obligations on Commonwealth debt and the amount of revenue available to pay those obligations and other budgetary obligations.

Existing Obligations and Liabilities

A&F's debt capacity analysis includes an examination of existing Commonwealth debt service and contract assistance payment obligations. The analysis includes only the interest payments on federal grant anticipation notes (GANs); principal payments are made with grants from the Federal Highway Administration that are legally dedicated to such purpose and are not available for general budgeting purposes.

¹² U.S. Census Bureau, "State and Local Government Finances by Level of Government and by State: 2008".



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Special obligation bonds secured by gas tax and motor vehicle registry fees are included in the analysis. Special obligation bonds for the Massachusetts Convention Center Authority are not included; although these bonds are obligations of the Commonwealth, they are secured and paid directly by a pledge of dedicated tax and excise revenues related to the convention center projects financed with proceeds of the bonds. Massachusetts Bay Transportation Authority (MBTA) and Massachusetts School Building Authority (MSBA) bonds are also not included because they are obligations of the respective authorities, and, although secured in part by a portion of the Commonwealth's sales tax revenues, the Commonwealth is not liable for such bonds and such sales tax revenues are legally dedicated to the MBTA and MSBA. The revenues legally dedicated for the convention center bonds and for the MBTA and MSBA bonds are not available for general budgetary purposes and are consequently not included in the budgeted revenue figures taken into account in this analysis.

The Commonwealth's existing direct debt service obligations for fiscal years 2011¹³ through 2016 are presented in the following table.

Table 1
Existing Direct Debt Service Obligations
Fiscal Years 2011-2016
(\$000s)

Fiscal Year	General Obligations	Federal GANs Non Bridge Program (interest only)	Special Obligations Non Bridge Program (gas tax only)	Federal GANs Bridge Program (interest only)	Special Obligations Bridge Program	Total Existing Direct Debt Service Obligations
2011	1,573,368	35,390	58,932	1,326	8,913	1,677,929
2012	1,810,064	27,989	58,939	2,774	20,309	1,920,075
2013	1,890,938	22,608	58,922	2,774	20,309	1,995,551
2014	1,826,341	13,183	52,704	2,774	20,309	1,915,311
2015	1,755,552	5,395	52,701	2,774	20,309	1,836,731
2016	1,771,220	-	51,382	2,664	20,309	1,845,575

Contract assistance obligations, including certain capital lease obligations that relate to major capital projects, were also included in the examination of existing Commonwealth obligations.¹⁴ These obligations for fiscal years 2011 – 2016 are presented in the following table.

¹³ As part of the comprehensive plan to address fiscal year 2011 budgetary challenges, the Commonwealth authorized and executed a refinancing of \$305 million of the \$1.02 billion in general obligation principal due in fiscal year 2011.

¹⁴ The analysis includes major capital lease obligations, such as lease payments that support the Route 3 North Transportation Improvements Association and the Saltonstall Building Redevelopment Corporation Project, each of which are large-scale capital projects that were funded outside of the bond cap by prior administrations. Contract assistance for infrastructure development-related bonds issued by Massachusetts Development Finance Agency are not included in this analysis as they will be fully reimbursed from incremental state tax revenues resulting from the development or from other sources (see Table 6). Minor capital costs, such as equipment lease purchases made by state agencies, are funded through their respective operating budgets and are not part of the state's capital budget and, accordingly, are not included in this analysis.



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Table 2
Existing Contract Assistance Obligations
Fiscal Years 2011-2016
(\$000s)

Fiscal Year	General Obligation		Budgetary		Total Contract Assistance Obligations
	Water Pollution Abatement Trust	MassDOT (Turnpike Authority)	Route 3 North Transportation Improvements Association	Saltonstall Building	
2011	66,093	125,000	9,618	9,398	210,109
2012	64,986	125,000	5,409	9,464	204,859
2013	62,536	125,000	1,129	9,532	198,197
2014	59,420	125,000	1,130	9,602	195,152
2015	57,988	125,000	1,128	9,698	193,814
2016	53,156	125,000	1,129	9,772	189,057

Exhibit A to this Debt Affordability Analysis lists the line items in the General Appropriations Act that provide for the debt service and contract assistance payment liabilities described above. It should be noted that the appropriated amounts may not match the amounts reflected in this Debt Affordability Analysis due to more conservative assumptions in this analysis with respect to the timing of bond issues and the resulting impact on fiscal year budgets and different assumptions regarding interest rates.

Revenue Projections

The debt affordability analysis is based on projections of budgeted revenue that will be available to support debt service and other budgetary needs. The budgeted revenue projection for fiscal year 2012 is \$32.273 billion. This estimate is based in part on a revised tax revenue estimate of \$21.010 billion, as announced by the Secretary of Administration and Finance on October 17, 2011, based on available data on tax revenue collections and economic trends. This fiscal year 2012 tax revenue estimate includes the estimated loss of tax revenue from a two day sales tax holiday in August 2011 (\$20.5 million) and the estimated impact of the state income tax rate reduction triggered by certain conditions which are expected to be met (\$54 million). Fiscal year 2013 projected revenues have also been reduced by \$114 million, which is the estimated full year impact of the expected income tax rate reduction. For purposes of projecting budgeted revenue in future fiscal years, 3.00% was applied to fiscal year 2013 revenues (before reducing them by \$114 million, as explained above) and to each year thereafter. This is consistent with established policy of applying the lesser of (a) the compound annual growth rate (CAGR) of historical budgeted revenues, which is 4.30%; and (b) 3%.

To ensure consistency, the budgeted revenue projection for fiscal year 2012 takes into account the same revenues included in the actual budgetary revenue amounts reported in the audited statutory basis financial statements. Specifically, budgeted revenue includes all Commonwealth taxes and other revenues available to



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pay Commonwealth operating expenses, including debt service, pensions and other budgetary obligations. These budgeted revenue amounts do not include off-budget revenues or tax or toll revenues dedicated to the Massachusetts Department of Transportation, the Massachusetts Bay Transportation Authority, the Massachusetts School Building Authority, and the Massachusetts Convention Center Authority (the debt service obligations of these entities payable from such dedicated revenues have also been excluded from the analysis) or inter-fund transfers from budgeted funds, such as the Stabilization Fund. Any one-time federal stimulus funding received (or expected to be received) pursuant to the American Recovery and Reinvestment Act of 2009 (ARRA) in fiscal years 2009, 2010 and 2011 has been excluded from the calculation of budgeted revenues for purposes of this debt affordability analysis.

Actual and projected budgeted revenues are shown in the table below.

Table 3			
Actual and Projected Budgeted Revenues			
(\$000s)			
Fiscal Year	Budgeted Revenues (Excluding ARRA Revenues)	Annual Growth Rate	Compound Annual Growth Rate
2002	21,174,800	n/a	4.30%
2003	21,987,200	3.84%	
2004	23,988,400	9.10%	
2005	24,373,400	1.60%	
2006	26,305,600	7.93%	
2007	28,615,900	8.78%	
2008	30,313,200	5.93%	
2009	28,412,300	-6.27%	
2010	29,125,400	2.51%	Projections
2011	31,690,320	8.81%	
2012	32,272,700	1.84%	
2013	33,126,881	2.65%	
2014	34,120,687	3.00%	
2015	35,144,308	3.00%	
2016	36,198,637	3.00%	

As a starting point for the analysis of future debt capacity, the following table shows existing debt service and contract assistance payment obligations in fiscal year 2011¹⁵ and in each of the next five fiscal years as a percentage of the budgeted revenue projection for each of those fiscal years.

¹⁵ As part of the comprehensive plan to address fiscal year 2011 budgetary challenges, the Commonwealth authorized and executed a refinancing of \$305 million of the \$1.02 billion in general obligation principal due in fiscal year 2011.



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Table 4
Existing Debt Obligations as Percentage of Budgeted Revenue
Fiscal Years 2011-2016
(\$000s)

Fiscal Year	Existing Direct Debt Service	Existing Contract Assistance	Total Existing Obligations	Projected Budgeted Revenue	Debt Service as % of Budgeted Revenue
2011	1,677,929	210,109	1,888,038	31,690,320	5.96%
2012	1,920,075	204,859	2,124,934	32,272,700	6.58%
2013	1,995,551	198,197	2,193,748	33,126,881	6.62%
2014	1,915,311	195,152	2,110,463	34,120,687	6.19%
2015	1,836,731	193,814	2,030,545	35,144,308	5.78%
2016	1,845,575	189,057	2,034,632	36,198,637	5.62%

Accelerated Bridge Program

In fiscal year 2009, the Commonwealth launched a new capital investment program known as the “Accelerated Bridge Program” (the Bridge Program). The Bridge Program is a \$2.984 billion, eight-year program to rehabilitate and repair bridges in the Commonwealth that are structurally-deficient or that would otherwise become structurally-deficient within the next few years. The Bridge Program is being financed with a combination of two sources: (1) special obligation bonds secured by the Commonwealth Transportation Fund and (2) federal grant anticipation notes.

The following table shows the cumulative to date and projected Bridge Program spending between fiscal years 2009 and 2016. In December 2010, the Commonwealth issued the inaugural series of bonds to support the Bridge Program: \$100 million in grant anticipation notes and \$576.125 million in Commonwealth Transportation Fund special obligation revenue bonds.

Table 5
Bridge Program Spending
Fiscal Years 2009-2016
(\$000s)

Fiscal Year	Actual Spending (FY11 Estimated)	Cumulative Spending	Bonds Issued To Date	Projected Financing Needs
2009	90,929	90,929	-	-
2010	206,819	297,748	-	-
2011	292,183	589,931	676,125	-
2012	-	-	-	264,371
2013	-	-	-	488,721
2014	-	-	-	627,468
2015	-	-	-	474,638
2016	-	-	-	360,248



In addition to addressing the public safety and transportation concerns posed by the Commonwealth's backlog of structurally-deficient bridges, the Bridge Program is an intentional effort on the part of the Commonwealth to generate hundreds of millions of dollars of cost savings by doing these needed bridge projects sooner than it otherwise would. These savings will result from avoided cost inflation and avoided costs of further deferring maintenance and repair of the bridges.

In an effort to achieve the public safety and cost savings benefits through the acceleration of investment in structurally-deficient bridges, the amounts borrowed and expended for the Bridge Program are in addition to the bond cap for the regular capital program. The debt service impact of the Bridge Program financing is, however, taken into account for purposes of determining the affordable level of debt to fund the regular capital program each year within the 8% of budgeted revenue limit described herein. Specifically, the principal and interest payable on any Commonwealth Transportation Fund revenue bonds and the interest payable on any federal grant anticipation notes issued to finance the Bridge Program is included in the total debt service payment obligations that must be constrained within 8% of budgeted revenues (principal on the federal grant anticipation notes is payable from future federal grants which are not included in budgeted revenue). This treatment of the Bridge Program Commonwealth Transportation Fund revenue bond and federal grant anticipation note debt service is consistent with the manner in which this debt affordability analysis treats the Commonwealth's other outstanding special obligation gas tax bonds and federal grant anticipation notes.

The impact of the Bridge Program will be to constrain the bond cap in future years. As the debt service impact of the debt issued to finance the Bridge Program increases over the next few years, there will be less capacity than there otherwise would be to issue new debt to fund the regular capital program within the prescribed limits. The reduced future capacity will result in less funding for transportation capital projects in future years than there otherwise would be. However, by accelerating this future borrowing capacity (as well as accelerating the future federal grant spending capacity through the issuance of the federal grant anticipation notes) to invest in structurally-deficient bridge projects that must be undertaken throughout the Commonwealth, the Bridge Program will ensure that these projects are done cheaper and sooner than they otherwise would be.

Self-Supporting Project Financings

Unlike past practice in Commonwealth capital budgeting, the Patrick-Murray Administration is taking all debt service and debt-like payment obligations into account in determining the appropriate level of annual borrowing pursuant to the policy set forth in this report. The Administration recognizes, however, that exceptions to this policy may be justified in limited circumstances where a project financed with debt payable by the Commonwealth directly or indirectly generates new state revenue or budgetary savings that is targeted to the payment of such debt. In these limited circumstances,



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the Administration will exclude the debt from the annual bond cap and will exclude such debt service payment obligations from the debt affordability analysis. In the instances where such debt service is supported by a new or budgeted stream of state revenue, the related new revenue used to pay such obligations will also be excluded from the analysis set forth herein for purposes of determining the annual bond cap.

There are three examples of debt the Administration will exclude from the annual bond cap and debt affordability analysis. The first is debt that the Massachusetts Development Finance Agency issues for public infrastructure improvements necessary to support significant new private development, pursuant to the infrastructure investment incentive program known as “I-Cubed”. This debt will be excluded because the Commonwealth will ultimately be responsible for funding *only* the portion of the related debt service that is supported by new state tax revenue generated from the related private development. The second example of debt that will be excluded from the debt affordability analysis is debt the Administration issues to fund fire training facility projects as legislation authorizes the Commonwealth to raise the amounts needed to fund the related debt service costs for such projects through assessments on property insurance policies. The third example is debt associated with the Clean Energy Investment Program initiated by the Governor in January 2010 in which the Commonwealth issues general obligation bonds to fund energy efficiency and renewable energy projects at state facilities. These projects will result in energy cost savings from less energy use and a portion of the related budgetary savings will be used to cover the debt service associated with the general obligation bonds issued to finance the projects. The table below shows the amounts of incremental tax revenue, assessments, and captured energy savings projected to be applied to pay debt service on bonds issued to fund the construction of the infrastructure development projects, fire training facilities and energy efficiency projects, respectively.

Table 6
Self-Supporting Project Financings
Fiscal Years 2011-2016
(\$000s)

Fiscal Year	Infrastructure Development Projects Debt Service	DFS Insurance Assessments	Energy Efficiency Projects Debt Service	Total Self-Supporting Debt Service
2011	1,389	2,254	1,100	4,743
2012	3,379	2,514	7,222	13,114
2013	6,282	2,747	14,943	23,971
2014	10,817	3,050	22,664	36,531
2015	15,829	3,158	30,385	49,371
2016	17,221	3,158	35,831	56,210

Consistent with the approach described above, Table 8 excludes the above amounts listed for Infrastructure Development Projects Debt Service and DFS Insurance Assessments from both the debt service and the budgeted revenue



estimates, and excludes Energy Efficiency Projects Debt Service from projected debt service estimates.

Fiscal Year 2012-2016 Debt Issuance Modeling

In analyzing potential levels of debt issuance to fund the Commonwealth's capital spending plan for the next five years, the Patrick-Murray Administration has made the following conservative and fiscally responsible assumptions:

- Timing of Debt. All debt issued to fund the capital spending program, including the Bridge Program, is assumed to be issued at the start of the fiscal year in which it will be spent. This assumption is conservative for modeling purposes, as it results in the debt service impact of bonds issued in a fiscal year being assumed as early as possible.
- Term of Debt. Although the Commonwealth has the statutory authority to issue virtually all of its authorized debt for a term of up to 30 years and the useful life of significantly more than one-third of the Commonwealth's annual capital investments are for assets with a useful life of 30 years or longer, the Administration has adopted a policy of issuing not more than one-third of the debt it issues each year to fund the regular capital program for a term of 30 years. Consequently, this analysis assumes that one-third of the debt to be issued each year to fund the regular capital program will have a 30-year term and two-thirds of the debt to be issued each year will have a 20-year term. For the Bridge Program financing, all of the federal grant anticipation notes are expected to be paid by fiscal year 2027 and this analysis assumes that one-third of the special obligation Commonwealth Transportation Fund revenue bonds will have a 30-year term and two-thirds will have a 20-year term.
- Interest Rates. The interest rate used for 20-year debt and for the federal grant anticipation notes for the Bridge Program is 4.25%, which is conservatively above the 4.16% average of the 24 month period ending October 14, 2011 of the Bond Buyer 11 Index¹⁶. The interest rate used to model the 30-year debt is 4.50%, reflecting the approximate spread between 20 and 30-year general obligation bonds according to municipal market data published in The Bond Buyer.
- Principal Amortization. Consistent with past practice by the Commonwealth, the principal on bonds issued for a 20-year term is structured to result in level annual debt service payments over that 20-year period and the principal on bonds issued for a 30-year term is structured to result in level annual debt service payments over that 30-year period.

¹⁶ The Bond Buyer 11 Index tracks the interest rates of 11 issues of 20-year municipal debt with a double-A credit rating.



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For purposes of constraining growth in debt, the Administration has placed another restriction on its debt capacity model: growth in the annual bond cap for the regular capital program is limited to not more than \$125 million each year (excluding carry forwards of unused bond cap from prior years). This limit will apply even if in some years the actual revenue growth projection provides capacity to issue a greater amount of debt. This additional constraint ensures stable and manageable growth and avoids taking on an unaffordable long-term debt burden on the basis of unusually robust short-term revenue growth.

The table below shows the level of annual bond funding planned to meet projected capital investment needs to be funded within the bond cap and Bridge Program.

Table 7
Capital Spending
Fiscal Years 2011-2016
(\$000s)

Fiscal Year	Bond Cap	Bridge Program
2011	1,625,000	292,183
2012	1,750,000	264,371
2013	1,875,000	488,721
2014	2,000,000	627,468
2015	2,125,000	474,638
2016	2,250,000	360,248

As shown in Table 8, funding the annual bond cap and the Bridge Program in the amounts shown above, together with the existing obligations, results in total projected annual debt service as a percent of budgeted revenues that is within the 8% limit described above¹⁷.

¹⁷ Table 8 excludes debt service on infrastructure development projects, fire fighting academy projects and energy efficiency projects which are self-supporting and funded with incremental new tax revenues, assessments and budgetary savings, respectively. Table 8 also excludes an equal amount from Budgeted Revenue. (See Table 6.)



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Table 8
Projected Annual Debt Service as a Percentage of Budgeted Revenues
Fiscal Years 2011-2016
(\$000s)

Fiscal Year	Debt Service				Budgeted Revenue Growth (Less Self Supporting Projects)	Total Annual Debt Service as % of Revenues
	Total Existing Obligations	Cumulative New Debt Service from Annual Bond Cap	Cumulative New Debt Service from Bridge Program	Total Annual Debt Service		
2011	1,888,038	0	0	1,888,038	31,685,577	5.96%
2012	2,124,934	24,817	5,750	2,155,501	32,266,808	6.68%
2013	2,193,748	140,076	28,964	2,362,788	33,117,853	7.13%
2014	2,110,463	262,448	62,196	2,435,106	34,106,820	7.14%
2015	2,030,545	393,353	92,226	2,516,124	35,125,321	7.16%
2016	2,034,632	539,075	111,892	2,685,599	36,178,258	7.42%

The Patrick-Murray Administration will revisit the assumptions underlying this affordability model each year as part of the development of the following fiscal year's capital plan to adjust the model's assumptions as needed to reflect new trends in revenue growth, interest rates, and other factors. The Administration will also reassess the debt capacity model as a whole, including the limitations of keeping debt service below 8% of budgeted revenues and of keeping maximum annual bond cap increases for the regular capital program to the levels prescribed in this report, to ensure that it continues to be an appropriate and responsible model for measuring the Commonwealth's debt capacity in the future.

Exhibit A

FY2012 General Appropriations Act

Debt Service and Contract Assistance Payment Line Items

Account	Description
0699-0015	Consolidated Long Term Debt Service
0699-0016	Accelerated Structurally Deficient Bridge Program Debt Service
0699-2004	CA/T Debt Service
0699-9101	Federal Grant Anticipation Notes
1599-0093	Water Pollution Abatement Trust
1599-1970	Massachusetts Turnpike Authority Contract Assistance
1599-0050	Route 3 North Contract Assistance
1102-3224	Saltonstall Building Lease
1599-1977	MassDevelopment Infrastructure Development Contract Assistance
0699-0018	Agency Debt Service Programs