Working Paper

Teacher Pension Workshop: Connecting Evidence-Based Research to Pension Reform

Pension Math: Public Pension Spending and Service Crowd Out in California, 2003-2030

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Pension Math: Public Pension Spending and Service Crowd Out in California, 2003-2030

Joe Nation

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Preface

For more than a decade, California state and local governments have faced a growing pension challenge. Public pension plans throughout the state provide generous benefits, yet are funded on the basis of policies and assumptions that can delay recognition of their true cost. This has led to local and state government pension contributions that have already increased substantially, both in dollar terms and as a share of operating expenditures, and that will almost certainly continue to increase over the next one to two decades.

This Working Paper focuses on this challenge through multiple case studies, covering both state and local governments. The case studies demonstrate a marked increase in both employer pension contributions and unfunded pension liabilities over the past 15 years, and they reveal that in almost all cases that costs will continue to increase at least through 2030, even under the assumptions used by the plans' governing bodies—assumptions that critics regard as optimistic. It examines the impacts of increased pension contributions on other expenditures, including services traditionally considered part of state and local government's core mission. Pension costs have crowded out and will likely to continue to crowd out resources needed for public assistance, welfare, recreation and libraries, health, public works, other social services, and in some cases, public safety.

This Working Paper was revised in January 2018 to reflect updated estimates for state and school district contributions to the California State Teachers' Retirement System (CalSTRS). These revisions slightly decrease projected contributions for school districts and the state in the baseline scenario. (See the Introduction for details about the baseline scenario.) The revisions do not impact findings that employer pension costs have increased substantially since 2003 and are likely to continue their ascent through 2029-30, further crowding out services.

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Acronyms

Alameda County Employees' Retirement Association ..... ACERA

Comprehensive Annual Financial Report ..... CAFR

California Public Employees' Retirement System ..... CalPERS

California State Teachers' Retirement System ..... CalSTRS

Employee Retirement Income Security Act ..... ERISA

Fiscal Year ..... FY

Los Angeles City Employees' Retirement System ..... LACERS

Los Angeles County Employees Retirement Association ..... LACERA

Los Angeles Fire and Police Pensions ..... LAFPP

Los Angeles Unified School District ..... LAUSD

Marin County Employees' Retirement Association ..... MCERA

Mill Valley School District ..... MVSD

Pension Obligation Bond ..... POB

Public Employees' Pension Reform Act ..... PEPRA

Sacramento City Employees' Retirement System ..... SCERS

San Francisco Bay Area Rapid Transit District ..... BART

Vallejo Sanitation and Flood Control District ..... VSFCD

Visalia Unified School District ..... VUSD

Water and Power Employees' Retirement Plan of the City of Los Angeles ..... LAW&P

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Executive Summary

For more than a decade, public pension costs have been rising sharply in California. There is contentious debate about what is driving these cost increases—significant retroactive benefit increases, unrealistic assumptions about investment earnings, operational practices that mask or delay recognition of true system costs, poor governance, [1] to name the most commonly cited. But there is agreement on one fact: public pension costs are making it harder to provide services that have traditionally been considered part of government's core mission.

In an effort to better understand the magnitude and impacts of these costs, this report presents the results of 14 case studies. Each case study looks at a particular California jurisdiction—the state, sample cities, counties, special districts and school districts—and reports on its costs for providing employee pension benefits.

Results cover each Fiscal Year since 2008-09 and each pension valuation date since June 30, 2008, and projected results include each future year through 2029-30 and each future valuation date through June 30, 2029.[2] Each case study includes:

- Employer contributions in dollar terms and as a percentage of the jurisdiction's payroll and its total operating expenditures
- Funding levels as the ratio of plan assets to accrued liability
- Unfunded accrued liability, expressed in total dollars and in terms of dollars per jurisdiction household
- Analysis of how increasing pension costs may have so far affected and may continue to affect spending on traditional government services.

Each case study reports financial outcomes on two different bases. The *actuarial* measure reflects assets and accrued liabilities *as they are determined by the pension systems themselves*. The *market* measure reflects the market value of assets and discounts future benefit payments *using the yield on 20-year United States Treasury bonds rather than the rate of future investment return that the systems expect to earn*. In addition, each case study includes *baseline* projections under which annual investment returns through 2029 match the rates assumed by the pension systems, and *alternative* projections under which they are 2% less than assumed.

[1] This broadly includes poor decision making by governing boards, including investment choices and risks, high management fees, lack of financial expertise, and potential board conflicts of interest. For a recent paper, see Aleksandar Andonov, Yael V. Hochberg, Joshua D. Rauh, "Political Representation and Governance: Evidence from the Investment Decisions of Public Pension Funds," Rock Center for Corporate Governance at Stanford University Working Paper No. 226, April 25, 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2754820.

[2] Whenever possible, we also cite contribution results for 2002-03. For items that relate to a year, such as contributions and operating expenditures for the year that ends June 30, 2018, the report cites the year as 2017-18. For items that relate to a specific date rather than a year, such as plan assets and liabilities and number of households as of June 30, 2018, the report cites the date as June 30, 2018 or as 6/30/18—or simply as 2018.

The following observations reflect the trends we observed among our case studies:[3]

- Employer pension contributions (i.e., pension contributions plus debt service on any Pension Obligation Bonds) from 2002-03 to 2017-18 expanded on average 400%, i.e., contributions in nominal dollars are now five times greater.
- Employer contributions are projected to rise an additional 73% on average from 2017-18 to 2029-30 in the baseline projection and 113%, i.e., more than double, in the alternative projection.
- Employer pension contributions from 2002-03 to 2017-18 have increased at a much faster rate than operating expenditures. As noted, pension contributions increased an average of 400%; operating expenditures grew 46%. As a result, pension contributions now consume on average 11.4% of all operating expenditures, more than three times their 3.9% share in 2002-03.
- The pension share of operating expenditures is projected to increase further by 2029-30: to 13.9% under the baseline projection—that is, even if all system assumptions, including assumed investment rates of return, are met—or to 17.5% under the alternative projection.[4]
- The average employer funding amount expressed as a percent of active member payroll, i.e., the employer contribution rate,[5] has increased from 17.7% in 2008-09 to 30.8% in 2017-18. By 2029-30, it reaches 35.0% under the baseline projection and 44.1% under the alternative projection.

[3] Under otherwise noted, averages include the state and the remaining 13 agencies included in this report. The averages cited here are not weighted to reflect the different sizes of the included jurisdictions or their pension obligations. We believe that the trends that we note involving these averages are instructive, but not necessarily hold more broadly or for the totality of California public pension plans. Note that some averages reflect truncated time period where data are unavailable, and instead reflect averages that include surrounding years. In some cases, exceptions are noted where employer contributions for 2002-03 were not representative of employer contributions.

[4] Under the baseline projection, the 2029-30 share of operating expenditures consumed by pension contributions is larger than the 2017-18 share for the State of California (10.1%, up from 7.1%), County of Los Angeles (10.2%, up from 8.7%), Pacific Grove (23.2%, up from 22.5%), Palo Alto (13.6%, up from 8.8%), the City of Sacramento (18.0%, up from 12.5%), Stockton (17.7%, up from 12.0%), Vallejo (23.7%, up from 15.2%), BART (13.1%, up from 8.6%), and in the Los Angeles Unified School District and the Mill Valley School District.; it falls slightly in the County of Alameda, the County of Marin, the City of Los Angeles, and the Visalia Unified School District, where it is driven by large assumed annual budget increases due to expected growth in the number of students. Under the alternative projection, the 2029-30 share of operating expenditures consumed by pension contributions is larger than the current share for all 14 jurisdictions.

[5] This includes the state, all counties and cities, one special district, and the CalSTRS and CalPERS Schools Pool employer contribution rates.

- On a market basis, the average funded ratio fell from 58.5% in 2008 to 43.0% in 2015.[6] By 2029 it improves to 48.2% in the baseline projection, but falls to 39.0% in the alternative projection.
- On an actuarial basis, the average funded ratio fell from 88.7% in 2008, prior to most of the impact of the Great Recession, to 76.0% in 2015. By 2029 it improves to 84.8% in the baseline projection, but declines further to 69.7% in the alternative projection.
- Unfunded accrued liability on an actuarial basis is the difference between plan assets and the liability for future pension payments attributable to employee service already rendered, as measured by the pension systems themselves. On average, this grew more than ten-fold between 2008 and 2015, from $11.8 billion in 2008 to $119.8 billion in 2015.[7] On a market basis, the unfunded liability total in 2015 is $464.4 billion.
- The unfunded liability per jurisdiction household on an actuarial basis also rose from an average $1,682 in 2008 to $5,071 in 2015; the unfunded liability per household on a market basis is $21,491, up from $9,127 in 2008.
- As pension funding amounts have increased, governments have reduced social, welfare and educational services, as well as "softer" services, including libraries, recreation, and community services. In some cases, governments have reduced total salaries paid, which likely includes personnel reductions.
- While these shifts in budget priorities are relatively small in some cases, they are substantial in others since many state and local expenditures are mandated, protected by statute, or reflect essential services (e.g., Proposition 98, debt service, public safety, etc.), leaving few options other than reductions services that have traditionally been considered part of government's core mission.

[6] Funded ratio metrics includes the state, all counties and cities, one special district, but excludes CalSTRS, the CalPERS Schools Pool, and school districts. The funded ratio for state plans is based on an approximation of the state's hypothetical value of CalSTRS' assets and its share of CalSTRS' liabilities.

[7] Since this report includes only a limited number of case studies, the aggregate for all public pension systems in the state is much higher. Pension Tracker estimates the market unfunded liability for all governments in the state in 2016 at more than $1.5 trillion, with an unfunded liability per household of $121,594.

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INTRODUCTION

For well more than a decade, increases in California public pension costs have been a source of concern. There is contentious debate about what is driving these cost increases—significant retroactive benefit increases, unrealistic assumptions about investment earnings, policies that mask or delay recognition of true costs, poor governance, to name the most commonly cited—but there is agreement on one fact: rising pension costs are making it harder to provide services traditionally considered part of government's core mission.[1]

In an effort to better understand these cost pressures, this report presents 14 case studies. Each looks at a particular California jurisdiction—the state, and sample cities, counties, special districts and school districts—and reports on its pension costs.[2] We track the jurisdiction's pension contributions and unfunded accrued liability[3] over time, including historical amounts and projected future results. After presenting these results in a case study, we consider the impact of pension expenditures on the jurisdiction's ability to provide services.

Our historic results include each Fiscal Year[4] since 2008-09 and each valuation date since June 30, 2008, and our projected results include each future year through 2029-30 and each future valuation date through June 30, 2029. Within this report:

- Employer contributions are shown in dollar terms and as a percentage of the jurisdiction's payroll and its total operating expenditures[5]

[1] This broadly includes poor decision making by governing boards, including investment choices and risks, high management fees, lack of financial expertise, and potential board conflicts of interest. For a recent paper, see Aleksandar Andonov, Yael V. Hochberg, Joshua D. Rauh, "Political Representation and Governance: Evidence from the Investment Decisions of Public Pension Funds," Rock Center for Corporate Governance at Stanford University Working Paper No. 226, April 25, 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2754820

[2] This report covers only pension obligations. It does not consider the costs associated with providing other post-retirement benefits for California public sector workers, including health benefits and premium subsidies for retirees and their beneficiaries. In some instances, retiree health benefit financial challenges are greater than those related to pensions.

[3] Unfunded accrued liability is the excess of the accrued liability—the present value of future benefit payments attributable to employee service already rendered—over current assets. Any outstanding Pension Obligation Bond (POB) balance is added to the accrued liability and is described as the Total Pension Obligation. POB debt service payments are also added to the employer pension contribution and describe this as the Annual Funding Amount.

[4] The Fiscal Year for California state and municipal governments runs from July 1st to the following June 30th. For items that relate to a year, such as contributions and operating expenditures for the year that ends June 30, 2018, the report cites the year as 2017-18. For items that relate to a specific date rather than a year, such as plan assets and liabilities and functions of these, such as funded ratio or unfunded liability, as of June 30, 2018, the report cites the date as June 30, 2018 or as 6/30/18—or simply as 2018, where it is understood to mean the relevant day in that year (June 30 in all cases, except December 31 for the County of Alameda). Whenever possible, in order to provide a longer-term perspective, the report references pension contributions for FY 2002-03 in the narrative.

[5] Unless otherwise indicated, operating expenditures for each jurisdiction are derived from the State Controller's Office (SCO) at By the Numbers. Operating expenditures are equal to the SCO annual data file, tab CO_STATISTICS_APPROP, Variable Deduct : Expenditures During Fiscal Year minus tab CO_EXP_DEBT_SERVICE, variable Retirement of Long-Term Debt_Total minus tab CO_EXP_DEBT_SERVICE variable Interest on Long-Term Debt_Total. We assume that State Controller reporting requirements result in definitional consistency.

- Funding levels are reported (i) as the ratio of plan assets to accrued liability, and (ii) as unfunded accrued liability, expressed in total dollars and in terms of dollars per jurisdiction household.[6]

The case studies included here are as follows:

- *State of California.* The report presents combined results that include the five largest plans covering general workforce and safety employees of the State under the California Public Employees' Retirement System (CalPERS), and the state's funding obligations under the California State Teachers' Retirement System (CalSTRS).
- *CalPERS agencies.* The large majority of cities, counties, and special districts within California provide pensions to their employees via the CalPERS system. We include case studies for the cities of Palo Alto, Pacific Grove, Sacramento, Stockton, and Vallejo, and for the San Francisco Bay Area Rapid Transit District (BART).
- *Independent systems.* We include case studies for the following jurisdictions which maintain pension systems separately from CalPERS or CalSTRS: the City of Los Angeles, and the counties of Alameda, Los Angeles and Marin.
- *Local school districts.* We consider pension costs under CalSTRS and under the CalPERS Schools Pool that impact all school districts in the state, with brief case studies for three districts: Los Angeles Unified, Mill Valley, and Visalia Unified.

Case studies are presented in alphabetical order for each jurisdiction type: state, counties, cities, school districts, and special districts.

The remainder of this Introduction describes the report's methodology, and then summarizes the most significant features of the funding policies used by California public employer pension plans. Case studies follow this Introduction. The final section offers observations resulting from the case studies, on how employee pension costs impact the public sector's ability to provide services that are traditionally considered part of government's core mission.

Basis for Results

As mentioned, we present both historic results and future projections in this report.

Historic results—that is, values that substantially reflect actuarial valuations published before this report was prepared[7]—are represented using black bars ▌within the report's figures. We relied on a variety of official documents for historic pension, jurisdictional expenditure, and demographic data. We obtained historic pension data (e.g., assets, liabilities, discount rates,

[6] These values, along with additional measures (e.g., contributions and unfunded amounts as a percentage of employee payroll, etc.), are provided as tables in appendices.

[7] At the time that this report's case studies were prepared, mostly in May through July of 2017, the most recently published valuation results were as of June 30, 2016, except that they were as of June 30, 2015 for cities and districts participating in CalPERS, and as of December 31, 2016 for the County of Alameda. Because the employer contribution for 2017-18 reflects contribution rates developed in an actuarial valuation as of June 30, 2015 (cities and districts participating in CalPERS) or as of June 30, 2016, it generally counts as "historic" in this context.

payrolls, contributions, etc.) from past valuation reports and sometimes from other documents, including the jurisdiction's Comprehensive Annual Financial Reports (CAFRs) and annual budgets, or audit reports and CAFRs for the pension system itself. Similarly, we relied on CAFRs, prospectuses, and annual continuing disclosures for Pension Obligation Bond (POB) data. Governmental expenditure data are from reports issued by the State Controller's Office and, in some cases, from a jurisdiction's annual budget documents. Population and household data are from reports issued by the California Department of Finance. In general, these historic documents are archived and available on web sites maintained by the jurisdictions, the pension systems, and the relevant California departments.

The projected results included in this report assume that the actuarial assumptions and methods employed in the most recent valuation will remain in effect throughout the forecast period (through June 30, 2029), unless a future change has already been announced.[8] Because CalPERS previously announced that its discount rate, or assumed rate of return, for ongoing plans will decrease from 7.5% to 7.375% effective June 30, 2016, to 7.25% effective June 30, 2017 and to 7% effective June 30, 2018, we reflect these important changes.[9] The report assumes no changes in plan provisions or in currently scheduled rates of member contributions, except as may be triggered by other already announced changes.

With two exceptions, the analysis assumes that a plan's experience during the forecast period will track the valuation assumptions. The exceptions are as follows:

- The actuarial valuations undertaken by the pension systems do not anticipate future plan entrants, such as from future hires. Thus, they project active populations that decrease over time with expected turnover, retirement, etc., and employee payrolls that (eventually) decrease as well, despite expected pay increases for current employees.[10] Our analysis assumes that there will be enough future hires to maintain overall payroll growth throughout the forecast period, at the rate the system uses in determining scheduled annual increases in amortization payments. Our projections thereby reflect that infusion of future entrants will gradually decrease a system's normal cost (the cost for additional benefit accruals), since under the Public Employees' Pension Reform Act

[8] Thus, for example, if in 2020 a system decides to adopt new assumed mortality rates to reflect increased life expectancy, then other things being equal, contributions in subsequent years would be higher and funded level lower than per this forecast.

[9] For the CalPERS Schools Pool, these discount rate changes each occur one year later. Similarly, our results reflect that the CalSTRS discount rate will reduce from 7.25% to 7% as of June 30, 2017. Results also reflect changes to the actuarial assumptions used by the Los Angeles Fire and Police Pensions system that are to take effect for the 2017 valuation, including lowering the discount rate from 7.5% to 7.25%, as agreed by its Board on June 1, 2017.

[10] Systems often *report* that future payrolls are assumed to increase by x% (e.g., 3%) per year, but they are merely indicating that contributions to amortize unfunded liability build in x% future annual increases—that the amortization payment stream will constitute a level percentage of future payrolls if there will happen to be just enough future hires (not anticipated in the valuations) to produce that level of payroll growth.

(PEPRA), employees hired after 2012 are generally provided pension benefits with a lower net employer cost than previous cohorts.[11]

- Each case study provides a *baseline* projection, shown in blue bars in the figures, in which investment returns during the forecast period match the system's assumed rate of return.[12] In addition, each case study provides an *alternative* projection, shown in orange bars, in which investment returns during the forecast period are 2% less[13] than the system's assumed return.[14] Note that the alternative projection models the impact of a temporary period during which returns are 2% less than assumed, not a 2% drop in the assumed rate of return. The latter would have a more dramatic and immediate impact on contribution requirements and on reported funding levels.[15] Note also that the projected return, whether equal to or 2% less than the systems' expected return, is assumed to occur in *each* future year, not merely on average over the forecast period.[16]

The report shows funding levels on two different bases. The *actuarial* measure reflects assets and accrued liability *as they are determined by the pension systems themselves*. As indicated in each case study, assets are either at market value, or at a value that is adjusted from market in order to delay recognition of past investment performance that differed from what was expected. Accrued liability is determined by discounting future benefit payments for the time value of money using the system's expected investment rate of return as of the measurement date.

The *market* measure uses the market value of assets in all cases, and *discounts future benefit payments for the time value of money using the yield on 20-year United States Treasury bonds* as

[11] We assume that the current difference between overall normal cost rates and the rates for PEPRA members will be eliminated over a period of about 25 years for safety employees, and about 33 years for non-safety employees.

[12] Each of the California public sector pension plans included in this report uses its governing board's expectation about the long-term rate of return to be earned on invested assets to discount future pension payments to current dollars—as its *discount rate*. In all cases, this assumed return is net of investment expenses. In most but not all cases, it is also net of administrative expenses; in the others, the employer contribution includes an explicit load to reimburse the fund for the administrative expenses that it pays.

[13] For the County of Alameda we use a 3% gap rather than 2% so as to reflect issues specific to that system. See the County of Alameda case study for details.

[14] Unless otherwise noted, both baseline and alternative projections assume a 10% investment return for the year ending June 30, 2017. (This does not apply to the County of Alameda, because its plan is evaluated at December 31.) This rate of return is consistent with an estimate for this period provided by CalPERS in May, but less than CalPERS' actually-reported 11.2% rate for that year.

[15] The impact would be more dramatic for two reasons. First, lowering the assumed return rate would apply for the future lifetimes of current participants and their beneficiaries, whereas under our alternative projection the reduced returns are experienced only through 2029. Second, lowering the assumed return begins to impact contribution requirements immediately, whereas each future annual return's being lower than what had been assumed affects contribution requirements only after it occurs, typically with a phase-in that then delays the full contribution impact for another five or more years.

[16] Thus the CalPERS Risk Mitigation Policy is not implicated for CalPERS agencies. Under that Policy, after the already scheduled CalPERS discount rate reductions have phased in, an investment return for any individual year that exceeds the discount rate in effect at the start of that year by at least 2% triggers a further drop in the discount rate.

of the measurement date.[17] (We assume that the yield in effect in May 2017, about 2.6%, remains in effect.) This is a riskless rate of return, and, according to prominent financial economists, it is therefore an appropriate measure of the obligations of a public sector pension plan.[18] It is, in fact, CalPERS' own proxy for the rates they use to determine the value of pension benefits under a terminating city, county or other agency plan.

The market measure plays no role in the forecast of contributions—we assume that each system will continue to determine required contributions using its existing funding policy and assumptions (including announced future changes, if any). So both the actuarial and market measures reflect the same projected stream of contributions, but the market measure provides an alternative picture of the funded level and unfunded liability at a point in time.

We assume that employers will timely remit the member and employer contributions called for under a system's funding policy. In projecting a jurisdiction's budget (e.g., operating expenditures, etc.) and demographic (population, households) values, we assume, unless otherwise noted in a case study, that the trends observed over the period between 2008 and 2015 continue through 2030.[19]

Finally, reported employer contributions do not include any member contributions that are paid ("picked up") by the employer.

Key Funding Policies

The Employee Retirement Income Security Act of 1974 (ERISA) is the federal law that governs pension plans in the United States. While it generally covers all plans and plan participants, governmental entities are exempt from provisions that impose minimum funding standards. Table 1 summarizes key funding policies used by California public sector plans and U.S. private sector pension plans. The table ignores minor or infrequent exceptions to these policies.

As can be seen from this Table, compared with the rules that private sector pension sponsors must use, the policies under which California's public sector plans are funded[20] result in significantly reduced current contributions.[21] This reflects the use of higher discount rates and commensurate lower liabilities, much longer periods over which to amortize the unfunded

[17] To adjust values to reflect alternative discount rates, a plan's weighted liability duration is assumed to remain approximately constant throughout the period covered.

[18] See, for example, "Financial Economics Principles Applied to Public Pension Plans" by Ed Bartholomew, Jeremy Gold, David G. Pitts and Larry Pollack at http://www.pensionfinance.org/papers/PubPrin.pdf.

[19] As noted earlier, expenditure data are from the State Controller's Office. Demographic data are from the California Department of Finance and have been converted to reflect June 30 of each year to match expenditure reporting periods for jurisdictions.

[20] While contributions to other California public sector plans are based on a funding policy and are reset each year by applying that policy to the results of a new actuarial measurement of assets and liabilities, contributions to CalSTRS are largely set out in advance by statute.

[21] One difference pulls in the opposite direction: if other things were equal (e.g., same discount rate), accrued liability for active employees would generally be somewhat larger under the entry-age funding method used by California public sector pension plans than per private sector funding rules. This difference is greatly outweighed by the amortization and discount rate differences noted in the table.

portion of those liabilities, lag periods before payments begin, amortizations that begin at reduced payment levels with scheduled annual increases, and phase-ins that either delay recognition of investment experience or that further reduce initial amortization payments. If the federal rules that apply to private sector (including non-profit) pension sponsors were to suddenly apply to the plans considered in this report, required contributions by these California governments would be several *times* larger than they are.[22] As can be seen from the case studies, while these public sector funding policies have held down governmental pension contributions, any underpayment must eventually be made up—in much greater amounts, and with much greater overall financial impact.

[22] That is, they would be several times larger in the near-term; eventually, they would be smaller.

Table 1—Private vs. Public Sector Funding Policies

	Private Sector Plans	California Public Sector Plans[23]
Discount rate: rate used to determine liability by discounting future benefit payments to reflect the time value of money. This is the most important actuarial assumption. A higher rate results in lower near-term contributions and higher reported funded status.	• Weighted historical average of yields on high-quality corporate bonds must be used • Currently close to 6%, dropping to 5% or less over next four years • No role for expectations about future portfolio returns	• Plans use the annual rate of return that the governing body expects the fund to earn over the plan's future life • Currently these rates are in the 7.0% to 7.6% range
Period over which unfunded accrued liability must be amortized via employer contributions	Seven years	• Due to experience different than expected, typically 30 years • Due to revised assumptions, typically 20 years
Lag before amortization payments begin	None permitted	Two years for CalPERS agency plans, one year for others
Amortization payment schedule	Level dollar: same amount for each year	Payments begin at a lower amount and increase 3% – 3.5% / year
Amortization payment phase-in and phase-out	None permitted	Payments otherwise required are significantly reduced during initial and final five years[24]
Asset valuation	• Market value • Alternatively, average over up to three years that does not deviate from market value by more than 10%	• Market value • Alternatively, adjusted to actuarial valuation that delays recognition of recent unexpected investment performance (sometimes limited to a corridor of 20% or 40% around market value)[25]
Mandatory benefit freeze for poor funding	If ratio of assets to accrued liability (measured per required discount rate) falls below 60%, all benefit accruals must freeze, regardless of collective bargaining agreements[26]	No provision. Many plans have had or will have funded ratios below 60% if measured using the assumptions mandated for use by private sector plans

[23] The Water and Power Employees' Retirement Plan of the City of Los Angeles is an exception to some of the generalizations summarized here: it uses 15-year level-dollar amortization for all elements of its unfunded liability.

[24] As an illustration, consider a 2015-16 experience loss recognized in the June 30, 2016 valuation of a CalPERS plan for a participating city, county or district. It is subject to amortization over the 30-year period beginning July 1, 2018. Because of the two-year lag followed by a five-year payment phase-in and pre-scheduled 3%/year payment increases, significant negative amortization occurs in the early years. The outstanding balance does not reduce back to its original June 30, 2016 level until 2037. In effect, amortization is postponed for 21 years.

[25] Plans generally use either this adjusted asset value or the amortization phase-in, and not both. The amortization phase-in applies to all experience gains and losses, not just the portion due to investment performance, as well as to certain other sources of unexpected change in unfunded accrued liability, such as from changes in assumptions.

[26] A significant majority of large private sector pension plans have been amended to eliminate future benefit accruals, including for existing members—not as a result of this mandatory provision aimed at poorly funded plans, but as part of broader changes involving how employees are compensated and how employer risk is managed.

CASE STUDY: STATE OF CALIFORNIA

This case study[27] focuses on California's two most significant direct[28] pension funding obligations: to CalPERS plans covering certain large state employee groups, and to CalSTRS.[29]

CalPERS Plans Covering State Employees

We include results for the five largest state employee plans.[30] These are the plans for the state's

- General ("miscellaneous") workforce
- Industrial employees
- Peace officer and firefighter groups
- California Highway Patrol members
- Other safety employees.

In total, as of June 30, 2015 these plans covered about 605,000 members, including 287,000 current employees. All results here are on a combined plan basis.

CalSTRS

CalSTRS provides pensions mostly to teachers and certain other certificated employees of school and community college districts within the state. As of June 30, 2016, it covered 914,000 members, including 439,000 current employees.

There are two key differences between the funding of other California public sector pension plans and the funding of CalSTRS.

- Other plans are funded jointly by members and employers. CalSTRS is funded jointly by members, employers (e.g., school districts), and the state.
- For other plans, employer contribution rates are determined annually under the plan's funding policy in order to reflect current funded position, recent experience, and any updated actuarial assumptions. CalSTRS contribution rates for each party are largely set well in advance by state law.[31]

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[27] See Appendix A for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[28] Pension obligations that are only indirectly funded by the state are excluded. For example, although the University of California system relies on state financial support as a source of the capital it uses to fund the University of California Retirement Plan, this case study excludes any obligations deriving from that Plan.

[29] We consider only what CalSTRS calls its "Defined Benefit Program." Despite this name, other CalSTRS programs also provide defined benefits, i.e., there is potential for an employer funding obligation beyond making an agreed contribution at the time members perform service—if long-term investment return is lower than the composite rate credited to member accounts, or if annuitants live longer than expected. Obligations under these other defined benefit programs are not material relative to the plans covered here.

[30] The analysis ignores smaller plans for other state employee groups, including for members of the judiciary and for legislators first elected prior to 1990. Again, these plans are not material relative to the plans covered here.

[31] Changes enacted in 2014 provide the Teachers' Retirement Board with some discretion to adjust state and employer contribution rates in light of valuation results, in order to re-target eventual 100% funding (per CalSTRS' assumptions) of their assigned portions of benefit liability. But this discretion is limited, especially where the needed adjustment is an increase in contribution rates.

Division of funding responsibility between the state and the school districts is complex. The state is essentially responsible for funding the plan, to the extent not funded by member and district contributions, as it would now exist if certain post-1990 changes had not occurred.[32] School districts are responsible for funding the incremental costs resulting from those post-1990 changes, to the extent not funded by certain other state contributions and by member contributions in excess of those in effect in 1990, with respect to member service through 2014.[33] No responsibility is assigned for the incremental costs resulting from post-1990 changes with respect to member service after 2014.[34] The division of funding responsibility also results in the state absorbing most of the investment risk, as discussed on the following page and in the School Districts section. Depending on future events, the statutory limits on increases in contribution rates can prevent the state and school districts from meeting their assigned responsibilities.[35]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return after June 30, 2017 is assumed to equal the discount rate, 7% (7.25% for CalPERS plans in 2017-18)
- Orange bars: projected *alternative* results—annual investment return after June 30, 2017 is assumed to be 2% less than the discount rate through 2028-29.

It is worth noting that lower assumed CalSTRS investment returns under the alternative projection do not give rise to additional state CalSTRS contributions within this period since

[32] The post-1990 changes include pension formula improvements, changes in statutory contribution rates, and a diversion of part of members' contributions to another program for a period of years. Thus, determining the state's obligation requires maintaining a hypothetical plan asset value that departs from the actual value by adding past member contributions not actually made to this program and the incremental benefits paid out as a result of the improvements, and netting out past contributions not authorized under 1990 law—all adjusted to reflect historical investment returns. In implementation, it is assumed that no other differences would have ensued: that teacher salaries would not have increased faster without the formula improvements (increasing pensions payable under the 1990 provisions), that teacher retirements since 1990 would still have occurred when they did absent the improvements, that investment strategy would not have differed under a better funded position, etc.

[33] Our projections for CalSTRS use certain assumptions in addition to those outlined in the Introduction—for example, that the ratio of benefits payable under 1990 provisions to total benefits payable will be stable over time. Because this case study was prepared later than others, CalSTRS' 13.4% investment return for 2016-17 is reflected in asset projections, rather than the assumed 10% return described in the Introduction.

[34] That is, the statutory provisions don't provide for the funding of these incremental post-2014 benefit amounts in determining permitted adjustments to contribution rates. But responsibility for funding these benefits will fall somewhere. Results here assume that it will not lie with the state; if it ultimately is a state obligation, then for the later years in our forecast the state's unfunded CalSTRS liabilities are larger than the amounts included here.

[35] The state also funds a Supplemental Benefit Maintenance Account (SBMA) that further increases a CalSTRS pension so that it retains 85% of its original purchasing power, to the extent that the automatic annual increase of 2% of the initial annuity amount and increases provided by School Lands Reserve funds are insufficient to do so. We include mandated SBMA funding as a state contribution, but do not include the SBMA's funded position, as SBMA assets are not available for other purposes.

these are set by statute.[36] With respect to the state's CalSTRS obligations, the impact of the alternative projection's reduced investment returns is seen only in lowered funded ratios and greater amounts of unfunded liability.

Contributions

The total of California's pension contributions to its main state employee CalPERS plans and to CalSTRS was $1.6 billion in 2002-03. As shown in Figure 1, this increased to $4.3 billion in 2008-09. In 2017-18, the state must contribute $8.5 billion, more than five times the 2002-03 amount. Under the baseline projection, this total contribution increases to $16.0 billion in 2029-30; under the alternative projection, it reaches $19.6 billion. All of the contribution difference between the baseline and alternative projection results relate to the CalPERS plans.[37]

We assume—per CalSTRS's most recent projections—that the state's CalSTRS contribution rate increases 0.5% per year and reaches 12.3%[38] under the baseline projection in 2023-24, where it remains until 2029-30. In the alternative scenario, we assume that the state's CalSTRS contributions continue to increase at 0.5% per year until 2029-30, eventually reaching 15.3%. In contrast, as described in the School Districts section, we assume that school district employer rates do not increase in the alternative scenario. [39]

The total state contribution has also increased as a share of operating expenditures:[40] from 2.1% in 2002-03 to 4.9% in 2008-09, and an estimated 7.1% in 2017-18 (Figure 2). By 2029-30, pension contributions consume 9.3% of the state's operating expenditures under the baseline projection, and 11.4% under the alternative projection.

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. We add the assets and accrued liability for the main state employee CalPERS plans to the state's estimated share of CalSTRS assets and accrued

[36] For additional information, see https://www.calstrs.com/sites/main/files/file-attachments/2016_db_valuation_report.pdf.

[37] Under the alternative projection, material increases in the state's annual CalPERS contribution level continue through 2034-35. This reflects that it takes six years for contribution increases resulting from the assumed experience through 2029 (investment returns 2% less than the discount rate) to phase-in.

[38] The state's 12.328% includes a 2.5% annual contribution to the CalSTRS SBMA. Without the SBMA contribution, the state's CalSTRS contribution rate reaches 9.828% in 2023-24.

[39] In short, we assume that there will be no legislative action before 2030 to further adjust future state or school district CalSTRS contribution rates.

[40] As noted in the Introduction, budget projections, including operating expenditures, are assumed to equal the trend observed between 2007-08 and 2014-15, as reported by the State Controller's Office. However, since the SCO database does not include state expenditures, state operating expenditures are defined as total General Fund expenditures less debt service, which grew 1.4% per year from 2007-08 through 2014-15. This rate almost certainly understates the long-term average since the state, unlike local governments, felt the effects of the Great Recession earlier (likely due to its dependence on capital gains taxes). The average annual growth rate from 2008-09 through 2014-15 is 3.9%. Given this, the extension of the highest marginal tax rate in 2016, and recent expenditure trends, this case study assume a 3.0% annual increase for operating expenditure projections.

liabilities,[41] and take the state's share of CalSTRS assets to be what CalSTRS assets would have been absent certain post-1990 changes,[42] and take the state's share of CalSTRS accrued liability to be that portion that reflects only 1990 benefit provisions.

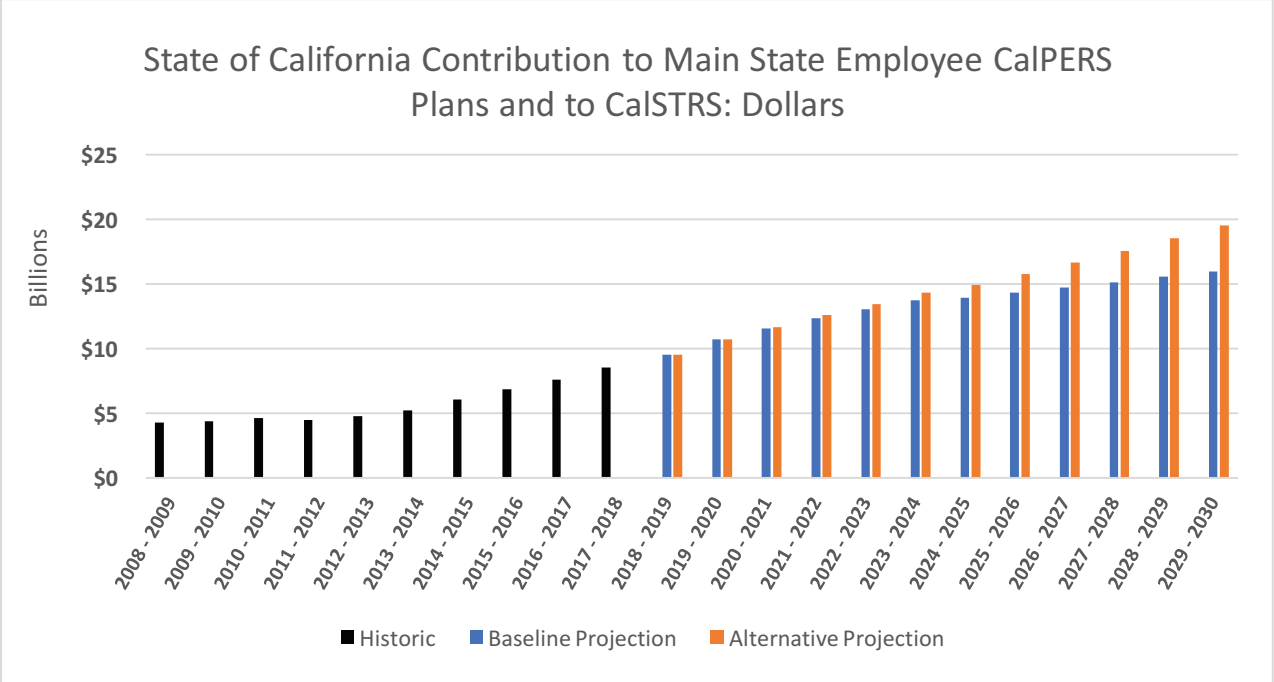

Figure 1— State of California Contribution to Main State Employee CalPERS Plans and to CalSTRS: Dollars

This case study reports two measures of this funded ratio: Market and Actuarial. Each uses assets at market value.[43]

- *Market*: The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.
  - On this basis, the funded ratio dropped from 65% in 2008 to 38% in 2016.
  - Under the baseline projection, it will be 51% in 2029.
  - Under the alternative projection, it will be 47% in 2029.

[41] There is less precision associated with state liabilities because of the complexities involved in estimating the state's hypothetical value of CalSTRS' assets and its share of CalSTRS' liabilities.

[42] See footnote 32.

[43] CalSTRS generally uses an alternative measure of asset value that delays recognition of recent unexpected investment performance, both in measuring the adequacy of contribution rates and in reporting funded ratios and unfunded liability. To maintain consistency with CalPERS results, this case study uses the market value of CalSTRS assets in reporting funded ratio and unfunded liability amounts, even on an "Actuarial" basis.

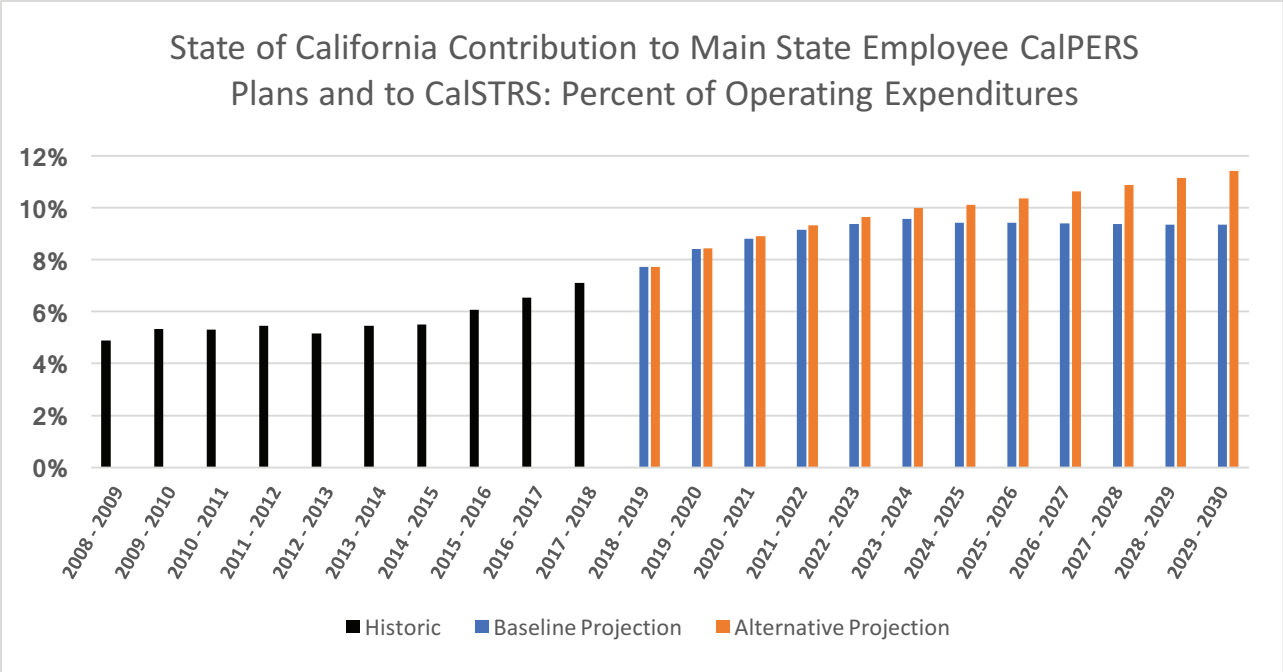

Figure 2— State of California Contribution to Main State Employee CalPERS Plans and to CalSTRS: Percent of Operating Expenditures

- *Actuarial*: The discount rate used to determine liability as of a measurement date is set by CalPERS and CalSTRS to reflect their expectations about long-term investment performance. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio dropped from 98% in 2008[44] to 75% in 2016.
  - Under the baseline projection, the funded ratio is 88% in 2029.
  - Under the alternative projection, the funded ratio is 81% in 2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $131 billion in 2008 to $477 billion in 2016. By 2029 it will reach $582 billion under the baseline projection and $627 billion under the alternative projection. As shown in the following figure, this amounts to an increase from $10,500 per household in the state in 2008 to $36,800 in 2016; by 2029, it reaches $42,400 per household under the baseline projection, and $45,700 under the alternative projection.

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $5.2 billion in 2008 to $97.2 billion in 2016. Under the baseline projection, it reaches $106 billion in 2020 and 2021 before

[44] Using the market value of assets, as of June 30, 2008 the combined actuarial funded ratio for the CalPERS plans was 85%, reflecting a 7.75% discount rate, and the funded ratio of the CalSTRS plan was 88%, reflecting an 8% discount rate. However, based on the hypothetical asset value and the liability for 1990 benefit provisions used in determining the state's funding responsibilities, the funded ratio for the state's share of the CalSTRS plan was 108%. The combined ratio for the CalPERS plans and the state's share of CalSTRS was 98%.

dropping to $83 billion by 2029;[45] under the alternative projection, it grows to $128 billion by 2029.

The actuarial unfunded accrued liability per household increased from $400 in 2008 to $7,500 in 2016. Under the baseline projection, it reaches $8,100 in 2020 but drops to $6,100 by 2029; under the alternative projection, it grows to $9,500 per household in 2027 before falling slightly to $9,400 in 2029.

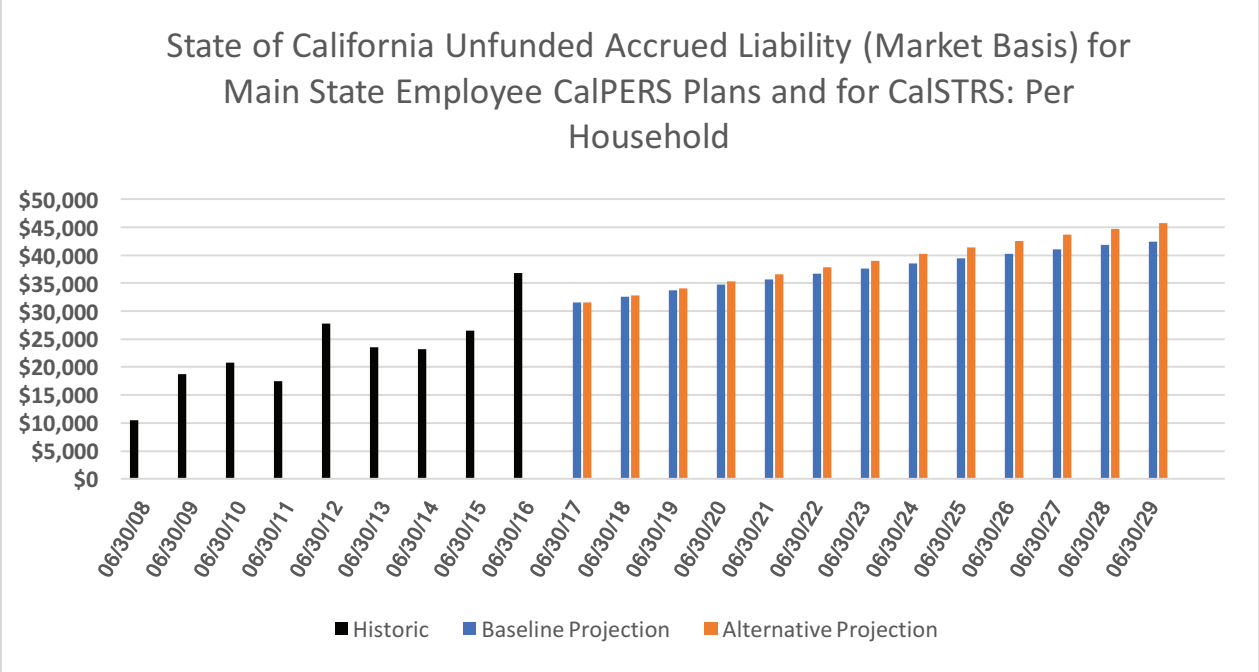

Figure 3— State of California Unfunded Accrued Liability (Market Basis) for Main State Employee CalPERS Plans and for CalSTRS: Per Household

Crowd Out by Pension Contributions[46]

As discussed above, the pension expenditure share of the state's operating budget increased from 2.1% in 2002-03 to 4.9% in 2008-09; it is estimated at 7.1% in 2017-18.[47] This increasing share, despite an expanding budget, has shifted $6.0 billion in 2017-18 from other state expenditures to

[45] The unfunded liability falls since we assume the state earns its average investment rate of return over this time period, permitting it to pay both normal costs and a portion of its unfunded liability.

[46] This crowd-out analysis focuses on past and expected changes in the state's pension contributions as a share of its operating budget. However, because of the way CalSTRS is funded, it cannot provide the full picture. Under our alternative projection, where investment returns over the next 12 years are 2% less than the systems assume, failure to respond to that experience by increasing contributions to CalSTRS limits the pension budget pressure noted here, but means that the impact in subsequent years will be that much greater.

[47] The 2017-18 operating expenditure share is based on our 3.0% long-term forecast, starting from the actual 2014-15 figure. The final 2017-18 figure is likely to be slightly lower since operating expenditures have grown at more than 3.0% since 2014-15.

pensions.[48] Changes in state expenditures by agency and department suggest that this reduction has come primarily from social services and higher education.[49] For example, the expenditure share for the Department of Social Services (DSS) fell from 10.7% in 2002-03 to 6.0% in 2014-15 before climbing to 7.0% in 2017-18.[50] The higher education share of operating expenditures fell from 11.3% in 2002-03 to 9.8% in 2014-15, although it increased to 10.5% in 2017-18.[51] In addition, expenditure shares fell in several smaller departments from 2002-03 through 2014-15: the Department of Justice (0.4% to 0.2%), Department of Parks and Recreation (0.2% to 0.1%), and Department of Water Resources (0.2% to 0.1%).[52] Figure 4 illustrates expenditure growth for General Fund operating, pension, Higher Education, and DSS expenditures from 2002-03 through 2017-18.

The pension share of operating expenditures is projected to increase from 7.1% in 2017-18 to 9.3% in 2029-30 in the baseline projection, suggesting crowd out of an additional $4.1 billion.[53] In the alternative projection, the pension share of operating expenditures increases to 11.4%, crowding out an additional $3.9 billion, i.e., $8.0 billion total, in non-pension expenditures in 2029-30.[54] This expansion in pension funding requirements could be accommodated with additional 27% reductions in DSS and Higher Education expenditures (or reductions in other agencies and/or departments), or with slightly more than 4% across-the-board budget reductions.

[48] This figure is based on the pension share of operating expenditures in 2002-03 and 2017-18 (2.1% and 7.1%, respectively) and the 2017-18 operating budget of $120.0 billion, i.e., $120.0 billion times 5.0%. Numbers are rounded in all crowd out calculations in this report.

[49] Proposition 98 generally guarantees a minimum funding amount to K-14 education, roughly 40%. As a result, increased pension expenditures disproportionately crowd out state services that do not have similar protections. This assessment is based on annual General Fund expenditures by agency and department provided by the Legislative Analyst's Office. See http://www.lao.ca.gov/PolicyAreas/state-budget/historical-data.

[50] The DSS total includes expenditures covering state operations and local assistance. According to the department's website, its missions include social services to the elderly, blind, disabled and other children and adults, and licensing and regulating foster homes, group homes, residential care facilities, day care facilities, and preschools. See http://www.cdss.ca.gov/cdssweb/entres/pdf/PUB417-CDSS_Brochure.pdf.

[51] This reflects expenditures for the University of California (state operations), California State University (state operations), and community colleges (state operations and local assistance).

[52] Expenditures for the Department of Water Resources include state operations plus local assistance.

[53] This figure is based on the pension share of operating expenditures in 2017-18 and 2029-30 (7.1% and 9.3%, respectively) and the projected 2029-30 operating budget of $186.1 billion, i.e., $171.0 billion times 2.2%. Changes in agency and department expenditures are based on further operating share reductions from 2017-18.

[54] This estimate is based on the increased pension share (11.4%, up from 7.1%) times projected 2029-30 operating expenditures of $186.1 billion.

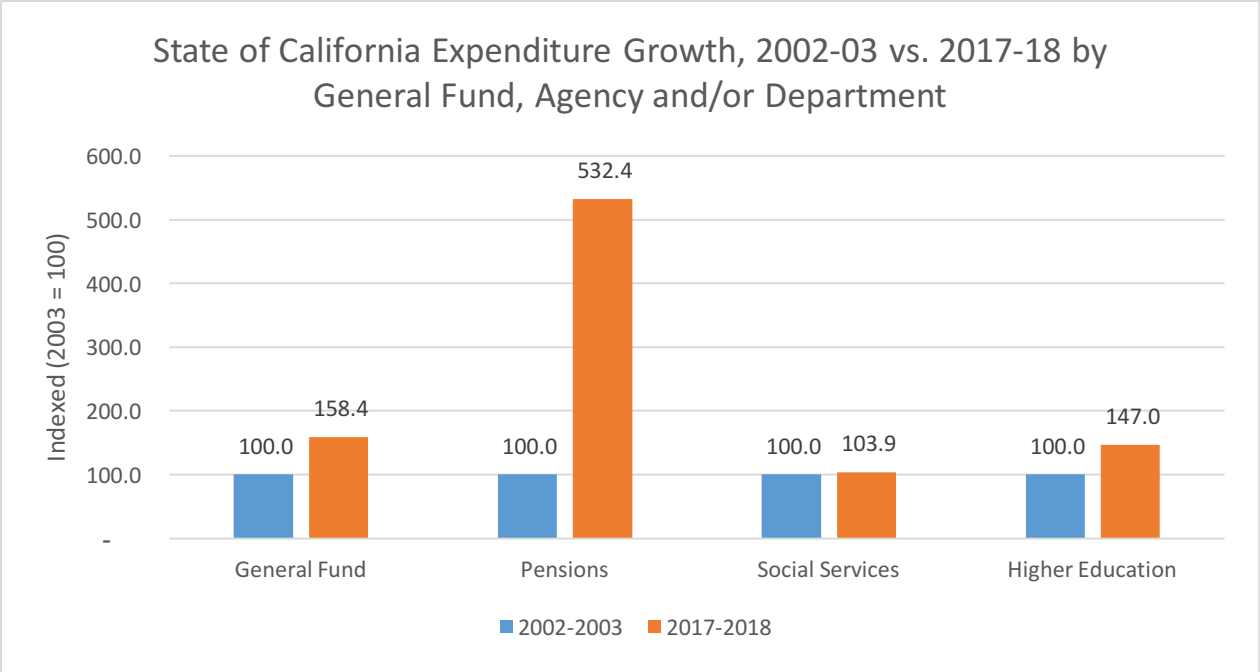

Figure 4— State of California Expenditure Growth, 2002-03 vs. 2017-18 by General Fund, Agency, and/or Department

COUNTY CASE STUDIES

The following section contains three case studies:

- County of Alameda
- County of Los Angeles
- County of Marin.

Each of these is an independent system, i.e., each operates independently and separately from CalPERS.

CASE STUDY: COUNTY OF ALAMEDA

The Alameda County Employees' Retirement Association (ACERA) provides pension benefits for County employees, including in its Superior Court. ACERA covered 22,616 participants at December 31, 2016, including 11,111 active members.[55]

Expected Rate of Return

The assumed rate of future annual investment return that is used as a discounting rate in determining ACERA contribution requirements and in reporting its actuarial funded status is 7.60%. This is noteworthy for two reasons.

First, 7.60% is higher than the rates now in use by other California public sector plans. Second, it is the assumed return after deducting not only investment and administrative expenses (about 1% of assets), but a portion of "excess earnings": whenever the fund earns more than the assumed 7.60% for a year, 50% of that excess transfers to a separate account that pays benefits not provided under the pension plan.

ACERA's external actuaries note that "the 7.6% investment return assumption has been developed without taking into consideration the impact of the 'excess earnings' sharing mechanism." Their stochastic modeling shows that "the 50/50 allocation of future excess earnings would have about the same impact as an 'outflow' (i.e., assets not available to fund the benefits included in this valuation) that would average approximately 0.75% of assets over time".[56] In effect, ACERA implicitly assumes that prior to deductions for expenses and sharing of excess, investment returns will average 9.35% per year (7.6% + 1.0% + 0.75% = 9.35%).

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual net investment return is assumed to equal the ACERA discount rate, 7.60%, for the 2017 through 2029 calendar years[57]

[55] See Appendix B for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[56] Segal Consulting, "Alameda County Employees' Retirement Association Actuarial Valuation and Review as of December 31, 2016," pp. i-iv, https://www.acera.org/sites/main/files/file-attachments/rpts_05579-002_acera_12_31_2016_actuarial_valuation_report_client_003.pdf

[57] Although the county's Fiscal Year begins July 1, ACERA is on a calendar year basis starting Jan. 1.

Orange bars: projected *alternative* results—annual net investment return is assumed to be 3% less than the ACERA discount rate, or 4.60%,[58] for the 2017 through 2029 calendar years.[59]

Pension Obligation Bonds

In 1996, the County of Alameda issued $306.9 million in Pension Obligation Bonds (POB) with maturities through 2018.[60] Proceeds, net of issuance costs and certain dedicated uses, were contributed to the Plan. The outstanding balance on these bonds was $198.9 million as of June 30, 2016.

Here we combine the County's ACERA contribution with its POB debt service to arrive at an Annual Funding Amount; we also combine ACERA's accrued pension liability with the outstanding POB balance to arrive at a Total Pension Obligation.

Adjustment to Fiscal Year Basis

We determine the Annual Funding Amount for the County's July 1 through June 30 fiscal year as the sum of (i) the average County contribution to ACERA for the two calendar years in which the fiscal year falls, and (ii) the County's POB debt service for that fiscal year.[61] We determine the Total Pension Obligation as of a fiscal year end (June 30) as the sum of (i) the average ACERA accrued liability value as of the two surrounding December 31 dates, and (ii) the outstanding POB balance as of June 30; we determine ACERA asset values as of June 30 by averaging the values as of the two surrounding December 31dates.

Contributions

The Annual Funding Amount was $80 million in 2002-03. As shown in Figure 5, it grew to $191 million in 2008-09, and is expected to reach roughly $346 million in 2017-18. After a temporary reduction due to the completion of POB debt service during 2018-19, increases resume and the

[58] We assume a 4.6% per year return based on several factors: 1) differences in Alameda's investment policies don't support their higher assumed rate of return, 2) compared with others, such as CalPERS, ACERA loses half of any single year's return in excess of 7.6%, and 3) investment and administrative expenses are much higher for ACERA than others.

[59] In other case studies included in this report, the alternative projection involves investment returns during the forecast period that are 2% below the system's assumed rate. We believe that 3% is the appropriate difference to use here, given the factors noted earlier.

[60] The annual yields on bonds maturing after 2014 are about 7.5%.

[61] For example, we determine the Annual Funding Amount for the 2002-03 fiscal year, $80 million as cited in the following section, as the sum of

- The average of the County's ACERA contributions for the 2002 and 2003 calendar years, $27 million for 2002 and $49 million for 2003, or $38 million, and
- Its POB debt service in 2002-03 of $42 million.

County's pension contributions reach $433 million in 2029-30 under the baseline projection, and $639 million under the alternative projection.[62]

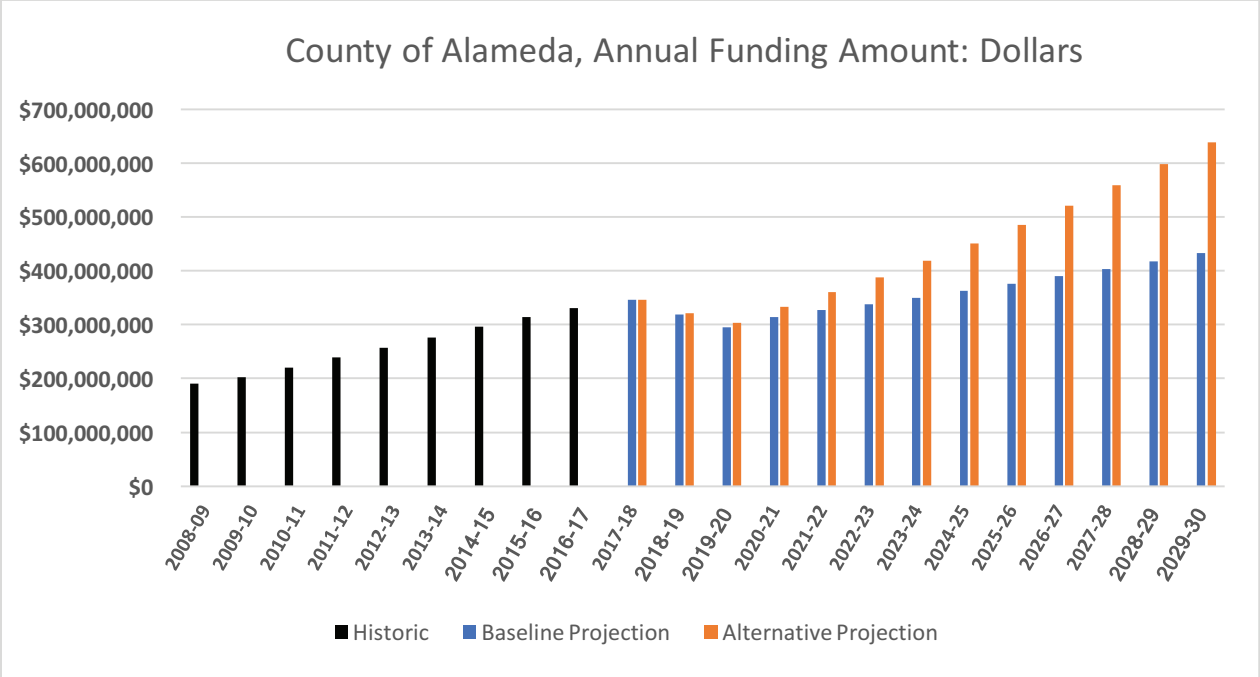

Figure 5—County of Alameda Annual Pension Contributions: Dollars

The Annual Funding Amount increased as a share of County operating expenditures, from 5.1% in 2002-03 to 9.8% in 2008-09, and to an expected 13.4% in 2017-18 (Figure 6). In the baseline projection, it declines to 11.4% by 2029-30. In the alternative projection, it increases to 16.8% by that year.

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. We report the ratio of Plan assets to Total Pension Obligation using two measures: Market and Actuarial.

- *Market*: The yield on 20-year US Treasury bonds as of each measurement date is used to discount future benefit payments to reflect the time value of money. Assets are at market value.
  - The funded ratio dropped from 43% in 2008 to 41% in 2016.
  - Under the baseline projection, it will be 51% by 2029.
  - Under the alternative projection, it will be 38% by 2029.

[62] Under the alternative projection, the less-than-expected ACERA investment returns through the 2029 calendar year give rise to material annual increases in the County's contribution level that continue through its 2035-36 fiscal year. This reflects delayed recognition of unexpected investment experience under ACERA funding policy.

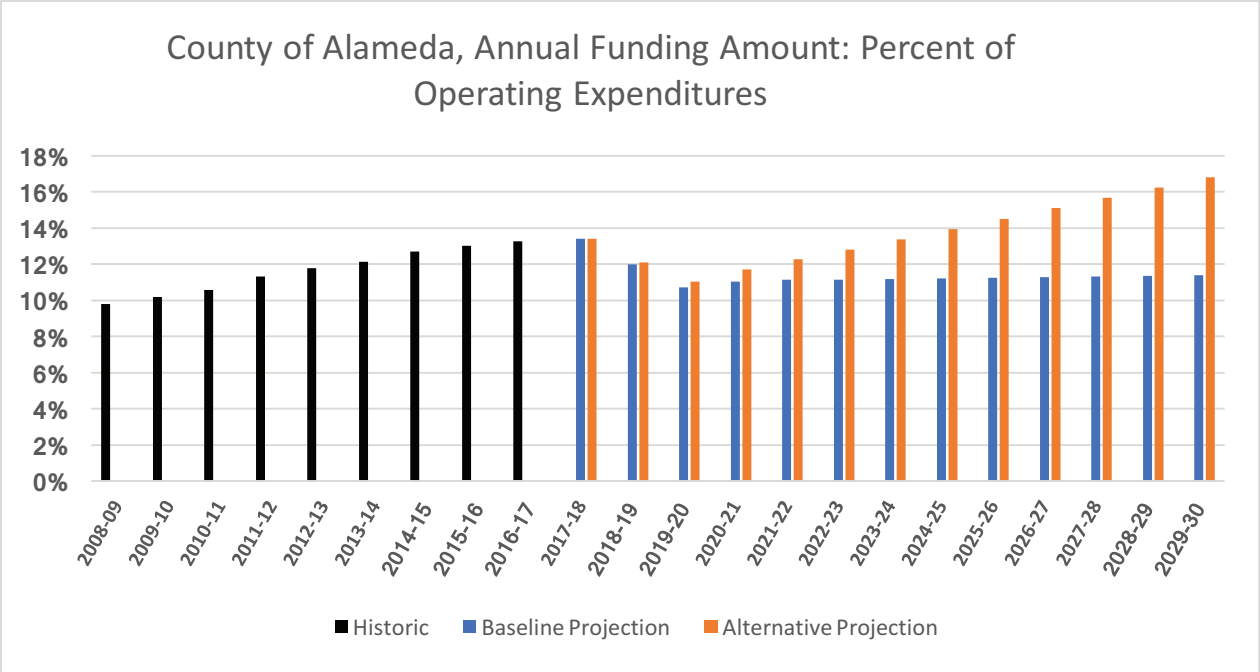

Figure 6—County of Alameda Annual Pension Contributions: Percent of Operating Expenditures

- *Actuarial*: ACERA's expected rate of return at each measurement date, currently 7.6% after deduction for expenses and sharing of excess returns, is used to discount future benefit payments. Assets are adjusted from market value in order to delay recognition of past investment performance that differed from the expected rate.
  - The funded ratio dropped from 78% in 2008 to 76% in 2016.
  - Under the baseline projection, it will be 91% by 2029.
  - Under the alternative projection, it will be 72% by 2029.

Unfunded Total Pension Obligation: Market Basis

On a Market basis, the portion of the Total Pension Obligation not funded by Plan assets increased from $5.3 billion in 2008 to $8.5 billion in 2016. By 2029, under the baseline projection it is $11.2 billion, and under the alternative projection it is $14.2 billion. As shown in Figure 7, this amounts to an increase from $9,800 per County household in 2008 to $14,900 in 2016; by the end of 2029, it is $17,900 per household under the baseline projection, and $22,700 under the alternative projection.

Unfunded Total Pension Obligation: Actuarial Basis

On an Actuarial basis, the portion of the Total Pension Obligation not funded by Plan assets increased from $1.3 billion in 2008 to $2.0 billion in 2016. By the end of 2029 it is $1.1 billion under the baseline projection, and $3.5 billion under the alternative projection.

Per household, the portion of the Total Pension Obligation not funded by Plan assets increased from $2,300 in 2008 to $3,500 in 2016. Under the baseline projection, it drops to $1,800 by 2029; under the alternative projection, it grows to $5,600 by 2029.

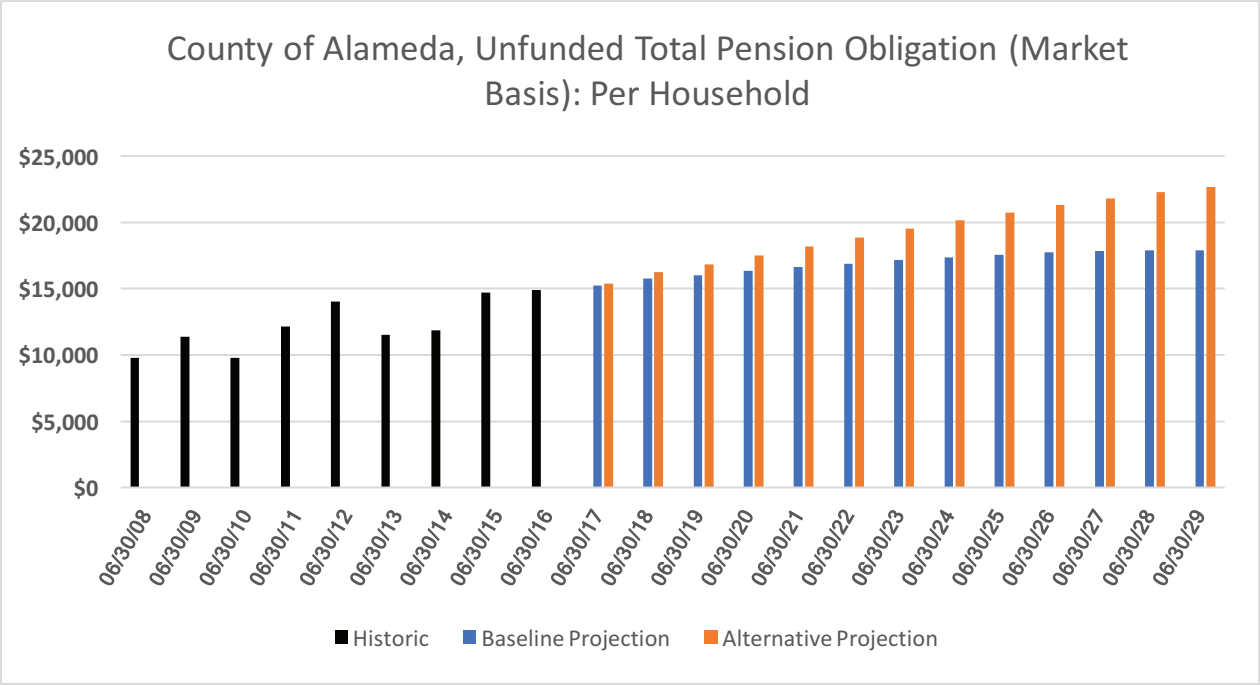

Figure 7—County of Alameda Unfunded Accrued Pension Liability (Market Basis): Per Household

Crowd Out by Pension Contributions

As discussed above, the pension expenditure share of the County of Alameda's operating budget increased from 5.1% in 2002-03 to 13.4% in 2017-18. This increasing share, despite an expanding budget, has shifted up to $214 million in 2017-18 funds from other county expenditures to pensions.[63] Changes in expenditures by program suggest that this reduction has come mostly at the expense of Public Assistance, which declined from a 33.6% share of expenditures in 2002-03 to a 27.0% share in 2017-18.[64] The share of expenditures for Public Protection and Health Care Services also decreased, from 25.8% to 22.8% and from 26.1% to 23.9%, respectively.

[63] This is based on the change in pension share of operating expenditures between 2002-03 and 2017-18 (from 5.1% to 13.4%) and the 2017-18 operating budget of about $2.6 billion, i.e., 8.3% times $2.6 billion.

[64] This relative share is based on expenditures among eight county programs. The sum of expenditures for these eight programs is similar, but not identical, to total operating expenditures reported by the State Controller's Office. See "County of Alameda Proposed Budget 2002-2003," p. 4, http://acgov.org/government/documents/budgets/budget_2003_amended.pdf, and "County of Alameda Proposed Budget 2017-2018, p. 8, http://acgov.org/MS/OpenBudget/pdf/FY17-18/FY%202017-18%20Proposed%20Budget%20Book-for%20Web%20and%20CD.pdf.

The pension share of operating expenditures is projected to decrease from 13.4% in 2017-18 to 11.4% in 2029-30 under the baseline projection, suggesting that additional crowd may be less likely.[65] Under the alternative projection, the pension share of operating expenditures increases to 16.8%, crowding out an additional $128 million in other expenditures in 2029-30.[66] This increase could be accommodated with additional reductions (amounts shown in parentheses) in any one of the following: Public Assistance (20%), Public Protection (12%) or Health Care Services (9%). This could also be addressed with 3% across-the-board reductions.[67]

[65] At the same time, it should be borne in mind that realizing the assumptions underlying the baseline projection is considerably more challenging in the case of Alameda County (requiring an average annual ACERA investment return of 7.6% over the period from January 1, 2017 through December 31, 2029, after netting out investment and administrative expenses and 50% of any annual return in excess of 7.6%) than it is in the case of the other jurisdictions considered in this report, where expected returns are lower and there is no sharing of each year's "excess" investment earnings.

[66] This estimate is based on the increased pension share (16.8%, up from 13.4%) times projected 2029-30 operating expenditures of $3.8 billion.

[67] Changes in program expenditures are based on further operating share reductions from 2017-18.

CASE STUDY: COUNTY OF LOS ANGELES

The Los Angeles County Employees Retirement Association (LACERA) provides pension benefits under three plans for the county's public safety employees, and under six plans for its general workforce. In total, these plans covered 171,000 participants on June 30, 2016, including 95,000 current employees. Results here reflect all nine plans on a combined basis.[68]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return is assumed to equal to the LACERA discount rate, 7.25%, through 2028-29
- Orange bars: projected *alternative* results—annual investment return is assumed to be 2% less than the LACERA discount rate, or 5.25%, through 2028-29.

Contributions

County pension expenditures were $326 million in 2002-03. As shown in Figure 8, they had more than doubled, to $847 million, by 2008-09. In 2017-18, the county will contribute $1.5 billion, about five times the 2002-03 amount. By 2029-30, these contributions are expected to reach $2.5 billion in the baseline projection, and $3.3 billion in the alternative projection.

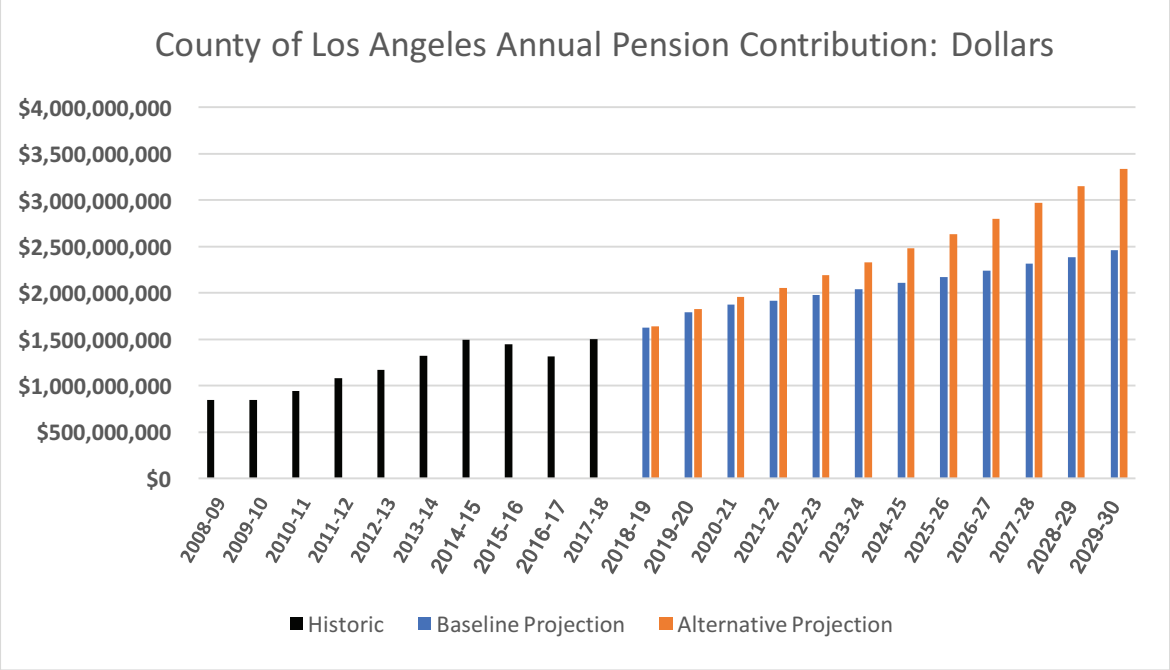

Figure 8—County of Los Angeles Annual Pension Contributions: Dollars

[68] See Appendix C for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

Pension contributions have also increased as a share of county operating expenditures. This share was 3.0% in 2002-03, 6.2% in 2008-09, and is 8.7% in 2017-18 (Figure 9). By 2029-30, county pension contributions are expected to consume 10.2% of county operating expenditures under the baseline projection, and 13.8% under the alternative projection.

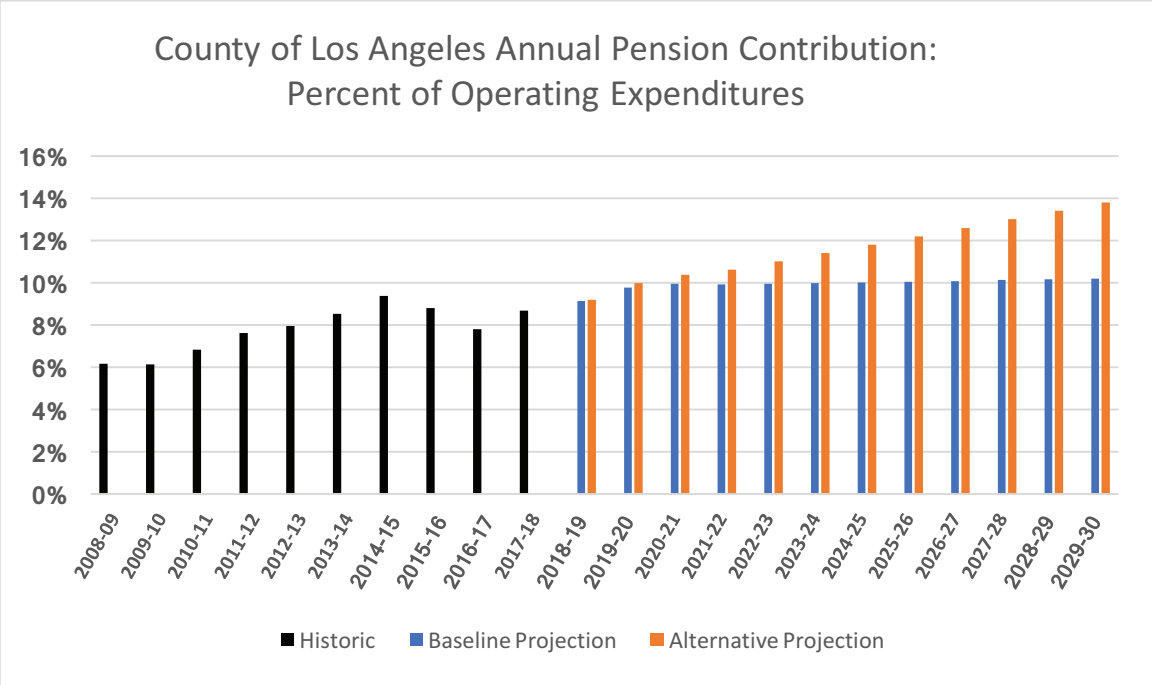

Figure 9—County of Los Angeles Annual Pension Contributions: Percent of Operating Expenditures

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This case study reports two measures of this funded ratio: Market and Actuarial.

- *Market*: The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.[69] Assets are at market value.
  - On this basis, the funded ratio dropped from 60% in 2008 to 38% in 2016.
  - Under the baseline projection, it will be 48% in 2029.
  - Under the alternative projection, the funded ratio will be 39% in 2029.

[69] This report assume that future yields remain at current levels. See the Introduction for more information.

- *Actuarial*: The discount rate used to determine liability is set by LACERA to reflect its expectations about long-term investment performance, and is 7.25% per year. Assets are adjusted to delay recognition of recent investment performance that differed from what was expected. This measure is less volatile than the Market funded ratio.
    - On this basis, the funded ratio dropped from 95% in 2008 to 79% in 2016.
    - Under the baseline projection, it will be 87% in 2029.
    - Under the alternative projection, it will be 74% in 2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $23.2 billion in 2008 to $76.1 billion in 2016. By 2029 it reaches $97.8 billion under the baseline projection, and $111.7 billion under the alternative projection. As shown in the following figure, this amounts to an increase from $7,200 per County household in 2008 to $23,000 in 2016; by 2029, it reaches $28,400 per household under the baseline projection, and $32,400 under the alternative projection.

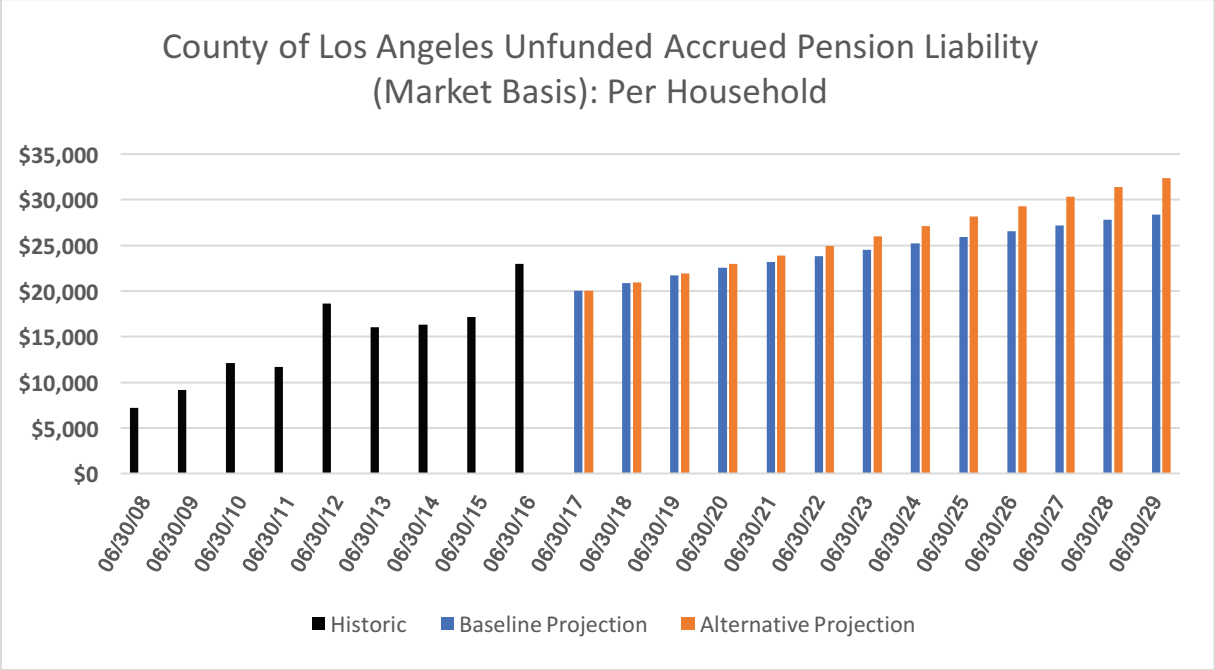

Figure 10—County of Los Angeles Unfunded Accrued Pension Liability (Market Basis): Per Household

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $2.3 billion in 2008 to $12.8 billion in 2016. Under the baseline projection, it reaches $14.8 billion in 2020, but drops to $12.9 billion by 2029; under the alternative projection, it grows to $26.8 billion by 2029.

The actuarial unfunded accrued liability per household increased from $700 in 2008 to $3,800 in 2016. Under the baseline projection, it reaches $4,400 in 2020 but drops to $3,700 by 2029; under the alternative projection, it grows to $7,800 per household by 2029.

Crowd Out by Pension Contributions

As discussed in the Contributions section, the pension share of the county's operating expenditures has increased over time, from 3.0% in 2002-03 to 8.7% in 2017-18. This increasing share of pension expenditures, even with an expanding operating budget, has shifted nearly $1 billion in 2017-18 from other county expenditures to pensions.[70] A review of county expenditures by function suggests that this reduction has come almost entirely at the expense of Public Assistance, which saw its budget share fall from 37.6% in 2002-03 to 32.7% in 2015-16.[71] Public Assistance programs include In-Home Support Services, Cash Assistance for Immigrants, Foster Care, Children and Family Services, Workforce Development, and Military and Veterans' Affairs.[72]

Pension crowd out is likely to continue. In the baseline projection, county pension expenditures appear poised to displace an additional $364 million in other county spending in 2029-30.[73] In the alternative projection, county pension expenditures appear likely to crowd out an additional $1.2 billion in other county spending.[74] Public Assistance programs may be subject to additional reductions. To provide perspective, $1.2 billion reflects an amount greater than projected 2029-30 county expenditures in Trial Court Operations, Public Defender, Parks and Recreation, and Public Health – Children's Medical Services combined.[75] Alternatively, this $1.2 billion reduction would require 5% across-the-board expenditure reductions.

[70] This is based on the change in pension share of operating expenditures between 2002-03 and 2017-18 (3.0% and 8.7%, respectively) and the 2017-18 operating budget of $17.3 billion, i.e., $17.3 billion times 5.7%.

[71] Other functional expenditures categories (e.g., General Government, Public Protection, Public Ways and Facilities, Health and Sanitation, Education, Recreational and Cultural Services, and Interest on Long-term Debt) changed little over the 2003-2016 period. The 2017-18 budget request for public assistance indicates a further decline to approximately 31.4% of expenditures. Functional shares are based on 2003 and 2016 CAFRs and "County of Los Angeles 2017-18 Recommended Budget," Vol. 2, p. 29.1, http://ceo.lacounty.gov/pdf/budget/20117-18/2017-18%20Recommended%20Budget%20Volume%20II.pdf.

[72] "County of Los Angeles 2017-18 Recommended Budget," Vol. 2, pp. 8.6, 8.10, 30.9, http://ceo.lacounty.gov/pdf/budget/20117-18/2017-18%20Recommended%20Budget%20Volume%20II.pdf.

[73] This excludes any additional revenue increases, e.g., a county sales tax, and is based on the increase in projected pension share of operating expenditures, 10.2% minus 8.7%, or 1.5%, times projected county operating expenditures in 2029-30 of $24.1 billion.

[74] This is based on the increase in projected pension share of operating expenditures, 13.8% minus 8.7%, or 5.1%, times projected county operating expenditures in 2029-30 of $24.1 billion.

[75] Changes in functional expenditures are based on further operating share reductions from 2017-18. See County of Los Angeles, 2017-18 Recommended Budget, Schedule 8, p. 30.1-30.12, http://ceo.lacounty.gov/pdf/budget/20117-18/2017-18%20Recommended%20Budget%20Volume%20II.pdf.

CASE STUDY: COUNTY OF MARIN

The Marin County Employees' Retirement Association (MCERA) provides pension benefits for the employees of three employer groups: (1) County of Marin, including its courts and certain special districts, (2) the City of San Rafael, and (3) the Novato Fire Protection District. Results here reflect only the group (1) portion, referred to as "the Plan." The Plan covered 5,456 participants at June 30, 2016, including 2,243 current employees.[76]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return is assumed to equal the MCERA discount rate, 7.25%, through 2028-29
- Orange bars: projected *alternative* results—annual investment return is assumed to be 2% less than the MCERA discount rate, or 5.25%, through 2028-29.

Pension Obligation Bonds

In 2003, the County issued $112.8 million in Pension Obligation Bonds (POB) with maturities through 2026.[77] Proceeds, net of advance interest funding and issuance costs, were contributed to the Plan. The outstanding balance on the POB was $99.7 million as of June 30, 2016.

We combine the County's POB debt service with its Plan contribution[78] to arrive at an Annual Funding Amount, and the POB balance with the Plan's accrued liability, to arrive at a Total Pension Obligation.

Annual Funding Amount

The Annual Funding Amount for 2002-03 was $21.3 million. That increased to $42.6 million in 2008-09 and further to $64.0 million in 2017-18, as shown in Figure 11.[79] In 2026-27, the final year of POB debt service, the county's Annual Funding Amount reaches $79 million under the baseline projection, and $100 million under the alternative projection. By the final year of this

[76] See Appendix D for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[77] Bonds maturing after 2017 carry an average coupon rate of about 5.4%.

[78] As noted in the Introduction, member contributions are not included as employer contributions in this report even when paid by employers ("picked-up"). The County paid $10.7 million in member contributions in 2014-15 and $11.0 million in 2015-16.

[79] In 2012-13, the Funding Amount was $89.7 million, including a contribution to MCERA of $82.1 million, or $32.2 million more than the amount required under MCERA funding policy for that year. It is unclear why the county made additional contributions in this year.

forecast, 2029-30, county contributions to MCERA are $70 million under the baseline projection, and $103 million under the alternative projection.[80, 81]

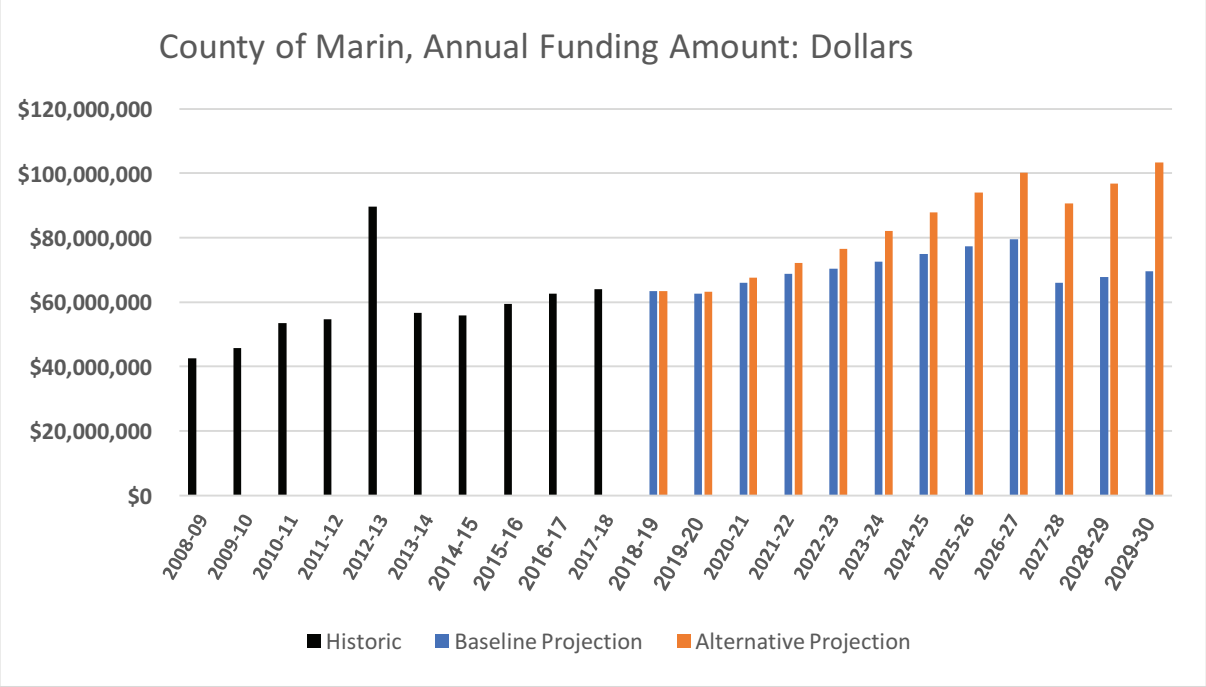

Figure 11—County of Marin Annual Pension Contributions: Dollars[82]

The County of Marin's Annual Funding Amount as a share of operating expenditures was 7.0% in 2002-03. This has increased to 10.2% in 2008-09 and to 13.6% in 2017-18 (Figure 12). By 2029-30, the pension share of operating expenditures is projected to be 13.2% in the baseline projection, and 19.6% in the alternative projection.

[80] Under each projection, 2029-30 includes a $25.0 million final installment in the 17-year amortization of an unfunded liability base established June 30, 2013.

[81] Under the alternative projection, less-than-expected investment returns through 2028-29 give rise to material annual increases in contribution level through 2034-35. Per MCERA funding policy, payments to amortize unexpected changes in unfunded accrued liability, such as from investment returns less than expected, phase in over five years following a one-year delay.

[82] See footnote 76 for details on the 2012-13 amount.

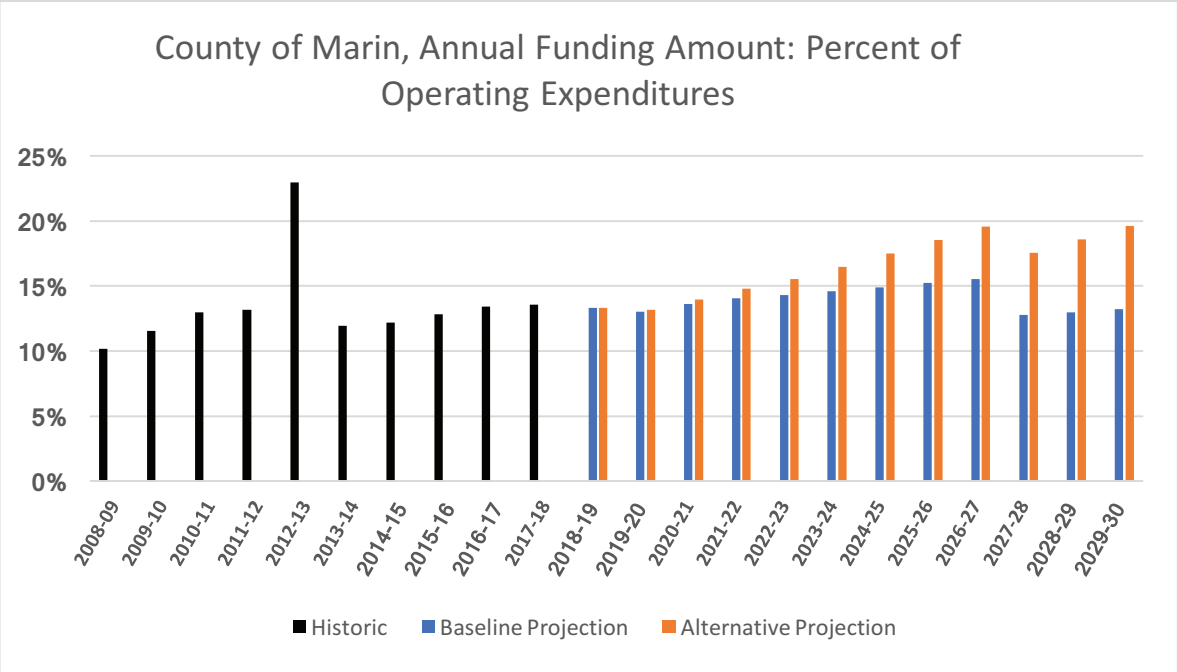

Figure 12—County of Marin Annual Pension Contributions: Percent of Operating Expenditures

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This case study reports the ratio of Plan assets to Total Pension Obligation using two measures: Market and Actuarial. For measurement dates after June 30, 2013, the market value of assets is used in both measures.[83]

- *Market*: The discount rate is the yield on 20-year US Treasury bonds as of each measurement date.[84]
  - On this basis, the funded ratio dropped from 50% in 2008 to 41% in 2016.
  - Under the baseline projection, it will be 53% in 2029.
  - Under the alternative projection, it will be 43% in 2029.
- *Actuarial*: The discount rate, currently 7.25%, is set by MCERA to reflect its expectations about long-term investment performance. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio was 80% in 2008, and recovered to that 80% level in 2016 after dropping to 67% in 2010.
  - Under the baseline projection, it will be 96% in 2029.
  - Under the alternative projection, it will be 77% in 2029.

[83] Prior to June 30, 2014, the Actuarial measure reflects an adjusted asset value that delayed recognition of past investment performance to the extent that it differed from what was expected.

[84] This report assumes that future yields remain at current levels. See the Introduction for more information.

Unfunded Total Pension Obligation: Market Basis

On a Market basis, the portion of the Total Pension Obligation not funded by Plan assets increased from $1.0 billion in 2008 to $2.3 billion in 2016. By 2029, under the baseline projection, it is also $2.3 billion, after dropping below that level. Under the alternative projection, it is $2.8 billion. As shown in Figure 13, this amounts to an increase from $10,000 per county household in 2008 to $22,000 in 2016; by 2029, it is still $22,000 per household under the baseline projection, and $27,000 under the alternative projection.

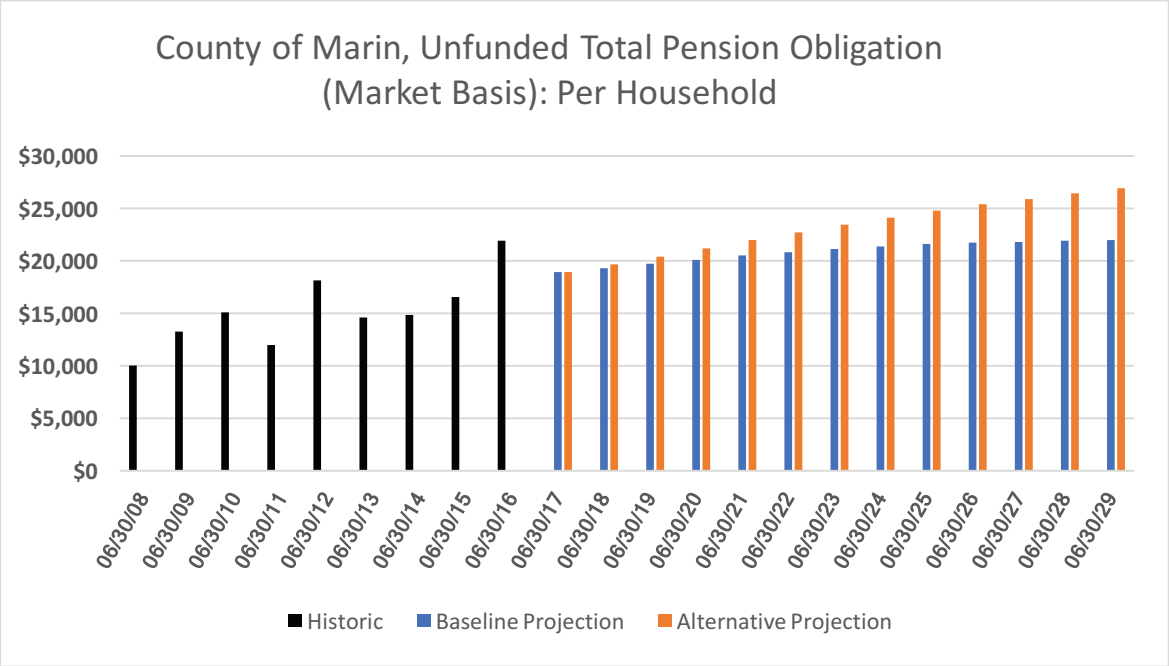

Figure 13—County of Marin Unfunded Accrued Pension Liability (Market Basis): Per Household

Unfunded Total Pension Obligation: Actuarial Basis

On an Actuarial basis, the portion of the Total Pension Obligation not funded by Plan assets increased from $282 million in 2008 to $397 million in 2016. Under the baseline projection, it drops to $97 million by 2029; under the alternative projection, it grows to $603 million by 2029. The actuarial unfunded accrued liability per household increased from $2,700 in 2008 to $3,800 in 2016. Under the baseline projection, it drops to $900 per household by 2029; under the alternative projection, it grows to $5,900 by 2029.

Crowd Out by Pension Contributions

The increase in amounts needed to fund MCERA and to service POB debt has shifted approximately $31 million in 2017-18 from other county expenditures to pensions.[85] Changes in

[85] This reflects the increase in the pension share of operating expenditures from 2002-03 to 2017-18 (from 7.0% to 13.6%) and the 2017-18 operating budget of $471.0 million, i.e., $471.0 million times 6.6%.

county expenditures by function from 2002-03 through 2015-16 suggest that this reduction has come from Health, Welfare, and General government.[86]

The projected pension share of operating expenditures falls from 13.6% in 2017-18 to 13.2% in 2029-30 under the baseline projection, suggesting that additional crowd out of other expenditures are unlikely. However, under the alternative projection, the pension share of operating expenditures increases to 19.6%, crowding out an additional $32 million in 2029-30.[87] Should previous expenditure priorities continue, this suggests additional reductions of slightly more than 11% in Health, Welfare, and General Government,[88] or across-the-board reductions of 6%.[89]

[86] Health expenditures declined from a 25.6% share in 2002-03 to 20.1% in 2015-16; Welfare from 19.1% to 15.6%; General government from 15.0% to 12.9%. Analysis of shifts in expenditure priorities is complicated as the county changed functional names over this time period—e.g., from "Welfare" to "Public Assistance". However, these trends are broadly similar to those observed in the other county case studies.

[87] This estimate is based on the increased pension share (19.6%, up from 13.6%) times projected 2029-30 operating expenditures of $526.0 million.

[88] Alternatively, the county could reduce a single functional area, e.g., Welfare, by about 36%.

[89] Changes in functional expenditures are based on further operating share reductions from 2015-16.

CITY CASE STUDIES

The following section contains six case studies:

- City of Los Angeles
- City of Palo Alto
- City of Pacific Grove
- City of Sacramento
- City of Stockton
- City of Vallejo.

The City of Los Angeles is an independent system; the remaining five are CalPERS agencies.

CASE STUDY: CITY OF LOS ANGELES

Three separate pension systems cover employees of the City of Los Angeles:[90]

- Los Angeles Fire and Police Pensions (LAFPP), covering the city's safety workers, with 25,997 participants as of June 30, 2016, including 13,050 active members
- Los Angeles City Employees' Retirement System (LACERS), covering other city employees, with 49,698 participants as of June 30, 2016, including 24,446 active members
- Water and Power Employees' Retirement Plan of the City of Los Angeles (LAW&P), covering that Department, with 20,255 participants as of June 30, 2016, including 9,348 active members.

We separately modeled costs for each system, but present only combined results here.[91]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—investment return for periods after June 30, 2017 is assumed to equal the discount rate (7.5% for LACERS and 7.25% for LAFPP and LAW&P) through 2028-29
- Orange bars: projected *alternative* results—investment return is assumed to be 2% less than the discount rate for each year through 2028-29.

City Contributions

The city's total pension contribution in 2003-04 was $343 million.[92] It roughly doubled, to $659 million, in 2008-09 (Figure 14). It has more than doubled again, to over $1.4 billion in 2017-18. Under the baseline projection, pension contributions are projected to reach $1.6 billion in 2024-25 before reducing back to $1.4 billion by 2029-30; this mostly reflects that amortization of certain portions of the systems' unfunded accrued liabilities will complete during this time. Under the alternative projection, the city's contributions increase to $2.4 billion by 2029-30.

[90] A separate plan covers employees of the CRA/LA, a successor of the former Community Redevelopment Agency of the City of Los Angeles, under the CalPERS system. As of June 30, 2015, it had 599 participants, including 29 active members, and $72.6 million in unfunded accrued liability based on the CalPERS assumptions then in effect, including a 7.5% assumed investment return. Because this plan is too small to impact the combined results presented here, we do not include it.

[91] See Appendix E for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[92] We generally report employer pension contributions in 2002-03 as a point of comparison. In this case, 2002-03 data are not available.

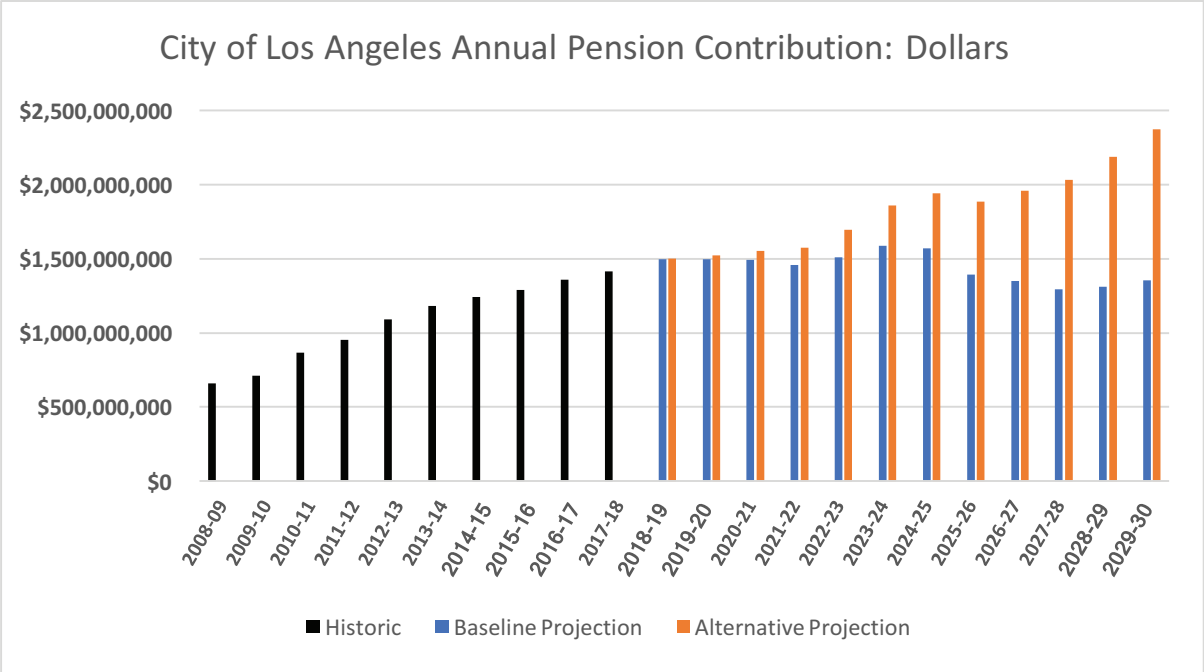

Figure 14—City of Los Angeles Annual Pension Contributions: Dollars

The city's pension contributions have also increased as a share of operating expenditures.[93] Pension shares of operating expenditures were 4.3% in 2003-04, rising to 6.6% in 2008-09 and 12.0% in 2017-18 (Figure 15). Pensions as a share of operating expenditures are projected to decrease from 12.0% in 2017-18 to 9.3% in 2029-30 under the baseline projection. In the alternative projection, the pension share of expenditures increases to 16.3%.

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This analysis includes two measures of this funded ratio: Market and Actuarial.

- *Market*: Assets are at market value. The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.[94]
    - On this basis, the combined funded ratio dropped from 58% in 2008 to 39% in 2016.
    - Under the baseline projection, the funded ratio will be 51% in 2029.
    - Under the alternative projection, it will be 42% in 2029.

[93] State Controller operating expenditure data appears to include enterprise units, i.e., utilities, airport, etc. in the total, while city financial documents exclude these. As a result, operational expenditures defined in this report are larger than General Fund expenditures reported in city financial documents.

[94] This report assumes that future yields remain at current (May 2017) levels. See the Introduction for more information.

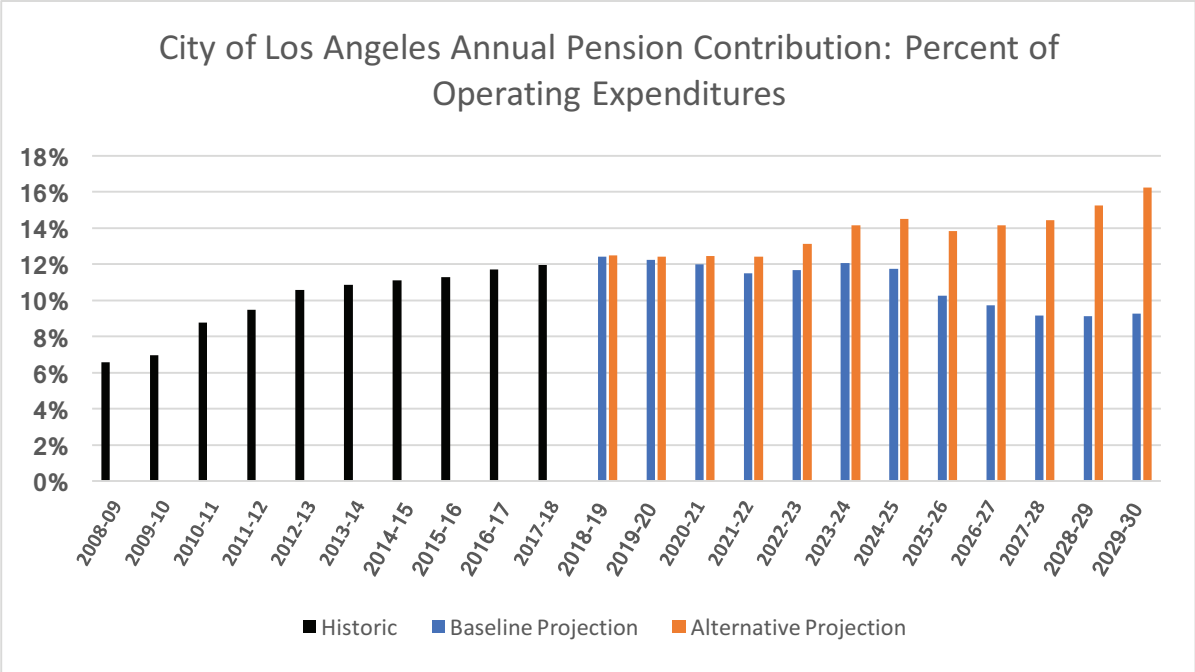

Figure 15—City of Los Angeles Annual Pension Contributions: Percent of Operating Expenditures

- *Actuarial*: Assets are adjusted from market value to delay recognition of recent investment performance to the extent that it differed from what had been expected. The discount rate used to determine liability reflects the systems' expectations about long-term investment performance as of each measurement date. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio dropped from 93% in 2008 to 83% in 2016.
  - Under the baseline projection, will increase back to 93% by 2029.
  - Under the alternative projection, it will be 80% in 2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $20.0 billion in 2008 to $58.5 billion in 2016. By 2029 it reaches $73.1 billion under the baseline projection, and $83.4 billion under the alternative projection. As shown in the following figure, this amounts to an increase from $15,000 per city household in 2008 to $43,000 in 2016; by 2029, it reaches $50,000 per household under the baseline projection, and $57,000 under the alternative projection.

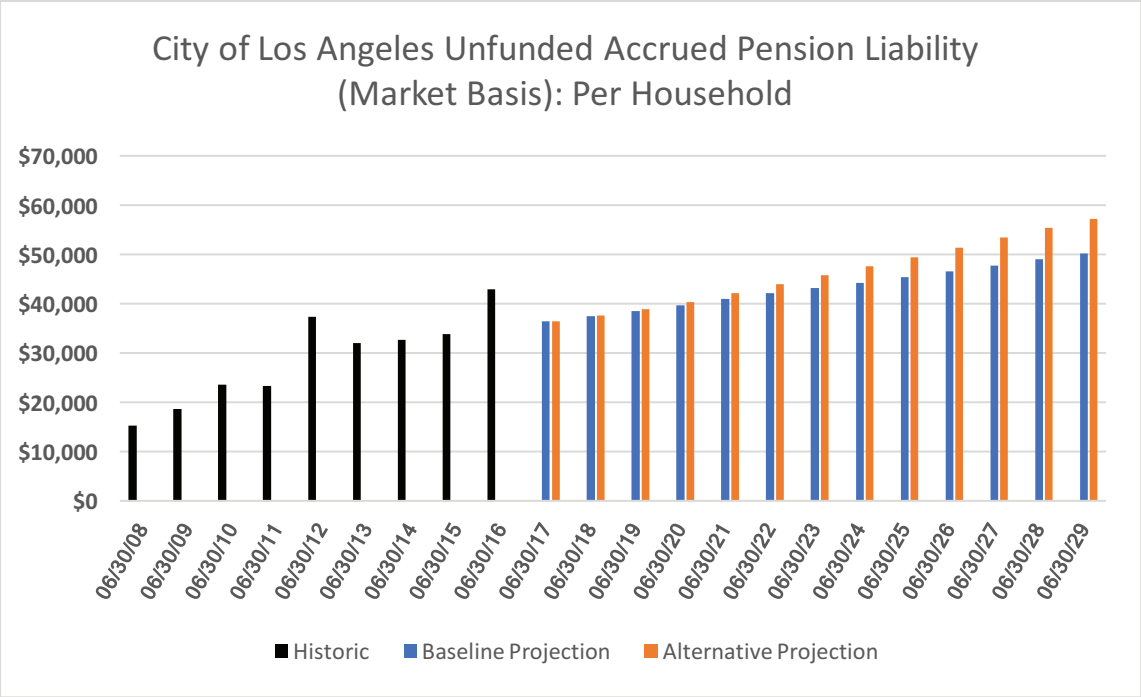

Figure 16—City of Los Angeles Unfunded Accrued Pension Liability (Market Basis): Per Household

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $2.2 billion in 2008 to $8.1 billion in 2016. Under the baseline projection, it declines to $5.6 billion by 2029; under the alternative projection, it grows to $16.0 billion by 2029.

The actuarial unfunded accrued liability per household increased from $1,700 in 2008 to $5,900 in 2016. Under the baseline projection, it drops to $3,900 by 2029; under the alternative projection, it grows to $11,000 per household by 2029.

Crowd Out by Pension Contributions

Compared with 2003-04, in 2017-18 just over $900 million of city expenditures shifted from other governmental services in order to fund pensions.[95] A review of city expenditures by function suggests that this rise in pension costs has been felt most within Cultural and Recreational Services, Health and Sanitation, and Public Works.[96] Cultural and Recreational

[95] This is based on the increase in the pension share of operating expenditures during this period, from 4.3% to 12.0%, and the 2017-18 operating budget of $11.8 billion, i.e., 7.7% of $11.8 billion.

[96] The expenditure share for each of these functions fell at least 55% during this period. Community Development expenditures fell sharply as well, but likely in large part due to the dissolution of the Community Redevelopment Agency. Some of this decline may be offset by the Community Development Trust Fund, which brings in about $20 million per year. See City of Los Angeles 2017-18 Budget, pp. 15, 32, 33, 33, http://cao.lacity.org/budget17-18/2017-18Proposed_Budget.pdf. There is some speculation that pension expenditures have also kept the number of sworn police officers at low levels. See, for example, Paul Hatfield,"LA's 'Virtual Bankruptcy' Equals 'Service Insolvency,'" City Watch, Aug. 11, 2017, http://www.citywatchla.com/index.php/los-angeles/13787-la-s-virtual-bankruptcy-equals-service-insolvency-2.

Services expenditures declined from $295 million in 2003-04 to $58 million in 2015-16; over the same period, Public Works fell from $309 million to $112 million, and Health and Sanitation declined from $328 million to $131 million.[97]

Pensions as a share of operating expenditures are projected to decrease from 12.0% in 2017-18 to 9.3% in 2029-30 under the baseline projection, suggesting the crowd out pressures will lessen. However, in the alternative projection, pension share of expenditures increases to 16.3%, suggesting they could crowd out an additional $627 million in other spending in 2029-30.[98] Should previous expenditure patterns continue, the city may respond with continued reductions in funding for Cultural and Recreational Services, Public Works, Health and Sanitation, Public Works, and other city functions. Instead, the city could reduce expenditures across-the-board by about 4%.

[97] Recreation Services expenditures now appear to be guaranteed a specific share of the city's budget: see David Zahniser, "Even in a booming economy, L.A. City Hall faces daunting budget challenges," Los Angeles Times, Aug. 3, 2017, http://www.latimes.com/local/politics/la-me-la-city-budget-20170803-htmlstory.html. In addition, this service appears to receive funding outside the city's General Fund, including from program revenues.

[98] This $627 million figure does not anticipate additional revenue increases, e.g., a city sales or other tax, and is based on the projected increase in pension share of operating expenditures (16.3% in 2029-30 less 12.0% in 2017-18), or 4.3%, times projected total city operating expenditures in 2029-30 of $14.6 billion.

CASE STUDY: CITY OF PACIFIC GROVE

The City of Pacific Grove provides pension benefits to its workforce through four plans under the CalPERS system.[99] In total, as of June 30, 2015, these plans covered 429 members, including 74 current employees. All results here are presented on a combined basis.[100]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results— annual investment return after June 30, 2017 is assumed to equal the CalPERS discount rate (7.25% in 2018 and 7% for later years) through 2029
- Orange bars: projected *alternative* results—annual investment return after June 30, 2017 is assumed to be 2% less than the CalPERS discount rate through 2029.

Pension Obligation Bonds

In 2006, Pacific Grove issued $19.4 million in Pension Obligation Bonds (POB) with maturities through 2029. Proceeds were used to accelerate plan funding. The outstanding balance on the POB was $9.2 million as of June 30, 2016.

We combine the city's POB debt service with its plan contributions to arrive at an Annual Funding Amount, and its outstanding POB balance with the plans' accrued liability to arrive at a Total Pension Obligation.

Annual Funding Amount

In 2002-03, prior to issuing its POB, the city made total pension contributions of approximately $300,000.[101] As shown in Figure 17, the Annual Funding Amount increased to $2.4 million by 2008-09, and it has increased further to $4.4 million in 2017-18. By 2022-23, the Annual Funding Amount reaches just over $7 million under both baseline and alternative projections—more than 23 times the 2002-03 level. There is a decrease in the following year, reflecting completion of debt service payments on one portion of the POB, and another decrease in the final year of this forecast, 2029-30, following completion of debt service payments on the

[99] These plans cover safety employees hired before 2013, safety employees hired after 2012 with reduced benefits, miscellaneous employees hired before 2013, and miscellaneous employees hired after 2012 with reduced benefits. Each plan participates in a separate CalPERS risk pool, and so is funded separately. Each pool includes many similar plans sponsored by other smaller California jurisdictions. These pools aim to reduce the cost volatility that a smaller plan is otherwise subject to, by sharing the pool-wide impact of non-investment experience (rates of salary increase, death, retirement, etc., that are larger or smaller than expected) among each included plan, regardless of its own experience. Our assumption that non-investment experience during the forecast period will track actuarial assumptions applies to each pool, rather than to each Pacific Grove plan.

[100] See Appendix F for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[101] City of Pacific Grove, Agenda Report, Feb. 17, 2016, pp. 7, 23, http://www.cityofpacificgrove.org/sites/default/files/city-council/2016/2-17-2016/city-council-2-17-2016-15b-calpers-finances.pdf.

remaining portion; the city's contribution in 2029-30 is $6 million under the baseline projection and just above $7 million under the alternative projection.[102]

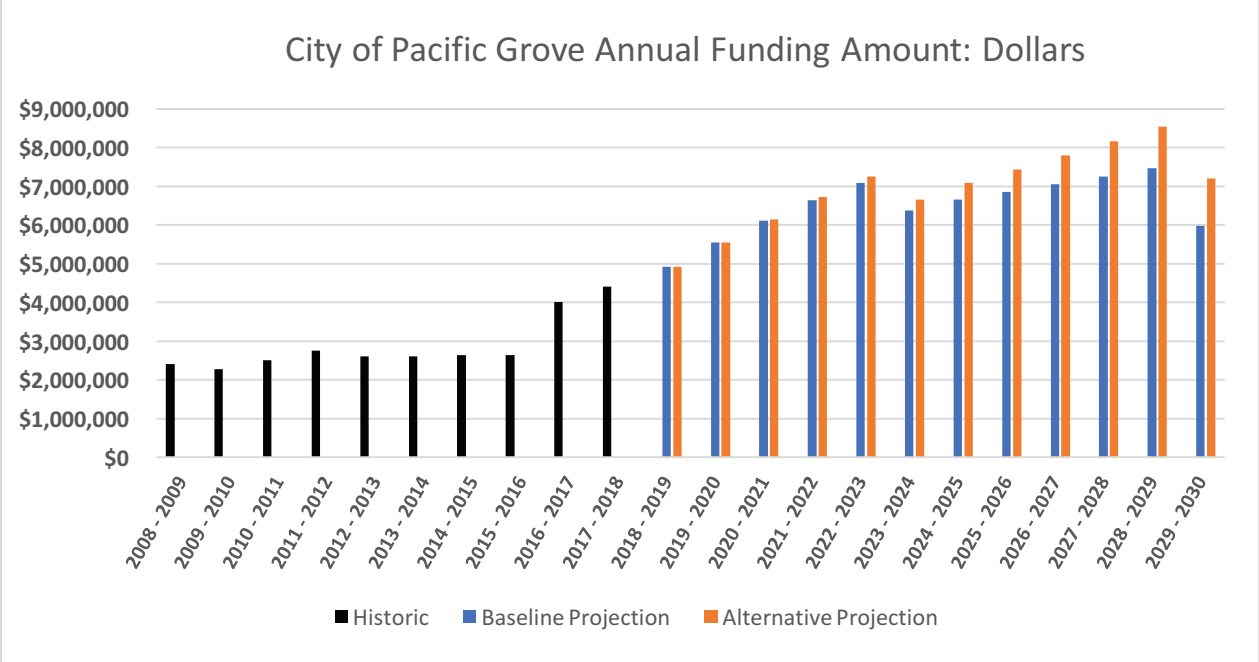

Figure 17—City of Pacific Grove Annual Pension Contributions: Dollars

Pension contributions constituted 2.0% of city operating expenditures in 2002-03. By 2008-09, the Annual Funding Amount, i.e., pension contributions together with POB debt service payments, was 13.3% of operating expenditures, and in 2017-18 the Annual Funding Amount comprises a 22.5% share (Figure 18).[103] By 2022-23, the final year of POB debt service, these combined pension payments will make up almost one-third of city operating expenditures. After 2022-23, with POB expenditures completed, the pension share of city operating expenditures declines, and by 2029-30 it is 23.2% in the baseline projection and 27.9% in the alternative projection.

[102] Under the alternative projection, less-than-expected investment returns through 2028-29 give rise to material annual increases in contribution level through 2035-36. Per CalPERS funding policy, payments to amortize unexpected changes in unfunded accrued liability, such as from investment returns less than expected, phase in over five years following a two-year delay.

[103] As per the Introduction, budget measures, such as operating expenditures, are generally projected at the trend observed between the 2007-08 and 2014-15 fiscal years, as reported by the State Controller's Office. In the case of Pacific Grove, this would have meant projecting 2.4% annual decreases through 2029-30; instead, this case study assumes that operating expenditures will grow by 2.3% per year, based on the most recent city budget. City of Pacific Grove, "Recommended Operating and Capital Budget, 2017/18," pp. 11, 15, http://www.cityofpacificgrove.org/sites/default/files/general-documents/budgets/operating-and-capital-projects-budget-2017-18.pdf.

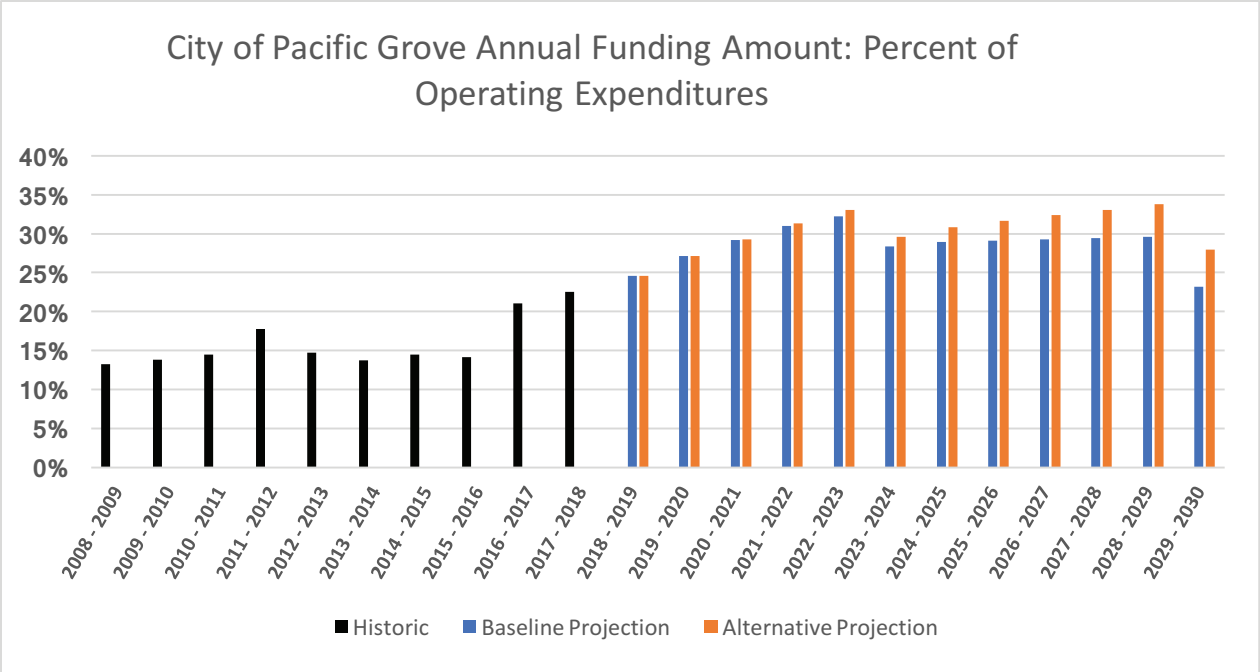

Figure 18—City of Pacific Grove Annual Pension Contributions: Percent of Operating Expenditures

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This analysis reports the ratio of Plan assets to Total Pension Obligation using two measures: Market and Actuarial. Here, the market value of assets is generally used in both measures. A significant difference concerns the rate used to discount future benefit payments to reflect the time value of money.

- *Market*: The discount rate is the yield on 20-year US Treasury bonds as of each measurement date.[104]
  - On this basis, the funded ratio dropped from 60% in 2008 to 39% in 2016.
  - Under the baseline projection, it will be 43% in 2029.
  - Under the alternative projection, it will be 32% in 2029.
- *Actuarial*: The discount rate is set by CalPERS to reflect its expectations about long-term investment performance. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio dropped from 82% in 2008 to 65% in 2016.
  - Under the baseline projection, it will be 71% in 2029.
  - Under the alternative projection, it will be 53% in 2029.[105]

[104] This report assume that future yields remain at current (May 2017) levels. See the Introduction for more information.

[105] This appears to be a steeper drop in funded ratio than for other CalPERS agencies and may be explained in part by the following. Compared with other jurisdictions considered in this report, benefit payments under Pacific

Unfunded Total Pension Obligation: Market Basis

On a Market basis, the portion of the Total Pension Obligation not funded by Plan assets increased from $62.3 million in 2008 to $143.2 million in 2016. By 2029, under the baseline projection it drops to $126 million, and under the alternative projection it increases to $150 million. As shown in the following Figure, this amounts to an increase from $8,800 per city household in 2008 to $23,900 in 2016; by 2029, it is $19,300 per household under the baseline projection, and $23,100 under the alternative projection.

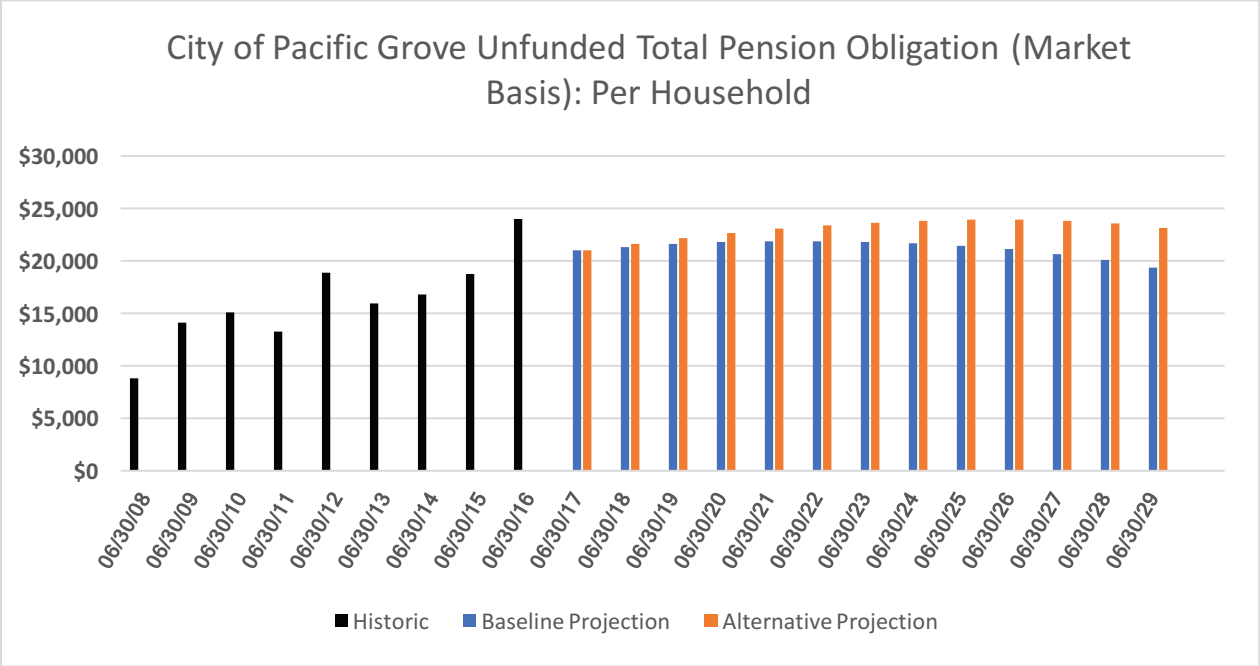

Figure 19—City of Pacific Grove Unfunded Accrued Pension Liability (Market Basis): Per Household

Unfunded Total Pension Obligation: Actuarial Basis

On an Actuarial basis, the portion of the Total Pension Obligation not funded by Plan assets increased from $20.9 million in 2008 to $49.0 million in 2016. Under the baseline projection, after reaching $53 million in 2019, it drops to $38 million by 2029; under the alternative projection, it grows to $63 million by 2029.

The actuarial unfunded accrued liability per household increased from $3,000 in 2008 to $7,200 in 2016. Under the baseline projection, it drops to $5,900 per household by 2029; under the alternative projection, it grows to $9,700 by 2029.

Grove's plans are expected to remain large relative to assets and accrued liability; as a result, its funded ratios trend lower over time. While benefit payments reduce assets and liability equally, and so do not impact a plan's unfunded liability, they reduce the *ratio* of assets to liability. For example, if, as a result of the payment of benefits, assets and liability are $60 and $90, respectively, rather than $70 and $100, the unfunded amount is still $30, but the funded ratio is 66.7% rather than 70%.

Crowd Out by Pension Contributions

As discussed above, the pension share of operating expenditures increased from 2.0% in 2002-03 to 22.5% in 2017-18. As pension spending increased, the expenditure shares of three functional areas declined substantially: Recreation, Museum, and Library.[106] These constitute relatively small shares of the city's budget, but the total reduction to these areas between 2005-06 and 2017-18 is $1.7 million, comparable to the $1.8 million increase in annual pension spending during the same period.[107]

In 2029-30, the end of our forecast period, the pension share of operating expenditures reaches 23.2%, up slightly compared with 2017-18. In the alternative projection, that increases to 27.9%. Should previous expenditure priorities continue, additional reductions to Recreation, Museum, Library, and perhaps other city functions are likely. Alternatively, the city could reduce expenditures across the board by about 5%. As shown in Figure 18 above, more severe near-term crowd out is likely. The pension share of operating expenditures reaches 32.3% in the baseline projection in 2022-23 and 33.0% in the alternative projection. This suggests steeper cuts to Recreation, Museum, Library, and other city functions or roughly 10% reductions across the entire city budget.

[106] Limited historic data do not allow a direct comparison between 2002-03 and 2017-18 by budget function; instead we compare 2005-06 with 2017-18. During this period, the Recreation share of expenditures fell 56%, the Museum expenditure share fell 34%, the Library share fell 21%, and Fire expenditures fell nearly 5%.

[107] Pension expenditures in 2005-06 were approximately $2.6 million, $1.8 million less than the $4.4 million in 2017-18.

CASE STUDY: CITY OF PALO ALTO

The City of Palo Alto sponsors two pension plans, each within the CalPERS system: Miscellaneous, for its general workforce; and Safety, for police and fire employees. These plans covered over 3,200 participants at June 30, 2015, including 975 current employees. All results reflect both plans on a combined basis.[108]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return after June 30, 2017 is assumed to equal the CalPERS discount rate (7.25% in 2018 and 7% for later years) through 2028-29
- Orange bars: projected *alternative* results —annual investment return after June 30, 2017 is assumed to be 2% less than the CalPERS discount rate for each year through 2029.

City Contributions

The city's total pension contribution was $5.6 million in 2002-03. This contribution increased to $16.6 million by 2008-09 and increases further to $34.7 million in 2017-18 (Figure 20). By 2024-25, it amounts to almost $63 million under the baseline projection, and $67 million under the alternative projection. Contribution growth moderates after that, as amortizations are completed on certain portions of the plans' unfunded accrued liabilities. By 2029-30, the contribution is $64 million under the baseline projection, or $76 million under the alternative projection.[109]

[108] See Appendix G for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[109] Under the alternative projection, material annual increases in the contribution level continue through 2034-35, even if investment returns after 2028-29 equal the CalPERS discount rate. This reflects funding policy phase-ins and delays in amortizing recent sources of additional unfunded liability (see Introduction).

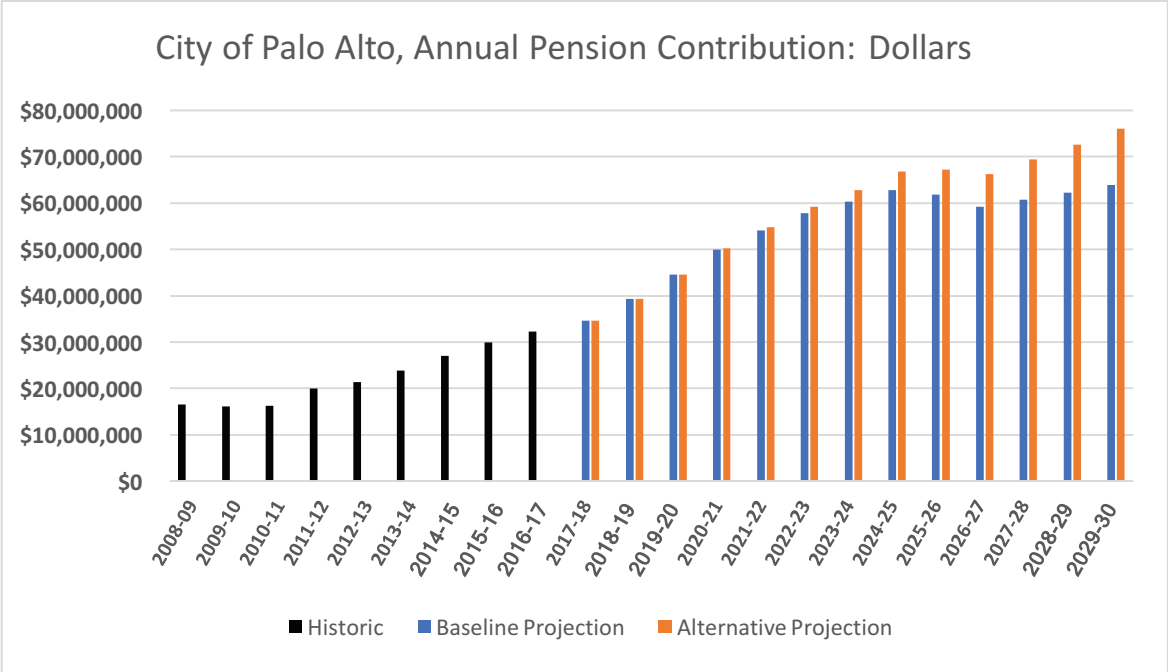

Figure 20—City of Palo Alto Annual Pension Contributions: Dollars

Pension contributions have also increased as a share of city operating expenditures, from 2.1% in 2002-03 to 4.6% in 2008-09, and to 8.8% in 2017-18 (Figure 21). Under the baseline projection, the share of city operating expenditures consumed by pension contributions peaks at 14.4% in 2024-25, before decreasing to 13.6% by 2029-30. Under the alternative projection this share reaches 15.3% in 2024-25, drops temporarily and then increases to 16.2% by 2029-30.

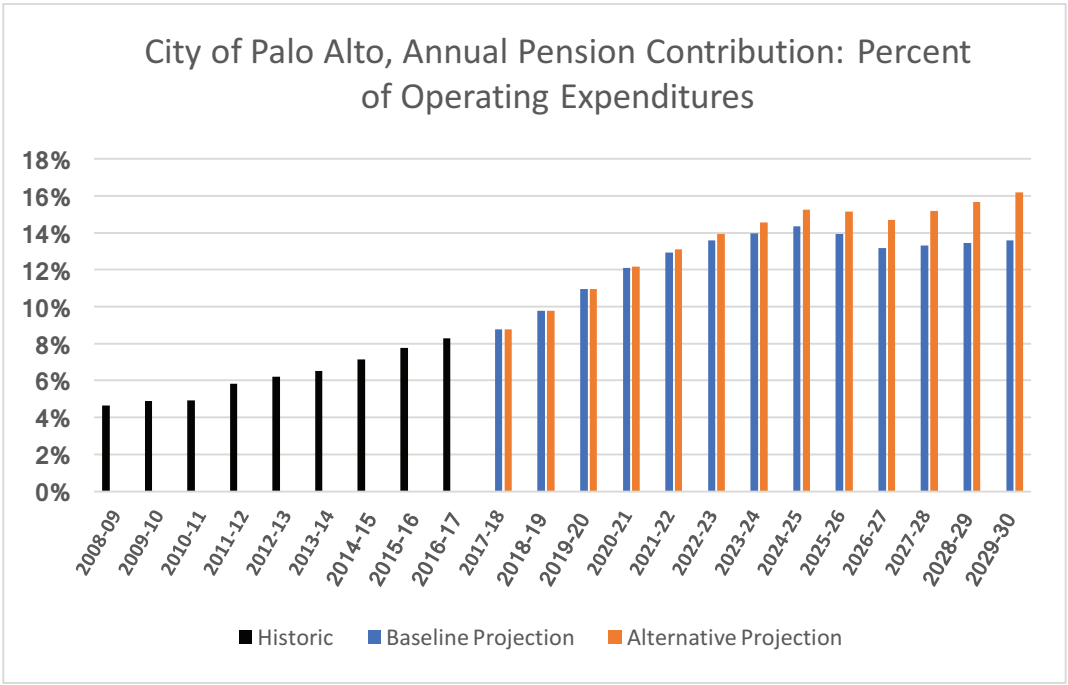

Figure 21—City of Palo Alto Annual Pension Contributions: Percent of Operating Expenditures

Funded Position

A common indicator of plan funding is the ratio of plan assets to accrued liability—the liability for the portion of future benefit payments that is attributable to employee service already rendered. This case study reports two measures of this funded ratio: Market and Actuarial.

- *Market*: The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.[110] Assets are at market value.
  - On this basis, the funded ratio dropped from 60% in 2008 to 39% in 2015.
  - Under the baseline projection, it will be 47% in 2029.
  - Under the alternative projection, it will be 37% in 2029.
- *Actuarial*: The discount rate used to determine liability is set by CalPERS to reflect its expectations about long-term investment performance, and will be 7% per year effective June 30, 2018. Assets are at market value. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio dropped from 88% in 2008 to 69% in 2015.
  - Under the baseline projection, will be 80% in 2029.
  - Under the alternative projection, it will be 64% in 2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $409.6 million in 2008 to $1.2 billion in 2015. By 2029 it reaches $1.6 billion under the baseline projection, and nearly $1.9 billion under the alternative projection. As shown in the following Figure, this amounts to an increase from $15,700 per city household in 2008 to $43,300 in 2015; by 2029, it reaches $55,600 per household under the baseline projection, and $65,100 under the alternative projection.

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $81.9 million in 2008 to $338.4 million in 2015. Under the baseline projection, it reaches $476 million in 2020, but drops to $353 million by 2029; under the alternative projection, it grows to $625 million by 2029.

The actuarial unfunded accrued liability per household increased from $3,100 in 2008 to $12,600 in 2015. Under the baseline projection, it reaches $17,300 in 2020 but drops to $12,300 by 2029; under the alternative projection, it grows to $21,700 per household by 2029.

[110] This report assume that future yields remain at current levels. See the Introduction for more information.

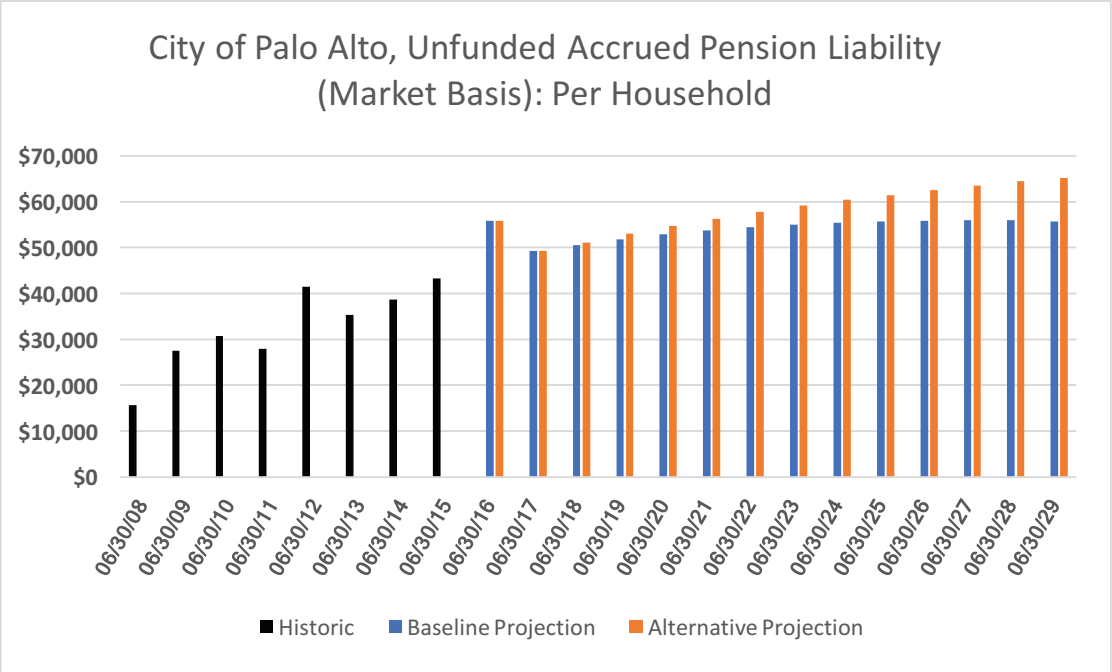

Figure 22—City of Palo Alto Unfunded Accrued Pension Liability (Market Basis): Per Household

Crowd Out by Pension Contributions

As noted above, pension expenditures increased from 2.1% of operating expenditures in 2002-03 to 8.8% in 2017-18. Despite an expanding operating budget, pension expenditures crowded out more than $26 million in other city expenditures in 2017-18.[111] A review of city expenditures by function[112] from 2002-03 through 2015-16 suggests that increasing pension expenditures have put downward pressure on Community Services, Planning & Community Environment, and Public Works, which experienced a more modest decline.[113]

In the baseline projection, future growth in pension expenditures is likely to crowd out an additional $23 million in other spending in 2029-30.[114] This increases to $35 million in the alternative projection. Should previous expenditure priorities continue, this suggests steeper

[111] This reflects the pension share of operating expenditures in 2002-03 and 2017-18 (2.1% and 8.8%, respectively) and the 2017-18 operating budget of $395.3 billion, i.e., $395.3 million times 6.7%.

[112] Inconsistent expenditure terminology and likely changes in functional definitions over time complicate this assessment. For example, in 2002-03, the city appears to have aggregated some functions in Administration, which then constituted nearly 20% of total expenditures but in 2015-16 constituted less than 3%. There are other definitional problems. For example, the Library function did not exist in 2002-03, and Special Revenue & Capital Projects and Debt Service, present in 2002-03, is not reported in 2015-16.

[113] Community Services experienced an 11.0% decline in its expenditure share; Planning & Community Environment a nearly 10% decline. Public Works experienced a 4.4% decline.

[114] This assumes no additional revenue increases, e.g., a city sales or other tax, and is based on the 4.8% increase in projected pension share of operating expenditures (13.6% minus 8.8%), times projected city operating expenditures in 2029-30 of $469.9 million.

reductions to Community Services, Planning & Community Environment, Public Works, and other city functions. Alternatively, the city could reduce expenditures across-the-board by 7%.

CASE STUDY: CITY OF SACRAMENTO

The City of Sacramento funds three employee pension plans. The two largest plans are within the CalPERS system, and separately cover general workforce and safety employees hired in the last 40 years; those hired previously are in the independently maintained Sacramento City Employees' Retirement System (SCERS).[115] In total, these plans covered 12,177 participants on June 30, 2015, including 3,016 current employees. All results here are on a combined basis.[116]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return after June 30, 2017 is assumed to equal the CalPERS discount rate (7.25% in 2018 and 7% for later years) through 2029, for the CalPERS plans; the SCERS discount rate is 6.5%
- Orange bars: projected *alternative* results—annual investment return after June 30, 2017 is assumed to be 2% less than the discount rate through 2029.

Contributions

According to city and CalPERS documents, Sacramento took a contribution holiday in 2002-03 and did not contribute to its CalPERS pension plans.[117] The city's total 2008-09 contribution was $42.4 million, doubling to $88.2 million by 2017-18 (Figure 23). Looking ahead, this contribution is expected to reach about $150 million by 2022-23. Under the baseline projection it will then grow more slowly after that, to $174 million by 2029-30; however, under the alternative projection it reaches $215 million that year.[118]

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[115] SCERS costs are modeled using assumptions that reflect its status as a closed plan, rather than the general assumptions described in the Introduction.

[116] See Appendix H for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[117] See Office of the State Controller, "Public Retirement Systems Annual Report," http://www.sco.ca.gov/Files-ARD-Local/LocRep/retirement0203.pdf, pp. 132-133 and Office of the State Controller, "Public Retirement Systems Annual Report," http://www.sco.ca.gov/Files-ARD-Local/LocRep/retirement_reports_retirement0001.pdf, p. 357. These referenced SCO reports appear not to reflect the typical lag between actuarial valuation dates and contribution rates. Using the average total contribution rate from 1998-99 through 2007-08, city pension expenditures for CalPERS plans only would have been approximately $13.7 million in 2002-03. We assume that there were no city contributions to SCERS in 2002-03.

[118] Under the alternative projection, material increases in the city's annual contribution level continue through 2035-36. This reflects that it takes seven years for contribution increases resulting from the assumed experience through 2028-29 (investment returns 2% less than the discount rate) to phase-in under its CalPERS plans.

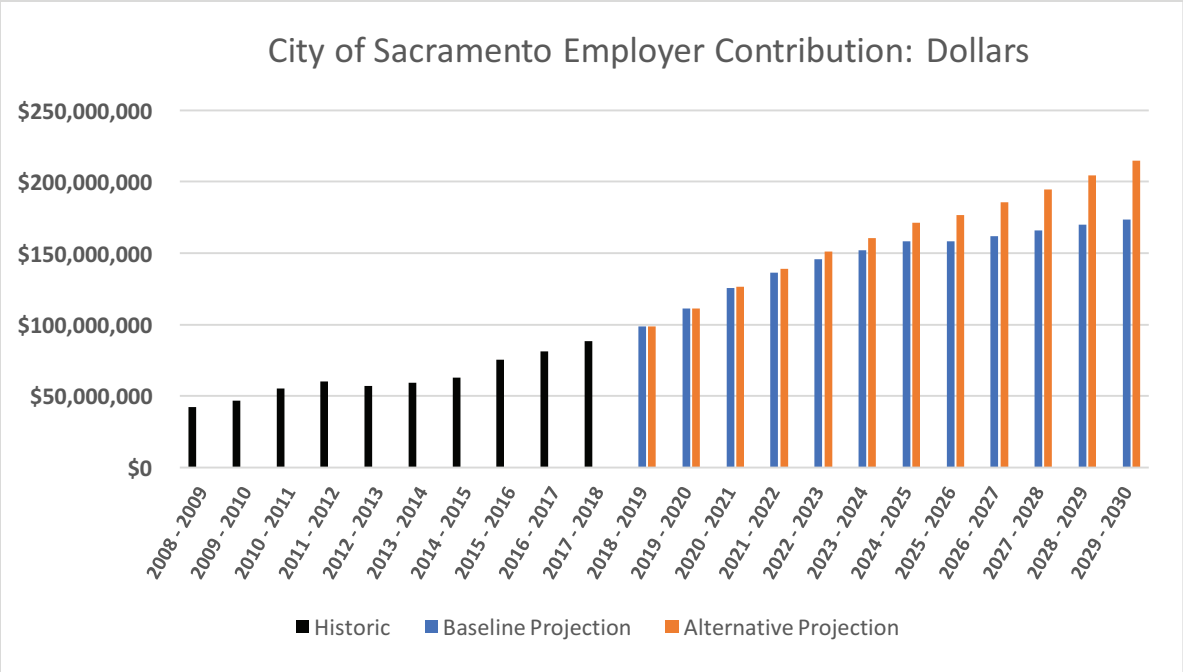

Figure 23—City of Sacramento Annual Pension Contributions: Dollars

The city's pension contributions have also increased as a share of operating expenditures.[119] The pension share of operating expenditures in 2002-2003 was 0%, based on the city's apparent contribution holiday; here we treat it as 3.2%, using the average share of operating expenditures consumed by the city's total contribution to the three plans over the period from 1998-99 through 2007-08. The pension share of operating expenditures rose to 6.6% in 2008-09 and is expected to reach 12.5% in 2017-18 (Figure 24). By 2029-30, pension contributions make up 18.0% of Sacramento's operating expenditures under the baseline projection, and 22.2% under the alternative projection.

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This analysis utilizes two measures of this funded ratio: Market and Actuarial. Each uses assets at market value.

- *Market*: The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.
  - On this basis, the funded ratio dropped from 59% in 2008 to 40% in 2015.
  - Under the baseline projection, it will be 47% in 2029.
  - Under the alternative projection, it will be 39% in 2029.

[119] Rather than relying on SCO data for operating expenditures, we assume annual 2.64% increases in the city's General Fund expenditures, based on recent city projections. See City of Sacramento, Proposed Budget, 2017-2018, https://www.cityofsacramento.org/Finance/Budget/Proposed-Budget, p. 37. This is based in part on our expected continuation of a 0.5¢ sales tax that is scheduled to expire on Mar. 31, 2019.

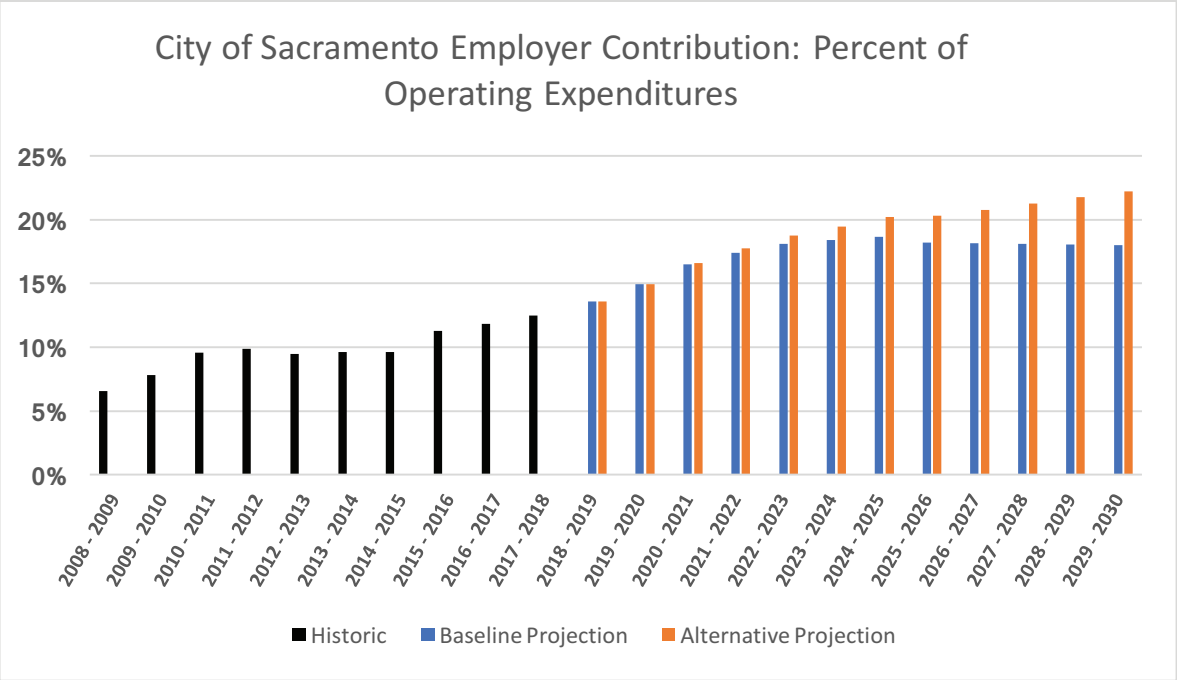

Figure 24—City of Sacramento Annual Pension Contributions: Percent of Operating Expenditures

- *Actuarial*: The discount rate used to determine liability as of a measurement date is set by CalPERS and SCERS to reflect their expectations about long-term investment performance. This measure is less volatile than the Market funded ratio.
    - On this basis, the funded ratio dropped from 87% in 2008 to 74% in 2015.
    - Under the baseline projection, the funded ratio is 84% in 2029.
    - Under the alternative projection, the funded ratio is 70% in 2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $1.2 billion in 2008 to $3.3 billion in 2015. By 2029 it will reach $5.9 billion under the baseline projection, and $6.8 billion under the alternative projection. As shown in the following Figure, this amounts to an increase from $7,000 per city household in 2008 to $19,000 in 2015; by 2029, it reaches $33,000 per household under the baseline projection, and $38,000 under the alternative projection.

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $264.1 million in 2008 to $793.2 million in 2015. Under the baseline projection, it reaches $954 million by 2029; under the alternative projection, it grows to almost $1.9 billion by 2029.

The actuarial unfunded accrued liability per household tripled from $1,500 in 2008 to $4,500 in 2015. Under the baseline projection, after reaching $6,700 per household in 2020 it declines to $5,300 by 2029; under the alternative projection, it grows to $10,300 per household by 2029.

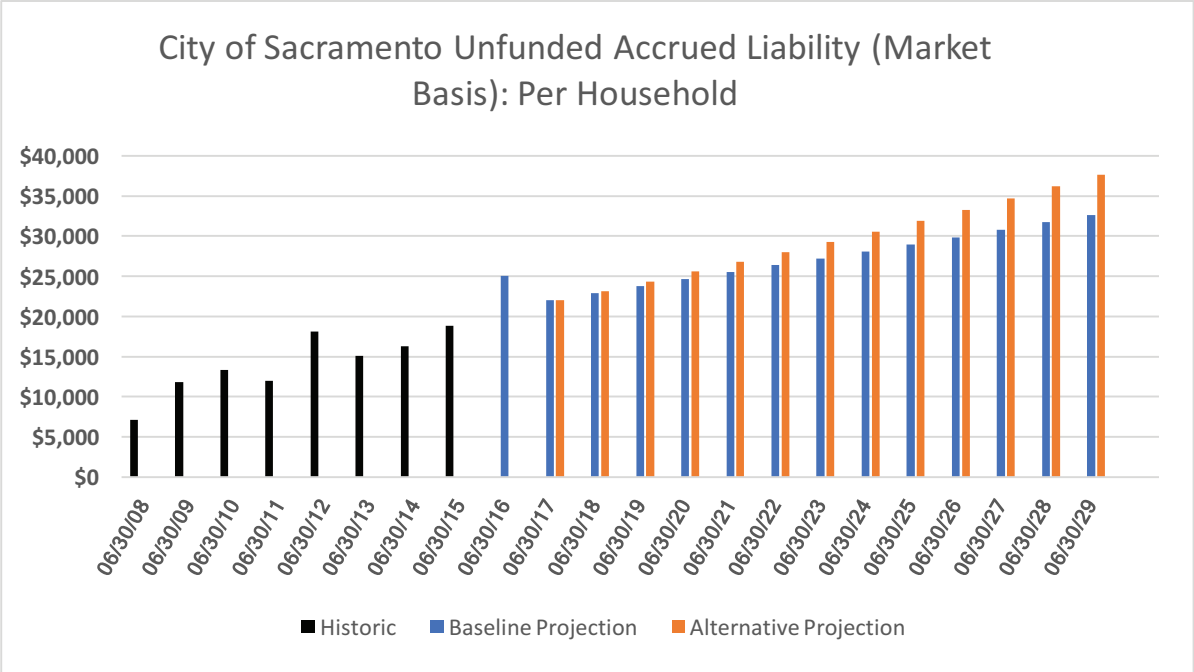

Figure 25—City of Sacramento Unfunded Accrued Pension Liability (Market Basis): Per Household

Crowd Out by Pension Contributions

As discussed in the Contributions section above, the pension share of Sacramento's operating expenditures has increased over time, from 3.2% in 2002-03[120] to 12.5% in the current year. This increase has put downward pressure on other city expenditures, including an estimated $66 million in 2017-18.[121] A review of historical expenditures by department suggests that higher pension contributions have likely reduced the share of general fund expenditures on convention and cultural services, neighborhood services, transportation, and perhaps on police.[122]

By 2029-30, city pension expenditures appear likely to crowd out an additional $53 million in other spending under the baseline projection, or an additional $94 million under the alternative projection. To illustrate this potential impact under the alternative projection, eliminating $94 million in non-pension 2029-30 spending would require nearly 25% reduction in both police and fire expenditures, or 10% across-the-board expenditure reductions.

[120] Again, we here replace the 0% that applied in 2002-03, when the city made no pension contributions, with a more representative figure that reflects the average for 1998-99 through 2007-08.

[121] This figure, based on the recently-adopted 2017-18 budget, reflects the change in the pension share of operating expenditures from 3.2% in 2002-03 to 12.5% in 2017-18, and a 2017-18 operating budget of $705.9 million, i.e., $705.9 million times 9.3%.

[122] The reorganization of city departments complicates this analysis. Some departments appear to have been eliminated or completely defunded (e.g., General Service, Transportation, Neighborhood Services, and Development Services); others have been renamed and perhaps reorganized (e.g., Convention, Culture & Leisure), and it is unclear if these were reorganized elsewhere or defunded. Police declined from a 31.5% budget share in 2006-07 to 30.1% in 2015-16, the latest year in which data are available in Comprehensive Annual Financial Reports.

CASE STUDY: CITY OF STOCKTON

The City of Stockton funds two pension plans within the CalPERS system, covering its general workforce and its safety employees.[123] In total, these two plans covered 4,680 participants on June 30, 2015, including 1,308 current employees. All results here are on a combined basis.[124]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return after June 30, 2017 is assumed to equal the CalPERS discount rate (7.25% in 2018 and 7% for later years) through 2029
- Orange bars: projected *alternative* results—annual investment return after June 30, 2017 is assumed to be 2% less than the CalPERS discount rate through 2029.

Pension Obligation Bonds

In 2007, Stockton issued $125.3 million in Pension Obligation Bonds (POB), and contributed the proceeds to its CalPERS plans. These bonds were set to mature in 2037, with almost all of the principal scheduled to be repaid after 2017. As of its 2012 bankruptcy petition, the outstanding POB balance was $124.3 million.

The city's obligation to make POB payments was restructured in its emergence from bankruptcy. Amortization now extends through 2053, and only a portion of the restructured POB debt requires fixed city payments; the remainder, combined with certain non-POB debt, can give rise to additional payments, contingent on future General Fund (GF) revenue levels.[125] Those future revenue levels cannot be reliably modeled here. As a result of this uncertainty, the analysis reports:

- Only the city's pension contributions, without adding its POB debt service, and
- Only the plans' accrued liability, without adding the city's outstanding POB balance.

This is a departure from the methodology for other jurisdictions with POB debt, and, as a result, this case study understates how much of Stockton's total resources are consumed by pension costs.[126]

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[123] Stockton is also responsible for funding a pension plan that provides supplemental benefits to certain municipal utility district employees under the Public Agency Retirement System. Because the city's obligations under this plan are not material relative to its CalPERS obligations, they are not included in the results.

[124] See Appendix I for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[125] Our understanding here benefits from email correspondence with city staff, July 18, 2017.

[126] Per the city's June 30, 2016 CAFR (pp. 90-91), as of that date the portion of POB debt to be serviced by payments not contingent on future GF revenues was $53.6 million. This debt is to be retired by June 30, 2053 via a total of $158.3 million in interest and principal payments—mostly (i.e., $120.4 million) to be paid after June 30, 2030, the end of our forecast period. Any payments that are contingent on GF revenues would be in addition to this. See http://www.stocktongov.com/files/2016_Comprehensive_Annual_Financial_Report.pdf.

Contributions

The city's pension contributions totaled $6.8 million in 2002-03. As shown in Figure 26, they more than tripled to $20.6 million in 2008-09. In 2017-18, despite the infusion of assets associated with the POB, Stockton must contribute $41.5 million, six times the 2002-03 amount. By 2029-30, the city's contribution increases to $88 million under the baseline projection and $106 million under the alternative projection.[127] Again, these amounts reflect only the city's contributions to the pension plans, not its restructured POB debt service payments.

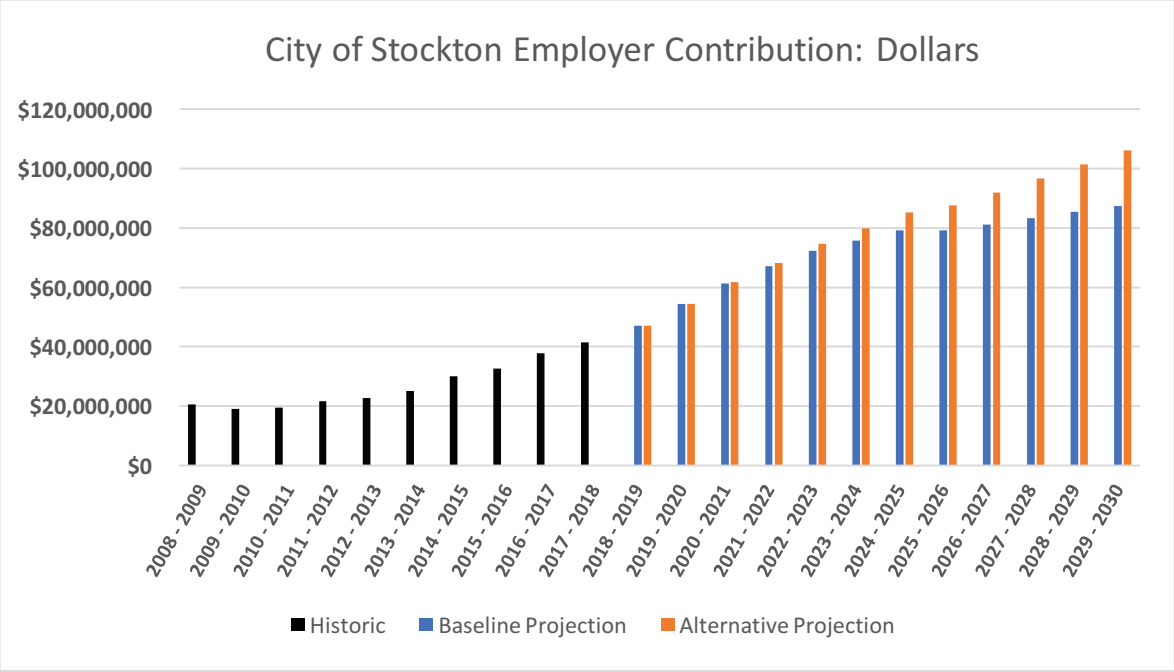

Figure 26—City of Stockton Annual Pension Contributions: Dollars

The city's pension contributions have also increased as a share of operating expenditures:[128] from 3.0% in 2002-03 to 6.7% in 2008-09, and 12.0% in 2017-18 (Figure 27). Under the baseline projection, pension contributions consume 18.6% of Stockton's operating expenditures in 2024-25 before falling to 17.7% in 2029-30. Under the alternative projection, city pension contributions grow to 21.5% of operating expenditures.

[127] Under the alternative projection, material increases in the city's annual contribution level continue through 2035-36. This reflects that it takes seven years for contribution increases resulting from the assumed experience through 2028-29 (investment returns 2% less than the discount rate) to phase-in.

[128] To reflect a voter-approved sales tax increase of .25¢ in 2016 and other factors, operating expenditures are assumed to grow by 3% per year after June 30, 2015, rather than by the flat operating expenditure trend observed between 2007-08 and 2014-15.

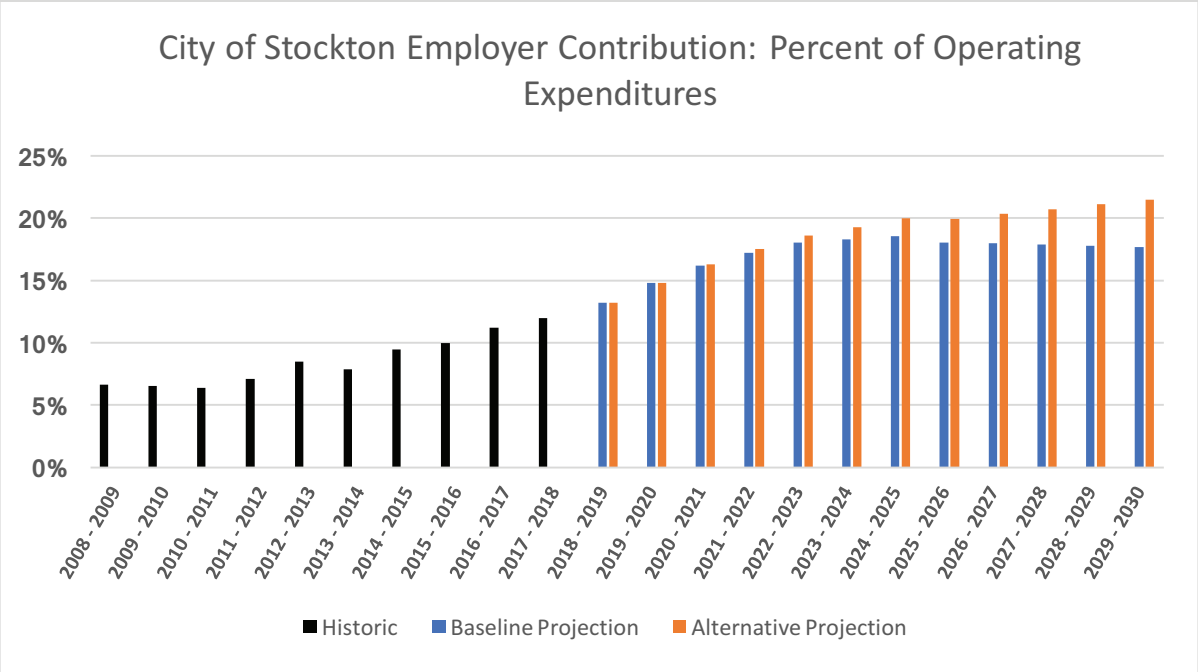

Figure 27—City of Stockton Annual Pension Contributions: Percent of Operating Expenditures

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This report uses two measures of this funded ratio: Market and Actuarial. Each uses assets at market value.

- *Market*: The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.[129]
  - On this basis, the funded ratio dropped from 64% in 2008 to 41% in 2014-2015.
  - Under the baseline projection, it will be 46% in 2028-2029.
  - Under the alternative projection, the funded ratio will be 37% in 2028-2029.
- *Actuarial*: The discount rate used to determine liability as of a measurement date is set by CalPERS to reflect its expectations about long-term investment performance. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio dropped from 95% in 2008 to 75% in 2014-2015.
  - Under the baseline projection, the funded ratio is 81% in 2028-2029.
  - Under the alternative projection, the funded ratio is 65% in 2028-2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $626.2 million in 2008 to $1.7 billion in 2015. By 2029 it will reach $2.4 billion under the baseline projection, and $2.9 billion under the alternative projection. As shown in Figure 28, this amounts to an increase from $7,000

[129] This report assumes that future yields remain at current levels. See the Introduction for more information.

per city household in 2008 to $18,000 in 2015; by 2029, it reaches $23,000 per household under the baseline projection, and $27,000 under the alternative projection.

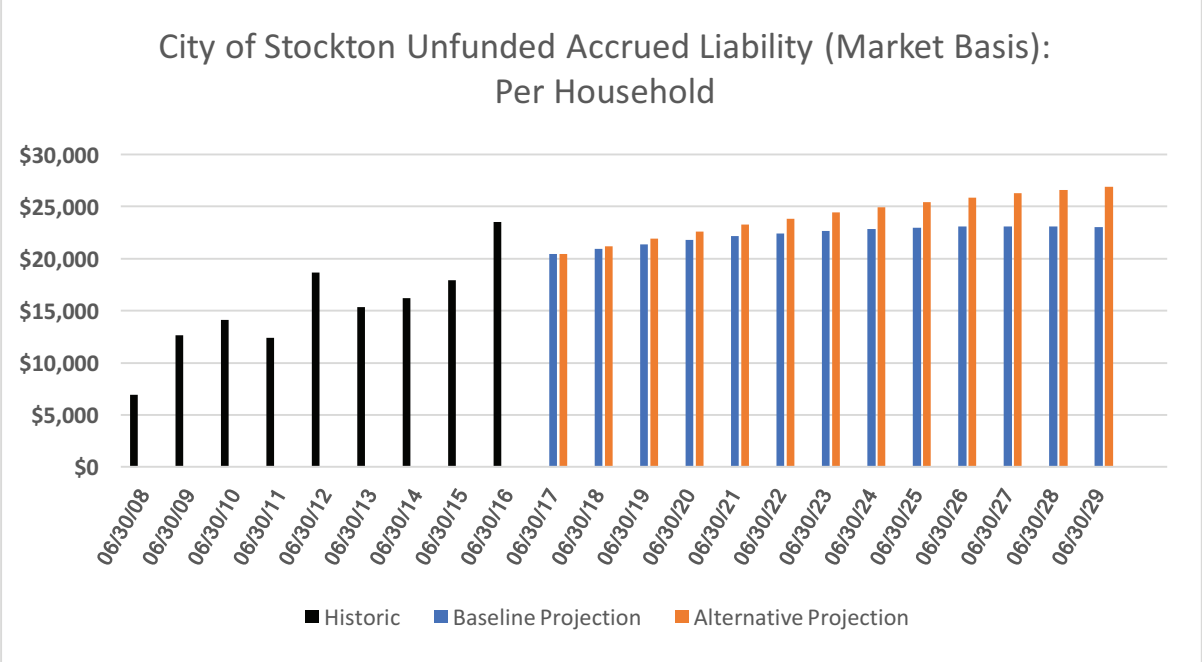

Figure 28—City of Stockton Unfunded Accrued Pension Liability (Market Basis): Per Household

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $57.5 million in 2008 to $403.4 million in 2015. Under the baseline projection, it reaches $633 million in 2021 before dropping to $497 million in 2029; under the alternative projection, it grows to $909 million in 2029.

The actuarial unfunded accrued liability per household increased from $600 in 2008 to $4,200 in 2015. Under the baseline projection, it reaches $6,400 in 2020 before dropping to $4,700 in 2029; under the alternative projection, it grows to $8,600 per household in 2029.

Crowd Out by Pension Contributions

As discussed in the Contributions section above, the pension share of Stockton's operating expenditures increased from 3.0% in 2002-03 to 12.0% in 2017-08. This increase has displaced other city expenditures, including an estimated $31 million in 2017-18.[130] A review of historical expenditures from 2002-03 to 2017-18 by function suggests that higher pension contributions have led to reductions in three functional areas: Public Works, Library, and Parks and Recreation.[131] Pension expenditures in 2029-30 appear likely to crowd out an additional $28

[130] This reflects the change in the pension share of operating expenditures between 2002-03 and 2017-18 (from 3.0% to 12.0%) and a 2017-18 operating budget of $345.5 million, i.e., $345.5 million times 9.0%.

[131] The budget share of Public Works decreased from 21.4% to 5.9%; the Library share fell from 5.4% to 2.0%, and the Parks and Recreation share decreased from 7.2% to 3.4%. The Parks and Recreation share in 2017-18 includes entertainment venues. Budget shares reflect General Fund only and exclude capital outlays and debt service.

million in other city spending in the baseline projection, suggesting additional downward pressure on non-pension expenditures.[132] However, because a November 2016 sales tax was specifically designed to support Library and Parks and Recreation functions, the city may be forced to consider reductions in other areas.[133] In the alternative projection, city non-pension spending may be subject to reductions of up to $47 million.[134] To illustrate the magnitude of these reductions, this would require across-the-board reductions of almost 10% or, alternatively, a reduction in Public Safety of about 19%. As noted earlier, this analysis does not reflect the budget pressure that increasing POB debt service payments are likely to exert in later years.

[132] Based on the increase in pension share of operating expenditures between 2017-18 and 2029-30 (12.0% and 17.7%, respectively) and a 2029-30 operating budget of $494.2 billion, i.e., $494.2 million times 5.7%.

[133] We assume no additional revenue increases beyond the 2016 sales tax. For information on the 2016 tax, see http://www.stocktongov.com/government/departments/clerk/measureM.html.

[134] Based on the increase in projected pension share of operating expenditures (21.5% minus 12.0%), or 9.5%, times projected city operating expenditures in 2029-30 of $494.2 million.

CASE STUDY: CITY OF VALLEJO

The City of Vallejo funds four pension plans within the CalPERS system, covering its general workforce, its safety employees, and employees of the Vallejo Sanitation and Flood Control District (VSFCD).[135] In total, these plans covered 1,874 participants on June 30, 2015, including 559 current employees. All results here are on a combined basis.[136]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return after June 30, 2017 is assumed to equal the CalPERS discount rate (7.25% in 2018 and 7% for later years) through 2029
- Orange bars: projected *alternative* results—annual investment return after June 30, 2017 is assumed to be 2% less than the CalPERS discount rate through 2029.

Contributions

Employer pension contributions totaled $5.0 million in 2003-04.[137] As shown in Figure 30, they more than doubled to $11.3 million by 2008-09. In 2017-18, contributions reach $24.7 million, almost five times the 2003-04 amount. By 2029-30 the city's contribution is expected to increase to $52 million under the baseline projection and $60 million under the alternative projection.[138]

[135] Two VSFCD plans, covering employees hired at different times, are in separate CalPERS risk pools with similar plans sponsored by other California jurisdictions. A risk pool reduces the cost volatility to which a smaller plan is subject, by sharing pool-wide experience regarding rates of salary increase, retirement, death, etc. Our global assumption that noninvestment experience during the forecast period will track a plan's actuarial assumptions here applies to the risk pools rather than to the VSFCD plans.

[136] See Appendix J for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[137] Data for 2002-03 are not available.

[138] Under the alternative projection, material increases in the city's annual contribution level continue through 2035-36. This reflects that it takes seven years for contribution increases resulting from the assumed experience through 2028-29 (investment returns 2% less than the discount rate) to phase-in.

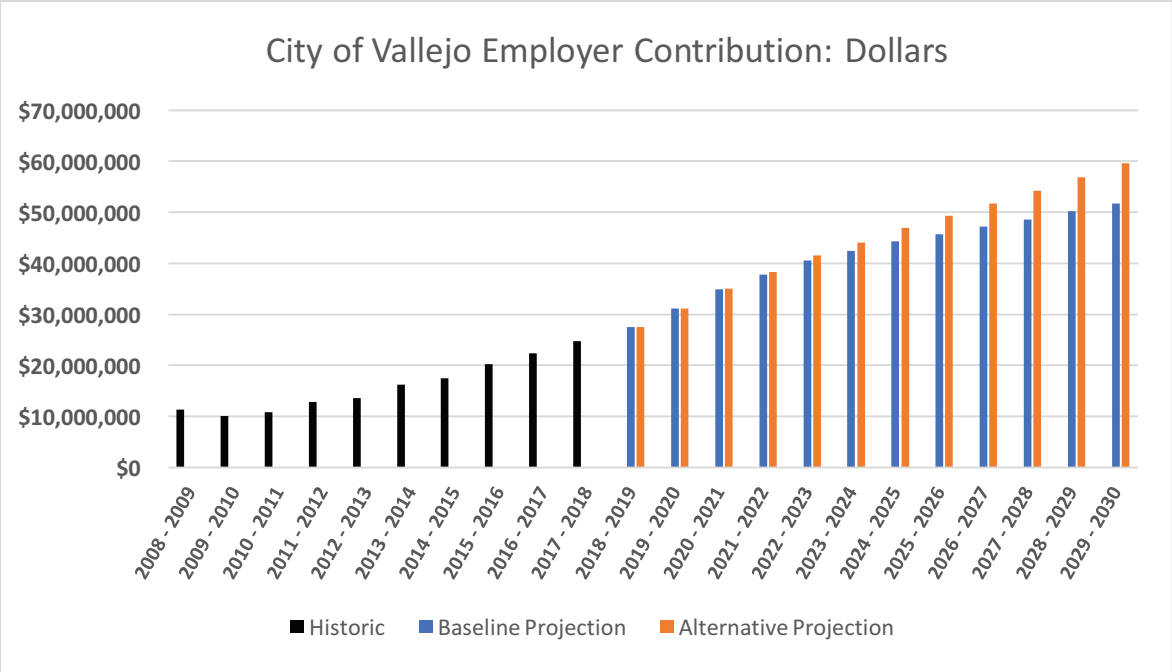

Figure 30—City of Vallejo Annual Pension Contributions: Dollar

The city's pension contributions have also increased as a share of operating expenditures:[139] from 3.1% in 2003-04 to 7.3% in 2008-09, and 15.2% in 2017-18 (Figure 31). By 2029-30, pension contributions consume 23.7% of Vallejo's operating expenditures under the baseline projection, and 27.3% under the alternative projection.

[139] Rather than projecting future changes in operating expenditures based on historical trend, we here project 2.47% annual increases in the city's operating expenditures after 2014-15, to better reflect current expectations. See City of Vallejo Proposed Budget Fiscal Year 2017-2018, p. 32, http://www.cityofvallejo.net/common/pages/DisplayFile.aspx?itemId=8139034.

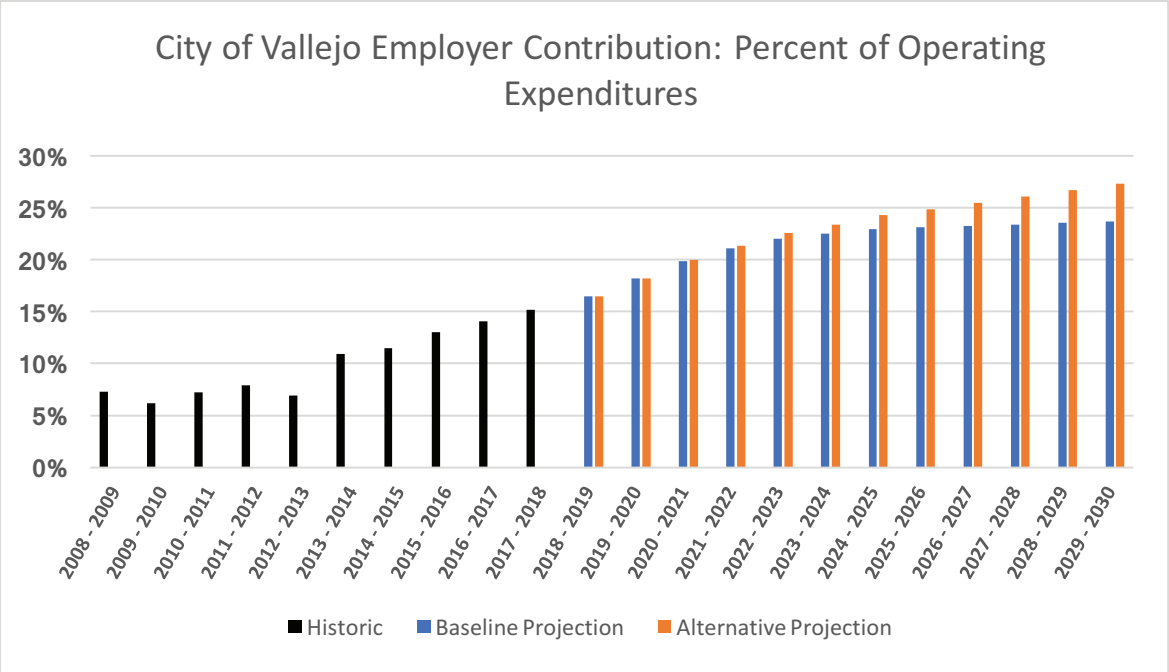

Figure 31—City of Vallejo Annual Pension Contributions: Percent of Operating Expenditures

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This case study reports two measures of this funded ratio: Market and Actuarial. Each uses assets at market value.

- *Market*: The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.
  - On this basis, the funded ratio dropped from 57% in 2008 to 37% in 2015.
  - Under the baseline projection, it will be 44% in 2029.
  - Under the alternative projection, it will be 35% in 2029.
- *Actuarial*: The discount rate used to determine liability as of a measurement date is set by CalPERS to reflect its expectations about long-term investment performance. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio dropped from 83% in 2008 to 65% in 2015.
  - Under the baseline projection, the funded ratio is 75% in 2029.
  - Under the alternative projection, the funded ratio is 60% in 2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $346.7 million in 2008 to $862.4 million in 2015. By 2029 it will reach $1.1 billion under the baseline projection, and $1.3 billion under the alternative projection. As shown in the following Figure, this amounts to an increase from $8,500 per city household in 2008 to $21,200 in 2015; by 2029, it reaches $28,200 per household under the baseline projection, and $32,500 under the alternative projection.

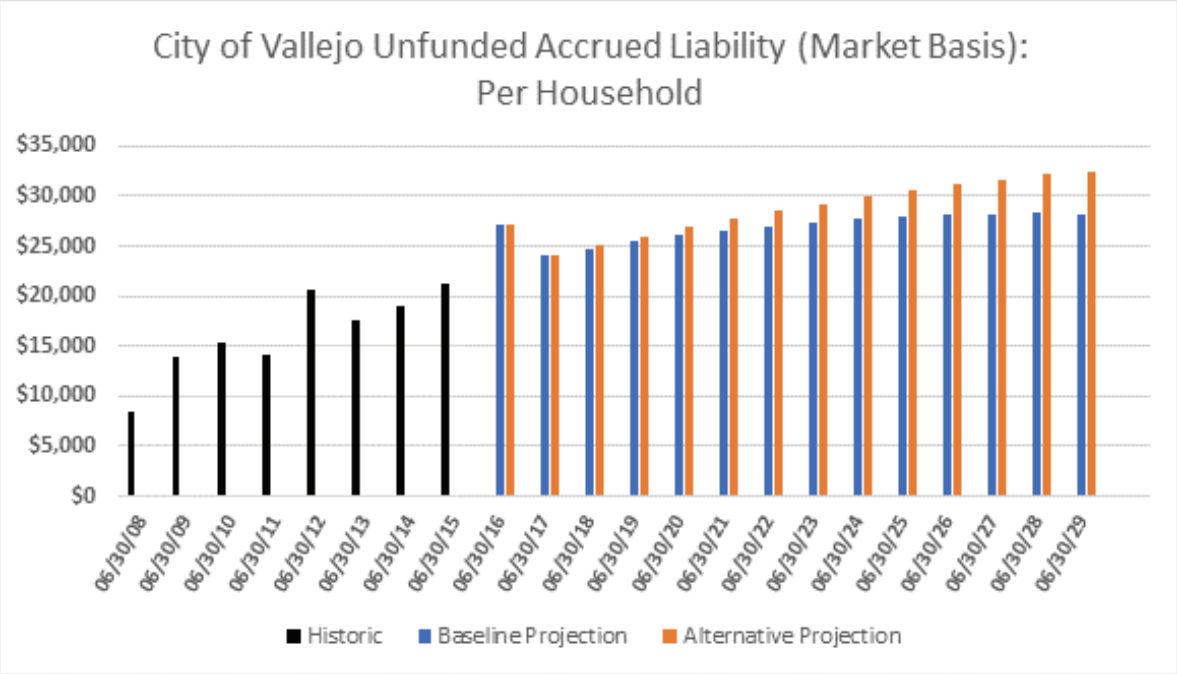

Figure 32—City of Vallejo Unfunded Accrued Pension Liability (Market Basis): Per Household

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $94.1 million in 2008 to $270.6 million in 2015. Under the baseline projection, it reaches $300 million by 2029; under the alternative projection, it grows to $474 million by 2029.

The actuarial unfunded accrued liability per household increased from $2,300 in 2008 to $6,700 in 2015. Under the baseline projection, it reaches $7,400 by 2029; under the alternative projection, it grows to $11,700 per household by 2029.

Crowd Out by Pension Contributions

As discussed above, the pension share of Vallejo's operating expenditures increased from 3.1% in 2003-04 to 15.2% in 2017-18. This increase has displaced other city expenditures, including approximately $20 million in 2017-18.[140] A review of historical expenditures by department suggests that higher pension contributions have led to widespread expenditure and personnel reductions.[141] For example, the number of Police personnel, 221 in 2004, fell to 143 by 2014. While a recently-approved 1% sales tax will permit an increase to 171 in 2018, this will still be 23% lower than the 2004 level. The number of Fire personnel declined from 122 in 2004 to 94 in 2014. Public works staffing was 12 in 2014, compared with 66 positions in 2004.

[140] This reflects the noted 12.1% increase in the pension share of operating expenditures between 2003-04 and 2017-18 and a 2017-18 operating budget of $162.7 million, i.e., $162.7 million times 12.1%. Of course, the city's bankruptcy filing in 2008 reflects the broader financial pressures that it has faced. However, it is clear that increasing pension expenditures contributed substantially to those financial pressures.

[141] Changes in department categories make comparisons over time difficult. For example, the 2017-18 proposed budget contains categories, such as Economic Development and Infrastructure/Maintenance that are not in 2003-04 financial documents under those titles. However, as noted, public safety expenditure changes paint a clearer picture.

City pension expenditures in 2029-30 appear likely to displace an additional $19 million in other city spending in the baseline projection, even with the recent passage and extension the sales tax that increases city revenues by $10 million per year.[142] Even under this scenario, i.e., where CalPERS expectations about future investment returns are met, accommodating this additional budget pressure from pensions would require 24% reductions in Police and Fire expenditures (likely with commensurate staff reductions), or more than 8% in across-the-board budget cuts.

In the alternative projection, in 2029-30 pensions appear likely to crowd out $26 million in other spending, i.e., an additional $8 million beyond the baseline case. Further additional revenue sources appear unlikely, suggesting additional expenditure reductions. To illustrate, accommodating this higher level of additional budget pressure from pensions would require 33% reductions in Police and Fire expenditures, or more than 12% across-the-board reductions.[143]

[142] See Measure B Status Report, http://www.ci.vallejo.ca.us/city_hall/departments__divisions/city_manager/city_news_and_reports/measure_b_quarterly_reports.

[143] Changes in departmental expenditures are based on further operating share reductions from 2017-18.

SCHOOL DISTRICT CASE STUDIES

School and community college districts within the state of California generally provide pension benefits for teachers and other certificated employees through CalSTRS,[144] and pension benefits for classified employees through the CalPERS Schools Pool.[145] Employer funding is on a fully pooled or blended basis each year: each district contributes the same percentage of certificated payroll to CalSTRS, and each contributes the same percentage of classified payroll to the CalPERS Schools Pool.[146]

As of June 30, 2016, CalSTRS covered 914,000 members, including 439,000 current employees. As of June 30, 2015, the CalPERS Schools Pool covered 710,000 members, including 298,000 current employees.

A school district that also maintains a safety workforce generally provides pension benefits for these employees through a separate CalPERS plan covering that specific workforce.

In the following sections we first provide some general information about employer costs under CalSTRS and the CalPERS Schools Pool,[147] and then present abbreviated case studies for three particular school districts: Los Angeles Unified, Mill Valley, and Visalia Unified.[148]

Guide to Figures and Tables

As per the Introduction, future results are projected on two bases. Figures and tables reflect the following key.

- Black: historical results
- Blue: projected *baseline* results—CalSTRS' annual investment return after June 30, 2017 is assumed to equal the CalSTRS discount rate for that period, 7%, and CalPERS' annual investment return after June 30, 2017 is assumed to equal the CalPERS Schools Pool discount rate for that period, 7.375% in 2017-18, 7.25% in 2018-19, and 7% in later years
- Orange: projected *alternative* results—annual investment return after June 30, 2017 is assumed to be 2% less than the discount rate through 2028-29.

[144] Here we consider only what CalSTRS calls its Defined Benefit Program. This is the program under which retirement benefits are provided for the vast majority of the state's teachers.

[145] Teachers are known as "certificated" employees. In contrast, positions like custodians, food service workers, bus drivers, etc., are referred to as "classified" employees.

[146] Compared with use of a separate contribution rate for each district so that it funds just the cost of benefits for its own current and former employees, pooled funding means that a district with high turnover and younger ages at hire pays considerably more, and a district with the opposite characteristics pays considerably less.

[147] See Appendix K for tables with additional results.

[148] We include Los Angeles Unified as the state's largest school district, Mill Valley as a high-wealth district, and Visalia Unified as a low-wealth district. "Wealth" status is generally determined by district property values.

Historic and Projected School District Contribution Rates

Table 2 shows school district contribution rates under CalSTRS and under the CalPERS Schools Pool for each year since 2008-09, and projected rates for each future year through 2029-30. [149]

As discussed within the State of California case study, CalSTRS funding differs from the funding of other California public sector pension plans. First, it involves contributions by the state as well as by members and employers (school districts). Second, each party's contribution rates are largely set in advance under state law, with minimal flexibility to adjust them in response to developing experience or changing expectations about the future.

Table 2—School District Contribution Rates: CalSTRS and CalPERS Schools Pool

	CalSTRS		CalPERS Schools Pool	
year	Baseline	Alternative	Baseline	Alternative
2008 - 09	8.25%		9.43%	
2009 - 10	8.25%		9.71%	
2010 - 11	8.25%		10.71%	
2011 - 12	8.25%		10.92%	
2012 - 13	8.25%		11.42%	
2013 - 14	8.25%		11.44%	
2014 - 15	8.88%		11.77%	
2015 - 16	10.73%		11.85%	
2016 - 17	12.58%		13.89%	
2017 - 18	14.43%		15.53%	
2018 - 19	16.28%		17.82%	
2019 - 20	18.13%	18.13%	20.22%	20.34%
2020 - 21	19.1%	19.1%	23.05%	23.42%
2021 - 22	18.1%	18.10%	24.11%	24.86%
2022 – 23	18.1%	18.1%	24.69%	25.94%
2023 - 24	18.11%	18.1%	25.23%	27.12%
2024 - 25	18.11%	18.1%	25.58%	28.12%
2025 - 26	18.11%	18.1%	25.52%	28.72%
2026 - 27	18.11%	18.1%	25.45%	29.33%
2027 - 28	18.11%	18.1%	25.38%	29.96%
2028 - 29	18.11%	18.1%	25.30%	30.60%
2029 - 30	18.11%	18.1%	25.23%	31.26%

[149] Projected rates are based on the most recent rates available from CalSTRS.

In the case study illustrations below, we allocate unfunded accrued liability to a district in the proportion that the district's payroll bears to the total payroll for all districts. This allocation based on payroll is used within the CalPERS Schools Pool and implicitly within CalSTRS to assign contributions to amortize unfunded liability to individual districts. Ultimately, however, a district's share of the unfunded accrued liability within either system depends on how its unfunded liability would be determined if it were to end its participation in that system, not necessarily on how funding amounts are allocated to it while it participates.

Case Study Illustrations

This section illustrates these results for three school districts: Los Angeles Unified, Mill Valley, and Visalia Unified. We discuss the district's historic and projected pension contributions in dollar terms and as a percent of its operating expenditures, and its share of unfunded accrued liability.[150] In each case, the analysis combines results covering both CalSTRS and the CalPERS Schools Pool. For Los Angeles Unified, we also include results for the separate CalPERS plan that covers current and former safety employees of that district. Finally, each case study briefly discusses how the financial pressure of increased pension contributions may affect the district's ability to meet some of its core obligations.

Some historic contribution amounts are estimated where the relevant data is unavailable. Note that amounts under the alternative projection are significantly constrained by the special CalSTRS funding rules previously described.

Los Angeles Unified School District (LAUSD)

In 2002-03, district pension contributions to CalSTRS, the CalPERS Schools Pool and the CalPERS plan for LAUSD safety employees totaled roughly $320 million. As shown in Figure 33, in 2008-09 LAUSD contributed more than $400 million. After declining over the following few years, this total contribution has increased steadily since 2012-13, to an estimated $613 million in 2017-18. By 2029-30 it is expected to reach more than $1.2 billion under the baseline projection, and more than $1.3 billion under the alternative projection.

[150] Unlike other case studies, we do not include unfunded amount per household and certain other measures for school districts, due to the unavailability of certain relevant data.

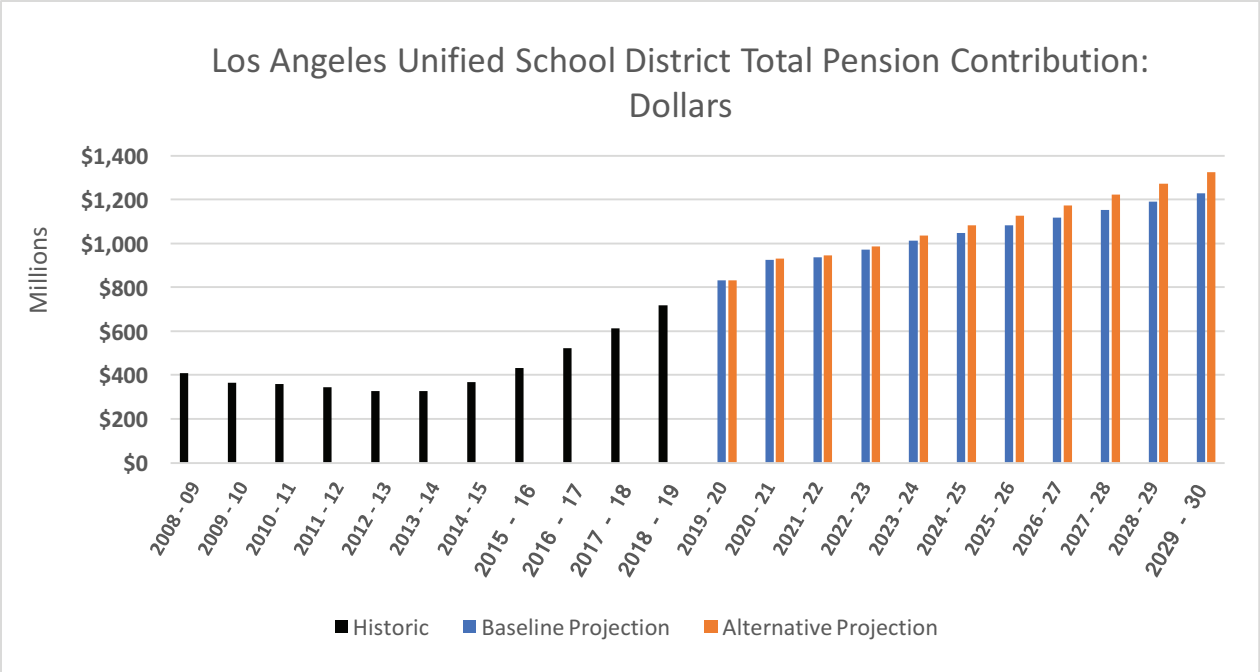

Figure 33—LAUSD Annual Total Pension Contribution: Dollars

This total contribution has also increased when expressed as a percentage of LAUSD's operating expenditures.[151] Annual pension contributions consumed just under 6% of the district's operating expenditures in 2002-03 and also about 6% of operating expenditures during 2008-09 through 2014-15. Since then this measure has grown and will reach almost 9% in 2017-18. By 2029-30, pension contributions are expected to comprise 11.4% or 12.4% of district operating expenditures under baseline and alternative projections, respectively.

[151] We assume that operating expenditures (general fund expenditures less debt service) will increase by 3.7% per year after 2014-15. These expenditures fell significantly during our customary lookback period, 2007-08 through 2014-15, due to a drop in enrollment; however, on a per pupil basis these expenditures increased by 2.9% per year during that period. Based on an estimated 0.8% annual growth in the number of covered students, we project annual operating expenditure growth equal to 1.029 x 1.008 – 1, or 3.7%. Enrollment growth is based on county-wide projections from the U.S. Bureau of the Census for ages 5-17.

LAUSD's share of unfunded accrued pension liability has also been increasing.[152]

- On a market basis, it has grown from about $10 billion in 2008 to $18 billion in 2017, and is expected to exceed $25 billion by 2029.
- On an actuarial basis, it has grown from about $5 billion in 2008 to more than $8 billion in 2017, and is expected to be in the range of $9 billion to $11 billion in 2029.[153]

Crowd Out by Pension Contributions

As discussed above, the pension share of LAUSD's operating expenditures has increased over time to about 9% in the current year. This increase has put downward pressure on other district expenditures, including an estimated $213 million in 2017-18.[154] A detailed budget analysis is beyond the scope of this report, but it appears that higher pension spending has led to reductions in total salaries paid to staff and/or reductions in their number.[155]

Pension expenditures in 2029-30 appear likely to crowd out an additional $282 million in non-pension spending in the baseline projection. To illustrate this potential impact, accommodating this shift would require a 4% reduction in total salary expenditures (salary reductions and/or reductions in the number of employees) or 3% across-the-board expenditure reductions. In the alternative projection, pensions appear likely to crowd out an additional $96 million, i.e., a total of $378 million in 2029-30;[156] accommodating this level of crowd-out would require a 7% reduction in salary expenditures or 4% reductions across the board.

Mill Valley School District (MVSD)

As shown in Figure 35, in 2008-09 MVSD contributed a total of $1.4 million to CalSTRS and to the CalPERS Schools Pool.[157] This total contribution has increased steadily since 2012-13, to $3.7 million in 2017-18. By 2029-30 it is expected to reach $7.4 million under the baseline projection, and just under $8 million under the alternative projection.

[152] Because of uncertainty concerning the allocation of the unfunded liabilities between the state and districts, estimates presented in the three school district case studies should be considered approximations only.

[153] As indicated the Introduction, this report covers only pension obligations, and so does not include costs for retiree health benefits. But it is worth noting here that LAUSD's retiree health obligations were recently estimated at $6.7 billion. See the LAUSD, "Comprehensive Annual Financial Report for Fiscal Year Ended June 30, 2016," p. iv. https://achieve.lausd.net/cms/lib/CA01000043/Centricity/Domain/328/Fiscal%20Year%202015-16/LosAngelesUnifiedRpt16.pdf.

[154] This reflects the estimated change in the pension share of operating expenditures between 2002-03 and 2017-18 (5.8% and 8.9%, respectively) and a 2017-18 operating budget of $6.9 billion, i.e., $6.9 billion times 3.1%.

[155] According to LAUSD Comprehensive Annual Financial Report documents, the salary share of expenditures fell from 65.9% in 2001-02 to 56.3% in 2015-16. Over the same period, the share of employee benefits, including pensions, rose from 17.4% to 22.2%. See https://achieve.lausd.net/Page/1679. Capital outlay and other expenditure categories also fell slightly. The 2002-03 CAFR is not available so this analysis was expanded to cover 2001-02 through 2015-16.

[156] This reflects the estimated change in the pension share of operating expenditures between 2017-18 and 2029-30 (8.9% and 12.4%, respectively) and a 2029-30 operating budget of $10.7 billion, i.e., $10.7 billion times 3.5%.

[157] Data prior to 2008-09 were not available.

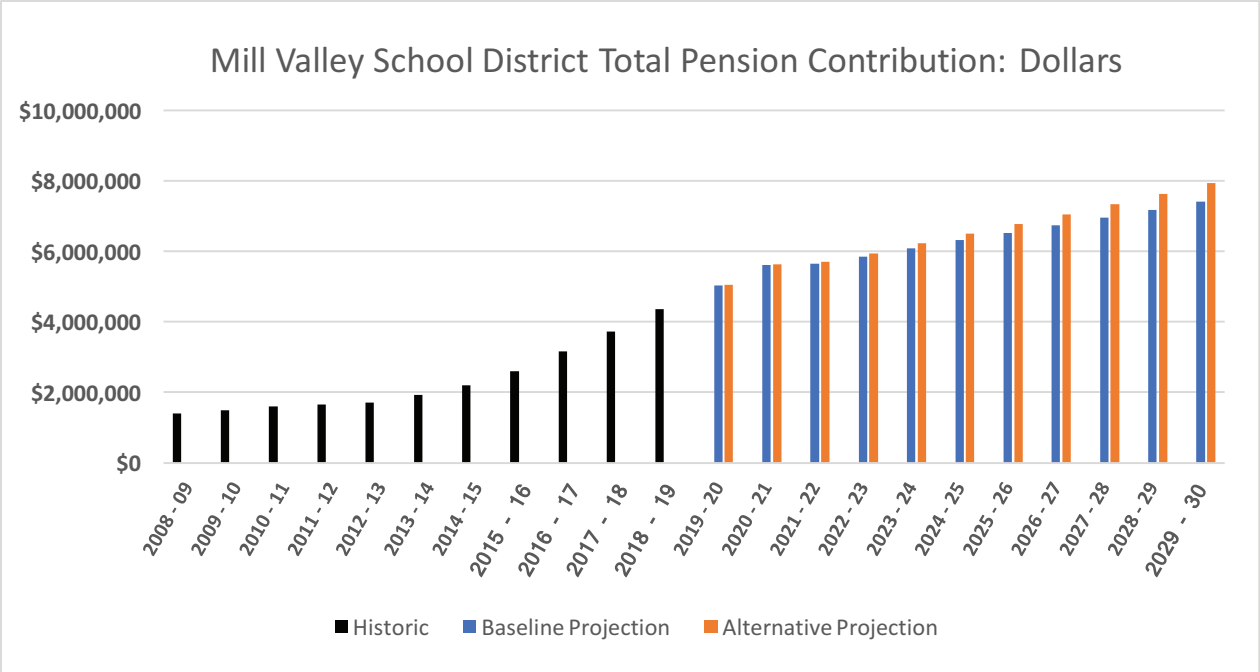

Figure 35—MVSD Annual Total Pension Contribution: Dollars

This total contribution has also increased when expressed as a percentage of MVSD's operating expenditures.[158] Annual pension contributions consumed 5.4% of the district's operating expenditures in 2007-08. This measure remained relatively flat through 2014-15 but has risen steadily since then, reaching 8.8% in 2017-18. By 2029-30, pension contributions are expected to comprise 12.3% or 13.2% of district operating expenditures under baseline and alternative projections, respectively.

MVSD's share of unfunded accrued pension liability has also been increasing.

- On a market basis, it has grown from $34 million in 2008 to $106 million in 2017, and by 2029 it is expected to be $147 million (baseline projection) or $153 million (alternative projection).
- On an actuarial basis, it has grown from $18 million in 2008 to $52 million in 2017, and by 2029 it is expected to be $57 million (baseline projection) or $63 million (alternative projection).

Crowd Out by Pension Contributions

As discussed above, the pension share of MVSD's operating expenditures is 8.8% in the current year, up from 5.3% in 2007-08. This increase has displaced an estimated $1.5 million in non-

[158] We assume that operating expenditures (general fund expenditures less debt service) will increase by 3.0% per year after 2014-15. These expenditures increased by 1.3% per year from 2007-08 through 2014-15. Our projected rate reflects the likely impact of Measure E, adopted in 2016, which provides an additional source of revenue at least until 2026, and an assumption that enrollment will remain relatively flat, based on county-wide projections from the U.S. Bureau of the Census for ages 5-17.

pension spending in 2017-18.[159] It appears that higher pension spending has led to a reduction in services, books and supplies, and other operating expenditures.[160]

Pension expenditures in 2029-30 appear likely to crowd out an additional $2.1 million in non-pension spending in the baseline projection. To illustrate this potential impact, accommodating this would require a 6% reduction in total salary expenditures (via salary reductions and/or reductions in the number of employees) or 4% across-the-board expenditure reductions. In the alternative projection, pensions appear likely to crowd out a total of $2.6 million in 2029-30;[161] accommodating this would require would require a 7% reduction in salary expenditures or more than 4% across the board reduction reductions.

Visalia Unified School District (VUSD)

As shown in Figure 36, in 2009-10[162] VUSD contributed a total of $10.8 million to CalSTRS and to the CalPERS Schools Pool. This total contribution remained generally flat for several years before increasing to $13.1 million in 2014-15 and to $22.3 million in 2017-18. By 2029-30 it is expected to reach $44 million under the baseline projection, and nearly $48 million under the alternative projection.

We also consider this total contribution as a percentage of VUSD's operating expenditures.[163] Annual pension contributions consumed 5.5% of the district's operating expenditures in 2009-10. This measure remained relatively flat through 2014-15 and has risen since then, reaching 7.7% in 2017-18—but it is expected to moderate over future years, as growth in operating expenditures is expected to eventually outstrip growth in pension contributions. Pension contributions grow to consume 9.6% (baseline and alternative projections) of the district's operating expenditures in 2021-22 and 2021-22. Respectively. By 2029-30 the pension share of those expenditures falls back to 7.2% (baseline projection) or 7.7% (alternative projection).

[159] This reflects the estimated change in the pension share of operating expenditures between 2007-08 and 2017-18 (5.3% and 8.8%, respectively) and a 2017-18 operating budget of $42.2 million, i.e., $42.2 million times 3.6%. Note that some numbers are rounded.

[160] According to MVSD Comprehensive Annual Financial Reports, the services and other operations share of expenditures fell from 13.8% in 2007-08 to 8.3% in 2015-16, while the share consumed by employee benefits, including pensions, rose from 17.9% to 23.2%. Earlier CAFRs are not available, so the analysis is limited to 2007-08 through 2015-16.

[161] This reflects the estimated change in the pension share of operating expenditures between 2017-18 and 2029-30 (8.8% and 14.3%, respectively) and a 2029-30 operating budget of $60.0 million, i.e., $60.0 million times 5.5%.

[162] Reliable information for years prior to 2009-10 was not available.

[163] We assume that operating expenditures (general fund expenditures less debt service) will increase by 6.5% per year after 2014-15. This high rate reflects the combined impact of expected 3.9% annual growth in per pupil spending and expected 2.5% annual student population growth. See U.S. Bureau of the Census for enrollment projections for ages 5-17. If VUSD's actual increase in operating expenditures is less, the pension share will increase.

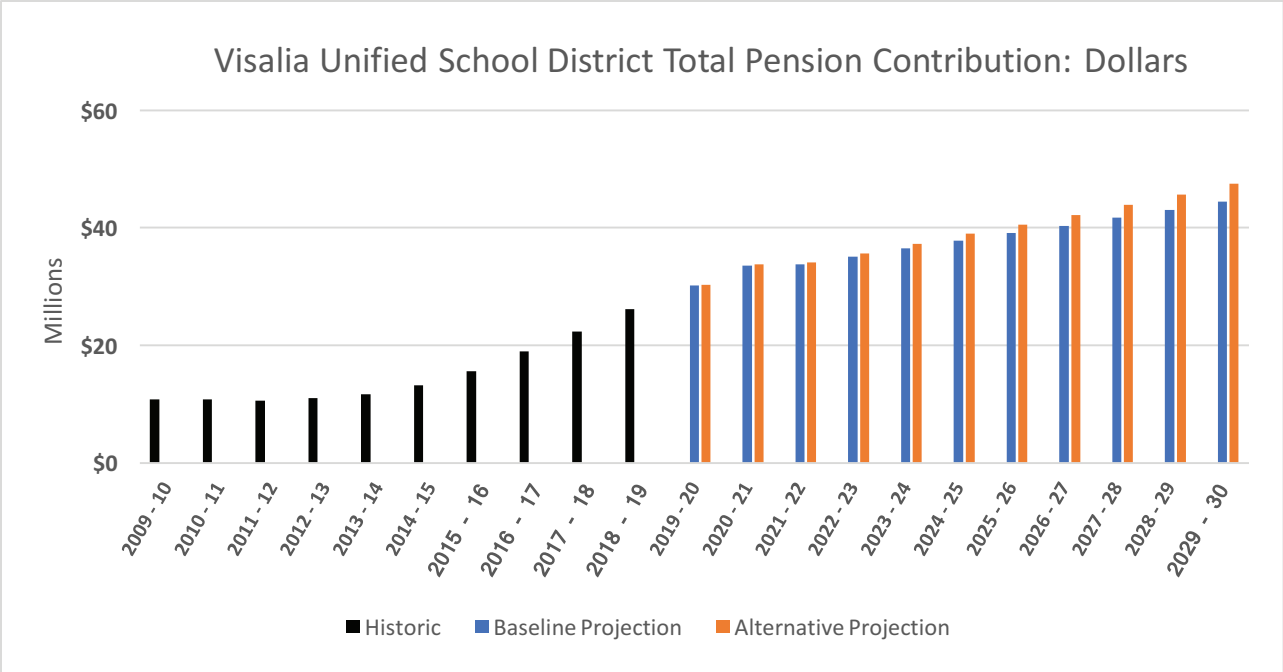

Figure 36—VUSD Annual Total Pension Contribution: Dollars

VUSD's share of unfunded accrued pension liability will continue to increase.

- On a market basis, it has grown from $352 million in 2009 to $637 million in 2017, and by 2029 it is expected to be $878 million (baseline projection) or $913 million (alternative projection).
- On an actuarial basis, it has grown from $199 million in 2009 to $312 million in 2017, and by 2029 it is expected to be $342 million (baseline projection) or $377 million (alternative projection).

Crowd Out by Pension Contributions

As discussed above, the pension share of VUSD's operating expenditures has increased over time to 7.7% in the current year. This increase has put downward pressure on other district expenditures, including an estimated $6.4 million in 2017-18.[164] It appears that higher pension spending has led to reductions in total salaries paid to or reductions in the number of certificated and classified employees, or to reductions in salaries and staff positions for both employee classes.[165]

Pension expenditures in 2029-30 in the baseline projection appear unlikely to crowd out additional non-pension items, based on our relatively high assumed future annual increase in operating expenditures. However, in the alternative projection, pensions appear likely to crowd

[164] This reflects the estimated change in the pension share of operating expenditures between 2009-10 and 2017-18 (5.5% and 7.7%, respectively) and a 2017-18 operating budget of $289.6 million, i.e., $289.6 million times 2.2%.

[165] According to VUSD Comprehensive Annual Financial Report documents, the salary share of expenditures fell 4.9%, from 60.3% in 2011-12 to 55.3% in 2015-16. Over the same period, the share of employee benefits, including pensions, rose from 21.6% to 30.9%. Earlier CAFRs are not available so the analysis is limited to 2011-12 through 2015-16.

out an additional $3.6 million in 2029-30;[166] accommodating this would require a less than 1% reduction in salary expenditures or a slightly smaller expenditure reduction across the board.[167]

[166] This reflects the estimated change in the pension share of operating expenditures between 2017-18 and 2029-30 (7.7% and 8.3%, respectively) and a 2029-30 operating budget of $592.6 million, i.e., $592.6 million times 0.6%.

[167] Even if 2029-30 pension crowd-out is mitigated by the relatively rapid future growth in overall district operating expenditures assumed here, more acute pension budgetary pressure will likely be felt in some earlier years, including 2021-22, when pension contributions are expected to consume almost 10% of operating expenditures, compared with 7.7% for the current year.

CASE STUDY: SPECIAL DISTRICTS

The following section contains a single case study for the San Francisco Bay Area Rapid Transit (BART) District, a CalPERS agency.

CASE STUDY: SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

BART funds two pension plans within the CalPERS system, covering its general workforce and its safety employees. In total, these two plans covered 7,499 participants on June 30, 2015, including 2,859 current employees. All results here are on a combined basis.[168]

Guide to Figures

As per the Introduction, future results are projected on two bases. Figures reflect the following key.

- Black bars: historical results
- Blue bars: projected *baseline* results—annual investment return after June 30, 2017 is assumed to equal the CalPERS discount rate, 7.25% in 2017-18 and 7% in later years
- Orange bars: projected *alternative* results—annual investment return after June 30, 2017 is assumed to be 2% less than the CalPERS discount rate through 2028-29.

Contributions

BART pension contributions totaled $16.8 million in 2002-03, increasing to $27.7 million in 2008-09 (Figure 37).[169] In 2017-18, BART will contribute $61.2 million, more than three times the 2002-03 amount. Under the baseline projection, BART's contribution increases to $119 million in 2024-25; after a temporary drop, it increases to $126 million in 2029-30. Under the alternative projection, BART's contribution grows to $157 million by 2029-30.[170]

BART's pension contributions have also increased as a share of operating expenditures: from 3.4% in 2002-03 to 4.8% in 2008-09, and 8.6% in 2017-18 (Figure 38). Under the baseline projection, pension contributions consume 14.1% of BART's operating expenditures in 2024-25 before reducing to 13.1% in 2029-30; under the alternative projection, BART pension contributions grow to 16.4% of operating expenditures in 2029-30.

[168] See Appendix L for detailed contribution amount, contribution rate, funded ratio, and unfunded liability tables.

[169] As noted in the Introduction, in this study member pension contributions are not included as employer contributions even where they are paid or reimbursed ("picked up") by the employer. Traditionally, BART has picked up the entire member contribution for almost all employees; more recently, this is being phased out.

[170] Under the alternative projection, material increases in BART's annual contribution level continue through 2035-36. This reflects that it takes seven years for contribution increases resulting from the assumed experience through 2028-29 (investment returns 2% less than the discount rate) to phase-in.

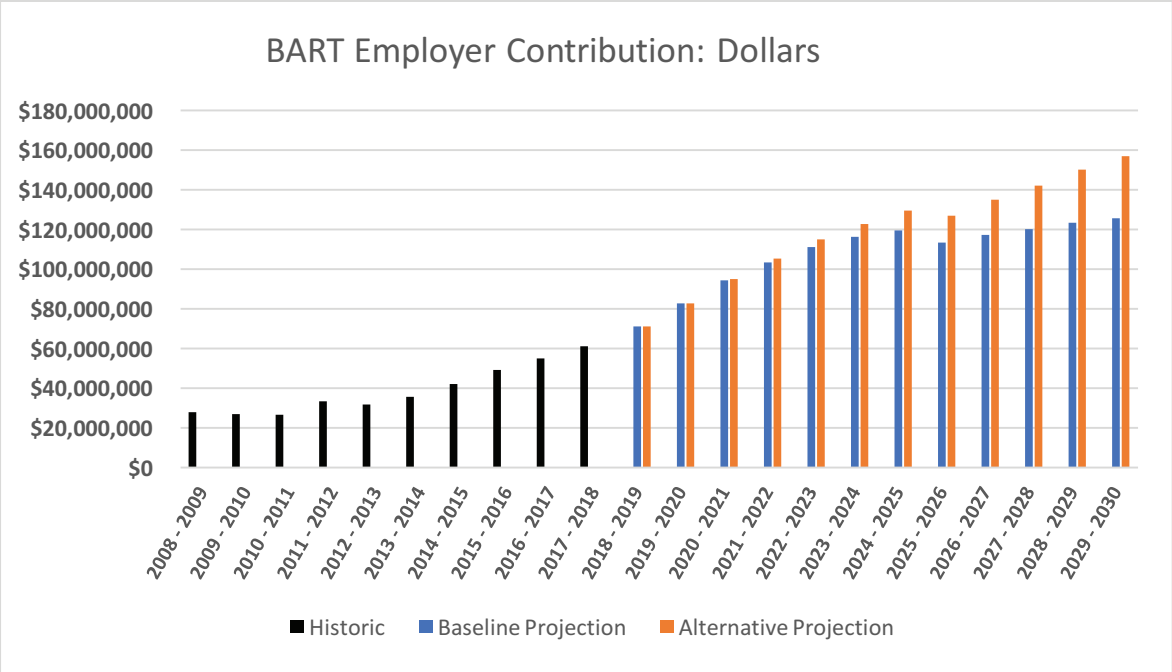

Figure 37—BART Annual Pension Contributions: Dollars

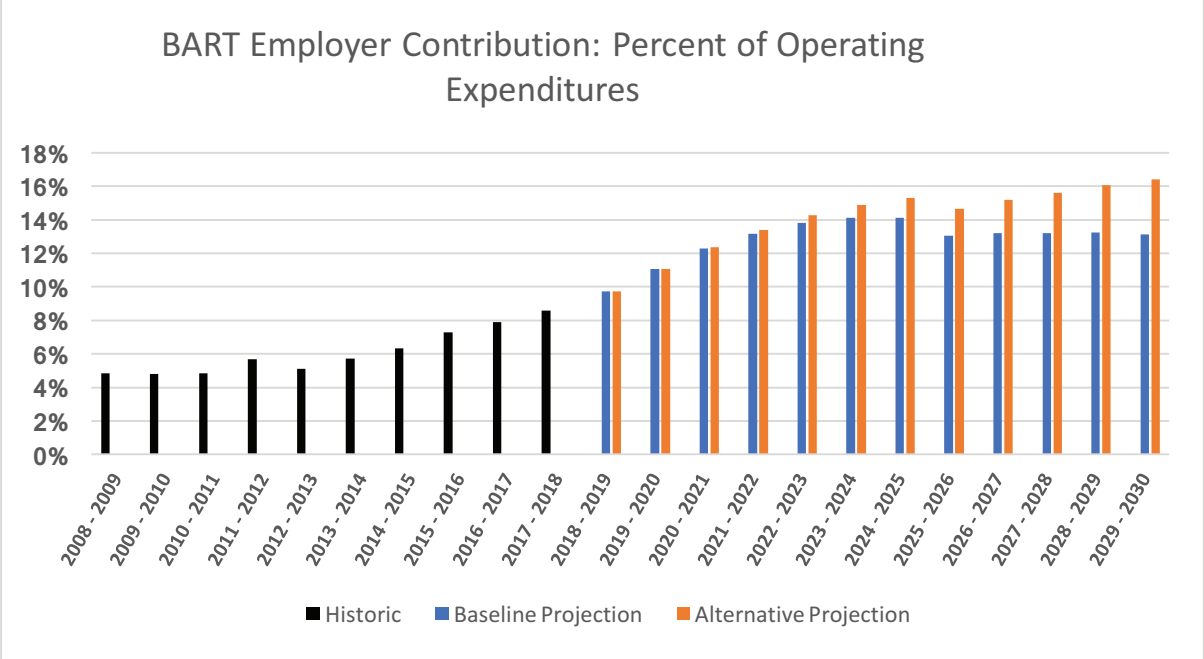

Figure 38—BART Annual Pension Contributions: Percent of Operating Expenditures

Funded Position

A common indicator of plan funding is the ratio of assets to accrued liability, i.e., liability for benefits attributable to past service. This case study reports two measures of this funded ratio: Market and Actuarial. Each uses assets at market value.

- *Market*: The discount rate used to determine liability is the yield on 20-year US Treasury bonds as of each measurement date.
  - On this basis, the funded ratio dropped from 67% in 2008 to 45% in 2015.
  - Under the baseline projection, it will be 51% in 2029.
  - Under the alternative projection, it will be 42% in 2029.
- *Actuarial*: The discount rate used to determine liability as of a measurement date is set by CalPERS to reflect its expectations about long-term investment performance. This measure is less volatile than the Market funded ratio.
  - On this basis, the funded ratio dropped from 97% in 2008 to 78% in 2015.
  - Under the baseline projection, the funded ratio is 87% in 2029.
  - Under the alternative projection, the funded ratio is 71% in 2029.

Unfunded Accrued Pension Liability: Market Basis

On a Market basis, the unfunded accrued liability increased from $745.3 million in 2008 to $2.3 billion in 2015. By 2029 it will reach $3.7 billion under the baseline projection, and $4.4 billion under the alternative projection. As shown in the following Figure, within the counties served by BART,[171] this amounts to an increase from $700 per household in 2008 to $1,900 in 2015; by 2029, it reaches $2,900 per household under the baseline projection, and $3,500 under the alternative projection.[172]

[171] This includes the Counties of Alameda, Contra Costa, and San Francisco, based on BART's taxing authority. The Santa Clara Valley Transportation Authority (VTA) is exploring extending BART to Santa Clara County, and VTA voters in 2000 approved a measure that dedicates $2 billion to the project. However, since there are no elected representatives from Santa Clara or other counties, we do not include them in this discussion. See BART, "Strategic Planning," https://www.bart.gov/about/planning/strategic.

[172] These per-household unfunded liability amounts are in addition to the generally larger per-household amounts deriving from other sources of unfunded pension liability: from the retirement systems for each county and city to which a household belongs.

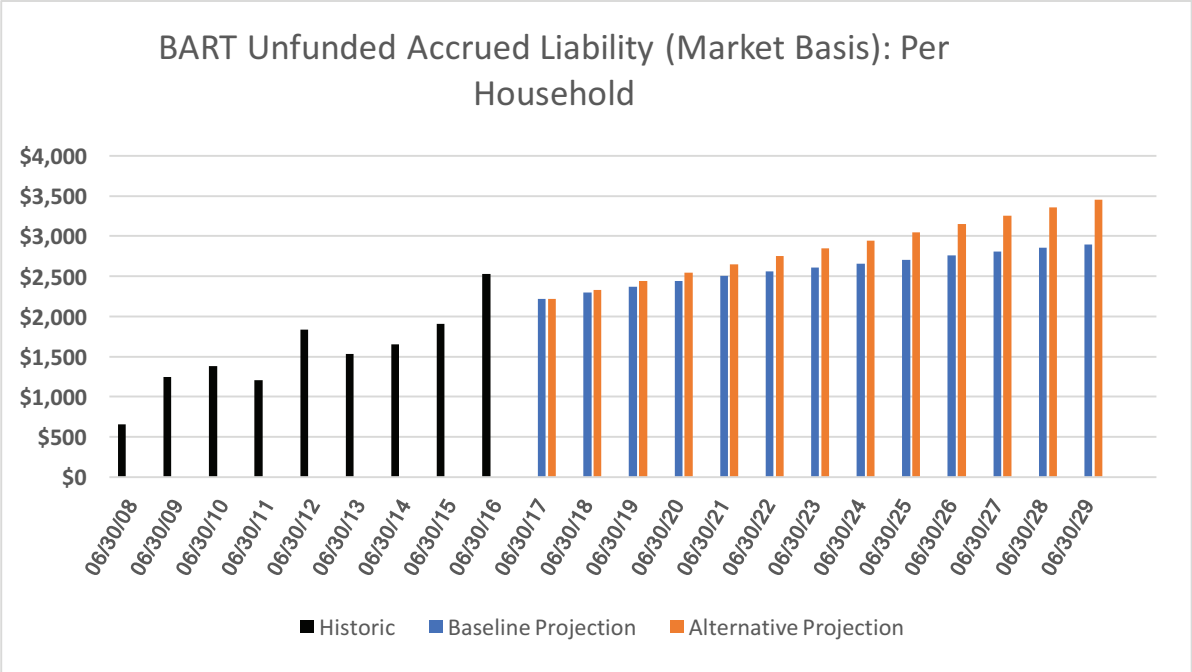

Figure 39—BART Unfunded Accrued Pension Liability (Market Basis): Per Household

Unfunded Accrued Pension Liability: Actuarial Basis

On an Actuarial basis, the unfunded accrued liability increased from $47.6 million in 2008 to $514.8 million in 2015. Under the baseline projection, it reaches $829 million in 2020 before dropping to $604 million by 2029; under the alternative projection, it grows to $1.3 billion by 2029.

The actuarial unfunded accrued liability per household increased from less than $50 in 2008 to $400 in 2015. Under the baseline projection, it reaches $700 by 2018 but drops to $500 by 2029; under the alternative projection, it grows to $1,000 per household by 2029.

Crowd Out by Pension Contributions

As discussed in the Contributions section above, the pension share of BART's operating expenditures has increased over time, from 3.4% in 2002-03 to 8.6% in 2017-18. This increase has put downward pressure on other expenditures, including an estimated $37 million in 2017-2018.[173] Because the district's financial documents contain limited detail, it is unclear which functions have seen reduced funding due to the need to make increased pension contributions.[174]

BART pension expenditures in 2029-30 appear likely to crowd out an additional $43 million in other spending in the baseline projection. In the alternative projection, pensions appear likely to

[173] This figure is based on a 2017-18 budget memo, and reflects the change in the pension share of operating expenditures between 2002-03 and 2017-18 (3.4% and 8.6%, respectively) and a 2017-18 operating budget of $711.3 million, i.e., $711.3 million times 5.2%.

[174] BART officials did not respond to numerous requests for detailed expenditure data.

crowd out $75 million.[175] To illustrate this potential impact, a $75 million reduction in other spending in 2029-30 would require 8% across-the-board expenditure reductions.

[175] This assumes that BART is unable to utilize recent voter-approved capital funds (Measure RR) for operations.

CASE STUDY OBSERVATIONS

This section contains observations from the 14 case studies. It focuses on the following key measures from 2002-03 through 2017-18 and on projected results from 2017-18 through 2029-30:

- Employer agency pension contributions in dollars, pension contributions as a share of operating expenditures, and employer contribution rates
- Funding levels
- Unfunded liabilities and unfunded liabilities per household
- Pension crowd out, or the impacts of this pension expenditures on the jurisdiction's ability to provide services that are traditionally considered part of government's core mission.

Pension Contributions in Dollars

The case studies in this report indicate that employer pension contributions have grown at a fast pace since 2002-03. Figure 40 illustrates employer pension contributions in 2002-03, 2017-18, and in 2029-30, under both baseline and alternative projections. From 2002-03 until 2017-18, contributions in our case studies increased 400% on average, i.e., contributions in nominal dollars are now five times higher.[176] (To provide some perspective, consumer inflation over this period is estimated at 35%.)[177] Pension contributions are expected to increase an additional 73% by 2029-30 in the baseline projection and an additional 113% in the alternative projection, outpacing consumer inflation and outpacing increases in government operating budgets.[178] The alternative projection suggests that, on average, 2029-30 employer pension contributions will be more than double current contributions and will be nearly ten times those in 2002-03.

[176] Unless otherwise indicated, averages include the state plus the remaining 13 case studies. Averages are unweighted.

[177] See BLS, "Consumer Price Index," https://www.bls.gov/news.release/cpi.toc.htm.

[178] Consumer inflation from 2018 until 2030, assuming an extension of recent trends, is about 40% over this time period.

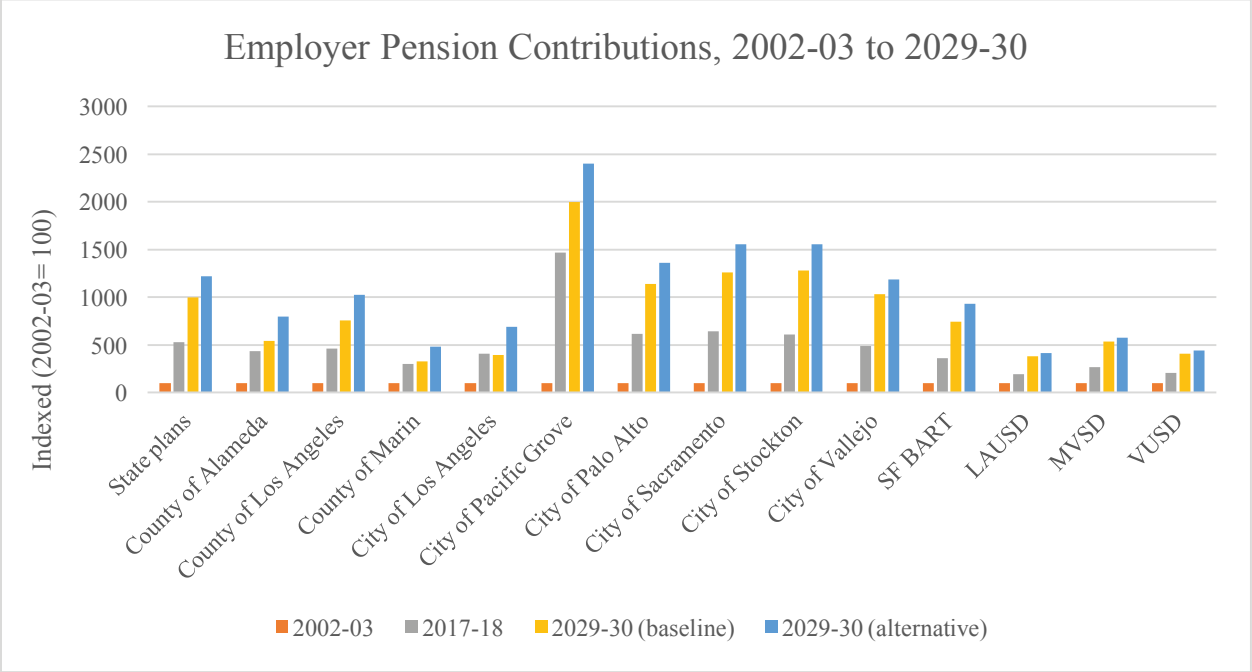

Figure 40—Employer Pension Contributions, 2002-03 to 2029-30

Pension Contributions as a Share of Operating Expenditures

Not surprisingly, employer pension contributions grew at a much faster rate than operating expenditures from 2002-03 through 2017-18 (Figure 41).[179] As noted, operating expenditures grew from a low of 0% (Vallejo)[180] to a high of 65% (County of Alameda), while employer pension contributions rose from a low of 91% (LAUSD) to a high of 1369% (Pacific Grove). On average, operating expenditures rose 46%, about one-ninth the rate of employer pension contributions.[181]

[179] The City of Los Angeles and Vallejo reflect 2003-04 to 2017-18. MVSD figures reflect 2007-08 to 2017-18; VUSD figures reflect 2009-10 to 2017-18.

[180] Vallejo's bankruptcy filing in 2008 clearly impacted the city's operating expenditures.

[181] As noted above, reported contribution increases are lower for school districts since CalSTRS school district contribution rates increased beginning in 2014-15. In addition, reported district contribution increases are less than for other case studies because they cover a shorter time period. MVSD reflects 2007-08 to 2017-18; VUSD reflects 2009-10 to 2017-18.

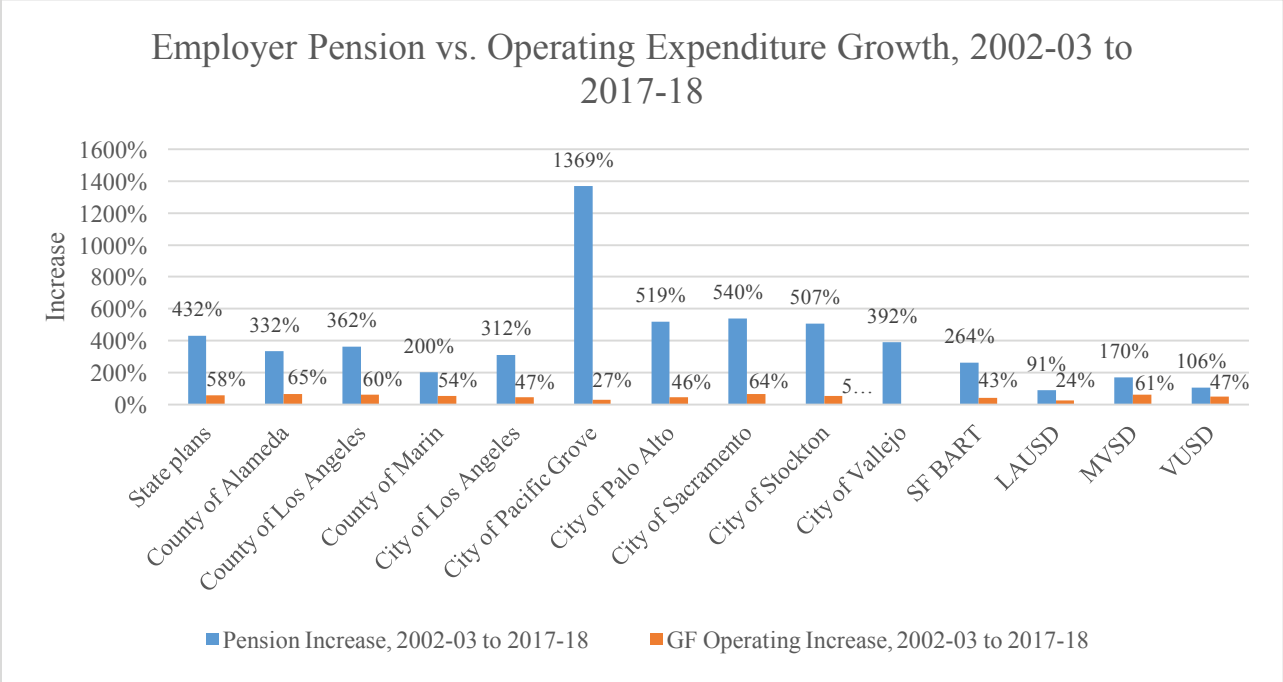

Figure 41—Pension vs. Operating Expenditure Growth, 2002-03 to 2017-18[182]

As a result of their relatively higher growth, employer pension contributions now occupy a much larger share of operating expenditures than in previous years (Figure 42). The employer pension share of operating expenditures in 2002-03 averaged 3.9%, ranging from a low of 2.0% (Pacific Grove) to a high of 7.0% (County of Marin). In 2017-18, the employer pension share of operating expenditures roughly tripled to 11.4%, ranging from a low of 7.1% (State) to a high of 22.5% (Pacific Grove).

[182] As indicated, Vallejo's operating expenditures over this period showed no change.

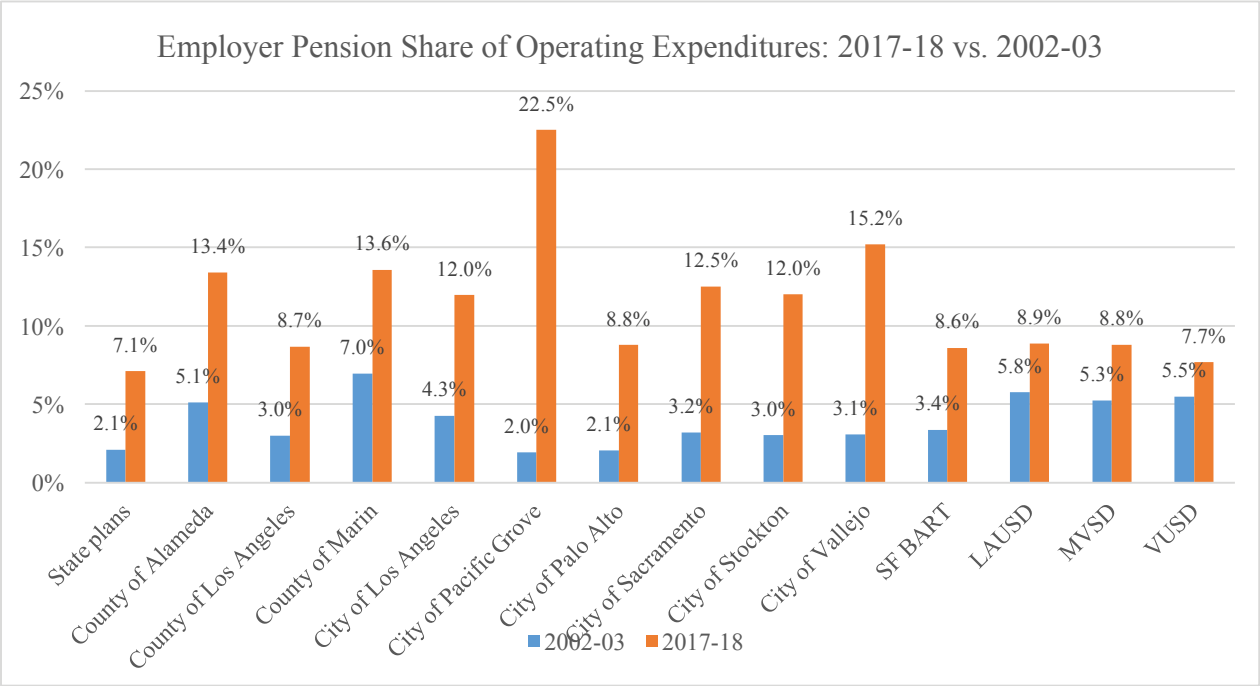

Figure 42—Pension Share of Operating Expenditures: 2017-18 vs. 2002-03[183]

In addition to these historical increases, in almost all cases, pension contributions are projected to occupy a larger share of operating expenditures through the year 2029-30. This occurs even when all assumptions are met, including in the baseline projection when current assumed investment rates of return are achieved (Figure 43). As noted earlier, the average pension contribution share of operating expenditures was 11.4% in 2017-18. This increases to 13.9% in 2029-30 in the baseline projection, from a low of 7.5% (VUSD)[184] to a high of 23.7% (Vallejo). In the alternative projection, the average pension contribution share of operating expenditures reaches 17.4 %, with the lowest share at 8.3% in VUSD), and the highest at 27.9% in Pacific Grove.

[183] As noted above, due to data limitations, the cities of Los Angeles and Vallejo reflect expenditures from 2003-04 to 2017-18. MVSD Charts reflect from 2007-08 to 2017-18; VUSD reflect from 2009-10 to 2017-18.

[184] This and the subsequent relatively low VUSD figures are driven by assumed high operating expenditure growth from 2017-18 through 2029-30. See the VUSD case study for more details.

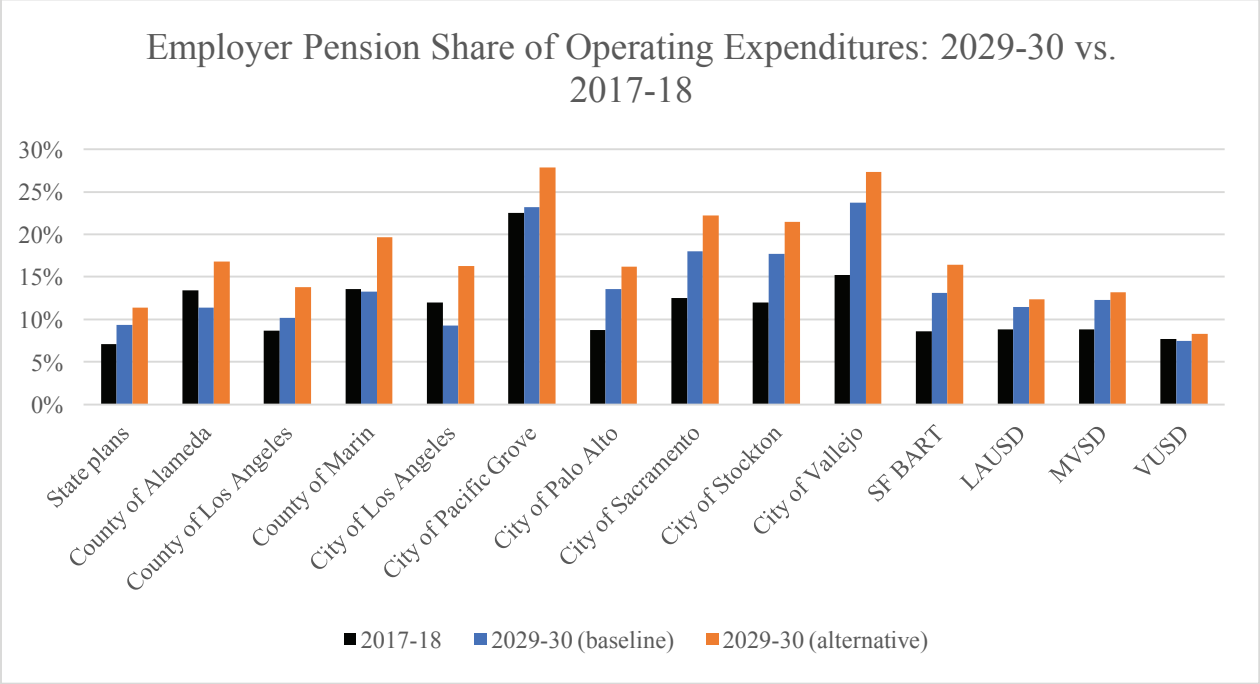

Figure 43—Pension Share of Operating Expenditures: 2029 vs. 2017-18

Contribution Rates

Employer agencies closely track contribution rates that are required to fund pension obligations. These rates, expressed as a percent of payroll, provide a useful measure to assess current and future pension obligations. For example, the average employer contribution rate for the case studies in this report in 2008-09 was 17.7%, indicating an employer payment of $177 for each $1,000 in payroll.[185]

Figure 44 illustrates 2008-09 and projected contribution rates in the baseline and alternative projections. [186] The contribution rate rose from a 17.7% average in 2008-09 to a 30.8% average in 2017-18. In 2029-30, in the baseline projection, the average contribution rate increases to 35.0%, with rates increasing in most jurisdictions.[187] Projected contribution rates in the alternative projection are higher than 2017-18 in every case, increasing to a 44.1% average.

[185] The average here includes the state, all counties and cities, one special district, CalSTRS and the CalPERS Schools Pool. It does not include individual school districts.

[186] See the Appendix for contribution rates for all case studies in all years.

[187] Contribution rates fell in the counties of Alameda and Marin, and in the cities of Los Angeles and Pacific Grove.

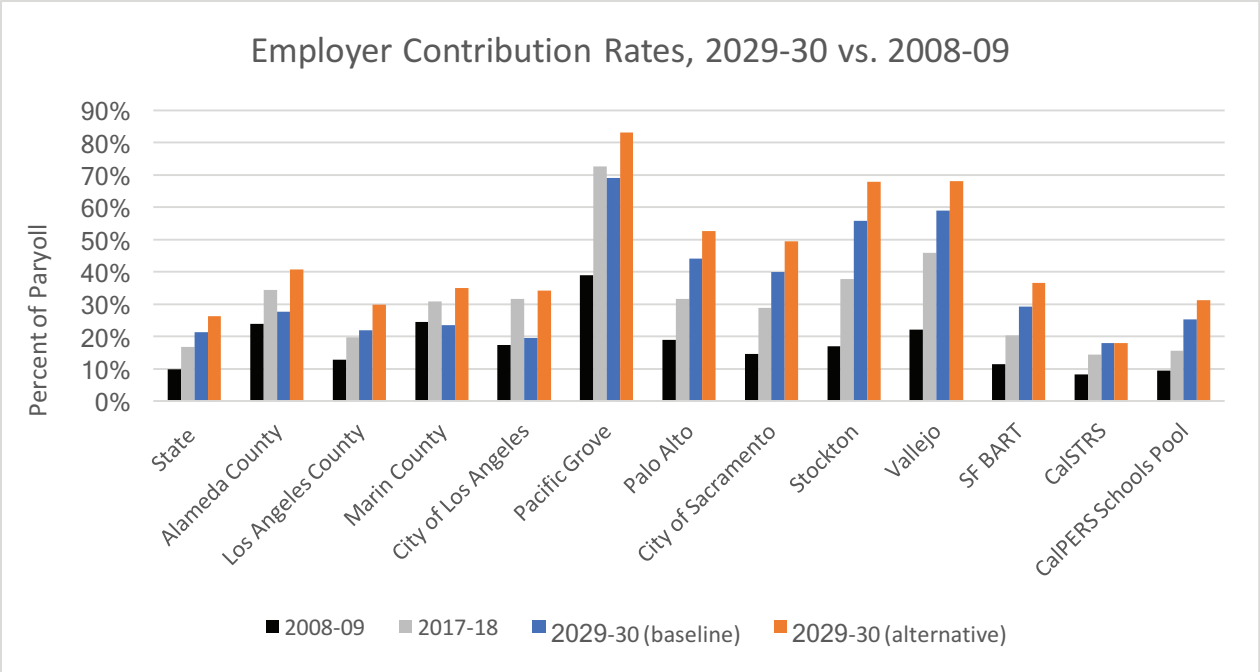

Figure 44—Employer Contribution Rates: 2029-30 vs. 2008-09

Funding Levels

Funded ratios on a market basis in 2008 averaged 58.5%, including a low of 43.0% (County of Alameda) and a high of 66.9% (BART) (Table 3).[188] In 2015,[189] funded ratios fell to an average of 43.0%. In 2029, funded ratios improve in all case studies in the baseline projection, to an average of 48.2%. Funded ratios in the alternative projection average 39.0%. Funded ratios of less than 80%, but greater than 60% are shaded in yellow; funded ratios of less than 60% are shaded in pink. Most pension systems consider 80% a minimum threshold, but typically have a long-term target or policy of reaching 100%. As noted in the Introduction, funded ratios in the private sector below these thresholds face operational restrictions.

[188] Averages for funding ratios and unfunded liabilities exclude school districts, CalSTRS, and the CalPERS Schools Pool. As noted earlier, averages are unweighted. The funded ratio for state plans is based on an approximation of the state's hypothetical share of CalSTRS' assets and its accrued liability share of the total CalSTRS liability.

[189] Because funded ratios for some agencies are available only through 2015, while others are available through 2016, we use 2015 as the common ending point for comparative purposes.

Table 3—Funded Ratios: Market Basis

	2008[a]	2015	2029 (baseline)	2029 (alternative)
State	65.3%	46.7%	50.6%	46.8%
County of Alameda	43.0%	41.1%	50.7%	37.6%
County of Los Angeles	60.1%	46.5%	47.8%	38.9%
County of Marin	50.4%	47.6%	53.2%	42.7%
City of Los Angeles	58.3%	46.8%	50.9%	41.8%
City of Pacific Grove	60.2%	42.9%	43.1%	31.9%
City of Palo Alto	60.2%	38.7%	46.5%	37.3%
City of Sacramento	59.1%	40.4%	46.7%	38.5%
City of Stockton	63.7%	41.2%	45.8%	36.7%
City of Vallejo	56.6%	36.9%	43.7%	35.1%
BART	66.9%	44.9%	51.2%	41.8%
Average	58.5%	43.0%	48.2%	39.0%

Funded ratios on an actuarial basis in 2008 averaged 88.7%, ranging from a low of 78.5% (County of Alameda) to a high of 97.9% (State) (Table 4). Funded ratios on average in 2015 decreased to 76.0%. In 2029, funded ratios improve in all case studies in the baseline projection, to an average of 84.8%. In the alternative projection, funded ratios decline further, reducing the average to 69.7%. Funded ratios of less than 80% but greater than 60% are shaded in yellow; funded ratios of less than 60% are shaded in pink.

Table 4— Funded Ratios: Actuarial Basis

	2008[a]	2015	2029 (baseline)	2029 (alternative)
State	97.9%	83.4%	87.7%	81.1%
County of Alameda	78.5%	73.6%	91.0%	72.5%
County of Los Angeles	94.5%	83.3%	87.4%	73.8%
County of Marin	79.8%	81.7%	96.4%	77.4%
City of Los Angeles	93.2%	82.3%	93.1%	80.3%
City of Pacific Grove	81.8%	70.8%	71.3%	52.7%
City of Palo Alto	88.3%	68.5%	79.8%	64.1%
City of Sacramento	87.2%	74.0%	84.4%	69.6%
City of Stockton	95.0%	74.8%	80.6%	64.6%
City of Vallejo	82.7%	65.1%	74.7%	60.0%
BART	96.9%	78.1%	86.5%	70.5%
Average	88.7%	76.0%	84.8%	69.7%

Unfunded Liabilities

Market Basis

On a market basis, the aggregate unfunded liability was $184.3 billion in 2008, more than doubling to $464.4 billion in 2015 (Table 5). The average of the increase in unfunded liabilities in this period is 144.9%, i.e., unfunded liabilities more than doubled. Unfunded liabilities that are higher than in the previous time period[190] are highlighted in yellow.

[190] This compares 2015 with 2008 and also compares 2029 (baseline) and 2019 (alternative) with 2015. The same comparisons are in Tables 7-9.

Table 5—Unfunded Liabilities: Market Basis

	2008	2015	2029 (baseline)	2029 (alternative)
State	$131,290,000,000	$341,773,000,000	$581,715,000,000	$626,543,000,000
County of Alameda	$5,307,200,000	$8,365,800,000	$11,179,800,000	$14,160,400,000
County of Los Angeles	$23,260,100,000	$56,620,800,000	$97,781,400,000	$111,702,900,000
County of Marin	$1,031,600,000	$2,260,900,000	$2,257,600,000	$2,764,000,000
City of Los Angeles	$19,965,900,000	$45,907,000,000	$73,075,800,000	$83,429,000,000
City of Pacific Grove	$62,300,000	$128,700,000	$125,500,000	$150,300,000
City of Palo Alto	$409,600,000	$1,166,700,000	$1,600,600,000	$1,873,300,000
City of Sacramento	$1,241,300,000	$3,322,600,000	$5,903,400,000	$6,811,700,000
City of Stockton	$626,200,000	$1,713,500,000	$2,444,800,000	$2,857,200,000
City of Vallejo	$346,700,000	$862,400,000	$1,141,800,000	$1,316,200,000
BART	$745,300,000	$2,253,400,000	$3,677,400,000	$4,391,200,000
Total	$184,286,200,000	$464,374,800,000	$780,903,100,000	$855,999,200,000

In the baseline projection, aggregate unfunded liabilities increase to $780.9 billion, a 68.2% increase over 2015. This result may be counterintuitive since this reflects the outcome when all assumptions are met, including assumed investment rates of return. The result is driven by our assumption that liabilities are discounted at the current 20-year United States Treasury bond rate, currently 2.6%. In short, pension system liabilities—and thus their unfunded liabilities—grow at a faster rate than system assets, even if assumed rates of return are achieved.[191]

In the alternative projection, the unfunded liability for each case study increases by an even greater amount—to a total of $856.0 billion., roughly double the 2015 amount.

Actuarial Basis

The aggregate unfunded liability on an actuarial basis was $11.8 billion in 2008, increasing more than ten-fold to $119.8 billion in 2015 (Table 6). Much of this was due to an increase in the unfunded liability for state plans, from $5.2 billion to $97.2 billion. The average of the increase in unfunded liabilities for each plan was 445%, i.e., a more than five-fold increase from 2008. Unfunded liabilities that are higher than in the previous time period are highlighted in yellow.

In the baseline projection to 2029, i.e., when all assumptions are met, the aggregate unfunded liability decreases to $105.9 billion in 2029, an 11.6% decrease from 2015. Not unexpectedly, the unfunded liability for most plans falls, but it increases for others, including the cities of Sacramento, Stockton, and Vallejo, and BART.

In the alternative projection, the unfunded liability increases in all cases to a total $180.4 billion, a 70.3% increase from 2015. Increases range from a high of 182.8% (County of Los Angeles) to a low of 31.9% (State). Unfunded liabilities that are higher than in the previous time period are highlighted in yellow.

[191] This outcome may be particularly counterintuitive since the funded status in the baseline projection increases.

Table 6—Unfunded Liabilities: Actuarial Basis

	2008	2015	2029 (baseline)	2029 (alternative)
State	$5,203,000,000	$97,229,000,000	$83,400,000,000	$128,228,000,000
County of Alameda	$1,264,100,000	$2,114,100,000	$1,131,500,000	$3,479,700,000
County of Los Angeles	$2,313,300,000	$9,490,900,000	$12,914,900,000	$26,836,400,000
County of Marin	$281,900,000	$346,800,000	$96,800,000	$603,300,000
City of Los Angeles	$2,245,200,000	$8,218,400,000	$5,623,500,000	$15,979,300,000
City of Pacific Grove	$20,900,000	$39,800,000	$38,300,000	$63,100,000
City of Palo Alto	$81,900,000	$411,800,000	$352,500,000	$625,200,000
City of Sacramento	$264,100,000	$793,200,000	$954,300,000	$1,862,600,000
City of Stockton	$57,500,000	$403,400,000	$496,500,000	$908,900,000
City of Vallejo	$94,100,000	$270,600,000	$299,800,000	$474,200,000
BART	$47,600,000	$514,800,000	$604,000,000	$1,317,800,000
Total	$11,873,600,000	$119,832,800,000	$105,912,100,000	$180,378,500,000

Unfunded Liabilities per Household

Market Basis

In 2008, the unfunded pension liability per household on a market basis ranged from $652 (BART) to $15,705 (Palo Alto) (Table 7). The unfunded liability increased substantially by 2015, rising on average 142.0%. In the baseline projection, unfunded liabilities per household increase on average 36.3% by 2029. In the alternative projection, unfunded liabilities per household jump 59.8%. Unfunded liabilities per household that are higher than in the previous time period are highlighted in yellow.

Table 7—Unfunded Liabilities Per Household: Market Basis

	2008	2015	2029 (baseline)	2029 (alternative)
State	$10,497	$26,507	$42,427	$45,697
County of Alameda	$9,776	$14,702	$17,886	$22,654
County of Los Angeles	$7,204	$22,976	$28,367	$32,406
County of Marin	$9,988	$16,525	$21,957	$26,882
City of Los Angeles	$15,236	$33,811	$50,139	$57,243
City of Pacific Grove	$8,807	$18,716	$19,311	$23,127
City of Palo Alto	$15,705	$43,304	$55,634	$65,113
City of Sacramento	$7,118	$18,824	$32,645	$37,668
City of Stockton	$6,911	$17,933	$23,013	$26,895
City of Vallejo	$8,503	$21,194	$27,142	$32,480
BART	$652	$1,903	$2,892	$3,454
Average	$9,127	$21,491	$29,220	$33,965

Actuarial Basis

The unfunded liability per household on an actuarial basis ranged from $42 (BART) to $3,140 (Palo Alto) in 2008 (Table 8), increasing on average 370.7% by 2015. In the baseline projection, unfunded liabilities per household increase for some jurisdictions, while they decrease for

others.[192] On average, the unfunded liability per household in 2029 falls 7.6%. In the alternative projection, unfunded liabilities per household in 2029 roughly double from 2015, to $9,325. Unfunded liabilities per household that are higher than in the previous time period are highlighted in yellow in Table 9.

Table 8—Unfunded Liabilities Per Household: Actuarial Basis

	2008	2015	2029 (baseline)	2029 (alternative)
State	$416	$4,619	$6,083	$9,352
County of Alameda	$2,328	$3,715	$1,810	$5,567
County of Los Angeles	$716	$3,879	$3,747	$7,786
County of Marin	$2,729	$3,363	$941	$5,868
City of Los Angeles	$1,713	$6,053	$3,858	$10,964
City of Pacific Grove	$2,955	$5,788	$5,893	$9,709
City of Palo Alto	$3,140	$12,560	$12,252	$21,731
City of Sacramento	$1,514	$4,494	$5,277	$10,300
City of Stockton	$635	$4,222	$4,674	$8,556
City of Vallejo	$2,308	$6,650	$7,398	$11,702
BART	$42	$435	$475	$1,036
Average	$1,682	$5,071	$4,764	$9,325

Pension Crowd Out

Each case study in this report contains a brief discussion of past and potential impacts of rising pension costs on services that are traditionally considered part of government's core mission. Perhaps not surprisingly, specific impacts appear to depend on the government type, i.e., state, county, city, school district, and special district. Several crowd out themes (Table 9) emerge from these case studies. While California has thousands of public agencies, these case studies provide insight into how governments are responding to—and are likely to respond—to future pension cost increases.

As indicated, as employer pension expenditures have increased, governments have reduced social, welfare and educational services, as well as "softer" services, including libraries, recreation, and community services. In some cases, governments have reduced total salaries paid, which likely includes salary and personnel reductions. While these shifts in budget priorities appear relatively small in some cases, they are substantial since many state and local expenditures are mandated, protected by statute, or reflect essential services (e.g., Proposition 98, debt service, public safety, etc.), leaving limited maneuvering room to adjust in response to increased pension costs. Moreover, employer pension contributions are projected to roughly double between 2017 and 2030, resulting in the further crowd out of traditional government services.

[192] These decrease for the counties of Alameda, Los Angeles, and Marin, and for the cities of Los Angeles and Palo Alto, but increase for all others.

Table 9—Service Crowd Out, 2002-03 to Present

Government Type	Pension Expenditure Share	Service Reductions
State	+5%	Dept. of Social Services, Higher Education, various small departments[a]
Counties		
Alameda	+11.2%	Public Assistance, Public Protection, Health Care
Los Angeles	+5.7%	Public Assistance
Marin	+6.6%	Health, Welfare
Cities		
Los Angeles	+7.7%	Cultural and Recreational, Health and Sanitation, Public Works
Pacific Grove	+19.2%	Recreation, Museum, Library, Fire
Palo Alto	+6.5%[b]	Community Services, Planning & Community Environment, Public Works
Sacramento	+9.3%	Convention and cultural services, other departments[c]
Stockton	+9.0%	Public Works, Library, Parks and Recreation
Vallejo	+12.1%	Public Works, Public Safety
School Districts		
Los Angeles	+4.0%	Salaries
Mill Valley	+3.5%	Services and other operating expenditures
Visalia Unified	+2.2%	Salaries
Special District(s)		
BART	+5.2%	Uncertain[d]

[a] Department of Justice (- 0.2%), Department of Parks and Recreation (-0.1%), and Department of Water Resources (-0.1%)
[b] Reflects average contribution rate 1999-2008.
[c] Includes parks and recreation, and transportation.
[d] As noted earlier, numerous requests to BART for budget data were not answered.

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Appendixes—Case Study Tables

A. State of California

A1. State of California, Employer Pension Contribution (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$4,262,000,000	9.8%	4.9%	$116	$341
2009 - 2010	$4,397,000,000	10.3%	5.3%	$118	$350
2010 - 2011	$4,614,000,000	11.0%	5.3%	$124	$367
2011 - 2012	$4,468,000,000	10.9%	5.4%	$118	$354
2012 - 2013	$4,781,000,000	11.7%	5.2%	$126	$377
2013 - 2014	$5,206,000,000	12.1%	5.5%	$136	$408
2014 - 2015	$6,033,000,000	13.6%	5.5%	$156	$471
2015 - 2016	$6,849,000,000	14.7%	6.1%	$175	$531
2016 - 2017	$7,606,000,000	15.6%	6.5%	$193	$587
2017 - 2018	$8,519,000,000	16.9%	7.1%	$215	$655
2018 - 2019	$9,535,000,000	18.3%	7.7%	$238	$730
2019 - 2020	$10,688,000,000	19.8%	8.4%	$265	$815
2020 - 2021	$11,551,000,000	20.7%	8.8%	$284	$876
2021 - 2022	$12,362,000,000	21.5%	9.2%	$301	$934
2022 - 2023	$13,037,000,000	21.9%	9.4%	$315	$981
2023 - 2024	$13,713,000,000	22.3%	9.6%	$328	$1,027
2024 - 2025	$13,911,000,000	21.9%	9.4%	$330	$1,037
2025 - 2026	$14,310,000,000	21.8%	9.4%	$337	$1,062
2026 - 2027	$14,712,000,000	21.7%	9.4%	$344	$1,087
2027 - 2028	$15,098,000,000	21.6%	9.4%	$350	$1,111
2028 - 2029	$15,536,000,000	21.5%	9.4%	$357	$1,138
2029 - 2030	$15,976,000,000	21.4%	9.3%	$364	$1,165

A2. State of California, Employer Pension Contribution (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$4,262,000,000	9.8%	4.9%	$116	$341
2009 - 2010	$4,397,000,000	10.3%	5.3%	$118	$350
2010 - 2011	$4,614,000,000	11.0%	5.3%	$124	$367
2011 - 2012	$4,468,000,000	10.9%	5.4%	$118	$354
2012 - 2013	$4,781,000,000	11.7%	5.2%	$126	$377
2013 - 2014	$5,206,000,000	12.1%	5.5%	$136	$408
2014 - 2015	$6,033,000,000	13.6%	5.5%	$156	$471
2015 - 2016	$6,849,000,000	14.7%	6.1%	$175	$531
2016 - 2017	$7,606,000,000	15.6%	6.5%	$193	$587
2017 - 2018	$8,519,000,000	16.9%	7.1%	$215	$655
2018 - 2019	$9,535,000,000	18.3%	7.7%	$238	$730
2019 - 2020	$10,722,000,000	19.9%	8.4%	$266	$817
2020 - 2021	$11,657,000,000	20.9%	8.9%	$286	$884
2021 - 2022	$12,581,000,000	21.9%	9.3%	$306	$950
2022 - 2023	$13,415,000,000	22.6%	9.6%	$324	$1,009
2023 - 2024	$14,301,000,000	23.3%	10.0%	$343	$1,071
2024 - 2025	$14,982,000,000	23.6%	10.2%	$356	$1,117
2025 - 2026	$15,823,000,000	24.1%	10.4%	$373	$1,174
2026 - 2027	$16,700,000,000	24.7%	10.7%	$390	$1,234
2027 - 2028	$17,595,000,000	25.1%	10.9%	$408	$1,295
2028 - 2029	$18,577,000,000	25.7%	11.2%	$427	$1,361
2029 - 2030	$19,601,000,000	26.2%	11.5%	$447	$1,430

A3. State of California, Ratio of Assets to Accrued Liability (Baseline Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$251,917,000,000	$246,714,000,000	97.9%	$378,004,000,000	$246,714,000,000	65.3%
6/30/09	$267,436,000,000	$180,564,000,000	67.5%	$415,987,000,000	$180,564,000,000	43.4%
6/30/10	$280,903,000,000	$199,807,000,000	71.1%	$460,730,000,000	$199,807,000,000	43.4%
6/30/11	$299,306,000,000	$240,396,000,000	80.3%	$461,788,000,000	$240,396,000,000	52.1%
6/30/12	$309,673,000,000	$233,725,000,000	75.5%	$585,605,000,000	$233,725,000,000	39.9%
6/30/13	$328,507,000,000	$257,868,000,000	78.5%	$558,379,000,000	$257,868,000,000	46.2%
6/30/14	$343,590,000,000	$296,936,000,000	86.4%	$594,515,000,000	$296,936,000,000	49.9%
6/30/15	$358,897,000,000	$299,347,000,000	83.4%	$641,120,000,000	$299,347,000,000	46.7%
6/30/16	$389,217,000,000	$291,988,000,000	75.0%	$768,621,000,000	$291,988,000,000	38.0%
6/30/17	$416,303,000,000	$320,505,000,000	77.0%	$730,304,000,000	$320,505,000,000	43.9%
6/30/18	$440,691,000,000	$336,885,000,000	76.4%	$763,009,000,000	$336,885,000,000	44.2%
6/30/19	$459,966,000,000	$354,410,000,000	77.1%	$796,471,000,000	$354,410,000,000	44.5%
6/30/20	$479,939,000,000	$373,595,000,000	77.8%	$831,151,000,000	$373,595,000,000	44.9%
6/30/21	$500,569,000,000	$394,164,000,000	78.7%	$866,978,000,000	$394,164,000,000	45.5%
6/30/22	$521,802,000,000	$416,057,000,000	79.7%	$903,859,000,000	$416,057,000,000	46.0%
6/30/23	$543,569,000,000	$439,113,000,000	80.8%	$941,678,000,000	$439,113,000,000	46.6%
6/30/24	$565,788,000,000	$463,291,000,000	81.9%	$980,289,000,000	$463,291,000,000	47.3%
6/30/25	$588,352,000,000	$488,227,000,000	83.0%	$1,019,513,000,000	$488,227,000,000	47.9%
6/30/26	$611,135,000,000	$514,044,000,000	84.1%	$1,059,129,000,000	$514,044,000,000	48.5%
6/30/27	$633,984,000,000	$540,649,000,000	85.3%	$1,098,875,000,000	$540,649,000,000	49.2%
6/30/28	$656,713,000,000	$567,902,000,000	86.5%	$1,138,431,000,000	$567,902,000,000	49.9%
6/30/29	$679,102,000,000	$595,702,000,000	87.7%	$1,177,417,000,000	$595,702,000,000	50.6%

A4. State of California, Ratio of Assets to Accrued Liability (Alternative Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$251,917,000,000	$246,714,000,000	97.9%	$378,004,000,000	$246,714,000,000	65.3%
6/30/09	$267,436,000,000	$180,564,000,000	67.5%	$415,987,000,000	$180,564,000,000	43.4%
6/30/10	$280,903,000,000	$199,807,000,000	71.1%	$460,730,000,000	$199,807,000,000	43.4%
6/30/11	$299,306,000,000	$240,396,000,000	80.3%	$461,788,000,000	$240,396,000,000	52.1%
6/30/12	$309,673,000,000	$233,725,000,000	75.5%	$585,605,000,000	$233,725,000,000	39.9%
6/30/13	$328,507,000,000	$257,868,000,000	78.5%	$558,379,000,000	$257,868,000,000	46.2%
6/30/14	$343,590,000,000	$296,936,000,000	86.4%	$594,515,000,000	$296,936,000,000	49.9%
6/30/15	$358,897,000,000	$299,347,000,000	83.4%	$641,120,000,000	$299,347,000,000	46.7%
6/30/16	$389,217,000,000	$291,988,000,000	75.0%	$768,621,000,000	$291,988,000,000	38.0%
6/30/17	$416,303,000,000	$320,505,000,000	77.0%	$730,304,000,000	$320,505,000,000	43.9%
6/30/18	$440,691,000,000	$334,482,000,000	75.9%	$763,009,000,000	$334,482,000,000	43.8%
6/30/19	$459,966,000,000	$349,332,000,000	75.9%	$796,471,000,000	$349,332,000,000	43.9%
6/30/20	$479,939,000,000	$365,574,000,000	76.2%	$831,151,000,000	$365,574,000,000	44.0%
6/30/21	$500,569,000,000	$382,937,000,000	76.5%	$866,978,000,000	$382,937,000,000	44.2%
6/30/22	$521,802,000,000	$401,374,000,000	76.9%	$903,859,000,000	$401,374,000,000	44.4%
6/30/23	$543,569,000,000	$420,745,000,000	77.4%	$941,678,000,000	$420,745,000,000	44.7%
6/30/24	$565,788,000,000	$441,033,000,000	78.0%	$980,289,000,000	$441,033,000,000	45.0%
6/30/25	$588,352,000,000	$461,874,000,000	78.5%	$1,019,513,000,000	$461,874,000,000	45.3%
6/30/26	$611,135,000,000	$483,385,000,000	79.1%	$1,059,129,000,000	$483,385,000,000	45.6%
6/30/27	$633,984,000,000	$505,475,000,000	79.7%	$1,098,875,000,000	$505,475,000,000	46.0%
6/30/28	$656,713,000,000	$528,004,000,000	80.4%	$1,138,431,000,000	$528,004,000,000	46.4%
6/30/29	$679,102,000,000	$550,874,000,000	81.1%	$1,177,417,000,000	$550,874,000,000	46.8%

A5. State of California, Unfunded Accrued Liability—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$5,203,000,000	12.0%	6.0%	$141	$416
6/30/09	$86,872,000,000	203.7%	105.2%	$2,341	$6,921
6/30/10	$81,096,000,000	194.1%	93.4%	$2,173	$6,448
6/30/11	$58,910,000,000	143.4%	71.8%	$1,562	$4,664
6/30/12	$75,948,000,000	186.0%	82.0%	$1,996	$5,986
6/30/13	$70,639,000,000	164.5%	74.0%	$1,839	$5,540
6/30/14	$46,654,000,000	105.0%	42.5%	$1,204	$3,640
6/30/15	$59,550,000,000	128.0%	52.7%	$1,525	$4,619
6/30/16	$97,229,000,000	198.9%	83.5%	$2,469	$7,508
6/30/17	$95,798,000,000	189.7%	79.9%	$2,413	$7,365
6/30/18	$103,806,000,000	198.9%	84.0%	$2,593	$7,946
6/30/19	$105,556,000,000	195.8%	83.0%	$2,614	$8,044
6/30/20	$106,344,000,000	190.9%	81.1%	$2,612	$8,069
6/30/21	$106,405,000,000	184.9%	78.8%	$2,592	$8,038
6/30/22	$105,745,000,000	177.9%	76.1%	$2,554	$7,953
6/30/23	$104,456,000,000	170.1%	72.9%	$2,502	$7,822
6/30/24	$102,497,000,000	161.5%	69.5%	$2,435	$7,642
6/30/25	$100,125,000,000	152.7%	65.9%	$2,359	$7,432
6/30/26	$97,091,000,000	143.4%	62.0%	$2,268	$7,175
6/30/27	$93,335,000,000	133.4%	57.9%	$2,162	$6,867
6/30/28	$88,811,000,000	122.9%	53.5%	$2,040	$6,506
6/30/29	$83,400,000,000	111.7%	48.8%	$1,900	$6,083

A6. State of California, Unfunded Accrued Liability—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$131,290,000,000	302.3%	150.6%	$3,564	$10,497
6/30/09	$235,423,000,000	551.9%	285.0%	$6,344	$18,756
6/30/10	$260,923,000,000	624.6%	300.6%	$6,991	$20,746
6/30/11	$221,392,000,000	539.1%	269.9%	$5,871	$17,529
6/30/12	$351,880,000,000	861.9%	380.1%	$9,246	$27,733
6/30/13	$300,511,000,000	699.7%	315.0%	$7,825	$23,567
6/30/14	$297,579,000,000	670.0%	271.1%	$7,681	$23,216
6/30/15	$341,773,000,000	734.4%	302.3%	$8,752	$26,507
6/30/16	$476,633,000,000	974.9%	409.3%	$12,104	$36,805
6/30/17	$409,799,000,000	811.4%	341.7%	$10,320	$31,505
6/30/18	$426,124,000,000	816.6%	345.0%	$10,642	$32,617
6/30/19	$442,061,000,000	820.0%	347.4%	$10,949	$33,689
6/30/20	$457,556,000,000	821.6%	349.1%	$11,238	$34,717
6/30/21	$472,814,000,000	821.7%	350.3%	$11,516	$35,717
6/30/22	$487,802,000,000	820.6%	350.9%	$11,783	$36,688
6/30/23	$502,565,000,000	818.3%	350.9%	$12,038	$37,633
6/30/24	$516,998,000,000	814.8%	350.5%	$12,281	$38,544
6/30/25	$531,286,000,000	810.5%	349.7%	$12,516	$39,436
6/30/26	$545,085,000,000	804.9%	348.3%	$12,734	$40,283
6/30/27	$558,226,000,000	797.8%	346.3%	$12,933	$41,073
6/30/28	$570,529,000,000	789.2%	343.7%	$13,108	$41,794
6/30/29	$581,715,000,000	778.9%	340.2%	$13,254	$42,427

A7. State of California, Unfunded Accrued Liability—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$5,203,000,000	12.0%	6.0%	$140	$416
6/30/09	$86,872,000,000	203.7%	105.2%	$2,341	$6,921
6/30/10	$81,096,000,000	194.1%	93.4%	$2,185	$6,448
6/30/11	$58,910,000,000	143.4%	71.8%	$1,588	$4,664
6/30/12	$75,948,000,000	186.0%	82.0%	$2,047	$5,986
6/30/13	$70,639,000,000	164.5%	74.0%	$1,904	$5,540
6/30/14	$46,654,000,000	105.0%	42.5%	$1,257	$3,640
6/30/15	$59,550,000,000	128.0%	52.7%	$1,605	$4,619
6/30/16	$97,229,000,000	198.9%	83.5%	$2,620	$7,508
6/30/17	$95,798,000,000	189.7%	79.9%	$2,582	$7,365
6/30/18	$106,209,000,000	203.5%	86.0%	$2,862	$8,130
6/30/19	$110,634,000,000	205.2%	87.0%	$2,981	$8,431
6/30/20	$114,365,000,000	205.3%	87.3%	$3,082	$8,677
6/30/21	$117,632,000,000	204.4%	87.1%	$3,170	$8,886
6/30/22	$120,428,000,000	202.6%	86.6%	$3,245	$9,058
6/30/23	$122,824,000,000	200.0%	85.8%	$3,310	$9,197
6/30/24	$124,755,000,000	196.6%	84.6%	$3,362	$9,301
6/30/25	$126,478,000,000	192.9%	83.3%	$3,408	$9,388
6/30/26	$127,750,000,000	188.6%	81.6%	$3,443	$9,441
6/30/27	$128,509,000,000	183.7%	79.7%	$3,463	$9,455
6/30/28	$128,709,000,000	178.0%	77.5%	$3,468	$9,429
6/30/29	$128,228,000,000	171.7%	75.0%	$3,456	$9,352

A8. State of California, Unfunded Accrued Liability—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$131,290,000,000	302.3%	150.6%	$3,538	$10,497
6/30/09	$235,423,000,000	551.9%	285.0%	$6,344	$18,756
6/30/10	$260,923,000,000	624.6%	300.6%	$7,031	$20,746
6/30/11	$221,392,000,000	539.1%	269.9%	$5,966	$17,529
6/30/12	$351,880,000,000	861.9%	380.1%	$9,482	$27,733
6/30/13	$300,511,000,000	699.7%	315.0%	$8,098	$23,567
6/30/14	$297,579,000,000	670.0%	271.1%	$8,019	$23,216
6/30/15	$341,773,000,000	734.4%	302.3%	$9,210	$26,507
6/30/16	$476,633,000,000	974.9%	409.3%	$12,844	$36,805
6/30/17	$409,799,000,000	811.4%	341.7%	$11,043	$31,505
6/30/18	$428,527,000,000	821.3%	346.9%	$11,548	$32,801
6/30/19	$447,139,000,000	829.4%	351.4%	$12,050	$34,076
6/30/20	$465,577,000,000	836.0%	355.3%	$12,546	$35,325
6/30/21	$484,041,000,000	841.3%	358.6%	$13,044	$36,565
6/30/22	$502,485,000,000	845.3%	361.4%	$13,541	$37,792
6/30/23	$520,933,000,000	848.2%	363.8%	$14,038	$39,008
6/30/24	$539,256,000,000	849.9%	365.6%	$14,532	$40,203
6/30/25	$557,639,000,000	850.7%	367.0%	$15,027	$41,392
6/30/26	$575,744,000,000	850.1%	367.9%	$15,515	$42,548
6/30/27	$593,400,000,000	848.1%	368.2%	$15,991	$43,661
6/30/28	$610,427,000,000	844.4%	367.7%	$16,450	$44,717
6/30/29	$626,543,000,000	838.9%	366.4%	$16,884	$45,697

B. County of Alameda

B1. County of Alameda, Annual Funding Amount (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$190,534,000	24.0%	9.8%	$128	$351
2009-10	$202,136,000	23.4%	10.2%	$134	$371
2010-11	$220,276,000	25.0%	10.6%	$146	$404
2011-12	$239,259,000	26.6%	11.3%	$157	$438
2012-13	$256,469,000	28.7%	11.8%	$167	$468
2013-14	$276,467,000	30.5%	12.1%	$177	$497
2014-15	$296,526,000	32.3%	12.7%	$186	$524
2015-16	$314,253,000	33.1%	13.0%	$194	$552
2016-17	$331,067,000	34.1%	13.3%	$202	$578
2017-18	$345,759,000	34.5%	13.4%	$208	$600
2018-19	$319,288,000	30.7%	12.0%	$190	$550
2019-20	$294,735,000	27.3%	10.7%	$174	$504
2020-21	$313,667,000	28.0%	11.0%	$182	$533
2021-22	$326,756,000	28.1%	11.1%	$188	$552
2022-23	$338,073,000	28.0%	11.2%	$192	$567
2023-24	$350,287,000	28.0%	11.2%	$197	$583
2024-25	$362,933,000	27.9%	11.2%	$201	$600
2025-26	$376,024,000	27.9%	11.3%	$206	$618
2026-27	$389,572,000	27.9%	11.3%	$211	$636
2027-28	$403,587,000	27.8%	11.3%	$216	$654
2028-29	$418,077,000	27.8%	11.3%	$221	$673
2029-30	$433,036,000	27.7%	11.4%	$226	$693

B2. County of Alameda, Annual Funding Amount (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$190,534,000	24.0%	9.8%	$128	$351
2009-10	$202,136,000	23.4%	10.2%	$134	$371
2010-11	$220,276,000	25.0%	10.6%	$146	$404
2011-12	$239,259,000	26.6%	11.3%	$157	$438
2012-13	$256,469,000	28.7%	11.8%	$167	$468
2013-14	$276,467,000	30.5%	12.1%	$177	$497
2014-15	$296,526,000	32.3%	12.7%	$186	$524
2015-16	$314,253,000	33.1%	13.0%	$194	$552
2016-17	$331,067,000	34.1%	13.3%	$202	$578
2017-18	$345,934,000	34.5%	13.4%	$209	$600
2018-19	$321,773,000	30.9%	12.1%	$192	$554
2019-20	$303,466,000	28.1%	11.0%	$179	$519
2020-21	$332,601,000	29.7%	11.7%	$194	$565
2021-22	$359,877,000	30.9%	12.3%	$207	$607
2022-23	$388,275,000	32.2%	12.8%	$221	$651
2023-24	$419,017,000	33.5%	13.4%	$235	$698
2024-25	$451,332,000	34.8%	14.0%	$250	$747
2025-26	$485,304,000	36.0%	14.5%	$266	$798
2026-27	$521,016,000	37.3%	15.1%	$282	$850
2027-28	$558,545,000	38.5%	15.7%	$299	$906
2028-29	$597,967,000	39.7%	16.2%	$316	$963
2029-30	$639,061,000	40.9%	16.8%	$334	$1,022

B3. County of Alameda, Ratio of Assets to Total Pension Obligation (Baseline Projection)

	Actuarial Basis			Market Basis		
	Total Pension Obligation	Assets	Funded Ratio	Total Pension Obligation	Assets	Funded Ratio
6/30/08	$5,866,200,000	$4,602,100,000	78.5%	$9,305,400,000	$3,998,200,000	43.0%
6/30/09	$6,222,700,000	$4,716,500,000	75.8%	$9,767,400,000	$3,562,200,000	36.5%
6/30/10	$6,508,800,000	$4,782,600,000	73.5%	$9,582,300,000	$4,259,800,000	44.5%
6/30/11	$6,707,700,000	$4,822,400,000	71.9%	$11,080,900,000	$4,449,800,000	40.2%
6/30/12	$6,896,300,000	$4,876,300,000	70.7%	$12,389,900,000	$4,697,800,000	37.9%
6/30/13	$7,105,100,000	$5,047,400,000	71.0%	$11,875,400,000	$5,453,300,000	45.9%
6/30/14	$7,545,800,000	$5,446,000,000	72.2%	$12,631,600,000	$5,910,900,000	46.8%
6/30/15	$7,996,400,000	$5,882,300,000	73.6%	$14,196,300,000	$5,830,500,000	41.1%
6/30/16	$8,255,300,000	$6,259,800,000	75.8%	$14,438,400,000	$5,914,700,000	41.0%
6/30/17	$8,527,300,000	$6,585,700,000	77.2%	$15,044,200,000	$6,253,100,000	41.6%
6/30/18	$8,779,700,000	$6,845,000,000	78.0%	$15,728,300,000	$6,584,900,000	41.9%
6/30/19	$9,079,300,000	$7,062,900,000	77.8%	$16,301,600,000	$6,940,400,000	42.6%
6/30/20	$9,432,700,000	$7,341,000,000	77.8%	$16,936,100,000	$7,324,300,000	43.2%
6/30/21	$9,793,800,000	$7,727,700,000	78.9%	$17,584,500,000	$7,734,100,000	44.0%
6/30/22	$10,160,900,000	$8,163,100,000	80.3%	$18,243,600,000	$8,163,100,000	44.7%
6/30/23	$10,531,600,000	$8,608,000,000	81.7%	$18,909,200,000	$8,608,000,000	45.5%
6/30/24	$10,903,200,000	$9,067,800,000	83.2%	$19,576,300,000	$9,067,800,000	46.3%
6/30/25	$11,272,200,000	$9,540,600,000	84.6%	$20,238,900,000	$9,540,600,000	47.1%
6/30/26	$11,634,800,000	$10,023,700,000	86.2%	$20,890,000,000	$10,023,700,000	48.0%
6/30/27	$11,986,200,000	$10,514,100,000	87.7%	$21,520,900,000	$10,514,100,000	48.9%
6/30/28	$12,320,800,000	$11,007,900,000	89.3%	$22,121,600,000	$11,007,900,000	49.8%
6/30/29	$12,631,900,000	$11,500,400,000	91.0%	$22,680,200,000	$11,500,400,000	50.7%

B4. County of Alameda, Ratio of Assets to Total Pension Obligation (Alternative Projection)

	Actuarial Basis			Market Basis		
	Total Pension Obligation	Assets	Funded Ratio	Total Pension Obligation	Assets	Funded Ratio
6/30/08	$5,866,200,000	$4,602,100,000	78.5%	$9,305,400,000	$3,998,200,000	43.0%
6/30/09	$6,222,700,000	$4,716,500,000	75.8%	$9,767,400,000	$3,562,200,000	36.5%
6/30/10	$6,508,800,000	$4,782,600,000	73.5%	$9,582,300,000	$4,259,800,000	44.5%
6/30/11	$6,707,700,000	$4,822,400,000	71.9%	$11,080,900,000	$4,449,800,000	40.2%
6/30/12	$6,896,300,000	$4,876,300,000	70.7%	$12,389,900,000	$4,697,800,000	37.9%
6/30/13	$7,105,100,000	$5,047,400,000	71.0%	$11,875,400,000	$5,453,300,000	45.9%
6/30/14	$7,545,800,000	$5,446,000,000	72.2%	$12,631,600,000	$5,910,900,000	46.8%
6/30/15	$7,996,400,000	$5,882,300,000	73.6%	$14,196,300,000	$5,830,500,000	41.1%
6/30/16	$8,255,300,000	$6,259,800,000	75.8%	$14,438,400,000	$5,914,700,000	41.0%
6/30/17	$8,527,300,000	$6,583,300,000	77.2%	$15,044,200,000	$6,162,700,000	41.0%
6/30/18	$8,779,700,000	$6,810,500,000	77.6%	$15,728,300,000	$6,304,900,000	40.1%
6/30/19	$9,079,300,000	$6,942,800,000	76.5%	$16,301,600,000	$6,454,600,000	39.6%
6/30/20	$9,432,700,000	$7,083,600,000	75.1%	$16,936,100,000	$6,618,900,000	39.1%
6/30/21	$9,793,800,000	$7,283,000,000	74.4%	$17,584,500,000	$6,797,900,000	38.7%
6/30/22	$10,160,900,000	$7,498,700,000	73.8%	$18,243,600,000	$6,988,000,000	38.3%
6/30/23	$10,531,600,000	$7,713,600,000	73.2%	$18,909,200,000	$7,187,700,000	38.0%
6/30/24	$10,903,200,000	$7,938,900,000	72.8%	$19,576,300,000	$7,397,000,000	37.8%
6/30/25	$11,272,200,000	$8,173,100,000	72.5%	$20,238,900,000	$7,614,300,000	37.6%
6/30/26	$11,634,800,000	$8,414,100,000	72.3%	$20,890,000,000	$7,837,700,000	37.5%
6/30/27	$11,986,200,000	$8,659,700,000	72.2%	$21,520,900,000	$8,065,100,000	37.5%
6/30/28	$12,320,800,000	$8,907,000,000	72.3%	$22,121,600,000	$8,293,700,000	37.5%
6/30/29	$12,631,900,000	$9,152,200,000	72.5%	$22,680,200,000	$8,519,800,000	37.6%

B5. County of Alameda, Unfunded Total Pension Obligation—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$1,264,100,000	159.3%	65.1%	$848	$2,328
6/30/09	$1,506,200,000	174.3%	76.0%	$1,002	$2,767
6/30/10	$1,726,200,000	195.6%	82.9%	$1,142	$3,167
6/30/11	$1,885,300,000	209.9%	89.3%	$1,237	$3,454
6/30/12	$2,020,000,000	226.3%	92.9%	$1,312	$3,689
6/30/13	$2,057,700,000	227.0%	90.4%	$1,317	$3,698
6/30/14	$2,099,800,000	229.0%	89.9%	$1,319	$3,711
6/30/15	$2,114,100,000	222.8%	87.6%	$1,305	$3,715
6/30/16	$1,995,500,000	205.8%	80.0%	$1,217	$3,483
6/30/17	$1,941,600,000	193.5%	75.4%	$1,171	$3,367
6/30/18	$1,934,700,000	185.8%	72.7%	$1,153	$3,332
6/30/19	$2,016,400,000	186.6%	73.3%	$1,187	$3,450
6/30/20	$2,091,700,000	186.6%	73.6%	$1,217	$3,555
6/30/21	$2,066,100,000	177.7%	70.4%	$1,188	$3,488
6/30/22	$1,997,800,000	165.6%	65.9%	$1,135	$3,350
6/30/23	$1,923,600,000	153.7%	61.4%	$1,080	$3,204
6/30/24	$1,835,400,000	141.3%	56.7%	$1,018	$3,037
6/30/25	$1,731,600,000	128.5%	51.8%	$949	$2,846
6/30/26	$1,611,100,000	115.3%	46.7%	$873	$2,630
6/30/27	$1,472,100,000	101.5%	41.3%	$788	$2,387
6/30/28	$1,312,900,000	87.3%	35.6%	$695	$2,115
6/30/29	$1,131,500,000	72.5%	29.7%	$592	$1,810

B6. County of Alameda, Unfunded Total Pension Obligation—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$5,307,200,000	668.8%	273.2%	$3,560	$9,776
6/30/09	$6,205,200,000	718.0%	313.2%	$4,127	$11,398
6/30/10	$5,322,500,000	603.0%	255.7%	$3,522	$9,765
6/30/11	$6,631,100,000	738.1%	314.0%	$4,351	$12,147
6/30/12	$7,692,100,000	861.9%	353.8%	$4,995	$14,046
6/30/13	$6,422,100,000	708.5%	282.2%	$4,111	$11,541
6/30/14	$6,720,700,000	733.1%	287.6%	$4,221	$11,876
6/30/15	$8,365,800,000	881.7%	346.5%	$5,164	$14,702
6/30/16	$8,523,700,000	879.2%	341.8%	$5,200	$14,880
6/30/17	$8,791,100,000	875.9%	341.2%	$5,300	$15,244
6/30/18	$9,143,400,000	878.1%	343.6%	$5,447	$15,749
6/30/19	$9,361,200,000	866.5%	340.5%	$5,511	$16,016
6/30/20	$9,611,800,000	857.5%	338.4%	$5,592	$16,335
6/30/21	$9,850,400,000	847.1%	335.7%	$5,663	$16,628
6/30/22	$10,080,500,000	835.5%	332.6%	$5,727	$16,903
6/30/23	$10,301,200,000	823.0%	329.0%	$5,784	$17,157
6/30/24	$10,508,500,000	809.2%	324.9%	$5,831	$17,386
6/30/25	$10,698,300,000	794.0%	320.2%	$5,866	$17,581
6/30/26	$10,866,300,000	777.3%	314.8%	$5,888	$17,738
6/30/27	$11,006,800,000	758.9%	308.7%	$5,894	$17,847
6/30/28	$11,113,700,000	738.6%	301.7%	$5,881	$17,900
6/30/29	$11,179,800,000	716.1%	293.8%	$5,846	$17,886

B7. County of Alameda, Unfunded Total Pension Obligation—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$1,264,100,000	159.3%	65.1%	$848	$2,328
6/30/09	$1,506,200,000	174.3%	76.0%	$1,002	$2,767
6/30/10	$1,726,200,000	195.6%	82.9%	$1,142	$3,167
6/30/11	$1,885,300,000	209.9%	89.3%	$1,237	$3,454
6/30/12	$2,020,000,000	226.3%	92.9%	$1,312	$3,689
6/30/13	$2,057,700,000	227.0%	90.4%	$1,317	$3,698
6/30/14	$2,099,800,000	229.0%	89.9%	$1,319	$3,711
6/30/15	$2,114,100,000	222.8%	87.6%	$1,305	$3,715
6/30/16	$1,995,500,000	205.8%	80.0%	$1,217	$3,483
6/30/17	$1,944,000,000	193.7%	75.5%	$1,172	$3,371
6/30/18	$1,969,200,000	189.1%	74.0%	$1,173	$3,392
6/30/19	$2,136,500,000	197.8%	77.7%	$1,258	$3,655
6/30/20	$2,349,100,000	209.6%	82.7%	$1,367	$3,992
6/30/21	$2,510,800,000	215.9%	85.6%	$1,444	$4,238
6/30/22	$2,662,200,000	220.7%	87.8%	$1,513	$4,464
6/30/23	$2,818,000,000	225.1%	90.0%	$1,582	$4,694
6/30/24	$2,964,300,000	228.3%	91.6%	$1,645	$4,904
6/30/25	$3,099,100,000	230.0%	92.8%	$1,699	$5,093
6/30/26	$3,220,700,000	230.4%	93.3%	$1,745	$5,257
6/30/27	$3,326,500,000	229.4%	93.3%	$1,781	$5,394
6/30/28	$3,413,800,000	226.9%	92.7%	$1,806	$5,498
6/30/29	$3,479,700,000	222.9%	91.4%	$1,820	$5,567

B8. County of Alameda, Unfunded Total Pension Obligation—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$5,307,200,000	668.8%	273.2%	$3,560	$9,776
6/30/09	$6,205,200,000	718.0%	313.2%	$4,127	$11,398
6/30/10	$5,322,500,000	603.0%	255.7%	$3,522	$9,765
6/30/11	$6,631,100,000	738.1%	314.0%	$4,351	$12,147
6/30/12	$7,692,100,000	861.9%	353.8%	$4,995	$14,046
6/30/13	$6,422,100,000	708.5%	282.2%	$4,111	$11,541
6/30/14	$6,720,700,000	733.1%	287.6%	$4,221	$11,876
6/30/15	$8,365,800,000	881.7%	346.5%	$5,164	$14,702
6/30/16	$8,523,700,000	879.2%	341.8%	$5,200	$14,880
6/30/17	$8,881,500,000	884.9%	344.8%	$5,354	$15,401
6/30/18	$9,423,400,000	905.0%	354.1%	$5,614	$16,231
6/30/19	$9,847,000,000	911.5%	358.2%	$5,797	$16,847
6/30/20	$10,317,200,000	920.5%	363.3%	$6,003	$17,533
6/30/21	$10,786,600,000	927.6%	367.7%	$6,202	$18,209
6/30/22	$11,255,600,000	932.9%	371.4%	$6,395	$18,873
6/30/23	$11,721,500,000	936.4%	374.4%	$6,581	$19,523
6/30/24	$12,179,300,000	937.8%	376.5%	$6,758	$20,150
6/30/25	$12,624,600,000	937.0%	377.8%	$6,922	$20,747
6/30/26	$13,052,300,000	933.7%	378.1%	$7,073	$21,306
6/30/27	$13,455,800,000	927.8%	377.4%	$7,205	$21,818
6/30/28	$13,827,900,000	919.0%	375.4%	$7,317	$22,271
6/30/29	$14,160,400,000	907.1%	372.1%	$7,405	$22,654

C. County of Los Angeles

C1. County of Los Angeles, Employer Pension Contribution (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$847,172,000	12.9%	6.2%	$87	$262
2009-10	$843,704,000	12.6%	6.1%	$86	$261
2010-11	$944,174,000	14.2%	6.8%	$96	$291
2011-12	$1,078,929,000	16.3%	7.6%	$109	$332
2012-13	$1,172,014,000	17.8%	8.0%	$118	$359
2013-14	$1,320,442,000	19.8%	8.5%	$132	$403
2014-15	$1,494,975,000	21.5%	9.4%	$148	$455
2015-16	$1,443,130,000	19.8%	8.8%	$142	$437
2016-17	$1,313,203,000	17.8%	7.8%	$128	$397
2017-18	$1,503,144,000	19.7%	8.7%	$146	$453
2018-19	$1,626,839,000	20.6%	9.1%	$157	$488
2019-20	$1,789,523,000	22.0%	9.8%	$172	$536
2020-21	$1,873,718,000	22.3%	10.0%	$179	$559
2021-22	$1,917,271,000	22.1%	9.9%	$183	$570
2022-23	$1,977,792,000	22.1%	10.0%	$187	$586
2023-24	$2,041,145,000	22.1%	10.0%	$192	$603
2024-25	$2,105,574,000	22.1%	10.0%	$197	$620
2025-26	$2,173,019,000	22.1%	10.1%	$203	$638
2026-27	$2,241,607,000	22.0%	10.1%	$208	$656
2027-28	$2,312,358,000	22.0%	10.1%	$213	$675
2028-29	$2,386,425,000	22.0%	10.2%	$219	$694
2029-30	$2,461,744,000	22.0%	10.2%	$225	$714

C2. County of Los Angeles, Employer Pension Contribution (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$847,172,000	12.9%	6.2%	$87	$262
2009-10	$843,704,000	12.6%	6.1%	$86	$261
2010-11	$944,174,000	14.2%	6.8%	$96	$291
2011-12	$1,078,929,000	16.3%	7.6%	$109	$332
2012-13	$1,172,014,000	17.8%	8.0%	$118	$359
2013-14	$1,320,442,000	19.8%	8.5%	$132	$403
2014-15	$1,494,975,000	21.5%	9.4%	$148	$455
2015-16	$1,443,130,000	19.8%	8.8%	$142	$437
2016-17	$1,313,203,000	17.8%	7.8%	$128	$397
2017-18	$1,503,144,000	19.7%	8.7%	$146	$453
2018-19	$1,637,869,000	20.8%	9.2%	$158	$492
2019-20	$1,826,940,000	22.5%	10.0%	$176	$547
2020-21	$1,953,504,000	23.3%	10.4%	$187	$583
2021-22	$2,055,148,000	23.7%	10.6%	$196	$611
2022-23	$2,189,986,000	24.5%	11.0%	$207	$649
2023-24	$2,331,417,000	25.2%	11.4%	$220	$689
2024-25	$2,479,728,000	26.0%	11.8%	$232	$731
2025-26	$2,635,217,000	26.7%	12.2%	$246	$774
2026-27	$2,798,193,000	27.5%	12.6%	$259	$819
2027-28	$2,968,980,000	28.3%	13.0%	$274	$867
2028-29	$3,147,912,000	29.0%	13.4%	$289	$916
2029-30	$3,334,219,000	29.8%	13.8%	$304	$967

C3. County of Los Angeles, Pension Funded Position (Baseline Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$41,975,600,000	$39,662,400,000	94.5%	$62,922,500,000	$37,833,300,000	60.1%
6/30/09	$44,468,600,000	$39,541,900,000	88.9%	$69,224,900,000	$29,723,300,000	42.9%
6/30/10	$46,646,800,000	$38,839,400,000	83.3%	$78,131,900,000	$32,628,800,000	41.8%
6/30/11	$48,598,200,000	$39,193,600,000	80.6%	$77,266,400,000	$38,586,800,000	49.9%
6/30/12	$50,809,400,000	$39,039,400,000	76.8%	$99,923,000,000	$37,453,000,000	37.5%
6/30/13	$53,247,800,000	$39,932,400,000	75.0%	$92,526,900,000	$41,333,900,000	44.7%
6/30/14	$54,942,500,000	$43,654,500,000	79.5%	$97,250,400,000	$47,223,200,000	48.6%
6/30/15	$56,819,200,000	$47,328,300,000	83.3%	$103,949,100,000	$48,308,300,000	46.5%
6/30/16	$62,199,200,000	$49,357,800,000	79.4%	$125,411,800,000	$47,346,300,000	37.8%
6/30/17	$64,868,800,000	$51,911,800,000	80.0%	$118,531,900,000	$50,785,800,000	42.8%
6/30/18	$67,646,700,000	$53,970,000,000	79.8%	$123,607,700,000	$53,306,000,000	43.1%
6/30/19	$70,528,400,000	$56,217,400,000	79.7%	$128,873,400,000	$56,015,300,000	43.5%
6/30/20	$73,508,500,000	$58,694,100,000	79.8%	$134,318,700,000	$58,954,000,000	43.9%
6/30/21	$76,579,200,000	$62,041,900,000	81.0%	$139,929,700,000	$62,041,900,000	44.3%
6/30/22	$79,730,800,000	$65,230,700,000	81.8%	$145,688,500,000	$65,230,700,000	44.8%
6/30/23	$82,951,100,000	$68,526,300,000	82.6%	$151,572,800,000	$68,526,300,000	45.2%
6/30/24	$86,224,900,000	$71,918,500,000	83.4%	$157,554,800,000	$71,918,500,000	45.6%
6/30/25	$89,533,400,000	$75,391,800,000	84.2%	$163,600,400,000	$75,391,800,000	46.1%
6/30/26	$92,854,100,000	$78,929,300,000	85.0%	$169,668,200,000	$78,929,300,000	46.5%
6/30/27	$96,159,700,000	$82,507,800,000	85.8%	$175,708,300,000	$82,507,800,000	47.0%
6/30/28	$99,417,400,000	$86,099,800,000	86.6%	$181,660,900,000	$86,099,800,000	47.4%
6/30/29	$102,588,200,000	$89,673,300,000	87.4%	$187,454,700,000	$89,673,300,000	47.8%

C4. County of Los Angeles, Pension Funded Position (Alternative Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$41,975,600,000	$39,662,400,000	94.5%	$62,922,500,000	$37,833,300,000	60.1%
6/30/09	$44,468,600,000	$39,541,900,000	88.9%	$69,224,900,000	$29,723,300,000	42.9%
6/30/10	$46,646,800,000	$38,839,400,000	83.3%	$78,131,900,000	$32,628,800,000	41.8%
6/30/11	$48,598,200,000	$39,193,600,000	80.6%	$77,266,400,000	$38,586,800,000	49.9%
6/30/12	$50,809,400,000	$39,039,400,000	76.8%	$99,923,000,000	$37,453,000,000	37.5%
6/30/13	$53,247,800,000	$39,932,400,000	75.0%	$92,526,900,000	$41,333,900,000	44.7%
6/30/14	$54,942,500,000	$43,654,500,000	79.5%	$97,250,400,000	$47,223,200,000	48.6%
6/30/15	$56,819,200,000	$47,328,300,000	83.3%	$103,949,100,000	$48,308,300,000	46.5%
6/30/16	$62,199,200,000	$49,357,800,000	79.4%	$125,411,800,000	$47,346,300,000	37.8%
6/30/17	$64,868,800,000	$51,911,800,000	80.0%	$118,531,900,000	$50,785,800,000	42.8%
6/30/18	$67,646,700,000	$53,777,800,000	79.5%	$123,607,700,000	$52,301,100,000	42.3%
6/30/19	$70,528,400,000	$55,562,800,000	78.8%	$128,873,400,000	$53,913,800,000	41.8%
6/30/20	$73,508,500,000	$57,309,500,000	78.0%	$134,318,700,000	$55,670,700,000	41.4%
6/30/21	$76,579,200,000	$59,663,000,000	77.9%	$139,929,700,000	$57,500,100,000	41.1%
6/30/22	$79,730,800,000	$61,596,500,000	77.3%	$145,688,500,000	$59,363,400,000	40.7%
6/30/23	$82,951,100,000	$63,583,500,000	76.7%	$151,572,800,000	$61,277,500,000	40.4%
6/30/24	$86,224,900,000	$65,612,200,000	76.1%	$157,554,800,000	$63,231,000,000	40.1%
6/30/25	$89,533,400,000	$67,667,900,000	75.6%	$163,600,400,000	$65,210,100,000	39.9%
6/30/26	$92,854,100,000	$69,733,300,000	75.1%	$169,668,200,000	$67,197,500,000	39.6%
6/30/27	$96,159,700,000	$71,787,000,000	74.7%	$175,708,300,000	$69,172,500,000	39.4%
6/30/28	$99,417,400,000	$73,803,300,000	74.2%	$181,660,900,000	$71,110,300,000	39.1%
6/30/29	$102,588,200,000	$75,751,800,000	73.8%	$187,454,700,000	$72,981,100,000	38.9%

C5. County of Los Angeles, Unfunded Accrued Pension Liability—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$2,313,300,000	35.3%	16.9%	$236	$716
6/30/09	$4,926,800,000	73.6%	35.9%	$502	$1,522
6/30/10	$7,807,400,000	117.4%	56.5%	$794	$2,409
6/30/11	$9,404,500,000	142.1%	66.4%	$953	$2,895
6/30/12	$11,770,100,000	178.4%	80.0%	$1,186	$3,610
6/30/13	$13,315,400,000	199.6%	86.1%	$1,330	$4,069
6/30/14	$11,288,000,000	162.4%	70.9%	$1,117	$3,436
6/30/15	$9,490,900,000	130.4%	58.0%	$933	$2,876
6/30/16	$12,841,400,000	173.8%	76.3%	$1,256	$3,879
6/30/17	$12,957,000,000	169.8%	74.9%	$1,261	$3,902
6/30/18	$13,676,700,000	173.6%	76.9%	$1,323	$4,106
6/30/19	$14,311,100,000	175.9%	78.3%	$1,377	$4,283
6/30/20	$14,814,300,000	176.4%	78.8%	$1,418	$4,420
6/30/21	$14,537,200,000	167.6%	75.2%	$1,384	$4,324
6/30/22	$14,500,100,000	162.0%	73.0%	$1,373	$4,299
6/30/23	$14,424,700,000	156.0%	70.6%	$1,359	$4,264
6/30/24	$14,306,400,000	149.9%	68.1%	$1,340	$4,216
6/30/25	$14,141,600,000	143.5%	65.5%	$1,318	$4,154
6/30/26	$13,924,800,000	136.8%	62.7%	$1,291	$4,078
6/30/27	$13,651,900,000	129.9%	59.8%	$1,259	$3,985
6/30/28	$13,317,600,000	122.8%	56.7%	$1,221	$3,876
6/30/29	$12,841,400,000	115.3%	53.5%	$1,178	$3,747

C6. County of Los Angeles, Unfunded Accrued Pension Liability—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$23,260,100,000	355.2%	169.7%	$2,375	$7,204
6/30/09	$29,683,000,000	443.3%	216.2%	$3,025	$9,172
6/30/10	$39,292,500,000	590.8%	284.4%	$3,998	$12,125
6/30/11	$38,072,800,000	575.1%	269.0%	$3,858	$11,719
6/30/12	$60,883,600,000	923.1%	414.1%	$6,134	$18,675
6/30/13	$52,594,500,000	788.3%	340.2%	$5,255	$16,071
6/30/14	$53,595,900,000	771.3%	336.7%	$5,304	$16,315
6/30/15	$56,620,800,000	777.9%	346.0%	$5,568	$17,158
6/30/16	$76,053,900,000	1029.1%	452.0%	$7,439	$22,976
6/30/17	$66,620,100,000	873.1%	385.1%	$6,481	$20,063
6/30/18	$69,637,700,000	883.9%	391.5%	$6,739	$20,907
6/30/19	$72,656,100,000	893.2%	397.3%	$6,993	$21,745
6/30/20	$75,624,600,000	900.4%	402.2%	$7,240	$22,563
6/30/21	$77,887,700,000	898.2%	402.9%	$7,416	$23,166
6/30/22	$80,457,800,000	898.6%	404.8%	$7,620	$23,856
6/30/23	$83,046,400,000	898.4%	406.4%	$7,823	$24,547
6/30/24	$85,636,300,000	897.2%	407.6%	$8,024	$25,234
6/30/25	$88,208,600,000	895.1%	408.3%	$8,220	$25,911
6/30/26	$90,738,900,000	891.8%	408.5%	$8,411	$26,571
6/30/27	$93,200,500,000	887.1%	408.1%	$8,593	$27,207
6/30/28	$95,561,100,000	881.0%	407.0%	$8,763	$27,810
6/30/29	$97,781,400,000	873.1%	405.1%	$8,919	$28,367

C7. County of Los Angeles, Unfunded Accrued Pension Liability—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$2,313,300,000	35.3%	16.9%	$236	$716
6/30/09	$4,926,800,000	73.6%	35.9%	$502	$1,522
6/30/10	$7,807,400,000	117.4%	56.5%	$794	$2,409
6/30/11	$9,404,500,000	142.1%	66.4%	$953	$2,895
6/30/12	$11,770,100,000	178.4%	80.0%	$1,186	$3,610
6/30/13	$13,315,400,000	199.6%	86.1%	$1,330	$4,069
6/30/14	$11,288,000,000	162.4%	70.9%	$1,117	$3,436
6/30/15	$9,490,900,000	130.4%	58.0%	$933	$2,876
6/30/16	$12,841,400,000	173.8%	76.3%	$1,256	$3,879
6/30/17	$12,957,000,000	169.8%	74.9%	$1,261	$3,902
6/30/18	$13,868,800,000	176.0%	78.0%	$1,342	$4,164
6/30/19	$14,965,600,000	184.0%	81.8%	$1,440	$4,479
6/30/20	$16,198,900,000	192.9%	86.2%	$1,551	$4,833
6/30/21	$16,916,200,000	195.1%	87.5%	$1,611	$5,031
6/30/22	$18,134,300,000	202.5%	91.2%	$1,717	$5,377
6/30/23	$19,367,600,000	209.5%	94.8%	$1,824	$5,725
6/30/24	$20,612,700,000	216.0%	98.1%	$1,931	$6,074
6/30/25	$21,865,500,000	221.9%	101.2%	$2,038	$6,423
6/30/26	$23,120,900,000	227.2%	104.1%	$2,143	$6,771
6/30/27	$24,372,700,000	232.0%	106.7%	$2,247	$7,115
6/30/28	$25,614,000,000	236.1%	109.1%	$2,349	$7,454
6/30/29	$26,836,400,000	239.6%	111.2%	$2,448	$7,786

C8. County of Los Angeles, Unfunded Accrued Pension Liability—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$23,260,100,000	355.2%	169.7%	$2,375	$7,204
6/30/09	$29,683,000,000	443.3%	216.2%	$3,025	$9,172
6/30/10	$39,292,500,000	590.8%	284.4%	$3,998	$12,125
6/30/11	$38,072,800,000	575.1%	269.0%	$3,858	$11,719
6/30/12	$60,883,600,000	923.1%	414.1%	$6,134	$18,675
6/30/13	$52,594,500,000	788.3%	340.2%	$5,255	$16,071
6/30/14	$53,595,900,000	771.3%	336.7%	$5,304	$16,315
6/30/15	$56,620,800,000	777.9%	346.0%	$5,568	$17,158
6/30/16	$76,053,900,000	1029.1%	452.0%	$7,439	$22,976
6/30/17	$66,620,100,000	873.1%	385.1%	$6,481	$20,063
6/30/18	$69,829,900,000	886.4%	392.6%	$6,757	$20,964
6/30/19	$73,310,600,000	901.3%	400.9%	$7,056	$21,941
6/30/20	$77,009,200,000	916.9%	409.6%	$7,372	$22,976
6/30/21	$80,266,700,000	925.6%	415.2%	$7,643	$23,874
6/30/22	$84,092,000,000	939.2%	423.1%	$7,964	$24,934
6/30/23	$87,989,300,000	951.8%	430.6%	$8,289	$26,008
6/30/24	$91,942,600,000	963.3%	437.6%	$8,615	$27,092
6/30/25	$95,932,500,000	973.4%	444.1%	$8,940	$28,180
6/30/26	$99,934,900,000	982.1%	449.9%	$9,263	$29,264
6/30/27	$103,921,300,000	989.2%	455.1%	$9,581	$30,337
6/30/28	$107,857,600,000	994.3%	459.4%	$9,891	$31,388
6/30/29	$111,702,900,000	997.4%	462.8%	$10,188	$32,406

D. County of Marin

D1. County of Marin, Annual Funding Amount (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$42,617,000	24.5%	10.2%	$170	$413
2009-10	$45,785,000	25.7%	11.5%	$182	$443
2010-11	$53,511,000	30.3%	13.0%	$212	$518
2011-12	$54,677,000	31.2%	13.2%	$216	$529
2012-13	$89,699,000	52.6%	22.9%	$353	$867
2013-14	$56,694,000	31.8%	12.0%	$222	$549
2014-15	$55,948,000	30.6%	12.2%	$216	$543
2015-16	$59,426,000	31.6%	12.8%	$226	$576
2016-17	$62,652,000	31.2%	13.4%	$237	$608
2017-18	$63,999,000	30.9%	13.6%	$241	$621
2018-19	$63,355,000	29.7%	13.3%	$236	$615
2019-20	$62,565,000	28.5%	13.0%	$232	$607
2020-21	$65,904,000	29.1%	13.6%	$243	$640
2021-22	$68,704,000	29.5%	14.1%	$251	$667
2022-23	$70,436,000	29.4%	14.3%	$256	$684
2023-24	$72,621,000	29.4%	14.6%	$262	$705
2024-25	$74,918,000	29.4%	14.9%	$268	$728
2025-26	$77,343,000	29.5%	15.3%	$275	$752
2026-27	$79,475,000	29.4%	15.5%	$281	$772
2027-28	$65,894,000	23.7%	12.8%	$231	$641
2028-29	$67,713,000	23.6%	13.0%	$236	$658
2029-30	$69,584,000	23.6%	13.2%	$241	$677

D2. County of Marin, Annual Funding Amount (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$42,617,000	24.5%	10.2%	$170	$413
2009-10	$45,785,000	25.7%	11.5%	$182	$443
2010-11	$53,511,000	30.3%	13.0%	$212	$518
2011-12	$54,677,000	31.2%	13.2%	$216	$529
2012-13	$89,699,000	52.6%	22.9%	$353	$867
2013-14	$56,694,000	31.8%	12.0%	$222	$549
2014-15	$55,948,000	30.6%	12.2%	$216	$543
2015-16	$59,426,000	31.6%	12.8%	$226	$576
2016-17	$62,652,000	31.2%	13.4%	$237	$608
2017-18	$63,999,000	30.9%	13.6%	$241	$621
2018-19	$63,355,000	29.7%	13.3%	$236	$615
2019-20	$63,115,000	28.8%	13.2%	$234	$613
2020-21	$67,608,000	29.9%	14.0%	$249	$656
2021-22	$72,223,000	31.0%	14.8%	$264	$701
2022-23	$76,491,000	31.9%	15.5%	$278	$743
2023-24	$81,997,000	33.2%	16.5%	$296	$796
2024-25	$87,830,000	34.5%	17.5%	$315	$853
2025-26	$94,004,000	35.9%	18.5%	$334	$913
2026-27	$100,094,000	37.1%	19.6%	$354	$973
2027-28	$90,677,000	32.6%	17.6%	$318	$882
2028-29	$96,859,000	33.8%	18.6%	$338	$942
2029-30	$103,282,000	35.0%	19.6%	$357	$1,005

D3. County of Marin, Ratio of Assets to Total Pension Obligation (Baseline Projection)

	Actuarial Basis			Market Basis		
	Assets	Total Pension Obligation	Funded Ratio	Assets	Total Pension Obligation	Funded Ratio
6/30/08	$1,111,100,000	$1,393,000,000	79.8%	$1,049,000,000	$2,080,600,000	50.4%
6/30/09	$1,002,200,000	$1,463,300,000	68.5%	$835,000,000	$2,201,500,000	37.9%
6/30/10	$1,018,100,000	$1,514,700,000	67.2%	$886,000,000	$2,443,500,000	36.3%
6/30/11	$1,065,300,000	$1,547,500,000	68.8%	$1,088,000,000	$2,323,300,000	46.8%
6/30/12	$1,101,400,000	$1,602,100,000	68.7%	$1,106,000,000	$2,979,200,000	37.1%
6/30/13	$1,217,700,000	$1,669,100,000	73.0%	$1,292,800,000	$2,798,400,000	46.2%
6/30/14	$1,494,400,000	$1,818,300,000	82.2%	$1,494,400,000	$3,019,100,000	49.5%
6/30/15	$1,548,100,000	$1,894,900,000	81.7%	$1,548,100,000	$3,252,300,000	47.6%
6/30/16	$1,575,200,000	$1,972,000,000	79.9%	$1,575,200,000	$3,836,200,000	41.1%
6/30/17	$1,687,400,000	$2,051,900,000	82.2%	$1,687,400,000	$3,638,700,000	46.4%
6/30/18	$1,761,700,000	$2,111,900,000	83.4%	$1,761,700,000	$3,751,600,000	47.0%
6/30/19	$1,835,900,000	$2,172,400,000	84.5%	$1,835,900,000	$3,865,800,000	47.5%
6/30/20	$1,908,900,000	$2,232,300,000	85.5%	$1,908,900,000	$3,979,600,000	48.0%
6/30/21	$1,984,700,000	$2,291,500,000	86.6%	$1,984,700,000	$4,092,900,000	48.5%
6/30/22	$2,062,000,000	$2,348,900,000	87.8%	$2,062,000,000	$4,204,000,000	49.0%
6/30/23	$2,139,800,000	$2,404,500,000	89.0%	$2,139,800,000	$4,312,700,000	49.6%
6/30/24	$2,217,400,000	$2,457,100,000	90.2%	$2,217,400,000	$4,416,800,000	50.2%
6/30/25	$2,293,900,000	$2,505,400,000	91.6%	$2,293,900,000	$4,514,300,000	50.8%
6/30/26	$2,368,400,000	$2,548,100,000	92.9%	$2,368,400,000	$4,602,900,000	51.5%
6/30/27	$2,439,500,000	$2,584,200,000	94.4%	$2,439,500,000	$4,680,300,000	52.1%
6/30/28	$2,506,200,000	$2,628,200,000	95.4%	$2,506,200,000	$4,760,100,000	52.7%
6/30/29	$2,567,000,000	$2,663,900,000	96.4%	$2,567,000,000	$4,824,600,000	53.2%

D4. County of Marin, Ratio of Assets to Total Pension Obligation (Alternative Projection)

	Actuarial Basis			Market Basis		
	Assets	Total Pension Obligation	Funded Ratio	Assets	Total Pension Obligation	Funded Ratio
6/30/08	$1,111,100,000	$1,393,000,000	79.8%	$1,049,000,000	$2,080,600,000	50.4%
6/30/09	$1,002,200,000	$1,463,300,000	68.5%	$835,000,000	$2,201,500,000	37.9%
6/30/10	$1,018,100,000	$1,514,700,000	67.2%	$886,000,000	$2,443,500,000	36.3%
6/30/11	$1,065,300,000	$1,547,500,000	68.8%	$1,088,000,000	$2,323,300,000	46.8%
6/30/12	$1,101,400,000	$1,602,100,000	68.7%	$1,106,000,000	$2,979,200,000	37.1%
6/30/13	$1,217,700,000	$1,669,100,000	73.0%	$1,292,800,000	$2,798,400,000	46.2%
6/30/14	$1,494,400,000	$1,818,300,000	82.2%	$1,494,400,000	$3,019,100,000	49.5%
6/30/15	$1,548,100,000	$1,894,900,000	81.7%	$1,548,100,000	$3,252,300,000	47.6%
6/30/16	$1,575,200,000	$1,972,000,000	79.9%	$1,575,200,000	$3,836,200,000	41.1%
6/30/17	$1,687,400,000	$2,051,900,000	82.2%	$1,687,400,000	$3,638,700,000	46.4%
6/30/18	$1,728,400,000	$2,111,900,000	81.8%	$1,728,400,000	$3,751,600,000	46.1%
6/30/19	$1,766,200,000	$2,172,400,000	81.3%	$1,766,200,000	$3,865,800,000	45.7%
6/30/20	$1,799,900,000	$2,232,300,000	80.6%	$1,799,900,000	$3,979,600,000	45.2%
6/30/21	$1,834,100,000	$2,291,500,000	80.0%	$1,834,100,000	$4,092,900,000	44.8%
6/30/22	$1,868,100,000	$2,348,900,000	79.5%	$1,868,100,000	$4,204,000,000	44.4%
6/30/23	$1,901,300,000	$2,404,500,000	79.1%	$1,901,300,000	$4,312,700,000	44.1%
6/30/24	$1,933,900,000	$2,457,100,000	78.7%	$1,933,900,000	$4,416,800,000	43.8%
6/30/25	$1,965,300,000	$2,505,400,000	78.4%	$1,965,300,000	$4,514,300,000	43.5%
6/30/26	$1,994,500,000	$2,548,100,000	78.3%	$1,994,500,000	$4,602,900,000	43.3%
6/30/27	$2,020,800,000	$2,584,200,000	78.2%	$2,020,800,000	$4,680,300,000	43.2%
6/30/28	$2,043,100,000	$2,628,200,000	77.7%	$2,043,100,000	$4,760,100,000	42.9%
6/30/29	$2,060,600,000	$2,663,900,000	77.4%	$2,060,600,000	$4,824,600,000	42.7%

D5. County of Marin, Unfunded Total Pension Obligation—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$281,900,000	162.3%	67.4%	$1,127	$2,729
6/30/09	$461,100,000	259.0%	116.1%	$1,833	$4,463
6/30/10	$496,600,000	280.8%	120.2%	$1,967	$4,806
6/30/11	$482,200,000	274.9%	116.0%	$1,904	$4,667
6/30/12	$500,700,000	293.7%	128.1%	$1,971	$4,842
6/30/13	$451,300,000	253.3%	95.2%	$1,764	$4,374
6/30/14	$323,900,000	177.3%	70.7%	$1,248	$3,146
6/30/15	$346,800,000	184.4%	75.0%	$1,321	$3,363
6/30/16	$396,800,000	197.5%	85.0%	$1,501	$3,849
6/30/17	$364,400,000	176.1%	77.4%	$1,369	$3,535
6/30/18	$350,200,000	164.3%	73.7%	$1,307	$3,398
6/30/19	$336,500,000	153.3%	70.1%	$1,247	$3,266
6/30/20	$323,400,000	143.0%	66.8%	$1,191	$3,139
6/30/21	$306,700,000	131.7%	62.8%	$1,121	$2,978
6/30/22	$286,900,000	119.6%	58.2%	$1,042	$2,786
6/30/23	$264,700,000	107.1%	53.2%	$955	$2,571
6/30/24	$239,700,000	94.2%	47.7%	$859	$2,329
6/30/25	$211,500,000	80.7%	41.7%	$752	$2,055
6/30/26	$179,800,000	66.6%	35.1%	$635	$1,748
6/30/27	$144,600,000	52.0%	28.0%	$507	$1,406
6/30/28	$122,000,000	42.6%	23.4%	$425	$1,186
6/30/29	$96,800,000	32.8%	18.4%	$335	$941

D6. County of Marin, Unfunded Total Pension Obligation—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$1,031,600,000	593.8%	246.8%	$4,124	$9,988
6/30/09	$1,366,500,000	767.6%	344.1%	$5,433	$13,226
6/30/10	$1,557,500,000	880.8%	377.0%	$6,169	$15,072
6/30/11	$1,235,300,000	704.3%	297.3%	$4,879	$11,957
6/30/12	$1,873,200,000	1098.8%	479.3%	$7,374	$18,115
6/30/13	$1,505,600,000	845.1%	317.7%	$5,883	$14,592
6/30/14	$1,524,700,000	834.8%	332.7%	$5,877	$14,811
6/30/15	$1,704,200,000	906.0%	368.5%	$6,493	$16,525
6/30/16	$2,260,900,000	1125.5%	484.4%	$8,555	$21,928
6/30/17	$1,951,300,000	943.1%	414.2%	$7,333	$18,930
6/30/18	$1,989,800,000	933.7%	418.5%	$7,427	$19,307
6/30/19	$2,029,800,000	924.7%	423.0%	$7,524	$19,700
6/30/20	$2,070,700,000	915.9%	427.6%	$7,623	$20,101
6/30/21	$2,108,200,000	905.3%	431.4%	$7,708	$20,469
6/30/22	$2,142,000,000	893.0%	434.3%	$7,778	$20,802
6/30/23	$2,172,900,000	879.5%	436.5%	$7,836	$21,106
6/30/24	$2,199,400,000	864.3%	437.8%	$7,878	$21,368
6/30/25	$2,220,400,000	847.1%	437.9%	$7,898	$21,577
6/30/26	$2,234,500,000	827.7%	436.7%	$7,894	$21,719
6/30/27	$2,240,700,000	805.8%	433.9%	$7,862	$21,784
6/30/28	$2,253,900,000	787.0%	432.5%	$7,854	$21,917
6/30/29	$2,257,600,000	765.3%	429.2%	$7,813	$21,957

D7. County of Marin, Unfunded Total Pension Obligation—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$281,900,000	162.3%	67.4%	$1,127	$2,729
6/30/09	$461,100,000	259.0%	116.1%	$1,833	$4,463
6/30/10	$496,600,000	280.8%	120.2%	$1,967	$4,806
6/30/11	$482,200,000	274.9%	116.0%	$1,904	$4,667
6/30/12	$500,700,000	293.7%	128.1%	$1,971	$4,842
6/30/13	$451,300,000	253.3%	95.2%	$1,764	$4,374
6/30/14	$323,900,000	177.3%	70.7%	$1,248	$3,146
6/30/15	$346,800,000	184.4%	75.0%	$1,321	$3,363
6/30/16	$396,800,000	197.5%	85.0%	$1,501	$3,849
6/30/17	$364,400,000	176.1%	77.4%	$1,369	$3,535
6/30/18	$383,500,000	180.0%	80.7%	$1,431	$3,721
6/30/19	$406,200,000	185.1%	84.7%	$1,506	$3,942
6/30/20	$432,400,000	191.2%	89.3%	$1,592	$4,197
6/30/21	$457,300,000	196.4%	93.6%	$1,672	$4,440
6/30/22	$480,800,000	200.4%	97.5%	$1,746	$4,669
6/30/23	$503,200,000	203.7%	101.1%	$1,815	$4,888
6/30/24	$523,200,000	205.6%	104.1%	$1,874	$5,083
6/30/25	$540,200,000	206.1%	106.5%	$1,922	$5,249
6/30/26	$553,600,000	205.1%	108.2%	$1,956	$5,381
6/30/27	$563,400,000	202.6%	109.1%	$1,977	$5,477
6/30/28	$585,100,000	204.3%	112.3%	$2,039	$5,689
6/30/29	$603,300,000	204.5%	114.7%	$2,088	$5,868

D8. County of Marin, Unfunded Total Pension Obligation—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$1,031,600,000	593.8%	246.8%	$4,124	$9,988
6/30/09	$1,366,500,000	767.6%	344.1%	$5,433	$13,226
6/30/10	$1,557,500,000	880.8%	377.0%	$6,169	$15,072
6/30/11	$1,235,300,000	704.3%	297.3%	$4,879	$11,957
6/30/12	$1,873,200,000	1098.8%	479.3%	$7,374	$18,115
6/30/13	$1,505,600,000	845.1%	317.7%	$5,883	$14,592
6/30/14	$1,524,700,000	834.8%	332.7%	$5,877	$14,811
6/30/15	$1,704,200,000	906.0%	368.5%	$6,493	$16,525
6/30/16	$2,260,900,000	1125.5%	484.4%	$8,555	$21,928
6/30/17	$1,951,300,000	943.1%	414.2%	$7,333	$18,930
6/30/18	$2,023,100,000	949.3%	425.5%	$7,551	$19,630
6/30/19	$2,099,600,000	956.5%	437.6%	$7,783	$20,377
6/30/20	$2,179,700,000	964.1%	450.1%	$8,024	$21,159
6/30/21	$2,258,800,000	970.0%	462.2%	$8,259	$21,931
6/30/22	$2,336,000,000	973.9%	473.6%	$8,483	$22,686
6/30/23	$2,411,400,000	976.1%	484.4%	$8,696	$23,423
6/30/24	$2,482,900,000	975.7%	494.2%	$8,893	$24,123
6/30/25	$2,549,100,000	972.6%	502.8%	$9,068	$24,771
6/30/26	$2,608,400,000	966.2%	509.8%	$9,215	$25,353
6/30/27	$2,659,500,000	956.4%	515.0%	$9,331	$25,855
6/30/28	$2,716,900,000	948.6%	521.3%	$9,468	$26,419
6/30/29	$2,764,000,000	937.0%	525.5%	$9,566	$26,882

E. City of Los Angeles

E1. City of Los Angeles, Employer Pension Contribution (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$659,194,000	17.4%	6.6%	$174	$503
2009-10	$710,194,000	18.4%	7.0%	$188	$540
2010-11	$867,353,000	23.1%	8.8%	$228	$659
2011-12	$951,822,000	25.5%	9.5%	$248	$720
2012-13	$1,090,055,000	28.5%	10.6%	$281	$819
2013-14	$1,182,613,000	30.1%	10.8%	$302	$883
2014-15	$1,243,705,000	31.2%	11.1%	$314	$923
2015-16	$1,287,191,000	31.5%	11.3%	$323	$948
2016-17	$1,357,639,000	31.6%	11.7%	$338	$995
2017-18	$1,412,843,000	31.7%	12.0%	$349	$1,030
2018-19	$1,494,998,000	32.3%	12.4%	$367	$1,084
2019-20	$1,498,137,000	31.2%	12.2%	$365	$1,081
2020-21	$1,493,013,000	30.0%	12.0%	$361	$1,072
2021-22	$1,459,333,000	28.3%	11.5%	$350	$1,043
2022-23	$1,507,515,000	28.2%	11.7%	$359	$1,072
2023-24	$1,584,783,000	28.5%	12.1%	$374	$1,121
2024-25	$1,568,042,000	27.2%	11.7%	$367	$1,103
2025-26	$1,394,490,000	23.3%	10.3%	$324	$976
2026-27	$1,348,327,000	21.7%	9.7%	$311	$939
2027-28	$1,291,793,000	20.1%	9.2%	$296	$895
2028-29	$1,310,651,000	19.6%	9.1%	$298	$904
2029-30	$1,352,587,000	19.5%	9.3%	$305	$928

E2. City of Los Angeles, Employer Pension Contribution (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$659,194,000	17.4%	6.6%	$174	$503
2009-10	$710,194,000	18.4%	7.0%	$188	$540
2010-11	$867,353,000	23.1%	8.8%	$228	$659
2011-12	$951,822,000	25.5%	9.5%	$248	$720
2012-13	$1,090,055,000	28.5%	10.6%	$281	$819
2013-14	$1,182,613,000	30.1%	10.8%	$302	$883
2014-15	$1,243,705,000	31.2%	11.1%	$314	$923
2015-16	$1,287,191,000	31.5%	11.3%	$323	$948
2016-17	$1,357,639,000	31.6%	11.7%	$338	$995
2017-18	$1,412,843,000	31.7%	12.0%	$349	$1,030
2018-19	$1,499,624,000	32.4%	12.5%	$368	$1,088
2019-20	$1,520,825,000	31.7%	12.4%	$370	$1,098
2020-21	$1,551,786,000	31.2%	12.5%	$375	$1,114
2021-22	$1,572,774,000	30.5%	12.4%	$377	$1,124
2022-23	$1,693,663,000	31.6%	13.1%	$403	$1,204
2023-24	$1,857,422,000	33.4%	14.1%	$438	$1,314
2024-25	$1,941,127,000	33.7%	14.5%	$455	$1,366
2025-26	$1,882,441,000	31.5%	13.8%	$438	$1,318
2026-27	$1,958,676,000	31.6%	14.1%	$452	$1,364
2027-28	$2,031,963,000	31.6%	14.4%	$465	$1,408
2028-29	$2,187,682,000	32.8%	15.3%	$497	$1,509
2029-30	$2,372,759,000	34.3%	16.3%	$535	$1,628

E3. City of Los Angeles, Pension Funded Position (Baseline Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$33,084,600,000	$30,839,500,000	93.2%	$50,805,300,000	$29,605,700,000	58.3%
6/30/09	$34,916,200,000	$31,083,100,000	89.0%	$55,646,000,000	$23,205,300,000	41.7%
6/30/10	$37,009,300,000	$31,018,000,000	83.8%	$62,109,400,000	$25,606,500,000	41.2%
6/30/11	$39,305,400,000	$31,493,900,000	80.1%	$62,392,300,000	$30,169,700,000	48.4%
6/30/12	$41,117,400,000	$31,760,800,000	77.2%	$81,450,500,000	$29,716,300,000	36.5%
6/30/13	$42,609,000,000	$32,840,200,000	77.1%	$75,670,000,000	$33,195,200,000	43.9%
6/30/14	$45,338,600,000	$35,500,800,000	78.3%	$79,489,900,000	$38,491,000,000	48.4%
6/30/15	$46,465,900,000	$38,247,600,000	82.3%	$84,154,600,000	$39,354,000,000	46.8%
6/30/16	$48,512,700,000	$40,428,900,000	83.3%	$98,956,500,000	$39,011,000,000	39.4%
6/30/17	$50,694,200,000	$42,779,900,000	84.4%	$92,753,900,000	$42,276,900,000	45.6%
6/30/18	$52,934,500,000	$45,228,500,000	85.4%	$96,857,900,000	$44,716,800,000	46.2%
6/30/19	$55,258,900,000	$47,690,700,000	86.3%	$101,116,300,000	$47,323,200,000	46.8%
6/30/20	$57,662,800,000	$50,300,100,000	87.2%	$105,520,900,000	$50,015,300,000	47.4%
6/30/21	$60,140,200,000	$52,763,400,000	87.7%	$110,060,800,000	$52,778,700,000	48.0%
6/30/22	$62,683,300,000	$55,374,000,000	88.3%	$114,721,800,000	$55,575,300,000	48.4%
6/30/23	$65,282,400,000	$58,376,400,000	89.4%	$119,486,200,000	$58,477,300,000	48.9%
6/30/24	$67,925,400,000	$61,405,100,000	90.4%	$124,331,900,000	$61,506,000,000	49.5%
6/30/25	$70,597,300,000	$64,453,700,000	91.3%	$129,231,800,000	$64,554,700,000	50.0%
6/30/26	$73,280,200,000	$67,340,600,000	91.9%	$134,153,000,000	$67,441,500,000	50.3%
6/30/27	$75,952,100,000	$70,162,700,000	92.4%	$139,055,700,000	$70,263,700,000	50.5%
6/30/28	$78,587,100,000	$72,878,900,000	92.7%	$143,892,300,000	$72,979,900,000	50.7%
6/30/29	$81,154,000,000	$75,530,400,000	93.1%	$148,606,200,000	$75,631,400,000	50.9%

E4. City of Los Angeles, Pension Funded Position (Alternative Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	
6/30/08	$33,084,600,000	$30,839,500,000	93.2%	$50,805,300,000	$29,605,700,000	58.3%
6/30/09	$34,916,200,000	$31,083,100,000	89.0%	$55,646,000,000	$23,205,300,000	41.7%
6/30/10	$37,009,300,000	$31,018,000,000	83.8%	$62,109,400,000	$25,606,500,000	41.2%
6/30/11	$39,305,400,000	$31,493,900,000	80.1%	$62,392,300,000	$30,169,700,000	48.4%
6/30/12	$41,117,400,000	$31,760,800,000	77.2%	$81,450,500,000	$29,716,300,000	36.5%
6/30/13	$42,609,000,000	$32,840,200,000	77.1%	$75,670,000,000	$33,195,200,000	43.9%
6/30/14	$45,338,600,000	$35,500,800,000	78.3%	$79,489,900,000	$38,491,000,000	48.4%
6/30/15	$46,465,900,000	$38,247,600,000	82.3%	$84,154,600,000	$39,354,000,000	46.8%
6/30/16	$48,512,700,000	$40,428,900,000	83.3%	$98,956,500,000	$39,011,000,000	39.4%
6/30/17	$50,694,200,000	$42,779,900,000	84.4%	$92,753,900,000	$42,276,900,000	45.6%
6/30/18	$52,934,300,000	$45,095,100,000	85.2%	$96,857,600,000	$43,877,400,000	45.3%
6/30/19	$55,258,500,000	$47,227,700,000	85.5%	$101,115,700,000	$45,555,800,000	45.1%
6/30/20	$57,662,300,000	$49,314,100,000	85.5%	$105,520,000,000	$47,237,800,000	44.8%
6/30/21	$60,139,500,000	$51,069,000,000	84.9%	$110,059,600,000	$48,921,700,000	44.5%
6/30/22	$62,682,400,000	$52,795,200,000	84.2%	$114,720,200,000	$50,583,600,000	44.1%
6/30/23	$65,281,300,000	$54,791,500,000	83.9%	$119,484,100,000	$52,310,200,000	43.8%
6/30/24	$67,924,000,000	$56,701,300,000	83.5%	$124,329,300,000	$54,132,300,000	43.5%
6/30/25	$70,595,600,000	$58,613,100,000	83.0%	$129,228,700,000	$55,954,300,000	43.3%
6/30/26	$73,278,100,000	$60,357,700,000	82.4%	$134,149,300,000	$57,609,700,000	42.9%
6/30/27	$75,949,700,000	$62,040,200,000	81.7%	$139,051,300,000	$59,205,200,000	42.6%
6/30/28	$78,584,300,000	$63,627,800,000	81.0%	$143,887,300,000	$60,708,900,000	42.2%
6/30/29	$81,150,800,000	$65,171,400,000	80.3%	$148,600,400,000	$62,171,900,000	41.8%

E5. City of Los Angeles, Unfunded Accrued Pension Liability—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$2,245,200,000	59.3%	22.4%	$594	$1,713
6/30/09	$3,833,100,000	99.2%	37.7%	$1,012	$2,916
6/30/10	$5,991,200,000	159.4%	60.6%	$1,577	$4,549
6/30/11	$7,811,500,000	209.2%	77.9%	$2,035	$5,906
6/30/12	$9,356,600,000	244.3%	90.9%	$2,411	$7,031
6/30/13	$9,768,800,000	248.5%	89.6%	$2,492	$7,293
6/30/14	$9,837,800,000	246.4%	87.8%	$2,487	$7,300
6/30/15	$8,218,400,000	200.9%	72.1%	$2,062	$6,053
6/30/16	$8,083,800,000	188.1%	69.7%	$2,013	$5,924
6/30/17	$7,914,300,000	177.5%	67.0%	$1,956	$5,770
6/30/18	$7,706,000,000	166.6%	64.1%	$1,890	$5,590
6/30/19	$7,568,200,000	157.8%	61.9%	$1,842	$5,462
6/30/20	$7,362,700,000	147.9%	59.1%	$1,778	$5,287
6/30/21	$7,376,800,000	142.9%	58.2%	$1,768	$5,271
6/30/22	$7,309,300,000	136.5%	56.7%	$1,738	$5,196
6/30/23	$6,906,100,000	124.3%	52.6%	$1,630	$4,885
6/30/24	$6,520,300,000	113.2%	48.8%	$1,527	$4,588
6/30/25	$6,143,600,000	102.8%	45.2%	$1,428	$4,302
6/30/26	$5,939,600,000	95.8%	42.9%	$1,370	$4,138
6/30/27	$5,789,400,000	90.0%	41.1%	$1,325	$4,013
6/30/28	$5,708,200,000	85.6%	39.8%	$1,297	$3,936
6/30/29	$5,623,500,000	81.2%	38.5%	$1,268	$3,858

E6. City of Los Angeles, Unfunded Accrued Pension Liability—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$19,965,900,000	527.8%	199.4%	$5,285	$15,236
6/30/09	$24,562,900,000	636.0%	241.6%	$6,486	$18,686
6/30/10	$31,091,400,000	827.0%	314.5%	$8,184	$23,607
6/30/11	$30,898,500,000	827.4%	308.0%	$8,049	$23,360
6/30/12	$49,689,700,000	1297.2%	482.9%	$12,805	$37,337
6/30/13	$42,829,800,000	1089.5%	392.9%	$10,927	$31,974
6/30/14	$43,989,100,000	1102.0%	392.7%	$11,123	$32,642
6/30/15	$45,907,000,000	1122.3%	402.6%	$11,518	$33,811
6/30/16	$58,527,600,000	1361.6%	504.3%	$14,573	$42,889
6/30/17	$49,974,000,000	1120.8%	423.1%	$12,349	$36,436
6/30/18	$51,629,300,000	1116.3%	429.5%	$12,661	$37,453
6/30/19	$53,425,600,000	1113.6%	436.7%	$13,001	$38,560
6/30/20	$55,220,800,000	1109.6%	443.4%	$13,336	$39,655
6/30/21	$57,297,400,000	1109.9%	452.1%	$13,732	$40,938
6/30/22	$59,347,900,000	1108.3%	460.1%	$14,116	$42,189
6/30/23	$61,109,900,000	1100.1%	465.4%	$14,424	$43,222
6/30/24	$62,926,900,000	1092.1%	470.9%	$14,740	$44,283
6/30/25	$64,778,200,000	1083.8%	476.3%	$15,058	$45,355
6/30/26	$66,812,400,000	1077.5%	482.7%	$15,413	$46,543
6/30/27	$68,893,000,000	1071.1%	489.0%	$15,772	$47,750
6/30/28	$71,013,500,000	1064.3%	495.2%	$16,134	$48,972
6/30/29	$73,075,800,000	1055.8%	500.7%	$16,476	$50,139

E7. City of Los Angeles, Unfunded Accrued Pension Liability—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$2,245,200,000	59.3%	22.4%	$594	$1,713
6/30/09	$3,833,100,000	99.2%	37.7%	$1,012	$2,916
6/30/10	$5,991,200,000	159.4%	60.6%	$1,577	$4,549
6/30/11	$7,811,500,000	209.2%	77.9%	$2,035	$5,906
6/30/12	$9,356,600,000	244.3%	90.9%	$2,411	$7,031
6/30/13	$9,768,800,000	248.5%	89.6%	$2,492	$7,293
6/30/14	$9,837,800,000	246.4%	87.8%	$2,487	$7,300
6/30/15	$8,218,400,000	200.9%	72.1%	$2,062	$6,053
6/30/16	$8,083,800,000	188.1%	69.7%	$2,013	$5,924
6/30/17	$7,914,300,000	177.5%	67.0%	$1,956	$5,770
6/30/18	$7,839,200,000	169.5%	65.2%	$1,922	$5,687
6/30/19	$8,030,800,000	167.4%	65.6%	$1,954	$5,796
6/30/20	$8,348,200,000	167.8%	67.0%	$2,016	$5,995
6/30/21	$9,070,400,000	175.7%	71.6%	$2,174	$6,481
6/30/22	$9,887,100,000	184.6%	76.6%	$2,352	$7,028
6/30/23	$10,489,700,000	188.8%	79.9%	$2,476	$7,419
6/30/24	$11,222,600,000	194.8%	84.0%	$2,629	$7,898
6/30/25	$11,982,400,000	200.5%	88.1%	$2,785	$8,390
6/30/26	$12,920,400,000	208.4%	93.3%	$2,981	$9,001
6/30/27	$13,909,500,000	216.3%	98.7%	$3,184	$9,641
6/30/28	$14,956,400,000	224.2%	104.3%	$3,398	$10,314
6/30/29	$15,979,300,000	230.9%	109.5%	$3,603	$10,964

E8. City of Los Angeles, Unfunded Accrued Pension Liability—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$19,965,900,000	527.8%	199.4%	$5,285	$15,236
6/30/09	$24,562,900,000	636.0%	241.6%	$6,486	$18,686
6/30/10	$31,091,400,000	827.0%	314.5%	$8,184	$23,607
6/30/11	$30,898,500,000	827.4%	308.0%	$8,049	$23,360
6/30/12	$49,689,700,000	1297.2%	482.9%	$12,805	$37,337
6/30/13	$42,829,800,000	1089.5%	392.9%	$10,927	$31,974
6/30/14	$43,989,100,000	1102.0%	392.7%	$11,123	$32,642
6/30/15	$45,907,000,000	1122.3%	402.6%	$11,518	$33,811
6/30/16	$58,527,600,000	1361.6%	504.3%	$14,573	$42,889
6/30/17	$49,974,000,000	1120.8%	423.1%	$12,349	$36,436
6/30/18	$51,762,400,000	1119.2%	430.6%	$12,693	$37,549
6/30/19	$53,888,000,000	1123.3%	440.4%	$13,114	$38,894
6/30/20	$56,205,900,000	1129.4%	451.4%	$13,574	$40,362
6/30/21	$58,990,500,000	1142.7%	465.4%	$14,138	$42,148
6/30/22	$61,924,900,000	1156.4%	480.0%	$14,729	$44,021
6/30/23	$64,692,600,000	1164.6%	492.7%	$15,270	$45,756
6/30/24	$67,628,000,000	1173.7%	506.1%	$15,841	$47,591
6/30/25	$70,615,600,000	1181.4%	519.2%	$16,415	$49,442
6/30/26	$73,791,600,000	1190.1%	533.1%	$17,023	$51,405
6/30/27	$77,011,100,000	1197.3%	546.6%	$17,631	$53,377
6/30/28	$80,259,500,000	1202.9%	559.7%	$18,235	$55,348
6/30/29	$83,429,000,000	1205.3%	571.6%	$18,811	$57,243

F. City of Pacific Grove

F1. City of Pacific Grove, Annual Funding Amount (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$2,416,000	39.0%	13.3%	$162	$342
2009 - 2010	$2,286,000	38.0%	13.9%	$153	$325
2010 - 2011	$2,510,000	37.9%	14.5%	$167	$358
2011 - 2012	$2,755,000	43.8%	17.7%	$182	$394
2012 - 2013	$2,614,000	47.1%	14.7%	$172	$376
2013 - 2014	$2,603,000	56.3%	13.8%	$170	$376
2014 - 2015	$2,637,000	47.4%	14.5%	$172	$382
2015 - 2016	$2,639,000	46.1%	14.5%	$172	$384
2016 - 2017	$4,021,000	68.2%	22.0%	$260	$587
2017 - 2018	$4,407,000	72.5%	24.1%	$284	$646
2018 - 2019	$4,926,000	78.7%	27.0%	$316	$725
2019 - 2020	$5,551,000	86.1%	30.4%	$355	$820
2020 - 2021	$6,113,000	92.1%	33.4%	$389	$907
2021 - 2022	$6,643,000	97.1%	36.3%	$421	$990
2022 - 2023	$7,082,000	100.5%	38.7%	$447	$1,059
2023 - 2024	$6,372,000	87.8%	34.8%	$400	$957
2024 - 2025	$6,652,000	89.0%	36.3%	$416	$1,003
2025 - 2026	$6,852,000	89.0%	37.4%	$426	$1,037
2026 - 2027	$7,049,000	88.9%	38.4%	$437	$1,072
2027 - 2028	$7,255,000	88.8%	39.5%	$447	$1,107
2028 - 2029	$7,470,000	88.8%	40.7%	$459	$1,145
2029 - 2030	$5,984,000	69.0%	32.6%	$366	$921

F2. City of Pacific Grove, Annual Funding Amount (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$2,416,000	39.0%	13.3%	$162	$342
2009 - 2010	$2,286,000	38.0%	13.9%	$153	$325
2010 - 2011	$2,510,000	37.9%	14.5%	$167	$358
2011 - 2012	$2,755,000	43.8%	17.7%	$182	$394
2012 - 2013	$2,614,000	47.1%	14.7%	$172	$376
2013 - 2014	$2,603,000	56.3%	13.8%	$170	$376
2014 - 2015	$2,637,000	47.4%	14.5%	$172	$382
2015 - 2016	$2,639,000	46.1%	14.5%	$172	$384
2016 - 2017	$4,021,000	68.2%	22.0%	$260	$587
2017 - 2018	$4,407,000	72.5%	24.1%	$284	$646
2018 - 2019	$4,926,000	78.7%	27.0%	$316	$725
2019 - 2020	$5,551,000	86.1%	30.4%	$355	$820
2020 - 2021	$6,140,000	92.5%	33.6%	$391	$911
2021 - 2022	$6,726,000	98.3%	36.8%	$426	$1,002
2022 - 2023	$7,252,000	102.9%	39.6%	$457	$1,085
2023 - 2024	$6,659,000	91.7%	36.4%	$418	$1,000
2024 - 2025	$7,088,000	94.8%	38.7%	$443	$1,069
2025 - 2026	$7,441,000	96.6%	40.6%	$463	$1,127
2026 - 2027	$7,794,000	98.3%	42.5%	$483	$1,185
2027 - 2028	$8,157,000	99.9%	44.5%	$503	$1,245
2028 - 2029	$8,533,000	101.4%	46.5%	$524	$1,308
2029 - 2030	$7,210,000	83.2%	39.3%	$441	$1,109

F3. City of Pacific Grove, Ratio of Assets to Total Pension Obligation (Baseline Projection)

	Actuarial Basis			Market Basis		
	Total Pension Obligation	Assets	Funded Ratio	Total Pension Obligation	Assets	Funded Ratio
6/30/08	$115,000,000	$94,100,000	81.8%	$156,400,000	$94,100,000	60.2%
6/30/09	$118,500,000	$67,900,000	57.3%	$166,900,000	$67,900,000	40.7%
6/30/10	$120,600,000	$75,300,000	62.4%	$180,900,000	$75,300,000	41.6%
6/30/11	$123,600,000	$87,000,000	70.4%	$179,600,000	$87,000,000	48.4%
6/30/12	$125,800,000	$84,200,000	66.9%	$215,200,000	$84,200,000	39.1%
6/30/13	$129,100,000	$92,200,000	71.4%	$202,600,000	$92,200,000	45.5%
6/30/14	$135,400,000	$101,000,000	74.6%	$216,800,000	$101,000,000	46.6%
6/30/15	$136,300,000	$96,500,000	70.8%	$225,200,000	$96,500,000	42.9%
6/30/16	$139,100,000	$90,100,000	64.8%	$254,100,000	$90,100,000	35.5%
6/30/17	$141,900,000	$92,800,000	65.4%	$236,000,000	$92,800,000	39.3%
6/30/18	$146,700,000	$93,400,000	63.7%	$238,200,000	$93,400,000	39.2%
6/30/19	$147,400,000	$94,000,000	63.8%	$240,100,000	$94,000,000	39.2%
6/30/20	$148,000,000	$94,800,000	64.1%	$241,500,000	$94,800,000	39.3%
6/30/21	$148,300,000	$95,800,000	64.6%	$242,600,000	$95,800,000	39.5%
6/30/22	$148,200,000	$96,800,000	65.3%	$243,000,000	$96,800,000	39.8%
6/30/23	$147,700,000	$97,800,000	66.2%	$242,700,000	$97,800,000	40.3%
6/30/24	$147,100,000	$98,600,000	67.0%	$242,100,000	$98,600,000	40.7%
6/30/25	$146,000,000	$99,100,000	67.9%	$240,500,000	$99,100,000	41.2%
6/30/26	$144,200,000	$99,000,000	68.7%	$237,700,000	$99,000,000	41.6%
6/30/27	$141,500,000	$98,400,000	69.5%	$233,600,000	$98,400,000	42.1%
6/30/28	$138,000,000	$97,200,000	70.4%	$228,000,000	$97,200,000	42.6%
6/30/29	$133,400,000	$95,100,000	71.3%	$220,600,000	$95,100,000	43.1%

F4. City of Pacific Grove, Ratio of Assets to Total Pension Obligation (Alternative Projection)

	Actuarial Basis			Market Basis		
	Total Pension Obligation	Assets	Funded Ratio	Total Pension Obligation	Assets	Funded Ratio
6/30/08	$115,000,000	$94,100,000	81.8%	$156,400,000	$94,100,000	60.2%
6/30/09	$118,500,000	$67,900,000	57.3%	$166,900,000	$67,900,000	40.7%
6/30/10	$120,600,000	$75,300,000	62.4%	$180,900,000	$75,300,000	41.6%
6/30/11	$123,600,000	$87,000,000	70.4%	$179,600,000	$87,000,000	48.4%
6/30/12	$125,800,000	$84,200,000	66.9%	$215,200,000	$84,200,000	39.1%
6/30/13	$129,100,000	$92,200,000	71.4%	$202,600,000	$92,200,000	45.5%
6/30/14	$135,400,000	$101,000,000	74.6%	$216,800,000	$101,000,000	46.6%
6/30/15	$136,300,000	$96,500,000	70.8%	$225,200,000	$96,500,000	42.9%
6/30/16	$139,100,000	$90,100,000	64.8%	$254,100,000	$90,100,000	35.5%
6/30/17	$141,900,000	$92,800,000	65.4%	$236,000,000	$92,800,000	39.3%
6/30/18	$146,700,000	$91,600,000	62.4%	$238,200,000	$91,600,000	38.5%
6/30/19	$147,400,000	$90,300,000	61.3%	$240,100,000	$90,300,000	37.6%
6/30/20	$148,000,000	$89,100,000	60.2%	$241,500,000	$89,100,000	36.9%
6/30/21	$148,300,000	$88,000,000	59.3%	$242,600,000	$88,000,000	36.3%
6/30/22	$148,200,000	$86,900,000	58.6%	$243,000,000	$86,900,000	35.8%
6/30/23	$147,700,000	$85,600,000	58.0%	$242,700,000	$85,600,000	35.3%
6/30/24	$147,100,000	$84,200,000	57.2%	$242,100,000	$84,200,000	34.8%
6/30/25	$146,000,000	$82,500,000	56.5%	$240,500,000	$82,500,000	34.3%
6/30/26	$144,200,000	$80,300,000	55.7%	$237,700,000	$80,300,000	33.8%
6/30/27	$141,500,000	$77,600,000	54.8%	$233,600,000	$77,600,000	33.2%
6/30/28	$138,000,000	$74,300,000	53.8%	$228,000,000	$74,300,000	32.6%
6/30/29	$133,400,000	$70,300,000	52.7%	$220,600,000	$70,300,000	31.9%

F5. City of Pacific Grove, Unfunded Total Pension Obligation—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$20,900,000	337.8%	114.8%	$1,402	$2,955
6/30/09	$50,600,000	842.0%	306.9%	$3,376	$7,188
6/30/10	$45,300,000	683.6%	261.6%	$3,008	$6,454
6/30/11	$36,600,000	582.2%	235.5%	$2,415	$5,232
6/30/12	$41,600,000	749.8%	234.4%	$2,733	$5,985
6/30/13	$36,900,000	798.3%	195.0%	$2,416	$5,332
6/30/14	$34,400,000	618.6%	188.5%	$2,244	$4,978
6/30/15	$39,800,000	694.9%	218.0%	$2,588	$5,788
6/30/16	$49,000,000	830.6%	268.3%	$3,173	$7,154
6/30/17	$49,100,000	808.1%	268.7%	$3,165	$7,198
6/30/18	$53,300,000	851.7%	291.6%	$3,421	$7,845
6/30/19	$53,400,000	828.4%	292.0%	$3,412	$7,891
6/30/20	$53,200,000	801.2%	290.8%	$3,384	$7,893
6/30/21	$52,500,000	767.5%	286.9%	$3,325	$7,821
6/30/22	$51,400,000	729.5%	280.8%	$3,241	$7,688
6/30/23	$49,900,000	687.5%	272.5%	$3,132	$7,494
6/30/24	$48,500,000	648.7%	264.7%	$3,031	$7,313
6/30/25	$46,900,000	609.1%	255.9%	$2,918	$7,101
6/30/26	$45,200,000	569.9%	246.5%	$2,799	$6,871
6/30/27	$43,100,000	527.6%	235.0%	$2,658	$6,579
6/30/28	$40,800,000	484.9%	222.3%	$2,505	$6,253
6/30/29	$38,300,000	441.9%	208.6%	$2,341	$5,893

F6. City of Pacific Grove, Unfunded Total Pension Obligation—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$62,300,000	1006.9%	342.3%	$4,180	$8,807
6/30/09	$99,000,000	1647.3%	600.4%	$6,606	$14,063
6/30/10	$105,600,000	1593.5%	609.9%	$7,011	$15,046
6/30/11	$92,600,000	1472.9%	595.9%	$6,109	$13,238
6/30/12	$131,000,000	2361.0%	738.1%	$8,607	$18,847
6/30/13	$110,400,000	2388.4%	583.3%	$7,229	$15,952
6/30/14	$115,800,000	2082.5%	634.6%	$7,554	$16,758
6/30/15	$128,700,000	2247.0%	705.0%	$8,370	$18,716
6/30/16	$164,000,000	2780.1%	898.0%	$10,619	$23,945
6/30/17	$143,200,000	2356.8%	783.8%	$9,231	$20,994
6/30/18	$144,800,000	2313.8%	792.2%	$9,293	$21,313
6/30/19	$146,100,000	2266.5%	799.0%	$9,335	$21,590
6/30/20	$146,700,000	2209.3%	802.0%	$9,331	$21,766
6/30/21	$146,800,000	2146.2%	802.2%	$9,296	$21,868
6/30/22	$146,200,000	2074.9%	798.6%	$9,218	$21,867
6/30/23	$144,900,000	1996.4%	791.2%	$9,095	$21,760
6/30/24	$143,500,000	1919.5%	783.2%	$8,967	$21,638
6/30/25	$141,400,000	1836.4%	771.4%	$8,797	$21,408
6/30/26	$138,700,000	1748.8%	756.4%	$8,590	$21,085
6/30/27	$135,200,000	1655.0%	737.0%	$8,336	$20,638
6/30/28	$130,800,000	1554.6%	712.8%	$8,029	$20,046
6/30/29	$125,500,000	1448.0%	683.6%	$7,670	$19,311

F7. City of Pacific Grove, Unfunded Total Pension Obligation—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$20,900,000	337.8%	114.8%	$1,402	$2,955
6/30/09	$50,600,000	842.0%	306.9%	$3,376	$7,188
6/30/10	$45,300,000	683.6%	261.6%	$3,008	$6,454
6/30/11	$36,600,000	582.2%	235.5%	$2,415	$5,232
6/30/12	$41,600,000	749.8%	234.4%	$2,733	$5,985
6/30/13	$36,900,000	798.3%	195.0%	$2,416	$5,332
6/30/14	$34,400,000	618.6%	188.5%	$2,244	$4,978
6/30/15	$39,800,000	694.9%	218.0%	$2,588	$5,788
6/30/16	$49,000,000	830.6%	268.3%	$3,173	$7,154
6/30/17	$49,100,000	808.1%	268.7%	$3,165	$7,198
6/30/18	$55,100,000	880.5%	301.5%	$3,536	$8,110
6/30/19	$57,100,000	885.8%	312.3%	$3,648	$8,438
6/30/20	$58,900,000	887.0%	322.0%	$3,747	$8,739
6/30/21	$60,300,000	881.6%	329.5%	$3,819	$8,983
6/30/22	$61,300,000	870.0%	334.8%	$3,865	$9,168
6/30/23	$62,100,000	855.6%	339.1%	$3,898	$9,326
6/30/24	$62,900,000	841.4%	343.3%	$3,931	$9,484
6/30/25	$63,500,000	824.7%	346.4%	$3,950	$9,614
6/30/26	$63,900,000	805.7%	348.5%	$3,958	$9,714
6/30/27	$63,900,000	782.2%	348.3%	$3,940	$9,754
6/30/28	$63,700,000	757.1%	347.1%	$3,910	$9,762
6/30/29	$63,100,000	728.0%	343.7%	$3,856	$9,709

F8. City of Pacific Grove, Unfunded Total Pension Obligation—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$62,300,000	1006.9%	342.3%	$4,180	$8,807
6/30/09	$99,000,000	1647.3%	600.4%	$6,606	$14,063
6/30/10	$105,600,000	1593.5%	609.9%	$7,011	$15,046
6/30/11	$92,600,000	1472.9%	595.9%	$6,109	$13,238
6/30/12	$131,000,000	2361.0%	738.1%	$8,607	$18,847
6/30/13	$110,400,000	2388.4%	583.3%	$7,229	$15,952
6/30/14	$115,800,000	2082.5%	634.6%	$7,554	$16,758
6/30/15	$128,700,000	2247.0%	705.0%	$8,370	$18,716
6/30/16	$164,000,000	2780.1%	898.0%	$10,619	$23,945
6/30/17	$143,200,000	2356.8%	783.8%	$9,231	$20,994
6/30/18	$146,600,000	2342.6%	802.1%	$9,408	$21,578
6/30/19	$149,800,000	2323.9%	819.2%	$9,571	$22,137
6/30/20	$152,400,000	2295.2%	833.1%	$9,694	$22,611
6/30/21	$154,600,000	2260.2%	844.8%	$9,790	$23,030
6/30/22	$156,100,000	2215.4%	852.7%	$9,842	$23,347
6/30/23	$157,100,000	2164.5%	857.8%	$9,861	$23,592
6/30/24	$157,900,000	2112.1%	861.8%	$9,867	$23,809
6/30/25	$158,000,000	2051.9%	862.0%	$9,830	$23,921
6/30/26	$157,400,000	1984.6%	858.4%	$9,749	$23,928
6/30/27	$156,000,000	1909.7%	850.4%	$9,619	$23,813
6/30/28	$153,700,000	1826.7%	837.5%	$9,435	$23,556
6/30/29	$150,300,000	1734.2%	818.7%	$9,185	$23,127

G. City of Palo Alto

G1. City of Palo Alto, Employer Pension Contribution (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$16,570,000	18.9%	4.6%	$264	$635
2009-10	$16,177,000	18.9%	4.9%	$253	$615
2010-11	$16,209,000	19.5%	4.9%	$251	$612
2011-12	$19,969,000	23.8%	5.8%	$307	$752
2012-13	$21,402,000	25.0%	6.2%	$325	$804
2013-14	$23,794,000	26.7%	6.5%	$358	$892
2014-15	$27,071,000	29.2%	7.2%	$404	$1,011
2015-16	$29,876,000	31.3%	7.8%	$441	$1,109
2016-17	$32,274,000	32.8%	8.3%	$471	$1,192
2017-18	$34,682,000	31.7%	8.8%	$501	$1,275
2018-19	$39,255,000	37.6%	9.8%	$561	$1,437
2019-20	$44,585,000	41.5%	11.0%	$631	$1,624
2020-21	$49,997,000	45.1%	12.1%	$700	$1,813
2021-22	$54,095,000	47.4%	12.9%	$749	$1,952
2022-23	$57,753,000	49.1%	13.6%	$791	$2,074
2023-24	$60,281,000	49.8%	14.0%	$817	$2,155
2024-25	$62,797,000	50.4%	14.4%	$842	$2,235
2025-26	$61,776,000	48.1%	13.9%	$819	$2,188
2026-27	$59,228,000	44.8%	13.2%	$777	$2,088
2027-28	$60,723,000	44.6%	13.3%	$788	$2,131
2028-29	$62,255,000	44.4%	13.4%	$799	$2,174
2029-30	$63,824,000	44.2%	13.6%	$811	$2,218

G2. City of Palo Alto, Employer Pension Contribution (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008-09	$16,570,000	18.9%	4.6%	$264	$635
2009-10	$16,177,000	18.9%	4.9%	$253	$615
2010-11	$16,209,000	19.5%	4.9%	$251	$612
2011-12	$19,969,000	23.8%	5.8%	$307	$752
2012-13	$21,402,000	25.0%	6.2%	$325	$804
2013-14	$23,794,000	26.7%	6.5%	$358	$892
2014-15	$27,071,000	29.2%	7.2%	$404	$1,011
2015-16	$29,876,000	31.3%	7.8%	$441	$1,109
2016-17	$32,274,000	32.8%	8.3%	$471	$1,192
2017-18	$34,682,000	34.2%	8.8%	$501	$1,275
2018-19	$39,255,000	37.6%	9.8%	$561	$1,437
2019-20	$44,585,000	41.5%	11.0%	$631	$1,624
2020-21	$50,229,000	45.3%	12.2%	$703	$1,821
2021-22	$54,813,000	48.0%	13.1%	$759	$1,978
2022-23	$59,231,000	50.4%	13.9%	$811	$2,127
2023-24	$62,820,000	51.9%	14.6%	$851	$2,246
2024-25	$66,723,000	53.5%	15.3%	$894	$2,374
2025-26	$67,173,000	52.3%	15.1%	$891	$2,379
2026-27	$66,189,000	50.0%	14.7%	$868	$2,333
2027-28	$69,345,000	50.9%	15.2%	$900	$2,433
2028-29	$72,640,000	51.8%	15.7%	$933	$2,537
2029-30	$76,079,000	52.6%	16.2%	$966	$2,644

G3. City of Palo Alto, Pension Funded Position (Baseline Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$702,300,000	$620,400,000	88.3%	$1,029,900,000	$620,400,000	60.2%
6/30/09	$779,500,000	$460,600,000	59.1%	$1,184,700,000	$460,600,000	38.9%
6/30/10	$815,200,000	$514,500,000	63.1%	$1,327,800,000	$514,500,000	38.7%
6/30/11	$865,900,000	$609,100,000	70.3%	$1,350,600,000	$609,100,000	45.1%
6/30/12	$903,800,000	$589,200,000	65.2%	$1,693,100,000	$589,200,000	34.8%
6/30/13	$941,200,000	$645,600,000	68.6%	$1,587,300,000	$645,600,000	40.7%
6/30/14	$1,034,500,000	$739,700,000	71.5%	$1,775,400,000	$739,700,000	41.7%
6/30/15	$1,074,600,000	$736,200,000	68.5%	$1,902,900,000	$736,200,000	38.7%
6/30/16	$1,133,500,000	$721,700,000	63.7%	$2,233,700,000	$721,700,000	32.3%
6/30/17	$1,194,800,000	$774,400,000	64.8%	$2,113,300,000	$774,400,000	36.6%
6/30/18	$1,277,600,000	$811,200,000	63.5%	$2,192,900,000	$811,200,000	37.0%
6/30/19	$1,324,200,000	$850,700,000	64.2%	$2,272,900,000	$850,700,000	37.4%
6/30/20	$1,371,300,000	$895,300,000	65.3%	$2,353,800,000	$895,300,000	38.0%
6/30/21	$1,418,500,000	$945,300,000	66.6%	$2,434,800,000	$945,300,000	38.8%
6/30/22	$1,465,500,000	$999,200,000	68.2%	$2,515,500,000	$999,200,000	39.7%
6/30/23	$1,511,800,000	$1,056,500,000	69.9%	$2,595,100,000	$1,056,500,000	40.7%
6/30/24	$1,557,000,000	$1,115,700,000	71.7%	$2,672,700,000	$1,115,700,000	41.7%
6/30/25	$1,600,400,000	$1,176,500,000	73.5%	$2,747,300,000	$1,176,500,000	42.8%
6/30/26	$1,641,500,000	$1,234,800,000	75.2%	$2,817,700,000	$1,234,800,000	43.8%
6/30/27	$1,679,300,000	$1,288,200,000	76.7%	$2,882,700,000	$1,288,200,000	44.7%
6/30/28	$1,712,900,000	$1,339,900,000	78.2%	$2,940,600,000	$1,339,900,000	45.6%
6/30/29	$1,741,400,000	$1,388,900,000	79.8%	$2,989,500,000	$1,388,900,000	46.5%

G4. City of Palo Alto, Pension Funded Position (Alternative Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$702,300,000	$620,400,000	88.3%	$620,400,000	$1,029,900,000	60.2%
6/30/09	$779,500,000	$460,600,000	59.1%	$460,600,000	$1,184,700,000	38.9%
6/30/10	$815,200,000	$514,500,000	63.1%	$514,500,000	$1,327,800,000	38.7%
6/30/11	$865,900,000	$609,100,000	70.3%	$609,100,000	$1,350,600,000	45.1%
6/30/12	$903,800,000	$589,200,000	65.2%	$589,200,000	$1,693,100,000	34.8%
6/30/13	$941,200,000	$645,600,000	68.6%	$645,600,000	$1,587,300,000	40.7%
6/30/14	$1,034,500,000	$739,700,000	71.5%	$739,700,000	$1,775,400,000	41.7%
6/30/15	$1,074,600,000	$736,200,000	68.5%	$736,200,000	$1,902,900,000	38.7%
6/30/16	$1,133,500,000	$721,700,000	63.7%	$721,700,000	$2,233,700,000	32.3%
6/30/17	$1,194,800,000	$774,400,000	64.8%	$774,400,000	$2,113,300,000	36.6%
6/30/18	$1,277,600,000	$795,900,000	62.3%	$795,900,000	$2,192,900,000	36.3%
6/30/19	$1,324,200,000	$818,500,000	61.8%	$818,500,000	$2,272,900,000	36.0%
6/30/20	$1,371,300,000	$844,700,000	61.6%	$844,700,000	$2,353,800,000	35.9%
6/30/21	$1,418,500,000	$874,600,000	61.7%	$874,600,000	$2,434,800,000	35.9%
6/30/22	$1,465,500,000	$906,900,000	61.9%	$906,900,000	$2,515,500,000	36.1%
6/30/23	$1,511,800,000	$941,200,000	62.3%	$941,200,000	$2,595,100,000	36.3%
6/30/24	$1,557,000,000	$976,300,000	62.7%	$976,300,000	$2,672,700,000	36.5%
6/30/25	$1,600,400,000	$1,012,000,000	63.2%	$1,012,000,000	$2,747,300,000	36.8%
6/30/26	$1,641,500,000	$1,044,300,000	63.6%	$1,044,300,000	$2,817,700,000	37.1%
6/30/27	$1,679,300,000	$1,071,000,000	63.8%	$1,071,000,000	$2,882,700,000	37.2%
6/30/28	$1,712,900,000	$1,095,200,000	63.9%	$1,095,200,000	$2,940,600,000	37.2%
6/30/29	$1,741,400,000	$1,116,200,000	64.1%	$1,116,200,000	$2,989,500,000	37.3%

G5. City of Palo Alto, Unfunded Accrued Pension Liability—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$81,900,000	93.4%	22.9%	$1,304	$3,140
6/30/09	$318,900,000	372.9%	96.6%	$4,989	$12,130
6/30/10	$300,700,000	362.0%	91.1%	$4,655	$11,347
6/30/11	$256,800,000	306.3%	75.0%	$3,942	$9,666
6/30/12	$314,600,000	367.1%	91.0%	$4,776	$11,815
6/30/13	$295,600,000	331.8%	80.9%	$4,445	$11,079
6/30/14	$294,700,000	317.7%	77.8%	$4,398	$11,007
6/30/15	$338,400,000	354.2%	88.1%	$4,997	$12,560
6/30/16	$411,800,000	418.5%	105.7%	$6,015	$15,213
6/30/17	$420,500,000	414.8%	106.4%	$6,077	$15,462
6/30/18	$466,400,000	446.7%	116.3%	$6,668	$17,069
6/30/19	$473,500,000	440.3%	116.4%	$6,697	$17,248
6/30/20	$476,000,000	429.8%	115.3%	$6,661	$17,258
6/30/21	$473,200,000	414.8%	113.0%	$6,551	$17,076
6/30/22	$466,300,000	396.8%	109.8%	$6,386	$16,749
6/30/23	$455,300,000	376.2%	105.6%	$6,169	$16,277
6/30/24	$441,300,000	354.0%	100.9%	$5,915	$15,703
6/30/25	$423,900,000	330.1%	95.6%	$5,621	$15,013
6/30/26	$406,600,000	307.4%	90.4%	$5,334	$14,333
6/30/27	$391,000,000	287.0%	85.6%	$5,075	$13,719
6/30/28	$373,000,000	265.8%	80.5%	$4,790	$13,026
6/30/29	$352,500,000	243.9%	75.0%	$4,478	$12,252

G6. City of Palo Alto, Unfunded Accrued Pension Liability—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$409,600,000	467.1%	114.5%	$6,519	$15,705
6/30/09	$724,100,000	846.6%	219.3%	$11,328	$27,542
6/30/10	$813,300,000	979.0%	246.5%	$12,590	$30,689
6/30/11	$741,500,000	884.5%	216.7%	$11,382	$27,911
6/30/12	$1,103,900,000	1288.1%	319.4%	$16,757	$41,459
6/30/13	$941,700,000	1057.2%	257.9%	$14,161	$35,295
6/30/14	$1,035,600,000	1116.4%	273.5%	$15,456	$38,681
6/30/15	$1,166,700,000	1221.1%	303.7%	$17,227	$43,304
6/30/16	$1,512,000,000	1536.4%	388.0%	$22,087	$55,857
6/30/17	$1,339,000,000	1321.0%	338.7%	$19,351	$49,235
6/30/18	$1,381,600,000	1323.3%	344.5%	$19,753	$50,564
6/30/19	$1,422,300,000	1322.6%	349.6%	$20,118	$51,810
6/30/20	$1,458,400,000	1316.7%	353.3%	$20,408	$52,877
6/30/21	$1,489,500,000	1305.6%	355.7%	$20,620	$53,751
6/30/22	$1,516,300,000	1290.4%	356.9%	$20,767	$54,463
6/30/23	$1,538,600,000	1271.2%	357.0%	$20,847	$55,005
6/30/24	$1,557,000,000	1249.0%	356.1%	$20,871	$55,403
6/30/25	$1,570,700,000	1223.3%	354.1%	$20,830	$55,630
6/30/26	$1,582,900,000	1196.9%	351.8%	$20,767	$55,799
6/30/27	$1,594,500,000	1170.5%	349.3%	$20,696	$55,945
6/30/28	$1,600,700,000	1140.8%	345.6%	$20,554	$55,900
6/30/29	$1,600,600,000	1107.5%	340.7%	$20,334	$55,634

G7. City of Palo Alto, Unfunded Accrued Pension Liability—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$81,900,000	93.4%	22.9%	$1,304	$3,140
6/30/09	$318,900,000	372.9%	96.6%	$4,989	$12,130
6/30/10	$300,700,000	362.0%	91.1%	$4,655	$11,347
6/30/11	$256,800,000	306.3%	75.0%	$3,942	$9,666
6/30/12	$314,600,000	367.1%	91.0%	$4,776	$11,815
6/30/13	$295,600,000	331.8%	80.9%	$4,445	$11,079
6/30/14	$294,700,000	317.7%	77.8%	$4,398	$11,007
6/30/15	$338,400,000	354.2%	88.1%	$4,997	$12,560
6/30/16	$411,800,000	418.5%	105.7%	$6,015	$15,213
6/30/17	$420,500,000	414.8%	106.4%	$6,077	$15,462
6/30/18	$481,700,000	461.4%	120.1%	$6,887	$17,629
6/30/19	$505,700,000	470.3%	124.3%	$7,153	$18,421
6/30/20	$526,600,000	475.4%	127.6%	$7,369	$19,093
6/30/21	$543,900,000	476.8%	129.9%	$7,530	$19,628
6/30/22	$558,600,000	475.4%	131.5%	$7,650	$20,064
6/30/23	$570,600,000	471.4%	132.4%	$7,731	$20,399
6/30/24	$580,700,000	465.8%	132.8%	$7,784	$20,663
6/30/25	$588,400,000	458.2%	132.7%	$7,803	$20,839
6/30/26	$597,100,000	451.5%	132.7%	$7,834	$21,048
6/30/27	$608,300,000	446.5%	133.2%	$7,895	$21,343
6/30/28	$617,800,000	440.3%	133.4%	$7,933	$21,575
6/30/29	$625,200,000	432.6%	133.1%	$7,942	$21,731

G8. City of Palo Alto, Unfunded Accrued Pension Liability—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$409,600,000	467.1%	114.5%	$6,519	$15,705
6/30/09	$724,100,000	846.6%	219.3%	$11,328	$27,542
6/30/10	$813,300,000	979.0%	246.5%	$12,590	$30,689
6/30/11	$741,500,000	884.5%	216.7%	$11,382	$27,911
6/30/12	$1,103,900,000	1288.1%	319.4%	$16,757	$41,459
6/30/13	$941,700,000	1057.2%	257.9%	$14,161	$35,295
6/30/14	$1,035,600,000	1116.4%	273.5%	$15,456	$38,681
6/30/15	$1,166,700,000	1221.1%	303.7%	$17,227	$43,304
6/30/16	$1,512,000,000	1536.4%	388.0%	$22,087	$55,857
6/30/17	$1,339,000,000	1321.0%	338.7%	$19,351	$49,235
6/30/18	$1,396,900,000	1338.0%	348.3%	$19,972	$51,124
6/30/19	$1,454,400,000	1352.5%	357.5%	$20,572	$52,980
6/30/20	$1,509,100,000	1362.5%	365.6%	$21,117	$54,715
6/30/21	$1,560,200,000	1367.6%	372.6%	$21,599	$56,303
6/30/22	$1,608,600,000	1368.9%	378.7%	$22,031	$57,778
6/30/23	$1,653,900,000	1366.5%	383.7%	$22,409	$59,127
6/30/24	$1,696,400,000	1360.8%	388.0%	$22,740	$60,364
6/30/25	$1,735,200,000	1351.4%	391.2%	$23,011	$61,456
6/30/26	$1,773,400,000	1340.9%	394.1%	$23,267	$62,514
6/30/27	$1,811,700,000	1330.0%	396.8%	$23,515	$63,566
6/30/28	$1,845,400,000	1315.2%	398.4%	$23,697	$64,446
6/30/29	$1,873,300,000	1296.2%	398.7%	$23,798	$65,113

H. City of Sacramento

H1. City of Sacramento, Employer Pension Contribution (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$42,357,000	14.6%	6.6%	$91	$243
2009 - 2010	$46,657,000	16.2%	7.8%	$100	$267
2010 - 2011	$55,122,000	19.8%	9.6%	$117	$316
2011 - 2012	$60,288,000	23.0%	9.9%	$127	$344
2012 - 2013	$57,024,000	22.1%	9.5%	$120	$325
2013 - 2014	$59,032,000	22.4%	9.6%	$123	$336
2014 - 2015	$62,808,000	22.5%	9.6%	$130	$357
2015 - 2016	$75,563,000	26.2%	11.3%	$155	$428
2016 - 2017	$81,226,000	27.4%	11.8%	$165	$459
2017 - 2018	$88,239,000	29.0%	12.5%	$178	$498
2018 - 2019	$98,469,000	31.4%	13.6%	$198	$555
2019 - 2020	$111,225,000	34.5%	15.0%	$222	$626
2020 - 2021	$125,745,000	37.8%	16.5%	$249	$706
2021 - 2022	$136,444,000	39.9%	17.4%	$268	$765
2022 - 2023	$145,757,000	41.4%	18.1%	$285	$816
2023 - 2024	$151,869,000	41.8%	18.4%	$294	$849
2024 - 2025	$158,138,000	42.3%	18.7%	$304	$882
2025 - 2026	$158,261,000	41.1%	18.2%	$303	$881
2026 - 2027	$162,049,000	40.9%	18.2%	$308	$901
2027 - 2028	$165,810,000	40.6%	18.1%	$313	$920
2028 - 2029	$169,697,000	40.3%	18.0%	$318	$940
2029 - 2030	$173,523,000	40.0%	18.0%	$323	$960

H2. City of Sacramento, Employer Pension Contribution (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$42,357,000	15%	6.6%	$91	$243
2009 - 2010	$46,657,000	16%	7.8%	$100	$267
2010 - 2011	$55,122,000	20%	9.6%	$117	$316
2011 - 2012	$60,288,000	23%	9.9%	$127	$344
2012 - 2013	$57,024,000	22%	9.5%	$120	$325
2013 - 2014	$59,032,000	22%	9.6%	$123	$336
2014 - 2015	$62,808,000	22%	9.6%	$130	$357
2015 - 2016	$75,563,000	26%	11.3%	$155	$428
2016 - 2017	$81,226,000	27%	11.8%	$165	$459
2017 - 2018	$88,239,000	29%	12.5%	$178	$498
2018 - 2019	$98,469,000	31%	13.6%	$198	$555
2019 - 2020	$111,225,000	34%	15.0%	$222	$626
2020 - 2021	$126,604,000	38%	16.6%	$251	$711
2021 - 2022	$139,034,000	41%	17.7%	$273	$780
2022 - 2023	$150,959,000	43%	18.8%	$295	$845
2023 - 2024	$160,598,000	44%	19.5%	$311	$897
2024 - 2025	$171,372,000	46%	20.2%	$330	$956
2025 - 2026	$176,449,000	46%	20.3%	$337	$983
2026 - 2027	$185,403,000	47%	20.8%	$352	$1,031
2027 - 2028	$194,661,000	48%	21.2%	$367	$1,080
2028 - 2029	$204,416,000	49%	21.7%	$383	$1,132
2029 - 2030	$214,509,000	49%	22.2%	$399	$1,186

H3. City of Sacramento, Ratio of Assets to Total Pension Obligation (Baseline Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$2,057,900,000	$1,793,800,000	87.2%	$3,035,100,000	$1,793,800,000	59.1%
6/30/09	$2,229,600,000	$1,362,400,000	61.1%	$3,423,600,000	$1,362,400,000	39.8%
6/30/10	$2,329,000,000	$1,527,200,000	65.6%	$3,858,300,000	$1,527,200,000	39.6%
6/30/11	$2,465,500,000	$1,810,300,000	73.4%	$3,902,300,000	$1,810,300,000	46.4%
6/30/12	$2,563,000,000	$1,789,700,000	69.8%	$4,963,200,000	$1,789,700,000	36.1%
6/30/13	$2,667,600,000	$1,965,500,000	73.7%	$4,616,900,000	$1,965,500,000	42.6%
6/30/14	$2,894,500,000	$2,250,400,000	77.7%	$5,117,900,000	$2,250,400,000	44.0%
6/30/15	$3,048,900,000	$2,255,700,000	74.0%	$5,578,300,000	$2,255,700,000	40.4%
6/30/16	$3,234,600,000	$2,235,100,000	69.1%	$6,662,100,000	$2,235,100,000	33.5%
6/30/17	$3,434,200,000	$2,415,400,000	70.3%	$6,309,100,000	$2,415,400,000	38.3%
6/30/18	$3,703,900,000	$2,550,900,000	68.9%	$6,610,100,000	$2,550,900,000	38.6%
6/30/19	$3,876,200,000	$2,697,700,000	69.6%	$6,925,000,000	$2,697,700,000	39.0%
6/30/20	$4,057,700,000	$2,864,300,000	70.6%	$7,257,400,000	$2,864,300,000	39.5%
6/30/21	$4,248,700,000	$3,053,400,000	71.9%	$7,607,800,000	$3,053,400,000	40.1%
6/30/22	$4,449,500,000	$3,262,200,000	73.3%	$7,976,600,000	$3,262,200,000	40.9%
6/30/23	$4,660,200,000	$3,490,200,000	74.9%	$8,364,100,000	$3,490,200,000	41.7%
6/30/24	$4,881,000,000	$3,734,800,000	76.5%	$8,770,600,000	$3,734,800,000	42.6%
6/30/25	$5,111,800,000	$3,996,400,000	78.2%	$9,195,900,000	$3,996,400,000	43.5%
6/30/26	$5,352,600,000	$4,269,400,000	79.8%	$9,640,100,000	$4,269,400,000	44.3%
6/30/27	$5,603,400,000	$4,557,500,000	81.3%	$10,103,000,000	$4,557,500,000	45.1%
6/30/28	$5,863,800,000	$4,860,800,000	82.9%	$10,584,100,000	$4,860,800,000	45.9%
6/30/29	$6,133,600,000	$5,179,300,000	84.4%	$11,082,700,000	$5,179,300,000	46.7%

H4. City of Sacramento, Ratio of Assets to Total Pension Obligation (Alternative Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$2,057,900,000	$1,793,800,000	87.2%	$3,035,100,000	$1,793,800,000	59.1%
6/30/09	$2,229,600,000	$1,362,400,000	61.1%	$3,423,600,000	$1,362,400,000	39.8%
6/30/10	$2,329,000,000	$1,527,200,000	65.6%	$3,858,300,000	$1,527,200,000	39.6%
6/30/11	$2,465,500,000	$1,810,300,000	73.4%	$3,902,300,000	$1,810,300,000	46.4%
6/30/12	$2,563,000,000	$1,789,700,000	69.8%	$4,963,200,000	$1,789,700,000	36.1%
6/30/13	$2,667,600,000	$1,965,500,000	73.7%	$4,616,900,000	$1,965,500,000	42.6%
6/30/14	$2,894,500,000	$2,250,400,000	77.7%	$5,117,900,000	$2,250,400,000	44.0%
6/30/15	$3,048,900,000	$2,255,700,000	74.0%	$5,578,300,000	$2,255,700,000	40.4%
6/30/16	$3,234,600,000	$2,235,100,000	69.1%	$6,662,100,000	$2,235,100,000	33.5%
6/30/17	$3,434,200,000	$2,415,400,000	70.3%	$6,309,100,000	$2,415,400,000	38.3%
6/30/18	$3,703,900,000	$2,502,900,000	67.6%	$6,610,100,000	$2,502,900,000	37.9%
6/30/19	$3,876,200,000	$2,596,700,000	67.0%	$6,925,000,000	$2,596,700,000	37.5%
6/30/20	$4,057,700,000	$2,704,500,000	66.7%	$7,257,400,000	$2,704,500,000	37.3%
6/30/21	$4,248,700,000	$2,829,400,000	66.6%	$7,607,800,000	$2,829,400,000	37.2%
6/30/22	$4,449,500,000	$2,968,700,000	66.7%	$7,976,600,000	$2,968,700,000	37.2%
6/30/23	$4,660,200,000	$3,122,300,000	67.0%	$8,364,100,000	$3,122,300,000	37.3%
6/30/24	$4,881,000,000	$3,287,700,000	67.4%	$8,770,600,000	$3,287,700,000	37.5%
6/30/25	$5,111,800,000	$3,466,100,000	67.8%	$9,195,900,000	$3,466,100,000	37.7%
6/30/26	$5,352,600,000	$3,651,500,000	68.2%	$9,640,100,000	$3,651,500,000	37.9%
6/30/27	$5,603,400,000	$3,847,600,000	68.7%	$10,103,000,000	$3,847,600,000	38.1%
6/30/28	$5,863,800,000	$4,054,100,000	69.1%	$10,584,100,000	$4,054,100,000	38.3%
6/30/29	$6,133,600,000	$4,271,000,000	69.6%	$11,082,700,000	$4,271,000,000	38.5%

H5. City of Sacramento, Unfunded Accrued Liability—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$264,100,000	91%	41.1%	$568	$1,514
6/30/09	$867,200,000	302%	145.2%	$1,856	$4,963
6/30/10	$801,800,000	288%	139.1%	$1,702	$4,589
6/30/11	$655,200,000	250%	107.3%	$1,383	$3,742
6/30/12	$773,300,000	300%	128.3%	$1,623	$4,407
6/30/13	$702,100,000	266%	114.4%	$1,461	$3,993
6/30/14	$644,100,000	231%	98.7%	$1,330	$3,658
6/30/15	$793,200,000	276%	118.4%	$1,626	$4,494
6/30/16	$999,500,000	338%	145.3%	$2,035	$5,653
6/30/17	$1,018,800,000	335%	144.3%	$2,060	$5,752
6/30/18	$1,153,000,000	368%	159.1%	$2,315	$6,498
6/30/19	$1,178,500,000	365%	158.5%	$2,349	$6,631
6/30/20	$1,193,400,000	359%	156.3%	$2,363	$6,703
6/30/21	$1,195,300,000	349%	152.6%	$2,350	$6,702
6/30/22	$1,187,300,000	337%	147.6%	$2,318	$6,646
6/30/23	$1,170,000,000	322%	141.7%	$2,268	$6,537
6/30/24	$1,146,200,000	307%	135.3%	$2,207	$6,393
6/30/25	$1,115,400,000	290%	128.3%	$2,132	$6,211
6/30/26	$1,083,200,000	273%	121.4%	$2,056	$6,021
6/30/27	$1,045,900,000	256%	114.2%	$1,972	$5,804
6/30/28	$1,003,000,000	238%	106.7%	$1,878	$5,556
6/30/29	$954,300,000	220%	98.9%	$1,774	$5,277

H6. City of Sacramento, Unfunded Accrued Liability—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$1,241,300,000	427%	193.1%	$2,669	$7,118
6/30/09	$2,061,200,000	718%	345.1%	$4,410	$11,797
6/30/10	$2,331,100,000	838%	404.4%	$4,948	$13,343
6/30/11	$2,092,000,000	798%	342.6%	$4,416	$11,946
6/30/12	$3,173,500,000	1231%	526.7%	$6,658	$18,084
6/30/13	$2,651,400,000	1005%	431.9%	$5,519	$15,081
6/30/14	$2,867,500,000	1026%	439.2%	$5,920	$16,286
6/30/15	$3,322,600,000	1154%	495.8%	$6,812	$18,824
6/30/16	$4,427,000,000	1496%	643.6%	$9,013	$25,037
6/30/17	$3,893,700,000	1278%	551.5%	$7,872	$21,983
6/30/18	$4,059,200,000	1295%	560.2%	$8,149	$22,878
6/30/19	$4,227,300,000	1310%	568.4%	$8,428	$23,784
6/30/20	$4,393,100,000	1322%	575.5%	$8,697	$24,674
6/30/21	$4,554,400,000	1331%	581.3%	$8,954	$25,536
6/30/22	$4,714,400,000	1338%	586.2%	$9,204	$26,387
6/30/23	$4,873,900,000	1343%	590.5%	$9,449	$27,233
6/30/24	$5,035,800,000	1347%	594.4%	$9,695	$28,089
6/30/25	$5,199,500,000	1350%	597.9%	$9,940	$28,952
6/30/26	$5,370,700,000	1354%	601.7%	$10,196	$29,854
6/30/27	$5,545,500,000	1357%	605.3%	$10,455	$30,772
6/30/28	$5,723,300,000	1360%	608.7%	$10,715	$31,704
6/30/29	$5,903,400,000	1362%	611.7%	$10,975	$32,645

H7. City of Sacramento, Unfunded Accrued Liability—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$264,100,000	91%	41.1%	$568	$1,514
6/30/09	$867,200,000	302%	145.2%	$1,856	$4,963
6/30/10	$801,800,000	288%	139.1%	$1,702	$4,589
6/30/11	$655,200,000	250%	107.3%	$1,383	$3,742
6/30/12	$773,300,000	300%	128.3%	$1,623	$4,407
6/30/13	$702,100,000	266%	114.4%	$1,461	$3,993
6/30/14	$644,100,000	231%	98.7%	$1,330	$3,658
6/30/15	$793,200,000	276%	118.4%	$1,626	$4,494
6/30/16	$999,500,000	338%	145.3%	$2,035	$5,653
6/30/17	$1,018,800,000	335%	144.3%	$2,060	$5,752
6/30/18	$1,201,000,000	383%	165.7%	$2,411	$6,769
6/30/19	$1,279,500,000	396%	172.0%	$2,551	$7,199
6/30/20	$1,353,200,000	407%	177.3%	$2,679	$7,600
6/30/21	$1,419,300,000	415%	181.1%	$2,790	$7,958
6/30/22	$1,480,800,000	420%	184.1%	$2,891	$8,288
6/30/23	$1,537,900,000	424%	186.3%	$2,982	$8,593
6/30/24	$1,593,300,000	426%	188.1%	$3,067	$8,887
6/30/25	$1,645,700,000	427%	189.3%	$3,146	$9,164
6/30/26	$1,701,100,000	429%	190.6%	$3,230	$9,456
6/30/27	$1,755,800,000	430%	191.7%	$3,310	$9,743
6/30/28	$1,809,700,000	430%	192.5%	$3,388	$10,025
6/30/29	$1,862,600,000	430%	193.0%	$3,463	$10,300

H8. City of Sacramento, Unfunded Accrued Liability—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$1,241,300,000	426.5%	193.1%	$2,669	$7,118
6/30/09	$2,061,200,000	717.8%	345.1%	$4,410	$11,797
6/30/10	$2,331,100,000	837.9%	404.4%	$4,948	$13,343
6/30/11	$2,092,000,000	797.8%	342.6%	$4,416	$11,946
6/30/12	$3,173,500,000	1230.9%	526.7%	$6,658	$18,084
6/30/13	$2,651,400,000	1004.5%	431.9%	$5,519	$15,081
6/30/14	$2,867,500,000	1026.5%	439.2%	$5,920	$16,286
6/30/15	$3,322,600,000	1154.1%	495.8%	$6,812	$18,824
6/30/16	$4,427,000,000	1495.6%	643.6%	$9,013	$25,037
6/30/17	$3,893,700,000	1278.5%	551.5%	$7,872	$21,983
6/30/18	$4,107,200,000	1310.1%	566.8%	$8,246	$23,148
6/30/19	$4,328,300,000	1341.0%	582.0%	$8,629	$24,352
6/30/20	$4,552,900,000	1369.8%	596.4%	$9,014	$25,572
6/30/21	$4,778,400,000	1396.1%	609.9%	$9,394	$26,792
6/30/22	$5,007,900,000	1420.8%	622.7%	$9,777	$28,030
6/30/23	$5,241,800,000	1443.9%	635.0%	$10,162	$29,289
6/30/24	$5,482,900,000	1466.6%	647.2%	$10,556	$30,583
6/30/25	$5,729,800,000	1488.0%	658.9%	$10,954	$31,905
6/30/26	$5,988,600,000	1509.9%	671.0%	$11,369	$33,288
6/30/27	$6,255,400,000	1531.3%	682.8%	$11,793	$34,711
6/30/28	$6,530,000,000	1551.9%	694.5%	$12,225	$36,172
6/30/29	$6,811,700,000	1571.7%	705.8%	$12,664	$37,668

I. City of Stockton

I1. City of Stockton, Annual Funding Amount (Baseline Projection)

	Amount	as a share of			
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$20,636,000	17.1%	6.7%	$71	$228
2009 - 2010	$19,066,000	17.2%	6.5%	$65	$210
2010 - 2011	$19,424,000	18.6%	6.4%	$66	$214
2011 - 2012	$21,530,000	22.7%	7.1%	$72	$236
2012 - 2013	$22,641,000	23.8%	8.5%	$75	$245
2013 - 2014	$25,098,000	25.7%	7.9%	$81	$270
2014 - 2015	$29,932,000	29.8%	9.4%	$95	$318
2015 - 2016	$32,651,000	31.5%	10.0%	$103	$342
2016 - 2017	$37,729,000	35.4%	11.2%	$117	$392
2017 - 2018	$41,462,000	37.8%	12.0%	$127	$427
2018 - 2019	$47,151,000	41.7%	13.2%	$143	$482
2019 - 2020	$54,340,000	46.6%	14.8%	$162	$552
2020 - 2021	$61,326,000	51.1%	16.2%	$181	$618
2021 - 2022	$67,168,000	54.3%	17.2%	$196	$672
2022 - 2023	$72,401,000	56.9%	18.0%	$208	$719
2023 - 2024	$75,779,000	57.8%	18.3%	$215	$746
2024 - 2025	$79,149,000	58.6%	18.6%	$222	$774
2025 - 2026	$79,224,000	56.9%	18.0%	$220	$769
2026 - 2027	$81,238,000	56.7%	18.0%	$222	$782
2027 - 2028	$83,269,000	56.4%	17.9%	$225	$796
2028 - 2029	$85,348,000	56.1%	17.8%	$228	$809
2029 - 2030	$87,477,000	55.9%	17.7%	$231	$823

I2. City of Stockton, Annual Funding Amount (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$20,636,000	17.1%	6.7%	$71	$228
2009 - 2010	$19,066,000	17.2%	6.5%	$65	$210
2010 - 2011	$19,424,000	18.6%	6.4%	$66	$214
2011 - 2012	$21,530,000	22.7%	7.1%	$72	$236
2012 - 2013	$22,641,000	23.8%	8.5%	$75	$245
2013 - 2014	$25,098,000	25.7%	7.9%	$81	$270
2014 - 2015	$29,932,000	29.8%	9.4%	$95	$318
2015 - 2016	$32,651,000	31.5%	10.0%	$103	$342
2016 - 2017	$37,729,000	35.4%	11.2%	$117	$392
2017 - 2018	$41,462,000	37.8%	12.0%	$127	$427
2018 - 2019	$47,151,000	41.7%	13.2%	$143	$482
2019 - 2020	$54,340,000	46.6%	14.8%	$162	$552
2020 - 2021	$61,694,000	51.4%	16.3%	$182	$622
2021 - 2022	$68,301,000	55.3%	17.5%	$199	$683
2022 - 2023	$74,727,000	58.7%	18.6%	$215	$742
2023 - 2024	$79,760,000	60.8%	19.3%	$227	$786
2024 - 2025	$85,285,000	63.1%	20.0%	$239	$834
2025 - 2026	$87,626,000	63.0%	20.0%	$243	$850
2026 - 2027	$92,026,000	64.2%	20.3%	$252	$886
2027 - 2028	$96,574,000	65.4%	20.7%	$261	$923
2028 - 2029	$101,308,000	66.6%	21.1%	$271	$961
2029 - 2030	$106,235,000	67.8%	21.5%	$280	$1,000

I3. City of Stockton, Ratio of Assets to Total Pension Obligation (Baseline Projection)

	Actuarial Basis			Market Basis		
	Total Pension Obligation	Assets	Funded Ratio	Total Pension Obligation	Assets	Funded Ratio
6/30/08	1,155,500,000	$1,098,000,000	95.0%	1,724,200,000	$1,098,000,000	63.7%
6/30/09	1,259,500,000	$807,700,000	64.1%	1,950,900,000	$807,700,000	41.4%
6/30/10	1,306,500,000	$893,200,000	68.4%	2,175,800,000	$893,200,000	41.1%
6/30/11	1,371,600,000	$1,049,100,000	76.5%	2,183,400,000	$1,049,100,000	48.0%
6/30/12	1,414,600,000	$1,002,900,000	70.9%	2,727,500,000	$1,002,900,000	36.8%
6/30/13	1,451,800,000	$1,080,800,000	74.4%	2,507,800,000	$1,080,800,000	43.1%
6/30/14	1,559,700,000	$1,218,700,000	78.1%	2,744,000,000	$1,218,700,000	44.4%
6/30/15	1,601,900,000	$1,198,500,000	74.8%	2,912,000,000	$1,198,500,000	41.2%
6/30/16	1,683,700,000	$1,160,700,000	68.9%	3,423,200,000	$1,160,700,000	33.9%
6/30/17	1,769,300,000	$1,232,300,000	69.6%	3,212,600,000	$1,232,300,000	38.4%
6/30/18	1,888,200,000	$1,278,600,000	67.7%	3,322,400,000	$1,278,600,000	38.5%
6/30/19	1,951,500,000	$1,327,800,000	68.0%	3,433,800,000	$1,327,800,000	38.7%
6/30/20	2,015,900,000	$1,384,200,000	68.7%	3,547,100,000	$1,384,200,000	39.0%
6/30/21	2,081,000,000	$1,447,800,000	69.6%	3,661,700,000	$1,447,800,000	39.5%
6/30/22	2,146,600,000	$1,517,400,000	70.7%	3,777,000,000	$1,517,400,000	40.2%
6/30/23	2,212,000,000	$1,592,300,000	72.0%	3,892,100,000	$1,592,300,000	40.9%
6/30/24	2,276,800,000	$1,670,300,000	73.4%	4,006,200,000	$1,670,300,000	41.7%
6/30/25	2,340,400,000	$1,751,300,000	74.8%	4,118,000,000	$1,751,300,000	42.5%
6/30/26	2,402,000,000	$1,831,200,000	76.2%	4,226,300,000	$1,831,200,000	43.3%
6/30/27	2,460,700,000	$1,911,300,000	77.7%	4,329,600,000	$1,911,300,000	44.1%
6/30/28	2,515,500,000	$1,990,800,000	79.1%	4,426,000,000	$1,990,800,000	45.0%
6/30/29	2,565,400,000	$2,068,900,000	80.6%	4,513,700,000	$2,068,900,000	45.8%

I4. City of Stockton, Ratio of Assets to Total Pension Obligation (Alternative Projection)

	Actuarial Basis			Market Basis		
	Total Pension Obligation	Assets	Funded Ratio	Total Pension Obligation	Assets	Funded Ratio
6/30/08	$1,155,500,000	$1,098,000,000	95.0%	$1,724,200,000	$1,098,000,000	63.7%
6/30/09	$1,259,500,000	$807,700,000	64.1%	$1,950,900,000	$807,700,000	41.4%
6/30/10	$1,306,500,000	$893,200,000	68.4%	$2,175,800,000	$893,200,000	41.1%
6/30/11	$1,371,600,000	$1,049,100,000	76.5%	$2,183,400,000	$1,049,100,000	48.0%
6/30/12	$1,414,600,000	$1,002,900,000	70.9%	$2,727,500,000	$1,002,900,000	36.8%
6/30/13	$1,451,800,000	$1,080,800,000	74.4%	$2,507,800,000	$1,080,800,000	43.1%
6/30/14	$1,559,700,000	$1,218,700,000	78.1%	$2,744,000,000	$1,218,700,000	44.4%
6/30/15	$1,601,900,000	$1,198,500,000	74.8%	$2,912,000,000	$1,198,500,000	41.2%
6/30/16	$1,683,700,000	$1,160,700,000	68.9%	$3,423,200,000	$1,160,700,000	33.9%
6/30/17	$1,769,300,000	$1,232,300,000	69.6%	$3,212,600,000	$1,232,300,000	38.4%
6/30/18	$1,888,200,000	$1,254,300,000	66.4%	$3,322,400,000	$1,254,300,000	37.8%
6/30/19	$1,951,500,000	$1,277,100,000	65.4%	$3,433,800,000	$1,277,100,000	37.2%
6/30/20	$2,015,900,000	$1,304,900,000	64.7%	$3,547,100,000	$1,304,900,000	36.8%
6/30/21	$2,081,000,000	$1,337,500,000	64.3%	$3,661,700,000	$1,337,500,000	36.5%
6/30/22	$2,146,600,000	$1,374,000,000	64.0%	$3,777,000,000	$1,374,000,000	36.4%
6/30/23	$2,212,000,000	$1,414,100,000	63.9%	$3,892,100,000	$1,414,100,000	36.3%
6/30/24	$2,276,800,000	$1,455,800,000	63.9%	$4,006,200,000	$1,455,800,000	36.3%
6/30/25	$2,340,400,000	$1,499,200,000	64.1%	$4,118,000,000	$1,499,200,000	36.4%
6/30/26	$2,402,000,000	$1,540,500,000	64.1%	$4,226,300,000	$1,540,500,000	36.5%
6/30/27	$2,460,700,000	$1,581,000,000	64.3%	$4,329,600,000	$1,581,000,000	36.5%
6/30/28	$2,515,500,000	$1,619,900,000	64.4%	$4,426,000,000	$1,619,900,000	36.6%
6/30/29	$2,565,400,000	$1,656,500,000	64.6%	$4,513,700,000	$1,656,500,000	36.7%

I5. City of Stockton, Unfunded Total Pension Obligation—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$57,500,000	47.6%	18.5%	$198	$635
6/30/09	$451,800,000	406.8%	154.5%	$1,545	$4,986
6/30/10	$413,300,000	394.9%	135.7%	$1,396	$4,559
6/30/11	$322,500,000	339.6%	106.6%	$1,076	$3,532
6/30/12	$411,700,000	432.6%	154.2%	$1,360	$4,461
6/30/13	$371,000,000	379.4%	116.4%	$1,205	$3,994
6/30/14	$341,000,000	339.3%	107.5%	$1,085	$3,628
6/30/15	$403,400,000	389.7%	123.5%	$1,268	$4,222
6/30/16	$523,000,000	490.5%	155.4%	$1,623	$5,432
6/30/17	$537,000,000	489.0%	154.9%	$1,646	$5,536
6/30/18	$609,600,000	538.9%	170.8%	$1,845	$6,237
6/30/19	$623,700,000	535.3%	169.6%	$1,865	$6,333
6/30/20	$631,700,000	526.4%	166.8%	$1,865	$6,366
6/30/21	$633,200,000	512.3%	162.3%	$1,846	$6,333
6/30/22	$629,200,000	494.2%	156.6%	$1,812	$6,245
6/30/23	$619,700,000	472.6%	149.7%	$1,762	$6,104
6/30/24	$606,500,000	449.0%	142.3%	$1,703	$5,929
6/30/25	$589,100,000	423.5%	134.2%	$1,634	$5,716
6/30/26	$570,800,000	398.4%	126.2%	$1,563	$5,496
6/30/27	$549,400,000	372.2%	117.9%	$1,486	$5,250
6/30/28	$524,700,000	345.2%	109.4%	$1,401	$4,977
6/30/29	$496,500,000	317.1%	100.5%	$1,310	$4,674

I6. City of Stockton, Unfunded Total Pension Obligation—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$626,200,000	518.1%	202.0%	$2,176	$6,911
6/30/09	$1,143,200,000	1029.4%	391.0%	$3,940	$12,615
6/30/10	$1,282,600,000	1225.5%	421.1%	$4,387	$14,147
6/30/11	$1,134,300,000	1194.4%	375.0%	$3,831	$12,421
6/30/12	$1,724,600,000	1812.1%	645.8%	$5,755	$18,687
6/30/13	$1,427,000,000	1459.5%	447.9%	$4,714	$15,361
6/30/14	$1,525,300,000	1517.7%	480.9%	$4,952	$16,226
6/30/15	$1,713,500,000	1655.3%	524.5%	$5,453	$17,933
6/30/16	$2,262,500,000	2122.0%	672.4%	$7,111	$23,500
6/30/17	$1,980,300,000	1803.2%	571.4%	$6,147	$20,414
6/30/18	$2,043,800,000	1806.8%	572.5%	$6,265	$20,910
6/30/19	$2,106,000,000	1807.6%	572.7%	$6,375	$21,383
6/30/20	$2,162,900,000	1802.4%	571.1%	$6,466	$21,795
6/30/21	$2,213,900,000	1791.1%	567.5%	$6,536	$22,141
6/30/22	$2,259,600,000	1774.9%	562.4%	$6,588	$22,428
6/30/23	$2,299,800,000	1753.8%	555.7%	$6,622	$22,654
6/30/24	$2,335,900,000	1729.5%	548.0%	$6,642	$22,836
6/30/25	$2,366,700,000	1701.2%	539.0%	$6,646	$22,963
6/30/26	$2,395,100,000	1671.5%	529.6%	$6,642	$23,063
6/30/27	$2,418,300,000	1638.5%	519.2%	$6,623	$23,111
6/30/28	$2,435,200,000	1601.9%	507.6%	$6,586	$23,097
6/30/29	$2,444,800,000	1561.4%	494.7%	$6,530	$23,013

I7. City of Stockton, Unfunded Total Pension Obligation—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$57,500,000	47.6%	18.5%	$200	$635
6/30/09	$451,800,000	406.8%	154.5%	$1,557	$4,986
6/30/10	$413,300,000	394.9%	135.7%	$1,414	$4,559
6/30/11	$322,500,000	339.6%	106.6%	$1,089	$3,532
6/30/12	$411,700,000	432.6%	154.2%	$1,374	$4,461
6/30/13	$371,000,000	379.4%	116.4%	$1,226	$3,994
6/30/14	$341,000,000	339.3%	107.5%	$1,107	$3,628
6/30/15	$403,400,000	389.7%	123.5%	$1,284	$4,222
6/30/16	$523,000,000	490.5%	155.4%	$1,644	$5,432
6/30/17	$537,000,000	489.0%	154.9%	$1,667	$5,536
6/30/18	$633,900,000	560.4%	177.6%	$1,943	$6,485
6/30/19	$674,400,000	578.8%	183.4%	$2,042	$6,848
6/30/20	$711,000,000	592.5%	187.7%	$2,126	$7,165
6/30/21	$743,500,000	601.5%	190.6%	$2,195	$7,436
6/30/22	$772,600,000	606.9%	192.3%	$2,253	$7,668
6/30/23	$797,900,000	608.5%	192.8%	$2,297	$7,860
6/30/24	$821,000,000	607.9%	192.6%	$2,334	$8,026
6/30/25	$841,200,000	604.7%	191.6%	$2,362	$8,162
6/30/26	$861,500,000	601.2%	190.5%	$2,389	$8,296
6/30/27	$879,700,000	596.0%	188.9%	$2,409	$8,407
6/30/28	$895,600,000	589.1%	186.7%	$2,422	$8,494
6/30/29	$908,900,000	580.5%	183.9%	$2,428	$8,556

I8. City of Stockton, Unfunded Total Pension Obligation—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$626,200,000	518.1%	202.0%	$2,158	$6,911
6/30/09	$1,143,200,000	1029.4%	391.0%	$3,911	$12,615
6/30/10	$1,282,600,000	1225.5%	421.1%	$4,332	$14,147
6/30/11	$1,134,300,000	1194.4%	375.0%	$3,785	$12,421
6/30/12	$1,724,600,000	1812.1%	645.8%	$5,697	$18,687
6/30/13	$1,427,000,000	1459.5%	447.9%	$4,633	$15,361
6/30/14	$1,525,300,000	1517.7%	480.9%	$4,855	$16,226
6/30/15	$1,713,500,000	1655.3%	524.5%	$5,386	$17,933
6/30/16	$2,262,500,000	2122.0%	672.4%	$7,023	$23,500
6/30/17	$1,980,300,000	1803.2%	571.4%	$6,070	$20,414
6/30/18	$2,068,100,000	1828.3%	579.3%	$6,261	$21,158
6/30/19	$2,156,700,000	1851.1%	586.5%	$6,447	$21,898
6/30/20	$2,242,200,000	1868.4%	592.0%	$6,620	$22,594
6/30/21	$2,324,200,000	1880.4%	595.8%	$6,776	$23,244
6/30/22	$2,403,000,000	1887.5%	598.1%	$6,919	$23,851
6/30/23	$2,478,000,000	1889.7%	598.8%	$7,046	$24,410
6/30/24	$2,550,400,000	1888.3%	598.3%	$7,162	$24,933
6/30/25	$2,618,800,000	1882.4%	596.5%	$7,262	$25,409
6/30/26	$2,685,800,000	1874.4%	593.9%	$7,355	$25,863
6/30/27	$2,748,600,000	1862.3%	590.1%	$7,434	$26,268
6/30/28	$2,806,100,000	1845.9%	584.9%	$7,495	$26,615
6/30/29	$2,857,200,000	1824.8%	578.2%	$7,536	$26,895

J. City of Vallejo

J1. City of Vallejo, Employer Pension Contribution (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$11,324,000	22.1%	7.3%	$97	$278
2009 - 2010	$10,087,000	21.9%	6.2%	$87	$248
2010 - 2011	$10,850,000	24.4%	7.2%	$94	$267
2011 - 2012	$12,847,000	28.1%	7.9%	$111	$316
2012 - 2013	$13,564,000	30.2%	6.9%	$116	$334
2013 - 2014	$16,161,000	34.1%	10.9%	$138	$397
2014 - 2015	$17,410,000	35.2%	11.5%	$148	$428
2015 - 2016	$20,200,000	39.4%	13.0%	$172	$496
2016 - 2017	$22,401,000	42.8%	14.1%	$190	$551
2017 - 2018	$24,731,000	45.8%	15.2%	$210	$608
2018 - 2019	$27,461,000	49.2%	16.4%	$233	$675
2019 - 2020	$31,168,000	54.0%	18.2%	$264	$767
2020 - 2021	$34,847,000	58.3%	19.9%	$295	$858
2021 - 2022	$37,835,000	61.1%	21.1%	$320	$931
2022 - 2023	$40,519,000	62.9%	22.0%	$342	$998
2023 - 2024	$42,439,000	63.4%	22.5%	$358	$1,045
2024 - 2025	$44,368,000	63.6%	23.0%	$374	$1,093
2025 - 2026	$45,742,000	62.8%	23.1%	$385	$1,127
2026 - 2027	$47,156,000	62.0%	23.2%	$396	$1,163
2027 - 2028	$48,619,000	61.1%	23.4%	$408	$1,199
2028 - 2029	$50,150,000	60.1%	23.5%	$421	$1,237
2029 - 2030	$51,751,000	59.0%	23.7%	$434	$1,277

J2. City of Vallejo, Employer Pension Contribution (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$11,324,000	22.1%	7.3%	$97	$278
2009 - 2010	$10,087,000	21.9%	6.2%	$87	$248
2010 - 2011	$10,850,000	24.4%	7.2%	$94	$267
2011 - 2012	$12,847,000	28.1%	7.9%	$111	$316
2012 - 2013	$13,564,000	30.2%	6.9%	$116	$334
2013 - 2014	$16,161,000	34.1%	10.9%	$138	$397
2014 - 2015	$17,410,000	35.2%	11.5%	$148	$428
2015 - 2016	$20,200,000	39.4%	13.0%	$172	$496
2016 - 2017	$22,401,000	42.8%	14.1%	$190	$551
2017 - 2018	$24,731,000	45.8%	15.2%	$210	$608
2018 - 2019	$27,461,000	49.2%	16.4%	$233	$675
2019 - 2020	$31,168,000	54.0%	18.2%	$264	$767
2020 - 2021	$35,002,000	58.6%	20.0%	$296	$861
2021 - 2022	$38,310,000	61.8%	21.3%	$324	$943
2022 - 2023	$41,495,000	64.5%	22.5%	$350	$1,022
2023 - 2024	$44,110,000	65.9%	23.4%	$372	$1,087
2024 - 2025	$46,943,000	67.3%	24.3%	$395	$1,157
2025 - 2026	$49,270,000	67.7%	24.9%	$415	$1,214
2026 - 2027	$51,689,000	67.9%	25.5%	$434	$1,274
2027 - 2028	$54,213,000	68.1%	26.1%	$455	$1,337
2028 - 2029	$56,864,000	68.1%	26.7%	$477	$1,403
2029 - 2030	$59,649,000	68.0%	27.3%	$500	$1,472

J3. City of Vallejo, Ratio of Assets to Accrued Liability (Baseline Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$545,500,000	$451,400,000	82.7%	$798,100,000	$451,400,000	56.6%
6/30/09	$591,100,000	$332,400,000	56.2%	$895,900,000	$332,400,000	37.1%
6/30/10	$610,200,000	$367,300,000	60.2%	$990,700,000	$367,300,000	37.1%
6/30/11	$642,800,000	$427,900,000	66.6%	$999,600,000	$427,900,000	42.8%
6/30/12	$669,500,000	$413,800,000	61.8%	$1,249,000,000	$413,800,000	33.1%
6/30/13	$694,200,000	$455,400,000	65.6%	$1,166,700,000	$455,400,000	39.0%
6/30/14	$750,400,000	$513,300,000	68.4%	$1,283,200,000	$513,300,000	40.0%
6/30/15	$774,800,000	$504,200,000	65.1%	$1,366,600,000	$504,200,000	36.9%
6/30/16	$811,600,000	$487,800,000	60.1%	$1,591,900,000	$487,800,000	30.6%
6/30/17	$849,800,000	$517,100,000	60.8%	$1,497,100,000	$517,100,000	34.5%
6/30/18	$902,800,000	$536,500,000	59.4%	$1,543,900,000	$536,500,000	34.7%
6/30/19	$930,400,000	$557,100,000	59.9%	$1,591,000,000	$557,100,000	35.0%
6/30/20	$958,300,000	$581,200,000	60.6%	$1,638,800,000	$581,200,000	35.5%
6/30/21	$986,400,000	$608,700,000	61.7%	$1,686,800,000	$608,700,000	36.1%
6/30/22	$1,014,400,000	$639,000,000	63.0%	$1,734,600,000	$639,000,000	36.8%
6/30/23	$1,042,100,000	$671,700,000	64.5%	$1,782,100,000	$671,700,000	37.7%
6/30/24	$1,069,400,000	$705,900,000	66.0%	$1,828,700,000	$705,900,000	38.6%
6/30/25	$1,095,900,000	$741,400,000	67.7%	$1,874,000,000	$741,400,000	39.6%
6/30/26	$1,121,100,000	$777,400,000	69.3%	$1,917,200,000	$777,400,000	40.5%
6/30/27	$1,144,700,000	$813,700,000	71.1%	$1,957,700,000	$813,700,000	41.6%
6/30/28	$1,166,500,000	$850,000,000	72.9%	$1,994,900,000	$850,000,000	42.6%
6/30/29	$1,185,600,000	$885,800,000	74.7%	$2,027,600,000	$885,800,000	43.7%

J4. City of Vallejo, Ratio of Assets to Accrued Liability (Alternative Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/08	$545,500,000	$451,400,000	82.7%	$798,100,000	$451,400,000	56.6%
6/30/09	$591,100,000	$332,400,000	56.2%	$895,900,000	$332,400,000	37.1%
6/30/10	$610,200,000	$367,300,000	60.2%	$990,700,000	$367,300,000	37.1%
6/30/11	$642,800,000	$427,900,000	66.6%	$999,600,000	$427,900,000	42.8%
6/30/12	$669,500,000	$413,800,000	61.8%	$1,249,000,000	$413,800,000	33.1%
6/30/13	$694,200,000	$455,400,000	65.6%	$1,166,700,000	$455,400,000	39.0%
6/30/14	$750,400,000	$513,300,000	68.4%	$1,283,200,000	$513,300,000	40.0%
6/30/15	$774,800,000	$504,200,000	65.1%	$1,366,600,000	$504,200,000	36.9%
6/30/16	$811,600,000	$487,800,000	60.1%	$1,591,900,000	$487,800,000	30.6%
6/30/17	$849,800,000	$517,100,000	60.8%	$1,497,100,000	$517,100,000	34.5%
6/30/18	$902,800,000	$526,300,000	58.3%	$1,543,900,000	$526,300,000	34.1%
6/30/19	$930,400,000	$535,800,000	57.6%	$1,591,000,000	$535,800,000	33.7%
6/30/20	$958,300,000	$547,900,000	57.2%	$1,638,800,000	$547,900,000	33.4%
6/30/21	$986,400,000	$562,400,000	57.0%	$1,686,800,000	$562,400,000	33.3%
6/30/22	$1,014,400,000	$578,800,000	57.1%	$1,734,600,000	$578,800,000	33.4%
6/30/23	$1,042,100,000	$596,800,000	57.3%	$1,782,100,000	$596,800,000	33.5%
6/30/24	$1,069,400,000	$615,600,000	57.6%	$1,828,700,000	$615,600,000	33.7%
6/30/25	$1,095,900,000	$635,300,000	58.0%	$1,874,000,000	$635,300,000	33.9%
6/30/26	$1,121,100,000	$655,000,000	58.4%	$1,917,200,000	$655,000,000	34.2%
6/30/27	$1,144,700,000	$674,400,000	58.9%	$1,957,700,000	$674,400,000	34.4%
6/30/28	$1,166,500,000	$693,300,000	59.4%	$1,994,900,000	$693,300,000	34.8%
6/30/29	$1,185,600,000	$711,400,000	60.0%	$2,027,600,000	$711,400,000	35.1%

J5. City of Vallejo, Unfunded Accrued Liability—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$94,100,000	183%	60.5%	$809	$2,308
6/30/09	$258,700,000	562%	158.7%	$2,233	$6,367
6/30/10	$242,900,000	546%	161.5%	$2,098	$5,988
6/30/11	$214,900,000	470%	132.0%	$1,852	$5,291
6/30/12	$255,700,000	570%	130.0%	$2,194	$6,290
6/30/13	$238,800,000	504%	160.9%	$2,038	$5,871
6/30/14	$237,100,000	479%	156.6%	$2,017	$5,826
6/30/15	$270,600,000	528%	174.4%	$2,300	$6,650
6/30/16	$323,800,000	619%	203.7%	$2,749	$7,960
6/30/17	$332,700,000	616%	204.2%	$2,822	$8,181
6/30/18	$366,300,000	657%	219.4%	$3,104	$9,010
6/30/19	$373,300,000	647%	218.2%	$3,160	$9,185
6/30/20	$377,100,000	631%	215.1%	$3,189	$9,281
6/30/21	$377,700,000	609%	210.3%	$3,191	$9,299
6/30/22	$375,400,000	583%	204.0%	$3,168	$9,245
6/30/23	$370,400,000	553%	196.4%	$3,123	$9,124
6/30/24	$363,500,000	521%	188.1%	$3,062	$8,957
6/30/25	$354,500,000	487%	179.0%	$2,983	$8,738
6/30/26	$343,700,000	452%	169.4%	$2,889	$8,474
6/30/27	$331,000,000	416%	159.2%	$2,779	$8,163
6/30/28	$316,500,000	379%	148.5%	$2,655	$7,808
6/30/29	$299,800,000	342%	137.3%	$2,512	$7,398

J6. City of Vallejo, Unfunded Accrued Liability—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$346,700,000	676%	222.8%	$2,981	$8,503
6/30/09	$563,500,000	1224%	345.6%	$4,863	$13,868
6/30/10	$623,400,000	1400%	414.4%	$5,383	$15,367
6/30/11	$571,700,000	1251%	351.0%	$4,927	$14,075
6/30/12	$835,200,000	1861%	424.7%	$7,168	$20,547
6/30/13	$711,300,000	1501%	479.4%	$6,071	$17,487
6/30/14	$769,900,000	1555%	508.5%	$6,551	$18,918
6/30/15	$862,400,000	1682%	555.8%	$7,330	$21,194
6/30/16	$1,104,100,000	2109%	694.4%	$9,375	$27,142
6/30/17	$980,000,000	1815%	601.5%	$8,313	$24,098
6/30/18	$1,007,400,000	1807%	603.4%	$8,537	$24,779
6/30/19	$1,033,900,000	1793%	604.4%	$8,752	$25,439
6/30/20	$1,057,600,000	1770%	603.3%	$8,944	$26,029
6/30/21	$1,078,100,000	1740%	600.2%	$9,108	$26,542
6/30/22	$1,095,600,000	1702%	595.2%	$9,247	$26,981
6/30/23	$1,110,400,000	1658%	588.7%	$9,362	$27,353
6/30/24	$1,122,800,000	1609%	581.0%	$9,457	$27,667
6/30/25	$1,132,600,000	1556%	571.9%	$9,530	$27,916
6/30/26	$1,139,800,000	1498%	561.7%	$9,581	$28,102
6/30/27	$1,144,000,000	1437%	550.2%	$9,606	$28,214
6/30/28	$1,144,900,000	1371%	537.3%	$9,604	$28,245
6/30/29	$1,141,800,000	1302%	522.9%	$9,569	$27,142

J7. City of Vallejo, Unfunded Accrued Liability—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$94,100,000	183%	60.5%	$809	$2,308
6/30/09	$258,700,000	562%	158.7%	$2,233	$6,367
6/30/10	$242,900,000	546%	161.5%	$2,098	$5,988
6/30/11	$214,900,000	470%	132.0%	$1,852	$5,291
6/30/12	$255,700,000	570%	130.0%	$2,194	$6,290
6/30/13	$238,800,000	504%	160.9%	$2,038	$5,871
6/30/14	$237,100,000	479%	156.6%	$2,017	$5,826
6/30/15	$270,600,000	528%	174.4%	$2,300	$6,650
6/30/16	$323,800,000	619%	203.7%	$2,749	$7,960
6/30/17	$332,700,000	616%	204.2%	$2,822	$8,181
6/30/18	$376,500,000	675%	225.5%	$3,190	$9,261
6/30/19	$394,600,000	684%	230.7%	$3,340	$9,709
6/30/20	$410,400,000	687%	234.1%	$3,471	$10,101
6/30/21	$424,000,000	684%	236.1%	$3,582	$10,438
6/30/22	$435,600,000	677%	236.7%	$3,676	$10,727
6/30/23	$445,300,000	665%	236.1%	$3,754	$10,969
6/30/24	$453,800,000	650%	234.8%	$3,822	$11,182
6/30/25	$460,600,000	633%	232.6%	$3,876	$11,353
6/30/26	$466,100,000	613%	229.7%	$3,918	$11,492
6/30/27	$470,300,000	591%	226.2%	$3,949	$11,599
6/30/28	$473,200,000	567%	222.1%	$3,970	$11,674
6/30/29	$474,200,000	541%	217.2%	$3,974	$11,702

J8. City of Vallejo, Unfunded Accrued Liability—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$346,700,000	676%	222.8%	$2,981	$8,503
6/30/09	$563,500,000	1224%	345.6%	$4,863	$13,868
6/30/10	$623,400,000	1400%	414.4%	$5,383	$15,367
6/30/11	$571,700,000	1251%	351.0%	$4,927	$14,075
6/30/12	$835,200,000	1861%	424.7%	$7,168	$20,547
6/30/13	$711,300,000	1501%	479.4%	$6,071	$17,487
6/30/14	$769,900,000	1555%	508.5%	$6,551	$18,918
6/30/15	$862,400,000	1682%	555.8%	$7,330	$21,194
6/30/16	$1,104,100,000	2109%	694.4%	$9,375	$27,142
6/30/17	$980,000,000	1815%	601.5%	$8,313	$24,098
6/30/18	$1,017,600,000	1825%	609.6%	$8,623	$25,030
6/30/19	$1,055,200,000	1829%	616.8%	$8,933	$25,963
6/30/20	$1,090,900,000	1826%	622.3%	$9,226	$26,849
6/30/21	$1,124,400,000	1814%	626.0%	$9,499	$27,682
6/30/22	$1,155,800,000	1795%	628.0%	$9,755	$28,463
6/30/23	$1,185,300,000	1770%	628.5%	$9,994	$29,198
6/30/24	$1,213,100,000	1739%	627.7%	$10,218	$29,892
6/30/25	$1,238,700,000	1701%	625.5%	$10,423	$30,532
6/30/26	$1,262,200,000	1659%	622.0%	$10,610	$31,120
6/30/27	$1,283,300,000	1611%	617.2%	$10,776	$31,650
6/30/28	$1,301,600,000	1559%	610.9%	$10,919	$32,111
6/30/29	$1,316,200,000	1501%	602.8%	$11,030	$32,480

K. School Districts

K1. CalPERS Schools Pool Employer Pension Contribution Rates: Baseline and Alternative Projections

	Baseline[a]	Alternative[b]
2008 - 09	9.428%	
2009 - 10	9.709%	
2010 - 11	10.707%	
2011 - 12	10.923%	
2012 - 13	11.417%	
2013 - 14	11.442%	
2014 - 15	11.771%	
2015 - 16	11.847%	
2016 - 17	13.888%	
2017 - 18	15.531%	
2018 - 19	17.820%	
2019 - 20	20.218%	20.341%
2020 - 21	23.047%	23.419%
2021 - 22	24.114%	24.862%
2022 - 23	24.686%	25.938%
2023 - 24	25.234%	27.124%
2024 - 25	25.577%	28.116%
2025 - 26	25.515%	28.718%
2026 - 27	25.451%	29.333%
2027 - 28	25.376%	29.956%
2028 - 29	25.301%	30.597%
2029 - 30	25.227%	31.256%

[a]Black font indicates historical/estimated; blue indicates baseline projection, in which all assumptions, including the discount rate, are met

[b]Black font indicates historical/estimated; orange indicates alternative projection, in which the actual rate of return is 2% less than the discount rate

K2. CalPERS Schools Pool Accrued Liability and Assets: Baseline and Alternative Projections

	Accrued Liability		Market Value of Assets	
	Actuarial	Market	Baseline[a]	Alternative[b]
06/30/08	48,538,000,000	71,684,000,000	45,548,000,000	
06/30/09	52,493,000,000	80,398,000,000	34,146,000,000	
06/30/10	55,307,000,000	90,897,000,000	38,435,000,000	
06/30/11	58,358,000,000	91,772,000,000	45,901,000,000	
06/30/12	59,439,000,000	112,643,000,000	44,854,000,000	
06/30/13	61,487,000,000	104,696,000,000	49,482,000,000	
06/30/14	65,600,000,000	113,702,000,000	56,838,000,000	
06/30/15	73,325,000,000	131,200,000,000	56,814,000,000	
06/30/16	77,544,000,000	157,091,000,000	55,785,000,000	
06/30/17	82,904,000,000	150,445,000,000	60,394,000,000	
06/30/18	88,641,000,000	158,420,000,000	64,072,000,000	62,872,000,000
06/30/19	96,223,000,000	166,793,000,000	68,208,000,000	65,668,000,000
06/30/20	101,253,000,000	175,510,000,000	72,762,000,000	68,750,000,000
06/30/21	106,521,000,000	184,643,000,000	78,023,000,000	72,407,000,000
06/30/22	112,029,000,000	194,190,000,000	83,754,000,000	76,408,000,000
06/30/23	117,776,000,000	204,153,000,000	89,906,000,000	80,708,000,000
06/30/24	123,759,000,000	214,522,000,000	96,493,000,000	85,335,000,000
06/30/25	129,970,000,000	225,289,000,000	103,495,000,000	90,264,000,000
06/30/26	136,403,000,000	236,439,000,000	110,855,000,000	95,433,000,000
06/30/27	143,044,000,000	247,951,000,000	118,573,000,000	100,839,000,000
06/30/28	149,877,000,000	259,796,000,000	126,643,000,000	106,474,000,000
06/30/29	156,882,000,000	271,938,000,000	135,059,000,000	112,331,000,000

[a]Black font indicates historical/estimated; blue indicates baseline projection, in which all assumptions, including the discount rate, are met

[b]Black font indicates historical/estimated; orange indicates alternative projection, in which the actual rate of return is 2% less than the discount rate

K3. CalPERS Schools Pool Actuarial and Market Funded Ratios: Baseline and Alternative Projections

	Actuarial Funded Ratio		Market Funded Ratio	
	Baseline	Alternative	Baseline	Alternative
06/30/08	93.8%	93.8%	63.5%	63.5%
06/30/09	65.0%	65.0%	42.5%	42.5%
06/30/10	69.5%	69.5%	42.3%	42.3%
06/30/11	78.7%	78.7%	50.0%	50.0%
06/30/12	75.5%	75.5%	39.8%	39.8%
06/30/13	80.5%	80.5%	47.3%	47.3%
06/30/14	86.6%	86.6%	50.0%	50.0%
06/30/15	77.5%	77.5%	43.3%	43.3%
06/30/16	71.9%	71.9%	35.5%	35.5%
06/30/17	72.8%	72.8%	40.1%	40.1%
06/30/18	72.3%	70.9%	40.4%	39.7%
06/30/19	70.9%	68.2%	40.9%	39.4%
06/30/20	71.9%	67.9%	41.5%	39.2%
06/30/21	73.2%	68.0%	42.3%	39.2%
06/30/22	74.8%	68.2%	43.1%	39.3%
06/30/23	76.3%	68.5%	44.0%	39.5%
06/30/24	78.0%	69.0%	45.0%	39.8%
06/30/25	79.6%	69.4%	45.9%	40.1%
06/30/26	81.3%	70.0%	46.9%	40.4%
06/30/27	82.9%	70.5%	47.8%	40.7%
06/30/28	84.5%	71.0%	48.7%	41.0%
06/30/29	86.1%	71.6%	49.7%	41.3%

L. Bay Area Rapid Transit (BART) District

L1. Bay Area Rapid Transit (BART) District, Employer Pension Contribution (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	27,715,000	11.5%	4.8%	$9	$24
2009 - 2010	26,925,000	11.4%	4.8%	$9	$23
2010 - 2011	26,416,000	11.1%	4.8%	$9	$23
2011 - 2012	33,305,000	13.7%	5.7%	$11	$29
2012 - 2013	31,746,000	12.7%	5.1%	$10	$27
2013 - 2014	35,717,000	13.9%	5.7%	$11	$31
2014 - 2015	41,894,000	15.2%	6.3%	$13	$36
2015 - 2016	49,227,000	17.3%	7.3%	$15	$42
2016 - 2017	54,800,000	18.7%	7.9%	$17	$46
2017 - 2018	61,172,000	20.3%	8.6%	$18	$51
2018 - 2019	71,027,000	22.9%	9.7%	$21	$59
2019 - 2020	82,700,000	25.9%	11.1%	$24	$68
2020 - 2021	94,214,000	28.6%	12.3%	$27	$78
2021 - 2022	103,347,000	30.5%	13.2%	$29	$85
2022 - 2023	111,174,000	31.9%	13.8%	$31	$91
2023 - 2024	116,281,000	32.3%	14.1%	$32	$94
2024 - 2025	119,436,000	32.3%	14.1%	$33	$96
2025 - 2026	113,201,000	29.7%	13.1%	$31	$91
2026 - 2027	117,072,000	29.8%	13.2%	$32	$93
2027 - 2028	120,173,000	29.7%	13.2%	$32	$95
2028 - 2029	123,355,000	29.6%	13.2%	$33	$98
2029 - 2030	125,484,000	29.2%	13.1%	$33	$99

L2. Bay Area Rapid Transit (BART) District, Employer Pension Contribution (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
2008 - 2009	$27,715,000	11.5%	4.8%	$9	$24
2009 - 2010	$26,925,000	11.4%	4.8%	$9	$23
2010 - 2011	$26,416,000	11.1%	4.8%	$9	$23
2011 - 2012	$33,305,000	13.7%	5.7%	$11	$29
2012 - 2013	$31,746,000	12.7%	5.1%	$10	$27
2013 - 2014	$35,717,000	13.9%	5.7%	$11	$31
2014 - 2015	$41,894,000	15.2%	6.3%	$13	$36
2015 - 2016	$49,227,000	17.3%	7.3%	$15	$42
2016 - 2017	$54,800,000	18.7%	7.9%	$17	$46
2017 - 2018	$61,172,000	20.3%	8.6%	$18	$51
2018 - 2019	$71,027,000	22.9%	9.7%	$21	$59
2019 - 2020	$82,700,000	25.9%	11.1%	$24	$68
2020 - 2021	$94,798,000	28.8%	12.4%	$27	$78
2021 - 2022	$105,153,000	31.0%	13.4%	$30	$86
2022 - 2023	$114,899,000	32.9%	14.3%	$32	$94
2023 - 2024	$122,689,000	34.1%	14.9%	$34	$99
2024 - 2025	$129,362,000	34.9%	15.3%	$36	$104
2025 - 2026	$126,882,000	33.3%	14.6%	$35	$102
2026 - 2027	$134,764,000	34.3%	15.2%	$36	$108
2027 - 2028	$142,156,000	35.1%	15.6%	$38	$113
2028 - 2029	$149,926,000	36.0%	16.1%	$40	$119
2029 - 2030	$156,957,000	36.6%	16.4%	$41	$123

L3. Bay Area Rapid Transit (BART) District, Ratio of Assets to Accrued Liability (Baseline Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/09	$1,703,300,000	$1,128,000,000	66.2%	$2,553,600,000	$1,128,000,000	44.2%
6/30/10	$1,772,600,000	$1,259,600,000	71.1%	$2,842,100,000	$1,259,600,000	44.3%
6/30/11	$1,875,200,000	$1,495,500,000	79.8%	$2,883,400,000	$1,495,500,000	51.9%
6/30/12	$1,954,500,000	$1,458,000,000	74.6%	$3,589,200,000	$1,458,000,000	40.6%
6/30/13	$2,044,700,000	$1,606,200,000	78.6%	$3,392,000,000	$1,606,200,000	47.4%
6/30/14	$2,245,700,000	$1,845,200,000	82.2%	$3,789,500,000	$1,845,200,000	48.7%
6/30/15	$2,351,400,000	$1,836,600,000	78.1%	$4,090,000,000	$1,836,600,000	44.9%
6/30/16	$2,493,900,000	$1,803,800,000	72.3%	$4,811,900,000	$1,803,800,000	37.5%
6/30/17	$2,645,100,000	$1,941,100,000	73.4%	$4,596,000,000	$1,941,100,000	42.2%
6/30/18	$2,846,200,000	$2,042,100,000	71.7%	$4,803,700,000	$2,042,100,000	42.5%
6/30/19	$2,972,900,000	$2,151,500,000	72.4%	$5,017,700,000	$2,151,500,000	42.9%
6/30/20	$3,104,800,000	$2,276,200,000	73.3%	$5,240,200,000	$2,276,200,000	43.4%
6/30/21	$3,241,600,000	$2,416,400,000	74.5%	$5,471,200,000	$2,416,400,000	44.2%
6/30/22	$3,383,100,000	$2,570,300,000	76.0%	$5,710,200,000	$2,570,300,000	45.0%
6/30/23	$3,529,000,000	$2,736,700,000	77.5%	$5,956,500,000	$2,736,700,000	45.9%
6/30/24	$3,678,900,000	$2,913,100,000	79.2%	$6,209,600,000	$2,913,100,000	46.9%
6/30/25	$3,832,400,000	$3,097,300,000	80.8%	$6,468,600,000	$3,097,300,000	47.9%
6/30/26	$3,988,800,000	$3,279,300,000	82.2%	$6,732,700,000	$3,279,300,000	48.7%
6/30/27	$4,147,500,000	$3,468,500,000	83.6%	$7,000,500,000	$3,468,500,000	49.5%
6/30/28	$4,307,600,000	$3,663,600,000	85.0%	$7,270,700,000	$3,663,600,000	50.4%
6/30/29	$4,467,900,000	$3,863,900,000	86.5%	$7,541,300,000	$3,863,900,000	51.2%

L4. Bay Area Rapid Transit (BART) District, Ratio of Assets to Accrued Liability (Alternative Projection)

	Actuarial Basis			Market Basis		
	Accrued Liability	Assets	Funded Ratio	Accrued Liability	Assets	Funded Ratio
6/30/09	$1,703,300,000	$1,128,000,000	66.2%	$2,553,600,000	$1,128,000,000	44.2%
6/30/10	$1,772,600,000	$1,259,600,000	71.1%	$2,842,100,000	$1,259,600,000	44.3%
6/30/11	$1,875,200,000	$1,495,500,000	79.8%	$2,883,400,000	$1,495,500,000	51.9%
6/30/12	$1,954,500,000	$1,458,000,000	74.6%	$3,589,200,000	$1,458,000,000	40.6%
6/30/13	$2,044,700,000	$1,606,200,000	78.6%	$3,392,000,000	$1,606,200,000	47.4%
6/30/14	$2,245,700,000	$1,845,200,000	82.2%	$3,789,500,000	$1,845,200,000	48.7%
6/30/15	$2,351,400,000	$1,836,600,000	78.1%	$4,090,000,000	$1,836,600,000	44.9%
6/30/16	$2,493,900,000	$1,803,800,000	72.3%	$4,811,900,000	$1,803,800,000	37.5%
6/30/17	$2,645,100,000	$1,941,100,000	73.4%	$4,596,000,000	$1,941,100,000	42.2%
6/30/18	$2,846,200,000	$2,003,600,000	70.4%	$4,803,700,000	$2,003,600,000	41.7%
6/30/19	$2,972,900,000	$2,070,600,000	69.6%	$5,017,700,000	$2,070,600,000	41.3%
6/30/20	$3,104,800,000	$2,148,400,000	69.2%	$5,240,200,000	$2,148,400,000	41.0%
6/30/21	$3,241,600,000	$2,237,500,000	69.0%	$5,471,200,000	$2,237,500,000	40.9%
6/30/22	$3,383,100,000	$2,336,200,000	69.1%	$5,710,200,000	$2,336,200,000	40.9%
6/30/23	$3,529,000,000	$2,443,400,000	69.2%	$5,956,500,000	$2,443,400,000	41.0%
6/30/24	$3,678,900,000	$2,557,100,000	69.5%	$6,209,600,000	$2,557,100,000	41.2%
6/30/25	$3,832,400,000	$2,675,600,000	69.8%	$6,468,600,000	$2,675,600,000	41.4%
6/30/26	$3,988,800,000	$2,788,900,000	69.9%	$6,732,700,000	$2,788,900,000	41.4%
6/30/27	$4,147,500,000	$2,906,500,000	70.1%	$7,000,500,000	$2,906,500,000	41.5%
6/30/28	$4,307,600,000	$3,027,200,000	70.3%	$7,270,700,000	$3,027,200,000	41.6%
6/30/29	$4,467,900,000	$3,150,100,000	70.5%	$7,541,300,000	$3,150,100,000	41.8%

L5. Bay Area Rapid Transit (BART) District, Unfunded Accrued Liability—Actuarial Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$47,600,000	19.7%	8.3%	$16	$42
6/30/09	$575,300,000	242.9%	102.6%	$189	$502
6/30/10	$513,000,000	214.9%	93.8%	$166	$447
6/30/11	$379,700,000	155.9%	65.0%	$121	$329
6/30/12	$496,500,000	198.6%	79.9%	$157	$428
6/30/13	$438,500,000	170.5%	70.3%	$137	$376
6/30/14	$400,500,000	145.4%	60.6%	$123	$341
6/30/15	$514,800,000	181.4%	76.0%	$157	$435
6/30/16	$690,100,000	236.1%	99.5%	$208	$580
6/30/17	$704,000,000	233.9%	99.0%	$210	$589
6/30/18	$804,100,000	259.3%	110.3%	$237	$669
6/30/19	$821,400,000	257.2%	109.9%	$239	$680
6/30/20	$828,600,000	251.9%	108.2%	$239	$682
6/30/21	$825,200,000	243.5%	105.1%	$235	$676
6/30/22	$812,800,000	232.9%	101.0%	$229	$662
6/30/23	$792,300,000	220.4%	96.1%	$221	$642
6/30/24	$765,800,000	206.8%	90.6%	$211	$618
6/30/25	$735,100,000	192.8%	84.8%	$200	$590
6/30/26	$709,500,000	180.6%	79.9%	$191	$567
6/30/27	$679,000,000	167.8%	74.6%	$181	$540
6/30/28	$644,000,000	154.5%	69.0%	$170	$509
6/30/29	$604,000,000	140.7%	63.1%	$157	$475

L6. Bay Area Rapid Transit (BART) District, Unfunded Accrued Liability—Market Basis (Baseline Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$745,300,000	309.0%	130.2%	$247	$652
6/30/09	$1,425,600,000	601.8%	254.2%	$469	$1,244
6/30/10	$1,582,500,000	663.0%	289.4%	$513	$1,379
6/30/11	$1,387,900,000	569.9%	237.4%	$444	$1,203
6/30/12	$2,131,200,000	852.3%	343.1%	$672	$1,837
6/30/13	$1,785,800,000	694.5%	286.2%	$557	$1,530
6/30/14	$1,944,300,000	705.7%	294.4%	$599	$1,656
6/30/15	$2,253,400,000	794.1%	332.9%	$687	$1,903
6/30/16	$3,008,100,000	1029.2%	433.5%	$907	$2,528
6/30/17	$2,654,900,000	881.9%	373.3%	$791	$2,220
6/30/18	$2,761,600,000	890.6%	378.8%	$814	$2,297
6/30/19	$2,866,200,000	897.4%	383.6%	$835	$2,372
6/30/20	$2,964,000,000	901.0%	387.0%	$854	$2,441
6/30/21	$3,054,800,000	901.6%	389.1%	$871	$2,503
6/30/22	$3,139,900,000	899.7%	390.2%	$885	$2,559
6/30/23	$3,219,800,000	895.7%	390.4%	$897	$2,611
6/30/24	$3,296,500,000	890.4%	389.9%	$908	$2,660
6/30/25	$3,371,300,000	884.0%	389.1%	$919	$2,706
6/30/26	$3,453,400,000	879.2%	388.8%	$931	$2,758
6/30/27	$3,532,000,000	873.0%	388.0%	$941	$2,806
6/30/28	$3,607,100,000	865.6%	386.5%	$951	$2,852
6/30/29	$3,677,400,000	856.8%	384.5%	$958	$2,892

L7. Bay Area Rapid Transit (BART) District, Unfunded Accrued Liability—Actuarial Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$47,600,000	19.7%	8.3%	$16	$42
6/30/09	$575,300,000	242.9%	102.6%	$189	$502
6/30/10	$513,000,000	214.9%	93.8%	$166	$447
6/30/11	$379,700,000	155.9%	65.0%	$121	$329
6/30/12	$496,500,000	198.6%	79.9%	$157	$428
6/30/13	$438,500,000	170.5%	70.3%	$137	$376
6/30/14	$400,500,000	145.4%	60.6%	$123	$341
6/30/15	$514,800,000	181.4%	76.0%	$157	$435
6/30/16	$690,100,000	236.1%	99.5%	$208	$580
6/30/17	$704,000,000	233.9%	99.0%	$210	$589
6/30/18	$842,600,000	271.7%	115.6%	$248	$701
6/30/19	$902,300,000	282.5%	120.8%	$263	$747
6/30/20	$956,400,000	290.7%	124.9%	$276	$787
6/30/21	$1,004,100,000	296.3%	127.9%	$286	$823
6/30/22	$1,046,900,000	300.0%	130.1%	$295	$853
6/30/23	$1,085,600,000	302.0%	131.6%	$303	$880
6/30/24	$1,121,800,000	303.0%	132.7%	$309	$905
6/30/25	$1,156,800,000	303.3%	133.5%	$315	$929
6/30/26	$1,199,900,000	305.5%	135.1%	$323	$958
6/30/27	$1,241,000,000	306.7%	136.3%	$331	$986
6/30/28	$1,280,400,000	307.3%	137.2%	$337	$1,012
6/30/29	$1,317,800,000	307.0%	137.8%	$343	$1,036

L8. Bay Area Rapid Transit (BART) District, Unfunded Accrued Liability—Market Basis (Alternative Projection)

	Amount	as a share of		per	
		Payroll	Operating Expenditures	Resident	Household
6/30/08	$745,300,000	309.0%	130.2%	$247	$652
6/30/09	$1,425,600,000	601.8%	254.2%	$469	$1,244
6/30/10	$1,582,500,000	663.0%	289.4%	$513	$1,379
6/30/11	$1,387,900,000	569.9%	237.4%	$444	$1,203
6/30/12	$2,131,200,000	852.3%	343.1%	$672	$1,837
6/30/13	$1,785,800,000	694.5%	286.2%	$557	$1,530
6/30/14	$1,944,300,000	705.7%	294.4%	$599	$1,656
6/30/15	$2,253,400,000	794.1%	332.9%	$687	$1,903
6/30/16	$3,008,100,000	1029.2%	433.5%	$907	$2,528
6/30/17	$2,654,900,000	881.9%	373.3%	$791	$2,220
6/30/18	$2,800,100,000	903.0%	384.1%	$825	$2,329
6/30/19	$2,947,100,000	922.8%	394.4%	$859	$2,439
6/30/20	$3,091,800,000	939.9%	403.7%	$891	$2,546
6/30/21	$3,233,700,000	954.4%	411.9%	$922	$2,649
6/30/22	$3,374,000,000	966.8%	419.3%	$951	$2,750
6/30/23	$3,513,100,000	977.3%	425.9%	$979	$2,849
6/30/24	$3,652,500,000	986.5%	432.0%	$1,007	$2,947
6/30/25	$3,793,000,000	994.6%	437.7%	$1,034	$3,045
6/30/26	$3,943,800,000	1004.0%	444.0%	$1,063	$3,150
6/30/27	$4,094,000,000	1011.9%	449.7%	$1,091	$3,253
6/30/28	$4,243,500,000	1018.3%	454.7%	$1,118	$3,355
6/30/29	$4,391,200,000	1023.1%	459.1%	$1,144	$3,454