December 21, 2017

Marybel Batjer, Secretary
California Government Operations Agency
915 Capitol Mall, Suite 200
Sacramento, CA 95814

Dear Ms. Marybel Batjer,

In accordance with the State Leadership Accountability Act (SLAA), the State Teachers’ Retirement System submits this report on the review of our internal control and monitoring systems for the biennial period ending December 31, 2017.

Should you have any questions please contact Robin Madsen, Chief Financial Officer, at (916) 414-4385, rmadsen@calstrs.com.

BACKGROUND

The California State Teachers’ Retirement System (CalSTRS) administers a hybrid retirement system consisting of a defined benefit plan, two defined contribution plans, an other postemployment benefit plan and a fund used to account for ancillary activities associated with various deferred compensation plans and programs.

CalSTRS provides pension benefits, including disability and survivor benefits, to California full-time and part-time public school teachers from pre-kindergarten through community college and certain other employees of the public school system. Teachers’ Retirement Law (California Education Code Section 22000 et seq.), as enacted and amended by the California Legislature, established these plans and CalSTRS as the administrator. The terms of the plans may be amended through legislation.

The Teachers’ Retirement Board (the “board”) has exclusive control over the administration of the retirement system plans and the investment of funds, makes rules, sets policies, and has the authority to hear and determine all facts pertaining to application for benefits under the retirement system. It is composed of 12 members:

- Five members appointed by the Governor and confirmed by the Senate: one school board representative, one retired CalSTRS member and three public representatives;
- Four ex-officio members: the Superintendent of Public Instruction, the State Treasurer, the State Controller and the Director of Finance; and
- Three member-elected positions representing current educators.

Annually CalSTRS establishes a business plan based on a Teachers’ Retirement Board approved multi-year strategic plan. The annual business plan includes a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis and goals and objectives built on the foundation of CalSTRS mission, vision and core values. The paragraphs that follow outline these components.

OUR MISSION

Securing the financial future and sustaining the trust of California’s educators.
OUR VISION

Your Reward—A secure retirement
Our Reward—Getting you there

OUR CORE VALUES

The CalSTRS core values are a set of attitudes, beliefs and behaviors that define CalSTRS and its employees.

CUSTOMER SERVICE

• We never compromise on quality as we strive to meet or exceed the expectations of our customers.

ACCOUNTABILITY

• We operate with transparency and accept responsibility for our actions.

LEADERSHIP

• We model best practices in our industry and innovate to achieve higher standards.

STRENGTH

• We ensure the strength of our system by embracing a diversity of ideas and people.

TRUST

• We conduct ourselves with integrity, acting ethically in every endeavor.

RESPECT

• We respect the needs of our members, co-workers, and others, treating everyone with fairness, honesty and courtesy.

STEWARDSHIP

• We recognize our fiduciary responsibility as the foundation for all decision-making.

BOARD STRATEGIC GOALS

GOAL 1: Financial

Ensure a financially sound retirement system.

• OBJECTIVE A- Achieve full funding of the Defined Benefit Program by June 30, 2046.
• OBJECTIVE B-Lower the probability of downside risk to the CalSTRS Investment Portfolio.
• OBJECTIVE C-Align CalSTRS’ investment beliefs, investment objectives and strategy implementation.
• OBJECTIVE D-Manage costs and efficiencies and seek to influence industry best practices.

GOAL 2: Member/Employer

Enhance services to members and employers.
• OBJECTIVE A-Increase the accuracy and completeness of employer reporting.
• OBJECTIVE B-Improve the retirement readiness of CalSTRS’ members.

GOAL 3: Business Transformation
Drive operational excellence.
• OBJECTIVE A-Implement and integrate a new pension administration system for CalSTRS.
• OBJECTIVE B-Continuously strengthen processes and resources to secure the confidentiality and integrity of member data and information.
• OBJECTIVE C-Continuously improve the quality and efficiency and maintain the cost effectiveness of CalSTRS’ business functions.
• OBJECTIVE D-Ensure the sustainability of critical business processes and systems through the oversight of risk and enterprise compliance.

GOAL 4: Workforce Transformation
Grow an engaged, highly skilled and diverse workforce.
• OBJECTIVE A-Broaden recruitment and hiring practices to employ additional qualified individuals to support our business objectives.
• OBJECTIVE B-Advance engagement strategies that retain and develop employees to meet future business needs.
• OBJECTIVE C-Enhance organizational performance by strengthening strategies for leadership succession.

ONGOING MONITORING
As the head of State Teachers’ Retirement System, Jack Ehnes, Chief Executive Officer, is responsible for the overall establishment and maintenance of the internal control and monitoring systems.

EXECUTIVE MONITORING SPONSOR(s)
The executive monitoring sponsor responsibilities include facilitating and verifying that the State Teachers’ Retirement System internal control monitoring practices are implemented and functioning as intended. The responsibilities as the executive monitoring sponsor(s) have been given to: Jack Ehnes, Chief Executive Officer, Phillip Burkholder, Accounting Administrator III, and Robin Madsen, Chief Financial Officer.

MONITORING ACTIVITIES
CalSTRS senior management reports enterprise risk and risk management strategies to the Teachers’ Retirement Board (TRB) semi-annually. The TRB provides risk oversight generally and through various committees. Specifically, the Enterprise Risk Management function, working in conjunction with the Risk Champions and the Executive Risk committee, have the responsibility of monitoring the organization’s internal control effectiveness as part of the overall risk management efforts. The following represent activities CalSTRS performs to ensure its internal controls are effective and managing risks as designed.

• CalSTRS maintains cross-functional end to end, risk and control matrices for critical processes annually. These matrices are designed to identify these processes, risks to the processes, and the key control over the functions in the process flow.
• The recently established Enterprise Compliance Oversight Program will work with various quality assurance units throughout CalSTRS to ensure critical areas meet legal and regulatory requirements as well as adhere to organizational policies.
• CalSTRS Information Security and Enterprise Data Management offices provide active management for various cyber and data risk.
• CalSTRS provides all new employees Accountability and Internal Controls training within the first year of employment. The Chief Financial Officer regularly attends this training as a guest speaker.
• Annually, CalSTRS provides all staff with web-based Risk Awareness and Internal Control training.
• Management addresses all concerns raised through Internal and External audits as soon as possible. Management regularly reports its progress addressing weakness identified through the audit process to the TRB.

Addressing Vulnerabilities
As mentioned earlier, the use of the risk and control matrices, quality assurance processes, and the efforts of the enterprise compliance group allow CalSTRS to regularly address vulnerabilities as soon as they are identified. Once vulnerabilities are identified, they are addressed by branch management, or if cross-functional, the affected branch executives work together to find the best solution and required resources to manage the risk.

CalSTRS recognizes that these monitoring activities can be strengthened and will continue to bolster its monitoring and communication processes to ensure we have an evolving robust system of internal controls.

Communication
CalSTRS has several vehicles to share information regarding results of monitoring activities with management and the rest of the organization. For example, the Risk Champions meet monthly and the Executive Risk Committee meets quarterly to share experiences or concerns amongst senior management. In addition, management meets quarterly in Leadership Forums to provide training opportunities and venues to discuss current areas of concerns or sensitivity. Also, CalSTRS CEO provides information to staff through Town Hall meetings. Finally, CalSTRS utilizes an intranet site to share information to staff at all locations. All of these communication channels have proven very effective in the past few years.

Ongoing Monitoring Compliance
The State Teachers' Retirement System is in the process of implementing and documenting the ongoing monitoring processes as outlined in the monitoring requirements of California Government Code sections 13400-13407. These processes include reviews, evaluations, and improvements to the State Teachers' Retirement System systems of controls and monitoring.

RISK ASSESSMENT PROCESS
The following personnel were involved in the State Teachers' Retirement System risk assessment process: Executive Management, Middle Management, Front Line Management, and Staff.
RISK IDENTIFICATION
CalSTRS draft risk policy requires each branch executive to annually perform a risk assessment of their branch. Risk Champions from each branch maintain the risk logs and share any risks they feel are worthy of consideration as enterprise level risks at monthly risk champion meetings. The risk champions determine what risk should be considered at the enterprise level. The ERM function presents the results of this process to the Executive Risk Committee (ERC) at quarterly meetings. Once the ERC has determined what risks require management at the enterprise level, they design mitigation strategies and allocate the necessary resources. CalSTRS executives report enterprise level risks to the Teacher’s Retirement Board in open session semi-annually.

RISK RANKING
CalSTRS ranks the identified risks using three dimensions; impact, probability and velocity. Each dimension is based on a 5 point scale and risks are evaluated for inherent and residual risk. CalSTRS then inputs the three dimensions’ scores into a formula to calculate a single risk score based on 50 point scale. All risks are classified in one of 5 categories and prioritized using these values; very high, high, medium, low and very low. Finally, the values are plotted on a heat map to show overall priority and scale. The heat map placement is reconciled with the executive risk committee’s evaluation before presentation to the TRB.

The internal controls shown below do not represent a comprehensive list of all CalSTRS internal controls, but rather are the specific internal controls management implemented to adequately mitigate the associated risks. For example, CalSTRS system of policies and procedures designed to provide compliance with applicable laws, criteria, standards, and other requirements, are not listed but exist as part of normal operations to support meeting our business objectives.

RISKS AND CONTROLS

RISK: Operations - Internal - Program/Activity — Changes, Complexity
CalSTRS pension administration system may not operate, at all, or properly to pay benefits to members.

This risk may result from a failure of, or inadequate: processes, technology systems, staff actions or data.

Because of this, CalSTRS may pay inaccurate or untimely pension benefits to members.

Control A
For the sub risk of being unable to ensure accurate and timely benefits due to aged pension administration system (START) the following controls are now in place:

1. Technology Services staff follow the CalSTRS System Development Life Cycle (SDLC) methodology and processes, which contains appropriate internal controls related to the implementation of START application changes.
2. CalSTRS ensures a roll-back plan is included for all START system change requests. Staff utilize the roll-back plan to restore the system to the prior state in cases where implementation of an application change is unsuccessful.
3. CalSTRS staff monitor START technical environments to assure proper systems operations and daily START batch jobs and reports to assure successful runs.
4. Regularly apply technology updates and patches.
5. CalSTRS conducts disaster recovery (DR) exercises to validate DR solutions are operational.
6. CalSTRS conducts a monthly Allowance Roll Regression Test to assure the monthly process to calculate all benefit recipient payments and deductions is operating as expected during the production run.

**CONTROL B**
For the sub risk of manual processes required due to current system limitations and unknown system defects increasing the risk of paying inaccurate benefit payments, the following controls are now in place:

1. Implementation of business practices and controls required to accurately and efficiently manage additional post-payment review processes to identify outliers for benefits and services.
2. Documentation of processes for handling and reducing use of overrides.

**CONTROL C**
For the sub risk of the inability to deliver timely benefits and services due to incomplete, inaccurate and late employer reporting, the following controls are now in place:

1. Complete Compensation Review Unit reviews.
2. Perform quality assurance reviews for contributions.
3. Continue using Secure Employer Website edits.
4. Enforce and collect penalties & interest per regulations.
5. Enhance employer audits and conduct separate charter school risk assessment.
6. Provide employers training on systemic audit findings.
7. Discontinuation of the use of exception lines for benefit processing.

**RISK: OPERATIONS - EXTERNAL-FRAUD, THEFT, WASTE, MISCONDUCT, VANDALISM**
External parties could obtain access to confidential or sensitive member, employer, staff or operational data.

The causes of this risk may be: external cybersecurity attack; failure of the information security program management/oversight; and/or lack of information security awareness.

As a result, CalSTRS could lose control of information, incur compliance violations, and/or lose the confidence of our members and stakeholders.

**CONTROL A**
For the sub risk of an information security breach or incident at CalSTRS as it relates to cybersecurity the following controls are in place:

1. Conduct annual Independent Cybersecurity Assessment.
3. Conduct ISO internal assessments as it relates to Cybersecurity.
4. Maintain an incident response plan and conduct regular exercises.

**CONTROL B**
For the sub risk of an information security breach or incident at CalSTRS as it relates to information security program management/oversight, the following controls are in place:

1. Establish information security policies to ensure security requirements, controls, and responsibilities are defined.
2. Stay current with security threats, zero day attacks, and industry trends.
3. Conduct annual ISO compliance assessments on adherence to policies and standards.

Control C
For the sub risk of an information security breach or incident at CalSTRS as it relates to the lack of security awareness, the following controls are in place:

1. Continue to expand and enhance awareness of information security
2. Require and provide annual security awareness training course for all employees.
3. Require annual affirmation of CalSTRS Confidentiality, Non-Disclosure, and Acceptable Use Agreement by all employees.
4. Ensure new employee onboarding - Welcome Aboard training includes the security awareness handbook, security awareness training course, affirmation of CalSTRS Confidentiality, Non-Disclosure, and Acceptable Use Agreement.

CalSTRS recognizes that it needs to continue to strengthen mitigation efforts for this risk and intends to develop additional mitigation measures to reduce the residual risk to an acceptable level.

Risk: Operations - Internal - New System Implementation (Other Than $Cal)
CalSTRS is unable to successfully transform, through the Pension Solution project, pension administration business processes and data within established scope, schedule and budget.

Potential causes of this risk include: a lack of acceptance from stakeholders; the vendor is unable to successfully implement the solution; or unanticipated complexities result in schedule extensions that drive the cost of a successful implementation beyond a tolerable range.

A failure to implement the pension solution project will result in loss of the sunken costs to date and a loss of confidence from myriad stakeholders.

Control A
For the sub risk of being unable to get the new system to perform to specifications the following controls are in place:

1. Complete data preparation analysis project, define conversion policies and approach for identified data anomalies, and complete pre-conversion data cleansing
2. Actively administer pension solution risk mitigation strategies.
3. Utilize Independent Project Oversight (IPOC) and Independent Verification and Validation (IV&V) Consultants.
4. Conduct Fit-Gap analysis phase to develop strategies to enhance accuracy of implementation schedule/scope/budget.

Control B
For the sub risk of a failure of Pension Solution project to achieve desired results due to lack of acceptance from stakeholders, the following controls are in place:

1. Perform Change Readiness Assessments.
2. Redefine the project Communication Strategy.
3. Implement the recommendations from readiness assessments and best practices from Enterprise Transition Planning consultants.
4. Provide training to staff and stakeholders throughout the project lifecycle.
**Control C**
For the sub risk of the procured vendor or solution is unable to provide the functionality necessary to meet CalSTRS’ business needs, the following controls are now in place:

1. Active project risk identification and mitigation.
2. Establish and utilize a change control process.
3. Robust testing of requirements and functionality for each functional rollout.
4. Continue communication/information sharing strategy.
5. Ensure continued cross functional participation of impacted areas.

CalSTRS recognizes that it needs to continue to strengthen mitigation efforts for this risk and intends to develop additional mitigation measures to reduce the residual risk to an acceptable level.

**Risk: Operations - External-Funding—Sources, Levels**
The investment portfolio (fund) performance objectives not achieved as set in the Investment Policy and Management Plan.

This could be the result of an unexpected complex and volatile investment environment, an overweighting of several assets classes in the investment portfolio allocation, or large social and or economic events in the worldwide market place.

If this risk occurs it could result in increased contributions by the State, employers and/or member to ensure adequate funding of the Teachers Retirement plan.

**Control A**
For the sub risk of fund not being able to achieve the actuarially expected return over the long term, (30 years/absolute return), the following controls are in place:

1. Coordinate the timing of the asset/liability study and experience study to ensure that the two are in lock-step and that the actuarial investment assumptions reflect the asset allocation policy.
2. Continuous oversight and monitoring of fund and asset class strategies and positions using risk management tools and platforms designed for the unique nature of the underlying securities.
3. Continue to refine use of the existing investment enterprise risk management system in.

**Control B**
For the sub risk of the fund not adding value above the total fund benchmarks returns over the long term (relative return), the following controls are in place:

1. Continuous oversight and monitoring of fund and asset class strategies and positions using risk management tools and platforms designed for the unique nature of the underlying securities.
2. Continue to refine use of the existing investment enterprise risk management system.
3. Monitor costs and operate the CalSTRS Plan in an efficient and cost effective manner to reduce the drag on fund performance.
**Control C**
For the sub risk of not being able to implement strategies and tools necessary to manage risk associated with a more complex and volatile investment environment, the following controls are in place:

1. Recruit and retain well qualified staff with a diverse range of skills.
2. Continuously engage with our Institutional partners and the academic community regarding best practices in risk management. Review suitability and implementation of best practices at CalSTRS.
3. Deploy cross functional/asset class teams with a wide range of expertise and knowledge to review new tools and strategies prior to implementation.
4. Internal stakeholders meet regularly to streamline and enhance existing internal processes for investment related services.

CalSTRS recognizes that it needs to continue to strengthen mitigation efforts for this risk and intends to develop additional mitigation measures to reduce the residual risk to an acceptable level.

**Risk: Reporting - Internal Information Communicated—Adequacy, Accuracy, Interpretation, Timeliness**
Actuarial assumptions may significantly vary from actual experience.

This risk may be caused by incorrect information underlying the actuarial assumptions or the use of invalid actuarial methodologies.

This could result in increased contributions by the State, employers or members to ensure adequate funding of the Teachers Retirement Plan.

**Control A**
For the sub risk of using invalid actuarial methodologies the following controls are in place:

1. Conduct Actuarial audits every five years.
2. Maintain the desk manual and procedures.
3. Follow Actuarial Standards of Practice.
4. Continue to follow Governmental Accounting Standards Board rules associated with assumptions, actuarial methods, and discount rates for financial reporting valuations.

**Control B**
For the sub risk of using incorrect information in the underlying actuarial assumptions, the following controls are in place:

1. Prepare regular experience studies as part of the monitoring plan.
2. Monitor demographic trends as part of annual actuarial valuation process.

**Control C**
For the sub risk of over time the long-term actual experience differing negatively from actuarial assumptions, the following control is in place:

- Closely monitor funding levels and adequacy of contributions as part of annual report to the board reviewing CalSTRS funding levels and risks.
Risk: Operations - External-Funding—Sources, Levels
Contributions rates will be insufficient to amortize the unfunded actuarial liability.
This may be the result of the inadequacy of the board’s authority to raise contribution rates or the board’s failure to exercise the authority it has been given.
This may result in the State of California as the plan sponsor needing to pay benefits after the teacher’s retirement fund has been exhausted.

Control A
CalSTRS implemented the following controls to mitigate this risk:

1. Closely monitor funding levels and adequacy of contributions through the annual actuarial valuation process performed each spring and through the annual report to the board in November reviewing CalSTRS funding levels and risks.
2. Implement enacted funding legislation through 2046 and recommend to the board annually, as part of the annual actuarial valuation, the adoption of new contribution rates for the state, the employers, and members as allowed by statute.

Risk: Operations - External-Political, Reputation, Media
Our members, stakeholders or the general public may lose confidence in CalSTRS as a respected fiduciary of public funds.
This risk may be caused by public perception regarding investment decisions as inappropriate, perceptions of pension spiking abuses going undeterred, unethical behavior by CalSTRS representatives, not meeting member expectations or failing to implement our transformational change efforts.
The result of this risk would be a need to expend resources to share the correct information with the public, CalSTRS implemented the following controls to mitigate this risk.

Control A
For the sub risk of Investments decisions being perceived by interested parties to be imprudent, unethical, and/or in non-transparent manner, the following controls are in place:

1. Follow the crisis communication policy that requires early identification of problems and development of mitigation strategies.
2. Staff continue to meet internally and provide regular updates to the board on Environmental, Social and Governance as well as other sensitive investments issues.
3. Continue to implement the Responsible Contractor policy.

Control B
For the sub risk of inaccurate external reporting of long-term financial assumptions, the following controls are in place:

1. Ensure various assumptions are periodically reviewed, tested and updated.
2. Conduct periodic audit of actuarial procedures.
3. Respond to need for education (i.e. board, media, constituents.)

Control C
For the sub risk of perceived pension abuses (i.e., spiking), the following controls are in place:
1. Conduct thorough investigations of reported abuses (annual whistle blower report).
2. Maintain a robust employer reporting audit program.
3. Enhance internal controls (i.e. Data mining triggering desk reviews).
4. Execute the planned communication strategy regarding pension abuse.
5. Post statistics from the Compensation Review Unit on the CalSTRS.com site to demonstrate ongoing comprehensive efforts to identify and combat spiking.

**Control D**
For the sub risk of CalSTRS not being able to meet member service expectations, the following control is in place:

- Maintain flexible and responsive business management plans to shift resources and workload, where needed.

**Control E**
For the sub risk of CalSTRS representatives engaging in unethical behavior, the following controls are in place:

1. Set strong ethical tone for the organization.
2. Conduct annual training for the board and staff on ethics and fiduciary responsibilities.
3. Monitor ethics hotline.

**Control F**
For the sub risk of CalSTRS failure to implement transformational efforts, such as the pension solution, could impact stakeholders, members, staff and public confidence, the following controls are now in place:

1. Board and/or Management authority and control availability of funds (i.e., Annual spending plan).
2. Integrate lessons learned from other projects and/or failures of similar size and complexity.

CalSTRS recognizes that it needs to continue to strengthen mitigation efforts for this risk and intends to develop additional mitigation measures to reduce the residual risk to an acceptable level.

**Risk: Operations - External - Business Interruption, Safety Concerns**
CalSTRS may be unable to achieve its business objectives.

This risk may occur as a result of a natural disaster or system disruption.

As a result, CalSTRS would be unable to provide mission critical services to our members.

**Control A**
For the sub risk of a disaster or disruption CalSTRS may not be able to provide mission critical business processes, the following controls are being put in place:

1. Develop and release Request for Proposal (RFP) for data center and disaster recovery migration services, including contract award and execution, and implementation of the selected solution.
CalSTRS recognizes that it needs to continue to strengthen mitigation efforts for this risk and intends to develop additional mitigation measures to reduce the residual risk to an acceptable level.

**Risk: Operations - External - Business Interruption, Safety Concerns**
The health or safety of our employees may be compromised.

This risk may result from external parties gaining entry to one of our facilities, a natural disaster, environmental events or unsafe conditions in one of our facilities.

The result of this risk would be that our workforce would be unable to work and therefore unable to accomplish the organization’s mission and business objectives.

**Control A**
CalSTRS implemented the following controls to mitigate this risk.

1. Provide management and oversight of the access to all CalSTRS facilities.
2. Continue risk mitigation strategies to address areas of top concerns identified in the Security Assessment of CalSTRS Headquarters and Member Service Center locations.
3. Continue to enhance employee wellness program at all CalSTRS facilities.
4. Continue performing annual fire drills and training for the building emergency response team (BERT) at all CalSTRS facilities.
5. Conduct regularly planned full building evacuations.

**Risk: Operations - Internal - Staff — Training, Knowledge, Competence**
CalSTRS is unable to meet critical business functions or maintain service levels.

This risk may be caused by the loss of subject matter experts and lack of CalSTRS knowledge transfer.

This risk may result in CalSTRS being unable to meet its business objectives such as member service or transformational change efforts.

**Control A**
CalSTRS implemented the following controls to mitigate this risk.

1. Provide training and development, job shadowing, or rotational assignment opportunities.
2. Acquire temporary positions to support knowledge transfer transition gaps.
3. Continue identifying critical functions and business knowledge loss and determine who will be the back-up.
4. Monitor organization service levels through organizational performance reviews.

CalSTRS recognizes that it needs to continue to strengthen mitigation efforts for this risk and intends to develop additional mitigation measures to reduce the residual risk to an acceptable level.

**Risk: Operations - Internal - Workplace Environment**
CalSTRS may not have adequate office space to house all of its employees at its headquarters.

This risk may result from efforts to reduce outsourced investment management and replace with internal staff and the current increase of personnel needed to support the transformational efforts.
This risk may result in need to find additional space for employees which may increase cost, decrease efficiency, and degrade employee morale and engagement.

**Control A**

CalSTRS implemented the following controls to mitigate this risk:

1. Optimize space by reconfiguring work stations.
2. Explore long-term options for expected growth and/or space needs.
3. Perform stakeholder outreach to solicit support for growth options.
4. Increase participation in workforce telework policy.
5. Monitor work space vacancy report.

CalSTRS recognizes that it needs to continue to strengthen mitigation efforts for this risk and intends to develop additional mitigation measures to reduce the residual risk to an acceptable level.

**CONCLUSION**

The State Teachers’ Retirement System strives to reduce the risks inherent in our work and accepts the responsibility to continuously improve by addressing newly recognized risks and revising controls to prevent those risks from happening. I certify our internal control and monitoring systems are adequate to identify and address current and potential risks facing the organization.

**Jack Ehnes, Chief Executive Officer**

CC: California Legislature [Senate (2), Assembly (1)]
California State Auditor
California State Library
California State Controller
Director of California Department of Finance
Secretary of California Government Operations Agency