

Business Continuity Enterprise Risk Profile				
Enterprise Risk	Owner	Oversight	Category	Prioritization
Business Continuity	Deputy Executive Officer, Operations and Technology	Finance & Administration Committee	Operational	TBD
Strategic Plan Goal and Objective	Under Development			
Functional Objective	CalPERS ability to recover and resume critical business functions in the event of a major business interruption.			
Risk Statement	Inability to recover timely and resume critical business functions following a major business interruption event.			
Risk Driver #1: Lack of agreed upon enterprise prioritization of critical business functions				
Effective Mitigations and Controls In Place: 1.1 Consultant hired to identify critical business functions to the enterprise and define the resources, procedures, and data required to ensure recovery goals are met after a catastrophic event				
Risk Driver #2: Outdated, untested, and hardcopy Division Business Continuity Plans				
Effective Mitigations and Controls In Place: 2.1 Annual review of division business continuity plans (BCPs) 2.2 Division Business Continuity liaisons assist with updating their BCPs and communicating with OSSD Business Continuity staff				
Risk Driver #3: Inability to restore critical business systems within the expected recovery time objectives				
Effective Mitigations and Controls In Place: 3.1 Annual disaster recovery exercises (completed June 2016) 3.2 Dedicated off-site Emergency Operations Center (EOC) 3.3 Contract with an external vendor to perform Disaster Recovery Services				
Risk Driver #4: System changes are not recorded and reported timely to the disaster recovery vendor				
Effective Mitigations and Controls In Place: 4.1 Annual disaster recovery exercises (completed June 2016) 4.2 Vendor has up-to-date technical disaster recovery procedures and has the contractual obligation to bring up my CalPERS within the documented recovery time objective 4.3 Embedded DR support staff in system change control boards to increase awareness and early detection of system customizations 4.4 Added DR impact and recovery documentation updates to change control forms				
Risk Driver #5: Inability to react to an emergency situation				
Effective Mitigations and Controls In Place: 5.1 CalPERS has a defined Incident Command System 5.2 Biennial training, table-top exercises, and simulations 5.3 Emergency Response Program, including Floor Warden and Emergency Response Teams 5.4 CalPERS Executives and select Division Chiefs participate in training at the EOC to discuss management and operations issues and crisis management techniques 5.5 CalPERS Emergency Hotline dedicated for staff to call and receive the status of operations and other emergency information				

Residual Risk	Probability	Impact	Velocity	Rating	Trend
For future development (November 16)					
Future Mitigations					
<p>Risk Driver #1: Lack of agreed upon enterprise prioritization of critical business functions</p> <ul style="list-style-type: none"> • Update master Business Continuity Program that accounts for enterprise priorities and can be executed post a major disruption (2016-17 Business Plan, Goal B, December 2016) 					
<p>Risk Driver #2: Outdated, untested, and hardcopy Division Business Continuity Plans</p> <ul style="list-style-type: none"> • Update Division Business Continuity Plans (2016-17 Business Plan, Goal B, December 2016) 					
<p>Risk Driver #3: Inability to restore critical business systems within the expected recovery time objectives</p> <ul style="list-style-type: none"> • A Spring 2017 Request for Proposal (RFP) will update and modernize CalPERS Disaster Recovery (DR) program and align recovery objectives with the 2-16 updated Business Continuity Plans • Enter into a new Backup and Disaster Recovery Services contract (July 2017) 					
<p>Risk Driver #4: System changes are not recorded and reported timely to the disaster recovery vendor</p> <ul style="list-style-type: none"> • Perform table-top exercises twice per year to ensure Disaster Recovery documents are up-to-date (November 2016 and May 2017) • Enter into a new Backup and Disaster Recovery Services contract (July 2017) 					
<p>Risk Driver #5: Inability to react to an emergency situation</p> <ul style="list-style-type: none"> • Continued training, table-top exercises for CalPERS Team, Division Chiefs and Executives 					

Data Management					
Enterprise Risk Profile					
Enterprise Risk	Owner	Oversight	Category	Prioritization	
Data Management	Chief Financial Officer	Finance & Administration Committee	Operational	TBD	
Strategic Plan Goal and Objective	Under Development				
Functional Objective	To ensure the integrity of CalPERS data and reporting through effective data governance and data quality.				
Risk Statement	Inaccuracy of data and reporting used to make business decisions.				
Risk Driver #1: Lack of data policies, standards, architecture, and procedures					
Effective Mitigations and Controls In Place:					
1.1 Establishment of Data Governance Committee responsible for addressing consistent data usage across key CalPERS reports.					
1.2 Standardization of data established for Comprehensive Annual Financial Report (CAFR) and CalPERS Annual Retirement Summary and Details reports (CARS, CARD)					
Risk Driver #2: Collection of irrelevant, out of date, or erroneous data					
Effective Mitigations and Controls In Place:					
2.1 Establishment of ITSB Data Quality Team to define, monitor, and improve data quality.					
2.2 Change Advisory Board (mCAB) responsible for reviewing and approving Functional Optimization initiatives to promote data quality by addressing root caused gaps in data integrity.					
2.3 my CalPERS Steering Committee responsible for providing governance framework to establish proactive and corrective controls for data management.					
Risk Driver #3: Inadequate preventive or detective controls to ensure data is adequately and completely transmitted to another application system.					
Effective Mitigations and Controls In Place:					
3.1 Automated reconciliation of member activity across CalPERS financial systems					
3.2 Reconciliation of my CalPERS data with PeopleSoft to ensure integrated systems and the proper recording of business transactions.					
3.3 Business logic and data checks on employer data prior to being accepted into database.					
Residual Risk	Probability	Impact	Velocity	Rating	Trend
For future development (November 2016)					
Future Mitigations					
Risk Driver #1: Lack of data policies, standards, architecture, and procedures					
• Development of Data Governance Working Committee charter to define responsibilities for data governance (December 2016)					
Risk Driver #2: Collection of irrelevant, out of date, or erroneous data					
• Availability of reports and system tools to assist employers with fixing data issues (August 2016)					

Risk Driver #3: Inadequate preventive or detective controls to ensure data is adequately and completely transmitted to another application system.

- Improved Contract Provisioning through reconciliations of terms and conditions in employer agreements (June 2018).
- Reduction of manual data corrections by functional area through automated data corrections (September 2018).
- Enhanced staff access controls by establishing procedures to limit access to sensitive data (April 2018).

Information Security Enterprise Risk Profile				
Enterprise Risk	Owner	Oversight	Category	Prioritization
Information Security	Deputy Executive Officer, Operations and Technology	Finance & Administration Committee	Operational	TBD
Strategic Plan Goal and Objective	Under development			
Functional Objective	To ensure CalPERS information assets are safeguarded.			
Risk Statement	Failure to protect and secure information assets from cyber-attack or unauthorized access and use could result in financial loss or harm to CalPERS and its members.			
Risk Driver #1: Lack of staff awareness of information security practices				
Effective Mitigations and Controls In Place:				
1.1 Mandatory Information Security Training - annually for existing employees, and within 90 days of hire for new employees				
1.2 Signed Information Systems Security and Confidentiality Acknowledgement Agreement				
1.3 Online repository for Information Security Control Standards				
1.4 Information Security Awareness communications (Spark, email, Inside CalPERS, posters, and automated phone messages)				
1.5 Staff phishing email education and training exercises				
Risk Driver #2: Inappropriate access to electronic information assets				
Effective Mitigations and Controls In Place:				
2.1 Periodic reviews performed to verify staff access has a justified business need				
2.2 Staff access to my CalPERS and other business systems deleted when no longer needed and when staff transfer to other divisions within CalPERS				
2.3 Role based access for my CalPERS and other business systems limit staff access to only functions needed to perform their job duties				
Risk Driver #3: Failure to adequately respond to a large scale data breach				
Effective Mitigations and Controls In Place:				
3.1 Security Roadmap Program - Security Information Event Management (SIEM) improved security response measures to reduce the risk that compromised systems result in data loss or inappropriate access to data				
3.2 Annual independent penetration tests conducted				
3.3 Information Security Incident Response and Reporting Procedures established to identify, respond, and report Information Security Events and Incidents				
3.4 Annually conduct 3 security tabletop exercises which simulate an actual cyber security event and provides an environment where staff practice their incident and event response readiness				
Risk Drivers #4: Limited ability to detect unauthorized access				
Effective Mitigations and Controls In Place:				
4.1 Security Roadmap Program - SIEM project detects suspicious activity				
4.2 Monitoring of CalPERS systems for unauthorized activity performed 24/7				

Risk Driver #5: Lack of adherence to data retention and records management policies						
Effective Mitigations and Controls In Place:						
5.1 CalPERS Records Retention Policy						
5.2 HIPAA Records Management Practice						
5.3 ISOF Control Standards: Data Classification - Data classification standards and methods are adopted to protect the confidentiality, integrity, and availability of data.						
5.4 ISOF Control Standards: Information Asset Ownership and Custodianship - Each information asset responsibility is inventoried and indentified to include value, ownership, cusotidans, users, classification, categorization, and level of protection						
Risk Driver #6: Inappropriate physical access to information assets						
Effective Mitigations and Controls In Place:						
6.1 CalPERS Physical Security Policy						
6.2 CalPERS Badge Card Policy						
6.3 Two-factor authentication (iris scanner, and special ITSB badge) required for access to sensitive Data Center areas						
6.4 HIPAA Security - Staff Access to Protected Health Information Practice						
6.5 ISOF Control Standards - Portable Devices (e.g. CD's, Laptops, Thumbdrives, Smartphones)						
6.6 All data storage capable devices are either sanitized (wiped) or destroyed						
6.7 Certified confidential document destruction bins located in each division are locked and removed weekly for on-site, witnessed destruction						
6.8 OSSD coordinates quarterly enterprise-wide Badge Access Reviews for all divisions						
6.9 Building Safety and Security communications (email, Inside CalPERS, posters)						
Residual Risk		Probability	Impact	Velocity	Rating	Trend
For future development (November 2016)						
Future Mitigations						
Risk Driver #1: Lack of staff awareness of information security practices						
• Audience specific information security training (March 2017)						
• Interactive information security training (March 2017)						
Risk Driver #2: Inappropriate access to electronic information assets						
• Enhance tracking of CalPERS staff's my CalPERS activity (March 2017)						
• Security Roadmap Program - Enterprise Identity System will enhance the management of information access (June 2017)						
Risk Driver #3: Failure to adequately respond to a large scale data breach						
• Enhance risk mitigation strategies to enhance management of security events, access to information and data loss prevention to safeguard information assets (2016-17 Business Plan, Goal B, June 2017)						
• Evaluate cybersecurity insurance to help offset the monetary damage CalPERS would incur in the event of a large scale data breach (January 2017)						
Risk Drivers #4: Systems limited ability to detect unauthorized access						
• Security Roadmap Program - Two Factor Authentication will enhance the verification of the identities of people accessing CalPERS data (June 2017)						
• Security Roadmap Program - Enterprise Identity System will improve the management of identities and access to data (June 2017)						
• Enhance tracking of CalPERS staff's my CalPERS activity (March 2017)						
Risk Driver #5: Lack of adherence to data retention and records management policies						
• Enterprise Information Asset Classification project (June 2018)						

Operational Efficiency				
Enterprise Risk Profile				
Enterprise Risk	Owner	Oversight	Category	Prioritization
Operational Efficiency	Deputy Executive Officer, Operations and Technology	Finance & Administration Committee	Operational	TBD
Strategic Plan Goal and Objective	Under development			
Functional Objective	To meet our fiduciary responsibility by actively ensuring all business processes are operating in the most cost-effective and efficient manner.			
Risk Statement	Inability to meet CalPERS strategic and business objectives in a cost-effective and efficient manner.			
Risk Driver #1: Competing priorities				
Effective Mitigations and Controls In Place:				
1.1 CalPERS 2015-17 Business Plan				
1.2 Divisional Work Plans				
1.3 IT Governance Committees				
1.4 Formal Budget Requests				
Risk Driver #2: Utilization of performance data to make decisions				
Effective Mitigations and Controls In Place:				
2.1 Workforce Allocation System				
2.2 Business Intelligence				
Risk Driver #3: Inefficiencies due to decentralized and siloed operations				
Effective Mitigations and Controls In Place:				
3.1 Process improvement efforts, including Lean Six Sigma projects				
3.2 Cost Effectiveness Measurement (CEM) evaluation				
3.3 Internal communications and innovation, including Spark, CalPERS Insider, and cross-functional councils				
Risk Driver #4: System complexity				
Effective Mitigations and Controls In Place:				
Plan design and complexity addressed in Benefit Administration Risk Profile				
Risk Drivers #5: Reliance on external vendors and contracting				
Effective Mitigations and Controls In Place:				
5.1 Automation of requisitions, including electronic approvals, with the implementation of PeopleSoft				
5.2 Knowledge transfer contract requirement				

Residual Risk	Probability	Impact	Velocity	Rating	Trend
For future development (November 2016)					
Future Mitigations					
Risk Drivers #5: Reliance on external vendors and contracting					
• External Manager Monitoring, Expectations, and Reduction Strategy (June 2017)					

Pension Funding Enterprise Risk Profile				
Enterprise Risk	Owner	Oversight	Category	Prioritization
Pension Funding	Chief Financial Officer, Chief Actuary, Chief Investment Officer	Finance & Administration Committee, Investment Committee	Strategic	TBD
Strategic Plan Goal and Objective	Under development			
Functional Objective	To ensure the sustainability of the pension system by achieving the funded status required to meet financial obligations.			
Risk Statement	Failure to meet benefit obligations to current and future members and beneficiaries.			
Risk Driver #1: Accuracy of actuarial assumptions, including discount rate				
Effective Mitigations and Controls In Place:				
1.1 Board Review of actuarial assumptions, asset allocation strategy.				
1.2 Board reviews policies on Actuarial Methods every four years.				
1.3 Actuarial Board Policy allows flexibility to adjust amortization schedules as needed.				
Risk Driver #2: Length of amortization schedule				
Effective Mitigations and Controls In Place:				
2.1 Actuarial Amortization Policy				
Risk Driver #3: Asset cash flows and the liability cash flows are mismatched				
Effective Mitigations and Controls In Place:				
3.1 Treasury Management Policy helps match asset and liability cash flows				
3.2 Assets invested to offset the liabilities in amount and timing for Terminated Agency Pool				
3.3 Asset Liability Management four-year cycle				
Risk Driver #4: Liability volatility and uncertainty				
Effective Mitigations and Controls In Place:				
4.1 Actuarial Smoothing Policy				
Risk Driver #5: Employer ability to meet obligations				
Effective Mitigations and Controls In Place:				
5.1 Enhanced employer contracting process				
5.2 Termination process				
5.3 Employer education				

Risk Driver #6: Adverse economic and capital market conditions negatively impact expected returns

Effective Mitigations and Controls In Place:

- 6.1 Strategic and tactical portfolio positioning includes broad diversification of assets
- 6.2 Investment Strategy Group, Portfolio Allocation Subcommittee.
- 6.3 Processes established by INVO Programs, including Asset Allocation and Investment Risk and Performance
- 6.4 CalPERS Board reporting controls in place, including biannual (February and August) CalPERS Trust Level Review, to provide summary level economic views, market analysis, portfolio risk, and performance for the CalPERS Funds.
- 6.5 INVO Roadmap Initiatives and Target Operating Model
- 6.6 Funding Risk Mitigation Policy

Residual Risk	Probability	Impact	Velocity	Rating	Trend
For future development (November 2016)					

Future Mitigations

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Risk Driver #5: Employer ability to meet obligations

- Enhanced employer monitoring process (TBD)

Stakeholder Confidence

Enterprise Risk Profile

Enterprise Risk	Owner	Oversight	Category	Prioritization
Stakeholder Confidence	Deputy Executive Officer, Communications and Stakeholder Relations	Finance & Administration Committee	Strategic	TBD
Strategic Plan and Goal Objective	Under development			
Functional Objective	To ensure CalPERS is recognized as a respected and trusted steward of the system and fiduciary in delivering retirement and health benefits by its members, employers and stakeholders.			
Risk Statement	Inability to maintain stakeholder confidence in CalPERS as a trusted fiduciary.			

Risk Driver #1: Negative, inaccurate, or unbalanced media reporting

Effective Mitigations and Controls In Place:

- 1.1 Implement a proactive, positive narrative of CalPERS actions and policies through all communications channels
- 1.2 Respond and correct negative, inaccurate, or unbalanced reporting in a proactive and timely manner
- 1.3 Develop and maintain good working relationships with media outlets covering CalPERS
- 1.4 Author op-ed's on key CalPERS actions, views, or policy changes where appropriate
- 1.5 Monitor and report on the perception of CalPERS in the media to identify opportunities and challenges
- 1.6 Leverage CalPERS leadership and program experts to help tell CalPERS story

Risk Driver #2: Negative public perception of CalPERS investment, pension, and health benefit decisions

Effective Mitigations and Controls In Place:

- 2.1 Implement a proactive, positive narrative of CalPERS actions and policies through all communication channels
- 2.2 Demonstrate the value of CalPERS programs and its impact on the CA and global economy through the economic impact of pension payments, California investments, ESG, corporate governance, proxy voting, and health care initiatives
- 2.3 Leverage CalPERS Ambassador Program and member associations to help tell CalPERS story
- 2.4 Fulfill all Public Record Act requests to demonstrate transparency

Risk Driver #3: Negative national perception of public defined benefit plans

Effective Mitigations and Controls In Place:

- 3.1 Involvement in national public pension associations: NASRA and NCPERS
- 3.2 CalPERS research on retirement
- 3.3 Dissemination of CalPERS reports on positive economic/retirement security impacts of defined benefit plans
- 3.4 Federal consultants to engage with Federal level policy-makers on retirement security, health care, and investments

Risk Driver #4: CalPERS failure to engage, educate, and inform members, employers, and stakeholders

Effective Mitigations and Controls In Place:

- 4.1 Outreach and engagement strategy to increase visibility and public presence of CalPERS leadership in the media and among stakeholders
- 4.2 Digital Communications Roadmap and toolkit
- 4.3 Employer information events: Executive Employer Visits, Employer Response Dialogue, CalPERS Educational Forum and School Employer Advisory Committee
- 4.4 Provide accurate information and guidance to members through CalPERS Benefits Education Events (CBEE)
- 4.5 Monthly Stakeholder Engagement Briefings for representatives from business partners such as employer associations, individual employer agencies, labor unions, retiree groups and health constituents
- 4.6 Surveying to assess stakeholder satisfaction
- 4.7 Forms and publications to effectively communicate vital issues to stakeholders
- 4.8 Live webcasts of board meetings
- 4.9 Webinars and webcasts, including Board education resources on our website to keep our stakeholders and members informed
- 4.10 Social media channels: Facebook, Twitter, YouTube, and Instagram

Risk Driver #5: Inability to inform and shape legislation

Effective Mitigations and Controls In Place:

- 5.1 Inform legislative leaders, key committee chairs and vice chairs, and consultants about issues that could impact CalPERS reputation
- 5.2 Build alignment and relationships between CalPERS executive team and key legislative leaders
- 5.3 Hold periodic briefings to educate Legislative Members and staff on important CalPERS issues
- 5.4 Maintain a responsive and effective legislative constituent help desk within Legislative Affairs Division
- 5.5 Monitor proposed legislation and generate analysis to reasonably assess impacts to CalPERS and stakeholders

Residual Risk	Probability	Impact	Velocity	Rating	Trend
For future development (November 2016)					

Future Mitigations

Risk Driver #5: Inability to inform and shape legislation

- Elected Officials toolkit (February 2017)