0001 1 2 3 NEW YORK CITY TEACHERS' RETIREMENT SYSTEM 4 BOARD MEETING 5 6 Held on Thursday, November 17, 2022 via 7 Videoconference 8 3:44 p.m. 9 10 ATTENDEES: 11 DEBRA PENNY, Chairperson, Trustee 12 DAVID KAZANSKY, Trustee 13 ALISON HIRSH, Trustee, Comptroller's Office THOMAS BROWN, Trustee 14 15 BRYAN BERGE, Trustee, Mayor's Office VALERIE BUDZIK, Teachers' Retirement System 16 17 THAD McTIGUE, Teachers' Retirement System 18 LIZ SANCHEZ, Teachers' Retirement System 19 ISAAC GLOVINSKY, Teachers' Retirement System 20 KAVITA KANWAR, Teachers' Retirement System 21 KATE CHEN, Teachers' Retirement System 22 ANNETTE HANRAHAN, Teachers' Retirement System 23 BOB GRAY, Teachers' Retirement System REPORTED BY: 24 YAFFA KAPLAN 25 JOB NO. 8839039 0002 1 2 ATTENDEES (Continued): SUSAN STANG, Teachers' Retirement System 3 NATARAJAN KRISHNAMOORTHY, Teachers' Retirement 4 5 System 6 ANDREW BRADFORD, Teachers' Retirement System 7 BILL BENSON, Teachers' Retirement System RENEE PEARCE, Teachers' Retirement System 8 9 MAREK TYSZKIEWICZ, Office of the Actuary 10 MITCHELL FRUCHTER, Teachers' Retirement System ISAAC GLOVINSKY, Teachers' Retirement System 11 DARREN TROTTER, New York City Law Department 12 PAUL RAUCCI, Teachers' Retirement System 13 ROBERT BETHELMY, Teachers' Retirement System 14 15 DAN WHITMAN 16 JOE EBISA 17 VICTORIA LEE DINA SIMON 18 MEIR SCHECHTER 19 20 SHARON CAMPBELL, Grant Thornton 21 ANDY ZMICH, Grant Thornton 22 CECILLE PUBLICO, Grant Thornton 23 PATTY IACONO, Grant Thornton 24 BRIAN HARDY, Grant Thornton 25 WILL RICHARDSON, Grant Thornton 0003

1 Proceedings 2 MS. REILLY: Good afternoon. Welcome to 3 the Board meeting of the Teachers' Retirement 4 Board for November 17, 2022. I will start by 5 calling the roll. 6 Bryan Berge? 7 MR. BERGE: Present, representing Mayor 8 Adams. 9 MS. REILLY: Thomas Brown? 10 MR. BROWN: Here. Good afternoon, 11 Patricia. 12 MS. REILLY: Good afternoon. Serrita 13 Scott? Alison Hirsh? 14 MS. HIRSH: Here, representing 15 Comptroller Brad Lander. 16 MS. REILLY: David Kazansky? 17 MR. KAZANSKY: Present. 18 MS. REILLY: Debra Penny? 19 MS. PENNY: I am present. 20 MS. REILLY: We have a quorum. 21 So the first item on our agenda is an 22 update on TRS operations, and Kavita Kanwar is 23 going to give us that update. 24 MS. KANWAR: Thank you, Patricia. TRS 25 has updated the individual limits for member 0004 1 Proceedings 2 contributions for the TDA program in 2023. The IRS recently announced that the general 3 4 limit will be 22,500 for next year, which is 5 an increase of 2,000 dollars, and the catchup 6 limit will be 7,500, an increase of 1,000 7 dollars. 8 During November, TRS also sent an e-mail 9 blast to noncontributing members to make them aware of our TDA program. TRS is in the 10 11 process of generating nearly 127,000 account 12 statements for the third quarter of 2022. 13 Members will be notified via e-mail blast as 14 these are made available for viewing on the 15 TRS website. In addition, account statements 16 were posted online and mailed to approximately 17 62,000 retired members with their TDA accounts 18 and 1,400 TDA beneficiary participants. Thank 19 vou. 20 MS. PENNY: Thank you. 21 MS. REILLY: Thank you. Next on the 22 agenda is the executive director's report. 23 The first item on the executive director's 24 report is the next meeting, which was 25 scheduled for Thursday, December 15, 2022. 0005 1 Proceedings 2 Please mark your calendars.

3 The next item is an approval of the 2023 4 Shareholder Proposal Plan. So --5 MR. KAZANSKY: Please skip to the 6 resolved. I was looking for it. I apologize. 7 MS. REILLY: "Resolved, that the Board 8 hereby ratifies the Committee's approval of 9 the Plan and authorizes the Office of the New 10 York City Comptroller to submit the specified shareholder proposals on the focus list 11 12 submitted to the Committee." 13 MS. PENNY: Thank you. Do I hear a 14 motion? 15 MR. BROWN: So moved. 16 MS. PENNY: Thank you, Mr. Brown. Do I 17 hear a second? 18 MR. BERGE: Second. 19 MS. PENNY: Thank you, Mr. Berge. Any 20 questions for Patricia about this? Okay. All 21 those in favor, please say aye. 22 Aye. 23 MR. BERGE: Aye. 24 MR. BROWN: Aye. 25 MR. KAZANSKY: Aye. 0006 Proceedings 1 2 MS. HIRSH: Aye. 3 MS. PENNY: Any opposed? Any 4 abstentions? Okay. Motion carries. MS. REILLY: Next is the adoption of the 5 6 Excess Benefit Plan Trust document. 7 MR. KAZANSKY: Please skip to the 8 resolved. MS. REILLY: "Resolved, that the Board 9 10 of Trustees adopts the annexed Qualified 11 Excess Benefit Arrangement Plan and Trust; and 12 be it further resolved, that the Board 13 delegates to the Executive Director or her 14 designee, as appropriate, the authority to 15 take administrative actions necessary to 16 manage the Excess Benefit Plan including the 17 payment of benefits from the Trust. 18 MS. PENNY: Thank you, Patricia. Do I 19 hear a motion to adopt the Excess Benefit Plan 20 Trust document? 21 MR. KAZANSKY: So moved. 22 MS. PENNY: Thank you, Mr. Kazansky. Do 23 I hear a second? 24 MS. HIRSH: Second. 25 MS. PENNY: Thank you, Ms. Hirsh. Any 0007 1 Proceedings 2 questions? 3 MR. BERGE: No questions. I just wanted 4 to note for the record that at another system

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there was an extensive discussion of this
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     document which I enjoyed more than anyone. I
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     am confident that this is a good step for TRS
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     to undertake with respect to the Excess
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     Benefit Plan.
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           MS. PENNY: Okay. All those in favor,
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    please say aye.
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           Aye.
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           MR. BERGE: Aye.
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           MR. BROWN: Aye.
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           MR. KAZANSKY: Aye.
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           MS. HIRSH: Aye.
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           MS. PENNY: Any opposed? Any
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     abstentions? Okay. Motion carries.
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           MS. REILLY: Next is attendance at a
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     conference. The following resolution is
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    presented for consideration and possible
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    adoption: "Resolved, that the Trustees of the
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    Teachers' Retirement Board hereby approve the
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     attendance and participation of the Executive
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    Director and/or her designees and any
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    interested Trustee at the National Conference
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     of Public Employee Retirement Systems 2023
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    Legislative Conference from January 22nd
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    through January 24, 2023."
           MS. PENNY: Thank you, Patricia. Do I
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    hear a motion to approve the attendance at
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     conference?
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           MR. BROWN:
                      So moved.
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           MS. PENNY: Thank you, Mr. Brown. Do I
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     hear a second?
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           MR. KAZANSKY: Second.
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           MS. PENNY: Any questions? All those in
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     favor, please say aye.
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           Aye.
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           MR. BERGE: Aye.
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           MR. BROWN: Aye.
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           MR. KAZANSKY: Aye.
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           MS. HIRSH: Aye.
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           MS. PENNY: Any opposed? Any
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     abstentions? Okay. Attendance is approved.
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     I would say anyone who is interested just tell
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     Patricia or Liz, and they will put you on the
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     list.
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           MS. REILLY: So next is the calendar,
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    and the first item on the calendar is the
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     approval of the following minutes which we
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     only have one, which is the October 20, 2022
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     Board meeting minutes.
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           MS. PENNY: Do I hear a motion to
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     approve the October 20, 2022 Board minutes?
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          MR. BROWN: So moved.
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          MS. PENNY: Thank you, Mr. Brown. Do I
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    hear a second?
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          MR. BERGE: Second.
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          MS. PENNY: Thank you, Mr. Berge.
                                             All
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    those in favor, please say aye.
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          Aye.
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          MR. BERGE: Aye.
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          MR. BROWN: Aye.
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          MR. KAZANSKY: Aye.
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          MS. HIRSH: Aye.
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          MS. PENNY: Any opposed? Any
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     abstentions? They are approved.
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          MS. REILLY: Next are the calendar
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    items. You all received an electronic copy of
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    those calendar items.
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           MR. KAZANSKY: Please waive the reading
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    of the calendar.
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          MS. REILLY: Thank you.
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          MS. PENNY: Do I hear a motion to
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     approve the calendar items?
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          MR. KAZANSKY: So moved.
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          MS. PENNY: Thank you, Mr. Kazansky. Do
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    I hear a second?
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          MR. BROWN: Second.
          MS. PENNY: Thank you, Mr. Brown. Any
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    questions about the calendar? All those in
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    favor, please say aye.
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          Aye.
          MR. BERGE: Aye.
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          MR. BROWN: Aye.
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          MR. KAZANSKY: Aye.
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          MS. HIRSH: Aye.
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          MS. PENNY: Any opposed? Any
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    abstentions? The calendar passes.
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          MS. REILLY: Okay. Next under other
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    business we have a financial presentation from
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    Grant Thornton. I believe they are here
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    virtually.
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           MS. CAMPBELL: Hello. Good afternoon,
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     everybody. For those who don't know me, I am
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    Sharon Campbell. I am a managing director in
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    Grant Thornton's employee benefit plan audit
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    practice. I served as the lead engagement
    partner on the Teachers' Retirement System of
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    the City of New York for this year as well as
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    the last two years. I appreciate this
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    opportunity to present to you today the
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     required communications, those charged with
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9 governance, and first and foremost, before I 10 share this presentation, I would like to thank 11 management for all their assistance on this 12 year's audit, as well as their transparency 13 and their commitment to quality and reporting 14 excellence, which is integral to the timely 15 completion of this year's audit. 16 With that, I am going to share my 17 screen. I am going to move some things around 18 here. Okay. Can everyone see my screen? 19 MR. BROWN: Yes. 20 MS. CAMPBELL: Okay, perfect. So 21 everybody should have received this package 22 electronically. So we are going to go over 23 some highlights. Here with me today are my 24 manager Patsy Iacono and Will Richardson as 25 well as Brian Hardy from our ITAS group, Andy 0012 1 Proceedings 2 Zmich from our actuarial specialist group, and Cecille Publico from our investment specialist 3 4 group. 5 Okay. So this slide is just the 6 timeline of our audit and our scope. I am not 7 going to go into detail here, but the 8 fieldwork here is primarily performed during 9 June to October time frame, and the 10 deliverables meet the October 26, 2022 11 deadlines. Okay. 12 So we are required to communicate the 13 responsibilities. The responsibilities for 14 those charged with governance are overseeing 15 the financial reporting process, setting a 16 positive tone at the top, and challenging the plan's activities in the financial arena, 17 18 discussing significant accounting and internal 19 control matters with management, informing us 20 about fraud or suspected fraud, including your 21 views about fraud risks, informing us about 22 other matters that may be relevant to our 23 audit. Management is responsible for preparing 24 25 and fairly presenting the financial statements 0013 1 Proceedings and any required supplementary information; 2 3 designing, implementing and maintaining 4 internal controls relevant to the preparation 5 of the financial statements; maintaining 6 sufficient records with respect to 7 participants; communicating significant 8 accounting and internal control matters to 9 those charged with governance, and also 10 informing us about any fraud, illegal acts,

significant deficiencies, or material 11 12 weaknesses in internal controls. 13 Now, our responsibilities as your 14 independent auditors are to obtain reasonable 15 assurances about whether the financial 16 statements as a whole are free from material 17 misstatement, whether due to fraud or error, 18 as well as issuing an auditor's report that 19 includes our opinion. We approach our audit 20 using a risk-based approach, identifying 21 significant risks as well as other areas of 22 risk. The presumed fraud risk of management 23 override of internal controls over financial 24 reporting is considered a significant risk. 25 The results of that risk are we obtain an 0014 1 Proceedings 2 understanding of the financial reporting 3 process and controls over the journal entries 4 and any other adjustments as well as the 5 suitability of design and implementation of 6 such controls. We make inquiries of 7 individuals involved in the financial 8 reporting process about inappropriate or 9 unusual activity relating to the processing of 10 journal entries and other adjustments. We 11 also consider fraud indicators, the nature and 12 complexity of accounts and entries processed outside of the normal course of plan 13 14 operations, and then based on the procedures 15 performed, the controls appear to be designed 16 and implemented appropriately, and individuals 17 appear to have the appropriate authorization 18 rights. There were no significant exceptions 19 identified in this area. 20 Does anybody have any questions so far? 21 I will move forward. Okay. 22 Our other areas of focus include 23 investment and investment income. So we 24 confirm investment positions, we evaluate the 25 reasonableness of the fair value disclosures. 0015 1 Proceedings 2 We test a sample of investments held at 3 year-end to determine the reasonableness of 4 the reported fair values. We also test a 5 sample of purchases and sales throughout the 6 year to also determine the reasonableness of 7 the fair values as well as investment-related 8 income including net appreciation and 9 depreciation in the fair values. We also 10 evaluate the reasonableness of investment 11 expenses. During the year we identify, 12 similar to the prior year, a proposed

13 adjustment related to a lag in reporting for 14 alternative investment fair value. 15 Another area of focus is member 16 contributions. We test the completeness of 17 the population of member contributions, and 18 then we select a sample of member 19 contributions to determine eligibility to 20 contribute and whether member contributions 21 amounts are appropriately calculated and 22 withheld in accordance with plan provisions. 23 Another area of focus includes benefit 24 payments. So again, we test the completeness 25 of the population of benefit payments, and 0016 1 Proceedings 2 then on a sample basis we select benefit 3 payments and review supporting documentation 4 and calculations to determine whether the 5 member was eligible to receive the benefit 6 payment as well as the type of withdrawal 7 requested, that the benefit payments were 8 appropriately authorized, and that benefit 9 payments are calculated in accordance with 10 plan provisions. We also test the total pension liability by testing the completeness 11 12 and accuracy of the census data. We assess 13 the reasonableness of the actuarial 14 assumptions used and inputs used in the 15 calculation of the pension liability, and we 16 select a sample of members included in the 17 census data using a change testing approach 18 and testing the accuracy of the selected 19 demographic data. Other areas of focus 20 include member loans and compliance with 21 relevant plan provisions, ITGCs, and the 22 adequacy of disclosures in the financial 23 statements. 24 This year we used specialists in Okay. 25 our compensation benefits consulting practice. 0017 1 Proceedings 2 They reviewed the -- with the assistance of 3 our actuaries, inhouse actuaries, they reviewed the reasonableness of actuarial 4 5 assumptions and methods used to determine the 6 total pension liability. We also used our 7 New York pricing group to assist us in the 8 valuation of investments. Further, we used 9 the subcontractor Galleros Robinson. For the 10 significant risk that was identified,

11 management override over internal control, we 12 used whole ledger analytics. So we performed 13 whole ledger analytics on all of the journal 14 entries, both manual and automated, that

assist us in pinpointing transactions that may 15 16 appear to have a higher risk of management 17 override. This cumulative risk score is 18 generated based on how individual transactions 19 perform against 38 different routines which 20 have been designed to identify unusual 21 transactions or those that could indicate 22 fraud. For the entries that we tested, we 23 obtain the underlying support. We evaluate 24 the validity in the normal course of business 25 and then obtain evidence of approval. We did 0018 1 Proceedings 2 not identify any significant exception as it 3 relates to the journal entry testing. 4 As always, cybersecurity, ITGCs, and segregation of duties are a hot topic. 5 This 6 slide is just here to remind us all of all of 7 that. Okay. From an ITGC perspective, the 8 in-scope systems are outlined here. Our areas 9 of focus included security administration, program maintenance, program execution, 10 technology operations and cybersecurity. 11 12 This year, similar to last year, we 13 issued an unmodified clean opinion. We do 14 note that the system adopted GASB Statement 15 Number 87 related to leases and Number 98 16 related to benefit plan reporting. There were 17 no scope limitations identified. There was 18 open and effective communication with 19 management and any internal controls, and best 20 practice recommendations have been and/or will 21 be discussed with management. We expect that 22 the Annual Comprehensive Financial Report will 23 be issued sometime within the third -- on or 24 around the third week of December 2022 and 25 will include the GFOA certificate of 0019 1 Proceedings 2 achievement for the 2021 ACFR. Okay. On page 5 of Section 3 of your report, 3 4 we outline the summary of audited adjustments. 5 Again, the primary nature of the adjustments 6 was due to a reporting lag for the alternative 7 investments as well as a reclass. Management 8 believes that the effects of unrecorded 9 adjustments are immaterial both individually 10 and in the aggregate to the financials as a 11 whole and we concur. Okay. 12 We are also required to communicate to 13 you the following matters of which for the 14 most part we are not aware: Not aware of any 15 going concern matters. We are not aware of 16 any fraud or noncompliance with any laws or

17 regulations. Not aware of any significant 18 deficiencies or material weaknesses in 19 internal control over financial reporting or 20 the use of other auditors as it relates to the 21 financial reporting. We did not use internal audit. Related party or related party 22 23 transactions are appropriately disclosed in 24 the financial statements. There were no 25 significant or unusual transactions. 0020

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2 I am pleased to report we had no 3 disagreement with management or significant 4 issues that were discussed with management. 5 We are not aware of any consultations 6 management had with other accountants as it 7 relates to financial reporting or the 8 financial reporting practices or policies. 9 There were no significant difficulties that we 10 have encountered during our audit or any 11 difficulty or contentious matters that we 12 would need to consult with you on. There were 13 no modifications to the audit report.

14 We are also required to communicate to you the quality of the control practices. So 15 16 significant accounting policies are detailed 17 in the notes to the basic financial 18 statements. They are considered appropriate 19 in all material respects and consistent with 20 the prior year. The most significant 21 estimates are the fair value of investments 22 and total pension liability and the related 23 disclosures. We have assessed the financial 24 statement disclosures for clarity and 25 completeness, and the footnote disclosures to 0021

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the financial statements appear to be informative, consistent, and clear. We used this year a number of different tools that we have including Convene, DB Census Automation Tool, IDEA, T-Beam, whole ledger analytics, and DataSnipper to assist us in audit execution.

9 And then finally, we have our commitment 10 to promote ethical and professional 11 excellence. So we share with you our ethics 12 point URL link in the event that you become 13 aware or would like to communicate any matters 14 that you have identified. With that, I will 15 open it up to any questions that anyone might 16 have.

MS. PENNY: Wow. You don't even need a drink of water, Sharon, after all that? 19 MS. CAMPBELL: I absolutely do. 20 MS. PENNY: Any questions or does anyone want to hear Sharon say that again? Thank you 21 22 so much. 23 MS. CAMPBELL: Absolutely. Thank you 24 very much. And if you all have any questions, 25 just feel free to reach out at any time. 0022 1 Proceedings 2 MS. REILLY: I just want to thank 3 Mitchell and his staff for all their work on 4 that. 5 Next on the agenda and before we begin 6 -- you can come and sit, but I just wanted to 7 give you an overview for some of our newer 8 trustees. I know our Teachers trustees are 9 aware because they have been here for years, 10 Segal, we have here is -- Meir is our 11 independent verification and validation 12 auditor for our modernization project. So I 13 just wanted to go over a little history of the 14 modernization project for those of you who 15 don't know what it is. 16 So back in around 2014, the Teachers' 17 Retirement System realized that our legacy 18 system needed to be replaced because it was 19 brittle, difficult to enhance, as well as the 20 fact that the vendors supporting the 21 technology that we were using were really 22 pulling away, not offering to service us any 23 longer. So we made a presentation to the 24 then-board in order to be able to go out and 25 do an RFP in order to replace our legacy 0023 1 Proceedings 2 computer system. We did that RFP, and we 3 selected a company named Sagitec. Sagitec 4 came to us as thought leaders to work side by 5 side with our IT department to develop a new 6 computer system that came with a framework 7 which was newer technology and then that would 8 take -- you know, take the communication 9 engine, the read/write engines, the things 10 that old programming used to make you have to 11 cull yourself and that was in a package. So 12 we felt that was a great technology that would 13 reduce the development effort on our side, and 14 we moved forward with the project. 15 The goals of the project were first to 16 provide a self-service to our members so that 17 they could get on the website and request any 18 process that they wanted completed online at 19 any time of night or day so they didn't have

20 to submit a paperwork form to TRS and then

wait to hear back from us. So we wanted a 21 22 self-serve engine, and we also wanted to do 23 straight-through processing. In our legacy 24 system, a lot of processes, you know, had to 25 go from one desk to a paper or from one desk 0024 1 Proceedings 2 to another and the computer system it has all 3 the data that it needs and it has all the 4 information it needs and the rules. Then we 5 should be able to process work straight 6 through, and instead of being paper pushers, 7 TRS staff would become problem solvers. Only 8 those more complex exception processes would 9 fall out for human beings to have to deal 10 with. The rest would go straight through, 11 making us more efficient, and helping to 12 ensure the quality. 13 And so I mean, I have some other -- you 14 know -- we wanted to also -- there were a lot 15 of points for TRS in processing the data in 16 the legacy system that we wanted to be able to 17 address in our new system, and we wanted to 18 create something like a data warehouse. 19 Instead of having every report that every 20 staff person at TRS went and created and they 21 would have to go to IT for it and IT would 22 have to develop the reports, we would create a 23 data warehouse that had a business view of our 24 data where if you were a staff person, you 25 would be able to go select pieces of 0025 1 Proceedings information and generate that for yourself. 2 3 So those were some of the things that we 4 wanted to do. 5 We decided to take a phased approach. 6 So we had six phases. We are at -- we are 7 about to complete Phase 5, but I will say to 8 you Phase 6 is our biggest phase and has the most complex of our processes in it. 9 So we 10 are about to begin that. So when we 11 originally started -- and we did things -- we 12 did implementations in phases like almost like 13 a big bang which was meaning we developed all 14 the functionality and then put it in in one 15 big bang. 16 When we implemented Phase 4, which is 17 our death benefit process and some other 18 processes regarding death benefits, when we 19 implemented it, it was actually late to get to 20 implementation, and once we implemented it, 21 the quality was really problematic. And it 22 really at that time was causing reputational

23 risk for us. We had beneficiaries 24 complaining. So I had to stop development on 25 the core modernization project and pull the 0026 1 Proceedings 2 resources off to help to stabilize that phase 3 in order to be able to service our 4 beneficiaries better and to ensure that the -that the benefits that were being processed 5 6 were being processed accurately and correctly. 7 So that was a delay that happened in the 8 project. 9 We also had some delays based on COVID. 10 Not that COVID -- we were working very 11 efficiently during COVID, but we had to stop 12 work on modernization in order to quickly 13 provide online forms so that members in their 14 home could like do what we had envisioned or 15 we had to do it very quickly and get all our 16 online forms up and running so that members 17 could be requesting loans, service purchase, 18 anything that they -- any process that they 19 wanted to perform, they could do it in their 20 home because we were closed for business in 21 person. So we had to pull a lot of resources 22 off to do that. 23 We also had to pull resources off to do 24 the CARES Act which also we had to develop 25 that. We also were given the gift of Gulino, 0027 1 Proceedings 2 which we did get funding for Gulino to do the work, but the estimates that we based our 3 Gulino estimates on was the fact that, you 4 5 know, we would receive the data, we would 6 process the data electronically and then 7 provide the benefits. We found that the 8 special master had a lot more different ideas 9 that we never thought of so we -- you know, in addition, some of the quality of the data just 10 because of the nature of the fact that this is 11 12 made-up data, you know, has caused us to have 13 to spend more time on Gulino than we had 14 originally anticipated. So those resources 15 that we moved to Gulino are now freeing up and 16 coming back to work with us on the 17 modernization. 18 So for those reasons, I just want to let 19 you know that you should expect from me -- I 20 will say this. The project is funded 72 21 percent out of the TDA fund, the expense fund 22 for the TDA, and only 28 percent from city 23 money. So I do just want to caution that

probably in the next budget year, because of

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all those delays and the problems that we 25 0028 1 Proceedings 2 anticipate -- we had, which are pretty common 3 on projects of this size and complexity, we 4 will probably have to come back and ask for a 5 little bit more money, and I will be 6 presenting that to the budget committee and 7 then to the Board. But so I just want to give 8 you all a background before Meir gives you his 9 IV & V report, the health of our project. 10 MS. PENNY: Before you do it, I want to 11 thank TRS for all their work. Patricia 12 mentioned a few of the things, the CARES Act, 13 the SECURE Act, the COVID bill where they had 14 to then rail --15 MS. REILLY: Accidental disability. 16 MS. PENNY: There are so many things 17 that -- the para bill that all of sudden they 18 had to pull all the paras in the pension bill. 19 Not a day goes by that we don't talk to TRS 20 about some issue we are having or some new 21 bill that's come up and they have to stop what 22 they are doing and then work on it. 23 And a special thanks during the COVID 24 when they put everything online for our 25 members. There was not a day that we couldn't 0029 1 Proceedings 2 They quickly -- I have never seen reach them. 3 anything so fast -- were able to retire at home at a moment's notice. All of that. So 4 5 admirable. We just can't thank you enough and found a way that our members could go online 6 7 and do virtual appointments and change the 8 call center, you know, Ask TRS, there are so 9 many things, and we keep getting updates every 10 couple of weeks about the modernization 11 project but then we throw something else that 12 our members need and they are able to kind of work quickly and get it. So we thank you for 13 14 all your hard work. Just don't ask us for any 15 more money. Just kidding. 16 MR. SCHECHTER: Somehow or another, my 17 presentation is supposed to go on there. Liz, 18 are you hearing me? 19 MS. SANCHEZ: Yes. I will bring it up 20 now. 21 MR. SCHECHTER: Okay. So let's go to 22 the next slide. Just by way of 23 reintroduction, my name is Meir Schechter. I 24 am a resident of New York City. I have been 25 working in the public sector pension arena 0030

1 Proceedings 2 since 1992, almost 30 years now. I either am 3 or have been a consultant to three of the five 4 New York City pension systems, to TRS which 5 started doing IV & V services in September of 6 2015. I am still doing it. I have been 7 involved with the New York City Police Pension 8 Fund from 19 -- from 2016 to 2018, helping 9 them with the procurement of a new system, and 10 since 2018 they have actually been 11 implementing the system I have been providing 12 IV & V services for them. 13 For BERS, BERS, I am no longer involved 14 with BERS. That ended a few months ago, but 15 there we were working with them to improve and 16 document their processes to improve the 17 services that they give to members using the 18 CEM model as a measure of how services could 19 be done and to get them ready for some 20 impending legislation that is about to be 21 passed. 22 So as the IV & V vendor, I am focusing 23 on the quality of the system, and the methods 24 that we use is we interview the key 25 modernization program personnel. Many of the 0031 1 Proceedings 2 people that you have seen on these little 3 boxes on there are people that I have 4 interviewed and talked about the modernization 5 program and we get our information from them. 6 We provide quarterly assessments. So 7 far to date, we provided 25 guarterly 8 assessments, and our assessments look at the 9 modernization program at a number of levels. 10 First is at the strategic level. What are the 11 environmental conditions at TRS and how do 12 they affect the modernization program. At a 13 more core factor level, we are looking at the 14 modernization program itself, how its 15 organization affects the effectiveness of the modernization program, and finally I raise 16 17 concerns. By "concerns" I mean things that 18 crop up from time to time that I follow until 19 they are no longer concerns. And lastly, we 20 look at the staffing in the modernization 21 program. Is the modernization program 22 adequately staffed both from the vendor's 23 perspective and from the TRS business that is 24 supporting it. So that's basically what we 25 do. 0032 1 Proceedings 2 So let me start by looking at the

strategy factors. All three of these on this 3 4 particular page are factors that are typical 5 of these projects. One of them is the degree 6 of executive management involvement. Often we 7 find that executive management gets deeply 8 involved rather than -- rather than 9 designating the power and the authority to 10 those that are on the project. I think you have a particular issue here because Patricia 11 12 was very much involved in the previous one and 13 knows everything that went into it, knows all 14 the difficulties, and might be prone to get 15 deeply involved, but I am pleased to say she 16 has designated the authority to those that are 17 on the project and only gets involved when 18 it's needed such as reorganization or 19 organizing the project, things like that. But 20 generally speaking, the amount of executive 21 involvement here is appropriate. 22 Probably the biggest problem in all of

these is compromising quality for schedule.
Getting good quality takes time and sometimes
it takes more time than you expected and there

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2 is often a great deal of pressure to cut 3 corners to try to get the thing done on time and cutting corners cuts quality. I am also 4 5 pleased to say that we have not seen that 6 here. Another common problem is understanding 7 what you are capable of doing internally and what you are not capable of doing internally, 8 9 and there is often a reluctance to go and get 10 the appropriate consultants from the outside. 11 Again, we found that TRS has been doing this 12 appropriately. They brought in testing 13 contractors to help with testing, which is a 14 direct correlation of quality. They brought 15 in people to support their data readiness to 16 help convert the data and move the data from 17 the old system to the new system, clean up the 18 data in the process, a critical component of 19 any of these projects. They brought in 20 organizational change management. Changing 21 your system is difficult for the staff. The 22 staff over many years has developed expertise 23 in using the existing system, and they often 24 feel that their expertise is being now thrown 25 away because now they have to learn something 0034

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- 2 over again. So dealing with that, TRS brought
- 3 in external resources, and I would like to
- 4 believe at IV & V they also brought in some

5 good external resources. Last but not least, the importance of 6 7 organizational change management, and in this 8 context I am referring to staff engagement. 9 It's important to involve the staff. Not 10 everybody on the staff is intimately involved 11 in the program. However, they are all 12 affected by it, and it is therefore very 13 important that there is a proper degree of 14 communication to ensure that the staff is 15 engaged. So in preCOVID times, there were 16 town halls and various things like that. 17 Subsequent to COVID, there has been a great 18 deal of communications ongoing to the staff to 19 let them know about how things are going, so 20 on and so forth. So I think TRS has also done 21 a good job in staff engagements. Next slide, 22 please.

23 So go to the core factors. As I said, 24 part of my scope of what I am supposed to look 25 at is the staffing, and I can say that the 0035

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staffing of the modernization program and the 2 3 business areas that have to support the 4 modernization program and do their day-to-day 5 jobs has been adequate and there has not been a problem. There are some concerns related to 6 7 what Patricia told you that the biggest phase 8 is yet to come, and we will discuss that a 9 little bit later in this presentation. 10 Quality assurance is to me critical to the success of such a program, and TRS has created 11 12 a quality center of excellence. It's been --13 it's now run by somebody who is an expert in 14 this area. They have hired testing 15 consultants Cognizant, and I think it's very 16 important to recognize that the quality center 17 of excellence has not been reluctant to hold 18 up the release of a piece of software if they 19 feel that the quality is not adequate. And 20 not only are they not reluctant to do so, they 21 are given the authority to do that. So there 22 have been things that have taken longer and 23 been released later, but it was in furtherance 24 of the quality of what was being released and 25 from an IV & V perspective, that's the way it 0036 1 Proceedings

2 should be.
3 Data readiness, I talked about data
4 readiness as being the process by taking data
5 from the old system to the new system, but
6 there is another component of that and that is

this data is used for testing the new system, 7 8 and if this conversion and cleaning of the data can occur early enough so that the 9 10 testing of the new system is using the real 11 data, that has a high correlation with 12 quality. Very often we use fake data, we make 13 fake data, and perhaps have blind spots and 14 use data that should work, but when you use 15 real data, you are really testing the data 16 against what it's going to be actually working 17 on in the future. So the data readiness 18 originally was not getting the data that early 19 into the testing process, but now they are 20 getting ahead of the testing process and the 21 testing process is using real data and that is 22 a big contribution to quality.

23 Operational readiness is something that 24 I will say I sort of heard the first time here 25 at TRS and it's recognizing that there are 0037

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2 many aspects of preparing the TRS staff for 3 each release that have synergies between them and they have created this organization and 4 5 this organization has been working together to 6 align all of these things, training and 7 documentation of processes, and coordinate them so they all make sense and they are doing 8 9 a very good job at this and you will see later 10 on as I discuss what Patricia just discussed 11 about breaking these things, breaking the releases into small pieces that this is 12 13 putting stress on this particular organization 14 because when you -- I will discuss it later 15 when we get into the staffing, but just it's a 16 concern about that.

17 So as far as concerns are concerned, 18 throughout these things we have raised 17 19 concerns. Twelve of which have been raised 20 have been dealt with and are no longer being 21 followed. There are five that remain as 22 active concerns, and I am going to discuss 23 those. The others are in the back of this 24 slide presentation. I am not going to go over 25 those now. Those are no longer concerns but I 0038 1 Proceedings

am assuming people have a copy of this. If not --MS. REILLY: No but if you would like a copy of it --MR. SCHECHTER: -- you can get a copy of it. If you look at those concerns, if you have questions, please feel free to ask but 9 those 12 concerns that are there were concerns 10 that were raised, dealt with, and are no 11 longer being tracked, but these are ones that 12 are still active and being tracked.

13 So pressure to compress the schedule 14 very much goes along with the environmental 15 issue that I discussed, and that is there is 16 always pressure at every level to try to make 17 the schedule tighter, and you know, just get 18 things done as quickly as possible. And 19 whereby I believe some of these pressures did 20 affect some launches earlier, these pressures 21 are no longer there. I think now there is a 22 realization that it is better to have the 23 quality at the time you launch it, not try to 24 recover, you know, from things that are being 25 launched without having that quality. And 0039

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2 Patricia told you about Phase 4, and you know, 3 that was a classic example. That was a 4 wake-up.

5 Patricia also mentioned the effect of 6 COVID-19 pandemic. I believe from a stacking 7 of the program and the ability to collaborate 8 and work together, it's not been that big of a 9 problem. I think people were able to, you 10 know, move to Zoom and get things done. 11 However, as Patricia pointed out and Ms. Penny 12 added, many new things have been required 13 because of COVID, and they are, in fact, 14 things that take time and take effort, so they 15 definitely have an impact among the overall 16 speed of the program.

17 Gulino. What would a presentation be 18 without Gulino? Gulino has been a significant 19 -- has had a significant impact on the 20 modernization program. You know, surely it 21 wasn't factored in the original plan. Nobody 22 knew it any more than they knew COVID, but 23 when it became apparent that this lawsuit was 24 going to affect and there were going to be 25 claimants and TRS had to deal with the lion's 0040

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2 share of those claimants, TRS understood that 3 the modernization program had to be enhanced 4 to deal with these people. There were enough 5 of them, you couldn't do them manually. You had to put them in the program. And they 6 7 spent a great deal of time estimating the 8 effort that would be necessary in doing that, 9 and their estimates was based on certain 10 assumptions that were documented, reviewed,

11 approved, and that basically this is the scope 12 of what Gulino is. I know what that scope is. 13 I can therefore estimate how long it's going 14 to take, how much it's going to cost, but the 15 best laid plans of mice and men, you know. So 16 Gulino has continued to be a drain on the 17 resources. When the claimants come in, some 18 of the -- some of what the special master says 19 you have to do with them was not what was 20 anticipated in the beginning, and it continues 21 to be an ongoing drain on the resources for 22 the modernization program. 23 UPS is the old system and I think also 24 as Patricia mentioned it's a mainframe-based 25 system which is -- which has -- it's difficult 0041 1 Proceedings 2 now to find resources to maintain on an 3 ongoing basis. So this is a risk. This was 4 one of the risks that drove the modernization 5 program and it remains a risk. There is still 6 a lot of the functionality of UPS has already 7 been moved, but there are still critical 8 functionality that is still in UPS and UPS has to last until the modernization program is 9 10 finished and it's a risk. I am aware now that 11 TRS has the mitigation strategy and is working 12 on that, and you know, everything I can see up 13 until now is it will be done in time and that 14 risk will be -- you know, not become an issue. 15 So I think that's an important thing. 16 Morale of the Sagitec staff. I am not going to spend a whole lot of time on this, 17 18 but I would say the project manager for the 19 Sagitec indicated that there was a morale 20 problem in Sagitec. 21 MS. REILLY: Sagitec is the company that 22 we brought in to help us. 23 MR. SCHECHTER: They are the Right. 24 ones who own this framework that's being used, 25 and they are the ones that are implementing 0042 1 Proceedings 2 They have indicated there is a morale it. 3 problem. I am not privy to the details of the 4 morale problem but I am knowledgeable of the 5 fact that at Segal we work with Sagitec, we 6 work with other vendors, and there is a great 7 deal of turnover among the vendors. They are 8 going from one to the other. They are going 9 in some cases to clients. There is a lot of 10 change, and you know, that's just a cautionary 11 tale because as there is turnover, you lose 12 institutional knowledge, you lose some

capability, you have to spend time training 13 14 new people and bringing new people up to 15 speed. So morale problem or not, the main 16 issue is there is a lot of turnover, and it is 17 -- you know, it is rampant throughout. I am 18 not going to mention other vendors, but there 19 are other vendors working for other clients 20 that are experiencing the exact same situation 21 where there is a lot of turnover. 22 MS. PENNY: Does that affect our 23 timeline? 24 MR. SCHECHTER: It surely has the 25 potential to, yes, most definitely. There are 0043 1 Proceedings 2 people that are familiar with what is going 3 on. When they leave, somebody else has to be 4 brought in to pick up the slack and that 5 person requires a learning curve, so on and so 6 forth. So it has the potential. Actually, I 7 am not sure this is the only industry that's 8 having a lot of turnover. I think the job market in general there is a lot of turmoil 9 10 and that is just one of those places and 11 unfortunately this has an effect on the 12 modernization program. Next slide, please. 13 So just some observations. Most of 14 these concerns are manageable, and by 15 "manageable", I mean primarily under the 16 control of TRS, and the obvious exception to 17 that is Gulino which really to a large extent is beyond your control, but the other ones are 18 19 somewhat, you know, under your control. So 20 however manageable they are, not sacrificing 21 quality for schedule, adding functionality, 22 Gulino, these things are all pressures that 23 are making the project take longer than 24 expected. Patricia also pointed out, I agree 25 these projects in general take longer than 0044 1 Proceedings 2 expected. Now you have these other 3 complications of a pandemic, of a lawsuit, and 4 I say very importantly insisting on having a 5 quality product. These things take longer and 6 they take longer and they cost more. 7 TRS has an arrangement with Sagitec that 8 they are capped on certain fees of what they 9 charge based on the estimate of how long it 10 could take, so that particular one is not 11 going to grow just for the extension. It will 12 grow when added functionality is put on and 13 things like that, but others -- and I 14 mentioned that TRS was not reluctant to use

external contractors where needed. They do 15 16 not have these types of arrangement, so as 17 this project takes longer, it will cost more 18 for TRS. So that's the situation. Go to the 19 next slide, please. 20 As I mentioned, the staffing was one of 21 the things in the purview of IV & V. What I 22 would say is TRS business functions that we 23 have been specifically involved with which is 24 benefits administration, member services, and 25 accounting, they have been able to adequately 0045 1 Proceedings 2 support the project and keep up with their 3 day-to-day administrative functions. This is 4 always a concern when you start bringing a 5 project like this. You have been providing 6 administration to your members and now all of 7 a sudden you impose this large project on your 8 staff, and so far what I have seen is that the 9 TRS staff has stepped up. They have been able 10 to support the project, and they have been 11 able to do their day-to-day jobs, but the 12 largest phase is still to come. And TRS is in 13 the process of putting together the roadmap --14 I will call it the schedule for Phase 6 and 15 the businesses are looking to see that so that 16 they can plan their staffing needs 17 accordingly. So that is still -- you know, 18 still remains to be seen and the technical 19 resources at TRS because now basically you 20 have two systems. You have UPS which is doing 21 some functionality. You have Aspen which is 22 the modernization program, the name of the 23 modernization program. They are both running 24 and so far TRS has been able to support both 25 of those and you know, that's to be commended. 0046 1 Proceedings 2 So other items of interest. This is 3 something that Patricia said to you that after 4 Phase 4 and the experience that they had with 5 Phase 4 and the difficulty in stabilizing it 6 and the amount of resources that were needed to stabilize it, TRS took a different 7 8 approach, and their approach was to take what 9 was called a phase and phases had been defined 10 from day 1, this is Phase X, this is the 11 functionality in Phase X, to take those phases 12 and break it up into smaller amounts of 13 functionality, and when you break it out into 14 smaller amounts of functionality, it has all 15 of the -- I will call it all the overhead 16 associated with the large one. You have to

have training, you have to have processes 17 18 associated with it. All of this is necessary. 19 So the big releases have advantages and 20 some disadvantages. The advantages are to me 21 the most important, and that is it comes with 22 improved quality. The history with the mini 23 releases so far have been that upon their 24 release, there have been very few and in many 25 cases no post-release issues. And if you are 0047

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2 releasing the software with the quality built in from the beginning, that leads to quicker 3 4 stabilization. So we talked about launching 5 late because it takes longer to get that quality, but are we looking at the right 6 7 thing? Should we be looking at how long it 8 takes to launch or should we be looking at how 9 long it takes to stabilize? I think if you 10 are looking at how long it takes to stabilize, you will find that this really isn't taking 11 12 long, and what you have done in the process is 13 you have also reduced the reputational risk 14 because all these things have components that 15 is rolled out to the members, and as soon as 16 the quality is not there and it affects the 17 member's experience, that's not a good 18 situation.

19 So I believe that the mini releases have 20 created an ability to stabilize more quickly 21 and reduce the reputational risk. What is 22 also done is a quick -- you have a quicker use 23 of functionality. When you have a big bang or 24 a large phase, you don't get any of that 25 functionality until the end of the phase. Now 0048

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you have pieces of that functionality throughout the period of time so you are actually getting new functionality, using the new system which is improved and the processes associated with it are better and you are getting those earlier. So that to me is the big advantage of the mini release strategy.

The big advantage -- and I mentioned 9 10 this earlier. There are some of the entities 11 that are supporting the modernization program 12 that are actually involved in every single 13 mini release. They are the ones doing the 14 training, they are the ones writing the 15 procedures, and these releases are coming out, 16 you know, typically monthly. So they 17 basically have not had a whole lot of time to 18 breathe. Because as soon as one mini release

19 happens, they have to start preparing for the 20 next one. So I point that out as a potential 21 problem. So far, so good. They have been 22 able to keep up with it. 23 You know, we are now getting into Phase 24 6, and there will be many mini releases with 25 Phase 6. It's something to keep an eye out 0049 1 Proceedings 2 for. And of course, finally, scheduling costs 3 as I mentioned before, putting quality in 4 costs money, and there is no other way to say 5 It's a good investment in my opinion, but it. 6 nonetheless it's there. 7 So let's get to the bottom line. Ι 8 think right now you have a program that is on a trajectory that I believe will end up with a 9 10 successful high-quality pension administration 11 system. The shift in mini releases has 12 resulted in a rhythm, and I think that rhythm 13 is very important because it has raised the 14 confidence level. It's important to see that 15 the people are feeling more positive about it. 16 I think that's a very important part of change 17 management, and I will say literally it was a 18 consensus. I did not hear one person that I 19 have interviewed say that the mini releases 20 were not significantly enhancing the quality 21 of making them feel better about what is going 22 So I think that is a big, big one. on. 23 So although it will take longer than 24 currently planned, the stabilization I believe 25 will occur earlier. You know because if you 0050 1 Proceedings roll out something and then you spend a long 2 3 time getting it stable, that takes -- that's 4 wasted time. That's time where reputational 5 -- where your reputation can be hurt. You are 6 much better off releasing it later and having 7 it stabilized earlier, and I think that's what 8 you are getting. 9 So what the primary driver is taking 10 longer -- as Patricia mentioned, Phase 4 took 11 a long time to stabilize. That was something 12 that was released in the big bang theory, no 13 television -- but now I think that was an 14 impetus for looking for a better way to do it, 15 and starting with Phase 5 and continuing with 16 Phase 6, they will be using the mini release 17 approach. 18 Another driver is insistence on high 19 quality. TRS has insisted on high quality.

20 They are not ready to release things until

they achieve high quality, and I commend them 21 22 for that because that's not an easy approach 23 to take. There additionally has been 24 additional anticipated functionality caused by 25 COVID-19, the CARES Act, and other 0051 1 Proceedings 2 requirements for, you know, related to the 3 COVID, and finally, the ongoing resource 4 demands of Gulino is something that is a 5 constant drain on the modernization program, 6 and as I said earlier, more difficult to 7 predict how long that's going to take. 8 So that's really all I have. Any 9 questions that anybody has, I would be happy 10 to try to address. MS. PENNY: No, we are good. 11 Thank you. 12 Thank you for that. 13 MS. REILLY: Thank you, Meir. 14 So the next item on the agenda of other 15 business is a change to the date of the April 16 27, 2023 Board meeting. Because there is a 17 conflict for members of the Board, so we 18 wanted to see if we could find a different day 19 and agree on it for that April. So if you 20 want to pull out your calendars. Does anybody 21 have a suggestion for what you thought the 22 date should be? 23 MS. HIRSH: Spring break is the 5th to 24 the 14th. 25 MR. KAZANSKY: So we could do the 20th, 0052 1 Proceedings 2 but I don't know if the other Board members 3 who are members of the other boards --MS. HIRSH: Right now there are no other 4 5 board meetings on the 20th. 6 MR. BERGE: I have a tap hold but we 7 could staff around it. 8 MS. REILLY: So April 20, 2023. MR. BROWN: I don't have a calendar here 9 10 but --11 MS. PENNY: If it works for us so --12 MR. BROWN: Thursday, April 20th. 13 MS. PENNY: Alison, you said that was 14 good for you? 15 MS. HIRSH: Yes. 16 MS. PENNY: Well, that was easy. 17 MS. REILLY: All right. April 20, 2023 18 for the Board meeting. 19 MR. BROWN: That's not the Easter break, 20 is it? 21 MR. KAZANSKY: No, it's not the Easter 22 break.

23 MS. REILLY: So next on the agenda is 24 questions and comments from the public? 25 Seeing none --0053 1 Proceedings 2 MS. PENNY: Okay. I think there is no executive board. Do I hear a motion to 3 4 adjourn? 5 MR. BROWN: So moved. 6 MS. PENNY: Thank you, Mr. Brown. Do I 7 hear a second? 8 MS. HIRSH: Second. 9 MS. PENNY: Thank you, Ms. Hirsh. Any 10 questions? All those in favor, please say 11 aye. 12 Aye. MR. BERGE: Aye. 13 14 MR. BROWN: Aye. 15 MR. KAZANSKY: Aye. 16 MS. HIRSH: Aye. 17 MS. PENNY: Any opposed? Any 18 abstentions? We stand adjourned. (Time noted: 4:42 p.m.) 19 20 21 22 23 24 25 0054 1 Proceedings 2 CERTIFICATE 3 STATE OF NEW YORK ) 4 : ss. 5 COUNTY OF QUEENS ) 6 7 I, YAFFA KAPLAN, a Notary Public 8 within and for the State of New York, do 9 hereby certify that the foregoing record of 10 proceedings is a full and correct transcript of the stenographic notes taken 11 12 by me therein. 13 IN WITNESS WHEREOF, I have hereunto 14 set my hand this 1st day of December, 15 2022. 16 17 YAFFA KAPLAN 18 19 20 21 22 23 24