1 -----× 2 NEW YORK CITY TEACHERS' RETIRMENT SYSTEM BOARD MEETING 3 4 -----x 5 Held On Thursday, March 17th, 2022, 3:30 p.m. 6 PUBLIC SESSION AGENDA: 1. Roll Call 7 2. Update on TRS Operations 8 3. Report from the Actuary: 1. Reimbursement of Fiscal Year 2021 Net Cot for 9 Implementing Chapter 41 of the Laws of 2016 2. Final Fiscal Year 2022 Employee Contribution 10 3. Preliminary Fiscal Year 2023 Employee Contribution 11 4. Executive Director's Report Resos: 1. Next Meeting - Thursday, April 28, 2022 12 2. Authorization to the Comptroller of the City of New York to invest Certain QPP Funds 13 3. Authorization to the Comptroller of the City of New York to invest Certain Tax-Deferred 14 Annuity Funds 4. The Actuary's Request to Adopt Fiscal Year 2021 Reimbursement Calculation Resulting from 15 Chapter 41 Laws of 2016 16 5. Request to Adopt the Actuary's Determination for the Final Fiscal year 2022 Employer 17 Contribution 6. Request to Adopt the Actuary's Determination 18 for the Preliminary Fiscal Year 2023 Employer Contribution 5. Calendar - Approval of the following minutes 19 February 3, 2022 - Investment Meeting Minutes February 17, 2022 - Board Meeting Minutes 20 Calendar Items 6. Other Business 21 CEM Presentation - Global Pension History 22 Trends - Kam Mangat 7. Questions/Comments from the Public * * EXECUTIVE SESSION * * 23 * Actuary Search Committee Update 24 * Update to Investment Matter 25 REPORTED BY: SABINE FAUSTIN

1 ATTENDEES: 2 3 DEBRA PENNY, CHAIRPERSON, Trustee 4 DAVID KAZANSKY, Teacher-Member Teachers' Retirement System 5 Trustee 6 ALISON HIRSH, Teachers' Retirement System Assistant Comptroller for 7 Pensions & Senior Advisor Office of the New York City 8 Comptroller Teachers' Retirement System 9 Trustee 10 KATE CHEN, Chief Audit Executive, Teachers' Retirement System 11 Trustee 12 THOMAS BROWN, Assistant Treasurer, Teachers' Retirement System 13 Teacher-Member Trustee 14 MICHAEL SAMET, Interim Chief Actuary, Teachers' Retirement System 15 Trustee 16 Senior Advisor, NYC DOE Finance RUSSELL BUCKLEY, NYC Department of Education 17 Teachers' Retirement System Trustee 18 19 PATRICIA REILLY, Executive Director, Teachers' Retirement System 20 Trustee 21 CYNTHIA COLLINS, Mayor Eric Adams' Appointee Teachers' Retirement System 22 Trustee 23 THAD McTIGUE, Deputy Executive Director Teachers' Retirement System Trustee 25

1 A T T E N D E E S: (Continued) 2 3 LIZ SANCHEZ, Administrative Manager, Teachers' Retirement System Trustee 4 5 VALERIE BUDZIK, General Counsel, Teachers' Retirement System 6 Trustee 7 JOHN DORSA, Bureau of Asset Management Teachers' Retirement System 8 Trustee, Vice President of CEM 9 KAM MANGAT, Benchmarking 10 11 RENEE C. PEARCE, Executive Agency Counsel Teachers' Retirement System 12 Trustee 13 KAVITA KANWAR, Director, Office of Operations Teachers' Retirement System 14 Trustee 15 ANNETTE HANRAHAN, Computer Systems Manager Teachers' Retirement System 16 Trustee 17 MATT D. LASKOWSKI, Computer Systems Manager Teachers' Retirement System 18 Trustee 19 SUMANTA RAY, Senior Pensions and Investments Officer 20 NYC Mayor's Office of Pensions Teachers' Retirement System. 21 Trustee 22 NATARAJAN KRISHNAMOORTHY, Director Enterprise 23 Application Teachers' Retirement System 24 Trustee 25

ATTENDEES: (Continued) ANDREW BRADFORD, Director of Risk Management, Teachers' Retirement System Trustee CARMELLA CRIVELLI, Director of Human Resources Teachers' Retirement System Trustee Senior Counsel, NYC Law MARTA ROSS, Department Teachers' Retirement System Trustee Intelligence KEVIN BALAOD, JOSHUA CHERON, Beneficiary

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2	
3	PROCEEDINGS
4	
5	* * PUBLIC SESSION * *
6	(Recording in progress)
7	
8	MS. REILLY: Just a reminder to
9	everybody say your name for the new
10	Stenographer, when you speak.
11	All right, good afternoon, welcome
12	to the March 17th, 2022 Teachers'
13	Retirement System Board Meeting.
14	I'm going to start by calling the
15	roll. Thomas Brown?
16	MR. BROWN: I'm here.
17	MS. REILLY: Cynthia Collins?
18	MS. COLLINS: Present.
19	MS. REILLY: Alison Hirsch?
20	MS. HIRSCH: Here.
21	MS. REILLY: David Kazansky?
22	MR. KAZANSKY: Present.
23	MS. REILLY: Russell Buckley?
24	MR. BUCKLEY: Here.

25 MS. REILLY: Debra Penny?

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2	MS. PENNY: Here.
3	MS. REILLY: We have a quorum. The
4	first item on our agenda is an update on
5	TRS operations and Kavita Kanwar is going
6	to give us that update.
7	MS. KANWAR: Hi, good afternoon.
8	I'm Kavita Kanwar. Got that? Okay. TRS
9	has identified approximately 36,000 members
10	who will be due a required minimum
11	distribution from their TD accounts for
12	2022. In late April, TRS will send a
13	notification letter with filing
14	instructions to these members.
15	TRS's online educational programs
16	continue to be extremely popular with the
17	members. Since January, over 2,400 members
18	have registered and tuned into our live
19	sessions to learn more about their
20	benefits. On an average, 67 members have
21	attended each of the 36 virtual sessions so
22	far this year. Thank you.
23	MS. REILLY: Thank you, Kavita.
24	Next on the agenda is a report from the
25	Actuary, Mike Samet.

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2	MR. SAMET: Good afternoon. I've
3	got a few things to talk about. The first
4	is what we call Chapter 41, and it's an
5	annual report that we do each year, and
6	this is Chapter 41 uh, this report,
7	uh, presents the determination of the costs
8	that TRS incurs as a result of Chapter 41.
9	As a refresher, Chapter 41 of the
10	laws of 2016 permits active members of any
11	public retirement system within the State
12	to purchase additional years of service, up
13	to three years for military time,
14	regardless of when or where that military
15	service was performed. Prior to that, only
16	certain conflicts and time periods were
17	accepted for in order to produce military
18	service.
19	Costs associated with this
20	implemented Chapter 41 are to be reimbursed
21	on annual basis by the State. These costs
22	right now are included in the annual
23	evaluation of TRS, and therefore funded by
24	the City.
25	It's the OA it Actuary's

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2	understanding, however, that the State does
3	not reimbursed the City for any of these
4	increased costs, since the enactment of
5	Chapter 41 back in 2016.
6	We've calculated this amount this
7	year to be about \$329,000 for TRS, and
8	the proposed Board Resolution includes a
9	voucher for that amount.
10	If you're wondering well, you
11	know, if 329,000 doesn't sound like a big
12	number, but as you can imagine, a couple of
13	the other systems within the NYCERS have
14	many more members who have military
15	service, and this year alone, the cost for
16	implementing this Chapter 41 is about \$10
17	million for the City and year-to-date
18	it's over \$180 million.
19	Anyone have any questions about
20	chapter 41 report?
21	MR. BUCKLEY: Yeah, Mike. I just
22	wanted to confirm our member's accounts are
23	made a whole for this, despite the fact
24	that the State has not reimbursed us for
25	the cost?

1 NYC TRS Board Meeting - March 17, 2022 MR. SAMET: That's correct, Russell. 2 members continue to get the full pension 3 that they're going to get. It's simply that 4 5 the City is contributing for these extra dollars, where we believe, at least, that 6 the State should be reimbursed by City. 7 8 MR. BUCKLEY: Understood. Thank 9 you. 10 MR. SAMET: Okay, if there are no 11 questions -- other questions, then I'll move onto the second item. Um, the second 12 13 item is the final fiscal year '22 employer 14 contribution. The Board adopted the updated 15 16 preliminary contribution for fiscal year 17 2022 last September, and as a reminder, 18 that updated preliminary contribution was 19 determined based on an actuarial interest 20 rate of seven percent, after the original 21 preliminary contribution was determined 22 based on an actuarial rate of 6.9 percent. 23 So the Board already adopted the 24 updated preliminary contribution. There's 25 no change from that in these final numbers.

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2	So the final 2022 employer contribution
3	that we're asking the Board to adopt today
4	is identical to the one that was adopted
5	last September.
6	Any questions on that?
7	(No response.)
8	MR. SAMET: Okay, then to the third
9	one the third and final item, and for
10	this item I've prepared a couple of power
11	point slides that I sent over earlier today
12	or yesterday. Yesterday, I think. I don't
13	know if those are accessible.
14	MS. REILLY: Liz, are you able to
15	share those slides?
16	MS. SANCHEZ: Yes, I'm bringing them
17	up now.
18	MR. SAMET: Okay, it's just a couple
19	of slides, to present a few of highlights of
20	this years of the preliminary fiscal
21	year '23 employer contributions. As soon
22	as they come up.
23	(Pause in proceedings.)
24	MR. SAMET: Okay, let's move to the
25	next side. The first thing I want to

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2	mention, by the way, is there are no
3	changes to any of the actuarial assumptions
4	and methods for this preliminary FY '23
5	contribution.
6	As you can see on the slide, the
7	contribution decreased from the prior year
8	by about \$229 million. And the decrease is
9	primarily due to the excellent investment
10	performance of the plan's assets during
11	fiscal year '21.
12	If you remember, that was a terrific
13	year. As you know, we assumed that the
14	eventual return term is seven percent.
15	During fiscal year 2021, the actual
16	investment return was in excess of
17	twenty-five percent, but the QPP's return
18	was actually in excess of thirty percent,
19	after reflecting the TDA fixed fund
20	guarantee.
21	So the fund so we assumed seven
22	percent the fund actually earned over
23	thirty percent. And so the fund
24	actually earned about \$14 million more than
25	we had assumed. But we don't recognize it,

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that \$14 billion in one shot.
In order to minimize large
fluctuations in employer contributions,
actuaries smooth these kinds of gains or
losses into the contribution overtime.
And in this case in our case,
what we do is we recognize twenty percent
of that in each of the next five years.
So basically, of that \$14 billion we're
recognizing twenty percent, or just
under \$3 billion of that, in the fiscal
year '23 employer contribution, and the
other eighty percent is really kept as a
cushion for future years, and it will be
brought in to offset the contribution in
future years, or to offset losses, if we
have poor years during that period.
Um, and that twenty percent that we
do recognize, which in this case again is
about \$2.8 billion, that gets spread over
fifteen years. So that gets amortized over
fifteen years.

24 So again, of this \$14 billion, we're 25 really recognizing a very small amount,

1 NYC TRS Board Meeting - March 17, 2022 2 just a couple of hundred million this year, and then it will, overtime, continue to be 3 rolled into the contribution or, again, be 4 5 used to offset poor years. This type of smoothing, or something 6 very close to it, is used basically every --7 8 every pension plan -- all public pensions plans do something like this, again, in 9 order to smooth out the contributions. 10 11 Another reason for the decrease in contributions -- if you go to the second 12 13 slide, please -- a much smaller reason is 14 the decrease in active members. As you can see on this slide -- it's a little small, 15 16 but if you can see, active members dropped, 17 um, a little over 1,000; from a hundred == 18 a little over 124,000 active members to 19 over -- a little over 123,000. So it 20 dropped about 1,000 members. 21 And that, again, resulted in a small 22 decrease, nothing compared to the 23 investment return. The other interesting 24 thing to note on this, is that Tier 6 25 continues to make up the larger portion of

1	NYC TRS Board Meeting - March 17, 2022
2	the active membership.
3	As of this date, which was June 3rd,
4	2021, Tier 6 accounts for over forty
5	percent of the actives. So at this point,
6	we're probably getting closer and closer to
7	fifty percent.
8	But yeah, it doesn't seem like that
9	many years where, you know, we were just
10	starting Tier 6; yeah, ten years.
11	The other thing you'll note is that
12	as a result of fewer new hires than usual,
13	the average age and average service of the
14	remaining active members increased a little
15	bit, and not a lot.
16	But you'll see the average age of
17	the active members went from 44.1 to 44.6.
18	So the average age went up half a year and
19	the average service also went up half a
20	year.
21	And it doesn't sound like a lot, but
22	with a plan this size, it stays pretty
23	stable. Those statistics stay pretty
24	stable. So you can tell, it's a bit of an
25	unusual year with Covid and everything else

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2	that happened. I'm sure it doesn't
3	surprise anyone in this room, but we see it
4	here in these numbers.
5	If you then look at the retired
6	numbers, about 450 net new pensioners were
7	added to the rolls during year. And the
8	annual benefits paid to these pensioners
9	increased by about \$250 million.
10	And finally, just for completeness
11	at the bottom we show other members, close
12	to 20,000. These are members that are
13	either vested into a pension in the future,
14	or if terminated, then still have their
15	member contributions in the plan, so they
16	still have liability due to the plan, so we
17	include them.
18	If you can flip to the last slide
19	then not the last slide, this one. Um,
20	this shows the assets and the funding
21	status of the plan. And if you look at the
22	top, at the top I show the assets of the
23	plan, and I show two numbers there: Market
24	Value and Actuarial Value.
25	The Market Value is what you think

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2	of as the actual assets in the plan. If
3	you look at the assets statement that's
4	what it would show that's the amount of
5	assets in the plan.
6	As you can see, they increase
7	tremendously from one year to the next;
8	from \$59.3 billion to \$78 billion. This
9	actuarial value is a number that's used to
10	determine the employer contribution in the
11	plan, and this is the number that reflects
12	the fact that we're only recognizing twenty
13	percent of the large the good performance.
14	So if there's 69.6 billion actuarial
15	value that I'm showing as of June 2021,
16	that's the number that we use to determine
17	the contribution and that's, again, how
18	this the investment performance is
19	invest is reflected overtime, by
20	smoothing it in and, um you can still
21	see, even on that actuarial value, you're
22	just recognizing a portion of it; the
23	assets jumped from sixty-two and a half to
24	just under 70 billion.
25	And finally, if you look at the

1 NYC TRS Board Meeting - March 17, 2022 bottom, I just wanted to show the funded 2 status of the plan, just first want to 3 mention that there's lots of different ways 4 5 to measure the funding status of a pension plan. 6 Um, this is just one -- one measure. 7 8 Um, what I've shown here is the actuarial 9 accrued liability compared to actuarial 10 value of assets, and on that basis, the 11 funding status jumped from just under eighty-three percent to almost eight-eight 12 13 percent. 14 And obviously, if you looked at the -- measured it under the market value 15 16 of assets, you'd see a much bigger jump 17 for '20 to '21. 18 So that's -- those are the 19 highlights. Again, this is the preliminary 20 contribution. Things could change between 21 now and when the final valuation is done, 22 almost a year from now. Depending on if 23 there's legislative changes; any actuarial 24 assumption changes, et cetera. 25 Anybody has any questions about any

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2	of this?
3	(No response.)
4	MS. PENNY: Guess not. Just thank you
5	so much, Mike, that was very interesting.
6	MR. SAMET: Okay, thank you.
7	MS. REILLY: Thank you. So next on
8	agenda is the Executive Director's report,
9	and the first item on that is the matter of
10	the next meeting, and it has been suggested
11	that the next regular meeting of the
12	Teachers' Retirement Board be held on the
13	fourth Thursday of the month, April 28th,
14	2022. Mark your calendars.
15	Okay, so the first Resolution is
16	authorization to the comptroller of the
17	City of New York to invest certain funds.
18	MR. KAZANSKY: Please waive the
19	reading of this Resolution.
20	MS. PENNY: All right, so everyone
21	had a chance to look at it. We're going to
22	be voting on authorization to the
23	Comptroller of the City of New York to
24	invest certain QPP funds.
25	Do I hear a Motion?

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2	MR. BROWN: So moved.
3	MS. PENNY: Thank you, Mr. Brown.
4	Do I hear a second?
5	MR. KAZANSKY: Second.
6	MS. PENNY: Thank you, Mr. Kazansky.
7	Any questions?
8	(No response.)
9	MS. PENNY: All those in favor say aye.
10	(Quorum responds in the affirmative.).
11	MS. PENNY: Any opposed?
12	(No response.)
13	MS. PENNY: Any abstentions?
14	(No response.).
15	MS. PENNY: Okay, Motion carries.
16	MS. REILLY: Thank you for your
17	continued trust in the Comptroller.
18	MS. PENNY: Of course.
19	MS. REILLY: Next is the
20	authorization for the Comptroller of the
21	City of New York to invest certain tax
22	deferred annuity funds.
23	MR. KAZANSKY: Again, please waive
24	the reading of this Resolution.
25	MS. PENNY: Okay, we're going to be

1	NYC TRS Board Meeting - March 17, 2022
2	voting on the authorization of the
3	Comptroller for the tax deferred annuity
4	funds. All right, do I hear a Motion?
5	MR. BROWN: So moved.
6	MR. KAZANSKY: So moved.
7	MS. PENNY: Oh, that was a
8	MR. BROWN: Tie?
9	MS. PENNY: All right, We'll give it
10	to Tom Brown, and that was a second by David
11	Kazansky.
12	MS. PENNY: Any abstentions?
13	(No response.).
14	MS. PENNY: All those in favor
15	please say aye.
16	(Quorum responds in the affirmative.)
17	MS. PENNY: Any opposed?
18	(No response.)
19	MS. PENNY: Any abstentions?
20	(No response.)
21	MS. PENNY: Motion carries.
22	MS. REILLY: Next is the Resolution
23	for the Actuary's request to adopt fiscal
24	year 2021 reimbursement calculation,
25	resulting from Chapter 41 of the laws of

1	NYC TRS Board Meeting - March 17, 2022
2	2016.
3	MR. KAZANSKY: Please skip to
4	Resolved.
5	MS. REILLY: Resolved that the TRS
6	Board of Trustees approves a voucher in the
7	amount of \$328,762, for the fiscal year
8	2021, to be submitted to the State
9	Comptroller for audit, warrant and payment
10	to TRS, as reimbursement for carrying out
11	the provisions of Chapter 41.
12	MS. PENNY: Okay, thank you. Do I
13	hear a Motion?
14	MR. BROWN: So moved.
15	MS. PENNY: Thank you, Mr. Brown.
16	See, Mr. Brown was first that time. Do I
17	hear a second?
18	Do I hear a second?
19	MS. HIRSCH: Second.
20	MS. PENNY: Thank you, Ms. Hirsch.
21	Any questions?
22	(No response.)
23	MS. PENNY: All those in favor
24	please say aye.
25	(Quorum responds in the affirmative.)

1 NYC TRS Board Meeting - March 17, 2022 2 MS. PENNY: Any opposed? 3 (No response.) 4 MS. PENNY: Any abstentions? 5 (No response.) MS. PENNY: Motion carries. 6 7 MS. REILLY: Next is the request to 8 adapt the Actuary's determination for the 9 final fiscal year of 2022 employer 10 contribution to the Teachers' Retirement System of the City of New York. 11 MR. KAZANSKY: Please skip to the 12 13 Resolved. 14 MS. REILLY: Resolved that the Board of Board of Trustees hereby approves a 15 16 preliminary fiscal year 2023 employer 17 contribution to the New York City Teachers' 18 Retirement System in the amount of \$3,075,301,257. 19 20 MR. KAZANSKY: Correction, I think 21 you jumped ahead. 22 MS. PENNY: Yeah, I --23 MS. REILLY: Oh, shoot. Oh, yes. There's two Resolutions on this one same 24 25 page, I'm sorry. All right, that the

1	NYC TRS Board Meeting - March 17, 2022
2	employer contribution to the New York City
3	Teachers' Retirement System for year
4	fiscal year 2022, is the amount of
5	\$3,303,797,557 is hereby approved by the
6	Board of Trustee.
7	MS. PENNY: Okay, thank you. Okay,
8	so just to be clear, we're voting on the
9	2022 employer contributions.
10	Do I hear a Motion?
11	MR. KAZANSKY: So moved.
12	MS. PENNY: Go job. Thank you, Mr.
13	Kazansky. Do I hear a second?
14	MS. HIRSCH: Second.
15	MS. PENNY: Thank you, Ms. Hirsch.
16	Any questions?
17	(No response.)
18	MS. PENNY: All those in favor
19	please say aye.
20	(Quorum responds in the affirmative.)
21	MS. PENNY: Any opposed?
22	(No response.)
23	MS. PENNY: Any abstentions?
24	(No response.)
25	MS. PENNY: Motion carries.

1	NYC TRS Board Meeting - March 17, 2022
2	MS. REILLY: Okay, next is request
3	for the Actuary's determination for the
4	preliminary fiscal year 2023 employer
5	contribution to the Teachers' Retirement
6	System of New York City.
7	MR. KAZANSKY: Please skip to the
8	Resolved.
9	MS. REILLY: Resolved that the Board
10	of Trustees hereby approves a preliminary
11	fiscal year 2023 employer contribution to
12	New York City Teachers' Retirement System
13	of \$3,075,301,257.
14	MS. PENNY: Thank you. Do I hear a
15	Motion?
16	MR. BROWN: So moved.
17	MS. PENNY: Thank you, Mr. Brown.
18	Do I hear a second?
19	MS. HIRSCH: Second.
20	MS. PENNY: Thank you, Ms. Hirsch.
21	Any questions?
22	(No response.)
23	MS. PENNY: All those in favor
24	please say aye.
25	(Quorum responds in the affirmative.)

NYC TRS Board Meeting - March 17, 2022 1 2 MS. PENNY: Any opposed? 3 (No response.) 4 MS. PENNY: Any abstentions? 5 (No response.) MS. PENNY: Motion carries. 6 7 MS. REILLY: Next is the calendar, and first is the approved for the following 8 minutes: The February 3rd, 2022 Investment 9 10 Meeting minutes and the February 17th, 2022 11 Board Meeting's. MS. PENNY: Thank you. Do I hear a 12 Motion to approve the February 3rd and 13 14 February 17th minutes? MR. KAZANSKY: So moved. 15 16 MS. PENNY: Thank you, Mr. Kazansky. Do I hear a second? 17 18 MR. BROWN: Second. MS. PENNY: Thank you, Mr. Brown. 19 20 Any questions? 21 (No response.) 22 MS. PENNY: All those in favor 23 please say aye. 24 (Quorum responds in the 25 affirmative.)

1 NYC TRS Board Meeting - March 17, 2022 2 MS. PENNY: Any opposed? 3 (No response.) 4 MS. PENNY: Any abstentions? 5 (No response.) 6 MS. PENNY: They are approved. 7 MS. REILLY: Okay, so next is other 8 9 business and today --MR. KAZANSKY: No, we have a 10 calendar items. 11 12 MS. REILLY: Oh, I'm sorry, the 13 calendar items. Gosh, I'm really jumping 14 ahead of myself. Next is the calendar 15 items and you've all received an electronic 16 version of the calendar, and you've had an 17 opportunity to review that. MS. PENNY: Do hear a Motion to 18 approve the calendar? 19 20 MR. KAZANSKY: So moved. MS. PENNY: Thank you, Mr. Kazansky. 21 22 Do I hear a second? 23 MR. BROWN: Second. 24 MS. PENNY: Thank you, Mr. Brown. 25 Any questions about the calendar?

1 NYC TRS Board Meeting - March 17, 2022 2 (No response.) 3 MS. PENNY: All those in favor say 4 please aye. 5 (Quorum responds in the affirmative.) 6 7 MS. PENNY: Any opposed? 8 (No response.) 9 MS. PENNY: Any abstentions? 10 (No response.) 11 MS. PENNY: Calendar is approved. MS. REILLY: Okay, so next is Other 12 13 Business, and under that we have the CEM presentation: Global Pension History 14 Trends, and Kam Mangat is going to give us 15 that update; that presentation. 16 17 MS. KANWAR: Yes, hi. Good afternoon again. So I'll give a brief 18 introduction into Kam. So today we have a 19 20 presentation by CEM for the Board. CEM, which stands for Cost 21 22 Effectiveness Measurement, provides a 23 comprehensive bench marching services that 24 compares a pension systems services, costs, 25 volumes and staffing levels in total, and

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2	by pension activity to a pier group
3	customized by size in the global pension
4	universe.
5	CEM has close to seventy-two pension
6	systems participating from across the world
7	in its services. TRS has been a
8	participant with CEM benchmarking services
9	since 2000.
10	Every year, CRM presents the
11	benchmarking study results to the TRS
12	Board. Last year, due to Covid, TRS did
13	not participate in this benchmarking study.
14	Therefore, this year's presentation
15	is a little different. Today we have Kam
16	Mangat, who is Vice President of CEM and is
17	here to present the pension industry trends
18	observed as a result of Covid, and some of
19	macro factors that have influenced our
20	industry. So Kam, over to you.
21	MS. MANGAT: Hi, good afternoon.
22	I'm glad to be here today with you, to walk
23	through some trends that we are seeing over
24	at CEM.
25	I'm going to share my deck with you

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2	all and turn off my camera, if that's okay,
3	just, uh, just to make it easier, to make
4	me share the presentation. But please, at
5	any time, just jump in if anybody has any
6	questions.
7	Okay, I'm hope you guys can see the
8	presentation at this time. Let me just put
9	it in full screen mode. There we go.
10	So I'll walk through some of the
11	trends that we're seeing over at CEM within
12	the pension space. Thank you, Kavita, for
13	the introduction.
14	CEM is an objective and independent
15	benchmarking company, and it's the only
16	company that measures value for money in
17	the pension space.
18	As Kavita mentioned, we have
19	seventy-two global pension systems that
20	participated in just our pension
21	administrative benchmarking service. So
22	you can see those pension plans listed on
23	this page.
24	And I will also highlight that we've
25	got uh, hang on three major New York

NYC TRS Board Meeting - March 17, 2022 1 2 City -- New York State based pension plans 3 that participate in our service, amongst the very large plans throughout the United 4 5 States. Turning to Page 2, so these are the 6 four key trends that we believe all pension 7 8 plans should be keeping an eye on, or consider when they're planning but -- when 9 10 they're going through their planning and 11 budgeting process. The four key trends that I will be 12 13 reviewing today include Covid 19, how it's 14 changing work and disaster planning. Trend 2: Pension systems are 15 16 increasingly focused on IT. This has been 17 ongoing trend for a few years now. 18 No. 3: Cyber security is a big concern. Actually now, given what's been 19 20 going on in the world, you know, we should have list it as number one. 21 22 And then finally, more systems are 23 focused on customer experience 24 and/organizing around customer journeys. 25 So moving to Page 4, starting with

1 NYC TRS Board Meeting - March 17, 2022 the first trend: How Covid 19 is changing 2 work and disaster planning. Initially, when 3 Covid 19 occurred, people thought the 4 5 changes would be temporary, but the changes are now turning into to be more permanent 6 7 and are impacting various parts of pensions 8 operations, including the work force, business planning and also how services are 9 being delivered. 10 Um, for the work force, remote 11 working is basically here to stay in some 12 form or another. Some systems are making 13 14 permanent changes in some departments; other systems are going through hybrid type 15 16 of arrangements. 17 And as they're going through this, 18 there's, you know, the process of going 19 through formal policies and implementing 20 those for their work force. 21 One area that we're finding, that 22 we've heard back from system that are going 23 basically to 100 percent remote working is 24 in their contact centers. And we've heard 25 a couple of systems even tell us that

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2	they're only going to have their employees
3	come in once a month for monthly meetings;
4	which is great; it has increased
5	productivity, but then it has been creating
6	other issues.
7	A couple of issues include, um,
8	worker shortages, because now a lot of
9	contact centers employees can work from
10	home, you have other companies, fortune 500
11	companies also targeting the same
12	employer employee base.
13	So you can have a financial services
14	company that is operating out of another
15	State, um, targeting New York State
16	employees, for instance. And then this is
17	also causing pressures pressures on
18	wages as well. So something to keep in
19	mind, as you think about your remote
20	working policies.
21	Um, you know, the other key thing
22	that is impacting the systems as they are
23	dealing with what has happened with Covid
24	19 is how they deal with their business
25	continuity plans.

NYC TRS Board Meeting - March 17, 2022 1 2 Before, most were concerned with physical locations, but now, when you have 3 several employees working from home, you 4 5 have several, different physical locations. So how do you balance that with 6 geographical diversification? 7 8 Does it make sense now to think 9 about having business continuity plans, 10 where, you know, if something happens 11 across New York State, where most of your employees are also based, regardless of 12 13 working home or not, maybe you would have a 14 facility or some kind of back-up operation in another State, on the other side of the 15 16 coast. So these are some of the issues 17 when it comes to business continuity 18 planning that systems are dealing with. 19 A real positive that has come out of 20 Covid 19 is how services are delivered, 21 especially when they think -- when we think 22 about one or one counseling and group 23 presentations. This has been a big win. A lot 24 of individuals have started taking advantage 25 of these type of services, especially

1 NYC TRS Board Meeting - March 17, 2022 individuals that were reluctant to do 2 online banking or using online services. 3 With Covid, it's force them to use these 4 5 online services and they've gotten used to it. 6 So these are services that they'll 7 8 continue to use, and a lot of systems are probably going to stay with delivering 9 10 these services online. 11 Moving to Page 5, here we highlight the impact on -- of Covid on service 12 13 levels. Generally across the board, 14 service levels decreased by 2.5 points, but we believe once the transition to certain 15 16 services, like one-on -- virtual one-on-one 17 presentations and group presentations, you 18 know, take hold, these trends should 19 reverse. But the changes have been 20 basically broad based. 21 Turning to Page 6, these are 22 examples of key service measures that have 23 been impacted by Covid; that have a 24 significant impact on how we calculate 25 service levels.

NYC TRS Board Meeting - March 17, 2022 1 I'm not going to go through all of 2 these examples, but I'll highlight the 3 first bucket member contacts, since this is 4 5 a key to all the systems or a key concern to all systems. 6 7 If we look at percentage of calls 8 resulting in undesired outcomes, in 2019 that was 11.8 percent and it increased by 9 19 percent to 14 percent. 10 11 Average total wait times also increased 12 and average call durations also increased from 341 seconds to 376 seconds. Something 13 14 interesting we heard from systems was that when the world was really shut down and 15 16 individuals were at home, um, I quess 17 because a lot of individuals didn't have a 18 lot of different things to do, they were 19 catching up on their to-do list, and they 20 were calling into their pension systems to 21 get more educated and get on top of their 22 pension plans. Maybe they were considering 23 to retire, but there was a lot more call 24 volume during those times as well. MS. HIRSCH: I'm sorry, 25

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2	can I ask a question?
3	MS. MANGAT: Sure.
4	MS. HIRSCH: So in
5	percentage of call resulting undesired
6	outcomes, mathematically, I think I was
7	never good at math if there are teachers in
8	this room the percent change was 2.2
9	percent, but the slide said it was a 19.1
10	percent change?
11	MR. KAZANSKY: It's a
12	difference between the two, yeah.
13	MS. HIRSCH: What does
14	that mean?
15	MR. SAMET: 4 and 14 divided by
16	11.8 is probably.
17	MS. HIRSCH: Oh, okay. Somebody
18	Mike, you're going to have to explain that
19	me offline, but I'll go with that.
20	
21	MS. MANGAT: Yeah, it's increased.
22	You're thinking percentage points.
23	MS. HIRSCH: Got it.
24	MR. KAZANSKY: As opposed to
25	percentage changes.

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2	MS. MANGAT: Right.
3	MS. HIRSCH: Okay.
4	MS. MANGAT: There's somebody in the
5	chat as well. Let me just
6	MR. CHERON: You can ignore you
7	can ignore what's in the chat until later.
8	MS. MANGAT: Oh, okay. Perfect, okay.
9	MR. CHERON: You don't have to deal
10	with it at all, actually.
11	MS. MANGAT: All right, I just
12	wanted to make sure I wasn't missing any
13	questions.
14	MR. CHERON: No, you're not.
15	MS. MANGAT: Okay, great. Okay,
16	moving onto Page 7. The second trend,
17	which is also an ongoing trend that we're
18	seeing, is that systems are increasingly
19	focused on IT spending.
20	IT is a major component of cost for
21	systems. Here on the right-hand side we
22	show a cost per member; it's an average of
23	all the systems in our data base, and you
24	can see that, you know, in 2013 IT major
25	costs per member was \$41. It peaked in

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2	2016 to \$53 and then it had a downward
3	trend and in 2019 it was \$41, and it's
4	starting to tick up again, and is \$43
5	in 2020.
6	A lot of systems had already
7	completed or taken on modernization
8	programs, but there are still some systems
9	that are upgrading their systems and doing
10	changes to their IT programs.
11	And then we're also seeing some
12	systems that were lagging behind, doing
13	modernization programs for their IT systems
14	are now doing them are trying to catch
15	up and doing them in earnest.
16	Now, the good news is that members
17	are benefiting from these IT investments.
18	Here you can see that on the right-hand
19	side, secured website website visits has
20	increased from 2013 to 2020; while calls
21	and incoming mail has decreased, which is
22	a which is a good thing.
23	The third trend we're noticing, that
24	is getting a lot of coverage as well, is
25	cyber security. It's not if, but more like

NYC TRS Board Meeting - March 17, 2022 1 when it will occur. And given what's been 2 going on with Ukraine and governments 3 advising companies to keep -- to be on high 4 5 alert for cyber-crimes, it's pretty much reinforced that this should be top of line 6 for any executive. 7 8 Some stats: Just focusing on the middle of the slide. I know it's really 9 10 busy. I'm just going to highlight some of 11 the stats. \$6 trillion is estimating in cost to the global economy from cybercrime 12 13 every year. 14 And then, \$1 trillion is estimated as the amount of that global businesses 15 16 will spend on cyber security products and 17 services from 2017 to 2021. 18 This data is about a year behind; it 19 hasn't been updated yet, but this gives 20 you a good idea as to the magnitude of 21 costs involved. 22 Now the other key stat that I would 23 like to highlight is that 3.5 million jobs 24 are needed to fill cyber security needs by 25 2021.

NYC TRS Board Meeting - March 17, 2022 1 2 So again, this is a bit outdated, but that's up from one million in 2014. 3 You know, currently, if we look at systems 4 5 across the board, on average, they have four full time equivalent employees 6 dedicated to cyber security. 7 8 This is expected to increase but there is also a shortage of cyber security 9 professionals. So there is going to also 10 11 be wage pressure in this area as well. And then if you look at the bottom 12 13 of the slide, there's several questions to 14 think through, as you think about your 15 cyber security strategy or concerns. 16 The fourth key trend, if we turn to 17 Page 10, is focusing on customer experience 18 and customer journeys, basically, using 19 lien strategies organized around certain 20 client events, such as divorce, retirement 21 disability, to improve the service 22 delivery and eventually reduce the cost. 23 You know, this has been topical for 24 about the last two to three years. The 25 European systems have been building agile

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2	themes around journeys for a longer period
3	than that, but this is picking up steam in
4	the U.S.
5	One example of a U.S. fund
6	implementing this type of strategy is they
7	reduced their disability processing times
8	from six months two months.
9	So there is, you know, real benefit
10	in trying to think about how you deliver
11	services around customer journeys.
12	In 2020, if he we move to Page 11,
13	CEM completed a customer experience
14	research study which focused on customer
15	experience leaders. The CX acronym stands
16	for customer experience.
17	For customer experience leaders, um,
18	there were some notable things that we
19	found that was different about them,
20	compared to other organizations.
21	First of all, they were well
22	invested in the strategy and it was part of
23	their overall strategy; so it was
24	incorporated at the high level.
25	It had dedicated staff; dedicated to

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2	this strategy. If we look at companies
3	that only evaluate customer feedback, they
4	had about four full time equivalent
5	employees, compared to only one for
6	everybody else in the universe.
7	But systems that were dedicated to
8	customer experience and were CX leaders,
9	they had 6.9 full time equivalent
10	equivalent employees.
11	The other key thing about customer
12	experience leaders, was there was buy-in
13	for the strategy throughout the
14	organization, including the board. So it
15	was it was basically part of their
16	ethos.
17	So now, I'll open it up for
18	questions.
19	MS. REILLY: Are there any questions
20	from the Trustees?
21	MR. SAMET: No, it's a pretty good
22	report.
23	MR. BUCKLEY: I just have one quick
24	question about, um, did we see a ton of
25	was presentation generally down across the

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2	board in benchmarking study due to Covid
3	19?
4	MS. MANGAT: No, it was I think
5	in previous years we were around 76, 77
6	funds. So it did drop down to 72.
7	It also depended on fiscal year-end
8	as well. So depending on where some
9	systems have a fiscal year-end in June, and
10	some have a fiscal year-end of December.
11	So a lot when we shut down in
12	March 2020, the systems that participate in
13	the June cycle tended to participate;
14	whereas, some of the funds that were
15	December year-end, didn't necessarily
16	participate because there was so much of an
17	impact of Covid.
18	But they're largely back, and now
19	that they're back, they're also giving us
20	previous year data as well.
21	MR. BUCKLEY : Got it, thank
22	you.
23	MS. MANGAT: Some of it it
24	wasn't you know, it wasn't necessarily
25	related to the fact that they went into

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2	Covid; some of it was related to a resource
3	issue, because they were going remote and
4	they were, you know, just pulling their
5	work force together to deliver services.
6	This became something they put on
7	back burner. So it was not necessarily
8	that they didn't want to measure
9	themselves. It was more a factor of
10	resourcing.
11	MR. BUCKLEY: Completely understand,
12	thank you.
13	MS. REILLY: Well, thank you Kam,
14	for that presentation.
15	MS. MANGAT: Great. Thank you for
16	having me and see you, next year I guess.
17	Hopefully in person.
18	MS. PENNY: Yes.
19	MS. REILLY: Okay, next on the
20	agenda is questions and comments from the
21	public. Do we have any?
22	(No response.)
23	MS. REILLY: Okay, seeing none.
24	MR. CHERON: If we don't if we
25	I was waiting for anybody else to go because

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2	my question is kind of lengthy, given the
3	attachment that I that I sent in.
4	So my name is Josh Cheron, an IT
5	professional from Sudbury, Massachusetts,
6	and I'm a beneficiary, and I'd appreciate a
7	good answer as to why beneficiaries in
8	2022 don't have online account access to
9	their accounts.
10	MS. REILLY: Okay, so you're a
11	beneficiary for a tech you're a TDAB
12	beneficiary?
13	MR. CHERON: Correct.
14	MS. REILLY: Right. So we are in
15	the middle of a monetization project. I'll
16	start by bringing Covid into it, because I
17	think that all of our attention during
18	Covid was to get as much functionality up
19	online for our members to be able to
20	interact with us, without having to come
21	into the office, and lot of our IT
22	resources were diverted in order to do
23	that.
24	And we are in the middle of a
25	monetization project. And through that

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2	in that project, we have to prioritize the
3	work that we're doing, in order to provide
4	services to our members.
5	And only five percent of
6	beneficiaries even actually have a tax
7	deferred annuity, TDAB plan. So the
8	prioritization of getting that up on the
9	on the website is not as great as other
10	priorities for the things that we need to
11	get up there.
12	It doesn't mean that we're not going
13	to do it. It is on our, what we call road
14	map. There will be functionality provided
15	for TDAB. But I want to remind you I'm
16	not sure if you know, but we have closed
17	our TDAB program; so it is really only now
18	available to the people who were already in
19	there, and that was less than five percent
20	of all of our beneficiaries, and much less
21	percent than our entire population.
22	So in our modernization I'm
23	not I want you to be assured that we
24	will be working on that, but it will be
25	later next year, or the year after, when we

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2	get to that functionality.
3	MR. CHERON: So that's a good
4	answer. Um, I've been asking the question
5	for a lot longer than Covid, so just keep
6	that in mind.
7	I'd also like you guys to think
8	about how much it costs for people that have
9	questions to take up customer care time to
10	have these questions it's not just a
11	matter of how many of us there are; it's
12	how much it costs you to field our
13	requests, however few of us there are.
14	Right, like I said in attachment
15	that I've uploaded, I've already made two
16	requests for call backs for a simple
17	question, and scheduled a video conference;
18	that's pretty expensive for you guys, for
19	what amounts to a one minute question.
20	I mean, I wouldn't prioritize it in
21	terms of how many of us there are. I'd
22	prioritize it again, I'm an IT
23	professional; I think in terms of the cost
24	of these programs.
25	How much does it cost you to field

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2	our issues, so
3	MS. REILLY: Okay, let me just
4	explain something to you. So our call
5	center, you're right, is like overwhelmed
6	with calls. We get over 8,000 calls a week
7	from members, and 8,000 and seventy
8	percent of those calls are on the status of
9	requests they've made from us, for our
10	members or beneficiaries, on claims for
11	their death benefits.
12	We are working so that's our
13	highest priority: Let's get statuses on
14	our websites, so that people stop calling
15	our call center to ask for statuses.
16	The next one is for people who want
17	to withdraw their money. They are they
18	want a hardship withdrawal or they want a
19	membership withdrawal.
20	Most of our calls have to do with
21	that; so we're working on functionality on
22	our website to make that easier and to
23	provide them the information that they
24	need, so that they stop calling our call
25	center.

NYC TRS Board Meeting - March 17, 2022 1 2 So I would say to you, you're right, it costs us money for us to interact with 3 you; but it costs us much more money with 4 5 the number of phone calls we're receiving from members looking for statuses, looking 6 for withdrawals; asking us questions about 7 their loans. 8 9 So those are the things that we're 10 prioritizing. And I assure you, we are 11 going to do what you're asking but it's just a matter of priority on the things 12 13 that we're working on. 14 MR. CHERON: I know. MS. REILLY: All right and, you 15 16 know, I'm hoping that if we can reduce 17 those phone calls, your phone calls will 18 come in much easier to us because we won't 19 have all those people calling the call 20 center and tying up the lines. 21 MR. CHERON: That is logical and as 22 the operation's lady said earlier in the 23 meeting, the letters for our MDs go out next 24 month, so -- I'm not a patient guy so, you 25 know, you can probably tell.

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2	Right, I like to self-serve. I want
3	to be able to log in, look something up,
4	and log off and then get back to business.
5	So I won't take up any more of you
6	guy's time; you guys are all busy folks.
7	MS. REILLY: All right, I'm glad
8	that I was able to answer your question.
9	MR. CHERON: Thank you, David.
10	MR. KAZANSKY: Take care.
11	MS. REILLY: All right, thanks.
12	MS. PENNY: Okay, thank you. Any
13	other any further questions from the public?
14	(No response.)
15	MS. PENNY: Okay, hearing none do I
16	hear a Motion to go into the Executive
17	Session?
18	MR. KAZANSKY: So moved.
19	MS. PENNY: Thank you, Mr. Kazansky.
20	Do I hear a second?
21	MR. BROWN: Second.
22	MS. PENNY: Thank you, Mr. Brown.
23	Any questions?
24	(No response.)
25	MS. PENNY: All those in favor

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2	please say aye.
3	(Quorum responds in the
4	affirmative.)
5	MS. PENNY: All those opposed?
6	(No response.)
7	MS. PENNY: Any abstentions?
8	(No response.)
9	MS. PENNY: All right, we're moving
10	into Executive Session.
11	(Pause in proceedings.)
12	* * EXECUTIVE SESSION * *
13	(Recording in progress.)
14	* * PUBLIC SESSION * *
15	MS. PENNY: Okay, we're back in
16	Public Session. Would you like to please
17	report out?
18	MR. McTIGUE: Thank you, Madam Chair.
19	During the Executive Session, the Board took
20	up a personal matter. The Board also got an
21	update on an investment matter. Details to be
22	made public at the appropriate time.
23	MS. PENNY: Thank you very much. Do
24	we have anything else for the Board
25	Meeting?

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2	(No response.)
3	MS. PENNY: Hearing none, do I hear
4	a Motion to adjourn?
5	MR. BROWN: So moved.
6	MR. KAZANSKY: Second.
7	MS. PENNY: Oh, okay that was Mr.
8	Brown and that second by Mr. Kazansky. All
9	those in favor, please say aye.
10	(Quorum responds in the affirmative.)
11	MS. PENNY: Any opposed?
12	(No response.)
13	MS. PENNY: Any abstentions?
14	(No response.)
15	MS. PENNY: Okay, we stand
16	adjourned. Thank you.
17	(Time Noted: 4:33 p.m.)
18	
19	
20	
21	
22	
23	
24	
25	

CERTIFICATE STATE OF NEW YORK)) ss.: COUNTY OF NEW YORK) I, SABINE FAUSTIN, a Notary Public. within and for the State of New York, do. hereby certify, that the foregoing record of proceedings is a full and correct. transcript of the stenographic notes taken by me therein. IN WITNESS WHEREOF, I have hereunto set my hand this 28th day of March, 2022. SABINE FAUSTIN