

## Chicago Infrastructure Trust Meeting - July 19, 2016

1 CHICAGO INFRASTRUCTURE TRUST  
2 BOARD OF DIRECTORS MEETING

3

4

BEFORE:

**CERTIFIED  
TRANSCRIPT**

5

CHAIRMAN KURT SUMMERS

6

MS. LESLIE M. DARLING

7

MR. GEORGE MARQUISOS

8

MR. CARL LINGENFELTER

9

MR. DAMON SILVERS (via telephone)

10

MR. MIGUEL ZARATE

11

MR. MICHAEL SCOTT, JR.

12

MR. MATT O'SHEA

13

MS. DEBRA A. CAFARO

14

MR. JORGE RAMIREZ

15

MS. MARY SUE BARRETT

16

MR. RALPH AFFRONTI

17

MS. PATRICIA DOMINGUEZ

18

MS. SHARON ALEXANDER-JENKINS

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MS. NICOLE KARWOWSKI

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The meeting of the Chicago Infrastructure Trust, before the Chicago Infrastructure Trust Board of Directors, taken before Julie Walsh, CSR, and notary public of Lake County, Illinois, on the 19th day of July, 2016, at the Metropolitan Planning Council, 140 South Dearborn Street, Suite 1400, Chicago, Illinois, beginning at approximately 10:08 a.m., pursuant to notice.

REPORTED BY: JULIE WALSH, CSR

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1 (Whereupon the meeting

2 commenced at 10:08 a.m.)

3 CHAIRMAN SUMMERS: Good morning everyone and  
4 welcome to the board meeting for the Chicago  
5 Infrastructure Trust. We are going to call to  
6 order if we can also take a roll. Debra Cafaro.

7 MS. CAFARO: Present.

8 CHAIRMAN SUMMERS: Matt O'Shea.

9 MR. O'SHEA: Present.

10 CHAIRMAN SUMMERS: Carl Lingenfelter.

11 MR. LINGENFELTER: Present.

12 CHAIRMAN SUMMERS: Miguel Zarate.

13 MR. ZARATE: Present.

14 CHAIRMAN SUMMERS: Jorge Ramirez.

15 MS. DARLING: He's on his way.

16 CHAIRMAN SUMMERS: He's on his way. And  
17 Kurt Summers is here. And from the Advisory  
18 Board we have Mary Sue Barrett.

19 MS. BARRETT: Here.

20 CHAIRMAN SUMMERS: Michael Scott.

21 MR. SCOTT: Present.

22 CHAIRMAN SUMMERS: Ralph Affrunti.

23 MR. AFFRUNTI: Present.

24 MS. DARLING: Oh, and Damon Silvers on the

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1 phone.

2 CHAIRMAN SUMMERS: And Damon Silvers is on  
3 the phone.

4 MR. SILVERS: Hi. I'm here.

5 CHAIRMAN SUMMERS: All right. All accounted  
6 for. First, we have some organizational matters.

7 MS. DARLING: And a couple of housekeeping  
8 matters.

9 CHAIRMAN SUMMERS: Oh, yes. Sure.

10 MS. DARLING: For anyone who would like to  
11 give public comment this morning, we have a quick  
12 order of business sign-in sheet that Nicole has  
13 here. And so if anybody would like to provide  
14 public comment, please sign in and we will make  
15 sure that we get to you at the end of the  
16 meeting. All right.

17 CHAIRMAN SUMMERS: Okay. Has everyone been  
18 able to read the minutes for the April 20th  
19 meeting? Enter a motion to approve.

20 MR. ZARATE: Motion to approve.

21 MS. CAFARO: Second.

22 CHAIRMAN SUMMERS: All in favor?

23 (Chorus of ayes.)

24 CHAIRMAN SUMMERS: Any opposed? Okay. Now,

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1 just some calendar items and I am going to pay  
2 particular attention to this.

3 MS. DARLING: These are the same dates that  
4 we've been mentioning every meeting. Just a  
5 simple reminder that we will be meeting again on  
6 Tuesday, October 18th, and Tuesday, December 6th,  
7 both at 10:00 a.m.

8 We are starting to discuss 2017 board  
9 meeting dates. I will be reaching out to you  
10 individually and sort of taking an informal  
11 survey about whether this is the right number of  
12 annual meetings. If we should go to quarterly,  
13 etcetera. So we will be having some further  
14 one-on-one discussions on that and what works for  
15 you. And I'll be working with Chairman Summers  
16 to set some possible meeting dates so we can have  
17 those far in advance so everyone can plan for the  
18 year. And so if anybody has any questions on  
19 that, please let me know.

20 CHAIRMAN SUMMERS: So we are going to go to  
21 the -- you guys have seen maybe a couple new  
22 faces and probably heard about interesting things  
23 we have been doing. You've been briefed I know  
24 by Leslie. We will go through operations which

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1 will lead into the budget.

2 MS. DARLING: So a couple of things that I  
3 just wanted to share with you. First, I want to  
4 thank Mary Sue Barrett and the Metropolitan  
5 Planning Council for hosting us and continuing to  
6 be our host.

7 MS. BARRETT: No problem.

8 MS. DARLING: We really appreciate your  
9 gracious hospitality and kindness in allowing us  
10 to hold our meetings here. So we do not have the  
11 space for such a meeting at our offices, so we  
12 appreciate your assistance in hosting us here.

13 I also want to quickly introduce  
14 Nicole Karwowski who is our summer intern. And  
15 she's been with us for three weeks and will be  
16 with us throughout the summer and perhaps longer  
17 if we can talk her into it. She has been a  
18 terrific asset. She's a junior at Loyola  
19 studying international business and economics and  
20 she has been a really terrific help to us these  
21 last few weeks. So we're grateful that she  
22 joined us and want to welcome her and introduce  
23 you to her.

24 I know last time that we met we

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1 discussed briefly that we had gotten some pro  
2 bono assistance or were about to sign an  
3 engagement pro bono assistance from a then  
4 unnamed firm. We have now been able to engage  
5 Grant Thornton who is assisting us on a policy  
6 and procedure assessment. We will have the  
7 results of that work coming up at the next board  
8 meeting, but I did want to share with you that  
9 Grant Thornton was very gracious in giving us  
10 some assistance on our policy and procedure  
11 assessments. Something that we as the  
12 organization thought was really pertinent and  
13 they have been a great help as we -- as we embark  
14 on that endeavor.

15 As you also know we are working on  
16 engaging an independent auditor for 2015 and  
17 2016. That is ongoing. I will update you more  
18 as that proceeds, but I expect that will move  
19 relatively quickly as we move forward.

20 For recruiting outreach as we  
21 attempted to find summer interns and have started  
22 to put out job postings for program analyst  
23 positions, we have been posting that at Chicago  
24 State, UIC, Roosevelt University, University of

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1 Chicago, Loyola and Northeastern. We've also  
2 posted on a website called Handshake which is an  
3 online career services platform for recruiting  
4 students. And also on some social networking  
5 sites including LinkedIn.

6 Obviously as we continue to recruit, I  
7 know I have discussed this with some of you; but  
8 we are obviously interested in making sure that  
9 we are having appropriate outreach and we're able  
10 to reach the best candidates. We also want to  
11 continue to try and recruit diverse candidates.  
12 Make sure our staff reflects the City that we  
13 live in. So to the extent that any of you have  
14 ideas or feedback on that as we move forward in  
15 staffing up through 2017, we would be happy to  
16 continue to discuss that with you.

17 When we last met in April I was  
18 preparing to go to Washington D.C. during  
19 Infrastructure Week to meet with the  
20 infrastructure accelerators which I was able to  
21 do. We also -- we spent a day long in -- a day  
22 in briefings where we talked to the U.S.  
23 Department of Transportation and the many other  
24 federal agencies. And also had the opportunity

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1 to meet with BATIC, the Build America  
2 Transportation Investment Center. They serve as  
3 the single point of contact and coordinations for  
4 states and municipalities and project sponsors  
5 working to utilize federal transportation  
6 expertise and assist them in providing for  
7 federal transportation credit programs. And also  
8 they're exploring ways to access private capital  
9 in a similar way, of course, that we are.

10 So we had the opportunity to meet with  
11 them and also work with the other infrastructure  
12 accelerators. We are now engaging in having  
13 quarterly conference calls. We had our first one  
14 about a week ago. And we'll continue to share  
15 best practices.

16 As we discussed last time, the  
17 infrastructure accelerators throughout the  
18 country there's about five of them, and only the  
19 Federal City Council in Washington D.C. is also  
20 focussed on actual project delivery in the same  
21 way that we are. The others are focussed more on  
22 discussing performance based infrastructure and  
23 sharing ways to evaluate whether a public/private  
24 partnership opportunity is -- is a positive one



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1 for a state or municipality.

2           So besides the Federal City Council we  
3 are the only ones that are doing project  
4 delivery. So that sets us a little bit apart.  
5 And we think in a very good and positive way to  
6 show that the infrastructure accelerators can  
7 actually -- not only be able to share expertise  
8 around the information on public/private  
9 partnerships and other alternative financing  
10 vehicles, but also to deliver those projects that  
11 we are doing with the Smart Lighting Project.

12           Finally, I've been invited to an  
13 invitation-only conference also in Washington  
14 again, the U.S. Infrastructure Law Forum. And  
15 where a very small group of only 45 participants  
16 with expertise throughout the country are invited  
17 to discuss financing infrastructure, also  
18 challenges and benefits facing the lack in  
19 alternative financing. So I'm really looking  
20 forward to attending that in September and will  
21 brief you of my learnings from that as well.

22           So moving onto -- unless anyone has  
23 any questions.

24           CHAIRMAN SUMMERS: Just really quickly and

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1 this is going to be appropriate as we get into  
2 the project updates. And, Mary Sue, you may have  
3 an answer to this as well. I'm just wondering  
4 locally or regionally the, you know, what's the  
5 last kind of body of work, credible body of work  
6 that was done that, you know, meets the case and  
7 need for local infrastructure development as it  
8 sort of ties to Chicago's competitiveness as to  
9 the growth of our local economy?

10 MS. BARRETT: Well, multiple sources I --  
11 some of them are specific to our region and  
12 others are, you know, national sources. I know  
13 when assessments were done of the Recovery Act  
14 Investments from President Obama's first term  
15 that the return on investment was the greatest  
16 across the board in every state and community on  
17 the infrastructure investment. So that's more  
18 ROI.

19 Locally we've seen that -- the  
20 depressing news that Chicago, Illinois, and the  
21 region have lost more population than any other  
22 place in the country. 3,000 people just in the  
23 last 12 months in the City. 6,000 in the region.  
24 22,000 in the state. And I think there's a

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1 growing recognition that our lack of investment  
2 in infrastructure is directly -- can be directly  
3 mapped to that. Because if you don't deliver  
4 kind of predictability in your economic building  
5 blocks, people don't have confidence.

6           So there's lots of -- many -- there's  
7 many, many good things happening in Chicago. But  
8 we're, you know, relocating companies. We're  
9 expanding some companies downtown. And meanwhile  
10 the population is fleeing. And some of the old  
11 millennials in the, you know, kind of slightly  
12 older slice of the millennials are departing  
13 according to the -- some LinkedIn statistics. So  
14 I think the linkage between infrastructure and  
15 job growth is very -- is very strong.

16           And there's been data both from CMAP  
17 about the needs as well as on the state wide  
18 basis. It's been documented just on the  
19 calculation side of the \$43 billion in over 10  
20 years need.

21           MR. O'SHEA: Mary Sue, when we talk about  
22 those numbers 3,000 City; 6,000 region; 22,000 in  
23 the state, where are they going? Do they have  
24 that and what are the breakdown of the ages? Are

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1 these strictly seniors who retire and/or is it  
2 families moving out?

3 MS. BARRETT: I would be happy to share some  
4 of the resources that we found useful. It's not  
5 a simple snapshot is the answer. You would see  
6 arrows moving in all directions out -- out from  
7 the metropolitan Chicago region. So it is nearby  
8 metropolitan areas. Places like Indianapolis,  
9 Milwaukee, etcetera. And then Texas pops up on  
10 the list because of job creation as a place  
11 that's receiving a lot of Illinoisans.

12 It is not as big of the, you know,  
13 snow bird phenomenon as you would think. That's  
14 a piece of it. But largely it's the -- the  
15 magnet that we are both because we're a higher ed  
16 powerhouse of graduates choosing to stay in  
17 Chicago and midwestern universities graduates  
18 coming to Chicago has long been true. It's  
19 really a bright spot. They're leaving. They're  
20 not staying.

21 CHAIRMAN SUMMERS: I ask that -- thank you,  
22 Mary Sue. I ask the question in part because  
23 we've got, you know, Leslie is doing great work  
24 engaging, you know, sort of national conversation

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1 and international conversation. And, you know,  
2 part of our job here is to make sure that we make  
3 the right connections locally. And that, you  
4 know, because we are going to get into our  
5 pipeline and where we are going in order to be  
6 able to do and continue to have the support  
7 behind it and have, you know, kind of everybody  
8 pulling to think through creative financing  
9 options for us to do this work, you know; I think  
10 it helps us for that, you know, for that  
11 conversation to be sort of more present and the  
12 need for --

13 MS. BARRETT: I appreciate that.

14 CHAIRMAN SUMMERS: -- infrastructure. You  
15 know, it's not something that we have to kind of  
16 dive into today.

17 MS. BARRETT: No.

18 CHAIRMAN SUMMERS: But it's a thing I wanted  
19 to kind of raise.

20 MS. BARRETT: It's the connection between  
21 transactions and the broader economic transitions  
22 that are underway is an important one. And to  
23 demonstrate that these kinds of, you know,  
24 getting -- getting business done, financed and

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1 executed can be tied to the -- because we need to  
2 change that trajectory.

3 CHAIRMAN SUMMERS: So maybe we can sort of  
4 follow up offline on things that we can do to  
5 better facilitate or elevate that conversation  
6 and make that connection.

7 MS. DARLING: Mary Sue and I are already  
8 scheduling a meeting for the end of -- in the  
9 coming month actually to discuss that as well.

10 CHAIRMAN SUMMERS: Great.

11 MS. DARLING: So we talked the other day  
12 about additional opportunities for us to  
13 collaborate locally.

14 CHAIRMAN SUMMERS: No surprise Leslie is  
15 ahead of me.

16 MS. DARLING: No, no, no.

17 CHAIRMAN SUMMERS: Again --

18 MS. DARLING: But we -- I completely agree,  
19 Kurt. I think it's really important that we  
20 think about how we can collaborate and continue  
21 to expand -- expand our pipeline and think about  
22 the opportunities for the Infrastructure Trust to  
23 continue to not only collaborate, but to continue  
24 to contribute to the -- to the City and the local

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1 region.

2 CHAIRMAN SUMMERS: Just hosting the -- a  
3 forum for the conversation or elevating in the  
4 right, you know, place specifically on  
5 infrastructure. But I think there have been lots  
6 of conversations about, you know, you're well  
7 aware, sort of planning, mapping economic  
8 development strategies, regional, local,  
9 etcetera. Plenty. But, you know, I think this  
10 particular topic and its -- its kind of critical  
11 importance I think deserves its own conversation.  
12 So I'm glad to know you guys are on that.

13 MS. DARLING: So if there are no further  
14 comments on that, let's move on to the operations  
15 overview and get into the budget a little bit.  
16 And you all have been provided the documents in  
17 advance, of course, for this meeting so you were  
18 able to review.

19 But we have as you know the 2015  
20 financials are substantially complete which is  
21 allowing us to proceed with our infinite audit  
22 for 2015 and 2016. And as we discussed and  
23 continue to quickly manage our expenses, so to  
24 date we are -- we are under budget for the year.

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1 We expect that will ramp up as we continue to  
2 staff up to 2017, but we are here today to  
3 request your approval on our 2016 budget.

4           So as you know from what you see here  
5 you're looking at our current staff which  
6 includes myself, George Marquisos is our Managing  
7 Director, Patty Dominguez is our Manager of  
8 Administrative Services and Nicole Karwowski is  
9 our intern.

10           We do have a hiring initiative to add  
11 additional staff including a managing director of  
12 finance which I'm hoping is somebody who will be  
13 able to start this fall. And adding one to two  
14 additional program analysts by the end of the  
15 year. And then continuing to make sure that we  
16 have the appropriate staff into 2017 to do the  
17 work necessary.

18           I do want to thank the staff. We have  
19 been doing quite a lot with very little. We've  
20 had very deep project involvement. And George  
21 particularly has taken the laboring or on -- so  
22 much work on the smart lighting procurement. And  
23 it's really been a terrific team effort. And I  
24 want to thank the whole team at CIT who has been



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1 working nonstop on drafting the -- RFQ documents,  
2 running the evaluation process. It's really been  
3 around the clock for many, many, many months.  
4 And so I'm really grateful to everyone for all  
5 the extra work that they've put in to make sure  
6 this process is going smoothly.

7           As you know we successfully launched  
8 two major projects for the smart lighting and  
9 home buyer's assistance with more in the pipeline  
10 that we expect to ramp up through 2017. Happy to  
11 talk about that in more detail, but want to share  
12 with you the operating budget summary.

13           You can see the 2015 unaudited numbers  
14 that we have. Those will be audited and we have  
15 2015, as I said, substantially complete. So you  
16 won't see a major substantive change in these  
17 numbers, but they may change slightly once we  
18 have the audit. And then you see the numbers for  
19 2016.

20           So overall we are planning for a lower  
21 budget amount than what was spent in 2015. And  
22 have found ways to manage our expenses in a  
23 meaningful way. Obviously our major expense is  
24 labor. And obviously to do the work we have to

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1 have the competent staff. And so as I said we  
2 are looking forward to continue to ramp that up  
3 to the end of the fiscal year and calendar year.

4 So are there any specific questions  
5 about this before I request your approval?

6 CHAIRMAN SUMMERS: Leslie, what do you think  
7 are -- obviously we were sort of delayed in  
8 approving the '16 budget. It's the middle of  
9 '16, right. Maybe give some insight into what  
10 our prospective process will be for next two  
11 years.

12 MS. DARLING: Certainly. I think that part  
13 of doing the reboot of the organization required  
14 us to spend a little bit more time on 2015. And  
15 so it took us a little bit longer than we would  
16 have liked to really do the correct planning and  
17 -- for 2016. But my goal will be obviously to  
18 present a budget to you, I think we have a -- our  
19 end-of-the-year meeting where I'll present the  
20 2017 budget obviously before the start of 2017.  
21 And so we'll be on target as we move forward.  
22 And we'll have a, you know, prospective plan to  
23 present the budget to the board obviously before  
24 the calendar year would end and the fiscal year

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1 would start.

2 CHAIRMAN SUMMERS: Got it. And does the  
3 City know yet that, you know, we're spending less  
4 money than our income?

5 MS. DARLING: Yes. Yes, they do.

6 CHAIRMAN SUMMERS: They are getting off  
7 easy.

8 MS. DARLING: Yes, they do.

9 CHAIRMAN SUMMERS: Okay. All right. Any  
10 other questions on the budget? So we need to  
11 have a motion to approve it.

12 MS. CAFARO: So moved.

13 MR. O'SHEA: Second.

14 CHAIRMAN SUMMERS: All in favor?

15 (Chorus of ayes.)

16 CHAIRMAN SUMMERS: Any opposed? All right.  
17 Motion passes.

18 MS. DARLING: Thank you. Now, we are going  
19 to get into the much more fun part where we are  
20 talking about the work we are doing on the  
21 projects.

22 First we are going to focus on the  
23 smart lighting where today I am pleased to share  
24 with you that we are prepared to recommend the

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1 short list of respondents to the RFQ for the  
2 Smart Lighting Project here today.

3 If, Julie, the record could reflect  
4 that Jorge Ramirez has joined the meeting. Thank  
5 you.

6 So I wanted to give you an update and  
7 a summary of our RFQ evaluation process and how  
8 we came to bring this group of short list of  
9 respondents to you today.

10 We had a very extensive process that  
11 included a 15-member evaluation committee that  
12 was made up of stakeholders from all of the  
13 different City of Chicago departments that have  
14 been working on the Smart Lighting Project and  
15 also our sister agency, the Chicago Park  
16 District, who is involved in this project and  
17 your team here from the CIT of course.

18 Each evaluator spent a tremendous  
19 amount of time scoring the statement of  
20 qualifications. And we totaled up the time we  
21 think people spent on it and it is approximately  
22 over 700 hours of person time. And -- spent on  
23 just reviewing the SOP's which is -- was a  
24 substantial list especially from many of the

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1 people at the City who are relatively senior in  
2 their departments and we asked a lot of them to  
3 review so many statements of qualifications. But  
4 people were extraordinarily careful and  
5 thoughtful about their scoring and spending the  
6 time that was necessary to going through these  
7 evaluations -- the evaluation process.

8 We held evaluation kick-off meetings  
9 to establish our guidelines. And we unanimously  
10 agreed on how to weight the scoring and determine  
11 a work flow. We held a check-in meeting to  
12 discuss process issues and confirm our very tight  
13 schedule which everyone agreed to stay on and  
14 did.

15 We also built an extensive scoring  
16 survey that automatically and accurately  
17 tabulated our results which we were very pleased  
18 about. Did not have any technical glitches and  
19 things went extraordinarily smoothly with the  
20 data.

21 And then we had two very lengthy  
22 consensus meetings where the evaluation committee  
23 unanimously recommended that 9 respondents  
24 proceed to the RFP phase of the procurement. So

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1 you can see here this is the list of 30  
2 respondents that responded to -- that responded  
3 to the RFQ. This list was posted online shortly  
4 after the due date. So this list is public.

5           And this is our list of 9 respondents  
6 that will be moving on to the RFQ -- I'm sorry,  
7 RFP process with your approval. So that is  
8 Aldrige Electric; Ameresco; Black & Veatch, Cisco  
9 & Sprint as one team; ComEd; Itron and Petune  
10 Light as one team; John Burns Construction;  
11 Philips Lighting; Siemens and Silver Spring  
12 Networks.

13           We expect that many of these teams  
14 have an expertise in electrical work or an  
15 expertise in technology. And we expect that  
16 during the RFP phase that many of these teams and  
17 others will be pairing up to submit one  
18 individual response that will encompass all of  
19 the needs of the City and the park district for  
20 the RFP stage. George, do you want to add  
21 anything?

22           MR. MARQUISOS: Only that we were incredibly  
23 pleased with the quality and the number of the  
24 responses to the RFQ. There are quite a lot of

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1 people who are very interested in participating  
2 in this. And we felt just from a logistics point  
3 of view, we had to make a narrowing of the field,  
4 if you will, to kind of make it somewhat  
5 manageable. Reviewing 30 to 40 proposals just  
6 wouldn't be manageable to kind of get this  
7 project going. So we had to make some hard  
8 decisions.

9           The 9 organizations that you see here  
10 we see as being kind of key or primes. They have  
11 the ability to recruit others in supporting  
12 roles. And maybe some of the people who  
13 submitted qualifications will be able to team up  
14 with these 9. So they're in no way precluded.  
15 But we're saying that we don't want to have more  
16 than 9 responses to the next phase. And we'll be  
17 meeting with these folks one on one as part of  
18 the iterative process that we have established to  
19 kind of verify the industry -- get some industry  
20 input on our RFP and our specifications to make  
21 sure that we're doing things that are in line  
22 with what are best practices. Alderman?

23           MR. SCOTT: Just so I'm clear, so the 9  
24 people that are on this short list, can --

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1 they'll be primes when they submit. And if they  
2 would like, the 30 respondents from the other can  
3 team up with them if they go out just to make  
4 that -- that's correct?

5 MR. MARQUISOS: That's correct.

6 MR. SCOTT: Anybody that is not on that 30,  
7 can they -- they can also --

8 MS. DARLING: Absolutely.

9 MR. SCOTT: Okay.

10 MS. DARLING: Yes, there is, you know, as we  
11 said in the RFQ, these are the teams that  
12 submitted -- we're really selecting these folks  
13 as possible primes, but the teams are not  
14 formalized. They have not submitted joint  
15 ventures or other teaming agreements to us and  
16 were not required to during the RFQ phase. So  
17 those teams can still be formed and reformed not  
18 only with those 30, but any other company that  
19 wishes to participate as long as they're teamed  
20 with one of these 9.

21 And, again, you know, just to be 100  
22 percent clear, we are following the City of  
23 Chicago procurement rules. And also the MBE/WBE  
24 goals of the City of Chicago which is 26 percent



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1 MBE and 6 percent WBE as a goal.

2 CHAIRMAN SUMMERS: They should also note I  
3 think that the names that are on this nine are  
4 not reflective of that group in its entirety,  
5 right? Some of these where you'll see an  
6 individual name, they were -- they were part of a  
7 submission. Folks that you won't see there or on  
8 the 30.

9 MS. DARLING: Right. So we went with sort  
10 of the teams that were referenced in the RFQ  
11 cover letters and who the signatories were on the  
12 cover letter and the submission. And that's what  
13 this list sort of reflects. So, yes, you're  
14 right, there is certainly other team members of  
15 some of these companies that are part of these  
16 teams that, you know, certainly we expect would  
17 be -- continue to be parts of those teams as they  
18 moved forward.

19 And also to be clear, we haven't --  
20 these teams have not submitted what kind of light  
21 fixture they would use. And George is going to  
22 get to that in a few minutes after we -- when we  
23 talk about our light specs and our technology  
24 specification committees and give you an update

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1 on that. But nobody has provided information  
2 about what light necessarily or we have not asked  
3 them to say what light they would necessarily  
4 use.

5 CHAIRMAN SUMMERS: Any other questions on  
6 the short list of respondents? Okay. I think  
7 we --

8 MR. RAMIREZ: So I do have a question and I  
9 think this is more directed towards you, George.  
10 So you said that you expect then moving forward  
11 that some of these folks may jump in together and  
12 move forward?

13 MR. MARQUISOS: Yes, so we evaluated based  
14 on the 12 criteria that we stated in the RFQ and  
15 we scored them in a weighted capacity. And then  
16 we looked at the scores and the standard  
17 deviations. So we kind of looked at how the  
18 evaluation committee whether there was general  
19 consensus or there's some disagreement.

20 And after, as Leslie said, a pretty  
21 thorough and involved conversation, we felt that  
22 these 9 entities had the capacity and the proven  
23 track record to not only deliver the project; but  
24 be around 10 to 15 years from now when these

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1 guarantees and other things -- so this is really  
2 a list of people that we feel are qualified to  
3 give us a proposal that is going to be of the  
4 quality that the City needs for this kind of  
5 project.

6 MR. RAMIREZ: I think I recognize all but  
7 one on that list and I would agree.

8 MS. CAFARO: I think maybe you're getting to  
9 the same question I have. We understood from  
10 your question that these people can team with  
11 others in the 30 and others, but can they -- what  
12 are the rules around them teaming with each  
13 other? Was that your question?

14 MR. RAMIREZ: Yes, yes. Look, I think it's  
15 -- I think it's wide open.

16 MS. CAFARO: Because of information flow and  
17 things like that. What's the guidelines that we  
18 have for them teaming with each other?

19 MR. MARQUISOS: The tricky part that we're  
20 trying to balance here is to put it perfectly  
21 clear is we're asking for qualifications without  
22 fully defining the scope of work. We have set a  
23 vision for what we think the project will look  
24 like that we think is feasible, but we haven't

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1 really given -- this is exactly what we want you  
2 to do. And, therefore, it's not reasonable for  
3 them to put together teams to meet that undefined  
4 scope. So they have given their best effort as  
5 to their approach and given us who their key  
6 people are and what past projects they've done.  
7 And based on that information we said, yes,  
8 you're qualified and you have the capacity to  
9 deliver.

10 And now that we give them the scope of  
11 work, they will go out and assemble the teams  
12 that they feel are best suited to meet the  
13 specific scope.

14 MR. RAMIREZ: Because there are a couple now  
15 that I think for sure would join and would be  
16 smart for them to do it.

17 MR. MARQUISOS: I think at the end of the  
18 day we will probably get five or six responses  
19 instead of nine, but we're just saying that these  
20 folks have the ability to --

21 CHAIRMAN SUMMERS: To Deb's question, there  
22 won't be a limitation on teaming with each other?

23 MR. MARQUISOS: Well, the general -- the  
24 guidelines that we gave in the RFQ is if you are

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1 performing more than 30 percent of the scope of  
2 work which is somewhat undefined, then you're  
3 considered to be a key or prime member. If it's  
4 less than 30 percent, you're considered to be a  
5 supporting member and you can enlist as many  
6 supporting members if you wish. But if you're a  
7 prime, then you really would be submitting your  
8 own proposal.

9 MS. CAFARO: Right. I guess where I'm going  
10 with it is we would have to end up with enough  
11 proposals obviously to have a deeper pool of --  
12 and then also information flow. Because, for  
13 example, when we are bidding on deals and we have  
14 a lender and maybe one lender is going to give  
15 certain terms. And if that information goes  
16 amongst all the different people, it could color  
17 the bidding. And that's my question, are their  
18 rules around --

19 CHAIRMAN SUMMERS: You're talking about  
20 exclusively.

21 MS. CAFARO: Information flow. Exclusivity.  
22 Both, right. Either one person teaming up with  
23 everybody which then could color the bids one way  
24 or one person only be willing to team up with one

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1 other person which is the opposite problem. So  
2 what are the, you know, are we thinking about  
3 operating principles amongst the primes to make  
4 sure we get the outcomes that we want without --

5 MR. MARQUISOS: Yes. I get your question  
6 now. And, yes, we --

7 MS. CAFARO: Sorry, it was not clear at  
8 first.

9 MR. MARQUISOS: Yes, so that is part of the  
10 next process. So when we inform these folks that  
11 they're the successful shortlisted respondents,  
12 they will also be signing nondisclosure  
13 agreements. So when they enter into these  
14 one-on-one conversations where we ask for their  
15 input on the draft documents, they will limit  
16 their communications. And -- but having said  
17 that, there is nothing hidden here. I mean,  
18 we're trying to --

19 MS. CAFARO: Right, I'm sure.

20 MR. MARQUISOS: We are trying to balance  
21 that having a fully transparent process, but also  
22 like you say not to have a competitive one as  
23 well.

24 MS. CAFARO: It's a delicate balance that

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1 you, I'm sure, will get right.

2 MS. DARLING: It is. And it's very  
3 important to us to drive the right amount of  
4 competition for this process and be sure that  
5 we're getting the best value for the state.

6 MS. CAFARO: Sure.

7 CHAIRMAN SUMMERS: Ralph, did you have a --

8 MR. AFFRONTI: It just seemed to me like you  
9 -- that there were no technology based companies.  
10 I would have expected Google to get involved in  
11 something like this. Do you think because of the  
12 way that you sent it out not being very specific  
13 on, you know, what type of fixture and things  
14 like that that you eliminated people in the  
15 technology field?

16 MR. MARQUISOS: It's a very good question.  
17 And so we -- we were looking for the AT&T's and  
18 Googles to -- and Google is a part of the ComEd  
19 team in kind of a supporting role. They are  
20 evaluating the City of Chicago for their  
21 broadband Google fiber initiative. And so there  
22 might be a synergy there.

23 We met with the Google folks  
24 informally prior to this process starting and

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1 they are acutely aware of it. They are  
2 interested. They are just trying to figure out  
3 how best to play in this arena. So there are  
4 folks interested. How they ultimately team up  
5 we'll see. Once we define the scope and the  
6 phasing, I think we will get better answers to  
7 these questions.

8 CHAIRMAN SUMMERS: I think Ralph's question  
9 is an informative one as it relates to the  
10 delivery of the RFP and sort of clarity around  
11 the desire to seek new technology and making sure  
12 that that's abundantly clear and widely sort of  
13 known amongst potential respondents.

14 MR. AFFRONTI: I think it's huge because of  
15 the way technology works now, you know, most of  
16 the time by the time you have a print for  
17 something, by the time you actually put it in the  
18 building --

19 MR. O'SHEA: There's a better one out there.

20 MR. AFFRONTI: There's another one out  
21 there. So if we can get more technology based  
22 you might have a better chance to having the  
23 newest greatest thing.

24 MR. MARQUISOS: Yes, it's a big challenge



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1 and you have to jump into the stream or the  
2 rapidly flowing river at some point. We tried to  
3 kind of walk that line of creating a bankable  
4 project, something we think is visible and real  
5 versus -- and then -- and allow for the capacity  
6 to be innovative and forward thinking and future  
7 ready, whatever the term you want to use. So  
8 we're cognizant of it, but I think you have to do  
9 something to kind of start somewhere.

10 CHAIRMAN SUMMERS: Any other questions  
11 regarding the list here? If not, there is a  
12 resolution before you enabling us to authorize  
13 the team to request final proposals for the  
14 project from this short list which I am happy to  
15 entertain a motion.

16 MR. LINGENFELTER: So moved.

17 MR. O'SHEA: Second.

18 CHAIRMAN SUMMERS: Second by Alderman  
19 O'Shea. All in favor?

20 (Chorus of ayes.)

21 CHAIRMAN SUMMERS: Any opposed? Great.

22 MR. LINGENFELTER: Can I just ask the  
23 long-term hard timelines. So the -- we the  
24 people issue an RFP, get responses. When do we

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1 expect, you know, what is your goal for  
2 contracting and, you know --

3 CHAIRMAN SUMMERS: Great question.

4 MR. LINGENFELTER: -- starting?

5 MS. DARLING: That is a great question.  
6 What we have previously discussed is hopefully  
7 having the process completed by year's end with  
8 construction beginning in Q1 of 2017. Right now  
9 I think we are still likely on target for that.  
10 We hope there won't be slippage, but, you know,  
11 obviously we are cognizant of our timeline now.  
12 I think we are hoping to stay in that timeline.

13 MR. LINGENFELTER: I would say it's  
14 important to include that timeline and get  
15 feedback on that as you go into those vendor  
16 discussions, you know, because that will be part  
17 of the planning process.

18 MS. DARLING: Absolutely. And we know that  
19 the timeline that we set out at the beginning of  
20 this process was very aggressive. So we're  
21 working diligently to stick to it as much as  
22 possible.

23 MR. MARQUISOS: And I think, you know, just  
24 to comment on that. I think we have a very good

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1 shot at getting something started. I don't think  
2 it will be the entire City. And I think that the  
3 information we got both from the RFI process and  
4 from discussing with other metropolitan -- large  
5 metropolitan areas, New York, Philly and LA;  
6 everyone kind of recommended a phased or tiered  
7 approach. Because you learn as you go and things  
8 change and you adapt. And so we're going to come  
9 up with a plan. Obviously vetting with these  
10 nine folks to kind of rolling this out in a way  
11 that makes sense and allows us to kind of develop  
12 as we go.

13 MS. DARLING: And what we have said from the  
14 beginning is this would be a phased project and  
15 we believe it's going to take 3 to 4 years before  
16 it's completely built and the LED's are fully  
17 installed in 85 percent of the City. So even  
18 though we expect to be able to start the project,  
19 it's still going to take a significant amount of  
20 time to do the whole City.

21 That is also an aggressive timeline, 3  
22 to 4 years. Other cities are taking longer.  
23 We're hoping to do it more quickly in order to  
24 achieve the energy savings on a faster timeline.

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1 But it will take a ramp up to get all the  
2 installations and infrastructure stabilization  
3 work done.

4 CHAIRMAN SUMMERS: And, Ralph, to your  
5 point, you know, technology can change in the  
6 next four years. So they're very aware of where  
7 we're hitting in the stream and the need for  
8 technology we use to be adaptable and sort of  
9 flexible for future iterations.

10 MS. DARLING: Okay. Thank you for your  
11 approval. We do want to give you a little bit  
12 more detailed update on where we are on both the  
13 lighting specifications and the technology  
14 specifications. And so I'm going to turn it over  
15 to George and sharing those efforts.

16 MR. MARQUISOS: Yes, so it's a fascinating  
17 process. And they're -- I don't know if you're  
18 aware of it like I am, but there is a lot of --  
19 it's a kind of a hot-button topic right now.  
20 Like are LED's bad for you? Are there health  
21 consequences? And beware, Chicago, there's  
22 things going on here that -- you know, we're not  
23 sure this is a good idea. You save some energy,  
24 but at what cost?

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1           So we're acutely aware of the -- I  
2 would call the emerging information. I think the  
3 AMA recently came out with a recommendation, if  
4 you will. If you read that recommendation it can  
5 be summarized in more research is needed. And  
6 there are a couple of concerns and -- that we are  
7 taking very seriously. We are also looking at  
8 the responses to the AMA recommendation from very  
9 I think qualified sources like, for instance,  
10 Rensselaer Polytech issued a statement. And the  
11 Department of Energy issued a statement. And the  
12 Pacific Northwest National Lab. And so there is  
13 a lot of discourse that's happening right now as  
14 we are specifying light levels as to what the  
15 best thing to do with LED's.

16           MR. SCOTT: So I know that in other cities  
17 they've started projects similar to this. What  
18 research have we gathered from -- and New York is  
19 on a similar program, correct?

20           MR. MARQUISOS: New York is ahead of us.

21           MR. SCOTT: What have we gathered from the  
22 research that they've had? Have they had any  
23 adverse effects with this kind of lighting in  
24 their Cities?

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1           MR. MARQUISOS: So I'm in communication with  
2 the head of CDOT in New York or NDOT I guess it's  
3 called. And they have a current light spec. I  
4 -- we can spend hours talking about lighting  
5 specifications. I've come to understand it's a  
6 very complex topic, but the thing that everyone  
7 was talking about is what color temperature. Are  
8 you doing warm white or cool white?

9                   And New York is currently speccing  
10 4100. 4000 Kelvin cool. Which is pretty cool  
11 like plus or minus 500 degrees Kelvin. So  
12 anything between 3500 and 4500 meets the New York  
13 spec. And they are currently not changing that  
14 spec based on --

15           MR. SCOTT: Their research.

16           MR. MARQUISOS: -- anything that has come  
17 out to this date. I am not going to state today  
18 what the lighting specification is going to be  
19 other than to assure you that it's going to be a  
20 thoughtful process. The way that our process is  
21 going I am happy to share a little bit on.

22                   So we have half a dozen experts on  
23 this committee. Some are City folks who have  
24 specified lighting for years. And some are

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1 outside such matter experts who are telling us  
2 what the latest and greatest and what other  
3 people are doing. And we have a model spec that  
4 we are adapting to our current City of Chicago  
5 spec.

6           And the path that we have decided to  
7 do is a lot of these health concerns are really  
8 less about the color of the light. The color of  
9 the light is kind of a perception thing. I view  
10 this warmer and I like it better. And this is  
11 cooler and I like it less. But the whole  
12 Circadian rhythm thing and disrupting sleep  
13 patterns and everything has much less to do with  
14 the color of the light than it does the exposure  
15 and intensity of the light.

16           And so we're trying to make sure --  
17 very sure regardless of the color of the light  
18 that we land on that we are putting that light as  
19 accurately as we can where we need it. So the  
20 distribution aspect is more critical to us at  
21 this juncture from a specification point of view.

22           And so right now a bulb technology we  
23 just turn on the light; it goes wherever it  
24 wants, up, down, all around. It doesn't matter.

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1 It's a light bulb. We now have the ability to  
2 direct that light much more accurately.

3 For sure we're not going to have any  
4 light that is transmitting above the head, right.  
5 So there is not going to be any light allowed  
6 above the horizon line of the lamppost. That's a  
7 minimum. We know that for sure.

8 How we disperse lights given that we  
9 have an existing set of poles at a distance and a  
10 height is a difficult question. So we're  
11 defining a lot of different typical contexts. So  
12 this an alley context. This is a residential  
13 context. This is a residential new context. And  
14 we're specifying distribution patterns and light  
15 levels for each of those contexts. And there may  
16 be different products that better meet those  
17 needs for individuals. So that's the kind of  
18 in-depth analysis we're doing now.

19 MR. SCOTT: So when you do that analysis  
20 will there be a different, you know, you talk  
21 about the warmth and the coolness and the  
22 degree of the light; will we be changing those  
23 for alleys and -- so we can have some that are a  
24 little bit warmer and a little bit cooler



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1 depending on where they're placed and their  
2 height. Or are we going to spec across the board  
3 the same -- the same degree of light, but just  
4 angled a little bit differently?

5 MR. MARQUISOS: Okay. I think I understand  
6 your question. So we are going to have one  
7 general specification that all LED lights must  
8 meet.

9 MR. SCOTT: Okay.

10 MR. MARQUISOS: Okay. So that is this is  
11 how they are going to have to prove they're built  
12 and then testing. And how they -- the data  
13 that's associated with them and how they dim.  
14 All that stuff is going to be universal to  
15 whatever LED gets installed.

16 MR. SCOTT: Right.

17 MR. MARQUISOS: Specifically we are going to  
18 give photometric requirements on how the light  
19 gets dispersed and the light levels and the light  
20 trespass based on a context.

21 So you will have a photometric  
22 requirement for the alley. Photometric  
23 requirements for the corner. Photometric  
24 requirements for -- you know, we have right now

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1 working eight to ten different contexts that we  
2 think are, quote, unquote, typical Chicago  
3 situations.

4 MR. SCOTT: Okay.

5 MR. MARQUISOS: And so it will be up to the  
6 industry to come back with the best products that  
7 they feel meet that specific need.

8 MR. SCOTT: Okay.

9 MS. DARLING: But we do expect, Alderman,  
10 for example, your residential streets will be  
11 handled different than your arterial streets and  
12 your alleys. So there will be different contexts  
13 and that's what this group has spent so much  
14 time --

15 MR. SCOTT: I got it. You more than  
16 answered the question. I got it. I got it.

17 CHAIRMAN SUMMERS: Good transition to  
18 adaptive lighting.

19 MR. MARQUISOS: Yes. And so in addition to  
20 kind of specifying, you know, how we want to  
21 distribute the light and the intensity of the  
22 light; we also want these fixtures to have the  
23 capability to dim, right. And we are currently  
24 engaged in -- I'm not promising anything, but

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1 there is a movement afoot that suggests that  
2 Chicago might be a really good candidate to be  
3 the kind of leader in adaptive lighting.

4           So when we define these contexts we  
5 not only define them based on worst case  
6 scenarios, but we define them on -- throughout  
7 the day and throughout the year. So, for  
8 example, if this intersection needs a lot of  
9 light during rush hour, let's provide it. If it  
10 needs much less in the middle of the night, let's  
11 tone it down.

12           Because if the light isn't needed  
13 because there really isn't any kind of pedestrian  
14 conflict situation, then we have the ability to  
15 reduce accordingly. And so we think that Chicago  
16 will be a leader in that regard. We're not the  
17 leader in converting to LED, but I think we can  
18 be the leader in how we implement LED and how we  
19 control it.

20           CHAIRMAN SUMMERS: One thing that I think is  
21 an important note here and something I think we  
22 should look at with the staff, you know, there is  
23 a -- we talked about early on in this project;  
24 but there is a significant public safety element

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1 to this as well. And the adaptive lighting  
2 capabilities not only allow us to have better  
3 energy efficiency and have usage meet demand and  
4 needs, but part of demand and needs also enable,  
5 you know, better lighting for public safety aid.

6           If there is an incident in an area,  
7 the ability to turn up the lights. If there is a  
8 pursuit of a perpetrator, you know, any of those  
9 type of things happen, there has been a violent  
10 event, something like that which we know happens  
11 far too often in the City.

12           And I think, you know, speaking with  
13 the Mayor it's one of the things that he is most  
14 excited about. I just spoke with the  
15 Superintendent last week. And I think that we  
16 should go over and sort of brief him proper about  
17 it. But just sort of in conversation he  
18 immediately thought about all the ways this helps  
19 him do his job better. And his team and people  
20 who fight to serve and protect us.

21           So I think, you know, this is -- and  
22 as George said not a promise, but sure has a lot  
23 of upside for us in more than traditional ways  
24 here in Chicago. I think we should -- I know

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1 he's out of town this week, but maybe in the next  
2 couple weeks try to find time to talk to him.

3 MS. DARLING: Of course.

4 MR. MARQUISOS: And the other part I wanted  
5 -- go ahead, Damon.

6 MR. SILVERS: Yes, thank you. Let me just  
7 add to our Chair's comments about this. I think  
8 the focus on adaptive lighting is a good idea. I  
9 just have a question now about the kind of  
10 problem that I think, you know, is the kind of  
11 problem that it's all too important to address as  
12 you are pushing the sort of technology envelope  
13 which is how are you all thinking about the  
14 question of how not -- how to have, you know,  
15 technology platform here that can adapt with  
16 time. That can be improved upon as technology  
17 improves.

18 As I was listening to the description  
19 of types of adaptive lighting kind of structures  
20 you were describing in certain things, sometimes  
21 that can kind of get locked into a certain way of  
22 doing it as technology moves. And I wondered how  
23 you were thinking about with the -- with the  
24 project managers, the companies that we're

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1 selecting to make the technology we choose  
2 initially as kind of adaptable themselves as  
3 possible going forward?

4 MR. MARQUISOS: That's a great question and  
5 it's a perfect segue to the next slide. So --

6 MR. SILVERS: Okay.

7 MR. MARQUISOS: This is the process we are  
8 deploying for lighting luminaire specification.  
9 So basically this is at the end of the day we  
10 will have a document that will get sent out to  
11 various folks who manufacture LED fixtures. And  
12 it will say this is what we need -- this is what  
13 we need from your products.

14 Now, go to the next slide. So we also  
15 have another subcommittee equally comprised of  
16 dedicated experts both inhouse and nationwide to  
17 help us define the technology that we're going to  
18 be using for this centralized lighting management  
19 system. Right.

20 So what we're selling here is that not  
21 only do the -- not only do the lights have the  
22 ability to dim, but we will have realtime  
23 information of when they're on or off or whether  
24 they're failing and all that. And we want to be

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1 able to kind of remotely control and monitor that  
2 system. That's a core functionality.

3 But to Damon's point we also want the  
4 technology to be adaptable and also integrate  
5 into our current systems which is a big  
6 challenge. Right. So right now someone in your  
7 ward calls 311 and says the light is out in front  
8 of my house. That generates a work order that  
9 goes through a process. We are now going to have  
10 a system that supposedly supplants that call, but  
11 that doesn't stop the call from coming in.

12 Right. So we could have simultaneous information  
13 about the same light. And so we have to figure  
14 out how do we integrate that work order so we're  
15 not duplicating.

16 And so these are all kind of somewhat  
17 intricate questions that we are trying to specify  
18 as openly and concisely as possible so we can get  
19 the feedback from these folks who are experts and  
20 issue this kind of technology.

21 But it is a -- it is a very  
22 interesting question about certainly if you're a  
23 leader in this field. Because right now we know  
24 there's national standards about light levels

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1 that you have to maintain based on certain  
2 intersections and how many cars and how many  
3 pedestrians and all that kind of stuff. And we  
4 also know that it's recognized that those  
5 conditions change over time or during the course  
6 of a day or during the season. But there is no  
7 real recommendations about what light -- when you  
8 make those changes, how do you make those  
9 discretionary changes and when do you raise the  
10 light levels because you suspect a heightened --  
11 so that is where Chicago will be leading. We  
12 will be making those kind of discretionary  
13 decisions.

14 MR. SCOTT: So that's what I was just  
15 thinking like in the future will there -- you  
16 know, we're talking about traffic patterns and  
17 how the nodes will be savvy technologically.  
18 Will there ever be a point where -- and I know  
19 this might be in the future, but where, you know,  
20 if traffic increases on this block that the  
21 lights kind of raise because there is a heavier  
22 traffic either driver or pedestrian wise.

23 And we're talking about public safety  
24 when there are certain people gathered -- not



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1 certain people, but an amount of people gathered  
2 on a corner, those lights will come up because of  
3 the movement of the individuals that are there or  
4 the traffic that is going by. I am sure  
5 technology will allow that down the future.

6 In the future is that something that  
7 we're thinking of long-term? I know not now, but  
8 having the ability to move when that -- that sort  
9 of thing moves.

10 MS. CAFARO: Like sensors versus decisions.

11 MR. SCOTT: Correct. Correct. Correct.

12 MR. MARQUISOS: The reality is the  
13 technology exists today. And there are people  
14 who are doing it in Europe. There's not a lot of  
15 people doing it in the U.S. And it's a question  
16 at what cost. And we are trying to weigh those  
17 things and get validation from the industry as  
18 to, you know, how best to deploy this, quote,  
19 unquote, adaptive lighting strategy.

20 But we're -- I think we're committing  
21 to the notion that we're no longer just turning  
22 the whole City at dusk full intensity everywhere.  
23 Right. And we're just kind of -- think about  
24 something a little bit different. And I think

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1 we'll progress as we learn more.

2 MR. SCOTT: And I know that over time, you  
3 know, smart phones used to be \$500, \$600.  
4 They're now \$2, \$300. And they are continuing to  
5 go down. So as the price continues to decrease  
6 then, those are other options that we can look at  
7 down the line.

8 MR. MARQUISOS: Yes.

9 CHAIRMAN SUMMERS: Yes, I think that what we  
10 talked about early on was having sort of maximum  
11 flexibility of the technology and to -- to add  
12 potentially going in the future things we can't  
13 afford now. But what happens with that, you  
14 know, it's a difficult thing because then you  
15 incur the cost potentially of going back up and  
16 then, you know, doing the work again, right. So  
17 it's, you know, sort of measure twice, cut once  
18 is the ideal.

19 MR. MARQUISOS: And to that point visiting  
20 the poles twice maybe that's really to Damon's  
21 question, we are specifying what we think is the  
22 latest technology in terms of receptacles.  
23 There's the seven pin technology. It has the  
24 ability to add to it, either sensors underneath

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1 or nodes on top or different type of  
2 communication devices. We will have that built  
3 into the luminaires. We expect all of them come  
4 with them now. It's no longer even -- everyone  
5 recognizes this is the direction. So all the  
6 manufactures are offering it at little to no  
7 extra cost. So that will be there. How we  
8 utilize those seven pins is still to be  
9 determined.

10 MR. SCOTT: Okay.

11 MS. DARLING: And there is a cost associated  
12 with all that new technology. So we are -- we  
13 are going to be very budget driven on this  
14 project. And so we are going to accomplish as  
15 very much as we possibly can within the financial  
16 constraints that we have. But it is certainly a  
17 priority that we want to include as technology to  
18 serve the residents of the state.

19 MR. MARQUISOS: And, okay, two more points  
20 then we'll move on. To the previous slide part  
21 of our specification process involves a proof of  
22 concept trial installation. So this is where  
23 once we think we know what we want and how the  
24 light should be dispersed in a particular

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1 context, we'll install some. And we'll let the  
2 Alderman and their constituents go visit those  
3 areas and give their opinions on whether the  
4 light is adequate, whether it's cool, too warm.

5           And we'll collect that kind of  
6 information and kind of -- because right now  
7 we're working pretty much on calculated light  
8 levels based on what we currently have on the  
9 City. And so what we expect the LED will  
10 comprise. So until we actually see it, there's a  
11 large variation in the way that people perceive  
12 light.

13           And so right now I may be delivering  
14 two-foot candles with the high pressure sodium  
15 and I can deliver one foot candles with LED. And  
16 people will say that's way brighter than what you  
17 used to have even though I'm delivering more --  
18 half the light than I was previously. It's all  
19 about perceptions. And so we're going to approve  
20 it as well as put it down on paper.

21           CHAIRMAN SUMMERS: This is an area I'm sure  
22 our two Aldermen here can appreciate this. You  
23 know, the Mayor is very focussed on this part of  
24 the process in getting public feedback. Leslie

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1 is focussing -- committed to that. And I think,  
2 you know, there is a view about how we will get  
3 it done and how long it takes. But I think, you  
4 know, we want to rely on your counsel there to  
5 make sure that, you know, it's sort of done the  
6 right way with the adequate amount of time and we  
7 are able to capture the feedback in a way that  
8 doesn't make promises we can't deliver on. But  
9 make sure that everyone's voices are heard in  
10 kind of an ability to provide the feedback.

11 MR. RAMIREZ: I just think that what is  
12 going to help us with that is the adaptive  
13 lighting piece of it. I mean, a lot of concerns  
14 that were raised and a lot of the criticisms  
15 around the country, if they had the adaptive  
16 lighting concept this would be a whole different  
17 ball game. I don't think we should do anything  
18 other than run towards the adaptive lighting  
19 stuff.

20 Having been to a lot of meetings on  
21 this stuff and you guys are all over it, all the  
22 points that need to be hit are being hit on this.  
23 So the adaptive lighting piece is absolutely  
24 critical for this and from a policing perspective

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1 as well.

2           You know, I would love to be a part of  
3 that meeting with the Superintendent because his  
4 eyes are going to pop out of his head when you  
5 tell him. I'm sure they're researching it as  
6 well. But that's another thing that in the  
7 future to the Alderman's question, you know, a  
8 lot of the policing strategies can be  
9 complemented maybe through the police department  
10 themselves. You know, there's things that they  
11 can do with these later on. They could --

12           CHAIRMAN SUMMERS: Agreed. I think, you  
13 know --

14           MR. RAMIREZ: Maybe they can purchase on  
15 their own.

16           CHAIRMAN SUMMERS: -- we had a conversation  
17 about another topic and I kind of mentioned this  
18 in passing. You're right, his eyes did -- did  
19 get pretty wide and I think he is excited and  
20 looking forward to it.

21           MS. DARLING: And we are going to look at --  
22 you know, I don't want to get too deep into this  
23 conversation because it's really in the  
24 preliminary stages; but I think that, you know,

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1 we'll look at every which way to get that  
2 finance. You know, perhaps there is -- perhaps  
3 the police department has a Homeland Security  
4 Fund or --

5 MR. RAMIREZ: That's what I'm getting at.

6 CHAIRMAN SUMMERS: Or the county.

7 MR. RAMIREZ: The hot spot areas I think  
8 that --

9 MS. DARLING: So we are going to look at  
10 that and be thoughtful about what all our options  
11 are to bring to bear the most resources to this  
12 project.

13 MR. RAMIREZ: Right. And I just think the  
14 last piece for folks, the adaptive lighting  
15 piece, will actually save money over time which  
16 is nice as well.

17 MR. MARQUISOS: Okay.

18 MS. DARLING: Shall we move on? Any other  
19 questions on this? I wanted to give you a very  
20 brief update on the Home Buyer Assistance  
21 Program.

22 So this is officially -- the program  
23 has officially launched. Lenders began accepting  
24 loan applications in June. Last week the program

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1 closed on its first loan -- a condo in the 2nd  
2 Ward. As of last Wednesday about \$8.8 million in  
3 loan reservations and that equals 43 loans. As  
4 you can see the average loan amount is 204 --  
5 about \$204,000; \$205,000. And the qualifying  
6 income is just over 100 percent of the City's  
7 median, about \$76,000.

8           So we are really pleased about the  
9 great start that this program has had. We are  
10 continuing to work on signing up additional  
11 lenders. We have 6 so far. Inland came online  
12 just this morning. And will be posted on our  
13 website. But both our website the Treasurer's  
14 website and the City's website all have  
15 information about the Home Buyer Assistance  
16 Program.

17           It's getting a lot of good attention  
18 in the lending world. And, in fact, I think  
19 there may have been some -- a little bit of media  
20 this morning. I wasn't -- I didn't catch it  
21 personally, but I think there was something out  
22 there. But I will send you some clips if that  
23 did come out. But we are really pleased at the  
24 great start that we've gotten and are looking



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1 forward to really growing this program  
2 exponentially, you know, through this year and  
3 well through next year so.

4 CHAIRMAN SUMMERS: Can you give the context?  
5 I think originally we -- when we sort of talked  
6 about this and talked to George K. Baum, we  
7 talked about, you know, roughly maybe \$20 million  
8 in transactions was your estimate, \$20 or \$30  
9 million from the last time the program was done.

10 MS. DARLING: Yes, in the early 2000's the  
11 City had a program. And I think that was the  
12 largest year of the program. So I think there  
13 will be a ramp up to that. But certainly, you  
14 know, people are learning about the program. I  
15 know that Guaranteed Rate has been marketing it  
16 very -- you know, they've put in a lot of effort  
17 to market it and they have the most loans so far.

18 CHAIRMAN SUMMERS: So I say that to say that  
19 I think, you know, we're almost half way at where  
20 the City was in its peak the last time they did  
21 this program. That's due to the great work of,  
22 you know, the team and in large part, but it also  
23 speaks to the need. And, you know, I honestly  
24 think we can -- we have something here that is a

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1 real value and not enough people still know about  
2 it.

3           You know, I know the Aldermen and  
4 community -- some community members have included  
5 it in their newsletters and things like that,  
6 but, you know, I think you can expect to see from  
7 us a more active proactive approach with this now  
8 that we know, hey, this works. It's hitting the  
9 right sort of target. You know, average  
10 qualified income of 76,000. We're talking about  
11 a \$200,000 home. And these are all sort of at or  
12 below median. And this is exactly where we're at  
13 and where we want to be.

14           And so we will be reaching out to  
15 folks. I mean, my view is this is a great  
16 program for City employees. This is a great  
17 program for trade members. This is a great  
18 program for, you know, sort of folks in your  
19 wards. Everybody here has a constituency that  
20 this makes a lot of sense for and we want to be a  
21 lot more proactive about it now that we sort of  
22 have the proof point that it works and something  
23 that people are excited about.

24           MS. DARLING: We know that -- you're exactly

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1 right, Kurt. I think that we know that as people  
2 come back from the recession, ways of keeping  
3 people from investing and being able to become a  
4 homeowner is that they don't have a savings to  
5 pay for a down payment. So this assists people  
6 with that down payment. So that these are folks  
7 that have stable income, good jobs. They just  
8 don't have a savings. So this helps people  
9 across that hurdle, and we are pleased to be  
10 working on that and will continue to spread the  
11 word and work with you on making sure that people  
12 know about this program.

13 MR. RAMIREZ: Leslie, can we have the  
14 previous slide? Is that something you sent out  
15 to us that we -- can we get that slide?

16 MS. DARLING: Sure. That's information that  
17 I just received. So I'm happy to share that with  
18 you.

19 MR. RAMIREZ: Yes, because I don't remember  
20 seeing that. I'll tell you why. There are a few  
21 hundred thousand folks that have good,  
22 well-paying jobs in City that can probably take  
23 advantage of this through all the different labor  
24 organizations. They have a steady stream income.

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1 So now that we have the numbers. And, Kurt, we  
2 talked about this before as well. So but I think  
3 now that we have some of this, we can use that to  
4 promote this. And I think you'll see an uptake.

5 CHAIRMAN SUMMERS: What we may want to do,  
6 and you can tell if this works; but we've got  
7 some good collateral to sort of put an easy thing  
8 together. They can put in newsletters or pass  
9 out at meetings. You know, we've got material  
10 already. The only thing that gets updated is who  
11 the lenders are. You know, so it would be --

12 MR. RAMIREZ: And, Kurt, it might even be  
13 worth paying for a mailing with some of these  
14 folks.

15 CHAIRMAN SUMMERS: Yes. It would be an easy  
16 maybe -- first of all, it makes us money as an  
17 organization, right. But it would be an easy  
18 thing to.

19 MR. RAMIREZ: Good news for our bonuses,  
20 guys.

21 CHAIRMAN SUMMERS: Exactly. You'll get  
22 paid --

23 MR. RAMIREZ: Stock options are going to be  
24 paid.

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1 CHAIRMAN SUMMERS: Jorge, you're going to  
2 get paid double. For the record that is a joke.

3 MR. RAMIREZ: And for the record 100 percent  
4 of nothing is nothing.

5 CHAIRMAN SUMMERS: And I do think that a  
6 thing we can make -- you don't have to take that  
7 and figure out a graph. I think we can kind of  
8 graph it and sort of broadly distribute it.

9 MS. DARLING: We will do that and we'll work  
10 to get that out to you as soon as possible. But  
11 that information as it stands is on our website,  
12 the Treasurer's website and the City's website  
13 right now.

14 MR. RAMIREZ: Yes, this is great.

15 MS. DARLING: We're excited about it. Thank  
16 you. So now George is going to give you a quick  
17 update on Retrofit One.

18 MR. MARQUISOS: So we are slowly losing our  
19 audience here so I'll tailor my remarks  
20 accordingly.

21 MR. RAMIREZ: Save street lighting for last  
22 next time.

23 MS. DARLING: Exactly.

24 MR. MARQUISOS: All right. So Retrofit One

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1 is, for those of you who haven't heard, have  
2 completed or substantially completed in June of  
3 2015. It was the ESCO's responsibility -- is the  
4 ESCO's responsibility to deliver an annual  
5 savings report to the City that documents,  
6 monitors and verifies whether the savings that  
7 they promised in their performance contract was  
8 actually achieved.

9           We just -- we not just over the last  
10 couple of months, we've received various drafts  
11 of the first year. It's called a stub-year  
12 report, but it's not a full annual year. It goes  
13 from June 1st to December 31st. And so we asked  
14 them to come back with the report that says what  
15 did we actually do after a year worth of all of  
16 these efforts.

17           And the news is largely very good. I  
18 think the stub-year posts some challenges in a  
19 couple of large buildings that kind of held the  
20 savings back a little bit because it took us a  
21 while to get things right, especially the  
22 building automation systems; but the outlook for  
23 the next 14 years is very good.

24           We are actually going to achieve in

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1 excess of not only the guarantee, but the  
2 projected. So just as a refresher the ESCO's  
3 calculate how much energy the City will save if  
4 they do these measures that they recommend. And  
5 they say we will guarantee that you will get at  
6 least this much which is a subset of the  
7 projected. And so we're on track. I think when  
8 I come back next year, you'll see we'll be  
9 something in excess of the projected. Okay. We  
10 didn't get there. We're above the guarantee for  
11 the stub year, but we are short of the projected.

12 But I think in viewing every one of  
13 the buildings we're seeing a pattern of just  
14 progressively better and better savings. So  
15 things are getting better. And in most cases  
16 we're 110 percent, 115 percent of what the  
17 projected was.

18 MR. RAMIREZ: George, can you answer this, I  
19 mean, I think it's obvious; but I don't  
20 understand how the even a larger scale would --  
21 how the numbers would work. But had this project  
22 been done according to the original size that was  
23 proposed, I know it would have been even greater  
24 a savings on a per unit basis; but how much -- do

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1 we have a ballpark for how much better it could  
2 have been if we had gone with the larger  
3 scaled-up version?

4 MR. MARQUISOS: Okay. So we ended up saying  
5 that this project is going to save a  
6 million-and-a-half dollars over 60 projects and  
7 with the 15-year payback. And having an  
8 assumption that the cost of energy would not  
9 escalate at all. So what you are paying in 2012,  
10 you will be paying 15 years later.

11 If we defined a project that had a  
12 20-year term and a slightly escalating rate of  
13 energy costs which I think is realistic although  
14 we're now in kind of a market that is flat, but I  
15 don't think it's unreasonable to expect that at  
16 some point we are going to start seeing energy  
17 costs creep up again. If you did that then I  
18 think you're talking about a project that would  
19 be 2 to 3 times as large without -- and still be  
20 a conservative project.

21 The challenge with the City in energy  
22 only projects is when President Obama's  
23 Reinvestment Act money came out they were looking  
24 for several ready projects and the City took



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1 advantage of that. And they picked a lot of  
2 loaning fruit by converting lights all over the  
3 City. So you will be hard pressed to find a D12  
4 fluorescent bulb anywhere in a City owned  
5 building. And that was because we used our money  
6 to convert all that stuff.

7           And that leaves kind of deeper  
8 retrofits, bigger pieces of equipment. And they  
9 have longer paybacks and it's tougher to justify  
10 on an energy only basis. You have to start  
11 monetizing the operational savings which are  
12 real, but are difficult to quantify and difficult  
13 to kind of -- kind of politically tough to sell  
14 too.

15           So that's a long winded way of saying  
16 there is possibilities of doing bigger and more  
17 things and we're looking at that as part of our  
18 2017 pipeline, but as we get into this we want to  
19 be very cognizant of the kind of project we  
20 choose. Because that really is the key factor in  
21 how successful you are going to be.

22           MR. RAMIREZ: I have a lot of ideas around  
23 that.

24           MR. MARQUISOS: Well, you're timing is

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1 perfect because we are meeting with 2FM to talk  
2 about Retrofit Two.

3 MR. RAMIREZ: Which should include  
4 geothermal. You look at some of these places  
5 that are doing it now. I went and saw the  
6 installation of one of them at one of our locals  
7 in Countryside is doing it for their entire  
8 operation. But you talk about snow removal and  
9 things like that, you can pipe that stuff into  
10 the walkways and wouldn't have to worry about  
11 snow removal or salt or anything like that. Very  
12 easy to do and very cost efficient to do it.

13 We have about 20 companies in the  
14 Chicagoland area alone that can do it which would  
15 allow you to get some good healthy competition as  
16 well. But they've got it down. It's almost to  
17 the point where you can afford to do it on a  
18 residential basis; but definitely the schools and  
19 the City buildings and things like that, we  
20 should be looking at that in the Retro Two.

21 MS. DARLING: We would like to talk to you  
22 more about that.

23 MR. RAMIREZ: Yes, I can take you to see it.  
24 It's amazing.

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1 MS. DARLING: Great.

2 MR. MARQUISOS: Okay. There is much more  
3 detailed information about what each building did  
4 and didn't do. And we can -- I'm not going to go  
5 into it here, but it's certainly available to you  
6 if you wanted to drill down further on these  
7 savings reports. We're finalizing the final  
8 versions right now and they'll be available for  
9 you review any time.

10 The next slide is talking a little bit  
11 about -- and I'm going to really make this brief  
12 because you can go on and on. But talking about  
13 energy efficiency projects people tend to focus  
14 about, okay, great, you saved a million, four.  
15 That's fantastic, but really -- is that worth  
16 doing? And it's a relative drop in the bucket on  
17 a \$6 billion budget, but there are other very  
18 compelling reasons to do energy projects --

19 MR. RAMIREZ: Thanks to David Hoffman.

20 MR. MARQUISOS: And some of the uses -- some  
21 of the projects that we ended up doing and how  
22 they evolved during the installation period  
23 really offered some I think valuable insight as  
24 to how valuable these projects are from

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1 non-energy. So the kind of ancillary benefits  
2 are really kind of extraordinary. And just  
3 having people come in and start focussing on how  
4 a building is consuming energy really gives  
5 insight into what is the optimal way to manage  
6 and operate this building.

7           So it's all about adding another  
8 perspective. And those who are operating a  
9 building based on customer comfort or complaints,  
10 that's one way. But if you start adding in some  
11 other perspectives, you start getting significant  
12 opportunities for changes that you never kind of  
13 envisioned.

14           Real briefly one example that I found  
15 fascinating was the Harold Washington Library.  
16 It's a very unique building in that all those  
17 beautiful lights that you see there are  
18 metal-halide lights. And they are from our  
19 perspective highly inefficient because they  
20 generate a tremendous amount of heat when they  
21 produce light.

22           And in 1990 this building was  
23 conceived of as being incredibly innovative by  
24 saying we're not even going to put a heating

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1 system in the building. We'll just make the mass  
2 so big and so dense with all the books that the  
3 lights alone will provide the heat. And so it's  
4 an all electric building. And those lights that  
5 you see there are the heaters as well as the  
6 lighters of that building.

7           So the ESCO's looked at it and said,  
8 well, you know, that building consumes a whole  
9 lot of electricity. And turns out that most of  
10 the time you were trying to cool that building  
11 rather than heat -- rather than try to heat it.  
12 And so we think there is an opportunity to kind  
13 of reduce the wattages of these inefficient bulbs  
14 and still save you some money.

15           And we said, well, you know, that's a  
16 great idea, but we don't want people cold, right.  
17 So don't take away our heat. And they said, no,  
18 we've done the calcs. We'll guarantee. We'll  
19 stand behind it. We can reduce the wattages by  
20 35 watts and every one of those bulbs you'll  
21 still have plenty of heat and you get all these  
22 savings.

23           We signed up for it. And they went in  
24 and they installed the lights and what did they

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1 discover? The new bulbs that they put in didn't  
2 turn out to be white at all. They were mostly  
3 green and gray. And they were like, well, what's  
4 going on with that?

5           So we brought Phillips and all the  
6 experts in from around the country and said,  
7 what's going on here? And what we came to  
8 discover is that over the last 30 years this  
9 building's lighting system has slowly been  
10 degrading and no one has really perceived it  
11 because it's been so gradual. So the light  
12 levels that we were delivering in the Harold  
13 Washington Library were significantly lower than  
14 when the building opened.

15           And so we found a cost effective way  
16 of upgrading the ballast system that provides the  
17 energy to those lights by changing a \$20  
18 component. And low and behold the library lit up  
19 to the levels it did on day one. Which is all  
20 beautiful, right.

21           As we rolled this out on a floor by  
22 floor basis, people starting migrating to the  
23 floors that had the new lights and new ballasts  
24 because the light was so much whiter and brighter

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1 and you could read clearer. And that was all  
2 really good except that we started burning more  
3 electricity. Right. Because we fixed the  
4 capacitors so the reduction that we were  
5 expecting based on the wattage reduction was  
6 offset by the fact that they were now powering  
7 the lights like they were supposed to be powered  
8 and we didn't realize it had degraded over this  
9 time.

10           So what do we do now? We had this  
11 guarantee that they said you owe us this much  
12 money, how are you going to fix that? And so  
13 these are the kind of unintended, unforeseen  
14 circumstances that happen when you start touching  
15 buildings. And the good news is that -- I won't  
16 go into the whole thing. We did a number of  
17 other things at Harold Washington Library to  
18 control when the lights are on and the building  
19 automation system. And the end result is we are  
20 saving \$27,000 a month based -- and we are having  
21 light levels that are 20 percent higher than what  
22 we were before.

23           So it's a win win. The library is lit  
24 like it's supposed to and you are still saving

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1 25,000 a month on your electric bill. So it's a  
2 -- it's a fascinating case study, but no one was  
3 even aware that this was happening because the  
4 building manager basically changed lights when  
5 the lights went out. But they weren't really  
6 going out, they were just getting dim. And so  
7 the only time they changed the ballast was when  
8 it failed not when it was just kind of  
9 diminished. Okay. That's one case study.

10           And then the next one is City Hall.  
11 So this is a picture of the basement of City  
12 Hall. These are brand new chillers and pumps  
13 that were installed as part of this project.  
14 Previously the bottom portion of City Hall was  
15 cooled by chilled water that was purchased from a  
16 supplier near the Congress Expressway. So it was  
17 piped underground into the City and that's the  
18 way we cooled the bottom half of City Hall.

19           And the ESCO's looked at it and said,  
20 you know, it's a nice idea. And if you didn't  
21 have operating engineers, it's pretty much  
22 problem free to buy that chilled water from  
23 outside sources. But you guys already have 24/7  
24 operating engineers in this building and you



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1 could produce your own chilled water for a small  
2 fraction of what you're paying the outside  
3 vendor. And so we said, okay, great. That's a  
4 savings. Let's do it.

5           So they installed this beautiful  
6 chilled water system and it operates beautifully.  
7 The unintended consequence was we now have  
8 chilled water piping that runs through the  
9 basement of City Hall that affords us the ability  
10 to provide adequate cooling to the server rooms  
11 that also exist in the basement of the City Hall.

12           So previously we had highly  
13 inefficient cooling systems that operated -- that  
14 forced us to operate chilled water systems for  
15 just a bunch of servers and equipment when the  
16 building was largely unoccupied. But now because  
17 we have this chilled water piping that goes up to  
18 the roof and the chilling tower, we have the  
19 ability -- so the City invested a little bit of  
20 extra money and they are now saving considerably  
21 more by keeping these critical infrastructure  
22 rooms cool with a system that's more appropriate  
23 to their size. And it also means that they can  
24 shut down this behemoth when the building is not

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1 occupied and doesn't need to have this level of  
2 cooling capacity.

3           And so those are the kinds of  
4 unintended consequences. We're saving water.  
5 We're saving electricity. We're increasing the  
6 longevity of the equipment we installed. All  
7 these kinds of unintended consequences as a  
8 result of increasing the capability by adding the  
9 new equipment. Just a case in point.

10           MS. DARLING: I think you can see why George  
11 is -- has basically become one of the world's  
12 leading experts on his energy efficiency work and  
13 how wonderful it is that he chooses to work with  
14 us at the Chicago Infrastructure Trust. He could  
15 obviously do this kind of work pretty much  
16 anywhere in the country and he chooses to engage  
17 in this service for us. And for that we are  
18 extraordinarily grateful and we're also really  
19 proud of these projects.

20           This is the very first project that  
21 the Infrastructure Trust did. And it really is  
22 showing the long-term benefits. And we hope that  
23 a year from now we will be able to come back and  
24 share with you the long-term benefits of the

## Chicago Infrastructure Trust Meeting - July 19, 2016

1 street lighting too as we start to implement  
2 that.

3 So with that we are at the public  
4 comment period of our board meeting. Patty, do  
5 we have any takers?

6 MS. DOMINGUEZ: No.

7 MS. DARLING: No takers today.

8 MR. RAMIREZ: That's a first.

9 CHAIRMAN SUMMERS: All right. Then I don't  
10 think we need to have an executive session.

11 MS. DARLING: No need for an executive  
12 session. Oh, I should just say that -- I should  
13 have said this at the beginning and I apologize  
14 for not doing so. Scott Falk our counsel from  
15 Kirkland was called away for an emergency  
16 out-of-town meeting and was unable to join us.  
17 But he apologizes and will be with us at our next  
18 meeting.

19 CHAIRMAN SUMMERS: All right. Are we ready  
20 to adjourn?

21 MR. RAMIREZ: Make a motion.

22 MS. CAFARO: Second.

23 CHAIRMAN SUMMERS: All right. So moved. So  
24 approved.

## Chicago Infrastructure Trust Meeting - July 19, 2016

1 MS. DARLING: Thank you so much.

2 (Whereupon the meeting

3 concluded at 11:34 a.m.)

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Chicago Infrastructure Trust Meeting - July 19, 2016

1 STATE OF ILLINOIS )

2 ) SS:

3 COUNTY OF L A K E )

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5 Julie Walsh, being first duly sworn,  
6 on oath says that she is a court reporter doing  
7 business in the City of Chicago; and that she  
8 reported in shorthand the proceedings of said  
9 meeting on July 19, 2016, and that the foregoing  
10 is a true and correct transcript of her shorthand  
11 notes so taken as aforesaid, and contains the  
12 proceedings given at said meeting.

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*Julie Walsh*

Julie Walsh, CSR

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License No. 084-004032

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|---|--|--|--|---|
|   | <b>3:5</b>   | <b>20</b>  | <b>22:8</b>  | <b>27:12;29:18;32:10;</b>                                   |
| <b>\$</b>   | <b>accurately (3)</b><br>21:16;39:19;40:2  | <b>afoot (1)</b><br>43:1                                 | <b>America (1)</b><br>8:1  | <b>39:24;53:15;65:22;</b>                                   |
| <b>\$2 (1)</b><br>50:4  | <b>achieve (2)</b><br>35:24;62:24  | <b>aforsaid (1)</b><br>77:11                             | <b>amongst (3)</b><br>29:16;30:3;32:13                                   | <b>70:6</b>   |
| <b>\$20 (3)</b><br>57:7,8;70:17   | <b>achieved (1)</b><br>62:8  | <b>again (6)</b><br>4:5;9:14;14:17;<br>24:21;50:16;64:17 | <b>amount (8)</b><br>17:21;20:19;31:3;<br>35:19;49:1;53:6;56:4;<br>68:20 | <b>arrows (1)</b><br>12:6                                   |
| <b>\$200,000 (1)</b><br>58:11   | <b>across (3)</b><br>10:16;41:2;59:9   | <b>agencies (1)</b><br>7:24                              | <b>analysis (2)</b><br>40:18,19  | <b>arterial (1)</b><br>42:11                                |
| <b>\$204,000 (1)</b><br>56:5  | <b>Act (2)</b><br>10:13;64:23  | <b>agency (1)</b><br>20:15                               | <b>analyst (1)</b><br>6:22   | <b>aspect (1)</b><br>39:20                                  |
| <b>\$205,000 (1)</b><br>56:5  | <b>active (1)</b><br>58:7  | <b>ages (1)</b><br>11:24                                 | <b>analysts (1)</b><br>16:14   | <b>assemble (1)</b><br>28:11                                |
| <b>\$27,000 (1)</b><br>71:20  | <b>actual (1)</b><br>8:20  | <b>aggressive (2)</b><br>34:20;35:21                     | <b>ancillary (1)</b><br>68:1   | <b>assessment (1)</b><br>6:6                                |
| <b>\$30 (1)</b><br>57:8   | <b>actually (8)</b><br>9:7;14:9;32:17;<br>52:10;55:15;62:8,15,<br>24               | <b>ago (1)</b><br>8:14                                   | <b>and/or (1)</b><br>12:1  | <b>assessments (2)</b><br>6:11;10:13                        |
| <b>\$300 (1)</b><br>50:4  | <b>acutely (2)</b><br>32:1;37:1  | <b>agree (2)</b><br>14:18;27:7                           | <b>angled (1)</b><br>41:4  | <b>asset (1)</b><br>5:18                                    |
| <b>\$43 (1)</b><br>11:19  | <b>adapt (2)</b><br>35:8;45:15   | <b>agreed (3)</b><br>21:10,13;54:12                      | <b>annual (3)</b><br>4:12;62:4,12  | <b>assist (1)</b><br>8:6                                    |
| <b>\$500 (1)</b><br>50:3  | <b>adaptable (3)</b><br>36:8;46:2;47:4   | <b>agreements (2)</b><br>24:15;30:13                     | <b>answered (1)</b><br>42:16   | <b>assistance (7)</b><br>5:12;6:2,3,10;17:9;<br>55:20;56:15 |
| <b>\$6 (1)</b><br>67:17   | <b>adapting (1)</b><br>39:4  | <b>ahead (3)</b><br>14:15;37:20;45:5                     | <b>apart (1)</b><br>9:4  | <b>assisting (1)</b><br>6:5                                 |
| <b>\$600 (1)</b><br>50:3  | <b>adaptive (11)</b><br>42:18;43:3;44:1;<br>45:8,19;49:19;53:12,<br>15,18,23;55:14 | <b>aid (1)</b><br>44:5                                   | <b>apologize (1)</b><br>75:13  | <b>assists (1)</b><br>59:5                                  |
| <b>\$76,000 (1)</b><br>56:7   | <b>add (5)</b><br>16:10;22:20;45:7;<br>50:11,24                                    | <b>Alderman (4)</b><br>23:22;33:18;42:9;<br>52:2         | <b>apologizes (1)</b><br>75:17   | <b>associated (2)</b><br>41:13;51:11                        |
| <b>\$8.8 (1)</b><br>56:2  | <b>adding (4)</b><br>16:13;68:7,10;74:8  | <b>Alderman's (1)</b><br>54:7                            | <b>applications (1)</b><br>55:24   | <b>assumption (1)</b><br>64:8                               |
| <b>A</b>  | <b>addition (1)</b><br>42:19   | <b>Aldermen (2)</b><br>52:22;58:3                        | <b>appreciate (4)</b><br>5:8,12;13:13;52:22                              | <b>assure (1)</b><br>38:19                                  |
| <b>ability (11)</b><br>23:11;28:20;40:1;<br>43:14;44:7;46:22;<br>49:8;50:24;53:10;<br>73:9,19         | <b>additional (4)</b><br>14:12;16:11,14;<br>56:10                                  | <b>Aldrige (1)</b><br>22:8                               | <b>approach (3)</b><br>28:5;35:7;58:7                                    | <b>AT&amp;T's (1)</b><br>31:17                              |
| <b>able (14)</b><br>3:18;6:4;7:9,20;<br>9:7;13:6;15:18;16:13;<br>23:13;35:18;47:1;<br>53:7;59:3;74:23 | <b>address (1)</b><br>45:11  | <b>alley (2)</b><br>40:12;41:22                          | <b>appropriate (4)</b><br>7:9;10:1;16:16;<br>73:22                       | <b>attempted (1)</b><br>6:21                                |
| <b>above (3)</b><br>40:4,6;63:10  | <b>adequate (3)</b><br>52:4;53:6;73:10   | <b>alleys (2)</b><br>40:23;42:12                         | <b>approval (4)</b><br>16:3;18:5;22:7;<br>36:11                          | <b>attending (1)</b><br>9:20                                |
| <b>Absolutely (3)</b><br>24:8;34:18;53:23   | <b>adjoin (1)</b><br>75:20   | <b>allow (4)</b><br>33:5;44:2;49:5;<br>66:15             | <b>approve (4)</b><br>3:19,20;19:11;<br>52:19                            | <b>attention (2)</b><br>4:2;56:17                           |
| <b>abundantly (1)</b><br>32:12  | <b>Administrative (1)</b><br>16:8  | <b>allowed (1)</b><br>40:5                               | <b>approved (1)</b><br>75:24   | <b>audience (1)</b><br>61:19                                |
| <b>accelerators (4)</b><br>7:20;8:12,17;9:6   | <b>advance (2)</b><br>4:17;15:17   | <b>allowing (2)</b><br>5:9;15:21                         | <b>approving (1)</b><br>18:8   | <b>audit (2)</b><br>15:21;17:18                             |
| <b>accepting (1)</b><br>55:23   | <b>advantage (2)</b><br>59:23;65:1   | <b>allows (1)</b><br>35:11                               | <b>approximately (1)</b><br>20:21  | <b>audited (1)</b><br>17:14                                 |
| <b>access (1)</b><br>8:8  | <b>adverse (1)</b><br>37:23  | <b>alone (2)</b><br>66:14;69:3                           | <b>April (2)</b><br>3:18;7:17  | <b>auditor (1)</b><br>6:16                                  |
| <b>accomplish (1)</b><br>51:14  | <b>Advisory (1)</b><br>2:17  | <b>alternative (2)</b><br>9:9,19                         | <b>area (3)</b><br>44:6;52:21;66:14                                      | <b>authorize (1)</b><br>33:12                               |
| <b>according (2)</b><br>11:13;63:22   | <b>afford (2)</b><br>50:13;66:17   | <b>although (1)</b><br>64:13                             | <b>areas (4)</b><br>12:8;35:5;52:3;<br>55:7                              | <b>automatically (1)</b><br>21:16                           |
| <b>accordingly (2)</b><br>43:15;61:20   | <b>affords (1)</b><br>73:9   | <b>AMA (2)</b><br>37:3,8                                 | <b>arena (1)</b><br>32:3   | <b>automation (2)</b><br>62:22;71:19                        |
| <b>accounted (1)</b>  | <b>Affrunti (5)</b><br>2:22,23;31:8;32:14,   | <b>amazing (1)</b><br>66:24                              | <b>around (10)</b><br>9:8;17:3;26:24;                                    | <b>available (2)</b><br>67:5,8                              |
|   |  | <b>Ameresco (1)</b>                                      |  | <b>average (2)</b><br>56:4;58:9                             |
|   |  |  |  | <b>aware (6)</b><br>15:7;32:1;36:6,18;<br>37:1;72:3         |
|   |  |  |  | <b>away (2)</b><br>69:17;75:15                              |

|   |   |  |   |   |
|---|---|--|---|---|
| <b>eyes (3)</b><br>3:23;19:15;33:20   | <b>benefits (4)</b><br>9:18;68:1;74:22,24   | 9:21;44:16;55:20;<br>67:11   |   | <b>career (1)</b><br>7:3  |
| <b>B</b>  | <b>besides (1)</b><br>9:2   | <b>briefed (1)</b><br>4:23   | <b>C</b>  | <b>careful (1)</b><br>21:4  |
| <b>back (7)</b><br>42:6;50:15;59:2;<br>62:14,20;63:8;74:23  | <b>best (10)</b><br>7:10;8:15;23:22;<br>28:4,12;31:5;32:3;<br>37:15;42:6;49:18                            | <b>briefings (1)</b><br>7:22   | <b>Cafaro (14)</b><br>2:6,7;3:21;19:12;<br>27:8,16;29:9,21;30:7,<br>19,24;31:6;49:10;<br>75:22  | <b>Carl (1)</b><br>2:10   |
| <b>bad (1)</b><br>36:20   | <b>better (13)</b><br>14:5;32:6,19,22;<br>39:10;40:16;44:2,5,<br>19;63:14,14,15;64:1                      | <b>briefly (2)</b><br>6:1;68:14  | <b>calcs (1)</b><br>69:18   | <b>cars (1)</b><br>48:2   |
| <b>balance (3)</b><br>27:20;30:20,24  | <b>beware (1)</b><br>36:21  | <b>bright (1)</b><br>12:19   | <b>calculate (1)</b><br>63:3  | <b>case (5)</b><br>10:6;43:5;72:2,9;<br>74:9  |
| <b>ball (1)</b><br>53:17  | <b>bidding (2)</b><br>29:13,17  | <b>brighter (2)</b><br>52:16;70:24   | <b>calculated (1)</b><br>52:7   | <b>cases (1)</b><br>63:15   |
| <b>ballast (2)</b><br>70:16;72:7  | <b>bids (1)</b><br>29:23  | <b>bring (2)</b><br>20:8;55:11   | <b>calculation (1)</b><br>11:19   | <b>catch (1)</b><br>56:20   |
| <b>ballasts (1)</b><br>70:23  | <b>big (4)</b><br>12:12;32:24;47:5;<br>69:2   | <b>broadband (1)</b><br>31:21  | <b>calendar (3)</b><br>4:1;18:3,24  | <b>CDOT (1)</b><br>38:2   |
| <b>ballpark (1)</b><br>64:1   | <b>bigger (2)</b><br>65:8,16  | <b>broader (1)</b><br>13:21  | <b>call (4)</b><br>2:5;37:2;47:10,11  | <b>Center (1)</b><br>8:2  |
| <b>bankable (1)</b><br>33:3   | <b>bill (1)</b><br>72:1   | <b>broadly (1)</b><br>61:8   | <b>called (4)</b><br>7:2;38:3;62:11;<br>75:15   | <b>centralized (1)</b><br>46:18   |
| <b>Barrett (9)</b><br>2:18,19;5:4,7;<br>10:10;12:3;13:13,17,<br>20                                  | <b>billion (2)</b><br>11:19;67:17   | <b>brought (1)</b><br>70:5   | <b>calls (2)</b><br>8:13;47:7   | <b>certain (6)</b><br>29:15;45:20,21;<br>48:1,24;49:1   |
| <b>based (13)</b><br>8:22;26:13;28:7;<br>31:9;32:21;38:14;<br>41:20;43:5;48:1;52:8;<br>68:9;71:5,20 | <b>bird (1)</b><br>12:13  | <b>bucket (1)</b><br>67:16   | <b>came (5)</b><br>20:8;37:3;56:11;<br>64:23;70:7   | <b>Certainly (7)</b><br>18:12;25:14,16;<br>47:22;51:16;57:13;<br>67:5   |
| <b>basement (3)</b><br>72:11;73:9,11  | <b>bit (14)</b><br>9:4;15:15;18:14,15;<br>36:11;38:21;40:24,<br>24;41:4;49:24;56:19;<br>62:20;67:10;73:19 | <b>budget (13)</b><br>5:1;15:15,24;16:3;<br>17:12,21;18:8,18,20,<br>23;19:10;51:13;67:17 | <b>can (61)</b><br>2:6;4:16,17;5:17;<br>9:6;11:2;14:1,3,4,20;<br>17:13;22:1;23:24;<br>24:2,7,7,17;27:10,11;<br>29:5;32:21;33:22;<br>36:5;37:4;38:4;39:19;<br>40:23;43:17;45:15,<br>16,21;47:18;50:6;<br>51:15;52:15,22;54:8,<br>11,14;56:4;57:4,24;<br>58:6;59:13,15,22;<br>60:3,6,8;61:6,7;<br>63:18;66:9,14,17,23;<br>67:4,12;69:19;73:23;<br>74:10 | <b>Certified (1)</b><br>77:17   |
| <b>basically (3)</b><br>46:9;72:4;74:11   | <b>Black (1)</b><br>22:8  | <b>Build (1)</b><br>8:1  | <b>building (21)</b><br>11:4;32:18;62:22;<br>65:5;67:3;68:4,6,9,16,<br>22;69:1,4,6,8,10;<br>70:14;71:18;72:4,24;<br>73:16,24  | <b>CHAIRMAN (59)</b><br>2:3,8,10,12,14,16,<br>20,22;3:2,5,9,17,22,<br>24;4:15,20;9:24;<br>12:21;13:14,18;14:3,<br>10,14,17;15:2;18:6;<br>19:2,6,9,14,16;25:2;<br>26:5;28:21;29:19;<br>31:7;32:8;33:10,18,<br>21;34:3;36:4;42:17;<br>43:20;50:9;52:21;<br>54:12,16;55:6;57:4,<br>18;60:5,15,21;61:1,5;<br>75:9,19,23 |
| <b>basis (5)</b><br>11:18;63:24;65:10;<br>66:18;70:22   | <b>block (1)</b><br>48:20   | <b>building's (1)</b><br>70:9  | <b>built (4)</b><br>21:15;35:16;41:11;<br>51:2  | <b>Chair's (1)</b><br>45:7  |
| <b>BATIC (1)</b><br>8:1   | <b>blocks (1)</b><br>11:5   | <b>buildings (4)</b><br>62:19;63:13;66:19;<br>71:15                                      | <b>bulb (3)</b><br>39:22;40:1;65:4  | <b>challenge (3)</b><br>32:24;47:6;64:21  |
| <b>Baum (1)</b><br>57:6   | <b>board (8)</b><br>2:4,18;4:8;6:7;<br>10:16;18:23;41:2;<br>75:4  | <b>building's (1)</b><br>70:9  | <b>bulbs (3)</b><br>69:13,20;70:1   | <b>challenges (2)</b><br>9:18;62:18   |
| <b>bear (1)</b><br>55:11  | <b>body (2)</b><br>10:5,5   | <b>built (4)</b><br>21:15;35:16;41:11;<br>51:2   | <b>bunch (1)</b><br>73:15   | <b>chance (1)</b><br>32:22  |
| <b>beautiful (3)</b><br>68:17;70:20;73:5  | <b>bono (2)</b><br>6:2,3  | <b>bulb (3)</b><br>39:22;40:1;65:4   | <b>burning (1)</b><br>71:2  | <b>change (6)</b><br>14:2;17:16,17;35:8;<br>36:5;48:5   |
| <b>beautifully (1)</b><br>73:6  | <b>bonuses (1)</b><br>60:19   | <b>bulbs (3)</b><br>69:13,20;70:1  | <b>burning (1)</b><br>71:2  | <b>changed (2)</b><br>72:4,7  |
| <b>become (2)</b><br>59:3;74:11   | <b>books (1)</b><br>69:2  | <b>bunch (1)</b><br>73:15  | <b>burns (1)</b><br>22:10   | <b>changes (3)</b><br>48:8,9;68:12  |
| <b>began (1)</b><br>55:23   | <b>both (8)</b><br>4:7;11:16;12:15;<br>29:22;35:3;36:12;<br>46:16;56:13                                   | <b>burning (1)</b><br>71:2   | <b>business (4)</b><br>3:12;5:19;13:24;<br>77:7   | <b>changing (3)</b><br>38:13;40:22;70:17  |
| <b>beginning (4)</b><br>34:8,19;35:14;<br>75:13   | <b>bottom (2)</b><br>72:14,18   | <b>burns (1)</b><br>22:10  | <b>buy (1)</b><br>72:22   | <b>check-in (1)</b><br>21:11  |
| <b>behemoth (1)</b><br>73:24  | <b>brand (1)</b><br>72:12   | <b>business (4)</b><br>3:12;5:19;13:24;<br>77:7  | <b>buyer (2)</b><br>55:20;56:15   |   |
| <b>behind (2)</b><br>13:7;69:19   | <b>breakdown (1)</b><br>11:24   | <b>buy (1)</b><br>72:22  | <b>buyer's (1)</b><br>17:9  |   |
| <b>behold (1)</b><br>70:18  | <b>brief (4)</b>  |  |   |   |
| <b>below (1)</b><br>58:12   |   |  |   |   |

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