

In The Matter Of:
Narragansett Bay Commission

CSO Phase III Stakeholders Meeting
December 04, 2014



VIDEO CONFERENCE CENTERS

Phone: 401-946-5500

Toll Free: 888-443-3767

www.alliedcourtreporters.com

info@alliedcourtreporters.com

Min-U-Script® with Word Index

1 AGENDA: CSO PHASE III RE-EVALUATION
 2 STAKEHOLDERS MEETING
 3
 4
 5
 6 DATE: December 4, 2014
 7 TIME: 9:00 A.M.
 8 PLACE: Narragansett Bay Commission
 9 Corporate Office Building
 10 One Service Road
 11 Providence, RI 02905

12 PRESENTERS:
 13 Michael Domenica, Moderator
 14 Vincent Mesolella, Chairman, NBC
 15 Tom Brueckner, NBC
 16 Richard Raiche, MWH
 17 Nick Anderson, MWH

18 STAKEHOLDERS:
 19 Angelo Liberti
 20 Doris Aschman
 21 Steve Scialabba
 22 David Turin
 23 Sheila Dormody
 24 Brian Bishop
 25 John Hart
 Jared Rhodes
 Michael Gagnon
 Al Mancini
 Harold Gadon
 Tom Borden
 James Boyd
 Greg Gerritt

1 (MEETING COMMENCED AT 9:10 A.M.)
 2 MR. DOMENICA: I'm Mike Domenica,
 3 and you know, I've been moderating the workshops
 4 and will be moderating today. It got very quiet
 5 all of a sudden. I presume we're ready to
 6 start, so thank you all for being here today and
 7 your involvement through the months as we've had
 8 the workshops.
 9 This is scheduled to be the last
 10 workshop, and as such, Chairman Vincent
 11 Mesolella has some words for the group today.
 12 So we'll start with the Chairman. Mr. Chairman.
 13 CHAIRMAN MESOLLELA: All right.
 14 Good morning, everyone, I'm Vin Mesolella,
 15 Chairman of the Narragansett Bay Commission.
 16 I've been here a long time, more than half of my
 17 life has been spent working with the
 18 Narragansett Bay Commission.
 19 I came on in 1979, became Chairman
 20 in 1991. And I can remember the days when
 21 Narragansett Wastewater Treatment Facility did
 22 not look anything like it looks today, and not
 23 achieved any of the kinds of successes we've
 24 achieved through the years. I've seen this
 25 plant and this facility go from one of the worst

1 Michael Walker
 2 Jan Reitsma
 3 Steve Coutu
 4 Lance Hill
 5 Caroline Karp
 6 Amelia Rose
 7 Gregory Schultz
 8
 9 OTHER ATTENDEES:
 10 Bob Ototski
 11 Jean Lynch
 12 Gail Degnan
 13 Joe Haberek
 14 Sherri Arnold
 15 Kathryn Kelly
 16 Matt Travers
 17 Elizabeth Scott
 18 Pam Reitsma
 19 Christine Comeau
 20 Tim Theis
 21 Larry Riggs
 22 Jim Kelly
 23 Eliza Moore
 24 David Peterson
 25 Melissa Carter
 Gavin Gilchrist
 George Palmisciano
 Jamie Samos

1 polluters in the entire country to the best
 2 operated and maintained facility in the country
 3 the centerfold story of the 25th anniversary of
 4 the Clean Water Act. And for that I'm very
 5 proud to be a part of this facility. And I want
 6 to thank you, all of you, because all of you
 7 were a large part of the successes that we've
 8 enjoyed today. Starting from the very, very
 9 first Stakeholder's process, when we began the
 10 CSO program. Oh, my God, Jamie, how many years
 11 was that?
 12 MS. SAMONS: 1990 something.
 13 CHAIRMAN MESOLLELA: Oh, that's the
 14 senility sinking in. So I would like to take
 15 this opportunity, and I wanted to take this
 16 opportunity to be here today to thank all of you
 17 for your participation and for many of you who
 18 were there at the very beginning. I
 19 particularly want to thank Harold Gadon for his
 20 support.
 21 The Citizens Advisory Committee has
 22 been an enormous, enormous part of the successes
 23 that we've enjoyed here at the Narragansett Bay
 24 Commission, and I want to thank Harold and the
 25 Citizens Advisory Committee for his

Page 5

1 participation, not only on a monthly basis or a
 2 weekly basis, but on a daily basis. So once
 3 again, thank you very much. And by the way,
 4 we're having membership drive, are we Harold,
 5 for the Citizens Advisory Committee. So anyone
 6 who is interested in joining the Citizens
 7 Advisory Committee and staying involved in the
 8 process, we certainly would welcome your input.
 9 So having said that, I really make
 10 it a habit of speaking extemporaneously because
 11 I really don't prepare remarks very well, but I
 12 did make a couple of notes and issues that I'd
 13 like to talk about. And one of those things is
 14 you, by being involved in this process, you
 15 recognize the hurdles that we have to climb to
 16 achieve successes, the continued successes, the
 17 complexities of regulatory process, the
 18 construction process, the political process and
 19 the environmental concerns.
 20 So we have been very vigilant at
 21 looking at those issues. And I have to say that
 22 on behalf of myself and the board, we have
 23 always been concerned about the financial
 24 impacts that undertaking a project of this
 25 magnitude will have on our ratepayers. And I

Page 7

1 make sure that our commissioners understand the
 2 complexities involved in these processes. I can
 3 tell you this on a going forward basis. On a
 4 going forward basis, I said this at our board
 5 meeting. I think it's imperative that we do
 6 some modeling with regard to the cost. I know
 7 MWH has already done some, and we're talking to
 8 some of our investment bankers, as well.
 9 The executive Director, Ray
 10 Marshall, and I have had this conversation on
 11 numerous occasions, and that is one that we're
 12 trying to make a decision as to whether or not
 13 in order to level out our rate impacts that we
 14 extend the life of this project. And, of
 15 course, you know we like to play devils advocate
 16 with each other, and I said, well, you know, in
 17 today's dollar that may make sense, but we don't
 18 have any idea what interest rates are going to
 19 do. I suspect they're not going to go down any
 20 further.
 21 So, what does a 50 basis point
 22 increase on our borrowing rate do for the cost
 23 of this project and one percent. And we intend
 24 to do some modelling on that. And then we will
 25 come to some decisions as to, you know, what we

Page 6

1 always felt it was paramount for me and my
 2 responsibility to keep a vigilant eye on the
 3 impact of our ratepayers. You probably have
 4 always heard and you will see what the economic
 5 impacts are and the impacts on affordability for
 6 our ratepayers.
 7 I can tell you that our board is extremely concerned
 8 about that. It's as being a leader of Narragansett
 9 Bay Commission Board of Commissioners, it's always
 10 been my attitude that cost benefit ratio is the
 11 equation that we need to be most mindful of. And I
 12 know that we're going to be looking at four
 13 potential options of how we intend to proceed with
 14 the CSO project. We're going to take this to the
 15 Board of Commissioners. And I can assure you that
 16 our board maybe more than any other board in the
 17 state, kept apprised of all of the activities of our
 18 staff and our ongoing operations. We make it an
 19 absolute -- it's imperative that we keep them
 20 apprised at board meetings every step along the way.
 21 So I don't care if you see any of
 22 our board members on the street. If you ask
 23 them a question, they can give you an informed
 24 answer. I'm absolutely convinced of it. And a
 25 lot of that is to Tom Uva who goes overboard to

Page 8

1 believe to be the optimum process. So these are
 2 things that we will be considering in the course
 3 of the upcoming months. We intend to go to the
 4 Board with some recommendations. I think in
 5 January, Ray am I right on that? Where are you,
 6 Ray. Thank you. We intend to go to the board
 7 in January.
 8 We'll hand this off to our
 9 construction engineering and Operations
 10 Committee and probably our Finance Committee, as
 11 well, and we'll go through some very detailed
 12 analysis on how we should proceed, and we will,
 13 at some point, reconvene this group, and kind of
 14 give you a sense of how we're intending to
 15 proceed, and perhaps get your input on that, as
 16 well. But I can assure you of this, whatever
 17 decisions you make, you'll get a one thousand
 18 percent effort from our staff and employees, as
 19 well as our board.
 20 I want to thank the Board and
 21 Commissioner Burrows is here. He'll keep this
 22 on the straight and narrow, and we will proceed
 23 with diligence and perseverance, and we'll make
 24 this project as successful as the previous two.
 25 So once again, I would like to

Page 9

1 thank all of you again for your participation.
 2 It's been a long process. But what I do know is
 3 it will be worth it at the end, and it will be a
 4 successful project. So, thank you, thank you
 5 very much.
 6 MR. DOMENICA: Thank you, Mr.
 7 Chairman. We're ready to get started and MWH is
 8 ready to start presentations. I have a few
 9 reminders that I've been reminded of by several
 10 people already. They told me to be forceful as
 11 I express the requirements for our discussion.
 12 Number one, when you start say your
 13 name and affiliation loudly and clearly,
 14 especially on this side of the table because
 15 Paula can't see your name tags, and on that side
 16 of the table you can't see your names. So say
 17 your name clearly and loudly. It will be very
 18 helpful. Also, if you're speaking from the
 19 audience or not with the microphone in front of
 20 you, please use the microphone that's on the
 21 stand there in the center of the room, so that
 22 everyone can hear you.
 23 Also, very important, is that only
 24 one person speaking at once. Sometimes in the
 25 record, if there are two people speaking,

Page 10

1 sometimes even three. Paula has two hands, but
 2 she doesn't have three. She can pick up two
 3 people, no, she can't. So one person at a time
 4 and speak clearly and concisely, if you would.
 5 And with that I'll give it to Rich Raiche to
 6 start us off.
 7 MR. RAICHE: I haven't even started
 8 and we already have a question.
 9 MS. KARP: My name is Carolyn Karp,
 10 Brown University. Could somebody before this
 11 meeting is over talk about the stormwater
 12 initiative that's going on with the City of
 13 Providence, and all the other cities to try to
 14 get a utility district going. I've never
 15 actually heard what volume of water can come out
 16 of that.
 17 MR. RAICHE: I just saw Sheila walk
 18 in. We'll let her get her coat off before we
 19 put her on the spot, at the very least.
 20 MS. KARP: Just before the meeting
 21 is over if we could do that.
 22 MR. RAICHE: Well, thank you all
 23 for coming. We've broken it up into a couple of
 24 pieces. We'll start off today with the
 25 introduction of the alternative plans for

Page 11

1 evaluation. Our plan here is to get through
 2 those definitions and then take our break, and
 3 then come back and compare those plans against
 4 each other, both in terms of water quality and
 5 affordability and conclude our process today
 6 with some conclusions. This is the part of the
 7 presentation where I usually review where we've
 8 been, the different steps.
 9 At this point I think we've already
 10 known where we've been, so rather than do that,
 11 I'd just like to thank Stakeholders and the
 12 other individuals for sticking with us through
 13 this process. There's been a lot of
 14 information, Nick and I, and all the other
 15 engineers from MWH and Pare have thrown a lot of
 16 techno gobble gook at you and you've been very
 17 game in entertaining our techno babble, and I
 18 appreciate it, and I appreciate all the input
 19 that we have had thus far, and hopefully we have
 20 a little bit more today. So without any further
 21 ado, we'll talk about the alternative plans.
 22 We have four to introduce today.
 23 The first is the baseline CDRA. This is sort of
 24 our baseline by which we can evaluate all the
 25 other alternatives. So we'll introduce that and

Page 12

1 describe it in terms of the other plans.
 2 The second takes the analysis that
 3 we have done. If you recall, we went through
 4 sort of a subsystem alternatives analysis, and
 5 picked apart the old plan and made some
 6 improvements to it, or at least I'd like to
 7 think they're improvements to it. So we have
 8 the modified baseline.
 9 And the other thing that we've done
 10 with what we're calling Alternative 2 is broken
 11 it into phases. As you recall, the overall
 12 objectives of Phase 3 are very similar in scope
 13 and cost to what was Phases 1 and 2 previously.
 14 So Phase 3 is a rather ambitious construction
 15 project. So the concept was if we divide this
 16 into phases and extend the schedule, what would
 17 that look like, and that's the basis for
 18 Alternative 2.
 19 Now, Alternative 2 does the phasing
 20 based on what we would think is the sort of
 21 ideal case, particularly in terms of water
 22 quality. We use the rating criteria that we
 23 developed a few months back, and rated each one
 24 of the components and phases based on that, and
 25 frankly, all the logistics because you can only

Page 13

1 do something downstream before you do something
 2 upstream.
 3 Alternative 3 takes a slightly
 4 different view on that and reorders the phases
 5 and extends the schedule. As we've been
 6 discussing, affordability is a large concern and
 7 spoiler alert. The tunnel is the biggest
 8 component of the overall plan, has the biggest
 9 benefit, but also has the biggest cost.
 10 So Alternative 2 takes a slightly
 11 different view, and puts out that cost a little
 12 bit further into the future. One of the other
 13 things we had talked about during the subsystem
 14 alternatives analysis are that there are other
 15 things that we could do that aren't necessarily
 16 the final solution, but can improve water
 17 quality in the interim. These are specifically
 18 the screening and disinfection ideas that we had
 19 been talking about. So in Alternative 3, we
 20 also put into that mix, the screening and
 21 disinfection ideas.
 22 Alternative 4, takes an entirely
 23 different tactic. And this is sort of a
 24 newcomer to our evaluation, and we'll get into
 25 the details of that when we get to Alternative

Page 15

1 construction on that side and move towards the
 2 tunnel and also do the 206 sewer separation.
 3 And then round out that program with the sewer
 4 separation. The Providence areas and the Middle
 5 Avenue Middle Street Interceptor and the High
 6 and Cross Street Interceptor.
 7 We can't start construction on
 8 those until we at least have the drop shaft for
 9 205 done so that's the connection point, so it's
 10 just sort of a logistical concern. So on the
 11 baseline fast track one phase, we would envision
 12 that the fastest we can complete all of this
 13 construction is 2025. The cost of that program,
 14 as we've talked about before, is the 750 million
 15 dollar value.
 16 So if we look at what this is in
 17 terms of cumulative cost spent and reductions in
 18 CSO discharges to the bay, so in 2023 the tunnel
 19 would be complete, and we'd have the Pawtucket
 20 Avenue Interceptor done, so we'd also capture
 21 220.
 22 So we'd have a dramatic reduction
 23 in CSO volume discharge to the bay in 2023. We
 24 would also have spent an awful lot of money by
 25 then. And then in 2025, we'd pick up the

Page 14

1 4, but it is also phases but has a completely
 2 different set of design objectives.
 3 So this should be a little bit of
 4 review in terms of what we had been talking
 5 about in the baseline, but how would we step
 6 this out a program in terms of sequencing.
 7 Well, coming out of our process today, we'll
 8 have a regulatory review of this Phase 3
 9 redefinition effort. That would conclude as
 10 soon as we submit the report and take some time
 11 to do.
 12 Then it would take some time to do
 13 the preliminary and final design on those
 14 systems. We anticipate that that overall time
 15 scale is on three-to-four year sort of a
 16 duration. So that by 2019 is when we would
 17 break ground. So on the baseline we'd be
 18 breaking ground in 2019 and fast tracking as
 19 much as we can.
 20 We would begin the Pawtucket Tunnel
 21 construction which is the longest duration
 22 component of the overall plan. Do that
 23 simultaneously with the Pawtucket Avenue
 24 Interceptor. We can do that because we've got a
 25 pump station on the 220 side so we can start

Page 16

1 outliers both on the Northern end in Central
 2 Falls and Pawtucket, and in Providence.
 3 So we'd drop down to zero discharge
 4 for the three-month storm in 2025, and we've
 5 also completed spending our money on Phase 3 by
 6 then.
 7 MR. BISHOP: I'm wondering, do you
 8 have a graph similar to that that rather than
 9 presenting the, or rather than just comparing
 10 that to the capture of the three-month storm
 11 that compares that to the existing expenditure
 12 for Phases 1 and 2, the amortization. I mean,
 13 I'd actually be interested, because basically
 14 you're showing baseline cost and realistically
 15 from a practical point of view if we're
 16 examining cost, what I'd like to see is how
 17 would it cost for what we've done, when do those
 18 tail off. That's what I would like to see.
 19 MR. RAICHE: When we get into the
 20 affordability by the end of today's discussion,
 21 those costs are built into where our rate
 22 projections are. I don't have sort of the --
 23 these are additional capital costs. We'd had
 24 zero additional capital costs for Phase 1 and 2.
 25 MR. BISHOP: Right, that's kind of

Page 17

1 what I' getting at. In other words, and I
 2 understand now it's factored into the rates, or
 3 whatever, but given that this process focuses
 4 essentially on the you know, on the necessities
 5 to spend a lot of money to effect CSO
 6 mitigation, I think that the optics are, you
 7 know, how much money have we spent to date.
 8 People are paying it off at a certain rate, you
 9 know, when is it practical for them to make this
 10 more additional investment. So I'm just hoping
 11 that --
 12 MR. RAICHE: It is built into the
 13 affordability models in the graph that we show
 14 later. I don't have it in this format. I would
 15 say that, in general, and Karen can correct me
 16 if I'm incorrect on this, that the debt on
 17 Phases 1 and 2 doesn't really start to drop off
 18 until 2038, and doesn't completely drop off
 19 until 2044 in round numbers. That's my
 20 understanding where the drop offs are. It's
 21 definitely on these out years. So we went
 22 through the subsystem alternatives analysis, and
 23 what is our modified baseline? Well, the
 24 alternatives analysis subsystems analysis
 25 concluded that there were several elements in

Page 18

1 the baseline plan that are still preferable. We
 2 brought in our evaluation criteria, what the
 3 costs, costs per gallon and water quality and
 4 construction disruption. And there were several
 5 elements of the baseline plan that were
 6 determined to be the right way to go.
 7 So those are the Pawtucket Tunnel,
 8 the Middle Street Interceptor and the High and
 9 Cross Street Interceptor, as well as the sewer
 10 separation for 035 in Providence. There were
 11 several components that were altered. The sewer
 12 separation for 206 is changed to a hybrid with
 13 sewer separation and GSI.
 14 The Pawtucket Avenue Interceptor
 15 was determined to not be preferable. We do have
 16 two options that we're still carrying forward
 17 into preliminary design for that, is either a
 18 tank over near Morley Field, under Morley Field,
 19 in that general area, or a stub tunnel.
 20 The stub tunnel at this moment is
 21 preferable for a number of other reasons, but
 22 requires additional study. The West River
 23 Interceptor is preferable to the sewer
 24 separation for 039 and 056. And then there were
 25 new elements introduced, most notably GSI.

Page 19

1 There was no GSI in the baseline. We are
 2 incorporating the green stormwater
 3 infrastructure in targeted areas into the
 4 revised baseline.
 5 And the other thing, as I just
 6 mentioned a little bit earlier, is consideration
 7 for screening and disinfection. So that leads
 8 us to our Alternative 2, which is our modified
 9 and phased baseline. So what would that look
 10 like?
 11 Again, we've got some lead time
 12 here for regulatory review and preliminary
 13 design, starting essentially in 2015. In 2016,
 14 we would start the preliminary design on what we
 15 call Phase A. Phase A would essentially go from
 16 2016 through 2023. We would start with the
 17 Pawtucket Tunnel.
 18 Again, against our weighting
 19 criteria, our evaluation criteria, this is the
 20 single most important element in terms of water
 21 quality. It also has sort of the least
 22 construction disruption to most of the people
 23 who live above the surface. And we would
 24 incorporate GSI in each one of these phases. So
 25 in the first phase we target the areas where we

Page 20

1 believe we have the most cost benefit, and that
 2 would specifically be the sewer sheds for 212,
 3 213 and 214. So sort of in this general area.
 4 That phase would conclude, and then we would
 5 start Phase 3 in 2024. And that would be
 6 extending the, essentially tunnel capture north
 7 into Central Falls and Pawtucket, with the
 8 Middle Street Interceptor, the High and Cross
 9 Street Interceptor, and do the hybrid GSI sewer
 10 separation for 206. And again, in this phase we
 11 would incorporate GSI, and in this phase we'd
 12 target 101, 104 and 105, which is essentially in
 13 this area of Central Falls.
 14 Moving on to C, which would
 15 commence in 2029, that is when we would do the
 16 stub tunnel to pick up 220. We'd then target
 17 GSI for 216 and 217, which is generally in this
 18 area. And finally, we would conclude the
 19 Alternative 2 with Phase D, which then picks up
 20 the Providence outfalls with the West River
 21 Interceptor and the sewer separation for 035.
 22 Now, we've added some premiums to
 23 this plan versus the baseline plan. The GSI was
 24 not in the baseline plan. That's an additional
 25 cost. The stub tunnel which we're evaluating

1 through preliminary design, at least, as our
 2 preferred alternative mostly because it gives us
 3 some flexibility on the Branch Ave. Interceptor
 4 relief which requires some additional study
 5 carries with it a premium. So the total program
 6 cost that we're carrying for this is 810 million
 7 dollars. So you can see here that essentially
 8 by that same first milestone, 2023, rather than,
 9 you know, round numbers in 80 percent capture,
 10 we're at about 70 percent capture.
 11 Moving along with the interceptor
 12 work and we drop down. That's where we get to
 13 our 80 plus percent maybe 85 percent, pick up
 14 the stub tunnel, and then the Providence
 15 outfalls. It does mean that we'll have some
 16 early years expenses, because again, the tunnel
 17 is the single most expensive component, and it
 18 has to be done essentially all at once. So we
 19 have sort of a corresponding with this large
 20 capture and large initial expenditure and
 21 expenditures continue to increase as these out
 22 projects are done.
 23 Now, one thing that I do want to
 24 mention here is that we do have potential
 25 optimization on this plan. We've got a higher

1 really doing here is capturing stormwater in the
 2 system in the sewer sheds that then allows us to
 3 reduce the cost of the corresponding gray stuff.
 4 We haven't taken any of those credits in that
 5 number. We know they're there, but we're not
 6 comfortable saying what the number is, how much
 7 we can reduce the gray stuff until we've done
 8 more thorough modeling. So we're carrying some
 9 conservative costs there.
 10 We have a number of concepts with
 11 more advanced tools and more study to reduce
 12 costs. I mean, some ideas are combining drop
 13 shafts for 217 and 213, doing realtime controls
 14 on how we get flows into the tunnel that would
 15 allow us to reduce the tunnel size and optimize
 16 system storage. GSI in this area up here of
 17 Pawtucket, 201 through 203, and we believe some
 18 work on the existing interceptor systems would
 19 eliminate the Middle Street Interceptor
 20 altogether.
 21 Another concept is to extend the
 22 tunnel beyond 205, all the way up to 103. That
 23 would allow us to eliminate the Middle and High
 24 Street Interceptor.
 25 Again, these are things that we

1 price tag, as I said, and we're carrying that
 2 through the affordability because this is a
 3 system that we know will work. It's, I don't
 4 want to say foolproof or idiot proof, but at
 5 least proof enough for this idiot.
 6 There is a lot of potential
 7 optimization that we have identified with the
 8 tools that we have, however, we're cautious in
 9 carrying some of these things through the
 10 financial analysis, because we need to get
 11 through the preliminary design phases to really
 12 test them out. We've got the hydraulic model
 13 tool which tells us a lot of things and has been
 14 able to point the direction for a lot of this
 15 optimization, but we need to expand that model
 16 into the collection systems so that we are sure
 17 that we're not causing any backups in the city
 18 systems that would impact level of service.
 19 We also need to do some surface
 20 water modelling to better understand exactly how
 21 the GSI would work and what the benefits are.
 22 As we've said all along, the GSI where we looked
 23 to implement GSI is where it gives us a cost
 24 benefit, right. We have the social benefits
 25 from GSI, and that's fantastic, but what we're

1 have to study a little bit more to know if they
 2 are completely viable. In terms of concept and
 3 what we're trying to achieve, they would be the
 4 same, so in our view these are preliminary
 5 design sort of decisions. The outfalls that
 6 happen, the volumes that each one of the
 7 outfalls wouldn't change.
 8 So it doesn't radically alter what
 9 the concept is, it's just optimization of the
 10 overall system. And we do believe that the cost
 11 savings from this are probably in the fifty to a
 12 hundred million dollar range, and could possibly
 13 be even more than that. Jan.
 14 MR. REITSMA: So I guess I just
 15 need to clarify what we're really saying when
 16 you're talking about potential optimization, and
 17 I'm not trying to unduly nail you down, but are
 18 you talking about potential cost savings?
 19 MR. RAICHE: Yes, absolutely.
 20 These are all potential cost savings that at
 21 this concept level we're not comfortable putting
 22 through the financial model, but these are all
 23 things that we'll drive down, when we talk rates
 24 later they will drive those rates down.
 25 MR. REITSMA: Without comprising

1 the effectiveness of this system?
 2 MR. RAICHE: Correct.
 3 MR. REITSMA: Okay, thank you.
 4 MR. RAICHE: So what would that do
 5 to this first alternative, some of those
 6 optimization ideas? It would essentially
 7 increase the scope for Phase 1A, which is the
 8 Pawtucket Tunnel. We'd be adding some things
 9 like the realtime controls or different tunnel
 10 configuration. It would extend the schedule and
 11 for Phase IA, but essentially eliminate or
 12 dramatically reduce Phases 3 B and C. So, you
 13 know, it would have an overall cost savings, and
 14 will likely have an overall schedule reduction
 15 so instead of 2038, we would look on the
 16 optimistic side of 2031 for completion.
 17 MR. REITSMA: I'm sorry, one more
 18 follow-up question. So we're talking about the
 19 capital cost. I always get confused. That does
 20 not include O&M?
 21 MR. RAICHE: The numbers we have
 22 here are all just capital costs on these graphs
 23 here.
 24 MR. REITSMA: So when you're
 25 looking at potential optimization --

1 our project or others with these, you know, the
 2 tunneling and the surface work.
 3 MR. RAICHE: Yes. The graph that
 4 we showed there from baseline case was adjusted
 5 for lessons learned on Phases 1 and II. So
 6 there was a somewhat dramatic adjustment from
 7 what was reported in the CDRA. However, the
 8 commission staff has made those adjustments in
 9 the reaffirmations of the plans and using sort
 10 of calibration to actual Phase I and II costs.
 11 And we're very, very close to what was in the
 12 most recent reaffirmation.
 13 MR. BISHOP: I'm just saying
 14 because in other words, we sat down 15 years ago
 15 to do this and we set Phase 3 aside, since we're
 16 sitting here now and whether this happens in 15
 17 or 30 years, I'm wondering again while you maybe
 18 were getting closer, you give us a sense when
 19 you said there was a dramatic adjustment I
 20 assumed dramatically upward, but maybe I'm
 21 wrong.
 22 MR. REITSMA: We do a capital
 23 improvement plan every year, so it's a five-year
 24 plan. So the one that we did about two or three
 25 years ago we updated the cost for Phase 3.

1 MR. RAICHE: We would include that.
 2 And again, the affordability graphs that we have
 3 later, we do have projected O&M in there.
 4 MR. REITSMA: Thank you.
 5 MR. MANCINI: Al Mancini from the
 6 Division of Public Utilities. The cost dollars,
 7 are they in today's prices, or do you have
 8 another baseline here?
 9 MR. RAICHE: The baseline for all
 10 of our costs which is something that we adopted
 11 a while ago and just because the costs show up
 12 in so many different places, we haven't adjusted
 13 them. They are all in 2018 dollars.
 14 MR. BISHOP: Can I follow up on
 15 that by asking if you looked at all, because
 16 this essentially originated with the very
 17 preliminary thoughts on Phase 3 that came from
 18 the last Stakeholders, there would have been
 19 cost estimates associated with those, and I'm
 20 wondering if in carrying all this forward in
 21 2018 dollars you can give us any idea how well,
 22 you know, whether our cost estimates at the time
 23 we made the cost estimates for Phase 3 really
 24 hold, or you felt like you had to adjust them as
 25 a matter of the results obtained, you know, by

1 Based on the experience we had in Phase 1 and 2,
 2 it about doubled from what was the original
 3 CDRA. And I think the cost that we're showing
 4 here now are higher than we had included in the
 5 first CIP a couple of years ago because we went
 6 to 2018 dollars.
 7 MR. RAICHE: Correct, so it about
 8 doubled. But if you bring the 2018 dollars back
 9 to 2010 dollars, they are in the ballpark,
 10 they're not that far off.
 11 MR. BISHOP: But they're doubled of
 12 what we did in 1968 or '70, '98, whatever year
 13 we were in. Thank you.
 14 MR. RAICHE: Yes. So moving on.
 15 You know, Alternative 2 there is the sequencing
 16 and sort of a finance free world. Alternative 3
 17 takes most of those same recommendations extends
 18 the schedule, and then adds in some interim
 19 projects that we had been talking about. So
 20 what does that look like? Again, we've got the
 21 concept review in 2015 and preliminary design of
 22 Phase A would commence in 2016.
 23 Now, for Alternative 3, what we
 24 would start with are GSI in targeted areas, and
 25 again, these are -- it's going to be the same

Page 29

1 sequences before. So the 212, 213, 214 is our,
 2 from based on our current understanding the area
 3 will get the greatest benefit right out of the
 4 gate.
 5 We would do the 206 hybrid GSI
 6 sewer separation as an initial project, and then
 7 as an interim project, and this again that
 8 something that isn't in the sort of final plan,
 9 but will give us some water quality benefits out
 10 of the gate, is to build an interceptor from
 11 218, which is, if you recall, in the top two
 12 volumetric spillers, bring that down to the
 13 Bucklin Point Treatment Plant and run that
 14 through the wet weather facility there, so we get
 15 treatment there.
 16 Phase B commencing in 2020 would
 17 then do disinfection out at 220. Again, this is
 18 an interim project that would give us water
 19 quality benefits not part of a long-term
 20 solution. And in Phase B, we would also then
 21 do, you know, a GSI project, and again we would
 22 shift the focus up to Central Falls in this area
 23 for those targeted areas. One of the other
 24 things about Phase B is that B could be extended
 25 with this sort of philosophy, because C's, the

Page 30

1 tunnel is coming off. So say we put the tunnel
 2 off until we can afford it. Or Phase 2 B could
 3 continue to do some projects, in which case we
 4 would do initial GSI projects and follow that
 5 same prioritization ideas, so we would then do
 6 216 to 217, and then move on to 201 through 204.
 7 MR. BISHOP: I just wanted to ask.
 8 When you're giving us the kind of content of
 9 these plans. When we get to analysis, I assume
 10 we're likely to see or have broken out the kind
 11 of expenditures that essentially be interim when
 12 you do this.
 13 In other words, there would be
 14 expenses, they're not free, but I'm assuming
 15 that interceptor is not cheap, but it's the kind
 16 of thing that I had asked about because of the
 17 size of that overflow very early on.
 18 MR. RAICHE: Yes. Then C would be
 19 the Pawtucket Tunnel, and we would be
 20 incorporating some GSI into that one. We're now
 21 starting on cost curves to if we load a bunch of
 22 GSI into B, by the time we get to C and D, we're
 23 starting to have diminishing returns on some of
 24 these areas, but we continue to include them.
 25 2D, where are we?

Page 31

1 And then 2D would move to the High
 2 and Cross Street Interceptor and then the Middle
 3 Street interceptor, this is essentially
 4 analogous to 3B in the other one. And then our
 5 rounding out the effort with E and F with the
 6 stub tunnel and West River Interceptor and the
 7 sewer separation in 305.
 8 Now, the overall completion date
 9 for this, and again, it could be extended is
 10 2047. So we're going out pretty far. And the
 11 overall price tag for this increases to \$925.
 12 So specifically to your point, we would be doing
 13 115 million dollars in temporary projects.
 14 MS. KARP: Could you just go back
 15 to that slide a moment. I lost track of what
 16 happens with the 218 CSO, and the other previous
 17 12 alternatives. Don't they all count on taking
 18 218 down to Bucklin?
 19 MR. RAICHE: Well, the other two
 20 alternatives the Pawtucket Tunnel is what picks
 21 up 218. So, ultimately, yes, it gets to the
 22 Bucklin Point Treatment Plant, but it gets to
 23 the tunnel.
 24 MR. BISHOP: Can I actually ask
 25 just for argument sake because you're always

Page 32

1 talking can you shave three inches off the size
 2 of a tunnel, you know, various things, which
 3 when you're in the whole, obviously, it makes
 4 some difference. If you build that interceptor,
 5 is there another performance reason given the
 6 volumes involved in the possibility of modifying
 7 the tunnel that you might not actually include
 8 218 in the tunnel when it comes to it?
 9 MR. RAICHE: Ultimately, you would
 10 need to bring at least a portion, if not a
 11 majority of the 218 flow into the tunnel. It
 12 would modify your design of the tunnel,
 13 particularly where your drop shaft would be and
 14 how it operates, but you would still --
 15 MR. BISHOP: Based on the
 16 inadequacy of the high rate treatment?
 17 MR. RAICHE: Correct. So what does
 18 that look like now? So now we're starting to
 19 get into the more complicated graphs, so bear
 20 with us. The dark color here are what would be
 21 the falloffs of volume captured. So complete
 22 CSO discharge eliminated. So this is analogous
 23 to the other graphs in terms of the
 24 three-months' storm. So again, with what we put
 25 here with our initial timeline, it takes us to

1 2023 to get to the point where Alternative 1 and
 2 2 get to in 2032, as opposed to 2023, and
 3 dyslexic doesn't help at all. But what you do
 4 see in terms of cash flow is that your cash
 5 flows are moderate and then jump up when you
 6 build the tunnel, not surprisingly.
 7 MR. BISHOP: Can you quickly
 8 distinguish the difference between the light and
 9 the dark red.
 10 MR. RAICHE: So had you not asked
 11 the question, I was going to do that. So the
 12 pinkish color, again, this alternative includes
 13 some disinfection ideas, right. So,
 14 technically, it is still a CSO discharge, but it
 15 is receiving treatment.
 16 So, you know, if you look at these
 17 deltas here and essentially this initial delta
 18 here, that is the treatment that we're giving
 19 the 218 flow through the Bucklin Point Treatment
 20 Plant because we put that interceptor in. And
 21 then this little additional -- where is it --
 22 we're we've got the second one, that's where we
 23 put in the 220 screening and disinfection,
 24 right. So if you're looking for total CSO,
 25 discharge is up here, but we do have this sort

1 reason we did it was to smooth out the cost
 2 somewhat. I mean, you could bring it back to
 3 the first one.
 4 MR. BISHOP: Okay, and then those
 5 would move up a little.
 6 MR. BRUECKNER: But the intent here
 7 was to really kind of push the cost out to a
 8 longer term to kind of reduce the rates so
 9 that's why we made that decision.
 10 MR. BISHOP: Just trying to
 11 understand. Thank you.
 12 MR. BRUECKNER: And we felt that
 13 218 was a much bigger player than 220, so we
 14 wanted to pick that one up first.
 15 MR. RAICHE: And the graph sort of
 16 bears that out. You see the larger drop here
 17 and then the second drop here, and meanwhile
 18 your costs are moderately accumulating. And
 19 when we get to the rate increases, you can see
 20 how that bears out as well.
 21 MS. KARP: Could you just remind
 22 me. What percent of the flow would you capture
 23 and remove if you got 218 first. If you built
 24 this one tunnel from 218 down to Bucklin.
 25 That's a big one that effects the Seekonk, so if

1 of chunk here that gets treatment.
 2 MR. BISHOP: I'm sorry, it's
 3 probably earlier this should go to analysis.
 4 I'm just kind of wondering if there's some
 5 administrative reason why the screening and
 6 disinfection which seems like a relatively
 7 direct and straightforward thing isn't, you
 8 know, and modest and relatively modest in cost
 9 isn't a little bit more frontloaded, but
 10 maybe --
 11 MR. RAICHE: Well, this is actually
 12 about as fast as we could do it. Because as I
 13 said, we still have to go through RIDEM and EPA
 14 so that's there and then we have to design it
 15 and bid it, so that's there and then build it is
 16 going to take a couple of years.
 17 MR. BISHOP: But I'm talking the
 18 screening and disinfection.
 19 MR. RAICHE: It would be the same
 20 time frame, it would be.
 21 MR. BISHOP: Okay, I thought that
 22 was the second drop.
 23 MR. RAICHE: Well, the second drop
 24 is the 220.
 25 MR. BRUECKNER: Brian, I think the

1 that became a priority, can you tell what
 2 percentage of flow would be captured?
 3 MR. RAICHE: Round numbers is
 4 around 10 percent or 20 percent, 20 percent,
 5 sorry. Round numbers is 20 percent, but again
 6 we're not completely eliminating that, we're
 7 providing treatment for it.
 8 MS. DORMODY: Can you just say the
 9 tunnel cost for Alternative 3?
 10 MR. RAICHE: Is 925, so we've got a
 11 \$115 million dollar premium.
 12 MR. BISHOP: So, yeah, just again a
 13 quick technical question. Are there any costs
 14 envisioned for better facilitating high rate
 15 treatment or having more effective treatment at
 16 the treatment plant that are associated with
 17 that influx, or is it just the interceptor to
 18 get it there and you do whatever you can do?
 19 MR. RAICHE: We didn't reflect
 20 either costs or, you know, discharge
 21 concentrations in this analysis. I would think
 22 that during preliminary design, we would want to
 23 do that. Personally, I'd love to do that. It
 24 sounds exciting. That's just me. Which brings
 25 us to Alternative 4, which is one that came late

1 in the game, but is a completely different
 2 paradigm. This essentially would be storage and
 3 treatment at the Bucklin Point Wastewater
 4 Treatment Facility. This is our no tunnel
 5 alternative.
 6 If you recall from our subsystem
 7 analysis, there was no tunnel alternative that
 8 fully captured the volumes that met our same
 9 objective that wasn't double the cost of the
 10 Pawtucket Tunnel. So we did want to present
 11 something that was a lower cost alternative
 12 acknowledging that it doesn't meet the same
 13 requirement. And the concept would be to build
 14 -- I'll step through the phases here.
 15 The first and the same time frame
 16 would be to build, again, do our GSI in target
 17 areas the same sequence of that, build an
 18 interceptor from 218 to the plant similar to the
 19 discussion that we just had, but this time also
 20 build a tank near the plant for our analysis
 21 here both in terms of cost and volumes.
 22 We somewhat arbitrarily took like a
 23 14 and a half million gallon tank to capture
 24 that. So that would be Phase 1 or Phase 4,
 25 getting 218 down to the plant, putting it in a

1 when you exceeded the capacity of the storage
 2 tank capability, you could still bring flow
 3 through the tank and provide primary
 4 sedimentation and disinfection, so you would
 5 actually be able to treat more than a
 6 three-month storm volume. The problem with the
 7 three-month storm, as you'll find out is the
 8 intensity of that storm creates problems in this
 9 alternative.
 10 MR. GARRETT: On 220, when you do a
 11 tank there, does that tank include some
 12 treatment, or does the water in that tank
 13 eventually go where, because it's not going
 14 anywhere now.
 15 MR. RAICHE: The 220 tank would be
 16 similar to what we evaluated during the
 17 subsystem alternatives analysis. That would be
 18 temporary storage, and then you pump out after
 19 the storm, and get it over to the Bucklin Point
 20 Treatment facility.
 21 MR. GARRETT: So you'd still have
 22 to have some kind of -- I'd assume there's no
 23 connection between 220 and Bucklin Point now?
 24 MR. RAICHE: No, there is. There
 25 is an existing interceptor that cuts across from

1 tank. Anything that doesn't fill the tank,
 2 would then be discharged.
 3 Then the second Phase 4 would be to
 4 extend that interceptor from 218 up to 205,
 5 which is our other big spiller. So this is
 6 essentially providing connectivity between 205,
 7 one of our big ones down to the treatment plant.
 8 This would be kind of a microtunneled kind of
 9 thing, more close to the surface. So this isn't
 10 deep rock tunnel.
 11 The objective of it is not storage,
 12 the objective of it is moving the flow and
 13 getting it down to our tank down here. And then
 14 also doing a small tank over at 220. Then
 15 complete out Phase 4, which is similar with the
 16 Middle Street and the High and Cross Street
 17 Interceptors to get those northern one which is
 18 essentially the same component as the other two,
 19 and then round out the program with the West
 20 River Interceptor and the sewer separation. So
 21 that's the same as the others.
 22 MR. BRUECKNER: I just want to
 23 mention one other thing. Besides providing
 24 storage, the intent would be that those tanks
 25 would also be flow through treatment so that

1 the Moshassuck Valley over to, near the Seekonk
 2 River, essentially near the Tidewater site. So
 3 what does this one look like?
 4 Again, and we built this in the
 5 hydraulic model and evaluated how this system
 6 would work. So we come along here, this first
 7 little drop in volume, that's the GSI. It shows
 8 up better on this graph than the others, maybe
 9 just because the resolution. But you see we
 10 have this initial drop in CSO volume. That's
 11 our GSI for 212 through 214.
 12 And then we have this drop in CSO
 13 volume. That is because we're bringing 218 down
 14 to our new tank/treatment system at the Bucklin
 15 Point facility. The volume of that tank has
 16 excess capacity in addition to 218. So it's
 17 entirely using storage at that point. We then
 18 move into the second phase and bring the, start
 19 extending that interceptor up to towards 205.
 20 And what we found is that we use up the residual
 21 capacity in the tank. So this point right here
 22 where the treatment and the discharge, the
 23 untreated discharge diverges where we use up the
 24 treatment capacity of the tank. But we still do
 25 have spills out in the system. A microtunnel

1 near surface interceptor, at the limit of
 2 constructability for a microtunnel for an
 3 interceptor will not bring all of the flows from
 4 those CSOs down to the plant. So we'll still
 5 have spills up and down the Blackstone and
 6 Seekonk Rivers.
 7 MS. KARP: During a three-month
 8 storm?
 9 MR. RAICHE: During a three-month
 10 storm, correct. And that's largely due as Tom
 11 alluded and Nick could give you more detail if
 12 you wanted. Because of the peak rates, you
 13 know, the flow starts coming very quickly and
 14 overwhelms the capacity of this additional
 15 interceptor so we do still have overflows out in
 16 the system. But we do get a bunch of flow down
 17 to Bucklin Point.
 18 So as with the other graphs, we
 19 have this treated discharge. And as Tom
 20 discussed we would have treatment through this
 21 tank, as well, so it would become a flow-through
 22 tank. And we've got the West River Interceptor
 23 and the 035 separation which gives us this
 24 additional drop in overall volume. So we see,
 25 we don't achieve either the overall discharge

1 MR. RAICHE: It's a ten foot, which
 2 is even pushing the limit of what we could build
 3 on that. It's got a fairly shallow slope, so
 4 this thing only has a certain capacity, and it
 5 does get overwhelmed by the existing overflows.
 6 MR. BRUECKNER: I just want to
 7 point out that what this alternative does is it
 8 doesn't do so well on high intensity storms
 9 because of the inability of the interceptor to
 10 bring that flow down. But in a way it performs
 11 better than the tunnel in a long duration, low
 12 intensity storm.
 13 Because once you reach the tunnel
 14 capacity, that's it, you have overflows. You
 15 could probably pump out during the storm through
 16 the wet weather facilities, but there's not as
 17 much capacity as there would be with this. So
 18 when we have a long duration storm and the tanks
 19 fill up, you can continue to provide treatment
 20 through these tanks during the storm more so
 21 than with the tunnel.
 22 So one of the things that we would
 23 want to look at this alternative on if we were
 24 going to continue it further for evaluation
 25 would be how does it do over the course of the

1 reductions or the treated discharge reductions
 2 of Alternative 2, but we do have some
 3 significant benefits here. And we do have those
 4 at a lower cost, and the costs that we've
 5 estimated for this is \$450 million dollars.
 6 That comes with a great big star.
 7 This system has not been analyzed as the other
 8 systems, so our margin of error is larger than
 9 the other ones, but in gross numbers, we're
 10 looking at a lower cost. In fact, the
 11 performance of the system similarly is not as
 12 robust as the other ones are, so we do have a
 13 lower level of confidence in these numbers, but
 14 they're enough for discussion purposes.
 15 MR. HILL: I'm not sure if I heard
 16 it right, but you said you're still going to
 17 have a three-month overflows here, is that due
 18 to the capacity of the conveyance system or the
 19 capacity of the treatment system?
 20 MR. RAICHE: Conveyor system, yeah.
 21 This bump back here. So what we're doing
 22 essentially a near surface interceptor through
 23 here to the limit of our ability to do it, which
 24 I think was an eight foot diameter?
 25 MR. HILL: It's ten foot.

1 year, because it may actually provide equivalent
 2 treatment for all of the flows over the course
 3 of the year. So while on the surface doesn't
 4 appear to be as good as the tunnel, and it's not
 5 in terms of storage for the high intensity
 6 storms, it may have some other benefits that are
 7 not apparent from this analysis.
 8 And the reason for that is we just
 9 didn't have the time. We came up with this
 10 fairly late in the game. And trying to come up
 11 with an alternative for the tunnel was less
 12 expensive, so we just really quite haven't
 13 completed the analysis to the degree we would
 14 have liked for this.
 15 MS. KARP: A question for either
 16 one of you. I can understand the limitation on
 17 the tunnel bringing this down. What if there
 18 was another tank on the Providence side of the
 19 Seekonk to pick up the 220. So you had the tank
 20 by 218 that captures some of it on the way to
 21 Bucklin. I guess I'm asking why constrain this
 22 to a single tank, because we could actually get
 23 more storage capturing treat.
 24 MR. BRUECKNER: I can answer that.
 25 There is a second tank which is at 220. So that

Page 45

1 really is 2.7 million gallons, I think, which is
 2 less than the three-month storm, so for storage
 3 and then provide treatment for the remainder.
 4 One of the problems with the
 5 storage options as you saw was that they were
 6 hard to site. They were difficult to operate at
 7 the distance and where they're remote it
 8 includes the hypochlorite stored on site. So
 9 that the time concept here is we can provide the
 10 storage at our plant. We have the site. We can
 11 put chlorine there, great location.
 12 So that took away some of the
 13 disadvantages of near surface storage to then
 14 put another tank somewhere further upstream, we
 15 start running into the same problems we had
 16 which is where do you put it? And you've got
 17 the hypochlorite storage there, so it's
 18 conceivable that if we looked at this further,
 19 maybe that would be something that would be
 20 worthwhile to try and find a second site along
 21 the interceptor to reduce the problems
 22 associated with this. But that would also
 23 increase the cost for this because the tanks
 24 themselves are expensive.
 25 MS. KARP: Can I offer someone

Page 47

1 overflow and what the volume would be. And it
 2 seems that that information would be important
 3 to select between these because you may find
 4 that due to hydraulic limitations there are lots
 5 of overflows that are untreated and don't make
 6 it into the interceptor or you might find there
 7 aren't as many as you suspect, so I didn't know
 8 if that was going to be part of this project
 9 before the board selects an alternative, or
 10 that's something you've already looked at?
 11 MR. RAICHE: It's currently not in
 12 the plan to do that. It's something we could
 13 add.
 14 MR. BRUECKNER: We know that when
 15 the alternative that we select, ultimately, we
 16 have to do that, we have to do the annual
 17 simulation and we're aware that we intend to do
 18 that, but this one, do we want to do the annual
 19 simulation, or are there other reasons why we
 20 might eliminate this alternative before we even
 21 get to that point, or might we be carrying
 22 forward two alternatives for evaluation to do
 23 this and particularly maybe look at some ways we
 24 might make it more effective. So this one is
 25 really kind of a tentative alternative that may

Page 46

1 else's property, because I did this once before?
 2 MR. RAICHE: Sure.
 3 MS. KARP: So there's the Riverside
 4 Cemetery, right, in Pawtucket, and I understand
 5 the Bay Commission actually extracting sand and
 6 gravel. That's what I was told by the owner of
 7 Riverside Cemetery. What I know is this
 8 basically is an abandoned quarry. It's right on
 9 the bank of the Seekonk, and it would be long
 10 right along the path of it. So I just would
 11 offer someone else's property here, but it looks
 12 to me like a pretty large vacant location that
 13 could be used for a tank. I live next to it. I
 14 wouldn't mind it.
 15 MR. BRUECKNER: Okay. I'm not
 16 familiar with the site or the cemetery.
 17 MR. LIBERTI: I think Tom alluded
 18 to it, but at the previous Stakeholder process,
 19 there was actually once it was narrowed down,
 20 there was an analysis of two annual years of
 21 precipitation where each storm was evaluated
 22 because some of these performed differently when
 23 they come to limitations, figuring out the
 24 tunnel let's say, and there was an accounting at
 25 the end by CSO of how many times it would

Page 48

1 make it to some further evaluation and analysis.
 2 So that's one of the reasons we're presenting it
 3 today. We want to get some feedback from you
 4 and this will also be presented to the board on
 5 Tuesday and get their feedback, as well. And it
 6 maybe that we may have to extend our analysis
 7 part of this program to do some further work on
 8 these. So that's kind of where we are. Maybe
 9 we'll carry it forward, maybe not, trying to get
 10 some feedback.
 11 MR. BORDEN: I have a question
 12 about the tunnel versus no tunnel alternatives
 13 and whether the level of treatment is different
 14 versus -- I know bacteria is the main one, but
 15 is there a better treatment in terms of removing
 16 other parameters and pollutant in the tunnel in
 17 terms of what process is getting treated in
 18 here, in other words, addressing other
 19 pollutants?
 20 MR. RAICHE: Yes.
 21 MR. ANDERSON: Essentially, the
 22 tunnel is an abatement for a three-month storm,
 23 so you don't get any flow, so whatever is in the
 24 system is retained in the system. When you
 25 actually screen and disinfect the whole

1 discharge, whatever it is, then yes, you're
 2 treating the bacteria, but there is the danger
 3 that you can transfer some other contents into
 4 the receiving waters.
 5 However, in this instance,
 6 particularly this one, there is a tank. So in
 7 terms of most of the sewer systems around the
 8 world are designed on the first power flush,
 9 then the sediment element will take place in
 10 the tank anyway, so the first 15 million gallons
 11 will take care of that. So it's only really the
 12 stormwater mix, if you like, that will be
 13 subject to the discharge.
 14 So in terms of the water quality,
 15 it isn't as good as retaining it in the system,
 16 but it does generally take care of all of the
 17 constituents, as well as the bacteria.
 18 MR. BRUECKNER: I just want to add
 19 a follow up. Any of the flow that's stored and
 20 then is pumped out of either the near surface
 21 storage tank or the tunnel, would get the level
 22 of treatment which is typically done in dry
 23 weather in the plant which at both of our
 24 facilities are secondary treatment with nitrogen
 25 removal, nitrogen removal during the summer

1 be considered for this little problem of the
 2 three-month peak?
 3 MR. ANDERSON: So, again, yes, the
 4 short answer is yes. The long answer, which
 5 I'll keep going until about 2 p.m. this
 6 afternoon about, is that it's very difficult,
 7 because as you've seen with all of these
 8 alternatives it's parallel phasing. So to get
 9 the green infrastructure in order to do what
 10 Mike wants it to do, we'd have to build all the
 11 green infrastructure first necessity of impacts
 12 of it and then come back and have you know, what
 13 was left was the residual. So yes, green
 14 infrastructure is very good at managing smaller
 15 storms. The problem is with some green
 16 infrastructure, and this is what we're finding
 17 with other areas and in other locations is that
 18 the capacity that's designed to remove the peak
 19 is taken too early in the storm. So the peak is
 20 actually not really effected. You can imagine,
 21 and you remember, I've talked to you endlessly
 22 about hydrograph over the last nine months. And
 23 if you think of a natural hydrograph that goes
 24 up comes up, you're not taking the bit at the
 25 top, you're taking the chunk at the front end.

1 months. And you'd probably get a little better
 2 bacterial kill. Usually our plants are down
 3 less than 10 MPN in dry weather. But the wet
 4 weather facilities, we think we can probably get
 5 to 40 MPN if they're located near the plant, so
 6 the bacterial levels will be a little bit
 7 higher, but in the scheme of total bacteria
 8 discharge, they're almost equivalent from a
 9 water quality standpoint, 40 versus 10 in
 10 receiving waters not much difference.
 11 MR. DOMENICA: I have a question.
 12 With regard to the peak of the three-month storm
 13 and the problems with the capturing of that,
 14 I've noticed some cities are using what you
 15 might call green infrastructure on steroids. In
 16 other words, when you have a particular event
 17 that you're looking at as opposed to green
 18 infrastructure in general, they're looking at
 19 very aggressive stormwater management in
 20 revitalized, redeveloped downtown areas,
 21 detention primarily. Sometimes retention, but
 22 mostly detention to capture that peak.
 23 And I'm wondering, along with as
 24 part of green infrastructure, open space, parks,
 25 stuff like that. Is that something that could

1 And you have to be careful that you don't do
 2 that. So really it's got to be the right blend.
 3 And so to say at this stage, yes, it would be an
 4 absolute guarantee that it would take the peak
 5 off would be overstating matters, I think. So
 6 we've got to say yes, green infrastructure has
 7 its benefits, we know about those, but the
 8 reality is in this instance when we're talking
 9 about the three-month storm and these
 10 interceptors and the conveyance, then it's going
 11 to make a very little dent in the actual peak
 12 flows, although, with reduced times. So it will
 13 have a positive benefit, but not necessarily be
 14 the answer to our question.
 15 MR. DOMENICA: Thank you.
 16 Caroline?
 17 MS. KARP: So I just want to make
 18 sure I understand what you're taking about. The
 19 city seems to have built a parklet outside the
 20 Brown University bookstore on Thayer Street. So
 21 it's a little bump outside of the sidewalk. So
 22 in one sense that could be green infrastructure,
 23 in once sense that could be -- it wasn't
 24 designed this way, but it could capture this
 25 sort of chronic overflow that occurs at the

1 intersection of Meeting and Thayer and Olive and
2 Thayer. Because that's down gradient in
3 practice, a park lift could actually be designed
4 as something with a detention basin even though
5 it's not being designed that way. And so a
6 message to the city would be these parklets are
7 great, but maybe they ought to be designed
8 partly to capture that first flow. Because
9 right now what it does is it gets the flow which
10 comes up over, and drops down. So I say that
11 I'm not sure that gets examined in these
12 structures. I think the city is doing a good
13 job with building parklets, but maybe design to
14 help capture storm flow as well.

15 MR. REITSMA: I'm not sure if I
16 will be allowed to raise this question. The
17 three-month storm. So maybe I should ask Angelo
18 this question. And I know this is late in the
19 game and maybe this is not fair, but at the same
20 time, we're about to end our participation in
21 this discussion, and this goes to the
22 commission, and what have you, so we're talking
23 about alternatives aimed at capturing the flow
24 from a three-month storm based on data, if I'm
25 not mistaken, that look at historical data that

1 that, we have to do what MWRA did, the only one
2 in the country. It used attainability at the
3 time of their CSO plan, sent that to EPA for
4 approval and reset the water quality goal. And
5 if we feel that we achieve that at the end of
6 this process, it is still an option to package,
7 whatever gets selected, send it to the state
8 send it to EPA, and say we think that this plan
9 shows that we met water quality standards and
10 it's okay to continue to have overflows at
11 larger storms. But we debated, you know, it may
12 not be worth the legal battle and the legal
13 effort of trying to get that determination.
14 Maybe we should just implement the plan and
15 address that down the road.

16 And that's really the reality of
17 this issue. And as far as like climate change,
18 one of the things that Tom Brueckner looked at
19 early on, the design of the three-month storm
20 that was selected back when we started the
21 Stakeholder process, it appears that that was
22 based on a limited amount of localized
23 providence data. And that produced a more
24 intense and a higher depth of rainfall than the
25 latest projections using the more recent

1 defined the three-month storm. What does that
2 really mean?

3 MR. LIBERTI: I guess in the
4 beginning we started talking about whether or
5 not the three-month storm is something that
6 meets the Clean Water Act. And on the surface,
7 no, it is not by itself a magic storm that's
8 been selected to meet the Clean Water Act. And
9 ultimately, meeting the Clean Water Act in this
10 instance means that you spent enough money to
11 work towards substantial wise for economic harm.
12 That's really what it comes down to with the
13 CSOs. And what's being done around the country
14 is the same thing we're doing here. We're
15 looking at alternatives, we're picking something
16 that we think goes as far as it goes with
17 addressing the problem. But as bad as it
18 sounds, you know, the goal of the Clean Water
19 Act is to eliminate these overflows to the
20 extent that you can.

21 So what we've been saying what
22 we're doing here is to select something that we
23 think is the right thing to do. And the final
24 determination of whether more needs to be done
25 isn't going to be made right now. Because to do

1 historic data for this region. So, I think Tom
2 explained that they continue to use that design
3 storm for this process. And my understanding is
4 the reason that it continues to be higher than
5 the most recent is because it was based on a
6 more limited set of data. So Tom could jump in,
7 but I think that thought was it's --

8 MR. REITSMA: I just want to
9 respond to that, if I may.

10 MR. BRUECKNER: Well, before, Jan,
11 let me just say a few other things. Back when
12 we -- regarding the three-month storm, back when
13 we were in the 1990s and trying to determine
14 what we should design for, the EPA policy said
15 that you had to reduce your overflows to four or
16 less per year. So the three-month storm occurs
17 four times a year. So that became the basis for
18 selecting a storm, because everyone knew that
19 you could not design a facility that would
20 handle every storm in the year because it would
21 be too expensive, which gets to the
22 affordability issue. There was also a knee of
23 the curb analysis done where you tried to
24 determine the most cost-effective storm to
25 design for, and that came out also to be the

1 three-month storm. We then took the data that
 2 was available for rainfall at that time, which
 3 was the mid '90s and developed what was actually
 4 a synthetic storm does not really exist in
 5 nature, but it was determined based on intensity
 6 and amount of rainfall to fairly represent,
 7 based on statistics, something you would expect
 8 to see four times a year. In fact, in a real
 9 year you may never see it. And the reason for
 10 that was so that you could develop a volume
 11 about which you had to design your facilities
 12 for, particularly, if you were using storage,
 13 you needed to have a volume. You could take
 14 that storm, run it through your hydraulic model,
 15 and it would tell you for every overflow what
 16 amount of volume was coming out of that
 17 overflow. So if you were doing either a
 18 flow-through facility or a storage facility, you
 19 then knew what to design for.
 20 Now, what's happened is everyone
 21 would like to build the facility bigger to
 22 capture more of the storm. In fact, we're
 23 required to do that, we're required to capture
 24 everything, but we know we can't afford to do
 25 that. And that's why Angelo says the real

1 MR. DOMENICA: Jan, I think you had
 2 a follow-up question.
 3 MR. REITSMA: I have an
 4 observation. And on the latter, there are, in
 5 fact, projections for both coastal and in the
 6 precipitation and what that means in terms of
 7 flows and innovation, and what have you, and
 8 they will be available through RIGIS within
 9 weeks. I would ask that we all consider what we
 10 sound like to a layperson listening to this
 11 discussion. And I don't mean disrespect, but I
 12 think it sounds like gobble goo. I think we
 13 have an obligation to speak plain English.
 14 We're talking about a very expensive project. I
 15 think there is nobody in this room that want to
 16 make a project unnecessarily expensive, or
 17 unnecessarily doing things that, you know,
 18 perhaps we can do without, or perhaps we cannot
 19 afford.
 20 But at the same time, we don't want
 21 to hide behind a lot of complicated language.
 22 We're talking about a project that's going to
 23 cost between anywhere from \$450 to 800 and
 24 something million dollars. And it's maybe going
 25 to capture the flow from a storm that doesn't

1 determinant now is the affordability criterion.
 2 So if we determine a three-month storm, we can
 3 afford to do it, we would build it. If we can
 4 determine that supposedly we need to build
 5 bigger than a three-month storm because
 6 affordability we can afford it, we should build
 7 bigger than for a three-month storm.
 8 And with regard to the issue of
 9 what is the three-month storm now, it probably
 10 has changed. We have talked to NOAA. They're
 11 doing the analysis, as we mentioned, September
 12 of 2015 they're supposed to have the new
 13 projections for the new area, New England area,
 14 for three-month storms. Actually, I don't think
 15 they do a three-month storm, I think the storms
 16 they do are bigger. They're coming up with new
 17 projections. And we did talk to the state
 18 climatologist, and he has not done the
 19 projections, either. He has taken the most
 20 recent data, done a trend and determined that
 21 the average rainfall here has gone up steadily
 22 over the last 30 years. But we do not have
 23 projections going forward for what he predicts
 24 the rainfall will be, say, five or ten years
 25 from now. So that's where we are.

1 only happen, you know, once every three months,
 2 but -- or that used to be a one hundred year
 3 storm that's not happening more frequently,
 4 almost every year, a few times a year. We need
 5 to be very clear about that. I mean, we've been
 6 experiencing in the state those kinds of storms
 7 on a very regular basis, and it has created
 8 massive headaches around the state. And if
 9 we're designing a project that can't handle
 10 that, then we ought to be clear about it. I
 11 think we just really need to try to say is this
 12 is the design that is going to actually handle
 13 the kind of situation that we're facing more
 14 frequently than we have in the past, and that
 15 the more recent vetted data is telling us we're
 16 going to face more frequent.
 17 And when this goes to the
 18 commission, I think we owe the commission a very
 19 plain English report on that. And if the choice
 20 is, well, is this because of affordability, so
 21 be it, but let's be clear about it. Because I'm
 22 not sure that it ultimately is maybe we ought to
 23 just, you know, once again, say well, is this
 24 really then the way to go, or do we need to
 25 consider another approach that can handle bigger

Page 61

1 flows in a more cost-effective way.
 2 MR. DOMENICA: Before we -- a
 3 couple of more questions here, but one comment.
 4 It does sound like it's not lay language,
 5 however, it is the regulatory framework that
 6 Angelo and Dave Turin and Tom are talking about
 7 that. That is the regulatory framework. It's
 8 really two things: It's regular historic data,
 9 but it's also now compounded in complexity with
 10 climate change and sea level rising, and other
 11 things. So we have two things working in wet
 12 weather periods. It's very complex. But these
 13 are the critical things that the regulators are
 14 going to use to drive the decisions form a
 15 regulatory top down prospective on the project.
 16 So it is incumbent for us to make it simple, or
 17 clear. It's not going to be simple, but clear.
 18 But it is very tough, and it is real life.
 19 MS. KARP: So it seems to me that,
 20 and I don't want to oversimplify things or
 21 dismissive of this conversation. But in a sense
 22 this whole planning situation is how do you
 23 design a tank or tunnel to either capture and
 24 store particular volume of water and it makes
 25 perfect sense to me to pick some statistically

Page 63

1 But the points that were made about the last
 2 alternative is precisely that, that it's more
 3 open ended on the opportunity to provide some
 4 treatment for greater volumes. So it doesn't
 5 speak to doing that, because, you know, I can
 6 sit here and debate Jan, and so forth, about
 7 what the storms are going to be, and if I
 8 understand Tom correctly, the three-month storm
 9 they're using is actually aggressive, and that
 10 if they actually updated it with statistics most
 11 recently, it would go down.
 12 So, you know, so I just think, the
 13 one thing that I do think and I said at the end
 14 of the last meeting, maybe I just said to Tom
 15 and I'll say it here is it appears that not this
 16 is the end of the process for the Stakeholders,
 17 but that there's some effort because of
 18 administrative timing and reality to take some
 19 of this work that's been done and present it to
 20 the NBC board which is the actual decisionmaker.
 21 I'm not sure that I'd be prepared at the end of
 22 today to sign on to a majority report of the
 23 Stakeholders choosing any one of these thing. I
 24 do feel the process has been a little bit kind
 25 of cookie cutter for us along the way, and we've

Page 62

1 reasonable volume of water which is a
 2 three-month storm. So the climate projections
 3 is saying we're going to have three-month storms
 4 which is more frequently than three months.
 5 Well, in a way it's a big deal. If you size the
 6 pipe and the tank and the tunnel for a
 7 three-month storm, you're sizing it to a volume
 8 of water that's not being sized based on
 9 frequency of the storm, right? So in a sense we
 10 can stop calling it a three-month storm and just
 11 say here's the -- of water we're going to try to
 12 capture and treat. It may happen five times a
 13 year, it might start to happen more often than
 14 that. So I actually don't see anything
 15 problematic about that.
 16 MR. REITSMA: It's the volume.
 17 MS. KARP: Right, it's the volume
 18 we're sizing this, it's not frequency, so big
 19 deal.
 20 MR. BISHOP: I think actually what
 21 Jan asked in a way goes in a lot of ways to the
 22 last alternative which I think recently emerged.
 23 So I don't know why we're meeting two weeks
 24 later, and I'm not sure lots of work and
 25 thinking has been done about a lot of things.

Page 64

1 thrown a few ideas in, but, you know, that
 2 feedback as a result, I think that feedback has
 3 resulted in like number 4, so I think there's
 4 been some effect. Maybe we don't get seven
 5 stars every month, but I don't see this as going
 6 away. And so in that sense, I actually support
 7 in a way what Jan says that all of this is a
 8 moving target, and when we're sitting here
 9 looking at a discreet plan that's going to be
 10 done in 2038 or 2042, or whatever, I wouldn't
 11 want to be in anything that's particularly
 12 inflexible when the actual dates of
 13 implementation we're talking about are that far
 14 off.
 15 MR. RHODES: I'm wondering if it's
 16 possible for the consultant team to comment
 17 which of these options might be more scalable in
 18 the future should we see larger volumes of water
 19 on a more regular basis?
 20 MR. RAICHE: I'm sorry. Could you
 21 repeat the question?
 22 MR. RHODES: I'm wondering if you
 23 guys can comment on which of these two options
 24 might be more scalable in the future should we
 25 in fact see larger volumes of water on a more

Page 65

1 regular basis?
 2 MR. ANDERSON: That's a slight
 3 misconception. Everybody thinks the tunnel is
 4 the end game, and that's it. Now, it's not,
 5 okay, it is a means of a large bath. It's all
 6 baths and pipes. You're absolutely right,
 7 Caroline. If I'd known that 20 years ago I'd
 8 become a financial advisor. The truth is, the
 9 reality is the tunnel is just a very large
 10 vacuum, you know, you can store in, but you can
 11 add to it in the future, you can build other
 12 things. There is no question. Just because it
 13 seemed to be a tank with an
 14 overflow that it will then take more flow, there
 15 is an infrastructure investment that would be
 16 required to transfer that. So ultimately they
 17 all have their limitations once they're built,
 18 but all of them are ultimately scaleable.
 19 There are other techniques that
 20 come into play. What we're looking at at the
 21 moment is we've got 56 million gallons on this,
 22 and you rightly said this volume that we've got
 23 to deal with, so if we get away from the design
 24 storm discussion.
 25 Now, that was chosen, and just to

Page 67

1 in a tank today, there's a certain amount of
 2 cost that I need to put in the interceptor,
 3 right. I find out in the future that that
 4 interceptor isn't providing enough volume, and
 5 that I really need a larger storage option i.e.
 6 tunnel. Have I wasted my money investing into
 7 an interceptor that I now have to provide a
 8 different alternative for. Or if I built a
 9 tunnel today, could I then at some point in the
 10 future add a tank at a later option if I then
 11 feel I need that.
 12 MR. RAICHE: If it was one pipe and
 13 one tank then that would it be very difficult,
 14 but it isn't. And engineering wise, yes you
 15 could easily bypass it, you could build
 16 something new, you could upsize it, you could
 17 build it, dual it, sure, but they would all come
 18 with a cost. And there is -- I think Rich used
 19 the term earlier, a diminishing return. So
 20 there comes a point where you can continue to
 21 extend and extend and extend, but for every
 22 dollar you spend, you don't necessarily get the
 23 same return on that investment. So I would say
 24 everything is scalable, everything can be
 25 extended, but always it will be a diminishing

Page 66

1 rewind a little bit before I go forward is that
 2 we always wondered where it would push against
 3 the affordability, so if you think we've got an
 4 affordability here and a volume that we've got
 5 to deal with. If they got to this kind of gap
 6 in the middle, then we need to do a bit more
 7 down here because we push it up to the
 8 affordability, and that goes to Tom's point.
 9 What we're saying here is in terms of the 56
 10 million gallons we've got to deal with, we're
 11 looking at spending the least amount of money in
 12 order to retain as much as that as we possibly
 13 can. So all of them are ultimately scalable and
 14 truth. Some are structures which costs a lot of
 15 money and would struggle to be engineering the
 16 extended, but there's nothing to say you
 17 couldn't build another tunnel in the future.
 18 There's nothing to say that new treatment
 19 process will come out in 20 years time, so
 20 everything is scalable. This is just where we
 21 sit today, and with the probably that we've got
 22 in hand. If that somewhat answers your
 23 question.
 24 MR. RHODES: Maybe I could try ask
 25 a different question. If I build an interceptor

Page 68

1 return.
 2 MR. DOMENICA: At that point here,
 3 we are past break time and move into a new
 4 segment, and we can all think about this
 5 discussion during the break. So we'll reconvene
 6 in 10 minutes. Thank you.
 7 (RECESS)
 8 MR. DOMENICA: Okay. We're back to
 9 Rich.
 10 MR. RAICHE: Sure, so now we've
 11 introduced the plans to very little controversy,
 12 and I will compare them against one another.
 13 First, in terms of CSO volumes and
 14 water quality. So, you know, just in summary
 15 again, the baseline gets us to 80 percent by
 16 2023, and full reduction for the three-month
 17 storm, which is again our yardstick by 2025.
 18 Year 2025, we're looking at about 70 percent or
 19 2023, rather, 70 percent capture with
 20 Alternative 1 and then phasing that last 30
 21 percent capture out a number of years. The
 22 distinction between one and two there, you'll
 23 see how it effects the rate. There's definitely
 24 some benefits to phasing out that last 30
 25 percent over time. Alternative 2 which is a

1 timeline modification, again, helps rates in the
 2 early years, delays that 70 percent to capture
 3 to 2032, as opposed to 23, but does provide some
 4 treatment here in the interim and then phases
 5 out those last bits further out.
 6 You know, interesting bit here to
 7 see is that as we go further out those last
 8 volumes that we're capturing are volumes that
 9 we're already treating from those previous
 10 interim projects. It's kind of hard to see our
 11 fourth alternative, which is sounding like its
 12 very popular. Maybe I should have moved it to
 13 the front. That it has, that the big benefit in
 14 here is that we're treating a large volume, but
 15 we are still leaving a very large volume
 16 untreated in that one. And we've got a time
 17 frame which lines up with Alternative 2.
 18 MS. KARP: I just want to ask a
 19 question. So this is all based on capturing
 20 and/or treating 56 million gallons?
 21 MR. RAICHE: Correct. That's our
 22 goal.
 23 MS. KARP: So I want to know is the
 24 cost proportional to the volume. So if you were
 25 to design this for 70 million gallons, could we

1 could build the 26 foot and keep that system
 2 optimization or future proofing or designing
 3 around the different volumes.
 4 MR. KARP: So may I ask the related
 5 question. The related question, and the two
 6 people that could answer are not here,
 7 unfortunately. But there has been this
 8 conversation going on about a stormwater
 9 utility. And so an important question is up
 10 front, how much stormwater flow could be removed
 11 from this system altogether by creating the
 12 stormwater utility that creates an incentive for
 13 property owners to increase pervious surfaces.
 14 And is it, say, even 10 million gallons or 5
 15 million gallons? What percent of this?
 16 MR. RAICHE: In essence, the
 17 evaluation that we did on GSI, on the green
 18 water infrastructure. And, you know, we have,
 19 conceptually volume that we could remove and
 20 dollars associated with that. The thing that we
 21 learned from the model is in isolation that's
 22 not going to solve a very large portion of the
 23 problem. It does need to be done in tandem with
 24 some gray infrastructure improvement to really
 25 see the benefits.

1 assume it would be approximately 15 percent more
 2 expensive?
 3 MR. RAICHE: It is not that linear.
 4 MS. KARP: It's not that simple.
 5 MR. RAICHE: No. No.
 6 MS. KARP: Because I think that's
 7 sort of a key issue here, is maybe we have the
 8 volume wrong, and maybe it's -- we ought to be
 9 redesigning over slightly larger volume, so I
 10 guess I'm missing something.
 11 MR. RAICHE: Nick's answer right
 12 before our break on our, you know, our bathtubs
 13 and pipes. As I've discussed what seems like
 14 eons ago, we do have some conceptual ideas for
 15 optimization of this baseline plan. What we're
 16 presenting is sort of this robust plan. But we
 17 know that we've got some ideas some ideas that
 18 we need to vet out in preliminary design to be
 19 confident in them. One could in the preliminary
 20 design phase do that sort of sensitive analysis
 21 that you speak of, right. So, you know, we're
 22 saying right now that the tunnel diameter is 26
 23 feet in diameter. We could do system
 24 optimization and get that tunnel size down to 24
 25 feet, which would have a cost benefit. Or you

1 MR. ANDERSON: Yeah, I think when
 2 we looked at this earlier on, a couple of
 3 meetings ago, we found that if we did the
 4 optimum GSI as much as we could, we could see up
 5 to a 36 percent reduction in total volume of
 6 CSOs. Now that's not stormwater, Caroline,
 7 that's just CSO reduction. In terms of
 8 stormwater volume, I don't have those numbers
 9 available.
 10 MS. KARP: With those numbers, and
 11 that's actually important. Because we have
 12 impervious surface driveways and roads. And one
 13 of the things that I had asked the stormwater
 14 utility people to estimate is what percent of
 15 stormwater is generated on road surface, so that
 16 you get DOT to start thinking about stormwater
 17 abatement as a highway issue. And what portion
 18 of the stormwater abatement do you get by
 19 getting any property owner to look at the value
 20 of stormwater abatement on her or her property
 21 instead of getting NBC ratepayers to pay for it?
 22 MR. ANDERSON: So we also looked
 23 at, if you remember, we did the public private.
 24 We split those two things out, and we looked at
 25 -- okay. So we looked at what GSI would sit in

Page 73

1 the public way, a more GSI may sit in private
 2 ownership. And the public way accounted for
 3 about 10 percent of CSO reduction.
 4 MR. RAICHE: The caveat on that is
 5 that we did not include 95. We took out of
 6 that, we took out of that the RIDOT roads, the
 7 municipal rights of way.
 8 MR. ANDERSON: But we also
 9 identified --
 10 MR. BISHOP: I was just asking on
 11 that tempus point of order, or question, or
 12 whatever the heck it is. That 10 percent, do
 13 you mean 10 percent out of the 30 percent you
 14 identify, or do you mean 10 percent out of
 15 pervious surface, or impervious?
 16 MR. ANDERSON: 10 percent in CSO
 17 actual reduction.
 18 MR. BISHOP: Oh, and you had said
 19 that if you had done everything that you could
 20 go to 36, okay. Ten percent of what was public
 21 roads not counting that, I mean public roads not
 22 counting 95?
 23 MR. ANDERSON: That's right.
 24 MS. KARP: That's actually a huge
 25 difference.

Page 74

1 MR. ANDERSON: It is, but also,
 2 you've got to remember there's a cost associated
 3 with that, and not to go back to my earlier
 4 point too much, but the diminishing return means
 5 that there comes a point where green is way more
 6 expensive in terms of what you're having to
 7 implement, than what are some of the things that
 8 we're talking about. So in terms of NBC and
 9 what we're looking at under this project, there
 10 is a point where green actually tips over.
 11 So a lot of the work Rich has done
 12 because we've done in together, but a lot of the
 13 work that we have done in this has looked at
 14 those alternatives incorporate the green, which
 15 we think is cost-effective to do.
 16 MS. KARP: If I can --
 17 MR. BRUECKNER: Excuse me, one
 18 second, Caroline. I know you'd like an update
 19 on it. I just talked to Sheila. She said she'd
 20 be willing to do it at the end of the
 21 presentation. I'd like to move on to the
 22 presentation so we can get through this, and
 23 then we could devote the end to the stormwater
 24 discussion.
 25 MR. DOMENICA: Okay.

Page 75

1 MR. BRUECKNER: Because we could
 2 talk about stormwater for quite a while, and we
 3 won't be able to get through this.
 4 MR. RAICHE: All right. So, if you
 5 recall back at the beginning, we have
 6 recalibrated the water quality model that was
 7 used in the previous CDRA development. And we
 8 have the results. And these are the results for
 9 post Phase 2. So essentially what is happening
 10 today versus post Phase 3, and this would be the
 11 full capture. So what we're talking about
 12 Alternatives I through III. The only difference
 13 between 1 and 3 being the day of compliance.
 14 So water quality standards are a
 15 little difficult to interpret from these graphs
 16 because they use geomeans and percentiles which
 17 means you have to have a whole bunch of data.
 18 So an instantaneous look at what the
 19 concentrations are aren't all that indicative of
 20 where you'd wind up against it. But just in
 21 terms of understanding good versus bad. In
 22 terms of swimmable for contact, we want to be
 23 below the blue. So we want to be light blue or
 24 dark blue for your average sample, for your
 25 geomean sample. And in terms of the outliers

Page 76

1 they're like 10 percent of the time, you want to
 2 be below sort of the yellow color. In terms of
 3 shellfish, we've lost our shellfishery
 4 representative, very sad. In terms of
 5 shellfish, the limits are more strict. You
 6 know, we need to be in the light blue or the
 7 blue for the geomean or the upper percentile.
 8 So as we can see, this is day two.
 9 Day one, when the storm actually
 10 happens, we don't actually have that things
 11 spilling. It doesn't get out of the system. It
 12 takes that first day for things to get out of
 13 the bay, so day two's sort of the interesting
 14 day to look at. So where we are right now, you
 15 can see out of the mouth of the Moshassuck, in
 16 the west we've got -- that's the west, that's
 17 the Moshassuck, and that's the Woonasquatucket.
 18 Out of that mouth of that confluence with the
 19 Woonasquatucket, we've got fairly lower
 20 concentrations coming right now. Phase 3 which
 21 eliminates 220 plus the residuals on the West
 22 River shows some improvement, but we still have
 23 some high concentrations. Obviously, with the
 24 concentration with the tunnel, we see right at
 25 the beginning of this storm that we're

1 dramatically reducing concentrations in the
2 upper bay, and the lower bay shows some
3 improvement. On day three, you can see how the
4 plumes continue on down, you know, large
5 improvements in the large bay between Phase 2
6 and Phase 3.
7 On day 5, by the time we get down
8 to Conimicut point where our shellfishing is of
9 interest, see right now a post Phase 2, you
10 know, we're in the violation area. But post
11 Phase 3, south of this point, we're looking
12 good.
13 And then as time steps on to day 7,
14 you see by day 7 we're in the clear down past
15 Conimicut Point and the central bay we're
16 looking pretty good, as well. We're down to
17 shell fishable and we're definitely within
18 swimmable, whereas under current conditions of
19 day 7, we are not.
20 MS. KARP: Can you just say what
21 are the closures now?
22 MR. RAICHE: I couldn't speak to
23 what the closures are. One other thing I did
24 want to point out here, though, we've got day
25 resolution here. You will notice that we kind

1 impacts. Because there's an awful lot of
2 loading that goes into this that we've assumed
3 in terms of background loadings, and, you know,
4 just our general feeling that based on some
5 water quality sampling but could go one way or
6 the other. There would need to be much more in
7 depth water quality receiving waters modeling
8 done in order for us to get these numbers
9 absolutely nailed on. But I think Angelo's
10 right. If we can just concentrate on the before
11 and after as a transference than that's probably
12 about as much as we can glean from today.
13 MR. RAICHE: Two other things to
14 note. Where we've got the Pawtuxet coming in.
15 We've got some water quality degradation that
16 has nothing to do with the NBC/CSOs. And
17 another thing to keep in mind. These Phase 3
18 for the three-month storm turns all of the CSOs
19 off. So we're capturing in total volume for
20 Phase 3. So what we're seeing here in terms of
21 water quality impacts have nothing to do with
22 CSOs at this point. That is background
23 loadings, that's stormwater that's elicit
24 connections to the drain systems. That's what
25 we're seeing here.

1 of reach a limit here. What winds up happening
2 is that there's the tidal (2x) influence, the
3 title influence sort of traps the bacteria in
4 the bay, and at that point the saltwater was
5 kind of killing things off. The title influence
6 sort of traps the bacteria in the bay, and then
7 at that point the saltwater is what is killing
8 things off.
9 MS. KARP: Is it a seven-day
10 closure after a half inch storm? What is the
11 closure? Because this isn't going to change.
12 This still says you need closure after seven
13 days?
14 MR. LIBERTI: So south of Conimicut
15 Point there's three different criteria. The
16 closest to Conimicut is half an inch, and then
17 it's .8 inches in what's called conditional area
18 A, conditional area B, one and a half. Thanks.
19 MS. KARP: One and a half inches?
20 MR. LIBERTI: Yes. And granted
21 these are most useful for comparison purposes
22 between alternatives, I think at this point --
23 MR. ANDERSON: Yes, I would say
24 that that's exactly the spirit in which these
25 should be read as in before and after the

1 MR. BISHOP: And so just to
2 understand, that's the baseline Phase 3 that
3 you've modeled there?
4 MR. RAICHE: Correct. I mean, this
5 Phase 3 is true for Alternatives I through III.
6 The only difference between alternatives is the
7 date that happens. Now, this plot just, you
8 know, shows the comparison of these down at
9 Conimicut Point and the difference between Phase
10 2 and Phase 3. And the up and downs that you
11 see show that tidal influence as the tides push
12 the plume back. And again, this underscores the
13 fact that at this point Phase 3, we're entirely
14 off. This is background stormwater loads that
15 are coming in and loads from outside of the NBC
16 service area. You know, the takeaways here is
17 that the elimination of the CSOs do give us some
18 considerable benefits here in terms of water
19 quality improvements.
20 MR. LIBERTI: I'm sorry, I should
21 know this. But the depth of the design storm to
22 put it into context of the entire closure?
23 MR. ANDERSON: 1.65 inches.
24 MR. LIBERTI: 1.65, so when you're
25 looking at those if you believe these to be

1 accurate model predictions, when they say we're
 2 starting to see a violation of 14, that's at
 3 1.65 versus .5 for the area closest to
 4 Conimicut.
 5 MR. BRUECKNER: .8 inches, Angelo.
 6 MR. LIBERTI: Oh .8, sorry.
 7 MR. UVA: .8 inches for conditional
 8 area A, and this is all a result of Phase 1 of
 9 the CSO and results in water quality and
 10 shellfishing areas. .8 closes conditional area
 11 A, one and a half inches of rain closes
 12 conditional area B. That's for a week. Our
 13 monitoring shows that is cleaned up within five
 14 days and could reopen, but as a safety factor,
 15 DEM 7 keeps it closed for 7 days.
 16 MR. RAICHE: Now, what we have here
 17 is the model results for post Phase 2, which is
 18 our current conditions and post Phase 3, which
 19 is the full blown thing. What would have been
 20 lovely to show you were some model results that
 21 allow us to analyze these different options
 22 against each other, including some of those
 23 interim benefits, right. So the big difference
 24 between Alternative 2 and Alternative 3, is when
 25 you build the tunnel and capture that 70

1 this is one relevant criterion for priorities
 2 going forward, I'd be interested with the kind
 3 of questions and information that Tom provided
 4 in seeing that graph for these lesser storms,
 5 comparing the current inevitable result to Phase
 6 2 to Phase 3. Because while we're looking at
 7 whether or not we can get no closures, again, in
 8 the infamous three-month storm, I think it would
 9 very interesting on how many closures might be
 10 reduced by the orange or green lines in lesser
 11 storms, even know which is not regarding the,
 12 you know, the administrative necessities of what
 13 we do, but just the practical ideas of how much
 14 more shellfishing would you get if you did one
 15 of those lessor alternatives.
 16 MR. ANDERSON: I think that's a
 17 very valid point, Brian, to tell you the truth.
 18 But where we're at the moment is we're comparing
 19 alternatives. And what we've got to do in order
 20 to do what you want to do is a heck of a lot
 21 more of, you know, concentrated than what we've
 22 currently done.
 23 But again, just in the spirit of
 24 comparison so that you get a feel for what these
 25 alternatives, because you've heard all about the

1 percent. And then the big difference with
 2 Alternative 4 is it's entirely a different
 3 paradigm.
 4 I'm hesitant to put this graph up
 5 because this is -- and we found some anomalies
 6 in the output data based on some of the input
 7 data for the water quality model. We're
 8 rerunning the water quality model as we speak,
 9 and we should have updated data. We've got
 10 these graphs for throughout the bay. This down
 11 at Conimicut Point, the anomalies in the model
 12 have to do with where individual CSOs are
 13 loaded. So in general by the time we get down
 14 this far south probably doesn't make that much
 15 difference, but there is a big star on that.
 16 This is a provisional data that we know needs to
 17 be revised. But in general, if there isn't a
 18 large shift in the model outputs, this does
 19 allow us to take a look at those conditions,
 20 allow us to understand, particularly the
 21 difference between Alternative 2, which
 22 sequences the tunnel early and Alternative 3
 23 which sequences it late, and then 4 which is
 24 treatment based.
 25 MR. BISHOP: To the extent that

1 engineering, you're going to hear all about the
 2 costs, but there is a third wheel on this and
 3 that's the water quality. So that's an
 4 indicator to what you can expect. And I don't
 5 think it's too much of a leap into the unknown
 6 to say that what you're saying here will be
 7 translated into those smaller storms, although,
 8 granted there would be variants.
 9 MS. KARP: Can I just say. I may
 10 be interpreting this graph improperly. If I
 11 understand that this suggests that Alternative
 12 4, and the tunnel are actually somewhat close in
 13 terms of fecal coliform for a hundred miles, so
 14 it's a difference about -- and for these are in
 15 log units either, so there's a difference of
 16 about 25 fecal coliform, a hundred mile to build
 17 a tunnel. There's an orange curve that's the
 18 tunnel only, and but Alternative 4, actually
 19 gets reduction that looks close to that -- am I
 20 correct?
 21 MR. RAICHE: Yes, and one thing to
 22 put into the mix on that is that the Alternative
 23 4, in its entirety, and the tunnel by itself in
 24 terms of cost aren't that far off from each
 25 other, right. So this is Alternative 4 in its

1 entirety, which includes, you know, a tank, some
2 disinfection stuff, some very large
3 interceptors. And then the orange is just the
4 tunnel. You've got, you know, some additional
5 stuff to build. In terms of cost, if you think,
6 you know, just the tunnel versus all of
7 Alternative 4, it's interesting that the cost
8 and the benefits are in the ballpark of each
9 other.

10 MS. SCOTT: So I guess all of these
11 evaluations -- well, thus far have been with
12 Conimicut Point as a point of analysis, and I'm
13 just curious. You all consider all the waters
14 as dealing with Narragansett Bay, but those of
15 us who are working in this field, consider it's
16 the Seekonk River and the Providence River, and
17 then upward near Narragansett Bay beginning at
18 Conimicut Point. So all of the CSO projects to
19 date have really focused on the Woonasquatucket
20 and the Providence River. There's been minimal
21 work done on the Seekonk portion in this area.
22 So I'm just curious whether there's been any
23 evaluation on the phasing of these different
24 alternatives relative to improvements to, say,
25 the Seekonk. Because right now, again, the

1 waters in this area over the time span of these
2 different alternatives. It seems to be one
3 point of information that could be insightful.

4 MR. RAICHE: And we're hoping to
5 have the water quality runs done. We've got to
6 check in with them tomorrow. I think it will be
7 overly ambitious to say we're going to have that
8 data by Tuesday. I think we're looking later
9 next week before we have that data two-speed to
10 a level of confidence this time around, but it's
11 in the works. Again, we're pointing out here
12 that the tunnel alone gets us a good way there
13 that the remainder of Phase 3 does quite a bit
14 more, and that the tunnel by itself and all of
15 Phase 4 are somewhat analogous to each other.
16 Again, this is just one snapshot of this
17 particular storm volume. Maybe we stop calling
18 it a storm, just arbitrary volume.

19 Now, putting the cost, the
20 cumulative cost side by side, this is just sort
21 of a retailing of where we have the previous
22 graphs. The Alternative 1, which is the
23 baseline, jumps out to some earlier costs and
24 completes in 2025, and we had no additional
25 capital costs after that

1 Seekonk hasn't really seen any of the, you know,
2 the benefits as we've seen in the lower
3 significant combined of the benefits in the
4 lower Providence River.

5 MR. RAICHE: If you look at those
6 reaches on the Phase 2 versus Phase 3, you can
7 clearly see what all of Phase 3 does. The
8 anomalies in the model that we have. We've got
9 what model runs that will give us that
10 distinction on just the tunnel versus the other
11 pieces. The anomalies effect these graphs and
12 these outputs for that finite distinction so I
13 can't show those ones. In terms of moving Phase
14 2 to full Phase 3, Alternatives I through III,
15 we can illustrate that.

16 MS. SCOTT: Right, so my question
17 really is within the Phase 3 Alternatives, you
18 have, you know, four alternatives you're looking
19 at that are phased, you know, anywhere from
20 however many years they span. It seems like one
21 of, an important point of information in making
22 a decision of what are the benefits going to be
23 seeing over the course of whichever alternative
24 is chosen is where we're going to see
25 improvements in water quality in the receiving

1 Alternative 2 Phases that out slightly longer.
2 And again, we're seeing what we're calling
3 Alternative 2 we're carrying some additional
4 costs to be on the conservative side here. We
5 do feel as though this can be shaved off to at
6 least match Alternative 1, if not improve upon
7 it. Alternative 3, again, we defer costs for a
8 substantial amount of time, but then line up
9 with Alternative 2 in 2030, which is just before
10 the tunnel goes on-line, so essentially you're
11 spending some money and you're deferring that
12 cost and we're showing that at 2030 at the
13 moment, and then the Alternative 2 costs do jump
14 up in excess, Alternative 3, pardon me, jump up
15 in access of Alternative 2 because again, we're
16 including those interim projects, the treatment
17 and disinfection options that are sort of
18 premiums on here. That's what we're spending
19 money up here to get some early water quality
20 benefits. And then finally Alternative 4, it's
21 phased out, as Tom pointed out, to have some
22 evenness, some incremental increases through
23 what we've chosen as that period through 2038,
24 and then flattens out.

25 This time around we did on the rate

1 analysis include a couple of other financing
2 options. The previous time our financing
3 assumptions would be that we would get \$25
4 million from the SRF program, and that would be
5 financed over 25 years at 2.5 interest. That
6 the remainder of anything that needs to be spent
7 in that year on the systems would then be put on
8 a bond for 20 years at 5 percent. These are
9 fairly conservative financial assumptions.
10 A new alternative is maintaining
11 that SRF assumption by saying that the
12 commercial bonds would be 30 years at 5 percent.
13 And would also wrap the debt essentially for the
14 first 10 years it would be interest only on
15 those loan payments, and then start chipping
16 away at the principal. And a third alternative
17 is 30-30 saying that same commercial bond
18 assumption but saying that the SRF program could
19 be financed at 30 years at 3.3 percent.
20 So this is what it looks like for
21 Alternative 2 with the red line being that first
22 conservative assumption of 2020, the blue line
23 being SRF for 20 years and bonds at 30 years,
24 and then the final one, a 30-30. There isn't
25 that much of a difference, because we're capping

1 table later which I'll show you exactly what it
2 is. The Alternative 2, which still gets us, you
3 know, at this point we're building the tunnel
4 and we're getting to that 70 percent capture,
5 but then spacing out the interceptors, the 220
6 solution and the West River Interceptor and
7 sewer separation in Providence, give us a much
8 more gradual increase in the overall bills, and
9 then line up, you know, in 2030, '31, close to
10 the end of the program, but still overall bills
11 are lower. Not surprisingly Alternative 3 which
12 delays the tunnel, keeps rates low until you
13 have to start building the tunnel and then jump
14 up. It's essentially taking this jump and
15 pushing it out however many years you delay the
16 tunnel.
17 And then we've got projects out
18 here that don't require rate increases. Those
19 are the interceptors and sewer separation.
20 Largely it's because you've raised your rates so
21 much through that phase that you're generating
22 enough cash to pay for those smaller programs
23 until Alternative 3 phased the stub tunnel for
24 220 at the very end, and so we catch up to
25 Alternative 1 at the end of the program.

1 the availability of the SRF program at that
2 first 25 million, that there is on an annual
3 basis there isn't that much of a difference.
4 The only difference you're seeing
5 there is your annual payments are lower because
6 you've got a 30 year versus a 20 year. But it
7 does show that once we're getting into some big
8 spends here, we do keep rates lower by doing the
9 more, the longer financing. The SRF at 20 and
10 the bonds at 30 is a fairly commonplace way to
11 actually finance these, and we're confident that
12 we could get those sort of finance terms. So
13 because we're showing that there's a benefit to
14 the rates and a little bit more of a smoothing
15 out of necessary rate increases for analyzing
16 the alternatives against each other we use the
17 20-30 as our case. Because we have to have
18 another extra hour if I had three slides for
19 every single one of the options.
20 So in terms of the presented bills
21 and this graph is shifting to our four
22 alternatives. The baseline not surprisingly
23 because we're spending a lot of money upfront
24 jumps the bills up very quickly to a very high
25 level. I think it's -- it's above 800. I got a

1 Alternative 4 just as we laid it
2 out and anticipate by design, we have steady
3 rate increases to pay for the smaller projects
4 and levelling out at the end of that program.
5 MR. BISHOP: My question is quick.
6 Again, which is to the possibility of seeing
7 this information in the context of earlier and
8 even present increases related to the cost of
9 Phase 1 and Phase 2. That would give us a sense
10 of what of the bill that is being paid at \$500
11 already represents an investment by the
12 ratepayers in the earlier CSO work.
13 MR. RAICHE: To break out the Phase
14 1 from all.
15 MR. BISHOP: I'd like two more
16 other colored lines that show maybe Phase 1 and
17 Phase 2, back it up a little, extend the graph
18 down a little so we can understand what are the
19 base costs of running the sewer versus the costs
20 that are devoted to CSO.
21 MR. DOMENICA: Do you understand
22 that, Rich?
23 MR. RAICHE: I understand the
24 question. We don't have the historical data on
25 rates because our mission was to look forward

1 not backward.
 2 MR. BISHOP: I have a couple of
 3 bills. I'll bring them down.
 4 MR. BRUECKNER: I think it might
 5 have been presented in previous slides last
 6 meeting by Greg. I think he did show the bond
 7 indebtedness that we're currently carrying.
 8 MR. RAICHE: That's not exactly
 9 what Brian's asking, though.
 10 MR. BISHOP: I don't think it would
 11 be too hard to do. I'm not asking for precise
 12 to the penny. I'm just looking for that --
 13 that's very graphically informing.
 14 MR. RAICHE: I don't know if we can
 15 necessarily --
 16 MR. BISHOP: I mean, I don't mean
 17 right away, I mean if you're going to show it to
 18 the commissioners, I assume they might be
 19 interested.
 20 MR. DOMENICA: Rich, isn't this
 21 where you're starting from here?
 22 MR. RAICHE: We're starting in
 23 2015/2016, actually. This initial jump has
 24 nothing to do with Phase 3. This initial jump
 25 is a remainder of Phase 2 project, plus some

1 misunderstood something, we went from 35 to 67
 2 dollars a month? That's what it says.
 3 MR. RAICHE: Don't ask me to divide
 4 these numbers by 12.
 5 MS. KARP: That is what it is.
 6 It's \$67 a month. We're saving \$800 a year. So
 7 I guess -- I'll leave this as people keep
 8 talking about affordability, but I don't really
 9 understand what we're talking about. If the
 10 current bill is \$37 a month, am I right or am I
 11 misunderstanding something?
 12 MR. BRUECKNER: The current bill is
 13 about \$450 a year, and in the year, I can't read
 14 the numbers, 2024, so the number is going to go
 15 up to \$812 a year.
 16 MS. KARP: So \$67. So you and
 17 other time you used this in 1998, which is
 18 people spent more than that on their Smart
 19 phone, they spent more than that on their cable
 20 TV. As we think about affordability, I think
 21 that ought to be factored in.
 22 MR. GADON: Tom, what percentage of
 23 the rate is going to the debt service now?
 24 MR. BRUECKNER: I don't know. I'd
 25 have to ask. Karen, do you know?

1 work at the treatment plant.
 2 MR. ANDERSON: So what's the number
 3 that Brian is asking for?
 4 MR. RAICHE: To go backwards from
 5 there.
 6 MR. BISHOP: And of course that
 7 conflates treatment plant, and so forth. You
 8 know, we've spent a lot of money on CSOs, I
 9 think it's an optic or interesting issue to say
 10 how much of the bill people are paying at around
 11 five hundred bucks is related to what we've
 12 already done.
 13 MS. KARP: I guess I have a more
 14 simple minded question. If I understand this
 15 right, these are bills per year, right, this is
 16 the bill per year, so at \$800 a year versus
 17 paying 67 --
 18 MR. RAICHE: Average household,
 19 yeah.
 20 MS. KARP: So we're basically, if I
 21 understand this graph right, maybe I don't. Is
 22 that basically an average household is paying
 23 something like less than \$35 a month for sewer
 24 to the Bay Commission, and we're talking about
 25 doubling that by 2011. I might have

1 MS. GIEBINK: 66 percent.
 2 MR. BRUECKNER: She said debt
 3 service and debt service coverage.
 4 MR. TURIN: I think this is an
 5 interesting conversation, just to maybe further
 6 be informed on this. Are these projected
 7 numbers based on the actual bills, you know,
 8 actual billed usage, or are these based on kind
 9 of a literature assumption of what the average
 10 household uses?
 11 MR. BRUECKNER: I think that they
 12 use a hundred and fifty gallons per day when
 13 Greg was doing his numbers. For the average
 14 household was hundred fifty gallons a day. And
 15 that was based on actual use in the district.
 16 MR. HILL: I just had a quick, you
 17 know, maybe another line added to the average
 18 bill here. What is the existing assuming that
 19 none of these were ever completed? What would
 20 it look like on an average bill basis? I think
 21 that that's maybe part of the question.
 22 MR. RAICHE: Do you mean with the
 23 CSO CIP stripped out?
 24 MR. HILL: I'm just saying what
 25 would the average bills be projected out over

1 the same time period of -- capital (Inaudible).
 2 MR. RAICHE: We actually have the
 3 capital improvements, like at the plant and in
 4 the interceptors things like that that have to
 5 happen too. We could strip out that. I mean,
 6 it would essentially just be some small
 7 creeping, you know, down around the
 8 five-hundred-dollar range, maybe a little bit
 9 more.
 10 MR. HILL: As some of that debt
 11 falls
 12 off --
 13 MR. RAICHE: Again, the debt really
 14 doesn't start falling off until like 2040. So,
 15 really, for the entire life span of what we're
 16 calling more of these alternatives with the
 17 exception of Alternative 3, you're not going to
 18 see anything.
 19 Moreover, you know, it is very
 20 difficult to say with a straight face that by
 21 2040 there isn't going to be some other capital
 22 expense that you need to do. I mean, it would
 23 be awesome if the plants could operate without
 24 any additional capital expenses, but I think
 25 there's going to be some other debt somewhere.

1 when you see the number 800 per year, it's a
 2 shock if you think of it in today's terms, but
 3 like most everything else in life, this is,
 4 costs tend to go up over time. So I think
 5 everyone should take a good sober look at that.
 6 The another question is, I don't know how the
 7 Bay Commission manages the bills for folks who
 8 are struggling economically. How is that
 9 managed, if managed at all, and how would that
 10 be factored into increased costs?
 11 MS. GIEBINK: We do have not have
 12 any special rate for someone that is on a fixed
 13 income or low income or elderly. It's the same
 14 rate for all of our users in our service
 15 district.
 16 MS. KARP: So there's this
 17 situation in Detroit right now, which probably
 18 some of you are following where the City of
 19 Detroit department shut off water for delinquent
 20 (inaudible). Do you ever shut down for stop
 21 treating sewage? What happens if somebody fails
 22 to pay their bills?
 23 MS. GIEBINK: Well, we have lien
 24 sale power, and in addition we also have water
 25 termination procedures, and we work with the

1 MR. HILL: I think that was a
 2 question I had was when the debt was going to
 3 fall off.
 4 MR. RAICHE: Karen, I don't know if
 5 you're -- my feeling is that it's in 2040, or
 6 so.
 7 MS. GIEBINK: The rates are going
 8 down.
 9 MR. HAMBLETT: On Caroline's
 10 question about rates. Can these folks at NBC
 11 tell me how NBC rates today compared to rates
 12 being paid in the other municipalities around
 13 the state? Is NBC in the average high, low
 14 currently?
 15 MS. GIEBINK: I don't have all that
 16 information with me today, but we do have those
 17 surveys included in our budget documents, and
 18 we're around the middle of the pack in terms of
 19 the national average again. I think one of the
 20 factors that come into play is the overall
 21 declining consumption, and I think a lot of
 22 these fee comparisons are based on a higher
 23 usage than currently is in place across the
 24 states.
 25 MR. HAMBLETT: Because I do think

1 various water suppliers to terminate water
 2 service.
 3 MS. KARP: Property owners.
 4 Usually (inaudible). Okay.
 5 MR. SCHILABBA: NBC's 2014 Annual
 6 Report, they do have, at least for Rhode Island,
 7 annual residential sewer charges by town or by
 8 sewer entity. NBC lists its average residential
 9 annual bill of \$521. It's based upon an annual
 10 usage of 97.6 HCF. And I know there's been a
 11 lot of questions about what the annual bill is,
 12 and they did provide that in their 2014 Annual
 13 Report. And that is, it's just, I would say
 14 just at the bottom of the top third of the
 15 presented entities.
 16 MR. BISHOP: And perhaps it's the
 17 apparent present bill is lower here because
 18 you're dealing with 2018 dollars maybe?
 19 MR. RAICHE: These ones are 2015
 20 dollars.
 21 MR. BISHOP: There's a modest
 22 discrepancy between that report and the depicted
 23 annual bill. But I think, I mean, look, one
 24 important point is that, you know, you add up --
 25 I forget how many customer, we have 50,000, or

Page 101

1 something. I mean, you add up that many 35
 2 dollars a month, and, you no, you're talking a
 3 little bit more than chump change, and I don't
 4 think any utility would come to the floor
 5 suggesting that its rates were going to double
 6 in a span of 10 years without a lot of pushback.
 7 You know, regardless of what value one places on
 8 the services or the causes of those increases.
 9 MS. GIEBINK: I'd just like to add
 10 the difference between this figure and the
 11 figure that was cited by Mr. Schilabba is the
 12 assumption of the gallons per day consumption,
 13 and I believe that MWH, their study was based
 14 upon actual usage and we've kind of been using
 15 industry standard of 200 gallons per day. So
 16 that number that you see on the screen would be
 17 more representative of the average homeowners
 18 annual bill.
 19 MR. HAMBLETT: I also want to add
 20 that the Rhode Island, the citizens of Rhode
 21 Island are also have been paying or helping to
 22 pay for everything that's been done to date, and
 23 we'll be helping to pay going forward through
 24 the passage of bond referenda. So I would add
 25 to everyone else's bill around the state the

Page 102

1 cost we are all incurring to support these
 2 projects around the state.
 3 MR. DOMENICA: Is this Clean Water
 4 Act program including stormwater residuals?
 5 MR. RAICHE: No, this is just
 6 Narragansett Bay bills. So this is everything
 7 that operates the two treatment plants, the
 8 existing interceptor system, the remainder of
 9 Phase 2, and this is Phase 3.
 10 MR. DOMENICA: So you'd have to add
 11 in the municipality bills to this?
 12 MR. RAICHE: Correct. And I'll
 13 show an example in terms of affordability.
 14 MR. DOMENICA: And would those --
 15 the impacts of stormwater management?
 16 MR. RAICHE: When we get to the
 17 affordability slide for the City of Providence,
 18 yes.
 19 MR. GADON: Rich, when you make
 20 your presentation to the commission, I would
 21 suggest you put a rate for monthly bills as
 22 Carolyn referred.
 23 MR. REITSMA: I can wait if you
 24 need to finish your presentation.
 25 MR. RAICHE: No, there's still some

Page 103

1 information. When we get through a couple of
 2 things, we'll continue. Okay. So in terms of
 3 increases, annual increases, we've got a couple
 4 of increases that are expected in 2015 and 2016.
 5 And again, this is for a leftover Phase 2 stuff
 6 and some work at the treatment plant. It has
 7 nothing to do with Phase 3.
 8 And then the following two years,
 9 all of them have sort of small expenses because
 10 this is where we're in preliminary design, and
 11 design is comparatively not much money. And
 12 then in 2019 you see that Alternatives 1 and 2
 13 put the tunnel up front, jump up with high
 14 increases initially, whereas Alternatives 2 or
 15 3, rather, keep the rates low until the tunnel
 16 hits. Four sort of has an average sort of
 17 creeping here, little irregularity, you know,
 18 when you go between design and construction, but
 19 relatively low.
 20 And we do have those last bumps for
 21 Alternative 3, as well. So in terms of rate
 22 stabilization year-to-year changes forgets, you
 23 know, gets you there. Alternative 1 has some
 24 initial pain and then is over once you build it.
 25 Two has some initial pain and then sort of more

Page 104

1 steady creeping, and then you're done.
 2 MS. KARP: So when we see the peaks
 3 in years 2020, and so on. Say with Alternative
 4 1, does the rate then stay constant after that
 5 so it peaks early and then stays high?
 6 MR. RAICHE: Yes. Because you've
 7 then incurred that debt, and you have to start
 8 paying off that debt. You have to have the rate
 9 increase to have the additional cash to get the
 10 bond and SRF. But that's also why, you know,
 11 you're having some additional projects come
 12 on-line in Alternative 2, but you've already
 13 raised rates so much that those projects are
 14 smaller by means of comparison are smaller, so
 15 you don't have to have large rates after that.
 16 These are the affordability graphs.
 17 These are the things that Greg has gone through
 18 in the past. And the Clean Water Act threshold
 19 for affordability is that 2 percent. So if we
 20 look district wide, this is taking those bills
 21 and dividing by the median household income.
 22 And we see that Alternative 1, the fast one gets
 23 up to 1.8, doesn't quite get to the limit of
 24 affordability district wide.
 25 Alternative 2, shows, you know, 2

Page 105

1 percentage point improvement over that.
 2 Alternative 3, you know, keeps rates relatively
 3 affordable until you build the tunnel and then
 4 you pretty much catch up to where Alternative 1
 5 is. So again, the big difference between 2 and
 6 3 is when do you want that big water quality
 7 gain, and when do you want to pay for it? And
 8 Alternative 4, keeps things relatively lower.
 9 MR. RHODES: Could you just refresh
 10 my memory as to what the total cost of each of
 11 the alternatives is?
 12 MR. RAICHE: The total cost for one
 13 is \$750. Two, we're carrying for this
 14 affordability analysis, \$810. But we're fairly
 15 confident we can reduce that, but we're showing
 16 our worst case. Three is \$925. That could also
 17 be reduced by some of those same engineering
 18 ideas, and then four is \$450.
 19 MR. COUTO: Could you explain how
 20 are the rates lower for some of these capital
 21 projects that are apparently higher than --
 22 MR. RAICHE: It has to do with the
 23 rate increases and when you have to bring in the
 24 bond. So, essentially, to be, you know, kind of
 25 simplistic about it. Here, you've raised rates

Page 106

1 here, and your rates are at a high level. The
 2 money that you're bringing in through this span
 3 is enough to pay for those additional projects
 4 that you're doing. And so it's over a longer
 5 span of time.
 6 So you're collecting those annual
 7 bills at a higher rate and you can pay for the
 8 projects. And then you don't have to do
 9 necessarily a rate increase because your
 10 incoming cash has been higher over a long time
 11 period.
 12 MR. DOMENICA: These lines are all
 13 Clean Water Act programs, both NBC?
 14 MR. RAICHE: Yes, these lines right
 15 here are just NBC commitments. So it's the
 16 treatment plant, the interceptors, and the CSO
 17 programs. This does not have any MS4 element to
 18 it, or upgrades to the collection systems.
 19 MR. DOMENICA: But anything that
 20 the towns charge for --
 21 MR. RAICHE: It's coming up in
 22 three or four slides.
 23 MR. SCIALABBA: A question just to
 24 make sure I understand this. I wasn't at the
 25 last meeting. Does this say that the 2 percent

Page 107

1 affordability sort of benchmark is never
 2 exceeded under this presentation?
 3 MR. RAICHE: As Mike points out, it
 4 is not in the qualifiers is that this is
 5 district wide and it only is accounting for
 6 NBC's costs.
 7 MR. SCIALABBA: Okay. And in what
 8 was presented last time where there were a
 9 number of customers who went over that
 10 benchmark, that was a different analysis that
 11 included- -
 12 MR. RAICHE: We'll get to that in a
 13 second.
 14 MR. GERRITT: I just question this
 15 whole graph because it's based on economic
 16 assumptions that I think are fantasy.
 17 MR. RAICHE: These are the economic
 18 assumptions that are in the EPA guidance for the
 19 affordability. So these are the rules by which
 20 we are playing, as Mike had pointed out before.
 21 MR. GERRITT: What they're saying
 22 is you expect people's incomes to go up because
 23 the rates and the sewer rates aren't going down,
 24 but the percentage of income being used to pay
 25 for it. And I think that those assumptions

Page 108

1 about where the economy are going are seriously
 2 fantasy.
 3 MR. RAICHE: So these are the -- in
 4 terms of what this looks like, you know, sort of
 5 geospatially where we've got stressed areas.
 6 You know, this is 2015, so this is before we
 7 embark upon any Phase 3 work at all, and again
 8 that, you know, the numbers that we're showing
 9 are district wide, and you can see that most of
 10 the affordability are around the towns that
 11 surround the three cities, and that we've got
 12 census tracts within Providence, Pawtucket, and
 13 Central Falls that are currently having
 14 affordability issues.
 15 So if you look at, you know, number
 16 of households that are already above the 2
 17 percent threshold, district wide it's 45, or the
 18 entire service area is 45,000. Number of
 19 households in Providence is 22,000, Pawtucket
 20 eight, and Central Falls just under three.
 21 MR. DOMENICA: How many slides do
 22 you have left, Rich?
 23 MR. RAICHE: If I went one a
 24 minute, I would still be four minutes over.
 25 MR. DOMENICA: Let's let him finish

Page 109

1 and then have discussion. We'll still be over
 2 time if we let him finish. So let's let him
 3 finish, and then we'll consolidate the questions
 4 when he's done.
 5 MR. RAICHE: So in terms of, you
 6 know, of what these look like if you benchmark
 7 them against each other at the peak of that
 8 affordability graph. Each alternative has a
 9 worst year. And the worst year for Alternative
 10 1 is right after you've finished the program in
 11 2025 and 2026. So you see, we've got a large
 12 portion of Providence, Pawtucket, and all of
 13 Central Falls past that affordability limit.
 14 You know, we've got 29,000 or
 15 13,000 and 3,700 in Providence, Pawtucket and
 16 Central Falls respectively. For Alternative 2,
 17 the worst case here is 2031. And we see some
 18 moderate increase in the number of household
 19 here. So we're at 20 -- that number can't be
 20 right. Let's ignore that number. That can't be
 21 right. In terms of the percentage for
 22 Alternative 2, percentage of households that go
 23 over the affordability limit for the service
 24 area wide, we're in the high 30s throughout the
 25 duration of Alternative 2.

Page 110

1 For Providence we're getting close.
 2 We're in the mid 40s, and Pawtucket we're in the
 3 high 30s. Central Falls is the one community
 4 that has the affordability issues throughout
 5 Phase 3 for Alternative 2.
 6 For Alternative 3, we have a worse
 7 case in 31. This isn't vastly different. That
 8 must be the numbers that I need for that other
 9 slide. There isn't a vast difference between 2
 10 and 3, it's just the year in which you hit that
 11 affordability limit.
 12 And again, we're in 50, in the high
 13 40s and a 51 percent for Central Falls. And the
 14 worse case year 41 percent for Providence and 38
 15 percent for Pawtucket. So the worse case, if
 16 you're looking at the worse case year, 2 and 3
 17 aren't vastly different. What's different is
 18 the sort of short-term affordability.
 19 And Alternative 4 we have an
 20 improvement over 2 and 3 and 1. But we're still
 21 pushing some affordability issues for some
 22 census districts in the cities.
 23 Now, as a couple of people have
 24 pointed out, those were if you just consider NBC
 25 costs. There are clean water commitments that

Page 111

1 the cities also have in addition to that. So if
 2 you want to look at that versus the 2 percent
 3 affordability, the most telling case of three
 4 cities is Providence. It has the large
 5 population for one thing, it also has the
 6 largest system.
 7 Central Falls is already sort of
 8 unaffordable on its own, but it also has a small
 9 system. So adding their commitments doesn't
 10 radically change this graph for Central Falls.
 11 But if you look at just Providence. So if we
 12 just consider the NBC costs for the City of
 13 Providence, you'll see that Alternative 1, which
 14 does everything quickly, does tip the overall
 15 program over the 2 percent affordability.
 16 Alternative 2 keeps it just under
 17 the 2 percent, and Alternatives 3 and 4 keep it
 18 lower still. I might have misspoken. This
 19 doesn't add in, the next line does. The
 20 previous slide showed just NBC costs and area
 21 wide. This is just NBC costs for the City of
 22 Providence, which has a lower income level than
 23 the entire service district.
 24 So just NBC costs show Alternative
 25 1 has affordability issues, the other two and

Page 112

1 three don't when we add in the other Clean Water
 2 Act commitments that we project will need to
 3 happen. Now keep in mind, what we assumed here
 4 is not what the City of Providence is currently
 5 spending.
 6 What we did is go through an
 7 exercise and look at the size of the City of
 8 Providence's sanitary combined and stormwater
 9 systems, look at how old they were. And based
 10 on the fact that in the next 40 years they are
 11 going to need to do some significant
 12 improvements to those systems estimated what
 13 those costs are. So adding them in, we see that
 14 all four of our alternatives cross the threshold
 15 for the City of Providence.
 16 MS. KARP: I just want to clarify a
 17 couple of things. One is that these costs, the
 18 affordability analysis is based on household and
 19 often sewer bills don't go out by household in
 20 multi family units, they go to the property
 21 owner, right. So there is a way in which even
 22 though you get a high proportion of people with
 23 low incomes in say Central Falls, the people
 24 that are making money are property owners and
 25 those are also know as absentee owners. So

Page 113

1 increasing their bills is a different matter.
 2 So I think there's a correction on the
 3 affordability analysis there and then. You're
 4 showing 2 percent of current income? So as you
 5 take this out 2015, are you assuming people's
 6 income remain static, so that when you say it
 7 exceeds two and a half, it exceeds two and a
 8 half percent?
 9 MR. RAICHE: And again, this is the
 10 EPA methodology and assumptions, but that is why
 11 you see the tailing off while bills peak. It
 12 assumes that MHI increases index to inflation,
 13 or assumed inflation.
 14 MR. KARP: Then just say this is my
 15 way's if incomes increase this can still be less
 16 than 2 percent?
 17 MR. RAICHE: If net increases over
 18 this period of time.
 19 MR. DOMENICA: Let me clarify.
 20 This doesn't or does include the increase the
 21 median household?
 22 MR. RAICHE: It does. Once you get
 23 here where your rate increases, stop, and you're
 24 not increasing bills anymore, that's why the
 25 affordability tails off because it assumes that

Page 114

1 MHI increases with inflation on an assumed rate.
 2 MR. DOMENICA: Let's finish because
 3 I think you have a few slides left.
 4 MR. RAICHE: So to bring all of
 5 that into one massively confusing table, we had
 6 several different, you know, numbers to
 7 consider. We've got total cost, and we've
 8 talked about what the total costs for each one
 9 of the alternative plans is.
 10 We've got rates sort of over time,
 11 right, so the first 10 years, the second 10
 12 years and then, you know, an additional 12, and
 13 how they compare to each other. And you can see
 14 that the total top out of 2 and 3, you know, is
 15 around the same dollar. It just happens in a
 16 different year.
 17 And the same thing when we talk
 18 about volume captured. You know, 2 and 3 are
 19 similar, but just different years in which you
 20 hit it. You know, the baseline does everything
 21 quickly, 2 and 3 delay those benefits. And then
 22 4 is a different animal. So we get a smaller
 23 percentage capture, but we also are
 24 acknowledging that we've got a volume that we're
 25 treating. So it's not exactly an apples to

Page 115

1 bananas comparison, but we've got some metric
 2 there in our year of compliance.
 3 So in terms of trying to have a
 4 table that is less confusing while still
 5 admittedly confusing in its own, this one base,
 6 or compares them all to the baseline to
 7 Alternative 1 and how they differ, right. So in
 8 terms of total cost, you know, we've got a range
 9 for these because we know we can value, engineer
 10 them, but the no tunnel we're sure is around 40
 11 percent less.
 12 In terms of the rates, all of the
 13 three alternatives are lower than the fast
 14 Alternative 1. And we just have the difference
 15 in how much and when it happens in terms of the
 16 volume captured, we can see that over time and
 17 then how long the ultimate compliance is. So
 18 this in encapsulates is the difference between
 19 the four alternatives. And that's my last
 20 slide.
 21 MR. DOMENICA: Excuse me -- the NA
 22 at the bottom right is due to that peak of the
 23 three-month storm.
 24 MR. RAICHE: Well, the NA at the
 25 bottom right is because this is an entirely

Page 116

1 different design criteria. One, two and three
 2 captures our arbitrary volume of the three-month
 3 storm that we ave called compliance.
 4 Alternative 4 never captures that volume, it
 5 does something else.
 6 MR. DANIELS: On that point, how
 7 much better is it and I'm a non water quality
 8 person, to capture versus treatment and
 9 discharge? I mean, what's the difference in
 10 terms of water quality?
 11 MR. RAICHE: Correct.
 12 MR. LIBERTI: Oh, sure. It went so
 13 good the last time. I'll try. I guess I'll go
 14 back to my original comment about, yes, picking
 15 a volume in order to size some things and do
 16 some comparisons needed to be done.
 17 Personally,.
 18 I think the rubber hits the road
 19 when you'd look at real life, what happens
 20 day-by-day by-day for a year. And that's what
 21 was done in the first Stakeholder process. When
 22 you got to this point and you needed to pick
 23 between them to really see which one does
 24 better, I think you'd need to run it through
 25 that each year for a couple of representative

Page 117

1 years. And if you want to take a stab at
 2 climate change, increase the intensity by 20
 3 percent, throw in one or two more intense storms
 4 in a particular month. You know, you could do
 5 things like that to exercise these options and
 6 get an idea of, you know, what railroad the
 7 benefits.
 8 Because some may continue to have
 9 more overflows on a part of the Blackstone or a
 10 part of the Seekonk. You know, others -- you
 11 know, generally, though, capturing allows you to
 12 slowly bleed it into the treatment plant and
 13 give it the full amount of treatment that you
 14 have available. Well, in this case it's
 15 nitrogen removal at both facilities. So on the
 16 surface it appears that any time you capture it,
 17 it's preferable to a higher rate treatment to
 18 where the disinfection act is questionable.
 19 But.
 20 I think you really need to look at
 21 the next step if you're seriously considering,
 22 you know, the high rate treatment, the no tunnel
 23 option. And you have the water quality model to
 24 also get an idea of phasing these things where
 25 you do in the interim. Do you get a real

Page 119

1 standards, but it's not impossible either.
 2 There's some issues that we need to look at.
 3 MR. REITSMA: Thanks Angelo, I
 4 think that was a helpful restatement. I think,
 5 and also going back to when Alternative 4 was
 6 introduced, you talked about this is an entirely
 7 different paradigm, which perhaps you shouldn't
 8 have said because they got me going. Because I
 9 think that we should be thinking perhaps about a
 10 different paradigm.
 11 And I want to be careful because
 12 when I do it, I give Brian all kinds of ideas
 13 that I'm not sure I should be doing. But we're
 14 looking at alternatives that try to do things
 15 that are not possible, capturing more flow than
 16 we can actually handle.
 17 Angelo just makes clear that the
 18 more we can capture so that we can actually
 19 provide for treatment, the better it is. All
 20 the fancy hard solutions don't seem to get us
 21 there either because technically it's not really
 22 possible or economically it's not going to be
 23 possible. We keep dancing around the green
 24 infrastructure piece, but it seems to me that
 25 the new paradigm is actually are there options

Page 118

1 benefit or do you get a volume reduction where
 2 you have limited benefits. But it gives you
 3 some idea to explore what you anticipate the
 4 benefits to be of these projects. And just
 5 picking one storm, I don't think really tells
 6 you what the expected benefits are.
 7 MR. DOMENICA: And what you're
 8 saying, Angelo, when you say benefits, you mean
 9 increase days below the shellfishing criteria or
 10 increase days below the fishable, swimmable
 11 criteria in the water body?
 12 MR. LIBERTI: Right. So it could
 13 be the recreational contact in the Seekonk
 14 River.
 15 MR. DOMENICA: How many more days
 16 --
 17 MR. LIBERTI: Many more days could
 18 you safely row jet skis and meet our swimming
 19 criteria. There's a lot of focus on urban
 20 beaches right now in East Providence, and other
 21 areas of Providence River. And then, of course,
 22 you know, shellfishing. Ultimately, I think
 23 there's a question could this shellfishing line
 24 be moved north of Conimicut with the
 25 implementation -- it's not a goal in our current

Page 120

1 to capture the flow and detain it so that you
 2 can treat it appropriately? And shouldn't we,
 3 and I'm not actually going to ask the question
 4 because it's going to take more time than we
 5 have.
 6 I'm going to propose that a few of
 7 us form a working group with the cities involved
 8 in this particular project to do an
 9 investigation very quickly, whether it's
 10 possible to use some of these millions to
 11 acquire places where you can create storage
 12 capacity, and maybe have win, win solutions so
 13 you can have parks there or playing fields, or
 14 wetlands where you can have that storage
 15 capacity and delay the treatment to the
 16 appropriate time and save probably a fair amount
 17 of money.
 18 It seems to me that you're talking
 19 about a budget that is many times the public
 20 land budget that we currently have in the state,
 21 and we have a huge need in these particular
 22 communities for certain public amenities that
 23 could be served at the same time. This is being
 24 done elsewhere in the country as a way to do it
 25 where you get multiple benefits out of a

Page 121

1 relatively modestly investment compared to some
 2 of the things that we've been looking at today.
 3 And I think we owe it to ourselves, and perhaps
 4 to the community, to at least investigate that
 5 and sort of turn the equation around.
 6 Now, I heard you earlier saying you
 7 have to be very careful with that because of the
 8 graph that you showed. I couldn't follow you,
 9 I'm sorry. So I need to talk with you about
 10 that. I sort of have a feeling that we need to
 11 put that first instead of second. What can we
 12 do first about capturing, and then calculate the
 13 rest. That's just my perception.
 14 I know I'm not the only one in the
 15 room who's thinking that way. That's my new
 16 paradigm that I think we need to consider. And
 17 I'm more than willing to put in a whole lot of
 18 work to with the working group, but I think the
 19 municipal people should be part of that, as
 20 well.
 21 MR. HILL: I know an incredible
 22 amount of work went into this, a very
 23 complicated analysis. My question really is
 24 what are the next steps, and are you guys
 25 recommending a preferred alternative?

Page 122

1 MR. RAICHE: A preferred
 2 alternative. Tom, do you want to talk about
 3 what our path is?
 4 MR. BRUECKNER: The next step would
 5 be to take this presentation to the Board of
 6 Commissioners on Tuesday at their next meeting.
 7 The first presentation will be to the Long Range
 8 Planning Committee to the board and then there
 9 will be a presentation to the full board on that
 10 day. Then they will take this under advisement
 11 and I'm assuming that they will have a number of
 12 questions and may require further meetings with
 13 MWH.
 14 I think also what is obvious is
 15 that this Alternative 4 issue, and should that
 16 be pursued further or is there some reason that
 17 the commissioners may just decide they don't
 18 want to go there. If that is the case, there
 19 would probably be some further studies done, and
 20 in addition as Rich just pointed out, there
 21 needs to be a little bit more work done on the
 22 water quality analysis. We didn't quite get it
 23 finished as we had anticipated because of
 24 unanticipated problems, but there is that
 25 component, as well.

Page 123

1 I assume that the board will at
 2 some point make a recommendation, and I don't
 3 know if there will be further information
 4 developed before the board that could also be
 5 presented to another Stakeholders meeting prior
 6 to the Board meeting just to get further
 7 feedback, as the Chairman had alluded to that he
 8 values the input.
 9 So I'm not quite sure exactly how
 10 we're proceeding, but I do know that we're going
 11 to the board next and waiting to hear what their
 12 pleasure is.
 13 MR. DOMENICA: Okay, three more,
 14 and then we have a question we have to answer.
 15 MS. KARP: I just want to offer a
 16 recommendation, and this is now my second time
 17 at one of these Citizen Advisory Committee
 18 meetings. I think these are really productive.
 19 I think it's a productive way of getting
 20 information out to the community and to the very
 21 organizations that are concerned about water
 22 quality. So my recommendation to the Commission
 23 will be that we reconvene the Citizen's Advisory
 24 Committee when some of these additional studies
 25 have been done.

Page 124

1 MR. BRUECKNER: Excuse me,
 2 Caroline, you keep saying Citizens Advisory
 3 Committee. Do you mean Stakeholders Committee?
 4 MS. KARP: I mean the Stakeholders,
 5 sorry. And I would say that because we have
 6 invested a lot of time. And I think actually, I
 7 think it's worth following this through to see
 8 how the Commission thinks how much stormwater
 9 can be removed up front. That would be my
 10 recommendation as closure.
 11 MR. HAMBLETT: I echo Caroline's
 12 thoughts about, at least another gathering of
 13 this group, postpresentation. The
 14 commissioners, I would also echo what Jan has
 15 suggested. This is all very detailed hard work.
 16 I still feel like there needs to be
 17 a more exhaustive look at presenting flow into
 18 the system, green infrastructure alternatives.
 19 I would also like to know, are there other
 20 cities around the country that have tried that
 21 are approached or try to approach now and what
 22 are the status of that. What can we learn from
 23 other locations now.
 24 MR. RHODES: On one of the previous
 25 graphs you showed compared all the alternatives

Page 125

1 just building the Pawtucket Tunnel. How would
 2 that option, the Pawtucket Tunnel stack up on
 3 this table?
 4 MR. RAICHE: I can do the path on
 5 that pretty readily. I don't want to do it off
 6 the top of my head.
 7 MR. DOMENICA: We're 15 minutes
 8 over, and we have a question in front of us
 9 which is at the beginning we had a request to
 10 have a summary of the status of the stormwater
 11 program from Carolyn. And Sheila is willing to
 12 do that. That would probably take about how
 13 long, Sheila?
 14 MS. DORMODY: Two minutes. This
 15 position of the group given this is the, maybe
 16 the last meeting. We'll have three comments,
 17 and then Sheila's summary and a couple of more
 18 comments, and then we're done. Brian?
 19 MR. BISHOP: Just quickly because
 20 it wasn't at the time I was considered out of
 21 work. Only because I've done quite a lot of
 22 work on the question of tenements in Providence.
 23 Recently, I would have to dissent from what is
 24 on the record from Caroline regarding the idea
 25 that the costs goes to absentee owners.

Page 126

1 In Providence, some 50 percent,
 2 over 50 percent of the properties that are owned
 3 by people that don't live in them are own a
 4 single property. These here most often are
 5 these people that were owners and moved to
 6 another property. The demographic of these
 7 people are not absentee landlords. In the sense
 8 that they are large conglomerates owning many,
 9 many houses.
 10 And secondarily, the idea that they
 11 can simply bear the additional costs and somehow
 12 won't trickle to the tenants is the same thing
 13 that's animating the tenant tax debate in
 14 Providence, and so forth, and you know, I think
 15 one might delve in the economics of that if we
 16 want to add to this debate. And I would just
 17 leave that sit.
 18 Secondarily, on the idea, I had
 19 said at the beginning I don't think, there was
 20 an attempt at the end of the last Stakeholders
 21 meeting. I'm not sure if we voted, but I think
 22 there was an attempt to gather at a sense that
 23 the group had a consensus on the outrun. That's
 24 obviously not to be attained here, and there may
 25 be some bureaucratic deadlines or other reasons

Page 127

1 why this, at least, begins its course of
 2 decisionmaking by those responsible for making a
 3 decision. I think the idea of continuing the
 4 process whether, you know, somewhat informally
 5 in the meantime, as Jan suggested, or more of
 6 this is not a bad idea. The one thing I haven't
 7 put on the table.
 8 The one thing I don't see in the
 9 way a lot of this information is presented, and
 10 I kept asking for comparisons to what we spend
 11 on Phase 1 and Phase 2, and so forth, is also.
 12 My agreement with the effort that we made in the
 13 first Stakeholders was based largely on the
 14 idea, that at least according to the cost models
 15 we had at that time, that we were capturing the
 16 most volume for the least dollar, so that the
 17 dollar per volume was most cost-effective.
 18 You know, one could back into that
 19 here, but I just spent some time trying to go
 20 back over those figures and recreate that wheel,
 21 and I would think that the NBC, as well as any
 22 of us reconvening are going to want to
 23 understand what's the cost per dollar of any of
 24 the proposals here so that I think that that can
 25 help inform, you know, what is low. And I

Page 128

1 understand, some things can't be done, you know,
 2 if you build the tunnel, you're going to build
 3 the whole thing. I think that that's critical,
 4 and while we've talked about private for much
 5 more localized infrastructure for stormwater
 6 collection, I think an enormous oversight in
 7 that has been.
 8 I think it's quite possible that we
 9 could have localized temporary collection of
 10 sewage. That's what those of us who have septic
 11 systems do all the time. It doesn't worry is
 12 that we have, you know, a thousand gallons of
 13 sewage sitting in a tank right outside our
 14 house. That's just normal. And that's a
 15 technology that hasn't even been on the table,
 16 and I can call some possible promise rather than
 17 trying to collect all the rainwater in
 18 Providence.
 19 MR. DOMENICA: Thank you. Harold?
 20 MR. GADON: Just a quick question,
 21 Rich. You didn't answer Lance's question. Are
 22 you going to make a preferred recommendation to
 23 the board even one that you're not ready to make
 24 a recommendation?
 25 MR. RAICHE: Honestly, at this

Page 129

1 point what we'll be presenting to the board are
 2 the four alternatives for the board's
 3 discretion, for their analysis and their
 4 determination of preferred alternative. I am
 5 not going to kick any one of these children and
 6 single them out.
 7 MS. DORMODY: Sheila Dormody with
 8 the City of Providence. My comment first before
 9 my report on the stormwater utility, whenever
 10 you're ready for that, was from our very first
 11 meeting we had a parking lot item about
 12 affordability of how we can address it through
 13 lifeline rates or some other equitable
 14 distribution of the billing system and we were
 15 looking for models from other communities.
 16 So that's one more piece of
 17 information that would be helpful to add in to
 18 the mix. And I would second that we do need
 19 more meetings as Stakeholders in order to
 20 consider all of the information that we've just
 21 received moments ago.
 22 MR. DOMENICA: Thank you. And now
 23 you have stormwater summary.
 24 MS. DORMODY: Ready. Okay. The
 25 brief recap for folks who may have missed my

Page 130

1 first report on our Phase 1 feasibility study
 2 for our regional stormwater utility for the
 3 upper Narragansett Bay Region is for the past
 4 year five municipalities at the head of upper
 5 Narragansett Bay, so Warwick, Cranston,
 6 Providence, Pawtucket, Central Falls, and East
 7 Providence have been working together to figure
 8 out if a regional approach to stormwater
 9 management made sense and if our regional
 10 stormwater utility was the best way to pay for
 11 that.
 12 The answers to those two questions
 13 in Phase 1 was yes, we should keep looking at
 14 these questions. We found that yes, we have
 15 real shared problems that spending more money on
 16 them would actually help solve those problems.
 17 We know how to solve those problems, we would
 18 need more money to do it, that a regional
 19 approach to do that would be both most
 20 cost-effective and efficient than the current
 21 system we have, and that our stormwater's
 22 utility fee, a fee based on how much impervious
 23 cover property would be the most equitable and
 24 efficient way to be paying for those costs. So
 25 that brings us to Phase 2. Six of those

Page 131

1 municipalities are continuing to work together
 2 in Phase 2 which will be beginning just after
 3 the beginning of the new year. We've just hired
 4 a consultant to be managing that, and we expect
 5 the outcomes of that, probably 14-month process
 6 to include a more detailed version of what the
 7 total cost of those services, total cost of the
 8 utility would be, what the scope of services
 9 would be, and the things that we would be
 10 getting at our, what would it take to come into
 11 compliance with MS for permits for those
 12 municipalities, as well as complying with the
 13 total maximum daily requirements for those
 14 municipalities.
 15 MR. DOMENICA: Thank you. Just
 16 stay there for one minute Sheila. Any questions
 17 for Sheila? Caroline?
 18 MS. KARP: So do you have even a
 19 rough estimate or range of numbers about what
 20 volume a stormwater in theory is generated by
 21 those properties?
 22 MS. DORMODY: No, and I don't
 23 expect to have that from the Phase 2 study.
 24 MS. KARP: Because I've had
 25 students working this, so and Tom Uva has helped

Page 132

1 advise those, so at least I'll give you
 2 estimates.
 3 MS. DORMODY: Great.
 4 MR. DOMENICA: Brian?
 5 MR. BISHOP: There sounds like
 6 there's a bit of a working group here, and I'd
 7 be interested in paying attention only because I
 8 think the effectiveness of non-pervious surface
 9 has been given, you know, a certain reasonable
 10 prospective here, but I'm equally well aware
 11 that just having non-pervious surface doesn't
 12 mean that you don't have runoff. So that I'm
 13 concerned about the triggers, and again, I don't
 14 think here is -- until we combine these
 15 processes, but I would like to stay in touch.
 16 MS. DORMODY: Great. I'd be glad
 17 to talk to you more about that.
 18 MR. GADON: Sheila, I think you
 19 couldn't invite to meet as the committee
 20 advisory.
 21 MS. DORMODY: Yes, that process in
 22 addition to the process with the steering
 23 committee and municipalities also has a
 24 Stakeholders group that's running intermittent
 25 parallel with it to bring out these types of

1 concerns.
 2 MR. BREUCKNER: Please make sure
 3 you sign the sign-in sheet so we have an
 4 accurate record of who attended. And the second
 5 point I want to mention is that this slide
 6 presentation that was given today should be
 7 posted on the website as soon as we get it from
 8 MWH we'll try and get it up there. So if you
 9 want to go back and look at some of these slides
 10 to refresh your memory or have questions you can
 11 do so.
 12 MR. WALKER: I just want to go back
 13 to the first meeting where I stood up towards
 14 the end and asked the question when we all
 15 talked about affordability as to how that
 16 relates to the non-residential ratepayer in the
 17 system. And I don't see any of that in the
 18 discussion today, and don't know if that's going
 19 to be part of the discussion, whether you've got
 20 data or not, when you make the presentation to
 21 the Narragansett Bay Commission on looking for
 22 alternatives.
 23 Because equally as important as the
 24 people in the residents have to pay, it's also
 25 the people that pays them the wages that lets

1 the information from both this group and the
 2 consultants, and we'll get back to you on the
 3 need to get together again and additional
 4 information. So, thank you, very much. You're
 5 dismissed. The time is 12:30.
 6 (MEETING CONCLUDED AT 12:30 P.M.)
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

1 them pay, that we have to make sure we don't
 2 price them out of the Rhode Island marketplace,
 3 and then those people out of jobs.
 4 And the second thing is when you
 5 start to layer on your rate structure so you
 6 have the CIP from Providence and you have the
 7 NBC costs additive to the rate, and you start to
 8 look at the affordability, you can't forget
 9 about some of the other things that are out
 10 there, including if a stormwater utility
 11 district were to be passed that would be
 12 additive, as well.
 13 So we've got to be careful on the
 14 -- and I'm seeing it more and more on the one
 15 offs of the great ideas that are out there, and
 16 they only add a little bit. But when you start
 17 to add them all on top and layer them all up, it
 18 gets very expensive very quickly, and we lose
 19 sight in just the notion of we can afford this,
 20 we can afford that. And at the end of the day,
 21 you can't afford what you're left with. So,
 22 thank you.
 23 MR. DOMENICA: Okay. Thank you all
 24 for your attention and integration and ideas,
 25 and I'm sure the commission will be digesting

1 C-E-R-T-I-F-I-C-A-T-E
 2
 3 I, PAULA J. CAMPAGNA, CSR, a Notary
 4 Public, do hereby certify that the foregoing is
 5 a true, accurate, and complete transcript of my
 6 notes taken at the above-entitled hearing.
 7
 8 IN WITNESS WHEREOF, I hereunto set my
 9 hand this 13th day of January, 2015.
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

Paula J. Campagna
 Notary Public

PAULA J. CAMPAGNA, CSR, NOTARY PUBLIC/CERTIFIED
 COURT REPORTER
 MY COMMISSION EXPIRES: April 25, 2018
 IN RE: CSO Phase III Re-Evaluation
 Stakeholders Meeting
 DATE: December 4, 2014

| | | | | |
|---|---|--|--|--|
| | 5:16;24:3;41:25; 55:5 | 26:12;27:4 | 90:16;109:7 | 74:14;75:12;78:22; 80:5,6;83:15,19,25; 85:24;86:14,17,18; 87:2;90:16,22;97:16; 103:12,14;105:11; 111:17;112:14;115:13, 19;119:14;124:18,25; 129:2;133:22 |
| \$ | achieved (2) 3:23,24 | adjustment (2) 27:6,19 | aggressive (2) 50:19;63:9 | although (2) 52:12;84:7 |
| \$115 (1) 36:11 | acknowledging (2) 37:12;114:24 | adjustments (1) 27:8 | ago (8) 26:11;27:14,25;28:5; 65:7;70:14;72:3; 129:21 | altogether (2) 23:20;71:11 |
| \$25 (1) 89:3 | acquire (1) 120:11 | administrative (3) 34:5;63:18;83:12 | agreement (1) 127:12 | always (8) 5:23;6:1,4,9;25:19; 31:25;66:2;67:25 |
| \$35 (1) 94:23 | across (2) 39:25;98:23 | admittedly (1) 115:5 | aimed (1) 53:23 | ambitious (2) 12:14;87:7 |
| \$37 (1) 95:10 | Act (10) 4:4;54:6,8,9,19; 102:4;104:18;106:13; 112:2;117:18 | ado (1) 11:21 | AI (1) 26:5 | amenities (1) 120:22 |
| \$450 (4) 42:5;59:23;95:13; 105:18 | activities (1) 6:17 | adopted (1) 26:10 | alert (1) 13:7 | amortization (1) 16:12 |
| \$500 (1) 92:10 | actual (9) 27:10;52:11;63:20; 64:12;73:17;96:7,8,15; 101:14 | advanced (1) 23:11 | allow (5) 23:15,23;81:21; 82:19,20 | amount (9) 55:22;57:6,16;66:11; 67:1;88:8;117:13; 120:16;121:22 |
| \$521 (1) 100:9 | actually (37) 10:15;16:13;31:24; 32:7;34:11;39:5;44:1, 22;46:5,19;48:25; 51:20;53:3;57:3;58:14; 60:12;62:14,20;63:9; 10:64;6:72;11:73;24; 74:10;76:9,10;84:12, 18;90:11;93:23;97:2; 119:16,18,25;120:3; 124:6;130:16 | advise (1) 132:1 | allowed (1) 53:16 | analogous (3) 31:4;32:22;87:15 |
| \$67 (2) 95:6,16 | add (16) 47:13;49:18;65:11; 67:10;100:24;101:1,9, 19,24;102:10;111:19; 112:1;126:16;129:17; 134:16,17 | advisement (1) 122:10 | allows (2) 23:2;117:11 | analysis (31) 8:12;12:2,4;13:14; 17:22,24,24;22:10; 30:9;34:3;36:21;37:7, 20;39:17;44:7,13; 46:20;48:1,6;56:23; 58:11;70:20;85:12; 89:1;105:14;107:10; 112:18;113:3;121:23; 122:22;129:3 |
| \$750 (1) 105:13 | added (2) 20:22;96:17 | advisor (1) 65:8 | alluded (3) 41:11;46:17;123:7 | analyze (1) 81:21 |
| \$800 (2) 94:16;95:6 | adding (3) 25:8;111:9;112:13 | Advisory (8) 4:21,25;5:5,7; 123:17,23;124:2; 132:20 | almost (2) 50:8;60:4 | analyzed (1) 42:7 |
| \$810 (1) 105:14 | addition (5) 40:16;99:24;111:1; 122:20;132:22 | advocate (1) 7:15 | alone (1) 87:12 | analyzing (1) 90:15 |
| \$812 (1) 95:15 | additional (20) 16:23,24;17:10; 18:22;20:24;21:4; 33:21;41:14,24;85:4; 87:24;88:3;97:24; 104:9,11;106:3; 114:12;123:24;126:11; 135:3 | affiliation (1) 9:13 | along (8) 6:20;21:11;22:22; 40:6;45:20;46:10; 50:23;63:25 | and/or (1) 69:20 |
| \$925 (2) 31:11;105:16 | address (2) 55:15;129:12 | afford (8) 30:2;57:24;58:3,6; 59:19;134:19,20,21 | altered (1) 18:11 | ANDERSON (13) 48:21;51:3;65:2; 72:1,22;73:8,16,23; 74:1;78:23;80:23; 83:16;94:2 |
| A | addressing (2) 48:18;54:17 | affordability (42) 6:5;11:5;13:6;16:20; 17:13;22:2;26:2;56:22; 58:1,6;60:20;66:3,4,8; 95:8,20;102:13,17; 104:16,19,24;105:14; 107:1,19;108:10,14; 109:8,13,23;110:4,11, 18,21;111:3,15,25; 112:18;113:3,25; 129:12;133:15;134:8 | alter (1) 24:8 | Angelo (7) 53:17;57:25;61:6; 81:5;118:8;119:3,17 |
| abandoned (1) 46:8 | adds (1) 28:18 | affordable (1) 105:3 | alternatives (41) 11:25;12:4;13:14; 17:22,24;31:17,20; 39:17;47:22;48:12; 51:8;53:23;54:15; | Angelo's (1) 79:9 |
| abatement (4) 48:22;72:17,18,20 | adjust (1) 26:24 | afternoon (1) 51:6 | | animating (1) 126:13 |
| ability (1) 42:23 | adjusted (2) | again (46) 5:3;8:25;9:1;19:11, 18;20:10;21:16;23:25; 26:2;27:17;28:20,25; 29:7,17,21;31:9;32:24; 33:12;36:5,12;37:16; 40:4;51:3;60:23;68:15, 17;69:1;80:12;83:7,23; 85:25;87:11,16;88:2,7, 15;92:6;97:13;98:19; 103:5;105:5;108:7; 110:12;113:9;132:13; 135:3 | | animal (1) 114:22 |
| able (3) 22:14;39:5;75:3 | | | | anniversary (1) 4:3 |
| above (3) 19:23;90:25;108:16 | | | | annual (15) 46:20;47:16,18;90:2, |
| absentee (3) 112:25;125:25;126:7 | | | | |
| absolute (2) 6:19;52:4 | | | | |
| absolutely (4) 6:24;24:19;65:6; 79:9 | | | | |
| access (1) 88:15 | | | | |
| according (1) 127:14 | | | | |
| accounted (1) 73:2 | | | | |
| accounting (2) 46:24;107:5 | | | | |
| accumulating (1) 35:18 | | | | |
| accurate (2) 81:1;133:4 | | | | |
| achieve (4) | | | | |

| | | | | |
|--|--|--|--|--|
| 5;100:5,7,9,9,11,12,23; 101:18;103:3;106:6 anomalies (4) 82:5,11;86:8,11 anticipate (3) 14:14;92:2;118:3 anticipated (1) 122:23 anymore (1) 113:24 apart (1) 12:5 apparent (2) 44:7;100:17 apparently (1) 105:21 appear (1) 44:4 appears (3) 55:21;63:15;117:16 apples (1) 114:25 appreciate (2) 11:18,18 apprised (2) 6:17,20 approach (4) 60:25;124:21;130:8, 19 approached (1) 124:21 appropriate (1) 120:16 appropriately (1) 120:2 approval (1) 55:4 approximately (1) 70:1 arbitrarily (1) 37:22 arbitrary (2) 87:18;116:2 area (22) 18:19;20:3,13,18; 23:16;29:2,22;58:13, 13;77:10;78:17,18; 80:16;81:3,8,10,12; 85:21;87:1;108:18; 109:24;111:20 areas (12) 15:4;19:3,25;28:24; 29:23;30:24;37:17; 50:20;51:17;81:10; 108:5;118:21 argument (1) 31:25 around (19) 36:4;49:7;54:13; 60:8;71:3;87:10;88:25; 94:10;97:7;98:12,18; 101:25;102:2;108:10; 114:15;115:10;119:23; | 121:5;124:20 aside (1) 27:15 associated (5) 26:19;36:16;45:22; 71:20;74:2 assume (5) 30:9;39:22;70:1; 93:18;123:1 assumed (5) 27:20;79:2;112:3; 113:13;114:1 assumes (2) 113:12,25 assuming (4) 30:14;96:18;113:5; 122:11 assumption (5) 89:11,18,22;96:9; 101:12 assumptions (6) 89:3,9;107:16,18,25; 113:10 assure (2) 6:15;8:16 attainability (1) 55:2 attained (1) 126:24 attempt (2) 126:20,22 attended (1) 133:4 attention (2) 132:7;134:24 attitude (1) 6:10 audience (1) 9:19 availability (1) 90:1 available (4) 57:2;59:8;72:9; 117:14 Ave (2) 21:3;116:3 Avenue (4) 14:23;15:5,20;18:14 average (14) 58:21;75:24;94:18, 22;96:9,13,17,20,25; 98:13,19;100:8; 101:17;103:16 aware (2) 47:17;132:10 away (5) 45:12;64:6;65:23; 89:16;93:17 awesome (1) 97:23 awful (2) 15:24;79:1 | B babble (1) 11:17 back (22) 11:3;12:23;28:8; 31:14;35:2;42:21; 51:12;55:20;56:11,12; 68:8;74:3;75:5;80:12; 92:17;116:14;119:5; 127:18,20;133:9,12; 135:2 background (3) 79:3,22;80:14 backups (1) 22:17 backward (1) 93:1 backwards (1) 94:4 bacteria (6) 48:14;49:2,17;50:7; 78:3,6 bacterial (2) 50:2,6 bad (3) 54:17;75:21;127:6 ballpark (2) 28:9;85:8 bananas (1) 115:1 bank (1) 46:9 bankers (1) 7:8 base (2) 92:19;115:5 based (26) 12:20,24;28:1;29:2; 32:15;53:24;55:22; 56:5;57:5,7;62:8; 69:19;79:4;82:6,24; 96:7,8,15;98:22;100:9; 101:13;107:15;112:9, 18;127:13;130:22 baseline (25) 11:23,24;12:8;14:5, 17;15:11;16:14;17:23; 18:1,5;19:1,4,9;20:23, 24;26:8,9;27:4;68:15; 70:15;80:2;87:23; 90:22;114:20;115:6 basically (4) 16:13;46:8;94:20,22 basin (1) 53:4 basis (13) 5:1,2,2;7:3,4,21; 12:17;56:17;60:7; 64:19;65:1;90:3;96:20 bath (1) 65:5 | baths (1) 65:6 bathtubs (1) 70:12 battle (1) 55:12 Bay (23) 3:15,18;4:23;6:9; 15:18,23;46:5;76:13; 77:2,2,5,15;78:4,6; 82:10;85:14,17;94:24; 99:7;102:6;130:3,5; 133:21 beaches (1) 118:20 bear (2) 32:19;126:11 bears (2) 35:16,20 became (3) 3:19;36:1;56:17 become (2) 41:21;65:8 began (1) 4:9 begin (1) 14:20 beginning (9) 4:18;54:4;75:5; 76:25;85:17;125:9; 126:19;131:2,3 begins (1) 127:1 behalf (1) 5:22 behind (1) 59:21 below (4) 75:23;76:2;118:9,10 benchmark (3) 107:1,10;109:6 benefit (10) 6:10;13:9;20:1; 22:24;29:3;52:13; 69:13;70:25;90:13; 118:1 benefits (23) 22:21,24;29:9,19; 42:3;44:6;52:7;68:24; 71:25;80:18;81:23; 85:8;86:2,3,22;88:20; 114:21;117:7;118:2,4, 6,8;120:25 Besides (1) 38:23 best (2) 4:1;130:10 better (9) 22:20;36:14;40:8; 43:11;48:15;50:1; 116:7,24;119:19 beyond (1) 23:22 | bid (1) 34:15 big (13) 35:25;38:5,7;42:6; 62:5,18;69:13;81:23; 82:1,15;90:7;105:5,6 bigger (6) 35:13;57:21;58:5,7, 16;60:25 biggest (3) 13:7,8,9 bill (13) 92:10;94:10,16; 95:10,12;96:18,20; 100:9,11,17,23;101:18, 25 billed (1) 96:8 billing (1) 129:14 bills (19) 90:20,24;91:8,10; 93:3;94:15;96:7,25; 99:7,22;102:6,11,21; 104:20;106:7;112:19; 113:1,11,24 BISHOP (30) 16:7,25;26:14;27:13; 28:11;30:7;31:24; 32:15;33:7;34:2,17,21; 35:4,10;36:12;62:20; 73:10,18;80:1;82:25; 92:5,15;93:2,10,16; 94:6;100:16,21; 125:19;132:5 bit (19) 11:20;13:12;14:3; 19:6;24:1;34:9;50:6; 51:24;63:24;66:1,6; 69:6;87:13;90:14;97:8; 101:3;122:21;132:6; 134:16 bits (1) 69:5 Blackstone (2) 41:5;117:9 bleed (1) 117:12 blend (1) 52:2 blown (1) 81:19 blue (6) 75:23,23,24;76:6,7; 89:22 board (25) 5:22;6:7,9,15,16,16, 20,22;7:4;8:4,6,19,20; 47:9;48:4;63:20;122:5, 8,9;123:1,4,6,11; 128:23;129:1 board's (1) 129:2 |
|--|--|--|--|--|

| | | | | |
|--|--|---|---|---|
| <p>body (1) 118:11</p> <p>bond (6) 89:8,17;93:6;101:24; 104:10;105:24</p> <p>bonds (3) 89:12,23;90:10</p> <p>bookstore (1) 52:20</p> <p>BORDEN (1) 48:11</p> <p>borrowing (1) 7:22</p> <p>both (9) 11:4;16:1;37:21; 49:23;59:5;106:13; 117:15;130:19;135:1</p> <p>bottom (3) 100:14;115:22,25</p> <p>Branch (1) 21:3</p> <p>break (6) 11:2;14:17;68:3,5; 70:12;92:13</p> <p>breaking (1) 14:18</p> <p>BREUCKNER (1) 133:2</p> <p>Brian (6) 34:25;83:17;94:3; 119:12;125:18;132:4</p> <p>Brian's (1) 93:9</p> <p>brief (1) 129:25</p> <p>bring (12) 28:8;29:12;32:10; 35:2;39:2;40:18;41:3; 43:10;93:3;105:23; 114:4;132:25</p> <p>bringing (3) 40:13;44:17;106:2</p> <p>brings (2) 36:24;130:25</p> <p>broken (3) 10:23;12:10;30:10</p> <p>brought (1) 18:2</p> <p>Brown (2) 10:10;52:20</p> <p>BRUECKNER (20) 34:25;35:6,12;38:22; 43:6;44:24;46:15; 47:14;49:18;56:10; 74:17;75:1;81:5;93:4; 95:12,24;96:2,11; 122:4;124:1</p> <p>Bruekner (1) 55:18</p> <p>Bucklin (11) 29:13;31:18,22; 33:19;35:24;37:3; 39:19,23;40:14;41:17;</p> | <p>44:21</p> <p>bucks (1) 94:11</p> <p>budget (3) 98:17;120:19,20</p> <p>build (27) 29:10;32:4;33:6; 34:15;37:13,16,17,20; 43:2;51:10;57:21;58:3, 4,6;65:11;66:17,25; 67:15,17;71:1;81:25; 84:16;85:5;103:24; 105:3;128:2,2</p> <p>building (4) 53:13;91:3,13;125:1</p> <p>built (7) 16:21;17:12;35:23; 40:4;52:19;65:17;67:8</p> <p>bump (2) 42:21;52:21</p> <p>bumps (1) 103:20</p> <p>bunch (3) 30:21;41:16;75:17</p> <p>bureaucratic (1) 126:25</p> <p>Burrows (1) 8:21</p> <p>by-day (1) 116:20</p> <p>bypass (1) 67:15</p> | <p>64:23;65:10,10,11; 66:13;67:20,24;68:4; 74:16,22;76:8,15;77:3, 20;79:10,12;83:7;84:4, 9;86:6,15;88:5;92:18; 93:14;98:10;102:23; 105:15;106:7;108:9; 113:15;114:13;115:9, 16;119:16,18,18;120:2, 11,13,14;121:11;124:9, 22;125:4;126:11; 127:24;128:16;129:12; 133:10;134:19,20</p> <p>capability (1) 39:2</p> <p>capacity (13) 39:1;40:16,21,24; 41:14;42:18,19;43:4, 14,17;51:18;120:12,15</p> <p>capital (11) 16:23,24;25:19,22; 27:22;87:25;97:1,3,21, 24;105:20</p> <p>capping (1) 89:25</p> <p>capture (28) 15:20;16:10;20:6; 21:9,10,20;35:22; 37:23;50:22;52:24; 53:8,14;57:22,23; 59:25;61:23;62:12; 68:19,21;69:2;75:11; 81:25;91:4;114:23; 116:8;117:16;119:18; 120:1</p> <p>captured (5) 32:21;36:2;37:8; 114:18;115:16</p> <p>captures (3) 44:20;116:2,4</p> <p>capturing (11) 23:1;44:23;50:13; 53:23;69:8,19;79:19; 117:11;119:15;121:12; 127:15</p> <p>care (3) 6:21;49:11,16</p> <p>careful (4) 52:1;119:11;121:7; 134:13</p> <p>Caroline (7) 52:16;65:7;72:6; 74:18;124:2;125:24; 131:17</p> <p>Caroline's (2) 98:9;124:11</p> <p>Carolyn (3) 10:9;102:22;125:11</p> <p>carries (1) 21:5</p> <p>carry (1) 48:9</p> <p>carrying (10)</p> | <p>18:16;21:6;22:1,9; 23:8;26:20;47:21;88:3; 93:7;105:13</p> <p>case (13) 12:21;27:4;30:3; 90:17;105:16;109:17; 110:7,14,15,16;111:3; 117:14;122:18</p> <p>cash (5) 33:4,4;91:22;104:9; 106:10</p> <p>catch (2) 91:24;105:4</p> <p>causes (1) 101:8</p> <p>causing (1) 22:17</p> <p>cautious (1) 22:8</p> <p>caveat (1) 73:4</p> <p>CDRA (4) 11:23;27:7;28:3; 75:7</p> <p>Cemetery (3) 46:4,7,16</p> <p>census (2) 108:12;110:22</p> <p>center (1) 9:21</p> <p>centerfold (1) 4:3</p> <p>Central (15) 16:1;20:7,13;29:22; 77:15;108:13,20; 109:13,16;110:3,13; 111:7,10;112:23;130:6</p> <p>certain (5) 17:8;43:4;67:1; 120:22;132:9</p> <p>certainly (1) 5:8</p> <p>Chairman (9) 3:10,12,12,13,15,19; 4:13;9:7;123:7</p> <p>change (7) 24:7;55:17;61:10; 78:11;101:3;111:10; 117:2</p> <p>changed (2) 18:12;58:10</p> <p>changes (1) 103:22</p> <p>charge (1) 106:20</p> <p>charges (1) 100:7</p> <p>cheap (1) 30:15</p> <p>check (1) 87:6</p> <p>children (1) 129:5</p> | <p>chipping (1) 89:15</p> <p>chlorine (1) 45:11</p> <p>choice (1) 60:19</p> <p>choosing (1) 63:23</p> <p>chosen (3) 65:25;86:24;88:23</p> <p>chronic (1) 52:25</p> <p>chump (1) 101:3</p> <p>chunk (2) 34:1;51:25</p> <p>CIP (3) 28:5;96:23;134:6</p> <p>cities (8) 10:13;50:14;108:11; 110:22;111:1,4;120:7; 124:20</p> <p>Citizen (1) 123:17</p> <p>Citizens (6) 4:21,25;5:5,6; 101:20;124:2</p> <p>Citizen's (1) 123:23</p> <p>City (13) 10:12;22:17;52:19; 53:6,12;99:18;102:17; 111:12,21;112:4,7,15; 129:8</p> <p>clarify (3) 24:15;112:16;113:19</p> <p>Clean (10) 4:4;54:6,8,9,18; 102:3;104:18;106:13; 110:25;112:1</p> <p>cleaned (1) 81:13</p> <p>clear (7) 60:5,10,21;61:17,17; 77:14;119:17</p> <p>clearly (4) 9:13,17;10:4;86:7</p> <p>climate (4) 55:17;61:10;62:2; 117:2</p> <p>climatologist (1) 58:18</p> <p>climb (1) 5:15</p> <p>close (6) 27:11;38:9;84:12,19; 91:9;110:1</p> <p>closed (1) 81:15</p> <p>closer (1) 27:18</p> <p>closes (2) 81:10,11</p> |
|--|--|---|---|---|

| | | | | |
|--|--|---|--|--|
| closest (2) 78:16;81:3 | 111:9;112:2 | 79:10 | 126:23 | 42:20 |
| closure (5) 78:10,11,12;80:22; 124:10 | Committee (13) 4:21,25;5:5,7;8:10, 10;122:8;123:17,24; 124:3,3;132:19,23 | concentrated (1) 83:21 | conservative (4) 23:9;88:4;89:9,22 | convinced (1) 6:24 |
| closures (4) 77:21,23;83:7,9 | commonplace (1) 90:10 | concentration (1) 76:24 | consider (9) 59:9;60:25;85:13,15; 110:24;111:12;114:7; 121:16;129:20 | cookie (1) 63:25 |
| coastal (1) 59:5 | communities (2) 120:22;129:15 | concentrations (5) 36:21;75:19;76:20, 23;77:1 | considerable (1) 80:18 | correction (1) 113:2 |
| coat (1) 10:18 | community (3) 110:3;121:4;123:20 | concept (8) 12:15;23:21;24:2,9, 21;28:21;37:13;45:9 | consideration (1) 19:6 | correctly (1) 63:8 |
| coliform (2) 84:13,16 | comparatively (1) 103:11 | concepts (1) 23:10 | considered (2) 51:1;125:20 | corresponding (2) 21:19;23:3 |
| collect (1) 128:17 | compare (3) 11:3;68:12;114:13 | conceptual (1) 70:14 | considering (2) 8:2;117:21 | cost (60) 6:10;7:6,22;12:13; 13:9,11;15:13,17; 16:14,16,17;20:1,25; 21:6;22:23;23:3;24:10, 18,20;25:13,19;26:6, 19,22,23;27:25;28:3; 30:21;34:8;35:1,7; 36:9;37:9,11,21;42:4, 10;45:23;59:23;67:2, 18;69:24;70:25;74:2; 84:24;85:5,7;87:19,20; 88:12;92:8;102:1; 105:10,12;114:7; 115:8;127:14,23; 131:7,7 |
| collecting (1) 106:6 | compared (3) 98:11;121:1;124:25 | conceptually (1) 71:19 | consolidate (1) 109:3 | cost-effective (5) 56:24;61:1;74:15; 127:17;130:20 |
| collection (4) 22:16;106:18;128:6, 9 | compares (2) 16:11;115:6 | concern (2) 13:6;15:10 | constant (1) 104:4 | costs (39) 16:21,23,24;18:3,3; 23:9,12;25:22;26:10, 11;27:10;35:18;36:13, 20;42:4;66:14;84:2; 87:23,25;88:4,7,13; 92:19,19;99:4,10; 107:6;110:25;111:12, 20,21,24;112:13,17; 114:8;125:25;126:11; 130:24;134:7 |
| color (3) 32:20;33:12;76:2 | comparing (3) 16:9;83:5,18 | concerned (4) 5:23;6:7;123:21; 132:13 | constituents (1) 49:17 | count (1) 31:17 |
| colored (1) 92:16 | comparison (5) 78:21;80:8;83:24; 104:14;115:1 | concerns (2) 5:19;133:1 | constrain (1) 44:21 | counting (2) 73:21,22 |
| combine (1) 132:14 | comparisons (3) 98:22;116:16;127:10 | concisely (1) 10:4 | constructability (1) 41:2 | country (6) 4:1,2;54:13;55:2; 120:24;124:20 |
| combined (2) 86:3;112:8 | complete (4) 15:12,19;32:21; 38:15 | conclude (4) 11:5;14:9;20:4,18 | construction (10) 5:18;8:9;12:14; 14:21;15:1,7,13;18:4; 19:22;103:18 | couple (14) 5:12;10:23;28:5; 34:16;61:3;72:2;89:1; 93:2;103:1,3;110:23; 112:17;116:25;125:17 |
| combining (1) 23:12 | completed (3) 16:5;44:13;96:19 | concluded (2) 17:25;135:6 | consultant (2) 64:16;131:4 | course (8) 7:15;8:2;43:25;44:2; 86:23;94:6;118:21; 127:1 |
| comfortable (2) 23:6;24:21 | completely (5) 14:1;17:18;24:2; 36:6;37:1 | conclusions (1) 11:6 | consultants (1) 135:2 | COUTO (1) 105:19 |
| coming (10) 10:23;14:7;30:1; 41:13;57:16;58:16; 76:20;79:14;80:15; 106:21 | completes (1) 87:24 | conditional (5) 78:17,18;81:7,10,12 | consumption (2) 98:21;101:12 | cover (1) 130:23 |
| commence (2) 20:15;28:22 | completion (2) 25:16;31:8 | conditions (3) 77:18;81:18;82:19 | contact (2) 75:22;118:13 | coverage (1) 96:3 |
| COMMENCED (1) 3:1 | complex (1) 61:12 | confidence (2) 42:13;87:10 | content (1) 30:8 | |
| commencing (1) 29:16 | complexities (2) 5:17;7:2 | confident (3) 70:19;90:11;105:15 | contents (1) 49:3 | |
| comment (5) 61:3;64:16,23; 116:14;129:8 | complexity (1) 61:9 | configuration (1) 25:10 | context (2) 80:22;92:7 | |
| comments (2) 125:16,18 | compliance (5) 75:13;115:2,17; 116:3;131:11 | conflates (1) 94:7 | continue (11) 21:21;30:3,24;43:19, 24;55:10;56:2;67:20; 77:4;103:2;117:8 | |
| commercial (2) 89:12,17 | complicated (3) 32:19;59:21;121:23 | confluence (1) 76:18 | continued (1) 5:16 | |
| Commission (16) 3:15,18;4:24;6:9; 27:8;46:5;53:22;60:18, 18;94:24;99:7;102:20; 123:22;124:8;133:21; 134:25 | complying (1) 131:12 | confused (1) 25:19 | continues (1) 56:4 | |
| Commissioner (1) 8:21 | component (5) 13:8;14:22;21:17; 38:18;122:25 | confusing (3) 114:5;115:4,5 | continuing (2) 127:3;131:1 | |
| Commissioners (7) 6:9,15;7:1;93:18; 122:6,17;124:14 | components (2) 12:24;18:11 | conglomerates (1) 126:8 | controls (2) 23:13;25:9 | |
| commitments (4) 106:15;110:25; | compounded (1) 61:9 | Conimicut (10) 77:8,15;78:14,16; 80:9;81:4;82:11;85:12, 18;118:24 | controversy (1) 68:11 | |
| | comprising (1) 24:25 | connection (2) 15:9;39:23 | conversation (4) 7:10;61:21;71:8; 96:5 | |
| | conceivable (1) 45:18 | connections (1) 79:24 | conveyance (2) 42:18;52:10 | |
| | concentrate (1) | connectivity (1) 38:6 | Conveyor (1) | |
| | | consensus (1) | | |

| | | | | |
|---|---|--|--|--|
| Cranston (1) 130:5 | 63:25 | 61:14 | 8:11;124:15;131:6 | 22:14 |
| create (1) 120:11 | D | declining (1) 98:21 | details (1) 13:25 | Director (1) 7:9 |
| created (1) 60:7 | daily (2) 5:2;131:13 | deep (1) 38:10 | detain (1) 120:1 | disadvantages (1) 45:13 |
| creates (2) 39:8;71:12 | dancing (1) 119:23 | defer (1) 88:7 | detention (3) 50:21,22;53:4 | discharge (15) 15:23;16:3;32:22; 33:14,25;36:20;40:22, 23;41:19,25;42:1;49:1, 13;50:8;116:9 |
| creating (1) 71:11 | danger (1) 49:2 | deferring (1) 88:11 | determinant (1) 58:1 | discharged (1) 38:2 |
| credits (1) 23:4 | DANIELS (1) 116:6 | defined (1) 54:1 | determination (3) 54:24;55:13;129:4 | discharges (1) 15:18 |
| creeping (3) 97:7;103:17;104:1 | dark (3) 32:20;33:9;75:24 | definitely (3) 17:21;68:23;77:17 | determine (4) 56:13,24;58:2,4 | discreet (1) 64:9 |
| criteria (9) 12:22;18:2;19:19,19; 78:15;116:1;118:9,11, 19 | data (18) 53:24,25;55:23;56:1, 6;57:1;58:20;60:15; 61:8;75:17;82:6,7,9, 16;87:8,9;92:24; 133:20 | definitions (1) 11:2 | determined (4) 18:6,15;57:5;58:20 | discrepancy (1) 100:22 |
| criterion (2) 58:1;83:1 | date (5) 17:7;31:8;80:7; 85:19;101:22 | degradation (1) 79:15 | Detroit (2) 99:17,19 | discretion (1) 129:3 |
| critical (2) 61:13;128:3 | dates (1) 64:12 | degree (1) 44:13 | develop (1) 57:10 | discussed (2) 41:20;70:13 |
| Cross (6) 15:6;18:9;20:8;31:2; 38:16;112:14 | Dave (1) 61:6 | delay (3) 91:15;114:21;120:15 | developed (3) 12:23;57:3;123:4 | discussing (1) 13:6 |
| C's (1) 29:25 | day (18) 75:13;76:8,9,12,13, 14;77:3,7,13,14,19,24; 96:12,14;101:12,15; 122:10;134:20 | delays (2) 69:2;91:12 | development (1) 75:7 | discussion (12) 9:11;16:20;37:19; 42:14;53:21;59:11; 65:24;68:5;74:24; 109:1;133:18,19 |
| CSO (23) 4:10;6:14;15:18,23; 17:5;31:16;32:22; 33:14,24;40:10,12; 46:25;55:3;68:13;72:7; 73:3,16;81:9;85:18; 92:12,20;96:23;106:16 | day-by-day (1) 116:20 | delinquent (1) 99:19 | devils (1) 7:15 | disinfect (1) 48:25 |
| CSOs (8) 41:4;54:13;72:6; 79:18,22;80:17;82:12; 94:8 | days (8) 3:20;78:13;81:14,15; 118:9,10,15,17 | delta (1) 33:17 | devote (1) 74:23 | disinfection (12) 13:18,21;19:7;29:17; 33:13,23;34:6,18;39:4; 85:2;88:17;117:18 |
| cumulative (2) 15:17;87:20 | deadlines (1) 126:25 | deltas (1) 33:17 | devoted (1) 92:20 | dismissed (1) 135:5 |
| curb (1) 56:23 | deal (5) 62:5,19;65:23;66:5, 10 | delve (1) 126:15 | diameter (3) 42:24;70:22,23 | dismissive (1) 61:21 |
| curious (2) 85:13,22 | dealing (2) 85:14;100:18 | DEM (1) 81:15 | differ (1) 115:7 | disrespect (1) 59:11 |
| current (9) 29:2;77:18;81:18; 83:5;95:10,12;113:4; 118:25;130:20 | debate (3) 63:6;126:13,16 | demographic (1) 126:6 | difference (22) 32:4;33:8;50:10; 73:25;75:12;80:6,9; 81:23;82:1,15,21; 84:14,15;89:25;90:3,4; 101:10;105:5;110:9; 115:14,18;116:9 | disruption (2) 18:4;19:22 |
| currently (8) 47:11;83:22;93:7; 98:14,23;108:13; 112:4;120:20 | debated (1) 55:11 | dent (1) 52:11 | differently (1) 46:22 | dissent (1) 125:23 |
| curve (1) 84:17 | debt (11) 17:16;89:13;95:23; 96:2,3;97:10,13,25; 98:2;104:7,8 | department (1) 99:19 | different (29) 11:8;13:4,11,23; 14:2;25:9;26:12;37:1; 48:13;66:25;67:8;71:3; 78:15;81:21;82:2; 85:23;87:2;107:10; 110:7,17,17;113:1; 114:6,16,19,22;116:1; 119:7,10 | distance (1) 45:7 |
| curves (1) 30:21 | decide (1) 122:17 | depicted (1) 100:22 | difficult (5) 45:6;51:6;67:13; 75:15;97:20 | distinction (3) 68:22;86:10,12 |
| customer (1) 100:25 | decision (4) 7:12;35:9;86:22; 127:3 | depth (3) 55:24;79:7;80:21 | digesting (1) 134:25 | distinguish (1) 33:8 |
| customers (1) 107:9 | decisionmaker (1) 63:20 | describe (1) 12:1 | diligence (1) 8:23 | distribution (1) 129:14 |
| cuts (1) 39:25 | decisionmaking (1) 127:2 | design (32) 14:2,13;18:17;19:13, 14;21:1;22:11;24:5; 28:21;32:12;34:14; 36:22;53:13;55:19; 56:2,14,19,25;57:11, 19;60:12;61:23;65:23; 69:25;70:18,20;80:21; 92:2;103:10,11,18; 116:1 | diminishing (4) 30:23;67:19,25;74:4 | district (10) 10:14;96:15;99:15; 104:20,24;107:5; 108:9,17;111:23; 134:11 |
| cutter (1) | decisions (4) 7:25;8:17;24:5; | designed (6) 49:8;51:18;52:24; 53:3,5,7 | direct (1) 34:7 | diverges (1) 40:23 |
| | | designing (2) 60:9;71:2 | direction (1) | divide (2) |
| | | detail (1) 41:11 | | |
| | | detailed (3) | | |

| | | | | |
|--|---|---|--|--|
| <p>12:15;95:3 dividing (1) 104:21 Division (1) 26:6 documents (1) 98:17 dolars (1) 100:18 dollar (9) 7:17;15:15;24:12; 36:11;67:22;114:15; 127:16,17,23 dollars (14) 21:7;26:6,13,21; 28:6,8,9;31:13;42:5; 59:24;71:20;95:2; 100:20;101:2 DOMENICA (31) 3:2,2;9:6;50:11; 52:15;59:1;61:2;68:2, 8;74:25;92:21;93:20; 102:3,10,14;106:12,19; 108:21,25;113:19; 114:2;115:21;118:7, 15;123:13;125:7; 128:19;129:22;131:15; 132:4;134:23 done (40) 7:7;12:3,9;15:9,20; 16:17;21:18,22;23:7; 49:22;54:13,24;56:23; 58:18,20;62:25;63:19; 64:10;71:23;73:19; 74:11,12,13;79:8; 83:22;85:21;87:5; 94:12;101:22;104:1; 109:4;116:16,21; 120:24;122:19,21; 123:25;125:18,21; 128:1 DORMODY (9) 36:8;125:14;129:7,7, 24;131:22;132:3,16,21 DOT (1) 72:16 double (2) 37:9;101:5 doubled (3) 28:2,8,11 doubling (1) 94:25 down (43) 7:19;16:3;21:12; 24:17,23,24;27:14; 29:12;31:18;35:24; 37:25;38:7,13,13; 40:13;41:4,5,16;43:10; 44:17;46:19;50:2;53:2, 10;54:12;55:15;61:15; 63:11;66:7;70:24;77:4, 7,14,16;80:8;82:10,13; 92:18;93:3;97:7;98:8;</p> | <p>99:20;107:23 downs (1) 80:10 downstream (1) 13:1 downtown (1) 50:20 drain (1) 79:24 dramatic (3) 15:22;27:6,19 dramatically (3) 25:12;27:20;77:1 drive (4) 5:4;24:23,24;61:14 driveways (1) 72:12 drop (16) 15:8;16:3;17:17,18, 20;21:12;23:12;32:13; 34:22,23;35:16,17; 40:7,10,12;41:24 drops (1) 53:10 dry (2) 49:22;50:3 dual (1) 67:17 due (4) 41:10;42:17;47:4; 115:22 duration (5) 14:16,21;43:11,18; 109:25 during (9) 13:13;36:22;39:16; 41:7,9;43:15,20;49:25; 68:5 dyslexic (1) 33:3</p> | <p>economy (1) 108:1 effect (3) 17:5;64:4;86:11 effected (1) 51:20 effective (2) 36:15;47:24 effectiveness (2) 25:1;132:8 effects (2) 35:25;68:23 efficient (2) 130:20,24 effort (6) 8:18;14:9;31:5; 55:13;63:17;127:12 eight (2) 42:24;108:20 either (11) 18:17;36:20;41:25; 44:15;49:20;57:17; 58:19;61:23;84:15; 119:1,21 elderly (1) 99:13 element (3) 19:20;49:9;106:17 elements (3) 17:25;18:5,25 elicit (1) 79:23 eliminate (5) 23:19,23;25:11; 47:20;54:19 eliminated (1) 32:22 eliminates (1) 76:21 eliminating (1) 36:6 elimination (1) 80:17 else (2) 99:3;116:5 else's (3) 46:1,11;101:25 elsewhere (1) 120:24 embark (1) 108:7 emerged (1) 62:22 employees (1) 8:18 encapsulates (1) 115:18 end (20) 9:3;16:1,20;46:25; 51:25;53:20;55:5; 63:13,16,21;65:4; 74:20,23;91:10,24,25; 92:4;126:20;133:14;</p> | <p>134:20 ended (1) 63:3 endlessly (1) 51:21 engineer (1) 115:9 engineering (5) 8:9;66:15;67:14; 84:1;105:17 engineers (1) 11:15 England (1) 58:13 English (2) 59:13;60:19 enjoyed (2) 4:8,23 enormous (3) 4:22,22;128:6 enough (6) 22:5;42:14;54:10; 67:4;91:22;106:3 entertaining (1) 11:17 entire (5) 4:1;80:22;97:15; 108:18;111:23 entirely (6) 13:22;40:17;80:13; 82:2;115:25;119:6 entirety (2) 84:23;85:1 entities (1) 100:15 entity (1) 100:8 environmental (1) 5:19 envision (1) 15:11 envisioned (1) 36:14 eons (1) 70:14 EPA (6) 34:13;55:3,8;56:14; 107:18;113:10 equally (2) 132:10;133:23 equation (2) 6:11;121:5 equitable (2) 129:13;130:23 equivalent (2) 44:1;50:8 error (1) 42:8 especially (1) 9:14 essence (1) 71:16 essentially (25)</p> | <p>17:4;19:13,15;20:6, 12;21:7,18;25:6,11; 26:16;30:11;31:3; 33:17;37:2;38:6,18; 40:2;42:22;48:21;75:9; 88:10;89:13;91:14; 97:6;105:24 estimate (2) 72:14;131:19 estimated (2) 42:5;112:12 estimates (4) 26:19,22,23;132:2 evaluate (1) 11:24 evaluated (3) 39:16;40:5;46:21 evaluating (1) 20:25 evaluation (9) 11:1;13:24;18:2; 19:19;43:24;47:22; 48:1;71:17;85:23 evaluations (1) 85:11 even (13) 10:1,7;24:13;43:2; 47:20;53:4;71:14; 83:11;92:8;112:21; 128:15,23;131:18 evenness (1) 88:22 event (1) 50:16 eventually (1) 39:13 Everybody (1) 65:3 everyone (6) 3:14;9:22;56:18; 57:20;99:5;101:25 exactly (6) 22:20;78:24;91:1; 93:8;114:25;123:9 examined (1) 53:11 examining (1) 16:16 example (1) 102:13 exceeded (2) 39:1;107:2 exceeds (2) 113:7,7 exception (1) 97:17 excess (2) 40:16;88:14 exciting (1) 36:24 Excuse (3) 74:17;115:21;124:1 executive (1)</p> |
| | E | | | |
| | <p>earlier (9) 19:6;34:3;67:19; 72:2;74:3;87:23;92:7, 12;121:6 early (8) 21:16;30:17;51:19; 55:19;69:2;82:22; 88:19;104:5 easily (1) 67:15 East (2) 118:20;130:6 echo (2) 124:11,14 economic (4) 6:4;54:11;107:15,17 economically (2) 99:8;119:22 economics (1) 126:15</p> | | | |

| | | | | |
|--|--|--|--|---|
| 7:9 exercise (2) 112:7;117:5 exhaustive (1) 124:17 exist (1) 57:4 existing (6) 16:11;23:18;39:25; 43:5;96:18;102:8 expand (1) 22:15 expect (5) 57:7;84:4;107:22; 131:4,23 expected (2) 103:4;118:6 expenditure (2) 16:11;21:20 expenditures (2) 21:21;30:11 expense (1) 97:22 expenses (4) 21:16;30:14;97:24; 103:9 expensive (9) 21:17;44:12;45:24; 56:21;59:14,16;70:2; 74:6;134:18 experience (1) 28:1 experiencing (1) 60:6 explain (1) 105:19 explained (1) 56:2 explore (1) 118:3 express (1) 9:11 extemporaneously (1) 5:10 extend (10) 7:14;12:16;23:21; 25:10;38:4;48:6;67:21, 21,21;92:17 extended (4) 29:24;31:9;66:16; 67:25 extending (2) 20:6;40:19 extends (2) 13:5;28:17 extent (2) 54:20;82:25 extra (1) 90:18 extracting (1) 46:5 extremely (1) 6:7 | eye (1) 6:2 F face (2) 60:16;97:20 facilitating (1) 36:14 facilities (5) 43:16;49:24;50:4; 57:11;117:15 Facility (12) 3:21,25;4:2,5;29:14; 37:4;39:20;40:15; 56:19;57:18,18,21 facing (1) 60:13 fact (7) 42:10;57:8,22;59:5; 64:25;80:13;112:10 factor (1) 81:14 factored (3) 17:2;95:21;99:10 factors (1) 98:20 fails (1) 99:21 fair (2) 53:19;120:16 fairly (7) 43:3;44:10;57:6; 76:19;89:9;90:10; 105:14 fall (1) 98:3 falling (1) 97:14 falloffs (1) 32:21 Falls (15) 16:2;20:7,13;29:22; 97:11;108:13,20; 109:13,16;110:3,13; 111:7,10;112:23;130:6 familiar (1) 46:16 family (1) 112:20 fancy (1) 119:20 fantastic (1) 22:25 fantasy (2) 107:16;108:2 far (9) 11:19;28:10;31:10; 54:16;55:17;64:13; 82:14;84:24;85:11 fast (5) 14:18;15:11;34:12; 104:22;115:13 | fastest (1) 15:12 feasibility (1) 130:1 fecal (2) 84:13,16 fee (3) 98:22;130:22,22 feedback (6) 48:3,5,10;64:2,2; 123:7 feel (6) 55:5;63:24;67:11; 83:24;88:5;124:16 feeling (3) 79:4;98:5;121:10 feet (2) 70:23,25 felt (3) 6:1;26:24;35:12 few (7) 9:8;12:23;56:11; 60:4;64:1;114:3;120:6 Field (3) 18:18,18;85:15 fields (1) 120:13 fifty (3) 24:11;96:12,14 figure (3) 101:10,11;130:7 figures (1) 127:20 figuring (1) 46:23 fill (2) 38:1;43:19 final (5) 13:16;14:13;29:8; 54:23;89:24 finally (2) 20:18;88:20 Finance (4) 8:10;28:16;90:11,12 financed (2) 89:5,19 financial (5) 5:23;22:10;24:22; 65:8;89:9 financing (3) 89:1,2;90:9 find (5) 39:7;45:20;47:3,6; 67:3 finding (1) 51:16 finish (5) 102:24;108:25; 109:2,3;114:2 finished (2) 109:10;122:23 finite (1) 86:12 | first (30) 4:9;11:23;19:25; 21:8;25:5;28:5;35:3, 14,23;37:15;40:6;49:8, 10;51:11;53:8;68:13; 76:12;89:14,21;90:2; 114:11;116:21;121:11, 12;122:7;127:13; 129:8,10;130:1;133:13 fishable (2) 77:17;118:10 five (5) 58:24;62:12;81:13; 94:11;130:4 five-hundred-dollar (1) 97:8 five-year (1) 27:23 fixed (1) 99:12 flattens (1) 88:24 flexibility (1) 21:3 floor (1) 101:4 flow (23) 32:11;33:4,19;35:22; 36:2;38:12,25;39:2; 41:13,16;43:10;48:23; 49:19;53:8,9,14,23; 59:25;65:14;71:10; 119:15;120:1;124:17 flows (7) 23:14;33:5;41:3; 44:2;52:12;59:7;61:1 flow-through (2) 41:21;57:18 flush (1) 49:8 focus (2) 29:22;118:19 focused (1) 85:19 focuses (1) 17:3 folks (3) 98:10;99:7;129:25 follow (4) 26:14;30:4;49:19; 121:8 following (3) 99:18;103:8;124:7 follow-up (2) 25:18;59:2 foolproof (1) 22:4 foot (4) 42:24,25;43:1;71:1 forceful (1) 9:10 forget (2) 100:25;134:8 | forgets (1) 103:22 form (2) 61:14;120:7 format (1) 17:14 forth (4) 63:6;94:7;126:14; 127:11 forward (11) 7:3,4;18:16;26:20; 47:22;48:9;58:23;66:1; 83:2;92:25;101:23 found (4) 40:20;72:3;82:5; 130:14 four (14) 6:12;11:22;56:15,17; 57:8;86:18;90:21; 103:16;105:18;106:22; 108:24;112:14;115:19; 129:2 fourth (1) 69:11 frame (3) 34:20;37:15;69:17 framework (2) 61:5,7 frankly (1) 12:25 free (2) 28:16;30:14 frequency (2) 62:9,18 frequent (1) 60:16 frequently (3) 60:3,14;62:4 front (7) 9:19;51:25;69:13; 71:10;103:13;124:9; 125:8 frontloaded (1) 34:9 full (6) 68:16;75:11;81:19; 86:14;117:13;122:9 fully (1) 37:8 further (16) 7:20;11:20;13:12; 43:24;45:14,18;48:1,7; 69:5,7;96:5;122:12,16, 19;123:3,6 future (8) 13:12;64:18,24; 65:11;66:17;67:3,10; 71:2 |
| | | G | | |
| | | Gadon (5) 4:19;95:22;102:19; | | |

| | | | | |
|--|--|---|---|---|
| <p>128:20;132:18 gain (1) 105:7 gallon (2) 18:3;37:23 gallons (13) 45:1;49:10;65:21; 66:10;69:20;25;71:14, 15;96:12,14;101:12, 15;128:12 game (5) 11:17;37:1;44:10; 53:19;65:4 gap (1) 66:5 GARRETT (2) 39:10,21 gate (2) 29:4,10 gather (1) 126:22 gathering (1) 124:12 general (7) 17:15;18:19;20:3; 50:18;79:4;82:13,17 generally (3) 20:17;49:16;117:11 generated (2) 72:15;131:20 generating (1) 91:21 geomean (2) 75:25;76:7 geomeans (1) 75:16 geospatially (1) 108:5 GERRITT (2) 107:14,21 gets (14) 31:21,22;34:1;53:9, 11;55:7;56:21;68:15; 84:19;87:12;91:2; 103:23;104:22;134:18 GIEBINK (6) 96:1;98:7,15;99:11, 23;101:9 given (5) 17:3;32:5;125:15; 132:9;133:6 gives (4) 21:2;22:23;41:23; 118:2 giving (2) 30:8;33:18 glad (1) 132:16 gleam (1) 79:12 goal (4) 54:18;55:4;69:22; 118:25</p> | <p>gobble (2) 11:16;59:12 God (1) 4:10 goes (11) 6:25;51:23;53:21; 54:16,16;60:17;62:21; 66:8;79:2;88:10; 125:25 goo (1) 59:12 Good (11) 3:14;44:4;49:15; 51:14;53:12;75:21; 77:12,16;87:12;99:5; 116:13 gook (1) 11:16 gradient (1) 53:2 gradual (1) 91:8 granted (2) 78:20;84:8 graph (15) 16:8;17:13;27:3; 35:15;40:8;82:4;83:4; 84:10;90:21;92:17; 94:21;107:15;109:8; 111:10;121:8 graphically (1) 93:13 graphs (11) 25:22;26:2;32:19,23; 41:18;75:15;82:10; 86:11;87:22;104:16; 124:25 gravel (1) 46:6 gray (3) 23:3,7;71:24 great (6) 42:6;45:11;53:7; 132:3,16;134:15 greater (1) 63:4 greatest (1) 29:3 green (17) 19:2;50:15,17,24; 51:9,11,13,15;52:6,22; 71:17;74:5,10,14; 83:10;119:23;124:18 Greg (3) 93:6;96:13;104:17 gross (1) 42:9 ground (2) 14:17,18 group (10) 3:11;8:13;120:7; 121:18;124:13;125:15; 126:23;132:6,24;135:1</p> | <p>GSI (26) 18:13,25;19:1,24; 20:9,11,17,23;22:21, 22,23,25;23:16;28:24; 29:5,21;30:4,20,22; 37:16;40:7,11;71:17; 72:4,25;73:1 guarantee (1) 52:4 guess (8) 24:14;44:21;54:3; 70:10;85:10;94:13; 95:7;116:13 guidance (1) 107:18 guys (2) 64:23;121:24</p> | <p>83:25;121:6 heck (2) 73:12;83:20 help (4) 33:3;53:14;127:25; 130:16 helped (1) 131:25 helpful (3) 9:18;119:4;129:17 helping (2) 101:21,23 helps (1) 69:1 here's (1) 62:11 hesitant (1) 82:4 hide (1) 59:21 High (21) 15:5;18:8;20:8; 23:23;31:1;32:16; 36:14;38:16;43:8;44:5; 76:23;90:24;98:13; 103:13;104:5;106:1; 109:24;110:3,12; 112:22;117:22 higher (10) 21:25;28:4;50:7; 55:24;56:4;98:22; 105:21;106:7,10; 117:17 highway (1) 72:17 HILL (7) 42:15,25;96:16,24; 97:10;98:1;121:21 hired (1) 131:3 historic (2) 56:1;61:8 historical (2) 53:25;92:24 hit (2) 110:10;114:20 hits (2) 103:16;116:18 hold (1) 26:24 homeowners (1) 101:17 Honestly (1) 128:25 hopefully (1) 11:19 hoping (2) 17:10;87:4 hour (1) 90:18 house (1) 128:14 household (9)</p> | <p>94:18,22;96:10,14; 104:21;109:18;112:18, 19;113:21 households (3) 108:16,19;109:22 houses (1) 126:9 huge (2) 73:24;120:21 hundred (7) 24:12;60:2;84:13,16; 94:11;96:12,14 hurdles (1) 5:15 hybrid (3) 18:12;20:9;29:5 hydraulic (4) 22:12;40:5;47:4; 57:14 hydrograph (2) 51:22,23 hypochlorite (2) 45:8,17</p> |
| H | | | | |
| <p>habit (1) 5:10 half (9) 3:16;37:23;78:10,16, 18,19;81:11;113:7,8 HAMBLETT (4) 98:9,25;101:19; 124:11 hand (2) 8:8;66:22 handle (5) 56:20;60:9,12,25; 119:16 hands (1) 10:1 happen (6) 24:6;60:1;62:12,13; 97:5;112:3 happened (1) 57:20 happening (3) 60:3;75:9;78:1 happens (8) 27:16;31:16;76:10; 80:7;99:21;114:15; 115:15;116:19 hard (5) 45:6;69:10;93:11; 119:20;124:15 harm (1) 54:11 Harold (4) 4:19,24;5:4;128:19 HCF (1) 100:10 head (2) 125:6;130:4 headaches (1) 60:8 hear (3) 9:22;84:1;123:11 heard (5) 6:4;10:15;42:15;</p> | <p style="text-align: center;">I</p> | <p>I' (1) 17:1 IA (1) 25:11 idea (11) 7:18;26:21;117:6,24; 118:3;125:24;126:10, 18;127:3,6,14 ideal (1) 12:21 ideas (15) 13:18,21;23:12;25:6; 30:5;33:13;64:1;70:14, 17,17;83:13;105:18; 119:12;134:15,24 identified (2) 22:7;73:9 identify (1) 73:14 idiot (2) 22:4,5 ie (1) 67:5 ignore (1) 109:20 II (2) 27:5,10 III (3) 75:12;80:5;86:14 illustrate (1) 86:15 imagine (1) 51:20 impact (2) 6:3;22:18 impacts (8) 5:24;6:5,5;7:13;</p> | | |

| | | | | |
|--|--|--|---|---|
| <p>51:11;79:1,21;102:15 imperative (2) 6:19;7:5 impervious (3) 72:12;73:15;130:22 implement (3) 22:23;55:14;74:7 implementation (2) 64:13;118:25 important (8) 9:23;19:20;47:2; 71:9;72:11;86:21; 100:24;133:23 impossible (1) 119:1 improperly (1) 84:10 improve (2) 13:16;88:6 improvement (6) 27:23;71:24;76:22; 77:3;105:1;110:20 improvements (8) 12:6,7;77:5;80:19; 85:24;86:25;97:3; 112:12 inability (1) 43:9 inadequacy (1) 32:16 Inaudible (3) 97:1;99:20;100:4 incentive (1) 71:12 inch (2) 78:10,16 inches (7) 32:1;78:17,19;80:23; 81:5,7,11 include (9) 25:20;26:1;30:24; 32:7;39:11;73:5;89:1; 113:20;131:6 included (2) 28:4;98:17 included- (1) 107:11 includes (3) 33:12;45:8;85:1 including (4) 81:22;88:16;102:4; 134:10 income (7) 99:13,13;104:21; 107:24;111:22;113:4,6 incomes (3) 107:22;112:23; 113:15 incoming (1) 106:10 incorporate (3) 19:24;20:11;74:14 incorporating (2)</p> | <p>19:2;30:20 incorrect (1) 17:16 increase (14) 7:22;21:21;25:7; 45:23;71:13;91:8; 104:9;106:9;109:18; 113:15,20;117:2; 118:9,10 increased (1) 99:10 increases (17) 31:11;35:19;88:22; 90:15;91:18;92:3,8; 101:8;103:3,3,4,14; 105:23;113:12,17,23; 114:1 increasing (2) 113:1,24 incredible (1) 121:21 incremental (1) 88:22 incumbent (1) 61:16 incurred (1) 104:7 incurring (1) 102:1 indebttness (1) 93:7 index (1) 113:12 indicative (1) 75:19 indicator (1) 84:4 individual (1) 82:12 individuals (1) 11:12 industry (1) 101:15 inevitable (1) 83:5 infamous (1) 83:8 inflation (3) 113:12,13;114:1 inflexible (1) 64:12 influence (4) 78:2,3,5;80:11 influx (1) 36:17 inform (1) 127:25 informally (1) 127:4 information (15) 11:14;47:2;83:3; 86:21;87:3;92:7;98:16; 103:1;123:3,20;127:9;</p> | <p>129:17,20;135:1,4 informed (2) 6:23;96:6 informing (1) 93:13 infrastructure (16) 19:3;50:15,18,24; 51:9,11,14,16;52:6,22; 65:15;71:18,24; 119:24;124:18;128:5 initial (10) 21:20;29:6;30:4; 32:25;33:17;40:10; 93:23,24;103:24,25 initially (1) 103:14 initiative (1) 10:12 innovation (1) 59:7 input (5) 5:8;8:15;11:18;82:6; 123:8 insightful (1) 87:3 instance (3) 49:5;52:8;54:10 instantaneous (1) 75:18 instead (3) 25:15;72:21;121:11 integration (1) 134:24 intend (5) 6:13;7:23;8:3,6; 47:17 intending (1) 8:14 intense (2) 55:24;117:3 intensity (6) 39:8;43:8,12;44:5; 57:5;117:2 intent (2) 35:6;38:24 Interceptor (43) 14:24;15:5,6,20; 18:8,9,14,23;20:8,9,21; 21:3,11;23:18,19,24; 29:10;30:15;31:2,3,6; 32:4;33:20;36:17; 37:18;38:4,20;39:25; 40:19;41:1,3,15,22; 42:22;43:9;45:21;47:6; 66:25;67:2,4,7;91:6; 102:8 Interceptors (7) 38:17;52:10;85:3; 91:5,19;97:4;106:16 interest (4) 7:18;77:9;89:5,14 interested (5) 5:6;16:13;83:2;</p> | <p>93:19;132:7 interesting (6) 69:6;76:13;83:9; 85:7;94:9;96:5 interim (10) 13:17;28:18;29:7,18; 30:11;69:4,10;81:23; 88:16;117:25 intermittent (1) 132:24 interpret (1) 75:15 interpreting (1) 84:10 intersection (1) 53:1 into (40) 10:23;12:11,16; 13:12,20,24;16:19,21; 17:2,12;18:17;19:3; 20:7;22:16;23:14; 30:20,22;32:11,19; 40:18;45:15;47:6;49:3; 65:20;67:6;68:3;79:2; 80:22;84:5,7,22;90:7; 98:20;99:10;114:5; 117:12;121:22;124:17; 127:18;131:10 introduce (2) 11:22,25 introduced (3) 18:25;68:11;119:6 introduction (1) 10:25 invested (1) 124:6 investigate (1) 121:4 investigation (1) 120:9 investing (1) 67:6 investment (6) 7:8;17:10;65:15; 67:23;92:11;121:1 invite (1) 132:19 involved (5) 5:7,14;7:2;32:6; 120:7 involvement (1) 3:7 irregularity (1) 103:17 Island (4) 100:6;101:20,21; 134:2 isolation (1) 71:21 issue (7) 55:17;56:22;58:8; 70:7;72:17;94:9; 122:15</p> | <p>issues (7) 5:12,21;108:14; 110:4,21;111:25;119:2 item (1) 129:11</p> <hr/> <p style="text-align: center;">J</p> <hr/> <p>Jamie (1) 4:10 Jan (8) 24:13;56:10;59:1; 62:21;63:6;64:7; 124:14;127:5 January (2) 8:5,7 jet (1) 118:18 job (1) 53:13 jobs (1) 134:3 joining (1) 5:6 jump (9) 33:5;56:6;88:13,14; 91:13,14;93:23,24; 103:13 jumps (2) 87:23;90:24</p> <hr/> <p style="text-align: center;">K</p> <hr/> <p>Karen (3) 17:15;95:25;98:4 KARP (37) 10:9,9,20;31:14; 35:21;41:7;44:15; 45:25;46:3;52:17; 61:19;62:17;69:18,23; 70:4,6;71:4;72:10; 73:24;74:16;77:20; 78:9,19;84:9;94:13,20; 95:5,16;99:16;100:3; 104:2;112:16;113:14; 123:15;124:4;131:18, 24 keep (14) 6:2,19;8:21;51:5; 71:1;79:17;90:8;95:7; 103:15;111:17;112:3; 119:23;124:2;130:13 keeps (5) 81:15;91:12;105:2,8; 111:16 kept (2) 6:17;127:10 key (1) 70:7 kick (1) 129:5 kill (1) 50:2</p> |
|--|--|--|---|---|

| | | | | |
|--|--|---|--|--|
| <p>killing (2) 78:5,7</p> <p>kind (23) 8:13;16:25;30:8,10, 15;34:4;35:7,8;38:8,8; 39:22;47:25;48:8; 60:13;63:24;66:5; 69:10;77:25;78:5;83:2; 96:8;101:14;105:24</p> <p>kinds (3) 3:23;60:6;119:12</p> <p>knee (1) 56:22</p> <p>knew (2) 56:18;57:19</p> <p>known (2) 11:10;65:7</p> | <p>134:5,17</p> <p>layperson (1) 59:10</p> <p>lead (1) 19:11</p> <p>leader (1) 6:8</p> <p>leads (1) 19:7</p> <p>leap (1) 84:5</p> <p>learn (1) 124:22</p> <p>learned (2) 27:5;71:21</p> <p>least (16) 10:19;12:6;15:8; 19:21;21:1;22:5;32:10; 66:11;88:6;100:6; 121:4;124:12;127:1, 14,16;132:1</p> <p>leave (2) 95:7;126:17</p> <p>leaving (1) 69:15</p> <p>left (4) 51:13;108:22;114:3; 134:21</p> <p>leftover (1) 103:5</p> <p>legal (2) 55:12,12</p> <p>less (8) 44:11;45:2;50:3; 56:16;94:23;113:15; 115:4,11</p> <p>lesser (2) 83:4,10</p> <p>lessons (1) 27:5</p> <p>lessor (1) 83:15</p> <p>lets (1) 133:25</p> <p>level (11) 7:13;22:18;24:21; 42:13;48:13;49:21; 61:10;87:10;90:25; 106:1;111:22</p> <p>levelling (1) 92:4</p> <p>levels (1) 50:6</p> <p>LIBERTY (10) 46:17;54:3;78:14,20; 80:20,24;81:6;116:12; 118:12,17</p> <p>lien (1) 99:23</p> <p>life (6) 3:17;7:14;61:18; 97:15;99:3;116:19</p> <p>lifeline (1)</p> | <p>129:13</p> <p>lift (1) 53:3</p> <p>light (3) 33:8;75:23;76:6</p> <p>liked (1) 44:14</p> <p>likely (2) 25:14;30:10</p> <p>leap (1) 41:1;42:23;43:2; 78:1;104:23;109:13, 23;110:11</p> <p>limitation (1) 44:16</p> <p>limitations (3) 46:23;47:4;65:17</p> <p>limited (3) 55:22;56:6;118:2</p> <p>limits (1) 76:5</p> <p>line (7) 88:8;89:21,22;91:9; 96:17;111:19;118:23</p> <p>linear (1) 70:3</p> <p>lines (5) 69:17;83:10;92:16; 106:12,14</p> <p>listening (1) 59:10</p> <p>lists (1) 100:8</p> <p>literature (1) 96:9</p> <p>little (26) 11:20;13:11;14:3; 19:6;24:1;33:21;34:9; 35:5;40:7;50:1,6;51:1; 52:11,21;63:24;66:1; 68:11;75:15;90:14; 92:17,18;97:8;101:3; 103:17;122:21;134:16</p> <p>live (3) 19:23;46:13;126:3</p> <p>load (1) 30:21</p> <p>loaded (1) 82:13</p> <p>loading (1) 79:2</p> <p>loadings (2) 79:3,23</p> <p>loads (2) 80:14,15</p> <p>loan (1) 89:15</p> <p>localized (3) 55:22;128:5,9</p> <p>located (1) 50:5</p> <p>location (2) 45:11;46:12</p> | <p>locations (2) 51:17;124:23</p> <p>log (1) 84:15</p> <p>logistical (1) 15:10</p> <p>logistics (1) 12:25</p> <p>long (10) 3:16;9:2;43:11,18; 46:9;51:4;106:10; 115:17;122:7;125:13</p> <p>longer (4) 35:8;88:1;90:9; 106:4</p> <p>longest (1) 14:21</p> <p>long-term (1) 29:19</p> <p>look (34) 3:22;12:17;15:16; 19:9;25:15;28:20; 32:18;33:16;40:3; 43:23;47:23;53:25; 72:19;75:18;76:14; 82:19;86:5;92:25; 96:20;99:5;100:23; 104:20;108:15;109:6; 111:2,11;112:7,9; 116:19;117:20;119:2; 124:17;133:9;134:8</p> <p>looked (10) 22:22;26:15;45:18; 47:10;55:18;72:2,22, 24,25;74:13</p> <p>looking (26) 5:21;6:12;25:25; 33:24;42:10;50:17,18; 54:15;64:9;65:20; 66:11;68:18;74:9; 77:11,16;80:25;83:6; 86:18;87:8;93:12; 110:16;119:14;121:2; 129:15;130:13;133:21</p> <p>looks (5) 3:22;46:11;84:19; 89:20;108:4</p> <p>lose (1) 134:18</p> <p>lost (2) 31:15;76:3</p> <p>lot (27) 6:25;11:13,15;15:24; 17:5;22:6,13,14;59:21; 62:21,25;66:14;74:11, 12;79:1;83:20;90:23; 94:8;98:21;100:11; 101:6;118:19;121:17; 124:6;125:21;127:9; 129:11</p> <p>lots (2) 47:4;62:24</p> <p>loudly (2)</p> | <p>9:13,17</p> <p>love (1) 36:23</p> <p>lovely (1) 81:20</p> <p>low (8) 43:11;91:12;98:13; 99:13;103:15,19; 112:23;127:25</p> <p>lower (17) 37:11;42:4,10,13; 76:19;77:2;86:2,4; 90:5,8;91:11;100:17; 105:8,20;111:18,22; 115:13</p> |
| M | | | | |
| <p style="text-align: center;">L</p> <p>laid (1) 92:1</p> <p>Lance's (1) 128:21</p> <p>land (1) 120:20</p> <p>landlords (1) 126:7</p> <p>language (2) 59:21;61:4</p> <p>large (18) 4:7;13:6;21:19,20; 46:12;65:5,9;69:14,15; 71:22;77:4,5;82:18; 85:2;104:15;109:11; 111:4;126:8</p> <p>largely (3) 41:10;91:20;127:13</p> <p>larger (7) 35:16;42:8;55:11; 64:18,25;67:5;70:9</p> <p>largest (1) 111:6</p> <p>last (19) 3:9;26:18;51:22; 58:22;62:22;63:1,14; 68:20,24;69:5,7;93:5; 103:20;106:25;107:8; 115:19;116:13;125:16; 126:20</p> <p>late (4) 36:25;44:10;53:18; 82:23</p> <p>later (7) 17:14;24:24;26:3; 62:24;67:10;87:8;91:1</p> <p>latest (1) 55:25</p> <p>latter (1) 59:4</p> <p>lay (1) 61:4</p> <p>layer (2)</p> | <p>10:19;12:6;15:8; 19:21;21:1;22:5;32:10; 66:11;88:6;100:6; 121:4;124:12;127:1, 14,16;132:1</p> <p>leave (2) 95:7;126:17</p> <p>leaving (1) 69:15</p> <p>left (4) 51:13;108:22;114:3; 134:21</p> <p>leftover (1) 103:5</p> <p>legal (2) 55:12,12</p> <p>less (8) 44:11;45:2;50:3; 56:16;94:23;113:15; 115:4,11</p> <p>lesser (2) 83:4,10</p> <p>lessons (1) 27:5</p> <p>lessor (1) 83:15</p> <p>lets (1) 133:25</p> <p>level (11) 7:13;22:18;24:21; 42:13;48:13;49:21; 61:10;87:10;90:25; 106:1;111:22</p> <p>levelling (1) 92:4</p> <p>levels (1) 50:6</p> <p>LIBERTY (10) 46:17;54:3;78:14,20; 80:20,24;81:6;116:12; 118:12,17</p> <p>lien (1) 99:23</p> <p>life (6) 3:17;7:14;61:18; 97:15;99:3;116:19</p> <p>lifeline (1)</p> | <p>129:13</p> <p>lift (1) 53:3</p> <p>light (3) 33:8;75:23;76:6</p> <p>liked (1) 44:14</p> <p>likely (2) 25:14;30:10</p> <p>leap (1) 41:1;42:23;43:2; 78:1;104:23;109:13, 23;110:11</p> <p>limitation (1) 44:16</p> <p>limitations (3) 46:23;47:4;65:17</p> <p>limited (3) 55:22;56:6;118:2</p> <p>limits (1) 76:5</p> <p>line (7) 88:8;89:21,22;91:9; 96:17;111:19;118:23</p> <p>linear (1) 70:3</p> <p>lines (5) 69:17;83:10;92:16; 106:12,14</p> <p>listening (1) 59:10</p> <p>lists (1) 100:8</p> <p>literature (1) 96:9</p> <p>little (26) 11:20;13:11;14:3; 19:6;24:1;33:21;34:9; 35:5;40:7;50:1,6;51:1; 52:11,21;63:24;66:1; 68:11;75:15;90:14; 92:17,18;97:8;101:3; 103:17;122:21;134:16</p> <p>live (3) 19:23;46:13;126:3</p> <p>load (1) 30:21</p> <p>loaded (1) 82:13</p> <p>loading (1) 79:2</p> <p>loadings (2) 79:3,23</p> <p>loads (2) 80:14,15</p> <p>loan (1) 89:15</p> <p>localized (3) 55:22;128:5,9</p> <p>located (1) 50:5</p> <p>location (2) 45:11;46:12</p> | <p>9:13,17</p> <p>love (1) 36:23</p> <p>lovely (1) 81:20</p> <p>low (8) 43:11;91:12;98:13; 99:13;103:15,19; 112:23;127:25</p> <p>lower (17) 37:11;42:4,10,13; 76:19;77:2;86:2,4; 90:5,8;91:11;100:17; 105:8,20;111:18,22; 115:13</p> | |

| | | | | |
|--|--|---|--|--|
| <p>26:25;113:1 matters (1) 52:5 maximum (1) 131:13 may (18) 7:17;44:1,6;47:3,25; 48:6;55:11;56:9;57:9; 62:12;71:4;73:1;84:9; 117:8;122:12,17; 126:24;129:25 maybe (34) 6:16;21:13;27:17,20; 34:10;40:8;45:19; 47:23;48:6,8,9;53:7,13, 17,19;55:14;59:24; 60:22;63:14;64:4; 66:24;69:12;70:7,8; 87:17;92:16;94:21; 96:5,17,21;97:8; 100:18;120:12;125:15 mean (24) 16:12;21:15;23:12; 35:2;54:2;59:11;60:5; 73:13,14,21;80:4; 93:16,16,17;96:22; 97:5,22;100:23;101:1; 116:9;118:8;124:3,4; 132:12 means (6) 54:10;59:6;65:5; 74:4;75:17;104:14 meantime (1) 127:5 meanwhile (1) 35:17 median (2) 104:21;113:21 meet (4) 37:12;54:8;118:18; 132:19 MEETING (18) 3:1;7:5;10:11,20; 53:1;54:9;62:23;63:14; 93:6;106:25;122:6; 123:5,6;125:16; 126:21;129:11;133:13; 135:6 meetings (5) 6:20;72:3;122:12; 123:18;129:19 meets (1) 54:6 members (1) 6:22 membership (1) 5:4 memory (2) 105:10;133:10 mention (3) 21:24;38:23;133:5 mentioned (2) 19:6;58:11</p> | <p>Mesolella (2) 3:11,14 MESOLLELA (2) 3:13;4:13 message (1) 53:6 met (2) 37:8;55:9 methodology (1) 113:10 metric (1) 115:1 MHI (2) 113:12;114:1 microphone (2) 9:19,20 microtunnel (2) 40:25;41:2 microtunneled (1) 38:8 mid (2) 57:3;110:2 Middle (10) 15:4,5;18:8;20:8; 23:19,23;31:2;38:16; 66:6;98:18 might (15) 32:7;47:6,20,21,24; 50:15;62:13;64:17,24; 83:9;93:4,18;94:25; 111:18;126:15 Mike (4) 3:2;51:10;107:3,20 mil (1) 84:16 milestone (1) 21:8 million (18) 15:14;21:6;24:12; 31:13;36:11;37:23; 42:5;45:1;49:10;59:24; 65:21;66:10;69:20,25; 71:14,15;89:4;90:2 millions (1) 120:10 mils (1) 84:13 mind (3) 46:14;79:17;112:3 minded (1) 94:14 mindful (1) 6:11 minimal (1) 85:20 minute (2) 108:24;131:16 minutes (4) 68:6;108:24;125:7, 14 misconception (1) 65:3 missed (1)</p> | <p>129:25 missing (1) 70:10 mission (1) 92:25 misspoken (1) 111:18 mistaken (1) 53:25 misunderstanding (1) 95:11 misunderstood (1) 95:1 mitigation (1) 17:6 mix (4) 13:20;49:12;84:22; 129:18 model (17) 22:12,15;24:22;40:5; 57:14;71:21;75:6;81:1, 17,20;82:7,8,11,18; 86:8,9;117:23 modeled (1) 80:3 modeling (3) 7:6;23:8;79:7 modelling (2) 7:24;22:20 models (3) 17:13;127:14;129:15 moderate (2) 33:5;109:18 moderately (1) 35:18 moderating (2) 3:3,4 modest (3) 34:8,8;100:21 modestly (1) 121:1 modification (1) 69:1 modified (3) 12:8;17:23;19:8 modify (1) 32:12 modifying (1) 32:6 moment (5) 18:20;31:15;65:21; 83:18;88:13 moments (1) 129:21 money (18) 15:24;16:5;17:5,7; 54:10;66:11,15;67:6; 88:11,19;90:23;94:8; 103:11;106:2;112:24; 120:17;130:15,18 monitoring (1) 81:13 month (7)</p> | <p>64:5;94:23;95:2,6, 10;101:2;117:4 monthly (2) 5:1;102:21 months (7) 3:7;8:3;12:23;50:1; 51:22;60:1;62:4 more (81) 3:16;6:16;11:20; 17:10;23:8,11,11;24:1, 13;25:17;32:19;34:9; 36:15;38:9;39:5;41:11; 43:20;44:23;47:24; 54:24;55:23,25;56:6; 57:22;60:3,13,15,16; 61:1,3;62:4,13;63:2; 64:17,19,24,25;65:14; 66:6;70:1;73:1;74:5; 76:5;79:6;83:14,21; 87:14;90:9,14;91:8; 92:15;94:13;95:18,19; 97:9,16;101:3,17; 103:25;117:3,9; 118:15,17;119:15,18; 120:4;121:17;122:21; 123:13;124:17;125:17; 127:5;128:5;129:16, 19;130:15,18;131:6; 132:17;134:14,14 Moreover (1) 97:19 Morley (2) 18:18,18 morning (1) 3:14 Moshassuck (3) 40:1;76:15,17 most (22) 6:11;18:25;19:20,22; 20:1;21:17;27:12; 28:17;49:7;56:5,24; 58:19;63:10;78:21; 99:3;108:9;111:3; 126:4;127:16,17; 130:19,23 mostly (2) 21:2;50:22 mouth (2) 76:15,18 move (7) 15:1;30:6;31:1;35:5; 40:18;68:3;74:21 moved (3) 69:12;118:24;126:5 Moving (6) 20:14;21:11;28:14; 38:12;64:8;86:13 MPN (2) 50:3,5 MS4 (1) 106:17 much (31) 5:3;9:5;14:19;17:7;</p> | <p>23:6;35:13;43:17; 50:10;66:12;71:10; 72:4;74:4;79:6,12; 82:14;83:13;84:5; 89:25;90:3;91:7,21; 94:10;103:11;104:13; 105:4;115:15;116:7; 124:8;128:4;130:22; 135:4 multi (1) 112:20 multiple (1) 120:25 municipal (2) 73:7;121:19 municipalities (6) 98:12;130:4;131:1, 12,14;132:23 municipality (1) 102:11 must (1) 110:8 MWH (6) 7:7;9:7;11:15; 101:13;122:13;133:8 MWRA (1) 55:1 myself (1) 5:22</p> |
| <p>N</p> | | | | |
| <p>NA (2) 115:21,24 nail (1) 24:17 nailed (1) 79:9 name (4) 9:13,15,17;10:9 names (1) 9:16 Narraganset (2) 3:15;4:23 Narragansett (9) 3:18,21;6:8;85:14, 17;102:6;130:3,5; 133:21 narrow (1) 8:22 narrowed (1) 46:19 national (1) 98:19 natural (1) 51:23 nature (1) 57:5 NBC (17) 63:20;72:21;74:8; 80:15;98:10,11,13; 100:8;106:13,15; 110:24;111:12,20,21,</p> | | | | |

| | | | | |
|---|---|---|--|---|
| <p>24;127:21;134:7 NBC/CSOs (1) 79:16 NBC's (2) 100:5;107:6 near (10) 18:18;37:20;40:1,2; 41:1;42:22;45:13; 49:20;50:5;85:17 necessarily (5) 13:15;52:13;67:22; 93:15;106:9 necessary (1) 90:15 necessities (2) 17:4;83:12 necessity (1) 51:11 need (34) 6:11;22:10,15,19; 24:15;32:10;58:4;60:4, 11,24;66:6;67:2,5,11; 70:18;71:23;76:6; 78:12;79:6;97:22; 102:24;110:8;112:2, 11;116:24;117:20; 119:2;120:21;121:9, 10,16;129:18;130:18; 135:3 needed (3) 57:13;116:16,22 needs (5) 54:24;82:16;89:6; 122:21;124:16 net (1) 113:17 new (13) 18:25;40:14;58:12, 13,13,16;66:18;67:16; 68:3;89:10;119:25; 121:15;131:3 newcomer (1) 13:24 next (9) 46:13;87:9;111:19; 112:10;117:21;121:24; 122:4,6;123:11 Nick (2) 11:14;41:11 Nick's (1) 70:11 nine (1) 51:22 nitrogen (3) 49:24,25;117:15 NOAA (1) 58:10 nobody (1) 59:15 non (1) 116:7 none (1) 96:19</p> | <p>non-pervious (2) 132:8,11 non-residential (1) 133:16 normal (1) 128:14 north (2) 20:6;118:24 Northern (2) 16:1;38:17 notably (1) 18:25 note (1) 79:14 notes (1) 5:12 notice (1) 77:25 noticed (1) 50:14 notion (1) 134:19 Number (18) 9:12;18:21;23:5,6, 10;64:3;68:21;94:2; 95:14;99:1;101:16; 107:9;108:15,18; 109:18,19,20;122:11 numbers (18) 17:19;21:9;25:21; 36:3,5;42:9,13;72:8, 10;79:8;95:4,14;96:7, 13;108:8;110:8;114:6; 131:19 numerous (1) 7:11</p> | <p>52:5;64:14;78:5,8; 79:19;80:14;84:24; 88:5;97:12,14;98:3; 99:19;104:8;113:11, 25;125:5 offer (3) 45:25;46:11;123:15 offs (2) 17:20;134:15 often (3) 62:13;112:19;126:4 old (2) 12:5;112:9 Olive (1) 53:1 once (14) 5:2;8:25;9:24;21:18; 43:13;46:1,19;52:23; 60:1,23;65:17;90:7; 103:24;113:22 one (94) 3:25;5:13;7:11,23; 8:17;9:12,24;10:3; 12:23;13:12;15:11; 19:24;21:23;24:6; 25:17;27:24;29:23; 30:20;31:4;33:22;35:3, 14,24,25;36:25;38:7, 17,23;40:3;43:22; 44:16;45:4;47:18,24; 48:2,14;49:6;52:22; 55:1,18;60:2;61:3; 63:13,23;67:12,13; 68:12,22;69:16;70:19; 72:12;74:17;76:9; 77:23;78:18,19;79:5; 81:11;83:1,14;84:21; 86:20;87:2,16;89:24; 90:19;98:19;100:23; 101:7;104:22;105:12; 108:23;110:3;111:5; 112:17;114:5,8;115:5; 116:1,23;117:3;118:5; 121:14;123:17;124:24; 126:15;127:6,8,18; 128:23;129:5,16; 131:16;134:14 ones (5) 38:7;42:9,12;86:13; 100:19 ongoing (1) 6:18 on-line (2) 88:10;104:12 only (17) 5:1;9:23;12:25;43:4; 49:11;55:1;60:1;75:12; 80:6;84:18;89:14;90:4; 107:5;121:14;125:21; 132:7;134:16 open (2) 50:24;63:3 operate (2)</p> | <p>45:6;97:23 operated (1) 4:2 operates (2) 32:14;102:7 operations (2) 6:18;8:9 opportunity (3) 4:15,16;63:3 opposed (3) 33:2;50:17;69:3 optic (1) 94:9 optics (1) 17:6 optimist (1) 25:16 optimization (10) 21:25;22:7,15;24:9, 16;25:6,25;70:15,24; 71:2 optimize (1) 23:15 optimum (2) 8:1;72:4 option (5) 55:6;67:5,10;117:23; 125:2 options (11) 6:13;18:16;45:5; 64:17,23;81:21;88:17; 89:2;90:19;117:5; 119:25 orange (3) 83:10;84:17;85:3 order (8) 7:13;51:9;66:12; 73:11;79:8;83:19; 116:15;129:19 organizations (1) 123:21 original (2) 28:2;116:14 originated (1) 26:16 others (4) 27:1;38:21;40:8; 117:10 ought (5) 53:7;60:10,22;70:8; 95:21 ourselves (1) 121:3 out (82) 7:13;10:15;13:11; 14:6,7;15:3;17:21; 21:21;22:12;29:3,9,17; 30:10;31:5,10;35:1,7, 16,20;38:15,19;39:7, 18;40:25;41:15;43:7, 15;46:23;49:20;56:25; 57:16;66:19;67:3; 68:21,24;69:5,5,7;</p> | <p>70:18;72:24;73:5,6,13, 14;76:11,12,15,18; 77:24;87:11,23;88:1, 21,21,24;90:15;91:5, 15,17;92:2,4,13;96:23, 25;97:5;107:3,20; 110:24;112:19;113:5; 114:14;120:25;122:20; 123:20;125:20;129:6; 130:8;132:25;134:2,3, 9,15 outcomes (1) 131:5 outfalls (4) 20:20;21:15;24:5,7 outliers (2) 16:1;75:25 output (1) 82:6 outputs (2) 82:18;86:12 outrun (1) 126:23 outside (4) 52:19,21;80:15; 128:13 over (35) 10:11,21;18:18; 38:14;39:19;40:1; 43:25;44:2;51:22; 53:10;58:22;68:25; 70:9;74:10;86:23;87:1; 89:5;96:25;99:4; 103:24;105:1;106:4, 10;107:9;108:24; 109:1,23;110:20; 111:15;113:17;114:10; 115:16;125:8;126:2; 127:20 overall (15) 12:11;13:8;14:14,22; 24:10;25:13,14;31:8, 11;41:24,25;91:8,10; 98:20;111:14 overboard (1) 6:25 overflow (6) 30:17;47:1;52:25; 57:15,17;65:14 overflows (9) 41:15;42:17;43:5,14; 47:5;54:19;55:10; 56:15;117:9 overly (1) 87:7 oversight (1) 128:6 oversimplify (1) 61:20 overstating (1) 52:5 overwhelmed (1) 43:5</p> |
| | O | | | |
| | <p>O&M (2) 25:20;26:3 objective (3) 37:9;38:11,12 objectives (2) 12:12;14:2 obligation (1) 59:13 observation (1) 59:4 obtained (1) 26:25 obvious (1) 122:14 obviously (3) 32:3;76:23;126:24 occasions (1) 7:11 occurs (2) 52:25;56:16 off (28) 8:8;10:6,18,24; 16:18;17:8,17,18; 28:10;30:1,2;32:1;</p> | | | |

| | | | | |
|--|---|--|--|--|
| <p>overwhelms (1) 41:14 owe (2) 60:18;121:3 own (3) 111:8;115:5;126:3 owned (1) 126:2 owner (3) 46:6;72:19;112:21 owners (6) 71:13;100:3;112:24, 25;125:25;126:5 ownership (1) 73:2 owning (1) 126:8</p> | <p>47:23;49:6;57:12; 64:11;82:20 partly (1) 53:8 passage (1) 101:24 passed (1) 134:11 past (6) 60:14;68:3;77:14; 104:18;109:13;130:3 path (3) 46:10;122:3;125:4 Paula (2) 9:15;10:1 Pawtucket (23) 14:20,23;15:19;16:2; 18:7,14;19:17;20:7; 23:17;25:8;30:19; 31:20;37:10;46:4; 108:12,19;109:12,15; 110:2,15;125:1,2; 130:6 Pawtuxet (1) 79:14 pay (13) 72:21;91:22;92:3; 99:22;101:22,23; 105:7;106:3,7;107:24; 130:10;133:24;134:1 paying (8) 17:8;94:10,17,22; 101:21;104:8;130:24; 132:7 payments (2) 89:15;90:5 pays (1) 133:25 peak (11) 41:12;50:12,22;51:2, 18,19;52:4,11;109:7; 113:11;115:22 peaks (2) 104:2,5 penny (1) 93:12 people (20) 9:10,25;10:3;17:8; 19:22;71:6;72:14; 94:10;95:7,18;110:23; 112:22,23;121:19; 126:3,5,7;133:24,25; 134:3 people's (2) 107:22;113:5 per (10) 18:3;56:16;94:15,16; 96:12;99:1;101:12,15; 127:17,23 percent (51) 7:23;8:18;21:9,10, 13,13;35:22;36:4,4,4,5; 68:15,18,19,21,25;</p> | <p>69:2;70:1;71:15;72:5, 14;73:3,12,13,13,14, 16,20;76:1;82:1;89:8, 12,19;91:4;96:1; 104:19;106:25;108:17; 110:13,14,15;111:2,15, 17;113:4,8,16;115:11; 117:3;126:1,2 percentage (7) 36:2;95:22;105:1; 107:24;109:21,22; 114:23 percentile (1) 76:7 percentiles (1) 75:16 perception (1) 121:13 perfect (1) 61:25 performance (2) 32:5;42:11 performed (1) 46:22 performs (1) 43:10 perhaps (7) 8:15;59:18,18; 100:16;119:7,9;121:3 period (4) 88:23;97:1;106:11; 113:18 periods (1) 61:12 permits (1) 131:11 perseverance (1) 8:23 person (3) 9:24;10:3;116:8 Personally (2) 36:23;116:17 pervious (2) 71:13;73:15 Phase (81) 12:12,14;14:8;15:11; 16:5,24;19:15,15,25; 20:4,5,10,11,19;25:7, 11;26:17,23;27:10,15, 25;28:1,22;29:16,20, 24;30:2;37:24,24;38:3, 15;40:18;70:20;75:9, 10;76:20;77:5,6,9,11; 79:17,20;80:2,5,9,10, 13;81:8,17,18;83:5,6; 86:6,6,7,13,14,17; 87:13,15;91:21;92:9,9, 13,16,17;93:24,25; 102:9,9;103:5,7;108:7; 110:5;127:11,11; 130:1,13,25;131:2,23 phased (4) 19:9;86:19;88:21;</p> | <p>91:23 phases (15) 12:11,13,16,24;13:4; 14:1;16:12;17:17; 19:24;22:11;25:12; 27:5;37:14;69:4;88:1 phasing (6) 12:19;51:8;68:20,24; 85:23;117:24 philosophy (1) 29:25 phone (1) 95:19 pick (8) 10:2;15:25;20:16; 21:13;35:14;44:19; 61:25;116:22 picked (1) 12:5 picking (3) 54:15;116:14;118:5 picks (2) 20:19;31:20 piece (2) 119:24;129:16 pieces (2) 10:24;86:11 pinkish (1) 33:12 pipe (2) 62:6;67:12 pipes (2) 65:6;70:13 place (2) 49:9;98:23 places (3) 26:12;101:7;120:11 plain (2) 59:13;60:19 plan (20) 11:1;12:5;13:8; 14:22;18:1,5;20:23,23, 24;21:25;27:23,24; 29:8;47:12;55:3,8,14; 64:9;70:15,16 planning (2) 61:22;122:8 plans (8) 10:25;11:3,21;12:1; 27:9;30:9;68:11;114:9 plant (19) 3:25;29:13;31:22; 33:20;36:16;37:18,20, 25;38:7;41:4;45:10; 49:23;50:5;94:1,7; 97:3;103:6;106:16; 117:12 plants (3) 50:2;97:23;102:7 play (3) 7:15;65:20;98:20 player (1) 35:13</p> | <p>playing (2) 107:20;120:13 please (2) 9:20;133:2 pleasure (1) 123:12 plot (1) 80:7 plume (1) 80:12 plumes (1) 77:4 plus (3) 21:13;76:21;93:25 pm (2) 51:5;135:6 point (54) 7:21;8:13;11:9;15:9; 16:15;22:14;29:13; 31:12,22;33:1,19;37:3; 39:19,23;40:15,17,21; 41:17;43:7;47:21;66:8; 67:9,20;68:2;73:11; 74:4,5,10;77:8,11,15, 24;78:4,7,15,22;79:22; 80:9,13;82:11;83:17; 85:12,12,18;86:21; 87:3;91:3;100:24; 105:1;116:6,22;123:2; 129:1;133:5 pointed (4) 88:21;107:20; 110:24;122:20 pointing (1) 87:11 points (2) 63:1;107:3 policy (1) 56:14 political (1) 5:18 pollutant (1) 48:16 pollutants (1) 48:19 polluters (1) 4:1 popular (1) 69:12 population (1) 111:5 portion (5) 32:10;71:22;72:17; 85:21;109:12 position (1) 125:15 positive (1) 52:13 possibility (2) 32:6;92:6 possible (7) 64:16;119:15,22,23; 120:10;128:8,16</p> |
| P | | | | |
| <p>pack (1) 98:18 package (1) 55:6 paid (2) 92:10;98:12 pain (2) 103:24,25 paradigm (6) 37:2;82:3;119:7,10, 25;121:16 parallel (2) 51:8;132:25 parameters (1) 48:16 paramount (1) 6:1 pardon (1) 88:14 Pare (1) 11:15 park (1) 53:3 parking (1) 129:11 parklet (1) 52:19 parklets (2) 53:6,13 parks (2) 50:24;120:13 part (13) 4:5,7,22;11:6;29:19; 47:8;48:7;50:24;96:21; 117:9,10;121:19; 133:19 participation (4) 4:17;5:1;9:1;53:20 particular (6) 50:16;61:24;87:17; 117:4;120:8,21 particularly (8) 4:19;12:21;32:13;</p> | <p>47:23;49:6;57:12; 64:11;82:20 partly (1) 53:8 passage (1) 101:24 passed (1) 134:11 past (6) 60:14;68:3;77:14; 104:18;109:13;130:3 path (3) 46:10;122:3;125:4 Paula (2) 9:15;10:1 Pawtucket (23) 14:20,23;15:19;16:2; 18:7,14;19:17;20:7; 23:17;25:8;30:19; 31:20;37:10;46:4; 108:12,19;109:12,15; 110:2,15;125:1,2; 130:6 Pawtuxet (1) 79:14 pay (13) 72:21;91:22;92:3; 99:22;101:22,23; 105:7;106:3,7;107:24; 130:10;133:24;134:1 paying (8) 17:8;94:10,17,22; 101:21;104:8;130:24; 132:7 payments (2) 89:15;90:5 pays (1) 133:25 peak (11) 41:12;50:12,22;51:2, 18,19;52:4,11;109:7; 113:11;115:22 peaks (2) 104:2,5 penny (1) 93:12 people (20) 9:10,25;10:3;17:8; 19:22;71:6;72:14; 94:10;95:7,18;110:23; 112:22,23;121:19; 126:3,5,7;133:24,25; 134:3 people's (2) 107:22;113:5 per (10) 18:3;56:16;94:15,16; 96:12;99:1;101:12,15; 127:17,23 percent (51) 7:23;8:18;21:9,10, 13,13;35:22;36:4,4,4,5; 68:15,18,19,21,25;</p> | <p>69:2;70:1;71:15;72:5, 14;73:3,12,13,13,14, 16,20;76:1;82:1;89:8, 12,19;91:4;96:1; 104:19;106:25;108:17; 110:13,14,15;111:2,15, 17;113:4,8,16;115:11; 117:3;126:1,2 percentage (7) 36:2;95:22;105:1; 107:24;109:21,22; 114:23 percentile (1) 76:7 percentiles (1) 75:16 perception (1) 121:13 perfect (1) 61:25 performance (2) 32:5;42:11 performed (1) 46:22 performs (1) 43:10 perhaps (7) 8:15;59:18,18; 100:16;119:7,9;121:3 period (4) 88:23;97:1;106:11; 113:18 periods (1) 61:12 permits (1) 131:11 perseverance (1) 8:23 person (3) 9:24;10:3;116:8 Personally (2) 36:23;116:17 pervious (2) 71:13;73:15 Phase (81) 12:12,14;14:8;15:11; 16:5,24;19:15,15,25; 20:4,5,10,11,19;25:7, 11;26:17,23;27:10,15, 25;28:1,22;29:16,20, 24;30:2;37:24,24;38:3, 15;40:18;70:20;75:9, 10;76:20;77:5,6,9,11; 79:17,20;80:2,5,9,10, 13;81:8,17,18;83:5,6; 86:6,6,7,13,14,17; 87:13,15;91:21;92:9,9, 13,16,17;93:24,25; 102:9,9;103:5,7;108:7; 110:5;127:11,11; 130:1,13,25;131:2,23 phased (4) 19:9;86:19;88:21;</p> | <p>91:23 phases (15) 12:11,13,16,24;13:4; 14:1;16:12;17:17; 19:24;22:11;25:12; 27:5;37:14;69:4;88:1 phasing (6) 12:19;51:8;68:20,24; 85:23;117:24 philosophy (1) 29:25 phone (1) 95:19 pick (8) 10:2;15:25;20:16; 21:13;35:14;44:19; 61:25;116:22 picked (1) 12:5 picking (3) 54:15;116:14;118:5 picks (2) 20:19;31:20 piece (2) 119:24;129:16 pieces (2) 10:24;86:11 pinkish (1) 33:12 pipe (2) 62:6;67:12 pipes (2) 65:6;70:13 place (2) 49:9;98:23 places (3) 26:12;101:7;120:11 plain (2) 59:13;60:19 plan (20) 11:1;12:5;13:8; 14:22;18:1,5;20:23,23, 24;21:25;27:23,24; 29:8;47:12;55:3,8,14; 64:9;70:15,16 planning (2) 61:22;122:8 plans (8) 10:25;11:3,21;12:1; 27:9;30:9;68:11;114:9 plant (19) 3:25;29:13;31:22; 33:20;36:16;37:18,20, 25;38:7;41:4;45:10; 49:23;50:5;94:1,7; 97:3;103:6;106:16; 117:12 plants (3) 50:2;97:23;102:7 play (3) 7:15;65:20;98:20 player (1) 35:13</p> | <p>playing (2) 107:20;120:13 please (2) 9:20;133:2 pleasure (1) 123:12 plot (1) 80:7 plume (1) 80:12 plumes (1) 77:4 plus (3) 21:13;76:21;93:25 pm (2) 51:5;135:6 point (54) 7:21;8:13;11:9;15:9; 16:15;22:14;29:13; 31:12,22;33:1,19;37:3; 39:19,23;40:15,17,21; 41:17;43:7;47:21;66:8; 67:9,20;68:2;73:11; 74:4,5,10;77:8,11,15, 24;78:4,7,15,22;79:22; 80:9,13;82:11;83:17; 85:12,12,18;86:21; 87:3;91:3;100:24; 105:1;116:6,22;123:2; 129:1;133:5 pointed (4) 88:21;107:20; 110:24;122:20 pointing (1) 87:11 points (2) 63:1;107:3 policy (1) 56:14 political (1) 5:18 pollutant (1) 48:16 pollutants (1) 48:19 polluters (1) 4:1 popular (1) 69:12 population (1) 111:5 portion (5) 32:10;71:22;72:17; 85:21;109:12 position (1) 125:15 positive (1) 52:13 possibility (2) 32:6;92:6 possible (7) 64:16;119:15,22,23; 120:10;128:8,16</p> |

| | | | | |
|---|--|--|--|---|
| <p>possibly (2) 24:12;66:12</p> <p>post (6) 75:9,10;77:9,10; 81:17,18</p> <p>posted (1) 133:7</p> <p>postpresentation (1) 124:13</p> <p>potential (7) 6:13;21:24;22:6; 24:16,18,20;25:25</p> <p>power (2) 49:8;99:24</p> <p>practical (3) 16:15;17:9;83:13</p> <p>practice (1) 53:3</p> <p>precipitation (2) 46:21;59:6</p> <p>precise (1) 93:11</p> <p>precisely (1) 63:2</p> <p>predictions (1) 81:1</p> <p>predicts (1) 58:23</p> <p>preferable (5) 18:1,15,21,23; 117:17</p> <p>preferred (5) 21:2;121:25;122:1; 128:22;129:4</p> <p>preliminary (13) 14:13;18:17;19:12, 14;21:1;22:11;24:4; 26:17;28:21;36:22; 70:18,19;103:10</p> <p>premium (2) 21:5;36:11</p> <p>premiums (2) 20:22;88:18</p> <p>prepare (1) 5:11</p> <p>prepared (1) 63:21</p> <p>present (4) 37:10;63:19;92:8; 100:17</p> <p>presentation (11) 11:7;74:21,22; 102:20,24;107:2; 122:5,7,9;133:6,20</p> <p>presentations (1) 9:8</p> <p>presented (7) 48:4;90:20;93:5; 100:15;107:8;123:5; 127:9</p> <p>presenting (5) 16:9;48:2;70:16; 124:17;129:1</p> | <p>presume (1) 3:5</p> <p>pretty (5) 31:10;46:12;77:16; 105:4;125:5</p> <p>previous (10) 8:24;31:16;46:18; 69:9;75:7;87:21;89:2; 93:5;111:20;124:24</p> <p>previously (1) 12:13</p> <p>price (3) 22:1;31:11;134:2</p> <p>prices (1) 26:7</p> <p>primarily (1) 50:21</p> <p>primary (1) 39:3</p> <p>principal (1) 89:16</p> <p>prior (1) 123:5</p> <p>priorities (1) 83:1</p> <p>prioritization (1) 30:5</p> <p>priority (1) 36:1</p> <p>private (3) 72:23;73:1;128:4</p> <p>probably (16) 6:3;8:10;24:11;34:3; 43:15;50:1,4;58:9; 66:21;79:11;82:14; 99:17;120:16;122:19; 125:12;131:5</p> <p>problem (5) 39:6;51:1,15;54:17; 71:23</p> <p>problematic (1) 62:15</p> <p>problems (9) 39:8;45:4,15,21; 50:13;122:24;130:15, 16,17</p> <p>procedures (1) 99:25</p> <p>proceed (4) 6:13;8:12,15,22</p> <p>proceeding (1) 123:10</p> <p>process (25) 4:9;5:8,14,17,18,18; 8:1;9:2;11:5,13;14:7; 17:3;46:18;48:17;55:6, 21;56:3;63:16,24; 66:19;116:21;127:4; 131:5;132:21,22</p> <p>processes (2) 7:2;132:15</p> <p>produced (1) 55:23</p> | <p>productive (2) 123:18,19</p> <p>program (17) 4:10;14:6;15:3,13; 21:5;38:19;48:7;89:4, 18;90:1;91:10,25;92:4; 102:4;109:10;111:15; 125:11</p> <p>programs (3) 91:22;106:13,17</p> <p>project (22) 5:24;6:14;7:14,23; 8:24;9:4;12:15;27:1; 29:6,7,18,21;47:8; 59:14,16,22;60:9; 61:15;74:9;93:25; 112:2;120:8</p> <p>projected (3) 26:3;96:6,25</p> <p>projections (8) 16:22;55:25;58:13, 17,19,23;59:5;62:2</p> <p>projects (17) 21:22;28:19;30:3,4; 31:13;69:10;85:18; 88:16;91:17;92:3; 102:2;104:11,13; 105:21;106:3,8;118:4</p> <p>promise (1) 128:16</p> <p>proof (2) 22:4,5</p> <p>proofing (1) 71:2</p> <p>properties (2) 126:2;131:21</p> <p>property (11) 46:1,11;71:13;72:19, 20;100:3;112:20,24; 126:4,6;130:23</p> <p>proportion (1) 112:22</p> <p>proportional (1) 69:24</p> <p>proposals (1) 127:24</p> <p>propose (1) 120:6</p> <p>prospective (2) 61:15;132:10</p> <p>proud (1) 4:5</p> <p>provide (10) 39:3;43:19;44:1; 45:3,9;63:3;67:7;69:3; 100:12;119:19</p> <p>provided (1) 83:3</p> <p>Providence (35) 10:13;15:4;16:2; 18:10;20:20;21:14; 44:18;55:23;85:16,20; 86:4;91:7;102:17;</p> | <p>108:12,19;109:12,15; 110:1,14;111:4,11,13, 22;112:4,15;118:20, 21;125:22;126:1,14; 128:18;129:8;130:6,7; 134:6</p> <p>Providence's (1) 112:8</p> <p>providing (4) 36:7;38:6,23;67:4</p> <p>provisional (1) 82:16</p> <p>Public (8) 26:6;72:23;73:1,2, 20,21;120:19,22</p> <p>pump (3) 14:25;39:18;43:15</p> <p>pumped (1) 49:20</p> <p>purposes (2) 42:14;78:21</p> <p>pursued (1) 122:16</p> <p>push (4) 35:7;66:2,7;80:11</p> <p>pushback (1) 101:6</p> <p>pushing (3) 43:2;91:15;110:21</p> <p>put (19) 10:19;13:20;30:1; 32:24;33:20,23;45:11, 14,16;67:2;80:22;82:4; 84:22;89:7;102:21; 103:13;121:11,17; 127:7</p> <p>puts (1) 13:11</p> <p>putting (3) 24:21;37:25;87:19</p> | <p>111:14;114:21;120:9; 125:19;134:18</p> <p>quiet (1) 3:4</p> <p>quite (8) 44:12;75:2;87:13; 104:23;122:22;123:9; 125:21;128:8</p> |
| R | | | | |
| | | | <p>radically (2) 24:8;111:10</p> <p>Raiche (89) 10:5,7,17,22;16:19; 17:12;24:19;25:2,4,21; 26:1,9;27:3;28:7,14; 30:18;31:19;32:9,17; 33:10;34:11,19,23; 35:15;36:3,10,19; 39:15,24;41:9;42:20; 43:1;46:2;47:11;48:20; 64:20;67:12;68:10; 69:21;70:3,5,11;71:16; 73:4;75:4;77:22;79:13; 80:4;81:16;84:21;86:5; 87:4;92:13,23;93:8,14, 22;94:4,18;95:3;96:22; 97:2,13;98:4;100:19; 102:5,12,16,25;104:6; 105:12,22;106:14,21; 107:3,12,17;108:3,23; 109:5;113:9,17,22; 114:4;115:24;116:11; 122:1;125:4;128:25</p> <p>railroad (1) 117:6</p> <p>rain (1) 81:11</p> <p>rainfall (5) 55:24;57:2,6;58:21, 24</p> <p>rainwater (1) 128:17</p> <p>raise (1) 53:16</p> <p>raised (3) 91:20;104:13;105:25</p> <p>range (5) 24:12;97:8;115:8; 122:7;131:19</p> <p>rate (28) 7:13,22;16:21;17:8; 32:16;35:19;36:14; 68:23;88:25;90:15; 91:18;92:3;95:23; 99:12,14;102:21; 103:21;104:4,8; 105:23;106:7,9; 113:23;114:1;117:17, 22;134:5,7</p> <p>rated (1) 12:23</p> | |
| Q | | | | |
| | | | <p>qualifiers (1) 107:4</p> <p>quality (32) 11:4;12:22;13:17; 18:3;19:21;29:9,19; 49:14;50:9;55:4,9; 68:14;75:6,14;79:5,7, 15,21;80:19;81:9;82:7, 8;84:3;86:25;87:5; 88:19;105:6;116:7,10; 117:23;122:22;123:22</p> <p>quarry (1) 46:8</p> <p>questionable (1) 117:18</p> <p>quick (4) 36:13;92:5;96:16; 128:20</p> <p>quickly (8) 33:7;41:13;90:24;</p> | |

| | | | | |
|---|--|--|--|--|
| <p>ratepayer (1) 133:16</p> <p>ratepayers (5) 5:25;6:3,6;72:21; 92:12</p> <p>rates (29) 7:18;17:2;24:23,24; 35:8;41:12;69:1;90:8, 14;91:12,20;92:25; 98:7,10,11,11;101:5; 103:15;104:13,15; 105:2,20,25;106:1; 107:23,23;114:10; 115:12;129:13</p> <p>rather (8) 11:10;12:14;16:8,9; 21:8;68:19;103:15; 128:16</p> <p>rating (1) 12:22</p> <p>ratio (1) 6:10</p> <p>Ray (3) 7:9;8:5,6</p> <p>reach (2) 43:13;78:1</p> <p>reaches (1) 86:6</p> <p>read (2) 78:25;95:13</p> <p>readily (1) 125:5</p> <p>ready (6) 3:5;9:7,8;128:23; 129:10,24</p> <p>reaffirmation (1) 27:12</p> <p>reaffirmations (1) 27:9</p> <p>real (6) 57:8,25;61:18; 116:19;117:25;130:15</p> <p>realistically (1) 16:14</p> <p>reality (4) 52:8;55:16;63:18; 65:9</p> <p>really (35) 5:9,11;17:17;22:11; 23:1;24:15;26:23;35:7; 44:12;45:1;47:25; 49:11;51:20;52:2;54:2, 12;55:16;57:4;60:11, 24;61:8;67:5;71:24; 85:19;86:1,17;95:8; 97:13,15;116:23; 117:20;118:5;119:21; 121:23;123:18</p> <p>realtime (2) 23:13;25:9</p> <p>reason (7) 32:5;34:5;35:1;44:8; 56:4;57:9;122:16</p> | <p>reasonable (2) 62:1;132:9</p> <p>reasons (4) 18:21;47:19;48:2; 126:25</p> <p>recalibrated (1) 75:6</p> <p>recall (5) 12:3,11;29:11;37:6; 75:5</p> <p>recap (1) 129:25</p> <p>received (1) 129:21</p> <p>receiving (5) 33:15;49:4;50:10; 79:7;86:25</p> <p>recent (5) 27:12;55:25;56:5; 58:20;60:15</p> <p>recently (3) 62:22;63:11;125:23</p> <p>RECESS (1) 68:7</p> <p>recognize (1) 5:15</p> <p>recommendation (6) 123:2,16,22;124:10; 128:22,24</p> <p>recommendations (2) 8:4;28:17</p> <p>recommending (1) 121:25</p> <p>reconvene (3) 8:13;68:5;123:23</p> <p>reconvening (1) 127:22</p> <p>record (3) 9:25;125:24;133:4</p> <p>recreate (1) 127:20</p> <p>recreational (1) 118:13</p> <p>red (2) 33:9;89:21</p> <p>redefinition (1) 14:9</p> <p>redesigning (1) 70:9</p> <p>redeveloped (1) 50:20</p> <p>reduce (9) 23:3,7,11,15;25:12; 35:8;45:21;56:15; 105:15</p> <p>reduced (3) 52:12;83:10;105:17</p> <p>reducing (1) 77:1</p> <p>reduction (9) 15:22;25:14;68:16; 72:5,7;73:3,17;84:19; 118:1</p> | <p>reductions (3) 15:17;42:1,1</p> <p>referenda (1) 101:24</p> <p>referred (1) 102:22</p> <p>reflect (1) 36:19</p> <p>refresh (2) 105:9;133:10</p> <p>regard (3) 7:6;50:12;58:8</p> <p>regarding (3) 56:12;83:11;125:24</p> <p>regardless (1) 101:7</p> <p>region (2) 56:1;130:3</p> <p>regional (4) 130:2,8,9,18</p> <p>regular (4) 60:7;61:8;64:19; 65:1</p> <p>regulators (1) 61:13</p> <p>regulatory (6) 5:17;14:8;19:12; 61:5,7,15</p> <p>REITSMA (13) 24:14,25;25:3,17,24; 26:4;27:22;53:15;56:8; 59:3;62:16;102:23; 119:3</p> <p>related (4) 71:4,5;92:8;94:11</p> <p>relates (1) 133:16</p> <p>relative (1) 85:24</p> <p>relatively (6) 34:6,8;103:19;105:2, 8;121:1</p> <p>relevant (1) 83:1</p> <p>relief (1) 21:4</p> <p>remain (1) 113:6</p> <p>remainder (5) 45:3;87:13;89:6; 93:25;102:8</p> <p>remarks (1) 5:11</p> <p>remember (4) 3:20;51:21;72:23; 74:2</p> <p>remind (1) 35:21</p> <p>reminded (1) 9:9</p> <p>reminders (1) 9:9</p> <p>remote (1)</p> | <p>45:7</p> <p>removal (3) 49:25,25;117:15</p> <p>remove (3) 35:23;51:18;71:19</p> <p>removed (2) 71:10;124:9</p> <p>removing (1) 48:15</p> <p>reopen (1) 81:14</p> <p>reorders (1) 13:4</p> <p>repeat (1) 64:21</p> <p>report (8) 14:10;60:19;63:22; 100:6,13,22;129:9; 130:1</p> <p>reported (1) 27:7</p> <p>represent (1) 57:6</p> <p>representative (3) 76:4;101:17;116:25</p> <p>represents (1) 92:11</p> <p>request (1) 125:9</p> <p>require (2) 91:18;122:12</p> <p>required (3) 57:23,23;65:16</p> <p>requirement (1) 37:13</p> <p>requirements (2) 9:11;131:13</p> <p>requires (2) 18:22;21:4</p> <p>rerunning (1) 82:8</p> <p>reset (1) 55:4</p> <p>residential (2) 100:7,8</p> <p>residents (1) 133:24</p> <p>residual (2) 40:20;51:13</p> <p>residuals (2) 76:21;102:4</p> <p>resolution (2) 40:9;77:25</p> <p>respectively (1) 109:16</p> <p>respond (1) 56:9</p> <p>responsibility (1) 6:2</p> <p>responsible (1) 127:2</p> <p>rest (1) 121:13</p> | <p>restatement (1) 119:4</p> <p>result (3) 64:2;81:8;83:5</p> <p>resulted (1) 64:3</p> <p>results (6) 26:25;75:8,8;81:9, 17,20</p> <p>retailing (1) 87:21</p> <p>retain (1) 66:12</p> <p>retained (1) 48:24</p> <p>retaining (1) 49:15</p> <p>retention (1) 50:21</p> <p>return (4) 67:19,23;68:1;74:4</p> <p>returns (1) 30:23</p> <p>review (5) 11:7;14:4,8;19:12; 28:21</p> <p>revised (2) 19:4;82:17</p> <p>revitalized (1) 50:20</p> <p>rewind (1) 66:1</p> <p>Rhode (4) 100:6;101:20,20; 134:2</p> <p>RHODES (5) 64:15,22;66:24; 105:9;124:24</p> <p>Rich (10) 10:5;67:18;68:9; 74:11;92:22;93:20; 102:19;108:22;122:20; 128:21</p> <p>RIDEM (1) 34:13</p> <p>RIDOT (1) 73:6</p> <p>right (53) 3:13;8:5;16:25;18:6; 22:24;29:3;33:13,24; 40:21;42:16;46:4,8,10; 52:2;53:9;54:23,25; 62:9,17;65:6;67:3; 70:11,21,22;73:23; 75:4;76:14,20,24;77:9; 79:10;81:23;84:25; 85:25;86:16;93:17; 94:15,15,21;95:10; 99:17;106:14;109:10, 20,21;112:21;114:11; 115:7,22,25;118:12,20, 128:13</p> <p>rightly (1)</p> |
|---|--|--|--|--|

| | | | | |
|---|--|---|--|---|
| 65:22 rights (1) 73:7 RIGIS (1) 59:8 rising (1) 61:10 River (14) 18:22;20:20;31:6; 38:20;40:2;41:22; 76:22;85:16,16,20; 86:4;91:6;118:14,21 Rivers (1) 41:6 Riverside (2) 46:3,7 road (3) 55:15;72:15;116:18 roads (4) 72:12;73:6,21,21 robust (2) 42:12;70:16 rock (1) 38:10 room (3) 9:21;59:15;121:15 rough (1) 131:19 round (6) 15:3;17:19;21:9; 36:3,5;38:19 rounding (1) 31:5 row (1) 118:18 rubber (1) 116:18 rules (1) 107:19 run (3) 29:13;57:14;116:24 running (3) 45:15;92:19;132:24 runoff (1) 132:12 runs (2) 86:9;87:5 | 21:8;24:4;28:17,25; 30:5;34:19;37:8,12,15, 17;38:18,21;45:15; 53:19;54:14;59:20; 67:23;89:17;97:1; 99:13;105:17;114:15, 17;120:23;126:12 SAMONS (1) 4:12 sample (2) 75:24,25 sampling (1) 79:5 sand (1) 46:5 sanitary (1) 112:8 sat (1) 27:14 save (1) 120:16 saving (1) 95:6 savings (4) 24:11,18,20;25:13 saw (2) 10:17;45:5 saying (16) 23:6;24:15;27:13; 54:21;62:3;66:9;70:22; 84:6;89:11,17,18; 96:24;107:21;118:8; 121:6;124:2 scalable (5) 64:17,24;66:13,20; 67:24 scale (1) 14:15 scaleable (1) 65:18 schedule (5) 12:16;13:5;25:10,14; 28:18 scheduled (1) 3:9 scheme (1) 50:7 SCHILABBA (2) 100:5;101:11 SCIALABBA (2) 106:23;107:7 scope (3) 12:12;25:7;131:8 SCOTT (2) 85:10;86:16 screen (2) 48:25;101:16 screening (6) 13:18,20;19:7;33:23; 34:5,18 sea (1) 61:10 second (17) | 12:2;33:22;34:22,23; 35:17;38:3;40:18; 44:25;45:20;74:18; 107:13;114:11;121:11; 123:16;129:18;133:4; 134:4 secondarily (2) 126:10,18 secondary (1) 49:24 sedimentation (1) 39:4 seeing (8) 79:20,25;83:4;86:23; 88:2;90:4;92:6;134:14 Seekonk (11) 35:25;40:1;41:6; 44:19;46:9;85:16,21, 25;86:1;117:10;118:13 seem (1) 119:20 seemed (1) 65:13 seems (9) 34:6;47:2;52:19; 61:19;70:13;86:20; 87:2;119:24;120:18 segment (1) 68:4 select (3) 47:3,15;54:22 selected (3) 54:8;55:7,20 selecting (1) 56:18 selects (1) 47:9 send (2) 55:7,8 sediment (1) 49:9 senility (1) 4:14 sense (13) 7:17;8:14;27:18; 52:22,23;61:21,25; 62:9;64:6;92:9;126:7, 22;130:9 sensitive (1) 70:20 sent (1) 55:3 separation (14) 15:2,4;18:10,12,13, 24;20:10,21;29:6;31:7; 38:20;41:23;91:7,19 September (1) 58:11 septic (1) 128:10 sequence (1) 37:17 sequences (3) | 29:1;82:22,23 sequencing (2) 14:6;28:15 seriously (2) 108:1;117:21 served (1) 120:23 service (10) 22:18;80:16;95:23; 96:3,3;99:14;100:2; 108:18;109:23;111:23 services (3) 101:8;131:7,8 set (3) 14:2;27:15;56:6 seven (2) 64:4;78:12 seven-day (1) 78:9 several (5) 9:9;17:25;18:4,11; 114:6 sewage (3) 99:21;128:10,13 sewer (22) 15:2,3;18:9,11,13, 23;20:2,9,21;23:2; 29:6;31:7;38:20;49:7; 91:7,19;92:19;94:23; 100:7,8;107:23;112:19 shaft (2) 15:8;32:13 shafts (1) 23:13 shallow (1) 43:3 shared (1) 130:15 shave (1) 32:1 shaved (1) 88:5 sheds (2) 20:2;23:2 sheet (1) 133:3 Sheila (8) 10:17;74:19;125:11, 13;129:7;131:16,17; 132:18 Sheila's (1) 125:17 shell (1) 77:17 shellfish (2) 76:3,5 shellfishery (1) 76:3 shellfishing (6) 77:8;81:10;83:14; 118:9,22,23 shift (2) 29:22;82:18 | shifting (1) 90:21 shock (1) 99:2 short (1) 51:4 short-term (1) 110:18 show (12) 17:13;26:11;80:11; 81:20;86:13;90:7;91:1; 92:16;93:6,17;102:13; 111:24 showed (4) 27:4;111:20;121:8; 124:25 showing (7) 16:14;28:3;88:12; 90:13;105:15;108:8; 113:4 shows (7) 40:7;55:9;76:22; 77:2;80:8;81:13; 104:25 shut (2) 99:19,20 side (9) 9:14,15;14:25;15:1; 25:16;44:18;87:20,20; 88:4 sidewalk (1) 52:21 sight (1) 134:19 sign (2) 63:22;133:3 significant (3) 42:3;86:3;112:11 sign-in (1) 133:3 similar (5) 12:12;16:8;37:18; 38:15;39:16 similarly (1) 42:11 similar (1) 114:19 simple (4) 61:16,17;70:4;94:14 simplistic (1) 105:25 simply (1) 126:11 simulation (2) 47:17,19 simultaneously (1) 14:23 single (6) 19:20;21:17;44:22; 90:19;126:4;129:6 sinking (1) 4:14 sit (5) |
| S | | | | |
| sad (1) 76:4 safely (1) 118:18 safety (1) 81:14 sake (1) 31:25 sale (1) 99:24 saltwater (2) 78:4,7 same (25) | | | | |

| | | | | |
|---|--|--|---|--|
| 63:6;66:21;72:25; 73:1;126:17 | somehow (1) 126:11 | 54:10;89:6;94:8;95:18, 19;127:19 | 4:8;19:13;30:21,23; 32:18;81:2;93:21,22 | stored (2) 45:8;49:19 |
| site (6) 40:2;45:6,8,10,20; 46:16 | someone (3) 45:25;46:11;99:12 | spiller (1) 38:5 | starts (1) 41:13 | storm (61) 16:4,10;32:24;39:6, 7,8,19;41:8,10;43:12, 15,18,20;45:2;46:21; 48:22;50:12;51:19; 52:9;53:14,17,24;54:1, 5,7;55:19;56:3,12,16, 18,20,24;57:1,4,14,22; 58:2,5,7,9,15;59:25; 60:3;62:2,7,9,10;63:8; 65:24;68:17;76:9,25; 78:10;79:18;80:21; 83:8;87:17,18;115:23; 116:3;118:5 |
| sited (1) 101:11 | Sometimes (3) 9:24;10:1;50:21 | spillers (1) 29:12 | state (9) 6:17;55:7;58:17; 60:6,8;98:13;101:25; 102:2;120:20 | storms (13) 43:8;44:6;51:15; 55:11;58:14,15;60:6; 62:3;63:7;83:4,11; 84:7;117:3 |
| sitting (3) 27:16;64:8;128:13 | somewhat (7) 27:6;35:2;37:22; 66:22;84:12;87:15; 127:4 | spilling (1) 76:11 | states (1) 98:24 | stormwater (32) 10:11;19:2;23:1; 49:12;50:19;71:8,10, 12;72:6,8,13,15,16,18, 20;74:23;75:2;79:23; 80:14;102:4,15;112:8; 124:8;125:10;128:5; 129:9,23;130:2,8,10; 131:20;134:10 |
| situation (3) 60:13;61:22;99:17 | somewhere (2) 45:14;97:25 | spills (2) 40:25;41:5 | static (1) 113:6 | stormwater's (1) 130:21 |
| Six (1) 130:25 | soon (2) 14:10;133:7 | spirit (2) 78:24;83:23 | station (1) 14:25 | story (1) 4:3 |
| size (7) 23:15;30:17;32:1; 62:5;70:24;112:7; 116:15 | sorry (8) 25:17;34:2;36:5; 64:20;80:20;81:6; 121:9;124:5 | split (1) 72:24 | statistically (1) 61:25 | straight (2) 8:22;97:20 |
| sized (1) 62:8 | sort (39) 11:23;12:4,20;13:23; 14:15;15:10;16:22; 19:21;20:3;21:19;24:5; 27:9;28:16;29:8,25; 33:25;35:15;52:25; 70:7,16,20;76:2,13; 78:3,6;87:20;88:17; 90:12;103:9,16,16,25; 107:1;108:4;110:18; 111:7;114:10;121:5,10 | spoiler (1) 13:7 | statistics (2) 57:7;63:10 | straightforward (1) 34:7 |
| sizing (2) 62:7,18 | sound (2) 59:10;61:4 | spot (1) 10:19 | status (2) 124:22;125:10 | street (14) 6:22;15:5,6;18:8,9; 20:8,9;23:19,24;31:2, 3;38:16,16;52:20 |
| skis (1) 118:18 | sounding (1) 69:11 | SRF (7) 89:4,11,18,23;90:1, 9;104:10 | stay (3) 104:4;131:16;132:15 | stressed (1) 108:5 |
| slide (6) 31:15;102:17;110:9; 111:20;115:20;133:5 | sounds (4) 36:24;54:18;59:12; 132:5 | stab (1) 117:1 | staying (1) 5:7 | strict (1) 76:5 |
| slides (6) 90:18;93:5;106:22; 108:21;114:3;133:9 | south (3) 77:11;78:14;82:14 | stabilization (1) 103:22 | stays (1) 104:5 | strip (1) 97:5 |
| slight (1) 65:2 | space (1) 50:24 | stack (1) 125:2 | steadily (1) 58:21 | stripped (1) 96:23 |
| slightly (4) 13:3,10;70:9;88:1 | spacing (1) 91:5 | staff (3) 6:18;8:18;27:8 | steady (2) 92:2;104:1 | structure (1) 134:5 |
| slope (1) 43:3 | span (6) 86:20;87:1;97:15; 101:6;106:2,5 | stage (1) 52:3 | steering (1) 132:22 | structures (2) 53:12;66:14 |
| slowly (1) 117:12 | speak (6) 10:4;59:13;63:5; 70:21;77:22;82:8 | Stakeholder (3) 46:18;55:21;116:21 | step (5) 6:20;14:5;37:14; 117:21;122:4 | struggle (1) 66:15 |
| small (4) 38:14;97:6;103:9; 111:8 | speaking (4) 5:10;9:18,24,25 | Stakeholders (11) 11:11;26:18;63:16, 23;123:5;124:3,4; 126:20;127:13;129:19; 132:24 | steps (3) 11:8;77:13;121:24 | struggling (1) 99:8 |
| smaller (7) 51:14;84:7;91:22; 92:3;104:14,14;114:22 | special (1) 99:12 | Stakeholder's (1) 4:9 | steroids (1) 50:15 | stub (7) 18:19,20;20:16,25; 21:14;31:6;91:23 |
| Smart (1) 95:18 | specifically (3) 13:17;20:2;31:12 | stand (1) 9:21 | sticking (1) 11:12 | students (1) 131:25 |
| smooth (1) 35:1 | spend (3) 17:5;67:22;127:10 | standard (1) 101:15 | still (25) 18:1,16;32:14;33:14; 34:13;39:2,21;40:24; 41:4,15;42:16;55:6; 69:15;76:22;78:12; 91:2,10;102:25; 108:24;109:1;110:20; 111:18;113:15;115:4; 124:16 | |
| smoothing (1) 90:14 | spending (7) 16:5;66:11;88:11,18; 90:23;112:5;130:15 | standards (3) 55:9;75:14;119:1 | storage (20) 23:16;37:2;38:11,24; 39:1,18;40:17;44:5,23; 45:2,5,10,13,17;49:21; 57:12,18;67:5;120:11, 14 | |
| snapshot (1) 87:16 | speaks (1) 90:8 | standpoint (1) 50:9 | store (2) 61:24;65:10 | |
| sober (1) 99:5 | spent (10) 3:17;15:17,24;17:7; | star (2) 42:6;82:15 | | |
| social (1) 22:24 | | stars (1) 64:5 | | |
| solution (3) 13:16;29:20;91:6 | | start (24) 3:6,12;9:8,12;10:6, 24;14:25;15:7;17:17; 19:14,16;20:5;28:24; 40:18;45:15;62:13; 72:16;89:15;91:13; 97:14;104:7;134:5,7, 16 | | |
| solutions (2) 119:20;120:12 | | started (4) 9:7;10:7;54:4;55:20 | | |
| solve (3) 71:22;130:16,17 | | Starting (8) | | |
| somebody (2) 10:10;99:21 | | | | |

| | | | | |
|---|---|---|--|--|
| <p>studies (2) 122:19;123:24</p> <p>study (7) 18:22;21:4;23:11; 24:1;101:13;130:1; 131:23</p> <p>stuff (6) 23:3,7;50:25;85:2,5; 103:5</p> <p>subject (1) 49:13</p> <p>submit (1) 14:10</p> <p>substantial (2) 54:11;88:8</p> <p>subsystem (5) 12:4;13:13;17:22; 37:6;39:17</p> <p>subsystems (1) 17:24</p> <p>successes (5) 3:23;4:7,22;5:16,16</p> <p>successful (2) 8:24;9:4</p> <p>sudden (1) 3:5</p> <p>suggest (1) 102:21</p> <p>suggested (2) 124:15;127:5</p> <p>suggesting (1) 101:5</p> <p>suggests (1) 84:11</p> <p>summary (4) 68:14;125:10,17; 129:23</p> <p>summer (1) 49:25</p> <p>suppliers (1) 100:1</p> <p>support (3) 4:20;64:6;102:1</p> <p>supposed (1) 58:12</p> <p>supposedly (1) 58:4</p> <p>sure (21) 7:1;22:16;42:15; 46:2;52:18;53:11,15; 60:22;62:24;63:21; 67:17;68:10;106:24; 115:10;116:12;119:13; 123:9;126:21;133:2; 134:1,25</p> <p>surface (16) 19:23;22:19;27:2; 38:9;41:1;42:22;44:3; 45:13;49:20;54:6; 72:12,15;73:15; 117:16;132:8,11</p> <p>surfaces (1) 71:13</p> | <p>surprisingly (3) 33:6;90:22;91:11</p> <p>surround (1) 108:11</p> <p>surveys (1) 98:17</p> <p>suspect (2) 7:19;47:7</p> <p>swimmable (3) 75:22;77:18;118:10</p> <p>swimming (1) 118:18</p> <p>synthetic (1) 57:4</p> <p>system (28) 22:3;23:2,16;24:10; 25:1;40:5,14,25;41:16; 42:7,11,18,19,20; 48:24,24;49:15;70:23; 71:1,11;76:11;102:8; 111:6,9;124:18; 129:14;130:21;133:17</p> <p>systems (12) 14:14;22:16,18; 23:18;42:8;49:7;79:24; 89:7;106:18;112:9,12; 128:11</p> | <p>94:24;95:8,9;101:2; 120:18</p> <p>tandem (1) 71:23</p> <p>tank (35) 18:18;37:20,23;38:1, 1,13,14;39:2,3,11,11, 12,15;40:15,21,24; 41:21,22;44:18,19,22, 25;45:14;46:13;49:6, 10,21;61:23;62:6; 65:13;67:1,10,13;85:1; 128:13</p> <p>tank/treatment (1) 40:14</p> <p>tanks (4) 38:24;43:18,20; 45:23</p> <p>target (5) 19:25;20:12,16; 37:16;64:8</p> <p>targeted (3) 19:3;28:24;29:23</p> <p>tax (1) 126:13</p> <p>team (1) 64:16</p> <p>technical (1) 36:13</p> <p>technically (2) 33:14;119:21</p> <p>techniques (1) 65:19</p> <p>techno (2) 11:16,17</p> <p>technology (1) 128:15</p> <p>telling (2) 60:15;111:3</p> <p>tells (2) 22:13;118:5</p> <p>temporary (3) 31:13;39:18;128:9</p> <p>tempus (1) 73:11</p> <p>ten (4) 42:25;43:1;58:24; 73:20</p> <p>tenants (1) 126:12</p> <p>tend (1) 99:4</p> <p>tenements (1) 125:22</p> <p>tenent (1) 126:13</p> <p>tentative (1) 47:25</p> <p>term (2) 35:8;67:19</p> <p>terminate (1) 100:1</p> <p>termination (1)</p> | <p>99:25</p> <p>terms (49) 11:4;12:1,21;14:4,6; 15:17;19:20;24:2; 32:23;33:4;37:21;44:5; 48:15,17;49:7,14;59:6; 66:9;68:13;72:7;74:6, 8;75:21,22,25;76:2,4; 79:3,20;80:18;84:13, 24;85:5;86:13;90:12, 20;98:18;99:2;102:13; 103:2,21;108:4;109:5, 21;115:3,8,12,15; 116:10</p> <p>test (1) 22:12</p> <p>Thanks (2) 78:18;119:3</p> <p>Thayer (3) 52:20;53:1,2</p> <p>theory (1) 131:20</p> <p>thinking (4) 62:25;72:16;119:9; 121:15</p> <p>third (3) 84:2;89:16;100:14</p> <p>thorough (1) 23:8</p> <p>though (6) 53:4;77:24;88:5; 93:9;112:22;117:11</p> <p>thought (2) 34:21;56:7</p> <p>thoughts (2) 26:17;124:12</p> <p>thousand (2) 8:17;128:12</p> <p>three (19) 10:1,2;27:24;32:1; 60:1;62:4;77:3;78:15; 90:18;105:16;106:22; 108:11,20;111:3; 112:1;115:13;116:1; 123:13;125:16</p> <p>three-month (36) 16:4,10;39:6,7;41:7, 9;42:17;45:2;48:22; 50:12;51:2;52:9;53:17, 24;54:1,5;55:19;56:12, 16;57:1;58:2,5,7,9,14, 15;62:2,3,7,10;63:8; 68:16;79:18;83:8; 115:23;116:2</p> <p>three-months' (1) 32:24</p> <p>three-to-four (1) 14:15</p> <p>threshold (3) 104:18;108:17; 112:14</p> <p>throughout (3) 82:10;109:24;110:4</p> | <p>throw (1) 117:3</p> <p>thrown (2) 11:15;64:1</p> <p>thus (2) 11:19;85:11</p> <p>tidal (2) 78:2;80:11</p> <p>tides (1) 80:11</p> <p>Tidewater (1) 40:2</p> <p>timeline (2) 32:25;69:1</p> <p>times (7) 46:25;52:12;56:17; 57:8;60:4;62:12; 120:19</p> <p>timing (1) 63:18</p> <p>tip (1) 111:14</p> <p>tips (1) 74:10</p> <p>title (2) 78:3,5</p> <p>today (23) 3:4,6,11,22;4:8,16; 10:24;11:5,20,22;14:7; 48:3;63:22;66:21;67:1, 9;75:10;79:12;98:11, 16;121:2;133:6,18</p> <p>today's (4) 7:17;16:20;26:7; 99:2</p> <p>together (4) 74:12;130:7;131:1; 135:3</p> <p>told (2) 9:10;46:6</p> <p>Tom (15) 6:25;41:10,19;46:17; 55:18;56:1,6;61:6; 63:8,14;83:3;88:21; 95:22;122:2;131:25</p> <p>tomorrow (1) 87:6</p> <p>Tom's (1) 66:8</p> <p>took (5) 37:22;45:12;57:1; 73:5,6</p> <p>tool (1) 22:13</p> <p>tools (2) 22:8;23:11</p> <p>top (7) 29:11;51:25;61:15; 100:14;114:14;125:6; 134:17</p> <p>total (14) 21:5;33:24;50:7; 72:5;79:19;105:10,12;</p> |
| | T | | | |
| | <p>table (8) 9:14,16;91:1;114:5; 115:4;125:3;127:7; 128:15</p> <p>tactic (1) 13:23</p> <p>tag (2) 22:1;31:11</p> <p>tags (1) 9:15</p> <p>tail (1) 16:18</p> <p>tailing (1) 113:11</p> <p>tails (1) 113:25</p> <p>takeaways (1) 80:16</p> <p>talk (10) 5:13;10:11;11:21; 24:23;58:17;75:2; 114:17;121:9;122:2; 132:17</p> <p>talked (9) 13:13;15:14;51:21; 58:10;74:19;114:8; 119:6;128:4;133:15</p> <p>talking (23) 7:7;13:19;14:4; 24:16,18;25:18;28:19; 32:1;34:17;52:8;53:22; 54:4;59:14,22;61:6; 64:13;74:8;75:11;</p> | | | |

| | | | | |
|--|---|---|--|---|
| <p>114:7,8,14;115:8; 131:7,7,13 touch (1) 132:15 tough (1) 61:18 towards (4) 15:1;40:19;54:11; 133:13 town (1) 100:7 towns (2) 106:20;108:10 track (2) 15:11;31:15 tracking (1) 14:18 tracts (1) 108:12 transfer (2) 49:3;65:16 transference (1) 79:11 translated (1) 84:7 traps (2) 78:3,6 treat (4) 39:5;44:23;62:12; 120:2 treated (3) 41:19;42:1;48:17 treating (6) 49:2;69:9,14,20; 99:21;114:25 Treatment (47) 3:21;29:13,15;31:22; 32:16;33:15,18,19; 34:1;36:7,15,15,16; 37:3,4;38:7,25;39:12, 20;40:22,24;41:20; 42:19;43:19;44:2,45;3; 48:13,15;49:22,24; 63:4;66:18;69:4;82:24; 88:16;94:1,7;102:7; 103:6;106:16;116:8; 117:12,13,17,22; 119:19;120:15 trend (1) 58:20 trickle (1) 126:12 tried (2) 56:23;124:20 triggers (1) 132:13 true (1) 80:5 truth (3) 65:8;66:14;83:17 try (9) 10:13;45:20;60:11; 62:11;66:24;116:13;</p> | <p>119:14;124:21;133:8 trying (11) 7:12;24:3,17;35:10; 44:10;48:9;55:13; 56:13;115:3;127:19; 128:17 Tuesday (3) 48:5;87:8;122:6 tunnel (83) 13:7;14:20;15:2,18; 18:7,19,20;19:17;20:6, 16,25;21:14,16;23:14, 15,22;25:8,9;30:1,1,19; 31:6,20,23;32:2,7,8,11, 12;33:6;35:24;36:9; 37:4,7,10;38:10;43:11, 13,21;44:4,11,17; 46:24;48:12,12,16,22; 49:21;61:23;62:6;65:3, 9;66:17;67:6,9;70:22, 24;76:24;81:25;82:22; 84:12,17,18,23;85:4,6; 86:10;87:12,14;88:10; 91:3,12,13,16,23; 103:13,15;105:3; 115:10;117:22;125:1, 2;128:2 tunneling (1) 27:2 Turin (2) 61:6;96:4 turn (1) 121:5 turns (1) 79:18 TV (1) 95:20 two (32) 8:24;9:25;10:1,2; 18:16;27:24;29:11; 31:19;38:18;46:20; 47:22;61:8,11;62:23; 64:23;68:22;71:5; 72:24;76:8;79:13; 92:15;102:7;103:8,25; 105:13;111:25;113:7, 7;116:1;117:3;125:14; 130:12 two's (1) 76:13 two-speed (1) 87:9 types (1) 132:25 typically (1) 49:22</p> | <p>54:9;60:22;65:16,18; 66:13;118:22 unaffordable (1) 111:8 unanticipated (1) 122:24 under (7) 18:18;74:9;77:18; 107:2;108:20;111:16; 122:10 underscores (1) 80:12 undertaking (1) 5:24 unduly (1) 24:17 unfortunately (1) 71:7 units (2) 84:15;112:20 University (2) 10:10;52:20 unknown (1) 84:5 unnecessarily (2) 59:16,17 untreated (3) 40:23;47:5;69:16 up (65) 10:2,23;15:25;20:16, 19;21:13;23:16,22; 26:11,14;29:22;31:21; 33:5,25;35:5,14;38:4; 40:8,19,20,23;41:5; 43:19;44:9,10,19; 49:19;51:24,24;53:10; 58:16,21;66:7;69:17; 71:9;72:4;75:20;78:1; 80:10;81:13;82:4;88:8, 14,14,19;90:24;91:9, 14,24;92:17;95:15; 99:4;100:24;101:1; 103:13,13;104:23; 105:4;106:21;107:22; 124:9;125:2;133:8,13; 134:17 upcoming (1) 8:3 update (1) 74:18 updated (3) 27:25;63:10;82:9 upfront (1) 90:23 upgrades (1) 106:18 upon (4) 88:6;100:9;101:14; 108:7 upper (4) 76:7;77:2;130:3,4 upsized (1) 67:16</p> | <p>upstream (2) 13:2;45:14 upward (2) 27:20;85:17 urban (1) 118:19 usage (4) 96:8;98:23;100:10; 101:14 use (11) 9:20;12:22;40:20,23; 56:2;61:14;75:16; 90:16;96:12,15;120:10 used (7) 46:13;55:2;60:2; 67:18;75:7;95:17; 107:24 useful (1) 78:21 users (1) 99:14 uses (1) 96:10 using (7) 27:9;40:17;50:14; 55:25;57:12;63:9; 101:14 usually (3) 11:7;50:2;100:4 Utilities (1) 26:6 utility (11) 10:14;71:9,12;72:14; 101:4;129:9;130:2,10, 22;131:8;134:10 Uva (3) 6:25;81:7;131:25</p> | <p>versus (15) 20:23;48:12,14;50:9; 75:10,21;81:3;85:6; 86:6,10;90:6;92:19; 94:16;111:2;116:8 vet (1) 70:18 vetted (1) 60:15 viable (1) 24:2 view (4) 13:4,11;16:15;24:4 vigilant (2) 5:20;6:2 Vin (1) 3:14 Vincent (1) 3:10 violation (2) 77:10;81:2 volume (42) 10:15;15:23;32:21; 39:6;40:7,10,13,15; 41:24;47:1;57:10,13, 16;61:24;62:1,7,16,17; 65:22;66:4;67:4;69:14, 15,24;70:8,9;71:19; 72:5,8;79:19;87:17,18; 114:18,24;115:16; 116:2,4,15;118:1; 127:16,17;131:20 volumes (11) 24:6;32:6;37:8,21; 63:4;64:18,25;68:13; 69:8,8;71:3 volumetric (1) 29:12 voted (1) 126:21</p> |
| | | | V | |
| | | | | W |
| | | | | <p>wages (1) 133:25 wait (1) 102:23 waiting (1) 123:11 walk (1) 10:17 values (1) 133:12 wants (1) 51:10 Warwick (1) 130:5 wasted (1) 67:6 Wastewater (2) 3:21;37:3 Water (57) 4:4;10:15;11:4;</p> |

| | | | | |
|---|---|--|---|---|
| 12:21;13:16;18:3; 19:20;22:20;29:9,18; 39:12;49:14;50:9;54:6, 8,9,18;55:4,9;61:24; 62:1,8,11;64:18,25; 68:14;71:18;75:6,14; 79:5,7,15,21;80:18; 81:9;82:7,8;84:3; 86:25;87:5;88:19; 99:19,24;100:1,1; 102:3;104:18;105:6; 106:13;110:25;112:1; 116:7,10;117:23; 118:11;122:22;123:21 | 129:9 whereas (2) 77:18;103:14 whichever (1) 86:23 whole (7) 32:3;48:25;61:22; 75:17;107:15;121:17; 128:3 who's (1) 121:15 wide (7) 104:20,24;107:5; 108:9,17;109:24; 111:21 willing (3) 74:20;121:17;125:11 win (2) 120:12,12 wind (1) 75:20 winds (1) 78:1 wise (2) 54:11;67:14 within (5) 59:8;77:17;81:13; 86:17;108:12 without (5) 11:20;24:25;59:18; 97:23;101:6 wondered (1) 66:2 wondering (7) 16:7;26:20;27:17; 34:4;50:23;64:15,22 Woonasquatucket (3) 76:17,19;85:19 words (6) 3:11;17:1;27:14; 30:13;48:18;50:16 work (25) 21:12;22:3,21;23:18; 27:2;40:6;48:7;54:11; 62:24;63:19;74:11,13; 85:21;92:12;94:1; 99:25;103:6;108:7; 121:18,22;122:21; 124:15;125:21,22; 131:1 working (8) 3:17;61:11;85:15; 120:7;121:18;130:7; 131:25;132:6 works (1) 87:11 workshop (1) 3:10 workshops (2) 3:3,8 world (2) 28:16;49:8 worry (1) | 128:11 worse (4) 110:6,14,15,16 worst (5) 3:25;105:16;109:9,9, 17 worth (3) 9:3;55:12;124:7 worthwhile (1) 45:20 wrap (1) 89:13 wrong (2) 27:21;70:8 | 37:24;68:20;75:13; 81:8;87:22;88:6;91:25; 92:9,14,16;103:12,23; 104:4,22;105:4; 109:10;110:20;111:13, 25;115:7,14;127:11; 130:1,13 1.65 (3) 80:23,24;81:3 1.8 (1) 104:23 10 (15) 36:4;50:3,9;68:6; 71:14;73:3,12,13,14, 16;76:1;89:14;101:6; 114:11,11 101 (1) 20:12 103 (1) 23:22 104 (1) 20:12 105 (1) 20:12 115 (1) 31:13 12 (3) 31:17;95:4;114:12 12:30 (2) 135:5,6 13,000 (1) 109:15 14 (2) 37:23;81:2 14-month (1) 131:5 15 (5) 27:14,16;49:10;70:1; 125:7 1968 (1) 28:12 1979 (1) 3:19 1990 (1) 4:12 1990s (1) 56:13 1991 (1) 3:20 1998 (1) 95:17 1A (1) 25:7 | 82:21;83:6;86:6,14; 88:1,3,9,13,15;89:21; 91:2;92:9,17;93:25; 102:9;103:5,12,14; 104:12,19,25,25;105:5; 106:25;108:16;109:16, 22,25;110:5,9,16,20; 111:2,15,16,17;113:4, 16;114:14,18,21; 127:11;130:25;131:2, 23 2.5 (1) 89:5 2.7 (1) 45:1 20 (11) 36:4,4,5;65:7;66:19; 89:8,23;90:6,9;109:19; 117:2 200 (1) 101:15 201 (2) 23:17;30:6 2010 (1) 28:9 2011 (1) 94:25 2014 (2) 100:5,12 2015 (7) 19:13;28:21;58:12; 100:19;103:4;108:6; 113:5 2015/2016 (1) 93:23 2016 (4) 19:13,16;28:22; 103:4 2018 (5) 26:13,21;28:6,8; 100:18 2019 (3) 14:16,18;103:12 2020 (3) 29:16;89:22;104:3 2023 (8) 15:18,23;19:16;21:8; 33:1,2;68:16,19 2024 (2) 20:5;95:14 2025 (7) 15:13,25;16:4;68:17, 18;87:24;109:11 2026 (1) 109:11 2029 (1) 20:15 203 (1) 23:17 2030 (3) 88:9,12;91:9 20-30 (1) 90:17 |
| | | Y | | |
| | | yardstick (1) 68:17 year (37) 14:15;27:23;28:12; 44:1,3;56:16,17,20; 57:8,9;60:2,4,4;62:13; 68:18;89:7;90:6,6; 94:15,16,16;95:6,13, 13,15;99:1;109:9,9; 110:10,14,16;114:16; 115:2;116:20,25; 130:4;131:3 years (33) 3:24;4:10;17:21; 21:16;27:14,17,25; 28:5;34:16;46:20; 58:22,24;65:7;66:19; 68:21;69:2;86:20;89:5, 8,12,14,19,23,23; 91:15;101:6;103:8; 104:3;112:10;114:11, 12,19;117:1 year-to-year (1) 103:22 yellow (1) 76:2 | 101 (1) 20:12 103 (1) 23:22 104 (1) 20:12 105 (1) 20:12 115 (1) 31:13 12 (3) 31:17;95:4;114:12 12:30 (2) 135:5,6 13,000 (1) 109:15 14 (2) 37:23;81:2 14-month (1) 131:5 15 (5) 27:14,16;49:10;70:1; 125:7 1968 (1) 28:12 1979 (1) 3:19 1990 (1) 4:12 1990s (1) 56:13 1991 (1) 3:20 1998 (1) 95:17 1A (1) 25:7 | |
| | | Z | | |
| | | zero (2) 16:3,24 | | |
| | | 0 | | |
| | | 035 (3) 18:10;20:21;41:23 039 (1) 18:24 056 (1) 18:24 | 2 (69) 12:10,13,18,19; 13:10;16:12,24;17:17; 19:8;20:19;28:1,15; 30:2;33:2;42:2;51:5; 68:25;69:17;75:9;77:5, 9;80:10;81:17,24; | |
| | | 1 | | |
| | | 1 (31) 12:13;16:12,24; 17:17;27:5;28:1;33:1; | | |

| | | | | |
|--|---|---|--|--|
| <p>2031 (2) 25:16;109:17 2032 (2) 33:2;69:3 2038 (4) 17:18;25:15;64:10; 88:23 204 (1) 30:6 2040 (3) 97:14,21;98:5 2042 (1) 64:10 2044 (1) 17:19 2047 (1) 31:10 205 (5) 15:9;23:22;38:4,6; 40:19 206 (4) 15:2;18:12;20:10; 29:5 212 (3) 20:2;29:1;40:11 213 (3) 20:3;23:13;29:1 214 (3) 20:3;29:1;40:11 216 (2) 20:17;30:6 217 (3) 20:17;23:13;30:6 218 (16) 29:11;31:16,18,21; 32:8,11;33:19;35:13, 23,24;37:18,25;38:4; 40:13,16;44:20 22,000 (1) 108:19 220 (16) 14:25;15:21;20:16; 29:17;33:23;34:24; 35:13;38:14;39:10,15, 23;44:19,25;76:21; 91:5,24 23 (1) 69:3 24 (1) 70:24 25 (3) 84:16;89:5;90:2 25th (1) 4:3 26 (2) 70:22;71:1 29,000 (1) 109:14 2D (2) 30:25;31:1 2x (1) 78:2</p> | <p style="text-align: center;">3</p> <p>3 (57) 12:12,14;13:3,19; 14:8;16:5;20:5;25:12; 26:17,23;27:15,25; 28:16,23;36:9;75:10, 13;76:20;77:6,11; 79:17,20;80:2,5,10,13; 81:18,24;82:22;83:6; 86:6,7,14,17;87:13; 88:7,14;91:11,23; 93:24;97:17;102:9; 103:7,15,21;105:2,6; 108:7;110:5,6,10,16, 20;111:17;114:14,18, 21 3,700 (1) 109:15 3.3 (1) 89:19 30 (10) 27:17;58:22;68:20, 24;73:13;89:12,19,23; 90:6,10 30-30 (2) 89:17,24 305 (1) 31:7 30s (2) 109:24;110:3 31 (2) 91:9;110:7 35 (2) 95:1;101:1 36 (2) 72:5;73:20 38 (1) 110:14 3B (1) 31:4</p> <p style="text-align: center;">4</p> <p>4 (24) 13:22;14:1;36:25; 37:24;38:3,15;64:3; 82:2,23;84:12,18,23, 25;85:7;87:15;88:20; 92:1;105:8;110:19; 111:17;114:22;116:4; 119:5;122:15 40 (4) 50:5,9;112:10; 115:10 40s (2) 110:2,13 41 (1) 110:14 45 (1) 108:17 45,000 (1)</p> | <p>108:18</p> <p style="text-align: center;">5</p> <p>5 (5) 71:14;77:7;81:3; 89:8,12 50 (4) 7:21;110:12;126:1,2 50,000 (1) 100:25 51 (1) 110:13 56 (3) 65:21;66:9;69:20</p> <p style="text-align: center;">6</p> <p>66 (1) 96:1 67 (2) 94:17;95:1</p> <p style="text-align: center;">7</p> <p>7 (5) 77:13,14,19;81:15, 15 70 (8) 21:10;28:12;68:18, 19;69:2,25;81:25;91:4 750 (1) 15:14</p> <p style="text-align: center;">8</p> <p>8 (5) 78:17;81:5,6,7,10 80 (3) 21:9,13;68:15 800 (3) 59:23;90:25;99:1 810 (1) 21:6 85 (1) 21:13</p> <p style="text-align: center;">9</p> <p>9:10 (1) 3:1 90s (1) 57:3 925 (1) 36:10 95 (2) 73:5,22 97.6 (1) 100:10 98 (1) 28:12</p> | | |
|--|---|---|--|--|