

1 AGENDA: CSO PHASE III STAKEHOLDERS MEETING

2 NARRAGANSETT BAY COMMISSION

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6 DATE: June 18, 2014

TIME: 9:00 A.M.

7 PLACE: Narragansett Bay Commission

Corporate Office Building

8 One Service Road

Providence, RI 02905

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12 PRESENTERS:

13 TOM BRUECKNER

MICHAEL WAGNER

14 RICHARD RAICHE

NICK ANDERSON

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STAKEHOLDERS PANEL:

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18 CAROLINE KARP

AMES COLT

19 DAVID TURIN

MICHAEL WAGNER

20 SHEILA DORMODY

MEG KERR

21 BRIAN BISHOP

JOHN HART

22 JARED RHODES

MICHAEL GAGNON

23 AL MANCINI

HAROLD GADON

24 TOM BORDEN

1 GREG GERRITT  
MICHAEL WALKER

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4 OTHER ATTENDEES:

5 RAY MARSHALL  
JAMIE SAMONS

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1 (HEARING COMMENCED AT 9:10 A.M.)

2 MR. DOMENICA: Good morning, and  
3 welcome to you all to the Narragansett Bay  
4 Commission Combined Sewer Overflow Phase III  
5 Assessment Reassessment Stakeholder Meeting  
6 Number 4. My name is Mike Domenica. I'll be  
7 the moderator for today. I'm supposed to be  
8 talking into this microphone, as you will be  
9 later on as you speak. Before we get started  
10 just a few housekeeping issues.

11 If any of you are parked in the  
12 customer parking spaces out front, this is a  
13 warning. You better go out and move your car,  
14 there's limited spaces and they are reserved.  
15 There's plenty of other spaces out there, so I  
16 apologize about that, but that's one thing we  
17 need to do. Paula already had to have her car  
18 moved. I think it was the Corvette, Paula, that  
19 we took for a spin.

20 There's is a summary of the minutes  
21 that Tom Brueckner did and distributed by  
22 e-mail, but there's also some copies on the  
23 table there. There's also a list of the parking

24 lot issues that was distributed, but, again,  
25 extra copies there. If there's not enough

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1 copies, let us know, we'll make additional  
2 copies that will be available at the break. One  
3 comment regarding the minutes and the summary of  
4 the minutes, and Tom mentioned this in his  
5 e-mail distributing them.

6         The summary is a good summary, but  
7 as you know, any time you summarize discussions  
8 as we're having here, the summary is the  
9 person's opinion of what the important points  
10 are, and it's abbreviated. Going through the  
11 minutes myself this time, it was a very  
12 stimulating exercise to go back and actually  
13 read the discussion and read the comments made,  
14 see them in the context, and get another look at  
15 them that you don't get during the meeting when  
16 you're proceeding from point to point without  
17 having time to digest them, so I really would  
18 encourage everyone to go back, read the summary,  
19 but also go back and read the minutes, take the  
20 time to go through it.

21         It looks long. I think it was 148  
22 pages, but they're doubled-spaced and only half

23 the pages, and it goes very quick when you go  
24 through it, and a lot of it is background, but  
25 there are key points in there that are very good

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1 to keep in mind and to reflect upon. So take  
2 some time to read the minutes after each  
3 meeting. Sheila Dormody is not here yet, it  
4 looks like. She'll be coming a little later.  
5 We'll be making a presentation after the break  
6 on the stormwater program MS4 with studies and  
7 programs that are going done. Tom will go  
8 through one particular point on the parking lot  
9 related to the new estimates, the work being  
10 done by the government to reestimate the  
11 rainfall frequency curbs and reflect updated  
12 information that will be important as we go  
13 through this.

14 There's one other comment here.  
15 Just as a moderator, the discussion's been very  
16 tame and somewhat reserved and somewhat quiet.  
17 Today we're going to be talking about, and  
18 Montgomery Watson will be leading us through the  
19 evaluation criteria, so a lot of it may have  
20 been talking about gray infrastructure, green  
21 infrastructure. Today we're starting to pull it  
22 all together, look at evaluation criteria, what

23 is the most meaningful criteria as we go  
24 forward. And please feel free to jump in with  
25 opinions, ideas, thoughts, suggestions,

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1 comments, flush it out integrate. That's very  
2 important going forward. Speak into the  
3 microphone clearly, state your name.  
4 Stakeholders please come to the table.  
5 Stakeholder representatives please come to the  
6 main table, speak clearly, and let's have a  
7 great meeting, Tom.

8 MR. BRUEKNER: Thanks. I'm  
9 responding to this topic which has come up at  
10 previous meetings which has to do with the  
11 evaluation of future precipitation and how that  
12 effects the design of the Phase III facilities.  
13 And in the summary of the minutes, Caroline had  
14 brought this issue up again at the last meeting,  
15 which was could you give us some data at some  
16 point on projected precipitation changes, which  
17 may effect the sizing of the facilities. And I  
18 had mentioned this at a previous meeting that  
19 NOAA is updating precipitation analyses, and  
20 within NOAA, there is a section called the  
21 Hydrometeorological Design Center, and they are

22 doing an investigation of the potential impact  
23 of climate change on precipitation frequency  
24 estimates. So I'm just going to read an excerpt  
25 from their quarterly progress report which

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1 describes what they're doing. The Federal  
2 Highway Administration has an interest and  
3 better understanding of the potential impact of  
4 climate change on precipitation frequency  
5 estimates, so that designers of future  
6 infrastructure will use appropriate design  
7 standards.

8 As part of that effort, FHWA cast  
9 the Hydrometeorological Designs Center. With  
10 the analyzing trends and historical rainfall  
11 accidents, specifically within intensity  
12 duration frequency precipitation magnitudes from  
13 NOAA Atlas 14, and to determine how findings  
14 compare to corresponding results obtained in the  
15 climate community. So my take on this is that  
16 they are going to be looking at previous data  
17 from storms and projecting it forward to  
18 determine what effect climate change may be  
19 having on future precipitation.

20 Their study is supposed to done  
21 September of 2015, so we won't be able to have

22 that data available for the reevaluation. But  
23 as I talked to Angelo, low will be using in  
24 design of any facilities that are determined  
25 through the reevaluation process for Phase III.

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1 MR. DOMENICA: Thank you, Tom. Any  
2 introductory comments, questions, before we get  
3 started? Great, Rich.

4 MR. RAICHE: Good morning,  
5 everyone. Okay so we had a fantastic discussion  
6 centered around EPA's design criteria,  
7 affordability last time, unfortunately, if it  
8 into our plans discussion on GSI, so we'll start  
9 today by sort of finishing up our GSI discussion  
10 before launching into today's headline event.  
11 We'll start off with just a brief review of some  
12 of the highlights that we've discussed at the  
13 last meeting, then Nick will take the stage  
14 again and get into a little more depth on the  
15 benefits that we can yield from GSI using a  
16 couple of representatives, watersheds. We'll  
17 talk briefly on how we can perhaps export the  
18 successful stormwater mitigation program to  
19 catchment to more properties, and then as I  
20 said, get on to the headline events.

21 As usual, we'll start off with a  
22 brief overview of where we are in the overall  
23 process. The previous two meetings were focused  
24 on discussing alternatives. As we said, the  
25 devil's in the details, and we wanted to

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1 understand from this Stakeholder Group who have  
2 a lot of local knowledge and insight on how any  
3 one of these alternatives would need to be  
4 customized to be palpable in the region so we  
5 can then come September and October have a  
6 meaningful evaluation process of alternatives  
7 against one another.

8 Today once we're finished with the  
9 green infrastructure discussion, we'll launch  
10 into the evaluation criteria and then just how  
11 we're going to evaluate the alternatives against  
12 each other to come up with a new cohesive plan.  
13 So by means of review, as we said last time,  
14 there are certain technical factors that  
15 influence our selection of GSI green stormwater  
16 infrastructure types and how much stormwater  
17 each one of those individual pieces of  
18 technology can absorb.

19 By and large, a lot of our soils  
20 and topography in the region are favorable with

21 a few regions that have slightly less favorable  
22 soils. We also highlighted the fact that some  
23 of the areas that we're looking at are urban  
24 disturbed fill with high likelihood of  
25 contamination in the soil. So with the

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1 Stakeholder Group we did raise the concern that  
2 migration of contamination that's already in the  
3 soil or potential new contamination from the  
4 surface, how that would migrate through  
5 groundwater, particularly in a private property.

6 Finally, we discussed land use and  
7 how we make these engineering decisions and  
8 highlighted the difference between any  
9 infrastructure that is on private property  
10 versus within the public way. So we talked  
11 about a couple of different categories of GSI,  
12 the infiltration solutions, and on the overall  
13 spectrum of GSI, these are probably the most  
14 favorable in terms of removing stormwater from  
15 the combined system, which will then yield the  
16 greatest CSO benefits. And a couple of examples  
17 in the public way are permanent pavements,  
18 particularly the parking strips, vegetated  
19 bumpouts where we don't have as much of a wide

20 travel way.

21 We might be limited to tree wells  
22 or infiltration catch basins. Not that one is  
23 particularly better or worse than the other, but  
24 they just have sort of different potentials in  
25 terms of how much stormwater they can handle.

11

1 Keep this stuff in mind when Nick  
2 is talking about some specific examples, because  
3 it's a good idea to understand the differences  
4 in what we are looking and considering. We're  
5 at the line between green and gray stormwater  
6 infrastructure, little bit where we don't have  
7 soils that infiltrate. We may be looking more  
8 at detention solutions. Those could be on the  
9 surface where they are a little bit more green,  
10 sort of like constructive wetlands detention  
11 basins.

12 The fact of the matter is that most  
13 of the areas, the CSO areas that we're looking  
14 at are very densely developed, and we just don't  
15 have the surface footprint to do that sort of  
16 solution, so at the subsurface. And elsewhere  
17 we had a lot of success with subsurface  
18 stormwater storage tanks.

19 So again, this is distinct from CSO

20 storage tanks, combined sewerage storage tanks  
21 that we've talked about back in May as gray  
22 alternatives, because what goes into a  
23 stormwater storage tank is significantly  
24 different, or what doesn't go into a stormwater  
25 storage tank is significantly different from

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1 what we need to put into a combined storage  
2 tank. And finally, our last line of GSI defense  
3 are retention solutions. Now where as detention  
4 simply holds the stormwater during the storm  
5 event and then rereleases it into the combined  
6 sewer after the rain has subsided and the  
7 surcharging and the interceptors go down and  
8 you're out of the CSO event, retention solutions  
9 entirely withholds the stormwater.

10 Now this is again where we couldn't  
11 or wouldn't want to infiltrate stormwater for  
12 contamination issues or soil-type issues, but  
13 what you're doing is holding that stormwater  
14 on-site for an alternative use, whether it be  
15 landscaping irrigation, or even gray water  
16 flushing systems, internal plumbing, which  
17 raises another level of complexity and execution  
18 because you then need the sort of operations and

19 systems on-site to do something with that water.  
20 And we will be looking at subsurface storage  
21 tanks or retention on green roofs, or even blue  
22 roofs. But again, this is all water that  
23 doesn't go back into the system. Now we did get  
24 to talk a little bit about the advantages and  
25 disadvantages of detention and retention. We

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1 had a nice discussion on infiltration type of  
2 GSI technologies. I did want to, because we  
3 were rushed and we did have to cut some of the  
4 discussion short, I did want to pause here, and  
5 if anyone, particularly in rereading the minutes  
6 or thinking about the last meeting, if there's  
7 any other discussion that the Stakeholder Group  
8 wanted to have around these three categories,  
9 we'll go through all three infiltration,  
10 detention, retention just to get it on record  
11 because it will be help define our green  
12 alternatives.

13 MS. KARP: I think I know the  
14 answer to this question. When we're dealing  
15 with combined sewer overflows, we've got two  
16 flows the sanitary flows and the stormwater  
17 flows. And what we're talking about here is how  
18 do we capture or anticipate the stormwater flow

19 before it combines with the sanitary. So could  
20 you just go over the pollutants in the  
21 stormwater that we're trying to capture. And at  
22 some point I want to discuss what benefit,  
23 overall benefit we get in terms of combined  
24 sewer overflows. So if we go after floatables  
25 in the stormwater you have to capture that sort

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1 of primary flow in the mix.

2 MR. RAICHE: Well, where we're  
3 focusing the attention to GSI is specifically in  
4 the combined sewer areas. For the purposes of  
5 the Phase III reevaluation, we're not looking at  
6 the surrounding communities. That may be an  
7 effort that happens in the future as the next  
8 round of MS4 permits come out, the member  
9 communities which includes some of the combined  
10 communities that have separate stormwater  
11 discharges.

12 The region may be looking at GSI  
13 stormwater control than more stormwater  
14 discharges, but we're limiting this exploration  
15 to the combined sewer areas. So while we are  
16 intercepting stormwater before it gets to the  
17 combined system, in terms of discharges and

18 pollutants that make their way into the bay, it  
19 doesn't radically doesn't change the profile.

20 I suppose you could say that where  
21 it is completely successful and you're able to  
22 completely separate the stormwater, you are  
23 eliminating the stormwater base contaminants  
24 from being part of the CSO discharge, so in that  
25 case you are looking at primarily nutrients,

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1 nitrogen phosphorus, also, whatever sort of  
2 emergency toxics fills that are included in  
3 there, but by and large you're looking at  
4 nitrogen and phosphorus. But under normal  
5 conditions, all of that stuff goes into the  
6 combined sewer and makes it way into the  
7 treatment plants.

8 So we're not really thinking of  
9 those as large pollutant load savings. What  
10 we're trying to do is get the stormwater out of  
11 the combined systems, that when you do have the  
12 CSO what you're really concerned with is the  
13 bacteria loading. When the CSO event happens,  
14 either your pollutant profile and pollutant of  
15 concern is very much more on the bacteria side  
16 than on the nutrients or exotic side.

17 MS. KARP: If I may continue, the

18 second bullet says stormwater infiltration will  
19 provide water quality improvement. And I want  
20 to be clear. I actually prefer these solutions  
21 rather intercept the stormwater before it gets  
22 into the combined system, but I want to be sure  
23 and say that the Bay Commission actual meets the  
24 stormwater obligation if it starts to separate  
25 and treat stormwater separately from the

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1 combined system. And so I want to make sure  
2 that these other systems actually do confer some  
3 kind of water quality improvement, so if it's  
4 metals or petroleum, hydrocarbon from the  
5 highway, than I think we actually need to be a  
6 little bit clear about that.

7 MR. RAICHE: It's a fair point, and  
8 I think we'll have to add that into how we're  
9 looking at both the spill volumes and then the  
10 pollutant loading, which is another task that  
11 we're doing in sort of parallel along side and  
12 clearly they're very closely linked. But we'll  
13 talk about that, particularly with ASA.

14 MR. DOMENICA: By taking the  
15 stormwater out, it's not only the pollutant  
16 load, but you're reducing the volume

17 substantially, and that means that the frequency  
18 would be reduced, as well, because frequency is  
19 really a factor as well as is load, that's a  
20 significant benefit.

21 MR. RAICHE: And we'll just  
22 temporize them.

23 MR. DOMENICA: Any other comments?

24 MS. KERR: If I may, just a quick  
25 question. If you're looking at, in your

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1 previous slides, looking at the probability of  
2 contaminating soils limiting the alternative  
3 that we discussed. And I just wondered do we  
4 have the information on where all the  
5 contaminants are or just anticipating that  
6 that's going to be part of the --

7 MR. RAICHE: Yeah, there are a  
8 couple of different data sources for it, and  
9 actually, Nick is going to run through an  
10 example of a watershed, so you can see how we  
11 build it up. Because this is a planning level  
12 exercise, we are looking at it from a couple of  
13 different perspectives to help define what our  
14 potential is, which I think will suffice for  
15 this planning level study.

16 When it comes to actual design, if

17 ultimately we determine that GSI is a large  
18 component of this, and the we'll have a package  
19 of sort of designed projects, a contamination  
20 vetting will be part of the design phase, as  
21 well.

22 Again, for detention style, a lot  
23 of our discussion that we did have on  
24 infiltration style is germane to the detention,  
25 as well as, I just wanted to pause and make sure

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1 we're not missing anything that we wanted to  
2 sort of define in says as moving forward, and  
3 determining what GSI looks like in here, so  
4 we're not missing any sort of characteristic.

5 MS. KERR: I think her point in  
6 part is that we need to look at stormwater is  
7 polluted and how much removal of pollutants are  
8 we going to get, so is that part of the analysis  
9 that you'll be doing, as well?

10 MR. RAICHE: I think we'll add into  
11 the water quality analysis. It's complicated  
12 for the the combined sewer areas, because the  
13 pollutant of concern for the combined overflow  
14 is mostly you're concerned about the bacteria  
15 that is associated with it. The fact of the

16 matter is that the GSI will intercept stormwater  
17 and keep the stormwater related contaminants out  
18 of the system, which then gets to the receiving  
19 water body both through CSOs and then by the  
20 treatment plants. So it's a little bit more of  
21 a complicated analysis in the CSO areas, than it  
22 would be for the separated areas.

23 MS. KERR: It keeps it out of the  
24 system, but it still gets into the receiving  
25 water body.

19

1 MR. RAICHE: Not with the  
2 infiltrating types, you're concentrating --

3 MS. KERR: Even complete removal  
4 and infiltration, that doesn't --

5 MR. RAICHE: Again, it depends on  
6 what type. When you set the infiltration,  
7 largely you're keeping the stormwater from  
8 mobilizing most of the contamination. When  
9 you're looking at detention, it mobilizes the  
10 storage and then makes it way to the treatment  
11 plant.

12 And then finally, the retention  
13 solutions. Again, these are ones that require a  
14 lot more private property buying and are a lot  
15 more complicated to implement. Okay. Well,

16 with that overview, I'll yield the floor to my  
17 esteemed colleague from the other side of the  
18 pond with the detailed knowledge of the workings  
19 of GSI.

20 MR. ANDERSON: So, yes, as Rich  
21 which was always nice, and I'm on strict  
22 instructions for this meeting not to talk more  
23 than 300 words per minute, because Paula doesn't  
24 like that. So I'll do my best, but I do talk  
25 rather fast, and I'm terribly sorry.

20

1 But an answer to your question, one  
2 of the things, the purpose of this job,  
3 essentially, is we are looking to reduce  
4 bacterial loading to the bay to a GSO spill.  
5 That is the primary objective. That's why we  
6 were doing this work. I was considering the  
7 possible solutions. The key to it is we're  
8 not looking to change any of the parameters as  
9 best we can, so there's a kind of a throw away  
10 statement which is, it's not just doing the job  
11 right, but doing the right sort of jobs. So as  
12 we're selecting some of these GSIs, we do have  
13 to consider their location and what potential  
14 contaminants are.

15           So if, for example, heavy metals  
16 and hydrocarbons are an issue, then we'd be  
17 looking to do is build GSI or recommend GSI that  
18 deals with that, so whether it's kind of your  
19 swale, or whether it's abstraction through stone  
20 media, or whatever it is, the idea is that we  
21 will look to address those particular issues so  
22 we're not adding any long-term legacy too. So,  
23 for example, and we'll talk about the process in  
24 a moment, but one of the things that we look for  
25 is the suitability of GSI and the location.

21

1 Just because you can build it, doesn't mean it's  
2 the right thing to do. And so that was part of  
3 our selection criteria as we're developing some  
4 of this thinking. So much of the last meeting  
5 was devoted to the different techniques and the  
6 different approaches that we can adopt. What  
7 we're trying to do now is fit those in so  
8 they're meaningful, both in terms of our primary  
9 objective of dealing with GSO spill. Does that  
10 answer your question?

11           MS. KERR: It seems to me that if  
12 stormwater has a lot of bacteria in it, not as  
13 much as sewage, obviously, and there will be  
14 benefits from the green infrastructure in

15 addition to removal of bacteria from the  
16 combined sewer overflow. It'd be good to talk  
17 about those additional benefits. It will help  
18 solve the systems. It would seem to me there is  
19 environmental benefits, pollutant removal and  
20 others things that go along with the green  
21 infrastructure, so I just hope that we talk  
22 about that and try to quantify it.

23 MR. RAICHE: It's in the second  
24 half. You just provided connective tissue that  
25 we didn't have before, but thank you.

22

1 MR. ANDERSON: But that's exactly  
2 right, traditional systems, and I say  
3 traditional, but you know, when we used to deal  
4 with GSOs, in particular it was always about and  
5 releasing back to the system for treatment. And  
6 we never considered the benefits, because they  
7 were never part of an evaluation criteria.  
8 Well, times have changed, and here we are today,  
9 and I won't steal anybody's thunder by talking  
10 about that, but rest assure, it is part of our  
11 thought.

12 So for those who were here last  
13 time, this is a little refresher. For those of

14 you who are new this time, one of the things we  
15 talked about was something that we're terming  
16 sustainable hydrographs. When rainfall falls on  
17 the land, it basically forms something we call  
18 runoff. Runoff gets into our sewer network, and  
19 that is essentially what we're dealing with.

20           Graph Number 1 in the top left  
21 shows the difference between an unurbanized and  
22 an urbanized catchment. Undeveloped means that  
23 it was before urbanization took place, you know,  
24 basically it was green fields, rolling hills and  
25 Utopian ideas before humans went and spoiled it,

23

1 but C'est la vie. But the point is that that is  
2 a traditional characteristic where that rainfall  
3 falls, the vegetation soaks it up, some of it  
4 soaks into the ground, but some of it runs off  
5 and gets down into the rivers. What we've done,  
6 essentially, is we've speeded that process up by  
7 building hardstand areas, it does it an awful  
8 lot faster, and that's where we've gotten into a  
9 little problem, I guess.

10           So what we've actually got now in  
11 nowadays is the developed hydrograph, where you  
12 can see much more peaky, much more difficult to  
13 deal with. If you think about that in terms of

14 the sewer system that we've got, that's graph  
15 number 2. So we've got that same shape of  
16 hydrograph when it rains, but now we have  
17 something called the CSO, which essentially  
18 controls the system. Once it breeches that  
19 level that we've got identified then, then it  
20 goes to the watercourse or the bay. And as Rich  
21 pointed out and as the discussion's already  
22 taken shape, that by the time it's contaminated  
23 with sanitary flow, and therefore, really, it's  
24 fairly nasty business, it's not just rainfall.  
25 So really, we've got to do something fairly

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1 prescriptive and fairly, you know, invasive, I  
2 guess, to our urban catchments to deal with  
3 that. The last pages to graph 3, and this is  
4 the traditional approach I mentioned. What we  
5 always did, is we waited until it got down low  
6 in the system, then we tried to capture it.

7 So what we're trying to do is above  
8 the line that goes to the watercourses and goes  
9 to the bay, in our case, and retain that within  
10 the system for release back to the treatment  
11 plant. What we're trying to do now in the  
12 changing of the, you know, the approaches and

13 the ideas, is that we're trying to get to that  
14 more balanced control. And if you remember last  
15 time we talked about the GSI, and how that  
16 works, and how some of the retention and  
17 detention, and essentially, we hold some back,  
18 we infiltrate some, we release the control, and  
19 we change the shape of the hydrograph.

20 We're never going to get back to  
21 undeveloped catchments just because the  
22 influence has gone too far, but what we are  
23 trying to do is go back some way, and that's why  
24 we're trying to get to these solutions. So we  
25 talked a fair bit last time about this, and you

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1 know, going to go on with it again, but I think  
2 the important thing is that you hold this in  
3 your mind, and this is what we're trying to  
4 achieve by looking at a whole range of different  
5 solutions across these watersheds, because this  
6 is what we're trying to get to. I'm not saying  
7 that we're desperately going to get that, but  
8 what we get from this is we get a reduced CSO  
9 benefit, plus you get additional benefits going  
10 forward.

11 So how are we going to achieve it?

12 So last time we talked long and hard about all

13 the various different techniques, and we touched  
14 on them this morning. Getting the right GSI  
15 technique in the right location is absolutely a  
16 key. But from where we stand at the moment,  
17 we've got a slight disconnect. We have these  
18 great ideas and these great approaches and these  
19 great solutions, but how do we tie them into  
20 what we're trying to achieve?

21           How are we going to improve the  
22 water quality of the bay, you know, where we're  
23 all trying to get to? So we've developed an  
24 approach. It's a very simplistic process, but  
25 essentially it's a filtering exercise, it's a

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1 fun link exercise. And it follows the EPA rules  
2 and guidelines, but essentially it's something  
3 which we've adapted to be specific for this  
4 location. This is our learning, our  
5 understanding, these meetings. We've actually  
6 come together with some of the things we think  
7 is quite meaningful. So we start off with Step  
8 1. Step 1 is the opportunity. What we're  
9 looking for here is any opportunity to implement  
10 GSI. That could be any way in any of the member  
11 communities, in any of the watersheds, any of

12 the subcatchments.

13 At this stage what we don't want to  
14 do is exclude anything. We may be taking it in  
15 as a potential opportunity for GSI and  
16 discounting it later, but at least it will be an  
17 audible trail and we can follow it through all  
18 the way. So if in a years time somebody says,  
19 well hey, why didn't we look at this site,  
20 hopefully we have done at some point, and it's  
21 either going forward or being excluded for a  
22 range of parameters. The second step is to  
23 consider the land use. What's actually being  
24 done at the moment? Basically, what was land  
25 use in the past, the present and the future, and

27

1 does GSI fit in with it? For the reason that we  
2 discussed that negative long-term legacy GSI in  
3 locations question don't suit. Okay. So what  
4 we're trying to do it doesn't say, we're trying  
5 to bring in to filter in. So the next stage  
6 that we're going to concentrate on is  
7 legislation. Are there any legislatively, you  
8 know, coherent or disconnect that we're trying  
9 to do with the GSI? Is there anything that  
10 we're trying to do that doesn't fit in with the  
11 way thinking is of the moment, or is it a

12 prohibit there or an enabler? Whatever it is,  
13 we've got to consider it at this stage.  
14 Now, at the moment because this is  
15 a planning level, this particular step isn't  
16 having a huge impact, in terms of the number  
17 that we're taking forward or discounting. And  
18 one thing that I'm going to need from you is  
19 when we come to a come to a prove the discussion  
20 irrelevant is a little feedback on that  
21 particular aspect, particularly the public  
22 private aspects of it, so thinking caps are  
23 ready, please, folks, and we'll come up to that  
24 in a moment. Step 4 is the land form. And this  
25 is the thing we always get hung up on the GSI,

28

1 is that what's the soil -- how contaminated,  
2 what's the slope? There's no point proposing  
3 things on extremely steep slopes if they're not  
4 going to realize the benefits, okay. Similarly,  
5 at this stage, if it's heavily contaminated  
6 land, we are discounting it. For right or  
7 wrong, we are at this stage. This may be  
8 revisited again in the future, but we've got to  
9 draw the lines somewhere, so that filtering  
10 exercise has got to be applied because otherwise

11 we'd just be running out of control with  
12 potential solutions. So anything that's on the  
13 cusp, we'll make an engineering decision,  
14 anything that's absolutely out of range we will  
15 just completely filter out at this stage.

16           The next stage, Step 5 is  
17 calculations. This is for some, the math bit.  
18 This is where we actually try to work out  
19 exactly what the volume of each one is, what  
20 impact it's going to have, what really is the  
21 meet around it is. You know, GSI is a wonderful  
22 thing, but if it's having no impact, you know,  
23 it's questionable whether we should be going  
24 forward with it. The next step is, and those  
25 first five steps are very prescriptive steps.

29

1 We go out, we get information, we make  
2 engineering judgment, we move on to the next  
3 stage. The final three, 6, 7 and 8 are slightly  
4 more subjective. And what I mean by that is we  
5 start to consider effectiveness, this is  
6 building it in. This is why we have these  
7 engagement sessions, because when we're talking  
8 about effectiveness, how effective is it going  
9 to be, from my perspective what I'm looking at  
10 is if we're going to choose a GSI solution that

11 takes up one acre of footprint, but we're only  
12 really going to be able to manage runoff from  
13 say, half an acre, that's not terribly affective  
14 in my eyes.

15 That's a 50 percent waste, okay, so  
16 we've got to stop questioning, really, is GSI  
17 the right solution in this instance. Okay,  
18 really, most of us are in agreement that it  
19 generally is the right thing to do, but it is  
20 not always the guaranteed right thing to do, and  
21 there are many other alternatives, that whether  
22 it's gray or green, and we shouldn't get to hung  
23 up on that. As we've said last time, gray is  
24 the not unstainable, necessarily, okay. It can  
25 still be a sustainable solution and an effective

30

1 solution. I am a big advocate of green, but I'm  
2 not that blind to just considering green. Step  
3 7 is about scalability. Again, last time we  
4 talked about, you know, if you put a tree that's  
5 on one particular street, do you have to  
6 replicate it 250 times in that street in order  
7 to get something meaningful? Is that something  
8 that is scaleable, efficient and useful? Is it  
9 something that we want to do? These are the

10 questions we've got to answer. It's not quite  
11 as prescriptive as the first five, these are a  
12 little more subjective. We're sort of working a  
13 little bit off engineering and knowledge and  
14 experience of having done this in other places,  
15 and a little bit of feedback from you all. So  
16 that's where we are with things. And finally,  
17 suitability.

18 Now, my opinion, this is my list so  
19 I can say what I like about it, but if we get to  
20 Step 8 and we find it's not suitable, I've got  
21 to question what on earth I was doing in Steps 1  
22 to 7. It's kind of the final gateway that we go  
23 through. And what I mean by that is suitability  
24 is if it's for all the other reasons it seems  
25 like the perfect solution, but at the end of the

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1 day there's something in the local community, or  
2 something that doesn't jive of what they want to  
3 achieve in this particular area, then it's not a  
4 suitable solution. That long-term legacy has  
5 always got to be positive. Okay. So that's  
6 where we're trying to get to. So that's the  
7 process that we are following, and I've got a  
8 couple of examples that I'll talk you through of  
9 how we've done it.

10 MS. KARP: Step 8 the suitability  
11 screen. In my mind that probably should come in  
12 a lot sooner. This does not have to be a linear  
13 process. We don't want to go through this very  
14 long process then realize it's not appropriate  
15 for the community.

16 MR. ANDERSON: Okay, so just to  
17 answer that, Carolyn, and actually a very valid  
18 point. You can do these in any particular  
19 order, so there's no linearity, necessarily.  
20 But, also, this is for our particular project.  
21 How we take this on to design will definitely  
22 vary. You're right, we're not going to get to  
23 the point where we've got diggers waiting at the  
24 street corner, but the point is very well taken.

25 MS. KARP: I will give you an

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1 example of what I mean. My assumption that it  
2 meets CSO shed they actually need green space,  
3 they currently lack green space.

4 MR. ANDERSON: Good point.

5 MS. KERR: I also think that Step 3  
6 ought to be right there at the top. It's not  
7 just legislation, it's all of the regulatory  
8 local zoning issues that might be around getting

9 green infrastructure in place. We should flag  
10 those now and to start to work and turn them  
11 around. It takes time to work on those zonings  
12 and make changes. It seems that that like that  
13 should be flagged sooner rather than later and  
14 engage both the communities and the partners to  
15 start thinking about what should be done.

16 MR. ANDERSON: Point well taken.  
17 Okay, so one example we've got here is that in  
18 Pawtucket, and this particular subcatchment is  
19 know as BVI3T3, which generally doesn't mean a  
20 great deal to anyone in this room, but it is an  
21 important number. And the reason it's the  
22 important number is last time I talked about the  
23 hydraulic model which supports all these  
24 activities, what we're looking to do is we've  
25 got this model now that we've built as part of

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1 the project, and this particular subwatershed  
2 effectively, anything that we want to do in here  
3 has to be run through the model to assess what  
4 would benefit what the impacts are going to be  
5 in terms of that CSO reduction, remember, the  
6 primary function in this instance.

7 So this particular subwatershed is  
8 upstream of CSO 215, which is the star on the

9 left as you can see. And what we essentially  
10 did is Step 1, we ran through and we picked out  
11 55 GSI sites, remember the opportunities  
12 assessment. So that's at 55, particular  
13 locations where we felt we could do something.  
14 Okay, so a nice and high level at the moment.  
15 What that then moved along to was we took it on  
16 to Step 2, and I'm not going to talk you into  
17 all eight steps.

18 MS. KARP: So you've drawn  
19 boundaries around this particular subwatershed,  
20 and you're excluding a big piece of the highway.  
21 Does that mean that the highway really drains  
22 somewhere else?

23 MR. ANDERSON: Yes, so this is the  
24 hydrological watershed so in terms of what's  
25 contributing to the sewer system in this area,

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1 what's contributing to CSO 215, that's what  
2 we're looking at. This is just one example, so  
3 other areas will drain to others, and this  
4 assessment is done across the entire service  
5 area.

6 MS. KARP: My question actually was  
7 we had had controls on streets for a lot of the

8 time to capture the stormwater drain on the  
9 street, so will you flag the kind of stormwater  
10 controls and drainage systems on these major  
11 roads that you go along?

12 MR. ANDERSON: If there are  
13 existing hydraulic control structures, they will  
14 be given consideration. Now, whether they're  
15 adopted, changed, or what have you, that will  
16 come along as we're inspecting the alternatives,  
17 because not everything is going to fit with  
18 every model, so we'll have to make sure that we  
19 don't have that negative impact. Okay. So this  
20 Step 2.

21 So this was the land use. And one  
22 of the things that you'll notice if you keep an  
23 eye on the right-hand side of the street, as we  
24 go down the steps, the GSI sites will reduce  
25 that filtering process takes place. And what

35

1 we've done here is we've gone from 55 to 46.  
2 And the reason predominately we've done so here,  
3 is because they either fall into one of two  
4 categories. They're an existing GSI. This is  
5 part of NBC ongoing stormwater management  
6 program, or they've been flagged as having  
7 environmental issues.

8           Now they are a little bit  
9   indeterminant at the moment, but essentially  
10   this comes from a GIS source, and what we don't  
11   want to do is take anything forward that has  
12   ambiguity. Don't forget, this is the planning  
13   stage. If in the future one of these sites is  
14   developed, it will only have a positive impact.  
15   But what we are doing is going back to the  
16   primary cause of what we're trying to achieve  
17   here so we can't bank on it. So we're not  
18   trying to build up false hope, we're taking a  
19   rationale, a little bit pragmatic, it is a  
20   rationale approach.

21           So anything that looks like it  
22   could cause us a problem, we're filtering out at  
23   this stage. Okay. So just to be clear how  
24   we're doing this. Now, if this really raises a  
25   red flag with you, then I'm happy to discuss it,

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1   but I think at this stage without us sort of  
2   running off on various tangents, this is most  
3   sensible approach.

4           MR. TURIN: Can you give us some  
5   specific examples of sort of failures for the  
6   sites that you've eliminated at this stage.

7 MR. ANDERSON: One particular one  
8 was there was a report of a leaking tank of  
9 whatever was in that tank. We think it was  
10 petrochemical, but we're not a hundred percent  
11 sure. So yes, that was one example. Some of  
12 them are still indeterminant, some of them we're  
13 not a hundred a percent sure what they are, but,  
14 you know, as I say, what we're trying to do is  
15 look at the impact in terms of CSO spills, so if  
16 we can get to where we need to without including  
17 them, anything that's included gets included in  
18 the future is only a cherry on the cake, sort of  
19 the thing.

20 So as we move down, you'll notice  
21 that Step 3 is being missed out here because we  
22 are going to come to that in the next example,  
23 which is better example. But this one is land  
24 form. And land form, as we talked about before  
25 is about soils and slope. So now we've only

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1 actually lost one particular site here based on  
2 land form and slopes. And this is basically as  
3 you can see from the soil, that's an A-grade  
4 soil. There's lots of opportunities for  
5 infiltration. It's not terribly steep, and  
6 therefore, GSI, there's no reason to exclude any

7 in this particular location, which is, you know,  
8 good for us, but just keeps the numbers tipping  
9 over. So I'm afraid we lose a bit of the  
10 graphics now because we're going to move on to  
11 one of my all time favorites, with lots of  
12 numbers in it. After all, that's why I got into  
13 engineering to look at tables with numbers in  
14 them.

15 But essentially, this is a summary  
16 of steps 1 through 6. Just remember, steps 1  
17 through 6 are fairly prescriptive, so while  
18 actually stick to the sixes is affective is a  
19 little bit subjective, but -- so what we've got  
20 here, we've got of those 55 sites that we  
21 originally have as Step 1, we categorize them  
22 into public and private ownership, okay. You  
23 can see the acreage is associated with them.  
24 After we went through the land use screening and  
25 the land form screening, we can start to see

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1 them dropping out. But at land form stage,  
2 essentially at the stage 4 and we've worked out,  
3 in total you can get about 1.3 million gallons  
4 of storage during the three-month storm.

5 Now bearing in mind, you need about

6 33 and a half acres to achieve that, so don't  
7 get sort of distracted by a large number. There  
8 is a large footprint associated with it. Then  
9 if you go through down to step 6 and look at  
10 effectiveness, what we've done there is we've  
11 looked at -- well, that's all good and welling.  
12 That's what the volume it can hold, what will  
13 that translate into. So essentially, what we  
14 did is we looked at the surrounding areas to the  
15 proposal, to the sites, and thought, well, how  
16 much of those areas can drain into it.

17 Again, we said this was a fairly  
18 flat location. The soils were fairly agreeable,  
19 so there was nothing really in terms of  
20 effectiveness that dropped off in this  
21 particular instance. And what we're left with  
22 is the total GSI potential. So what we've done  
23 is in terms of effectiveness, we've ruled out  
24 one or two sites, but we're down to about 1.1  
25 million gallons.

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1 MS. KERR: You mentioned a  
2 three-month storm.

3 MR. ANDERSON: Well, Tom touched on  
4 it briefly, but the three-month storm is  
5 designed as a current criteria for evaluating

6 CSO spill. No more than four spills in a year's  
7 period, so a three-month storm, a retention of a  
8 three-month storm effectively if that's okay.  
9 Now, that's what we're designing to at the  
10 moment. Things may change in the future as Tom  
11 described at the beginning. There is various  
12 schools of thought of how they should be done,  
13 but essentially is consistent with the other  
14 phases and it's consistent, you know, developing  
15 solutions at this planning stage.

16 MR. DOMENICA: Any other questions?

17 MR. BORDEN: I'm having a little  
18 trouble judging effectiveness in terms of the  
19 flow. What was the target gallon in terms of  
20 not allowing CSOs that matter.

21 MR. ANDERSON: So each CSO has an  
22 overflow volume. And what we're looking to go  
23 at the moment is retain as much as that volume  
24 using GSI. Now, last time I talked about  
25 hydrographs, there was huge hydrograph where the

1 GSI even on a large scale was only going to be a  
2 blip in the ocean. Some of the others GSI has a  
3 much greater effect. It does vary. Each CSO  
4 has its own watershed, and we're looking for

5 the opportunities to implement.

6 MR. BORDEN: Can you give me a  
7 specific example of --

8 MR. ANDERSON: Hold that thought.

9 STEVE CHOMPA: Most of these sites  
10 after the effectiveness screening are on private  
11 property. Only seven out of the 33, all the  
12 acreage is private?

13 MR. ANDERSON: Yes.

14 MR. CHOMPA: How do you deal with  
15 that? The landowner cannot utilize the  
16 property?

17 MR. ANDERSON: Well, what we're  
18 looking at at the moment is opportunities. And  
19 again, just start to think about the public  
20 private. We're going to bring that up as a  
21 specific topic, because this is a really  
22 important topic when you're talking about GSI in  
23 terms of the effectiveness. This one is  
24 predominantly waited toward private because the  
25 opportunities lie on private land, and I'll show

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1 you an example in this this particular  
2 subwatershed. So Tom, to answer your question,  
3 okay, this is the model result, this is the CSO  
4 we're dealing with. This is 215. And the graph

5 at the top left shows CSO continuation, the  
6 underflow and the overflow. The overflow is  
7 about 190,000 gallons, okay, which means that if  
8 you take the entire area that we've established  
9 as it could be effective for GSI, we're  
10 cruising. As a 11 million gallons, we're  
11 laughing. That one is not going to keep me  
12 awake at night if that was were the case.  
13 Because 190 gallons is under 20 percent of the  
14 available. So we're not particularly worried  
15 about that. However, what that means is that  
16 over time as some of these other sites disappear  
17 because they don't quite meet future criteria,  
18 somebody builds them, land gets sold, all the  
19 rest of it, okay, we've still got a nice comfort  
20 zone, we've got a nice buffer between what we  
21 need and what we've got.

22 Don't forget, this is the planning  
23 stage, so please don't hold me to this in ten  
24 years time, because things do change. But the  
25 point is I'm laughing, mainly because I like to

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1 laugh, but mainly because the buffer is so big.  
2 All right. Some of the others are nowhere near  
3 as comfortable.

4 MR. TURIN: Just to clarify. The  
5 190,000 gallons is the overflow for a  
6 three-month storm?

7 MR. ANDERSON: It is.

8 MR. TURIN: So you're not showing  
9 that you're going to eliminate the overflow to  
10 this site?

11 MR. ANDERSON: What we're saying is  
12 that within this catchment currently, there is  
13 the ability through GSI to manage that overflow,  
14 okay, on the three-month storm.

15 MR. DOMENICA: By that you mean  
16 eliminate?

17 MR. ANDERSON: Yes, eliminate, yes.  
18 So what we've got is a situation where the  
19 hydrograph on the bottom right-hand corner is  
20 the original underflow, and by implementing GSI.  
21 Our model results show that we can reshape that  
22 hydrograph, so it's a lower peak, it's dragged  
23 out for longer but we're effectively managing  
24 those flows within the system, okay, and that  
25 way it will eliminate the overflow, the overflow

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1 is no longer there.

2 MR. TURIN: For the three-month  
3 storm?

4 MR. ANDERSON: For the three-month  
5 storm.

6 MR. TURIN: When you have an excess  
7 of GSI, are you also analyzing what larger storm  
8 events it controls.

9 MR. ANDERSON: At the moment, what  
10 we're looking at is the, it's a very fair  
11 question, Dave, I mean, it really is. At the  
12 moment what we're looking for is we're  
13 considering CSO spills, okay. We're not  
14 considering levels of service, we're not  
15 considering future legacy, we're considering CSO  
16 spills, because what we've got is a situation  
17 we're looking for a range of alternatives. But  
18 in this particular subcatchment, GSI looks like  
19 it's going to achieve what we need it to do,  
20 great, but this isn't the only alternative  
21 available because if we're looking at adjacent  
22 watersheds, they may not be in the same boat,  
23 and they require some alternative that is not  
24 quite as comfortable as this one. So what I'm  
25 looking at at the moment is say in terms of

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1 determining CSOs, this will do the job, great.

2 When we come to look at the long-term legacy,

3 then you're absolutely right, we'll look at what  
4 the impact is on a wider scale.

5 MR. DOMENICA: Before you go on, I  
6 think Dave's question gets to the point what we  
7 were talking about last time, the regulatory  
8 question. And tell me if I'm wrong, Dave, and  
9 you may want to explain it more, but what Dave's  
10 saying is right now you target the three-month  
11 storm, however, if you can do more and get a  
12 six-month storm, then regulatory agencies will  
13 push you to do that.

14 MR. TURIN: And that was the point  
15 I was getting to. When we start talking about  
16 when you can't do that, when we've established  
17 that that's not affordable, then we start  
18 talking about what level of control you can  
19 afford. So I do want to be clear that we don't  
20 lose sight, that the ultimate goal isn't to have  
21 four overflows a year.

22 MR. ANDERSON: Point well taken.  
23 The only thing I would say in response to that  
24 is that this is one catchment and one overflow,  
25 and the impact from the water quality has to be

1 taken into consideration as part of that, but  
2 yes, if you can do it, what we're demonstrating

3 here is that it has wider benefits.

4 MR. WALKER: If I understand what  
5 you said correctly that blue line is showing  
6 that you've built excess capacity to meet the  
7 permit requirements of the three-month storm.  
8 So are you looking at what you don't need to  
9 build for affordability to meet the permit  
10 requirements for the three-month storm in the  
11 catchment area instead of the overbuilding it  
12 and incurring the expense.

13 MR. ANDERSON: I think that what  
14 we'll be looking at is exactly that, the  
15 affordability of the implementation of all of  
16 these solutions. This at the moment has  
17 identified greater capacity potential than there  
18 is problem, if you like, okay, that's where  
19 we're at currently. As it rolls forward, this  
20 is one of a whole number of other potential  
21 alternatives and a whole range of CSOs which  
22 will need to be addressed. So taking it in  
23 isolation why spend the money when it doesn't  
24 need to be done at the moment. This is  
25 decisions that will be made down the line, but

1 essentially what we are looking at is somewhere

2 Dave's point and your point, okay. We are not  
3 just looking to get the three-month storm,  
4 forget all about it. We're also not looking to  
5 spend a whole range of money on solutions when  
6 the money could be diverted elsewhere. So the  
7 difficulty that we've got going forward and  
8 possibly alternative criteria that you'd be  
9 coming up with later, will relate to the fact  
10 that we need to make the right choices for the  
11 implementation of the entire scheme, the entire  
12 project.

13 MR. RAICHE: This is an excellent  
14 point, and I want everyone to remember this  
15 because one of the potential evaluation  
16 criteria, two really, is scalability and  
17 resiliency. For climate change and scalability  
18 for changing water quality standards or goals,  
19 design storms, those sort of things. So as we  
20 evaluate this versus other alternatives, this  
21 sort of thinking and discussions is precisely  
22 what we're trying to capture by those evaluation  
23 criteria. What we're trying to do here is do  
24 two things; one, define what the maximum  
25 potential for GSI is. And in this particular

1 watershed, we have excess capacity. The next

2 example will be the flip side of that.

3 MS. DORMODY: It seems like at this  
4 stage it's almost essential that you're  
5 identifying excess capacity, because some of  
6 those 27 private property owners I bet are not  
7 going to say, sure, do what you want. So it  
8 seems like we need to have an over design at  
9 this point.

10 MR. ANDERSON: I think you're  
11 right. Angelo, please.

12 MR. LIBERTI: I think it's  
13 important that we clarify, there is not a permit  
14 requirement based on the three-month storm. The  
15 permanent requirement is unknown, and what we're  
16 trying to do here is pick a good starting point.  
17 So a three-month design point is a good starting  
18 point, and then further evaluate and figure out  
19 what regulatory requirement is, you know.

20 This is uncomfortable for people,  
21 but the reality is that the Clean Water Act what  
22 Dave Turin said. The goal is eliminate if you  
23 can afford and not eliminate based on a  
24 three-month storm, and it's not defined? It is  
25 a hundred-year storm? Is it a 50-year storm?

1 There's reasonableness involved that's not  
2 documented. And the ultimately legal solution  
3 is this affordability analysis, you know, we  
4 talked about it before. So we have to keep in  
5 mind we're all working together to do the best  
6 we can with this kind of morphias instead of  
7 regulatory and legal requirements to get to the  
8 correct solution. And so I'm not saying this is  
9 the wrong approach, but one thing we did and  
10 you're planning to do it again is we pick a  
11 solution based on a three-month storm, will back  
12 to back storms have an impact on storage  
13 facilities?

14 So things that you thought were not  
15 going to discharge in a three-month storm, may  
16 very well if you get a three-month or six-month  
17 in a short period of time. I do want to ask one  
18 question. When looking at the available areas,  
19 I assume that you're subtracting out the  
20 impervious and you're looking at what green  
21 space do you currently have that you believe is  
22 available for infiltration. You're not taking  
23 the entire watershed and assuming you're going  
24 to tear down driveways.

25 MR. ANDERSON: There will be no

1 tearing, I can assure you that.

2 MR. RAICHE: For example, the  
3 pervious parking strips --

4 MR. ANDERSON: When we're  
5 calculating it, what we're looking at is two  
6 things: One is the footprint for what would  
7 look to for that, so if it's a parking lot, then  
8 we're taking the footprint of the parking lot on  
9 the assumption that it would be an impervious  
10 parking lot, for example. But when we're  
11 implementing something like a rain guard, then  
12 we're looking at the green space to actually  
13 build it, but we're looking at the ability to  
14 drain the surrounding area to it, as well.

15 MR. LIBERTI: So when you say 190,  
16 whatever the number is, gallons of green  
17 infrastructure, it could be the maximum here?

18 MR. ANDERSON: Yes.

19 MR. LIBERTI: That's based on the  
20 driveways turning into infiltration?

21 MR. ANDERSON: Not necessarily, no,  
22 not specifically at that level. It does vary.  
23 Let me just show you a couple of examples how we  
24 were thinking about it, and again, great  
25 discussion. But this is one example, and this

1 is the Memorial Hospital of Rhode Island. And  
2 why this is important, this is a nine-acre site  
3 where we have parking lots, you know, green  
4 space and flat roofs. It's all of the things  
5 that we like to look for, but it's all contained  
6 in one location which private footprint, if you  
7 like, would accommodate an awful lot of GSI.

8           It will be a very, very good thing  
9 to do. But the point is that this is a great  
10 example of private property, so we're not  
11 necessarily thinking private property as in  
12 driveways and rain barrels, and you know, roof  
13 disconnections and that, okay, because if that's  
14 done, in my opinion, that is about -- Rich  
15 touched on it -- that resilience and future  
16 proofing, and actually eventually working to a  
17 long-term solution.

18           What we're trying to do, and I do  
19 take a step back from the three-month storm for  
20 the reasons that Tom and Angelo discussed, is  
21 that, you know, what we're looking at is some  
22 design criteria to get us going, okay. It's  
23 flexible, it will change over time, but what  
24 we've got to do is going to pitch in with  
25 something, because at the end of the day we've

1 got to come up with some solutions, so there's a  
2 practical element to it, okay, it's not the done  
3 deal. We're not selling this as the only way to  
4 achieve it. So there are things that are over  
5 and above the things that we're looking at which  
6 will continue to have a positive impact, but  
7 this is a primary example.

8         One particular site could have a  
9 really -- it basically makes this site  
10 self-sufficient, okay, all of that is just take  
11 up all of that discharge of the sewer system out  
12 because it's self-managed within its plat.  
13 Great thing to do, but like I said, that's the  
14 public/private element. A prime example of the  
15 public space is this one, where we've got just a  
16 green space area that we could drain some of the  
17 highway to. It exists as green space, it would  
18 manage flows locally, but this one is, and I  
19 can't remember off the top of my head, but the  
20 numbers are coming up for you in a moment. It  
21 is (inaudible) --- seven of an acres, so it's a  
22 tiny area. So in order to do the public aspect  
23 compared to the private, you need to ---- off  
24 sides, and that is something you need to keep in  
25 your mind as we ask you questions about

1 public/private. But what we're saying is that  
2 there are lots of opportunities out there, and  
3 we're trying to capture them all at this stage.

4 MS. KARP: Because we're doing you  
5 modeling, can you subtract out and clarify for  
6 us the portion of the volume of the three-month  
7 storm comes from highways, and what portion is  
8 non-highway. I ask for a particular reason. It  
9 seems to me it ought to be possible to use  
10 federal highway transportation fund monies to go  
11 after some of the runoff coming off highways and  
12 to separate that as a problem from storm runoff  
13 coming from private uses. So separate out road  
14 runoff and highway runoff. Can you do that? Do  
15 you have any sense of what percent of the total  
16 runoff in this CSO?

17 MR. ANDERSON: I couldn't even  
18 happen to guess, to tell you the truth.

19 MR. BRUECKNER: Could you go back  
20 to the previous slide. So for this site, did  
21 you have in mind some of the green alternatives  
22 to address these, and what were they?

23 MR. ANDERSON: So we were looking  
24 at pervious paving for the parking lot, we were  
25 looking at we were looking at reuse of the green

1 space for just runoff retention. This soil is  
2 somewhat urbanized disturbed, and that doesn't  
3 necessarily lead us to infiltrate, so there'll  
4 be infiltration basins and trenches. So it was  
5 a whole cacophony potential solutions all built  
6 around the existing layout. We didn't  
7 particularly consider anything with the roofs,  
8 but we would manage it at ground level rather  
9 than at roof level.

10 MR. BRUECKNER: So when you're  
11 doing your analysis, for this site we could come  
12 up with a cost that would be borne by someone,  
13 most likely the commission. If we wanted to go  
14 to a porous pavement, the intent would be the  
15 parking lot would be repaved paid for by NBC,  
16 let's say, and that's the way this would be  
17 costed (sic) out assigned to the CSO program as  
18 the alternative cost for this GSI.

19 MR. ANDERSON: Precisely, Tom. So  
20 these ones are a little bit, you know, lumped in  
21 as one, so this would be offered up as an entire  
22 unit, if you like, rather than be individual  
23 component. Because one of the things that we  
24 want to do is fit it in with the current usage  
25 and try to reduce maintenance and all the rest

1 of it going forward. The beauty is it's a  
2 single entity, so that's what we looked to do.

3 MS. KARP: This goes to Tom's  
4 question, because you're doing the modeling for  
5 them to get the best rate. Can you, when you  
6 get to this point, tell us what it would cost to  
7 replace impervious pavement with pervious?  
8 Because it's not clear to me that the public pay  
9 for this, because it seems to me as we go  
10 forward we can talk about whatever cost for  
11 Memorial Hospital would have to pay for the  
12 stormwater contributions, and therefore, if you  
13 subtract that there's a positive benefit and  
14 incentive for the hospital for the payment, and  
15 not for the Bay Commission.

16 MR. ANDERSON: Okay.

17 MS. KERR: You mentioned that you  
18 didn't like the green roofs, and I just wondered  
19 why?

20 MR. ANDERSON: In this particular  
21 instance because it's the hospital. And in  
22 nominal terms, the hospital is technically quite  
23 a busy place for all sorts of reasons, so blue  
24 and green roofs we didn't think was appropriate

25 for a hospital. With that said, if it ever did

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1 come up we'd be open to it, but, again, it's a  
2 positive politics, really. We can manage this  
3 site without it if it's thrown in -- but there's  
4 no -- I mean, don't think these rules are hard  
5 and fast. We're not including or excluding  
6 anything, this is a bit of subjected, this is  
7 myself and the team, you know, kind of looking  
8 at it and saying in our experience this does or  
9 doesn't traditionally work.

10 MR. GAGNE: To follow up on  
11 Carolyn's comment about federal highway money  
12 being available for some of the improvements.  
13 We have to remember that RIDOT has many arteries  
14 running through this area that's contributing to  
15 the water quality detriment. Is anyone from  
16 RIDOT here?

17 MR. BREUCKNER: No.

18 MR. GAGNE: Should the Stakeholders  
19 be footing the bill for the Rhode Island  
20 Department of Transportation to maintain roads?  
21 Just a thought.

22 MR. ANDERSON: I'm glad you brought  
23 it up. I'm going to skip along because I see  
24 we're tied for time. A couple of points I did

25 want to make. That was the numbers as we've

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1 just discussed them, and the public/private  
2 elements. The emergency effectiveness is a very  
3 large numbers, and the reason the effectiveness  
4 is large numbers is because the footprint  
5 compared to the amount of flow are very  
6 positive, so that's right now.

7 MR. RAICHE: Just a point of  
8 clarification, in case it might have been  
9 misconstrued by some, because we went from step  
10 7 effectiveness into how the CSO is controlled.  
11 This is the result of this. Step 7 is looking  
12 at how smart it is to put GSI in a particular  
13 location. If you put it at the top of the hill,  
14 it's probably not all that effective. At the  
15 bottom, a little bit better.

16 MR. ANDERSON: This is in  
17 Providence, and these are our sewer separation  
18 areas that we talked at previous meetings know  
19 as 39 and 56, because they're the CSOs that  
20 relate to exactly the same process. So we  
21 started off with 33 potential opportunities. We  
22 then screened those down to 28 based on the  
23 existing GSI, and the environmental issues as

24 we've discussed. We then talked about the  
25 legislature. This is kind of important because

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1 one of the things this also has is this is in  
2 the favor of the floodplain or part of this is,  
3 so we've excluded one or two areas based on  
4 that. We've also excluded some of the public  
5 locations that are very close to the major  
6 highways. And the reason that is being is  
7 because maintenance of those can prohibited in  
8 terms of taking them forward. Again, it's up  
9 for discussion if this is something which the  
10 other group feels strongly about, we can  
11 consider reentering them. But from the health  
12 and safety point of view, we do have to make  
13 that consideration, too, and traditionally, they  
14 do get knocked out.

15 MS. KARP: Can you say why this is  
16 in the city?

17 MR. ANDERSON: Branch Avenue runs  
18 through the center there.

19 MR. RAICHE: The School For the  
20 Deaf is sort of in the grayed out area.

21 MR. ANDERSON: So in terms of the  
22 land form, this form has variable soils. And I  
23 just wanted to make a point here. One of the

24 things that we looked at is when we're grouping  
25 soils is that just because it isn't an

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1 infiltratable soil, doesn't mean it gets we've  
2 applied after weighting factor so a good  
3 infiltration soil will get a factor of warm and  
4 that is a diminishing number as we go down the  
5 soil. So it does get a weight in waiting and  
6 sometimes it didn't meet of the threshold we met  
7 sometimes it dropped down so just because it  
8 doesn't mean it is not effective GSI.

9 MR. BORDEN: With respect to  
10 rainfall, going back to your last slide in terms  
11 of the floodplain, I would suggest that  
12 projections for future floodplains be used as a  
13 screening mechanism.

14 MR. ANDERSON: Agreed. With the  
15 changing of the time, conditions will change,  
16 design criteria will change. What we've got at  
17 the moment is where we draw the line in the  
18 sand, but you're absolutely right. And again,  
19 we have that buffer we talked about. Some of  
20 things like that will start to reduce. So what  
21 we're saying now is almost, you know, this is  
22 the optimum and it will only come in from here.

23 MR. GADON: Is this state ---  
24 municipality owned, would hospitals or churches,  
25 et cetera, be considered private?

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1 MR. ANDERSON: Yes. This is the  
2 same graph as I showed before, but for 39 and  
3 56. And what we've got here is, we'll skip down  
4 to the bottom, but the key is that volumetric  
5 retention that we talked about, and catchment  
6 39, it's nearly 300,000 gallons, but what you'll  
7 notice is it's entirely in private land. That  
8 was the only opportunities to go forward, okay,  
9 so the only opportunities that actually made it  
10 to that stage. Bare in mind the CSO spill from  
11 39 is something in the region of the last  
12 450,000 gallons, even doing that. Yes, I'm not  
13 laughing anymore, okay, this is where reality  
14 bites. This one doesn't have any future  
15 proofing, doesn't have any -- while spending if  
16 we did it all, we're still undershooting. On  
17 the contrary 56 which will give you about  
18 280,000 gallons where the CSO spill is about  
19 420,000, so again, it doesn't quite get there,  
20 but you'll notice the predominance is in the  
21 public space, which is the total reverse. And  
22 this is where that public/private issue comes

23 up. So if we all agree today that we weren't  
24 going consider private going forward as part of  
25 this approach, and that's entirely, you know,

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1 I'm quite happy to hear whether people want that  
2 or not, 56 is a much more viable prospect  
3 compared to 39.

4 MR. TURIN: I want to go back to  
5 the flow final estimates. To be clear, these  
6 are from the hydraulic models?

7 MR. ANDERSON: Yes.

8 MR. TURIN: And the hydraulic model  
9 has been redone?

10 MR. ANDERSON: It has been redone,  
11 it's running in parallel to these activities.

12 MR. TURIN: And was there  
13 monitoring, was there calibrated models?

14 MR. ANDERSON: It's a calibrated  
15 model. No, we're currently calibrating it, so  
16 these numbers are subject to change, but it has  
17 gone through calibration. It is the NBC ---  
18 trunk sewer system with all the hydrology, all  
19 of the communities included. So in terms of  
20 getting these numbers, okay, much of this is  
21 built on the rationale method.

22 MR. TURIN: The regulatory (sic)  
23 structures are generally in the interceptor  
24 pipes?  
25 MR. ANDERSON: They are.

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1 MR. TURIN: Were upstream  
2 contributions factored in?

3 MR. ANDERSON: Yes, so we've got an  
4 allowance for an upstream system and for inputs.  
5 So we are able to go down to the level of  
6 granularity that we need to, but in terms of  
7 granting modeling those upstream systems, so we  
8 are building it around what we do know, but  
9 working on parcels of land and working on, you  
10 know, basically hydraulic calcs (sic) we're able  
11 to match the two up.

12 MR. TURIN: Is there a plan to look  
13 more closely into the upstream contributions,  
14 especially with regards to extraneous flow  
15 contributions coming from non-combined upstream  
16 contributors.

17 MR. ANDERSON: I think as the  
18 designs grow long, there will be a need to do  
19 that, yes, beyond the scope of what we're  
20 looking at presently, but I agree. Because what  
21 we've got at the moment is we've got all those

22 flows accounted for. We're seeing them through  
23 the monitoring, but we haven't got the  
24 distribution of them in the upstream catchment,  
25 so we've just got them on a pro rata basis.

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1 MR. DOMENICA: Just a question. Is  
2 it conceivable that you could reduce, eliminate  
3 the entire extraneous volume from this area  
4 through GSI, but still have an overflow at the  
5 nearest overflow downstream, because the  
6 overflow is the result of surcharging of that  
7 interceptor from upstream, correct?

8 MR. ANDERSON: Oh, yes.

9 MR. DOMENICA: And the model is  
10 going to take that into account.

11 MR. ANDERSON: I'll put it this  
12 way, I won't be in the United States very long  
13 if we don't take that account of that. I mean,  
14 in all seriousness, this is absolutely important  
15 that number one, we understand the problem that  
16 we're dealing with, okay, so if we've got  
17 overflows going off because there's a lack of  
18 existing capacity, no amount of GSI in the  
19 system is really going to change that. So we  
20 have to make sure that we get to the problem,

21 then we quantify the problem, which is where  
22 we're at now, then we can fix the problem.  
23 That's the only way of effective engineering,  
24 really. So yes, Mike, very, very good point.

25 MR. DOMENICA: Just one other

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1 question. The fact that, say, for instance  
2 Catchment 56 doesn't completely eliminate the  
3 volume of overflow that comes from this area, it  
4 doesn't necessarily mean that it's taken off the  
5 table, because if you reduce say, 60 percent of  
6 it, presumably any storage facility you put  
7 downstream would be smaller.

8 MR. ANDERSON: That's exactly  
9 right. We talked at the very first Stakeholder  
10 Group that we met, we talked about gray  
11 infrastructure and all of the aspects of that.  
12 All we're looking at here is in green terms,  
13 okay. The reality is that the solution will be  
14 a combination of both. Our job is to optimize  
15 that and to look for what's the most effective,  
16 and what will give you the best outcome. So  
17 this is only 50 percent of the solution  
18 equation, really. We've got to bring the two of  
19 them together. If we can use green to reduce  
20 gray, all the better, but don't think for a

21 moment that, you know, we're not considering  
22 both halves of that.

23 MS. KARP: I can't remember if the  
24 total volume of the stormwater flow in this  
25 combined catchment is 42,000 gallons for a

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1 three-month storm?

2 MR. ANDERSON: No, no, that is the  
3 overflow, that's what's going to the bay.

4 MS. KARP: I need to know so the  
5 potential capture, then, potential interception  
6 Catchment 39 is almost 30,000 gallons, okay.

7 MR. ANDERSON: And again, you know,  
8 for the points that Angelo and Dave raised, the  
9 three-month storm is just an indicator for us to  
10 see where we are now, to see what kind of things  
11 that can be done. It is not the entire  
12 equation. So I apologize if I mislead anybody  
13 on that, but it's just where we need to pitch in  
14 on.

15 MS. KARP: Okay. And this is to  
16 clarify one issue myself. You're measuring this  
17 on a three-month storm, but there's sort of a  
18 reality check on this which is how frequently  
19 the three-month storms actually occurs.

20 MR. ANDERSON: The one thing it  
21 won't do is turn up every three months.

22 MS. KARP: So in fact what I  
23 understand is that the hydrograph is kind of  
24 changing, so that we're getting more storms in  
25 the spring, and maybe more droughts in the

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1 summer, so we may really be getting switched.  
2 I'm curious -- I hear that the NOAA models won't  
3 be done until 2015.

4 MR. ANDERSON: And you're  
5 absolutely right. The point is that continuous  
6 simulation is something which will be done on  
7 these solutions, but in terms of where we're at  
8 at the moment, we've got to pitch in with  
9 something. We'll run the continuous simulation  
10 which is a series of sort of real rainfall,  
11 back-to-back storms, and we look how it performs  
12 against that, as well. But in terms of driving  
13 numbers, driving costs, driving indicative  
14 sizes, this is we're at at the moment.

15 MS. KARP: That is a difference  
16 between public and private. We're really  
17 counting on the soil for treatment here, and so  
18 there might be a way to distinguish if we need  
19 private land, if we really need this surface of

20 the private property, or whether or not it's  
21 possible -- that a subsurface contribution,  
22 because that's the part we need for stormwater  
23 treatment.

24 MR. COLT: You said you were  
25 providing or will be providing basic estimates

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1 of costs of particular GSI sites, such as  
2 Memorial Hospital of Rhode Island. Is that just  
3 the capital costs of installing pervious  
4 pavement? What about the operation maintenance  
5 issues?

6 MR. ANDERSON: When you choose your  
7 alternatives in a while, then that is the key  
8 criteria. We will look at that whole life, not  
9 just the capital construction.

10 MR. COLT: We give the info to NBC?

11 MR. ANDERSON: Absolutely. So I'll  
12 hand it to Rich, who will get you through the  
13 thorny subjects.

14 MR. RAICHE: Well, as we probably  
15 have already guessed, GSI on private property  
16 is a hot button issue. We couldn't help but  
17 jumping into it. We have a slide dedicated to  
18 it. At the last Stakeholder meeting, Scott

19 Lindgren gave us a nice description of NBCs  
20 mitigation program and the example of exactly  
21 how that has been executed on private property.  
22 It's an excellent success story, in fact, and we  
23 stepped through how it's been tracked to have  
24 reduced a whole bunch of stormwater entering  
25 into the combined system. The one, perhaps,

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1 drawback is that it only applies to properties  
2 that require a new connection or something, or  
3 if it's undergoing a renovation that is  
4 increasing their wastewater discharge by 20  
5 percent. So, you know, from the number of  
6 permits that it issues annually varies, but it's  
7 about on average ten permits per year. Now the  
8 technical content of it. Scott's example shows  
9 that that level of technical requirement is  
10 implementable on these sites. So essentially  
11 that informed what we did in terms of estimating  
12 what can be done on these private properties in  
13 that long exercise that Nick just stepped you  
14 through.

15 However, only ten properties per  
16 year as they happen to undergo renovations that  
17 triggered this program probably isn't going to  
18 get us to those numbers that Nick showed. As on

19 our three example catchments that we just  
20 stepped through, you know, at least half if not  
21 more of the GSI benefits would need to be  
22 realized on private property to get to that sort  
23 of upper limit of what we're talking about. And  
24 we would like to get to that upper limit, but  
25 how do you do that? So again, the technical

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1 requirements work just fine, then there's the  
2 question of how do you capture additional  
3 properties?

4 Now, you could continue to  
5 implement a program whereby the private property  
6 owners are on the hook to do that. So NBC could  
7 raise it's threshold beyond where it currently  
8 is, or ask the member communities to adopt those  
9 same technical requirements. There's an article  
10 in the Globe, Somerville, Massachusetts whose  
11 development characteristic is very similar to  
12 the areas we're talking about, particularly like  
13 Pawtucket and Central Falls. They are finally  
14 unveiling revised building and zoning  
15 requirements that eliminate some of the  
16 antiquated language. But currently if you want  
17 to replace your windows or convert a basement

18 into a playroom, you trigger a whole number of  
19 building permit requirements in the City of  
20 Somerville. They're looking to eliminate that.  
21 But outside of that, would changing your windows  
22 trigger some sort of stormwater mediation?  
23 My guess is probably not, but I  
24 wanted to put it on the table, so we can  
25 actually discuss that alternatively and

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1 something that is probably more realistic, and  
2 Tom already alluded to it. When we identify the  
3 high priority properties like the hospital that  
4 will yield a large benefit, that will help us  
5 reduce the corresponding gray infrastructure,  
6 and in the process of doing our cost estimate on  
7 that piece of GIS, including capital and  
8 long-term -- and in terms how to be more  
9 cost-effective in the corresponding gray  
10 infrastructure, then perhaps that is something  
11 that NBC wants to execute as a part of this  
12 capital project. We've already sort of had some  
13 knowledge around that, but maybe that is the way  
14 to go.

15 However, if you were to introduce  
16 that as an idea in Texas, you would likely be  
17 shot because the idea of a public entity doing

18 work on a private piece of property even as sort  
19 of public good, is just something that Texans  
20 wouldn't allow. So I do want to have, before we  
21 go to break, and I think that might be an  
22 incentive for people not to comment for some  
23 discussion around those issues. How  
24 aggressively would the Stakeholders think we  
25 would want to push private property owners to

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1 fund their own GSI, and also, what is the  
2 appetite for public entry on to private property  
3 for this sort of mediation work.

4 MS. KERR: It seems to me that we  
5 should think about incentives, so how can we  
6 incentivize private property owners to -- I  
7 think around the country -- utilities is one  
8 thing that has helped to incentivize reduction  
9 of impervious surfaces on private properties,  
10 and maybe there's other ways, as well. So I  
11 think it shouldn't all be forcing. There should  
12 be -- how do we incentivize it to make it  
13 happen?

14 MR. DOMENICA: Other comments?

15 We'll take a break.

16 MR. ANDERSON: One last thing.

17 Just from our perspective. So what we've  
18 outlined is how we're approaching at the moment.  
19 What we don't want to do is necessarily discount  
20 anything, but also we don't want to give false  
21 hope. So I agree that there are incentives and  
22 ways and means in which we may be able to make  
23 this more attractive for commercial and  
24 individual properties, but from where we're at  
25 and part of our study.

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1 As a group, do you think that we  
2 are following the right path, or should we  
3 actually rain in some of our private or should  
4 we push it out. And I'm asking purely for  
5 selfish reasons. I need to know how much work  
6 I've got in the next months, so your feedback is  
7 very much appreciated.

8 MR. DOMENICA: So let's have a  
9 break and we'll reconvene at 11.

10 (RECESS 10:40 A.M.)

11 MR. DOMENICA: Okay, Sheila Dormody  
12 is going to give us an update on the regional  
13 stormwater utility discussions. So it ties into  
14 exactly what we were just talking about. And  
15 then we'll go back to MWH for the evaluation  
16 criteria.

17 MS. DORMODY: Many of you have been  
18 part of this conversation, but the motivation  
19 for our regional discussion about stormwater  
20 utility are a little bit broader than the  
21 motivations that we've been talking about. Here  
22 water quality is the major drivers of --- the  
23 Narragansett Bay Commission as well their permit  
24 requirements. And those are also concerns for  
25 the municipalities that have been part of this

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1 conversation on the stormwater, but there are  
2 also a whole range of other motivations and  
3 drivers that are making us have this  
4 conversation. Infrastructure that is aging and  
5 need of repair. We've got significant flooding  
6 issues as a lot of the municipalities are having  
7 this conversation. We've got climate change,  
8 more intense storms that are coming our way, and  
9 that's only going to be getting worse, and  
10 inadequate funding.

11 And the municipalities in the upper  
12 Narragansett Bay region that are having this  
13 conversation. There's not a dedicated revenue  
14 source that is allowing us make the investments  
15 that we need in managing stormwater effectively.

16 And these are common problems, not just in the  
17 City of Providence, but in the five other  
18 municipalities that participated in our Regional  
19 Stormwater Utility Study; Central Falls went  
20 with us, Cranston, Warwick, Pawtucket and East  
21 Providence were also part of that conversation.  
22 And clearly what we have just finished just very  
23 recently is our Phase I feasibility study, which  
24 we're looking at only very high level questions.  
25 Does it make sense to have our regional approach

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1 to stormwater management, and in particular,  
2 does it make sense to have our regional funding  
3 structure to be able to invest in those types of  
4 solutions?

5 And the funding structure that  
6 we're talking about is a stormwater utility,  
7 which I think most people in this room are  
8 familiar with, but the basic idea and what's  
9 allowed by the Stormwater Management District  
10 Act of 2002 here in Rhode Island is for  
11 municipalities separately or together, to place  
12 a fee based on how much you're contributing to  
13 the stormwater management problem in your area,  
14 and so that's the standard for how much you're  
15 contributing and how much impervious cover you

16 have. The law also requires that if you're  
17 charging that fee based on impervious cover and  
18 you're also giving a credit for how much to  
19 reduce your burden on the stormwater management  
20 system. And so the six municipalities asked  
21 this group to get together to talk about the  
22 logistics of what that would mean to have a  
23 regional approach in stormwater management  
24 funding. We also had a parallel group that  
25 included Stakeholders, which also includes many

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1 of you at the table. Harold and Meg have been  
2 part of those conversations, as well, to be  
3 looking at what impact this kind of fee would  
4 have. And the short version of the hundred-page  
5 report that is available is that we do recognize  
6 that we do have similarly shared problems across  
7 the whole region, that we know how to fix those  
8 problems, that it's not rocket science about how  
9 you can meet the six minimal control measures.  
10 But we know that it's going to cost more when we  
11 implement those solutions, and we also agree  
12 that it's going to be more effective and more  
13 cost-efficient to be developing those solutions  
14 together because we have so many shared water

15 bodies, and integrated systems. And that  
16 stormwater utility seems to be the fairest way  
17 to spread those costs.

18 We like the idea of stormwater  
19 utilities because it's not just looking at the  
20 property tax based that is funding our  
21 stormwater management in the municipalities now,  
22 and the four systems for the separated  
23 stormwater system, but sharing the costs of all  
24 of the properties, so a non-profit would be  
25 included as the people that would be

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1 contributing to the solutions in this particular  
2 case.

3 So that's the results of the Phase  
4 I study. It brings up almost as many questions  
5 as answers, and that is what we're looking to do  
6 in our Phase II study. Phase I was funded with  
7 a grant from the Department of Environmental  
8 Management, and now we have a grant from the --  
9 Watersheds Coordination Team that will help fund  
10 the Phase II study and that we expect to begin  
11 in late summer, so August, September, and  
12 continue through the end of 2015. And that is  
13 something that we're going to have to figure out  
14 all of the logistics of what is the scope of

15 work for the water utilities, and the CSO  
16 system, all of those logistics is what we're  
17 looking at to answer in Phase II.

18 And the final report is available  
19 here. It will be on-line very shortly. We're  
20 getting the last version from the consultant,  
21 but there's a short executive summary if you  
22 want.

23 MR. DOMENICA: Questions?

24 MS. KARP: Part of that is 35  
25 percent of the stormwater for the City of

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1 Providence was roads and highways, and I don't  
2 know if that's ever proved to be true in other  
3 municipalities, probably not, but 35 percent is  
4 a big number, so I just want to flag that as  
5 something. And in addition, because cost of  
6 affordability was a huge issue and was opposed  
7 as a major issue is that the estimate that the  
8 student came up with for individual property  
9 owners in the City of Providence would be a  
10 total of \$13 a year for water fees to capture  
11 and treat stormwater in the city, which to me,  
12 seems affordable, but that's me. And she also  
13 calculated then what would be the total cost for

14 a city. And the Bay Commission said the City of  
15 Providence putting this much stormwater flow  
16 into the Bay Commission, you the city ought to  
17 pay for this. And I'm hoping my student may not  
18 be right, but I'm hoping you do a JS that goes  
19 after an individual responsible compared to  
20 municipalities.

21 MR. GADON: They had some sort of  
22 joint meeting with MWH. Are they go going to be  
23 taking the municipality into consideration in  
24 regards to affordability, and so forth?

25 MR. DOMENICA: Go ahead. Can you

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1 answer that? Repeat that question?

2 MR. GADON: There was a meeting  
3 with NBC with regard to the stormwater program  
4 with MWH, and I wonder if they would be  
5 including that in any of their future plans in  
6 terms of affordability, and how this all  
7 measures together.

8 MR. BREUCKNER: We've just talked  
9 about how we're looking into it, but nothing has  
10 been decided yet.

11 MR. GADON: Rhode Island is not a  
12 very big state. This will eventually effect the  
13 whole state. Why did you only concentrate on

14 the six or seven communities of the whole state?

15 MS. DORMODY: We invited originally

16 as seven communities to be part of an initial

17 meeting that we had. Seven came for the first

18 meeting, six participated fully in it. I do

19 think there's more potential in other areas of

20 the state, but this is a region that makes sense

21 practically to be able to work together and have

22 some common watersheds that was able to solve

23 some problems working together for us. This was

24 a practical solution of people who were willing

25 to have that conversation with us at the time.

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1 MR. GADON: -- dollars, is there

2 any sort of consensus happening?

3 MS. DORMODY: So the cost for the

4 stormwater utility will depend on the scope of

5 work for the stormwater utility as we would need

6 to decide what it is that we need the entity to

7 view. So there's a lot of questions that need

8 to be answered before we get to the cost, but

9 obviously participating in this conversation

10 about what we're going to do with Phase III with

11 CSO is intertwined from our conversation with

12 the stormwater, so I have the same concerns that

13 you have about looking at the same ratepayers,  
14 the same base of people who are going to be hit,  
15 and how do we actually address those problems  
16 and make sure we do it the most affordable way  
17 possible.

18 MR. WALKER: When you look at the  
19 numbers of 13, 30, 56, whatever they are, that's  
20 for the operation of the stormwater utilities  
21 and the maintenance, correct?

22 MS. DORMODY: That's correct.

23 MR. WALKER: That's not the capital  
24 cost to repair the infrastructure and upgrade  
25 the systems and put in the GSI, and everything

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1 else that then gets added to that fee for the  
2 debt service, which is for some of the same  
3 reasons we're here having these discussions in  
4 this room, correct? So it's \$13 per household  
5 entity, it's 13, or whatever it is, plus more,  
6 based on whatever the rationale is for  
7 allocating impervious surface with whomever.

8 MS. DORMODY: Just to clarify.  
9 Again, we don't know what the fee is, and  
10 there's some apples and oranges in the numbers  
11 comparison there. Some have put it at  
12 four-dollars a month, some put it \$13 in a year,

13 and you buy different things with different  
14 amounts of money, but that just happens to be  
15 the total fee that the stormwater utility would  
16 be paying. It's not likely that we would create  
17 a stormwater utility that would cover every  
18 aspect of stormwater management.

19 I would imagine we would create a  
20 more limited scope of work for the stormwater  
21 utility, and we would scale it to what we think  
22 is achievable. Elizabeth Scott has been be our  
23 expert on stormwater utilities and has been part  
24 of the study too, and it looks like she would  
25 like to contribute something to that.

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1 MS. SCOTT: Hi, Elizabeth Scott  
2 with DEM. The only point I want to make is when  
3 we looked at the budget as part of this study,  
4 and I would imagine going forward in Phase II,  
5 it included both operation and maintenance and a  
6 capital budget component. So because that's  
7 really an intricate part of managing stormwater.  
8 So as these catch basins that haven't been  
9 cleaned for decades, in some cases.

10 So you have to have the ability  
11 doing upgrades to your infrastructure as you're

12 doing the maintenance and be able to address  
13 very pressing issues. What the consultants have  
14 been really clear about is when you begin  
15 collecting money from property owners for  
16 stormwater, you've got to show something for it,  
17 and they really are encouraging the  
18 municipalities to be having certain projects  
19 that are fairly high primary projects that are  
20 in the public eye, they are clearly  
21 stormwater-related problems whether that's a  
22 flooding issue or some water quality issue, but  
23 you've got this project cued up so you can begin  
24 to move forward with construction when you're  
25 beginning to collect those fees so that people

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1 are making the connection. I'm seeing this  
2 amount of money and seeing the benefit.

3 So this budget would include some  
4 part of a capital need. It's just the question  
5 of, and it all goes back to affordability and  
6 how much of a capital program are you taking on  
7 in any given year. So it's at this point,  
8 clearly, not known, and it certainly relates to  
9 this conversation that's happening here.

10 MR. TURIN: So if I can follow up  
11 here. We have a bit of fruit salad going in

12 that we're here talking about a large major  
13 capital expenditure in CSO Phase III, and the  
14 cost of that versus a minimal investment  
15 expense, maybe, but unknown in a stormwater  
16 utility district, also known as the taxing  
17 authority, that fears potentially going to set  
18 some buy in rates that will change over time.  
19 So it sort of gets to Steve's comment earlier  
20 about where does the cost fit, and that sort of  
21 stuff? And there needs to be a lot of  
22 discussion, a lot of definition before people  
23 run down the path and say this is a solution.

24 MR. MARSHALL: We've been part of  
25 this study group and as Sheila and Liz and

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1 others point out, it's a function of what you  
2 want to put into this number. Our belief is,  
3 and I think we've been very clear on this, four  
4 to five dollars per month, per household, per  
5 stormwater district. Maybe on the first day,  
6 and it just goes up from there. We don't see  
7 it, the Bay Commission, anyway it's going to be  
8 less than 20 or 30 dollars per month, per  
9 household, once this thing gets up and running,  
10 because it's not just one year or two years,

11 it's cumulative, and the debt service is going  
12 to drive everything, because there's no way once  
13 the stormwater is identified and quantified,  
14 that there won't be some type of treatment  
15 required, and then that's when the prices go  
16 through the roof. We feel that it could  
17 approach what the CSO program has already cost.  
18 So I just want to get that on the record.

19 MR. DOMENICA: One comment, if I  
20 might. Ray's comments are, and the others from  
21 other folks here, are demonstrating some of the  
22 important elements of what affordability really  
23 is. Because the EPA affordability guidance  
24 includes everything under the Clean Water Act.  
25 Stormwater is a key part of that affordability

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1 analysis, so as you look ahead to the next 30 or  
2 40 or 50 years of a stormwater access  
3 management, as well as sewer system management  
4 and plants, that has to be factored into the  
5 affordability assessment. And the other point  
6 to Mr. Wagner's comment. The recognition of  
7 this overlapping of Clean Water Act requirements  
8 is what lead to about a year and a half, two  
9 years ago, the EPS issuing its guidance on  
10 integrated water resources management planning,

11 or integrated wastewater management planning.  
12 It's recognized that you can't do the CSO  
13 control in a silo, that it has to be looked at  
14 in conjunction with stormwater and other Clean  
15 Water Act regulated types of programs, not just  
16 for affordability, but for access management,  
17 and everything else. So while we're talking  
18 about CSO, the ultimate plan here has to  
19 consider all these other factors in terms of  
20 affordability. So with that, Angelo?

21 MR. LIBERTI: Just real quickly. I  
22 was going to say I think this is at a stage  
23 similar to NBC. NBC is not responsible for  
24 maintaining the sewer lines in the town. But do  
25 we sit here and cry foul that NBC has not

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1 included that in their rate structure? No,  
2 because we know that it's not their  
3 responsibility. We don't know who's  
4 responsibility it is right now to build green  
5 infrastructure for this stormwater. It might be  
6 this utility, in which case it will get built  
7 into the utilities budget just like the CSO  
8 project is built in to NBC's budget, but  
9 maintaining the sewer system does not get built

10 in to NBC's budget, yes. And to demonize the  
11 idea of a utility, it appears in the  
12 infrastructure that needs to be maintained.  
13 Whether you do it on property tax, or whether  
14 you do it on utility, or however you do it, it  
15 needs to be addressed. And to sort of demonize  
16 that, we have a deficiency here, I think is  
17 wrong. It needs to be addressed. What we're  
18 trying to do with affordability is, yes, we have  
19 sewer infrastructure within the communities that  
20 these people have to pay for.

21 We have CSO within this, they have  
22 to pay for, and we have to to shine the light on  
23 stormwater, that has to be paid for. And all of  
24 this can and should and will be taken into  
25 account as best you can during this process. So

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1 I think all the ingredients are here for all of  
2 us to bring this information to the table, and  
3 the utilities, it depends what you ask them to  
4 do.

5 If you ask them to clean catch  
6 basins, maybe four dollars a month. If you ask  
7 them to build green infrastructure in seven  
8 communities? Yes, it's going to be a lot more  
9 than a certain amount, but that cost is out

10 there, we're just not looking at it too closely.

11 MR. DOMENICA: Rich is reminding me  
12 that we're rolling into the evaluation criteria,  
13 and given the time, unless there's other  
14 pressing comments. Thank you, Carolyn.

15 MS. KARP: My students GS analysis  
16 says 75 percent of Providence is roads. The  
17 other 65 percent is private property. And that  
18 means that you have private property owners that  
19 are contributing to stormwater, so I want to  
20 address Mr. Walker's comment. This is not a  
21 tax, it's a fee. These are basically stormwater  
22 coming off private property creating public  
23 harm, so creating utilities attending to address  
24 that issue, 65 percent which is private.

25 MR. DOMENICA: Okay, let's move on

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1 here. Thank you, Sheila.

2 MR. RAICHE: And now to the main  
3 event. It's actually a very good discussion  
4 here, and you'll see in some of our introductory  
5 comments how a lot of these issues will play in  
6 with what our ultimate objectives are with what  
7 we were trying to do today is collecting  
8 evaluation criteria. I'll provide an overview

9 and a context first, and then Shawn Searles from  
10 our office will step through a workshop to help  
11 us establish these evaluation criteria. Before  
12 that let's just take a quick look at where we  
13 are in the process and what is it we're trying  
14 to accomplish here.

15 If you might recall, from the  
16 kickoff meeting, and Mike just reminded us that  
17 we're trying to do this in the context of the  
18 integrated planning framework, CSOs, sanitary  
19 and stormwater programs together and evaluate  
20 them, and phase projects, and all of these  
21 things, all of these projects, like the  
22 stormwater projects that we just talked about  
23 have water quality implications for Narragansett  
24 Bay. And they are all funded by ratepayers and  
25 taxpayers.

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1 So the idea is to optimize the  
2 overall spending, regardless of which program or  
3 which bucket the individual projects fall into.  
4 So thus far with our past couple of meetings,  
5 we've been focusing on Step 1, our project list,  
6 and we want to have a good handle on what these  
7 alternatives look like, so that we can define  
8 them in terms of cost and benefits. And the

9 other things that we are worried about,  
10 construction impacts to the neighborhoods,  
11 long-term impacts. You know, that has been what  
12 we've been focusing on thus far. Ultimately, in  
13 October we hope to come together with a final  
14 recommended plan. We'll vet out all of these  
15 alternatives against each other and define what  
16 the revised CSO program looks like. How do we  
17 get there from here? Well, you know, we're now  
18 what we're trying to do is step through the next  
19 couple of steps in the IPF framework.

20 We, the engineering team will take  
21 the next couple of months, and as I said, define  
22 what these alternatives are, and what we will  
23 also do is provisionally rank these alternatives  
24 against the evaluation criteria that we're  
25 trying to establish today. We also acknowledge

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1 that not all criteria, while we do have a number  
2 of things that we want to evaluate these  
3 alternatives against, not all of them are  
4 necessarily equal, so we'll likely have waiving  
5 factors per the criteria.

6 We'll crunch through an algorithm  
7 and when we reconvene on September 4, we will

8 have a draft of what look looks like a  
9 prioritized list, which approaches are more  
10 favorable than others for controlling CSOs, and  
11 that will be the focus of the September meeting  
12 to judge how well we did that and then move the  
13 sliders on the different alternatives that we  
14 come up with what we really want the plan to be.  
15 I think provisionally sequence because even once  
16 we're done with the September meeting then the  
17 next thing in September or October is we'll  
18 crunch through the affordability analysis. And  
19 as Tom has pointed out at the past couple of  
20 meetings, there's a possibility that we will  
21 have high priority projects that do wonderful  
22 things for water quality, but simply aren't  
23 affordable in the near term, because the debt  
24 service is required on Phases I and II. We  
25 don't necessarily want to do nothing until that

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1 becomes affordable, so there's the possibility  
2 that once we look at the affordability that we  
3 will resequence some of these projects, and  
4 that's the sort of thing that will happen in  
5 October, as opposed to September, but I am  
6 getting a little bit ahead of myself. Today, we  
7 hope to get through the prioritization or

8 evaluation criteria.

9 Now, while this discussion on  
10 stormwater was very germane and a very good  
11 pivot point for what we're trying to accomplish  
12 here for the remainder of the morning. We  
13 acknowledge right now there are external factors  
14 that will drive other projects outside of the  
15 CSO program. Currently, we don't have those  
16 very well defined. We don't necessarily know  
17 what the good deeds and those four requirements  
18 are going to be for a number of communities that  
19 will drive individual projects.

20 We don't necessarily know what the  
21 outcome of the regionalization effort or a  
22 stormwater utility will be right now, nor do we  
23 have any idea of what their project priority  
24 list will look like or what those capital  
25 expenses would be. Again, those are all going

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1 to be projects that will have water quality  
2 benefits, but be funded by these same ratepayers  
3 and taxpayers.

4 So what we do want to do as we  
5 establish these rating criteria is to have them  
6 flexible enough and encompass enough of the

7 goals of the region, so that in four, five years  
8 when we're reevaluating and reaffirming what CSO  
9 recommendations of this program are, we can then  
10 put them in the context of other projects that  
11 at that point will be a little bit more  
12 advanced, and we'll have a better understanding  
13 of what they are. So what we want is a  
14 repeatable process. It's not necessarily  
15 anything that NBC will have to adopt, maybe it  
16 will, maybe it won't, but we do want to have  
17 sort of a framework so that in four, five years  
18 from now, once we have a better understanding of  
19 what the region is paying for, we can then  
20 reevaluate what those benefits are against the  
21 CSO benefits and determine if we need to adjust  
22 the CSO schedule accordingly.

23         So where do we start in selecting  
24 our evaluation criteria? So it seemed to make  
25 sense to start with what was done before for

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1 NBC, which lead to the current plan? The  
2 previous factor that initiated and culminated in  
3 the conceptual design report has sort of five  
4 stated criteria:

5         System performance which captured  
6 how well the system cooperates, and very closely

7 related to that is water quality benefits, which  
8 essentially reflected the CSO redactions.  
9 Environment issues captured both construction  
10 phase disruptions and operation phase impacts,  
11 particularly those neighborhoods.  
12 Constructability analysis, which included how  
13 much flexibility there would be in  
14 implementation how the projects could be phased.  
15 And then, of course, a cost effectiveness  
16 evaluation. When the plan was reevaluated later  
17 in the '90s and culminated in the CVR amendment,  
18 there was sort of six more criteria that helped  
19 select the preferred approach, the portion of  
20 CSO addressed, which was really trying to get a  
21 lot of bang for the buck in terms of  
22 infrastructure built versus CSO, how's volume  
23 captured. Performance which was effective  
24 reliability of pollutant removal, operational  
25 concerns which evaluate how the robust a

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1 solution was, and what safety issues were also  
2 associated with that in operations, both the NBC  
3 staff and also the general public. Construction  
4 impacts, traffic impacts, but also land  
5 acquisition. Long-term impact, noise and odor,

6 and perhaps disruption to habitat. And finally,  
7 the cost.

8 Now, as I was listening through  
9 those things, you could hear that those  
10 evaluation criteria captured a lot more than  
11 would be inferred by a simple reading of those  
12 headlines. Sort of them sort of parsed out what  
13 all those were, a little bit more transparently.  
14 The idea being that again we want sort of a  
15 repeatable process here, and also, frankly, as  
16 we're evaluating these in September and October,  
17 I think we want to be able to quickly look at a  
18 criteria and say, all right, this is what it  
19 means and this is how we're going to rate an  
20 alternative, so just simply for administrative  
21 ease, I like the ideas without them being a  
22 little more explicit.

23 Just in our meetings thus far,  
24 we've identified a few additional criteria that  
25 have come out. Water quality for nutrients, a

1 sort of bacteria and toxic word on the table  
2 before. As Carolyn had pointed out today most  
3 recently and throughout this process, that there  
4 are other pollutants that we may want to  
5 consider. Flooding risk, scalability has been

6 a big issue that we talked about, particularly  
7 with regard to climate change. Well,  
8 particularly, in terms of what the basis of  
9 design is. But if we're looking at the  
10 three-month storm annual simulations, what that  
11 annual simulation would be with water quality  
12 standards. So if we have scalability as a  
13 rating criteria, we have a better meter for how  
14 resilient a solution would be. Level of  
15 service, the benefits we heard from Pawtucket,  
16 but others, we want to have a benefit that is  
17 restrictive throughout the community's approved  
18 level of service.

19 Again, one of fluent improve level  
20 of service again one of Jan's points were code  
21 benefits that aren't necessarily related to the  
22 waste water system, but quality of life, the  
23 capacity to also do surface improvements for a  
24 lot of areas that have roadways that are in need  
25 of some attention that some of these approaches

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1 would have code benefits.

2 And finally, what we talked about a  
3 lot today, and I'm going to turn administrative  
4 and institutional considerations as we just

5 discussed, NBC isn't necessarily in a position  
6 currently to do work on private property, or  
7 necessarily even stuff that's in the public way.  
8 It would require partnership with the member  
9 communities in which these pervious pavements  
10 and rain gardens, or whatever it is. So we want  
11 to be able to capture that. Knowing that we  
12 can't resolve those issues in the timeframe that  
13 we're talking about for rolling out the  
14 redefined CSO program, we couldn't even do it in  
15 three hours today. So that becomes a rating  
16 criteria onto itself.

17         There are other rating criteria  
18 that have used by others that have some ability  
19 here. Springfield, for example, has a very old  
20 system, and they have a recognition that a lot  
21 of their systems is going to require some  
22 capitalim improvements replacement and  
23 renovation if there were any CSO project that  
24 would also sort of revitalize a piece of  
25 infrastructure that they know is going to need

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1 replacing. In Atlanta, Georgia, economic growth  
2 was a criteria. Baltimore, they had 21 total,  
3 but they had a lot of additional ones, including  
4 job stimulus. I'll just mention that beyond the

5 usual O and M, if we consider green  
6 infrastructure, for example, that takes an  
7 entirely different skill set to operate and  
8 maintain, then the current sort of pipes and  
9 pumps, so that essentially becomes, you know,  
10 although there is a O & M with cost associated  
11 with GSI, it could also be viewed as creating  
12 jobs blue collar jobs, for example. So with  
13 that introduction, I'd like to hand it over to  
14 Shawn to sort of facilitate with you going  
15 through these different criteria, and try to  
16 arrive at something that makes sense for us.

17 MR. SEARLES: Good morning,  
18 everybody, my name's Shawn Searles, I am with  
19 MWH, and I work out of our Atlanta office, but I  
20 spend a lot of my time working with municipal  
21 clients throughout the United States,  
22 principally in regions 1, 3, 4 and 5. And I'm  
23 excited about the discussion today because a lot  
24 of the topics that we talked about today is  
25 directly related to the work that I've been

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1 doing with MWH in the last four years as it  
2 relates to working with our municipal clients on  
3 the development of integrated utility plans, a

4 big component of which is the identification and  
5 utilization of criteria to rank various  
6 alternatives and to set priorities for  
7 investment. Even though I'm from Atlanta, I'm a  
8 native New Englander, born in Providence, raised  
9 in Seekonk. Some of you may recognize my last  
10 name Searles. If you watch WJAR, Channel 10, my  
11 brother's the chief meteorologist, Mark Searles.  
12 I don't take any credit or blame for any of the  
13 weather predictions he makes or fails to make.  
14 Most of my family still all lives up here in  
15 this region.

16 My parents are both from Pawtucket,  
17 Rhode Island, so I'm invested in this project  
18 and this community and care deeply about the  
19 impact it has. So what I'm going to do today is  
20 where going to talk, we're not going to ask to  
21 actually select the criteria to use to reevaluate  
22 the various alternatives that will come out  
23 later in the early fall, but what we're going to  
24 do is we're going to talk about what some of  
25 those candidate criteria are, the process for

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1 how we'll actually utilize that criteria, and  
2 how we'll actually weigh that criteria, because  
3 not all criteria are equal in this effort that

4 we're going to go through, and I notice that  
5 some of you have maybe looking at the boards  
6 that are towards the back of the room here.

7         On those boards back there, we have  
8 some candidate criteria that we've derived from  
9 both, as Rich stated, our review of the CDR  
10 CDRA, as well as our personal experience. And  
11 my personal experience involves working with  
12 about 13 utilities in the United States on  
13 projects of this type. I've also had the  
14 benefit of managing two of the largest wet  
15 weather programs in the Eastern United States,  
16 in the City of Atlanta and the City of  
17 Baltimore, Maryland. The framework methodology  
18 that Rich shared with you we actually developed  
19 that methodology with our Baltimore clients, and  
20 to my knowledge the City of Baltimore is the  
21 only city to date that has developed and  
22 submitted for regulatory review, a full  
23 integrated plan that's consistent with the EPA  
24 guidelines document that was issued back in June  
25 of 2012, with one exception, and that includes

1 all classes of asset infrastructure, not just  
2 the Clean Water Act assets, so it does include

3 the water infrastructure, as well. Because as  
4 it's been stated here today, the challenge the  
5 utilities face is how do we prioritize out total  
6 need and do that in a balanced and affordable  
7 manner, and that's what this process and this  
8 business about criteria selection is all about.  
9 Now, historically what has dominated expenditure  
10 spending for utilities has been driven by either  
11 the environmental requirements that are embedded  
12 in permitting or enforcement actions, or just  
13 the financial limitations that the utilities  
14 face. And what we're really trying to do here  
15 is we're trying to introduce a more balanced  
16 approach.

17 So many much you are familiar with  
18 the triple bottom-line methodology that has been  
19 extensively used in sustainability studies and  
20 evaluations. What we're looking for is, as we  
21 evaluate potential alternatives or we look to  
22 prioritize projects within a set of CIP, for  
23 example, we're looking for balance. We don't  
24 want one requirement, one set of objectives to  
25 drive the overall investment.

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1 That will not get us to that  
2 intersecting point in the center there where we

3 want to be, which is long-term sustainable  
4 utility operations. So what we want to do is we  
5 want to look -- and by the way, the selection of  
6 criteria is unique to every utility and its  
7 individual circumstances. There's no playbook  
8 that's out there, there's no set of prescribed  
9 criteria that every utility should use, or the  
10 regulators are imposing on utilities, it's  
11 uniquely your choice. And so one of the things  
12 we want to do today, and like I said, we've  
13 taken the liberty based on our study of the CDR  
14 and CDRA in our own experience to provide you  
15 with you with some candidate criteria, but we  
16 want to hear from you on what some other  
17 criteria might be, because we don't profess to  
18 say that this is the all inclusive set of  
19 criteria that we should use for evaluation  
20 purposes.

21           So, again, we're looking for  
22 balance, we're looking for a representative set  
23 of criteria. And I'm going to talk about a few  
24 rules, because as I said, we're not going to  
25 actually select a criteria today, what we're

1 going to do is we're going to talk a little

2 about it, we're going to gather your input about  
3 what maybe some of the other candidate criteria  
4 might be that we want to consider in each of the  
5 triple-bottom categories, and then we're going  
6 to give you a very simple little homework  
7 assignment to do. And if you look at that board  
8 all the way in the back, and in a minute we'll  
9 hand around a copy of a sheet, a two-sided copy,  
10 that will help explain the homework that we need  
11 you to do, because we're actually going to ask  
12 you to make your choice, your selection.

13 Now, I've run these integrated  
14 utility planning exercises for a number of  
15 management. One of the more rigorous  
16 methodologies that we use to select criteria,  
17 because as I said, all criteria are not equal,  
18 some are more important than others, and in  
19 fact, some of those triple-bottom categories  
20 based on your unique circumstances and goals and  
21 objectives may not be equal.

22 Although, ideally you'd like to see  
23 more of a balance between social, environmental  
24 and economic. So what we're going to ask you to  
25 do is to put your own spin, if you will, on the

1 candidate criteria that you think are most

2 important, and I'll talk about it in a minute  
3 how we're going to do it. But just a couple of  
4 ground rules before we get started.

5 I think from my experience, a  
6 manageable set of criteria for a process of this  
7 type in each of the triple-bottom line  
8 categories is somewhere between three and five.

9 Now, in the plans that I've worked on with  
10 municipal clients we've had as few as ten total  
11 criteria across the three triple-bottom line  
12 categories, and we've had as many as 21. Now,  
13 my view, 21 is a little bit too many, ten maybe  
14 just a little bit too on the low end. So in  
15 terms of our guidance for you, we'd like you to  
16 consider between three and five candidates in  
17 each of the triple-line bottom line categories.

18 Now, the rigor that I was talking  
19 about from a decision support analysis  
20 standpoint, what we've historically done is when  
21 we've had more time and a bigger workshop is we  
22 actually would use, we would take a look at a  
23 list of criteria and we actually have each of  
24 you do a paralyzed comparison, each criteria  
25 against each other. And what that results in is

1 a waiting profile. We don't have the time to do  
2 that so what we're going to do is something that  
3 is pretty much closely as effective as that is  
4 we're going to get you to provide us with input  
5 on what is the most important criteria within  
6 each of those triple bottom line categories, and  
7 we're going to also ask you to give us your  
8 evaluation of what are the most important triple  
9 bottom line categories.

10 So, for example, on a scale of a  
11 hundred percent, you might say social is  
12 weighted at 25 percent. You might say  
13 environment is somewhere at 50 percent, and then  
14 you either have 25 percent left for economic.  
15 Those are just numbers.

16 These are uniquely yours, and we're  
17 looking for your info. What we will do as a  
18 team is we will take that input, and we'll take  
19 a look at averages across those triple bottom  
20 line categories, and coming up with a initial  
21 weighting profile, we'll review that with you to  
22 get your feedback and to have some subsequent  
23 discussion when we meet back again in September.  
24 Let's see here. So let's just take a look at  
25 the list right now, and this should match much

1 up with what you've got in front of you on a  
2 piece of paper. As we look at the environmental  
3 criteria, and again, this is a representative  
4 list, this doesn't mean that there aren't others  
5 that we've missed here, so one of the things I'd  
6 like to ask the group, are there things that  
7 should be on that list that aren't there, or do  
8 you see any challenges with any of the ones that  
9 are on there? Yes, Carolyn.

10 MS. KARP: Things that could be  
11 added, for example, might be the contribution of  
12 these carbon --- for reducing key island effect.  
13 So I don't know if those are built in somehow  
14 under a habitat.

15 MR. SEARLES: Okay, any other  
16 comments?

17 MR. DOMENICA: On the flooding,  
18 with regards to the CSO system surcharging, or  
19 do you mean flood control?

20 MR. SEARLES: In terms of the risk  
21 associated with that?

22 MR. DOMENICA: Yes.

23 MR. SEARLES: It could be either.  
24 Any criteria, any alternative could contribute  
25 to flooding risks. So, I mean, if you're

1 looking at an evaluation of a project or a set  
2 of alternatives, they could contribute  
3 potentially to flooding.

4 MR. DOMENICA: I've seen this with  
5 system surcharging with regard to wet weather  
6 CSO which is the primary focus here, but with  
7 regard to basement backups or street flooding  
8 with sanitary flow, but not flood control per  
9 se, you know what I mean? Just a question.

10 MR. SEARLES: Right, I mean that  
11 probably needs more clarification because it  
12 could mean different things.

13 MR. ANDERSON: I think from what  
14 we're looking at, we're talking very much around  
15 levels of service, and whether what we're  
16 looking at, really, do we need to address by  
17 say, for example, putting a green infrastructure  
18 in, are we bringing the water basically to  
19 places where you're not very comfortable with  
20 it.

21 So at the moment hidden underground  
22 in pipes, in tanks might be something which  
23 you're comfortable with, seeing it on the  
24 surface may be only ten feet in somebody's  
25 property, might be something which isn't

1 palpable. Is that a criteria which you really  
2 want to push forward and say actually this could  
3 be a deal breaker for me.

4 That also extends into what Shawn  
5 rightly says is it can also extend into other  
6 flooding areas and other levels of service  
7 whether it's, you know, rivers, or what have  
8 you, so it's anything that pushes your buttons,  
9 really.

10 MR. RAICHE: The GSI or hydraulic  
11 controls that would localize stormwater control  
12 would be a localized flooding issue. I would  
13 also say that an alternative that increases  
14 flood risk is sewer separation because you are  
15 putting in new infrastructure that sewer  
16 operation because you are putting in new  
17 infrastructure that gets the water through the  
18 catchment more quickly, but brings it down to  
19 the receiving water body more quickly,  
20 therefore, that is exacerbating flooding  
21 potential at the ends of those pipes. So it's  
22 simply an evaluation criteria.

23 MR. SEARLES: So you could look at  
24 it from a cost and advantage standpoint for both  
25 when you're using this evaluation criteria. You

1 rightly said, I mean, there are projects I think  
2 of it more in this context that reduce risks of  
3 flooding, so that project, that alternative  
4 makes for a higher for you because it has that  
5 beneficial impact.

6 MR. LIBERTI: Just real quick, I  
7 would think if we think of flooding risk as  
8 stormwater flooding and system reliability of  
9 robustness as overflows, you know, maybe that's  
10 how we can separate these without making them  
11 all categories.

12 MR. WALKER: Administrative  
13 institutional consideration, what is that?

14 MR. RAICHE: So when the previous  
15 study was done, back to Nick's model of source  
16 pathway receptor, right. All of the current  
17 controls are receptor controls which are clearly  
18 within the control of NBC. While they maybe out  
19 in the communities, they are located at the CSO  
20 locations of consolidations of them, so they're  
21 sort of clear and jurisdictional, sort of  
22 impetus for NBC to have a presence at that  
23 location. Now, that we're looking at source  
24 controls, which are out within the watersheds,  
25 either controlling a member community's pipe

1 system, or putting GSI in a member community's  
2 roads, or putting GSI on a individual property  
3 owner's property, there is not that clear sort  
4 of jurisdictional present established, nor are  
5 we going to able to establish that  
6 jurisdictional presence within the timeframe of  
7 doing this reevaluation, therefore, the only way  
8 that we can capture that data so that we have a  
9 repeatable process, is to use a evaluation  
10 criteria that is for -- if anybody has a better  
11 idea to how to brave that, I'm willing to accept  
12 it.

13 MS. KARP: I wonder if it makes  
14 sense to break that out to a separate category  
15 how that jurisdictional or institutional  
16 criteria as opposed to burying it under  
17 environmental criteria, especially since there's  
18 economic consequences and also social  
19 consequences of that.

20 MR. SEARLES: That's a very good  
21 point. In fact in the City of Baltimore their  
22 integrated plan uses a quadruple bottom line,  
23 because for reasons similar to this one, there  
24 were criteria through workshop processes that  
25 were identified that just didn't fit in either

1 of the other three, so we created a project  
2 delivery category to capture those, and it  
3 seemed to work.

4 Now, I'm not advocating that you  
5 should use a quadruple bottom line approach, I  
6 think we can get there with a triple bottom line  
7 approach, but you're right, Carolyn, I think  
8 some of these criteria don't neatly fit within  
9 some of the triple bottom line categories. In  
10 fact, as a team we've debated internally about  
11 where some of these actually should reside  
12 because some of them could reside in more than  
13 one of the TBL categories. As I said, we're  
14 going to give you a little homework assignment,  
15 so, you know, upon more reflection if there are  
16 other considerations or other comments that you  
17 have, you'll have the ability to make those  
18 known to us through this little homework  
19 assignment. So today we want to start this  
20 discussion, we want to make sure that we've got  
21 sort of the baseline established and then we'll  
22 go through a refinement process after we receive  
23 your input.

24 MR. DOMENICA: Just to confirm,

25 these criteria that you're suggesting here and

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1 revisions could come to are not just for GSI,  
2 these are for all technologies, gray, green,  
3 everything?

4 MR. SEARLES: That's correct. We  
5 want to be able to use these criteria to  
6 evaluate the alternatives that will be proposed.  
7 So they will obviously include GSI, as well as  
8 other gray infrastructure components. Other  
9 questions before we go on?

10 MR. RHODES: I don't see ratepayer  
11 affordability on here, is that because that will  
12 be a separate folder that we'll look at  
13 afterwards?

14 MR. SEARLES: Yes. But hold that  
15 thought for a minute, because when we get to  
16 economics there are specific criteria that  
17 impacts ratepayer affordability. In the context  
18 of integrative planning, fundability the  
19 expenditure schedule that derives from that  
20 process is based on total ratepayer  
21 affordability, that's always a consideration as  
22 defined locally here, you know, because  
23 everybody's affordability considerations are  
24 different, so that gets its way into the

25 process, but there are also some specific

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1 criteria on the economic side that play into  
2 that. Any other comments before we move on?

3 MR. DOMENICA: Where does  
4 regulatory compliance come in?

5 MR. SEARLES: Well, it would be in  
6 here, you know, these criteria would be meant to  
7 draw some environmental compliance requirements  
8 unique to this program. So again, if there was  
9 some criteria that are missing here that are  
10 important with regard to that, without actually  
11 specifying as regulatory compliance, that's sort  
12 of assumed within many of these criteria that,  
13 you know, these are the things that are most  
14 important to the Bay Commission in terms of  
15 meeting their water quality goals under this  
16 program. If they're not listed here or if  
17 there's something that's missing we should  
18 capture that.

19 MR. COLT: Can you just talk a  
20 little bit more about what you mean about a  
21 criterion habitat and preservation and  
22 restoration?

23 MR. SEARLES: Well, a project or an

24 alternative that would, for example, restore  
25 stream banks or, you know, restore habitat that

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1 has been neglected over the years that can be  
2 restored to its natural state. Those types of  
3 projects have beneficial results, so they would  
4 theoretically lead to a higher score for that  
5 particular alternative if that is one of the  
6 benefits that are provided.

7 MR. GERRITT: A quick example is I  
8 am studying a little rainfall drainage swale  
9 that happens to have two different kinds of --  
10 and it's not a natural pond, it's clearly --  
11 long ago to collect rain water and hold it, and  
12 eventually that evaporated off, because it  
13 doesn't seem to infiltrate in, but there might  
14 be a few places where that kind of thing, you  
15 know, those are species of great concern  
16 everywhere, and it seems like a place where this  
17 might be an opportunity to do something like  
18 that.

19 I mean, I actually have run into  
20 several of them recently. I just happened to  
21 walk by someplace the other day that had similar  
22 rain swale that had even more wildlife than the  
23 one I'm studying.

24 MR. DOMENICA: Other comments?

25 Seeing a lack of hands, if I might just follow

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1 up on my question on regulatory compliance.

2 Having been involved in numerous of these type

3 of programs, I've seen a number of them where

4 the actual water quality benefits, measurable

5 water quality benefits in terms of not only a

6 pollutant reduction or frequency reduction, but

7 also actual human use benefits, fishable and

8 swimmable were very minimal, but the program was

9 driven by regulatory compliance. And I can see

10 that here as the very potential factor that

11 could drive this program. So I'm just looking

12 for some way to put that into the evaluation

13 criteria.

14 MR. SEARLES: More specifically

15 than what's listed here.

16 MR. DOMENICA: Yes, because you can

17 get almost no benefits and still be required to

18 build up to the level of affordability.

19 MR. SEARLES: Well, that's a good

20 point, and that goes back to my initial comment

21 about historically, you know, for municipalities

22 that are faced with enforcement actions, whether

23 existing or pending, the regulatory tends to  
24 drive their expenditures. And in way of an  
25 example, the City of Atlanta on their

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1 multibillion dollar consent decree program for  
2 both CSO and SSO, we're spending at a rate of  
3 seven dollars for compliance requirements on  
4 their wastewater system improvements for every  
5 dollar they spend on their that is not  
6 sustainable and it look an interpreter grate put  
7 planning evident there to get of the regulators  
8 that a more balanced approach was needed more  
9 time was needed to comply with the regulatory  
10 requirements, has lead to a 13-year time  
11 extension on their consent decree, so my point  
12 is very valid.

13 Now, if we put a criteria up there  
14 that just says regulatory compliance and we have  
15 used those in the past, well, what tends to  
16 happen is when you see the waiting profile that  
17 bar for regulatory compliance is going to be all  
18 the way to the right, it's going to be 65  
19 percent or higher for programs like this, so,  
20 again, what we're looking for are more balance.  
21 Now, we can certainly add that as a criteria if  
22 the group feels that that's appropriate.

23 MS. KARP: But the the human uses  
24 seems to me would belong under the social,  
25 fishable criteria. So water doesn't get changed

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1 in the land for the water use, including their  
2 additional fishing, or recreational interests  
3 belongs down there. But it would an advantage  
4 to creating a fourth category here that might be  
5 called institutional and government criteria  
6 would include jurisdiction Bay Commission versus  
7 local versus Stormwater Management District.  
8 You'd have the administrative criteria in that  
9 category, you'd also have compliance enforcement  
10 there. I also want to say that affordability  
11 and compliance are two cross cutting issues. So  
12 it seems to me there are three issues, and we  
13 want to restore and maintain the waters of the  
14 U.S. Don't make us vote on that because, what  
15 is the point, you see?

16 MR. SEARLES: Yes, but I think the  
17 important point there is we all agree we have to  
18 comply with the law. The issue is how much time  
19 does it take for us to do that. And that is  
20 largely driven by affordability. I mean, the  
21 best outcome is to work a partnership with the

22 regulatory agencies to come with up with a  
23 viable plan that is affordable for the local  
24 community, but meets regulatory requirements and  
25 provides a balanced investment across their

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1 infrastructure assets, otherwise, it's a  
2 self-fulfilling process is neglect, and you  
3 know, trying to catch back up and you never  
4 really ever get there.

5 MR. SEARLES: That's a good segway.

6 MR. RAICHE: That's not necessarily  
7 an evaluation criteria, because affordability is  
8 an analysis done on the recommended plan, a  
9 recommended plan that is going to come up with a  
10 number of projects. And in the future, the  
11 stormwater utility will come up with a number of  
12 projects, and then the affordability analysis is  
13 done on those recommended projects to determine  
14 what the compliance schedule is and the sequence  
15 of implementation. In terms of evaluating a  
16 project against other project, other than maybe  
17 how cost-effective something is, I don't  
18 necessarily know that affordability or  
19 necessarily regulatory compliance is an  
20 evaluation criterion unto itself.

21 MR. SEARLES: Good point. So, when

22 we think about affordability, we think about it  
23 in this context, as well. And by the way, for  
24 all the municipalities we work with on  
25 development of integrated plans consistent with

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1 the EPA guidelines document, one of the  
2 requirements there is in your plan, as you  
3 develop it, is that you front load from the  
4 regulatory side environmental benefits, we say  
5 front load total benefits, so as we evaluate  
6 alternatives using these criteria, we accumulate  
7 benefits for projects, one of the things that  
8 drives the optimization of the plan, if you  
9 will, the implementation schedule is are we  
10 front loading benefits, are we getting the most  
11 benefit we can get up front in the plan, and  
12 then the out plan years we're kind of going to a  
13 sort of a steady state of realized benefits.

14 That's always a goal. That's not  
15 always achievable or affordable, but it's always  
16 a goal. Okay, let's take a look at the next  
17 category here of economics, because this may get  
18 at some of the issues that are related to cost  
19 and cost-effectiveness that Richard's talking  
20 about. Now clearly, capital costs, O & M costs,

21 the cost-effectiveness and efficiency of a  
22 respective alternative is also a good criteria  
23 to use. These are ones that have been used in a  
24 number of integrating planning efforts. They  
25 seem to work well for most municipalities.

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1 There maybe some others here that, some other  
2 economic ones that are of more concern, or we  
3 have missed here for the Bay Commission. Any  
4 comments or questions?

5 MR. GERRITT: I always wonder when  
6 they say support growth, since Rhode Island's  
7 very unlikely to get much growth, our economy  
8 has moved to a phase where we're likely to be  
9 shrinking. And so if you try to support growth  
10 while you're actually shrinking, you're working  
11 with cross purposes. So I would say support  
12 economic development, but I would throw out the  
13 criteria of growth because, it's just kind of a  
14 fantasy.

15 MR. SEARLES: I would tell you in  
16 the City of Baltimore one of the mayor's  
17 priorities there that fit within this context of  
18 integrated planning was the redevelopment of  
19 blighted neighborhoods and economically  
20 depressed areas that some of which were old

21 commercial sites, and so forth, and Baltimore  
22 like a lot of urban cities that experience a  
23 mass migration to the suburbs of the  
24 population --

25 MR. GERRITT: I was just in

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1 Baltimore about a month ago.

2 MR. SEARLES: Yeah, and so one of  
3 the benefits is some of the projects that were  
4 done there on the infrastructure investment side  
5 brought in new investment into the city,  
6 businesses coming back into the city, other  
7 growth, housing initiatives, building around  
8 that, so some of these projects can result in  
9 growth, but you're right, that's probably not as  
10 big as the economic development side, which is  
11 the reestablishment or the improvement of the  
12 tax base is one of the truly beneficial outcomes  
13 of some of those projects, but a lot of the  
14 reason that people were leaving the city was the  
15 lack of investment in infrastructure, and it  
16 created not only job opportunities, but it also  
17 created opportunities to bring people back into  
18 the city as a result of some of that economic  
19 development. Did we say anything that's

20 glaringly missing from this list here that we  
21 think should be there?

22 MR. GADON: Does capital cost --  
23 and lender financing?

24 MR. SEARLES: Well, I mean, the  
25 overall cost of capital would be imbedded in

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1 that one criteria. Now, in terms of actual  
2 implementation, the plan in their strategic  
3 financing approach is to doing that, that comes  
4 into a whole different range of considerations  
5 that wouldn't be appropriate for this particular  
6 exercise.

7 MR. COLT: I guess I'll try and  
8 mimic what Jan might say. I'm looking at the  
9 resilience requirement change. You put it under  
10 the environmental criteria set, and at least in  
11 your example, you put it at 10 percent. Now, in  
12 terms of time frame when should we and how  
13 extensive should we in climate resiliency for  
14 the protection of our existing economy and the  
15 underlying structures that support it? So do we  
16 have to -- and I guess it's not so much what  
17 category that you're putting it in economically  
18 environmental, it's how well you define that  
19 criterion.

20           So, it's not just resiliency  
21 against storm impacts, it's the resiliency of  
22 our entire community to recover, and the degree  
23 of which these kinds of projects can enable us  
24 to invest in litigation could be increasingly  
25 important.

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1           MR. SEARLES: A very good point.

2           MR. DOMENICA: Just a word about  
3 with regard with timing. We're already five  
4 minutes over. We started a little late. Rich  
5 tells me we have about 10 minutes left, so for  
6 your own planning, we'll end at quarter after,  
7 if that's okay.

8           MR. SEARLES: So any more comments  
9 before I move on, because I have one more  
10 category I want to cover and then I want to talk  
11 about the homework exercise? Are we okay? If  
12 something else comes up, if you think about  
13 something that you didn't have an opportunity to  
14 provide us with that input. And by the way,  
15 this sheet that we handed out, the numbers that  
16 are on here are no way illustrative of what we  
17 actually think is the most important, it's just  
18 a way of illustration, so don't read to much

19 into that. Social criteria are probably the  
20 hardest ones to employ in a process of this  
21 type.

22 First of all, they're hard to  
23 quantify. Most of them are which are a very  
24 qualitative type of criteria, and these are ones  
25 that are very much uniquely aligned with

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1 community goals and objectives here, so again,  
2 we've given you some examples here, but there  
3 maybe some that you would like to see added in  
4 addition to these. Any thoughts.

5 MS. CALABRO: As Carolyn was  
6 saying, the island effects I think could go into  
7 this category, and you could say health related  
8 impacts vulnerable communities.

9 UNIDENTIFIED SPEAKER: I guess I'm  
10 not a big fan of job stimulus of a criterion.  
11 We see jobs stimulus as a justification for a  
12 number of the different programs I tend to think  
13 it's one-sided.

14 MR. SEARLES: You know, as you  
15 think about these criteria again, don't think of  
16 these necessarily being primary or principal  
17 drives for an alternative, but they could be  
18 sort of a side benefit or residual benefit of a

19 specific alternative, obviously, a big tunnel  
20 project which has the potential of create a  
21 number of jobs over an extended period of jobs  
22 that could be beneficial to the community.

23 UNIDENTIFIED SPEAKER: It also  
24 creates much higher rates, and how do you judge  
25 a business closing eventually because they can't

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1 afford the utility rates. We have a very  
2 aggressive energy efficiency program in Rhode  
3 Island, probably per capita spending is tops in  
4 the country. It's been around for 125 years.  
5 It started before legislative mandates. I would  
6 just caution job stimulus as a justification for  
7 a particular project.

8 MR. GERRITT: The people who get  
9 the jobs aren't all of the people who have to  
10 pay the higher rates. In fact, there's a lot  
11 more people paying higher rates than getting  
12 jobs.

13 MR. DOMENICA: I think what Steve  
14 is pointing out possibly is that some of these  
15 could be negative.

16 MR. SEARLES: In Baltimore we used  
17 an economist to build a model for us that would

18 give us some measurable way to evaluate the  
19 impacts of certain projects on job creation.  
20 And that was a big objective of the mayor in the  
21 City of Baltimore, obviously, with the  
22 unemployment rate as high as it was.

23 MS. KARP: The job stimulus is used  
24 in many projects in Rhode Island, and especially  
25 in the construction. The short term

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1 construction, I want to emphasize short term,  
2 construction-type jobs, those are not  
3 necessarily long-term jobs. And it's not clear  
4 to me that we use these jobs as a result  
5 creating tunnels.

6 So you create other opportunities  
7 for technical people to operate those same wales  
8 and maintenance type things.

9 MR. SEARLES: On the other side, in  
10 terms of the GSI investment, you could say  
11 there's potential for a job creation there  
12 because it creates additional facilities.  
13 Again, unique to your situation, and what's most  
14 important to the Bay Commission here, and so  
15 customers. Any other comments? Okay, any other  
16 final comments on social criteria?

17 All right. Let me just spend the

18 last couple of minutes here. Now, again this is  
19 an example, and Rich, you used, I think Rich  
20 actually used, this is an example from a plan  
21 that I recently helped a client develop in the  
22 City of Atlanta. These were the criteria that  
23 they chose within each of the triple bottom line  
24 categories. And this is just an example. Now,  
25 what we need for you to do is, and this handout

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1 provides a good example for what we need to do.  
2 Within each of the triple line categories you  
3 have to add up to a hundred percent. So, again,  
4 we're looking for three to five candidate  
5 criterion in each of the categories, and it's up  
6 to you to assign the importance weight to each  
7 of those within that triple bottom line category  
8 ensuring that it subtotals to a hundred percent  
9 within that category, okay. Is everybody clear  
10 on that? And again, we kind of rushed through  
11 this a little bit today, but if there are other  
12 thoughts or additions, you think some that some  
13 things need to be modified, if you choose to  
14 make changes, that's okay, we'll accept that,  
15 correct? Please provide us with that. So if  
16 you don't see one on the list that you like that

17 needs to be there, add it in.  
18 If you included, again, make sure  
19 it totals to a hundred percent on each of the  
20 TBL categories. The other thing we need you to  
21 do is if you flip around to the, or if you look  
22 at the bottom of the page, down there, there's a  
23 short sentence of instructions there, but we  
24 need you to rate the importance of each of the  
25 TBL categories. And again, something to a

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1 hundred percent. Everybody clear on that? What  
2 we're going to do is, Rich, I think you're going  
3 to send out in an e-mail --

4 MR. RAICHE: Jamie Samons.

5 MR. SEARLES: I'm sorry, Jamie will  
6 send out that will have a spreadsheet that will  
7 look like this. So to kind of ease your input,  
8 and like I said, if you have some other  
9 candidates that you want to throw in there,  
10 please feel free to do so. And then when we get  
11 back together again in September, we'll report  
12 back to the group on what the waiting profile  
13 looks like for the criteria that was selected,  
14 and have a discussion about that.

15 MR. GERRITT: Jamie will send them  
16 out and we will e-mail them back. And when we

17 get the e-mail, we just respond to the e-mail  
18 with our criteria.

19 MR. SEARLES: Right, she'll send  
20 out a set of instructions along with that  
21 including when we need that back by. And I  
22 guess if you have any questions, should we  
23 submit it directly via e-mail to you Rich, or  
24 should that go through Jamie?

25 MR. RAICHE: To Jamie.

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1 MR. SEARLES: Okay, if you have any  
2 questions or concerns include that in your  
3 e-mail response to Jamie.

4 MR. DOMENICA: Just one ballot per  
5 person, Greg.

6 MR. GERRITT: I can handle that.

7 MR. SEARLES: And again, we're  
8 looking for something like this at the end of  
9 the day, and this is illustrative of Atlanta's  
10 waiting, of their triple bottom line categories.  
11 Again, it's close to being balanced, it's not  
12 totally equal, and that's not necessarily what  
13 we're looking for. Very good, thank you.

14 MR. DOMENICA: Thank you all, very  
15 much. The next meeting is September 4th, at

16 9:00.

17 (HEARING CONCLUDED AT 12:12 P.M.)

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1 C-E-R-T-I-F-I-C-A-T-E

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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.

5

6 IN WITNESS WHEREOF, I hereunto set my  
7 hand this 8th day of July, 2014.

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PAULA J. CAMPAGNA, CSR, NOTARY PUBLIC/CERTIFIED  
COURT REPORTER

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21 MY COMMISSION EXPIRES: April 25, 2018

22

IN RE: CSO Phase III Stakeholders Meeting  
Narragansett Bay Commission

23

24 DATE: June 18, 2014

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