

ADVISORY BOARD ROUNDTABLE_NOVEMBER 21, 2024

Open Discussion of Survey Questions

The discussion was moderated by Board Co-Chair Marcos Díaz-González and Acting Director Rick Bell

Question 1: Major projects in transit and housing take many years for public sector agencies and private sector firms to design and construct, straddling electoral cycles. How does your office deal with the changes that sometimes result from changing priorities?

Question 2: Environmental codes and standards have changed in New York City and elsewhere as a function of increased concern about global warming, accelerating efforts for alternative energy sources, decarbonization and the creation of eco-districts and micro-grids. How does your office, whether a public agency or private firm, anticipate revisions to ongoing and incoming work if Federal policy and funding changes after the inauguration of the next President?

Question 3: As a leader in the AEC Industry, with responsibility for the continuity and current success of a public agency or private sector professional practice, there are many concerns that might cause anxiety or loss of sleep. What keeps you up at night?

Question 4: As a leader in the AEC Industry, with a pronounced interest in the future success of a public agency or private sector practice, you recognize the need to attract professional staff with new skills, perspectives and capabilities. What is the best way to recruit and hire such individuals?



Attending in person were: Naré Aghasarkissian, Steve Alessio, Lauren Alger, Zaid Al-Hayderi, Prakeerth Ammisetty, Elisabetta Barzi, Ruben Bazalar, Rick Bell, Denise Berger, Mathias Berthelot, Rick Chandler, David Chitanava, Sophie Chen, Rick Cotton, Aarti Dasari, Yuhandhar Devanaboina, Marcos Díaz-González, Kate Dunham, Ralph Esposito, Camilo Ferreira, Brennan Gilbane, Ben Hunter, Purnima Kapur, Sean Kim, Tonny Kiplagat, Alejandro Lizcano, Ange Ndayishimiye, Marion Ndubi, Cassandra Pin, Javier Quirós, Tom Scerbo, Dhurma Shah, Lin Shi, Lizzie Song, Jim Starace, Marilisa Stigliano, Chi Hin Tam, Kaustubh Tiwari, Linda Tonn, Jan Tuchman, Kristen Van Gilst, Anvitha Yadama and Michael Zetlin

Participating by Zoom were: Richard Anderson, Ben Pape, Feniosky Peña-Mora and Tom Scarangelo

Open Discussion of Survey Questions

(Also see SurveyMonkey replies to multiple choice questions at the end of this narrative)

Question 1: Major projects in transit and housing take many years for public sector agencies and private sector firms to design and construct, straddling electoral cycles. How does your office deal with the changes that sometimes result from changing priorities?

Marcos Díaz-González: We're going to begin the program with an open discussion of the survey questions.

Rick Bell: We've had themes for the prior advisory board meetings ranging from cyber security to equity in infrastructure, and, last year, decarbonization, and we were going to be talking up to the beginning of November talking specifically about issues of mobility, about transit, about transportation systems, knowing that would be of interest to many of you around the table, but to many in the private sector as well and then the election came about, and we said well maybe there are broader issues that relate to what the students are researching, that you'll see later if you stick around to the end. And the first question in the survey was the kickoff concept, without mentioning the presidential election or any of the other elections that took place recently in the US or elections for that matter in other countries. How do you maintain funding for infrastructure projects through different administrations, essentially the question I asked Mr. Cotton. The answer from Feniosky Peña-Mora when he was Commissioner at DDC was that you look for small victories. You look for synapses and levels of completion. That may be hard to do in major facilities that are either open or closed. So, this was a thinly disguised question about the election results. But the implications are really clear. For those who completed the survey in advance, and for those on the Advisory Board in particular who could not be there today, who sent in answers, I was going to relate some of the answers that were given, but that steps on the discussion here. I'm really interested, particularly from those who haven't completed the survey, please do so if you have a chance, but here we are having the conversation. Whether you are in the private sector or the public sector, how do you maintain continuity when things change. For the people from Columbia who had replied that I'm an academic, this question doesn't pertain to me. Well of course it does. We have a new interim president here at Columbia. Things change at Harvard all the time, well, sometimes. The question is clear. I could hint that many of the answers that were received surprised me by their positive tone. When I wrote the question it was on a very, very dreary morning after. So, I'm going to kick it off by saying there's the question that's in the survey. When we finish our discussions, the students who have been doing research on some of these issues will give you all the answers.

Denise Berger: You can start by being positive, right, it's always good to be positive. But, when you think about reality, as everyone knows, coming from the public sector to the private sector, there is a pipeline, of people and money, talent, you build off of that talent. When things start and stop it does hinder the consultants because they have to take people off and put them on another project. It sounds simple, like that can be easily done. But it really depends on the project. And when they may be coming off a project and where do you put them. It's not so easy to juggle. You could think a firm like AECOM has all these projects that are ready to go, but they also have people outlined for those projects. The better partnership we have with our clients, the better we can serve them and put the most capable and skilled people on those projects. Not to say that when we're not, but when we know in advance it really helps us. And, not only that, Rick Cotton mentioned it earlier today, there is a big MWBE compliance too. So, when you think about when you are stopping a project you are hindering their work too. That's 33 percent. So, we just have to be mindful. I do think that our firm does have concerns with the changes in the administration and what that will do for federal funding to be quite honest. But then again, that's for New York. The other areas and the rural areas are really happy. So, we'll have to see how that goes.

Lauren Alger: I think what Greg was saying about communities is really relevant here. Having community support, and ultimately, they are the end user. When we think about election cycles, people need to be reminded that the local elections are really important and having local agreements and making sure that the priorities are set. I think in regard to the electoral cycles in general, with my background in sustainable design, a lot of this is a lack of knowledge or easy to digest terminology. Again, if you think about communities, a lot of this has to do with the community. How can you give them a resilient and sustainable design, something balanced. So, I think a lot of it is we're reflecting on how to change the narrative so that everyone understands the impact it has on them.

Purnima Kapur: I would just say going back to your question and what you said about the answers that were positive, I would say that yes, administrations change. But they are also term limited and on projects that are going to go to ten years or more, you will go through several administrations. And in part it is really setting things in motion in a way that it is hard to completely stop something. You may need to fiddle a little. But once there is funding committed and some of it is being deployed, it is hard to yank that back completely. That's how some of the big projects continue go forward. For the City I went through four mayoral administrations, we currently have a project at Harvard where Harvard owns the land, but MASS DOT, the State Department of Transportation, is realigning a highway that they own but it's on the land underneath owned by Harvard. There is Federal funding involved. There is the city involved because ultimately they are going to build city streets as well. And we will have Harvard and the private sector as the people who are building it. It is a thirty-year project. We were very fortunate to get \$335M from the Federal government a year ago. And we are racing to make sure that some of it is already there and in place so that as things change the community support is there behind what we are building there. And that there is enough momentum there so that even if we have to wait out an administration that the work continues to happen. So, I think that's why you heard a lot of the not-so-negative responses to that.

Melanie LaRocca: I think you are a hundred percent right. The hard part is getting it started But once you've got it started, once you have your foot in the ground in any way possible, it is much harder to stop the train after it has left the station. I think that is the mentality to hustle as much as you can to get it started. You just have to wait it out a little bit, Work will happen. Things will keep going.

Purnima Kapur: The Port Authority Bus Terminal project that Rick was talking about ten years ago, when you and I were both at the City, the questions were the same, we were talking about the storage facility. Whether you do the storage facility or not. How do you get the buses off of those streets? These projects also just take a long time, to reach that consensus. You need to have the funding and the consensus. When you have things that are ready to go, they go.

Denise Berger: And to the Port Authority's credit, at the onset of those conversations, people were not amused at the plan of doing this. They worked very hard to get all elected officials on board who are now sell the project as their legacy, but it wasn't that way.. Granted it took ten years, but still. To the Port's credit they worked really hard to make sure that folks were there and that come hell or high water the project was to be done.

Greg Kelly: A lot has been said, but not necessarily by everyone. It takes a long time to get good public policy implemented. And what we're talking about is that investing in infrastructure is investing in good public policy. Good public policy doesn't happen without good politics. So, I as we think about these programs, And Rick is a perfect case study in this. You have to build resiliency around the politics when you are setting the project up. You have to be looking ahead and know that at a date certain there will be an election, it doesn't change. How are you building good politics into your project plan. That's why it takes so long to get these projects. started. The great news is that there's always an election. Things will change. But if you build resiliency

into the plan, your projects will continue to go forward. But I will say because it struck a nerve. That big projects can be stopped. I've had it happen on two occasions, once here in the New York region and once out in the Midwest. If it's not my job I'm going to kill it. But they were not as well planned a situation.

Rick Bell: I'm going to read one of the responses that came in, not while we've been sitting here, but in advance from Sabrina Kanner of Brookfield who couldn't be here today because of a meeting conflict. She wrote that for Brookfield in answer to the first questions that projects in the pipeline aren't assured until completion. But she kind of added later, speaking particularly about federal funding: "the incoming administration has a different approach to funding infrastructure and immigration and possibly organized labor, which may lead to a seismic impact to the AEC Industry. It may be necessary to brainstorm possible outcomes and implications." Which was what I was kind of hoping that we would be doing here today. So, hearing both the positive and the negative is very fruitful. For those who keep track of these things, it's the birthday of Voltaire, in 1694. He wrote "*Le doute est un état mental désagréable, mais la certitude est ridicule*" or, loosely translated, doubt is a disagreeable mental state, but certainty is absurd. We're in for an interesting ride. You roll with the punches. Nothing is ever a sure thing. Certainty is absurd. But, if you do as Rick Cotton was saying, as Greg reiterated in a different way, if you have a lot of support at the base, things can proceed. We can move on to the next slide and the next question.

Question 2: Environmental codes and standards have changed in New York City and elsewhere as a function of increased concern about global warming, accelerating efforts for alternative energy sources, decarbonization and the creation of eco-districts and micro-grids. How does your office, whether a public agency or private firm, anticipate revisions to ongoing and incoming work if Federal policy and funding changes after the inauguration of the next President?

Rick Bell: Obviously, a corollary with all of the incoming Administration's rhetoric about what changes will be made. And, I think Jan, you kicked that off with your question to Mr. Cotton about what the Port Authority was doing in terms of airport design particularly and his answer was pretty cogent. But you can't raise the level of the runways overmuch, and you can't build a total wall at the end of the runway for obvious reasons, and that's just the beginning of it. If the federal protections and incentives disappear and don't reappear for four years, the question was, looking for the answer well of course the States and the cities fill the gap, there's a momentum on environmental issues and not just in California. I can read some of the answers that came in in advance, but I'm interested in what you all think. And this is for the students as well, don't be shy. Everyone at the table and not at the table. The discussions at Baku and in Cairo the week before. Where do we stand here on continuing all the good things that have been happening in the City, in the region and nationally? Who wants to go first?

Jan Tuchman: I was just going to mention that I didn't quite get into the last discussion, but I saw that you are talking about funding here again, so, and when there have been funding issues we look for creative ways to fund. And I've also been hearing a little bit that there is a rise of Public-Private Partnerships, that this activity, which has its own set of problems. But, when in need, you try to solve the problems that you can solve. This could be an area that can be explored as we find there is a difficulty in the federal funding pipeline of funding potentially.

Marcos Díaz-González: Maybe I'm going to redirect or reframe an aspect of this question related to environmental codes and standards, even if they get relaxed at the federal level one of the things that we are seeing with the current generation of professionals that are entering our industry, that this is something that they care deeply about, their families care deeply about. Our generation may have screwed this up, and our parents' generation certainly did, but, we, our generation, is going to have a really tough time attracting people to the industry if we don't do the right thing, if we don't do it on the construction side, or if we don't do it on the design side

and certainly on the politics side, which is the early stage where things come before everything else. That facilitates everything else. I would like some feedback particularly from the generation younger than me. Some are sitting on the chairs to the left, and they may be at the table as to how important is this to you? And how much are you willing to make key life choices based on what we do in our industry? That is join us to fight the good fight or do something else. Because that pretty much destroys our future.

Lauren Alger: I can maybe kick it off. My answer before may be relevant here. It's how we communicate it. It's how we can find a way to make energy efficiency understandable to all and wanted by all. Ultimately if you can reduce your energy costs that's fantastic. I think everyone wants that. If you can have a resilient source of power you are generating on site, everyone wants that redundancy. I think that messaging, in terms that people understand how it benefits them, is huge. Even with any change in terms of electoral cycles and people in office, how we message it is going to be a game changer.

Ralph Esposito: I do think right now with the drought situation, I've had this conversation with a few of my circle of friends, and it's not a measurable impact. The hidden message is that most people in New York live in rented apartments, if we talk about Manhattan specifically, most people live in rented apartments, and our water consumption is outrageous. And it's not measurable. We get these notifications like be conscious of your water use, don't run the shower this long, and don't run the dishwasher. But with no way to measure at an individual level. We lose that sense of community and what we are contributing towards a larger goal. So simple way of measuring that, a measuring device for each unit. To show the cost impact necessary for that. At least at a building level, if you can show that your building is having a larger impact on water conservation than other buildings, it turns to gain by that component, and I think that is really important. That's an idea.

Jim Starace: It's become good engineering. We woke up, I think, as a society, with Sandy, for one. And standards began to change then. I'm retired Port Authority Chief Engineer, and I was part of the changing of the standards, certainly for resilience, in my tenure, because we realized that we had to. That the world had changed. We saw the impact of it. And I think that sustainability, similarly, is good engineering these days, and is accepted by the owners. I don't see that stopping. It's now become part of the design work, part of what we do.

Linda Tonn: I just want to mention from the other side, funding issues really impact how much we dig into these issues. Unless we are supported in these endeavors it is really hard to do it. We are trying to do new things. We're trying to recapture heat in the subways and send it on to someone else for use, but those things need to be funded. We're looking for grants. We have a new sustainability group, that's a lot of young people with a lot of great ideas, but you need the funding for them.

Lauren Alger: If I can add on to that, I think you brought up a great point, a comprehensive approach. One concept in the sustainable design world is life cycle assessment. It has to happen from planning. Finding funding opportunities. The earlier on the better, to coordinate and make sure that it is implemented as successfully as possible.

Denise Berger: I'm just going to add on to that also. With the pact that all of us signed for 2050, also in the large companies, the emission goals, 1, 2, and possibly 3, there is a focus on that. So, I want to echo what Jim said, it is good engineering, there is also pressure for us to do these mandates and look at advisory services in these areas. And hopefully, with the current administration, it stays. Because I would say, the other countries, the UK and Australia, they are way further ahead than we are in this area.

Alejandro Lizcano: I'd like to add to that. At the policy level, sustainability and environmental policy is also a data problem. How is it that we can collect enough data to actually benchmark what we are reporting, what kind of projects need to be reported out there, and how can we compare our projects with other projects. That is why initiatives like ASCE Infrastructure 2050, where Lauren has been involved, are so important. It ultimately boils down to communications and how we spread the word and the importance of the data we show the community. But as an industry we are lacking on the recollection and the processing of data, that is a big pain point moving forward.

Linda Tonn: I just want to mention collecting data because its interesting within our subway community. We're trying to connect that data on where our vulnerabilities are. And a lot of it came from word of mouth, from our station agents, from our station managers and from the Internet, pictures of waterfalls at our stations finding the location of stations where we have issues. We need that for the starting point.

Marcos Diaz-Gonzalez: One of our Fellows had a question. I do want to give a heads up, I'd like to hear from Brennan, or Ralph, or Steve about the construction portion of these. What are you looking at, at this point? Are there any baselining standards, or policies that may change? What are you looking for to contribute to the solutions here? But let's start with the Fellows so I give you a little bit of time.

Sophie Chen: I'd like to go back to what Marcos was asking about the perspective of someone entering the industry perhaps a couple of generations younger and how that relates to sustainability and resiliency. And I think that entering the industry, I feel like we all want to be good engineers, and in this day and age good engineering is sustainable engineering, and that is also probably for a lot of us one of the reason that we joined civil engineering, or chose civil engineering, which may not have been true of previous generations of engineers, and as we join the work force we look for the opportunities we kind of come in with the culture in our cohort that sustainability is a must. I just wanted to clarify that.

Ralph Esposito: I'd be remiss if I didn't take advantage of the future of our collective businesses. So one of the questions that I have for the students, is when you are looking for an employment opportunity, do you look at the body of work that the design firms, that the construction firms do? Do you look at a company that does, for example, data centers, that use an extraordinary amount of energy, do you say I don't want to work for a company that does that; I don't want to work for a company that builds correctional facilities, because I don't agree with the policies if the US about how we incarcerate people. We're as good as the people we can hire. I think it would be really helpful for people who run their companies to have this in mind. What kind of things do you want us to do? And what kind of things do you not want us to do? To join our respective firms.

Camilo Ferreira: I can answer that. When we look at companies we understand the our industry need to build facilities and that our industry needs do projects and that is going to impact climate and impact the resources in the world, so rather than look at the project itself, we look at the broader perspective of what the company is doing. We understand that some companies have some sustainable parameters, or some ideas, or want to implement some of those ideas into the projects that they are building. So we look more into that perspective rather than the independent projects that they are building.

Sophie Chen: And there are obviously very diverse beliefs and values among our generation as well. You mentioned correctional facilities and data centers obviously a big controversy. But as we research the companies, here is that balance. What project companies are doing and how they are executing them. And, of course, we also want to have employment and career growth, so you obviously have to consider that.

Rick Bell: I'd like to extend that. One of the responses from someone who couldn't be here is from Erica Avrami from GSAPP who wrote: "As an academic, I am anticipating and have been in touch with studios about new Local Laws effecting retrofits and adaptations of existing buildings." She also chairs the Existing Buildings Network that brings together the Climate School, Architecture School, the Engineering School and a few other places here. The question that comes out of that is there enough as Fellows of CBIPS about the issues coming out of the climate crisis in terms of the lecture classes and coursework and whatnot, are you satisfied that there is enough, or can there be change?

Sophie Chen: I can answer that. I've probably been here the longest out of everybody. I'd say absolutely. It's also one of the core values of the entire Engineering School. And obviously in our department there are a lot of opportunities for sustainability topics to either be couched in or centered in our courses. So certainly. I would say that maybe as it relates to the execution of LEED or ENVISION or the real formats and structures in which they are carried out, there could definitely be more priming.

Steve Alessio: I'd like to make a remark. Ralph, thank you for the question you asked the students. It's great. We should all embrace change. I do find it tough when you speak to a lot of young people, Ralph asked an important question: Do you not look at a company because they are building a correctional facility or a data center. I'm involved in a controversial project, one of the jails, and a lot of people did not want to get involved in the BBJ program with us. We were turned down by a lot of architects and engineers. But they didn't understand the program, that we were really making a change. I know that Brennan is involved and so is the whole STV team, in different boroughs. But there was a big culture change. A big change on how we treat people. I had embraced change in my own company. We went from doing private work to doing public work. We're doing housing for NYCHA. Melanie and I were talking about this a few minutes ago. It's a big change in how we treat people. On the correctional side, we are really making a difference on how people are incarcerated, how they live when they are incarcerated. So really just don't say that I don't want to build a correctional facility. It's not just building a building, it's everything that goes into that building, it's a whole cultural change. Same thing with public housing. You couldn't have gotten me five years ago to say that I would build public housing. Or renovate public housing. Really when you walk through some of this public housing, we should be ashamed of ourselves on how we treat people, and how people are living. We treat our pets better than some of the people who are living in this public housing. Broaden your horizons. We are making a lot of changes. Recycling, sustainability, we're eliminating carbon footprint, we're eliminating gas to a lot of these buildings. Electrifying the buildings. There is a lot to be said. Just broaden your horizons. And I do find that a lot of people don't broaden their horizons. Look past what somebody wants you to do.

Lauren Alger: I think that's a great point. It's not only embracing change but also driving it too. These projects are complex. How are we improving the industry to design with people at the forefront? How are we making sure that an occupant in a facility like that, their families feel welcomed to coming and visiting, so that at the end of that term they can continue that relationship, they haven't had issues reuniting with that occupant. That they are not having issues relating to the occupancy. These are real people. Really making sure that we are driving change in the industry. Staying informed. Understanding how you can do better. It's huge.

Marcos Díaz-González: That partnership with the owners in engineering and construction is critical. Brennan, we'll have one more comment and then move to question three.

Brennan Gilbane: I totally agree, and I think that alignment with goals is critical and understanding what the BBJ program is doing as an improvement to Rikers for the people that are there, is lost in translation a lot of the time. I know that our three firms all want to do this and it relates to our mission and our goals. I think that the challenge sometimes comes with the

client. And budgets are tight. And this is one of those things that the perception, MWBE and all that, there was a similar situation, there is a premium and a cost to that. We have to think about the money it costs to be sustainable. And if we work on that it will happen much easier. But for the seats that we sit in, the clients sometimes say I don't have that, it costs too much. Unfortunately, although we are driving that, telling them it is important. But, at the end of the day money drives it. It's a big piece of it.

Marcos Díaz-González: The philosophical case and the economical case have to align. We're moving to question three.

Question 3: As a leader in the AEC Industry, with responsibility for the continuity and current success of a public agency or private sector professional practice, there are many concerns that might cause anxiety or loss of sleep. What keeps you up at night?

Rick Bell: So, the next one is what keeps you up at night. I won't read it because I memorized one of the answers from someone at the table, I won't mention that person's name, who said I sleep pretty well. But that may not be from someone who is a CEO yet. My answer would be that putting this together, given the lockdown here at Columbia, was tricky. It kept me up at night. Politics, policy changes, that too, but that just seems like a nightmare that you could sleep through. The organization of endeavor, the organization of activity, and that's also going to be a segway into the next question and that relates to some of the things that some of you have been talking to already, the generational dichotomy at the table, workforce issues. But that isn't necessarily the answer we got to this third question. What causes are your concerns, what are your anxieties, what causes insomnia, and how do you overcome it?

Michael Zetlin: I'm glad to start Rick. I would say that one of the concerns, there are probably a few things that keep me up. On the technology side, AI, and how that is going to impact our industry. It's already taking effect in the legal sector. You can actually have AI replace significant amount of time of work done by attorneys. And I think in the architecture field what I've heard you can actually have something designed in architecture, because it is very clever, has tremendous data, and can give you very good work product. Not that it replaces entirely, and I think it can be extremely powerful and be an extremely powerful tool to use, but I am giving some thought to how over time that impacts and changes the nature of the AEC Industry and how our next generation will be contributing to our firms, because I think it will be in different ways, and I think that goes to part of the educational process and how they are trained for new skills sets. Anyway, that is one thought.

Melanie LaRocca: I'll add that I think that the competitiveness at the City and State level is concerning in terms of how we stay competitive and grow our edge, given that that has such a direct impact on all our ability to continue to work and to grow our pool of work. So, I think that is an area that we should be mindful of and concerned about these days.

Rick Bell: Are you worried about the second phase of the Second Avenue Subway?

Linda Tonn: We do. We worry funding all the time and it impacts our projects. And it's very discouraging, especially state of good repair work. But you asked what keeps you up at night?. I just want to mention that your honoree has kept us up at night when we had to deliver projects for him. Kind of circles around. The anxiety of having to present to him when we were in doing our ESI projects and the Governor wanted to see a major transformation of our stations, and we'd have to go up to the Governor's office and present. He knows how to get things done.

Rick Bell: Jim, did you have that same experience?

Jim Starace: Absolutely, Rick is a unique individual for sure, and I totally agree, Linda, with everything you said. For me a common concern is the maintaining of staff, talented professional staff. Aside from a firm's public and private chasing talent and competing with each other to get talent and maintain and keep the talent, you talk about projects like the Bus Terminal which takes ten years; you also have to think of the continuity, you have leadership of some of these programs which are very complicated.. Finding leaders, project managers, directors to lead these, they're rare individuals. Continuity is a tremendous challenge. So, it's that and the general staff of talented individuals, bringing them in at entry level and keeping them, to build your staff and to keep things going.

Denise Berger: I think also, along with Jim and Linda, and Linda is experiencing it now, I guess I'm sleeping fine, but when I was at the Port Authority, one of the biggest things, we talk about these shining projects, these big projects, right? But there are hundreds of state of good repair projects that are not funded or move out of the capacity because of these new shining projects that come in, and that's a concern, and that's a concern for the region, because we have to keep them in good and fair condition, good condition, right? But the agencies are stressed. They're stressed. You have congestion pricing going in. I'm sure the Port Authority probably will be putting a toll in. So where's the money coming from? Think about the economics of New York. Are people going to continue to come into New York City? Taxes are only going to continue to go up. It is a concern.

Question 4: As a leader in the AEC Industry, with a pronounced interest in the future success of a public agency or private sector practice, you recognize the need to attract professional staff with new skills, perspectives and capabilities. What is the best way to recruit and hire such individuals?

Rick Bell: Jim, as you were saying, finding leaders is a perfect segway into the next question. This is one that we discussed a few weeks ago at the CBIPS weekly research meeting, and that photo was taken this morning very early, there was nobody on campus. It also comes back, How do you actually find people? Does Columbia play a role? How much are you linked to other engineering programs around the city? There are other excellent programs elsewhere as well. How useful is a vehicle like CBIPS or the Industry Field Study that STV and AECOM undertake to try to broaden the perspective beyond the walls of the campus? How does that all play in? What's the continuity between the studio, the lecture hall and entry level jobs?

Naré Aghasarkissian: We have the Industry Field Studies course. I think the course is a very important aspect for us at least because throughout the semester we get to know the students and they get to know about how real-world projects are run. And just for everyone to know, the first semester we cover traditional project management, and they work on a real-world project to make a project management plan for it. And through that we understand what their interests are and how we can pique their interest and build up the next generation of engineers in our industry. And Elisabetta, do you want to add anything?

Elisabetta Barzi: It's always a great opportunity to get to know the students. Sometimes you go to interviews and ask questions. Getting to know the students throughout the semester we have the chance to spend time with them and understand their potential. We have always been very lucky. We've had a lot of people joining us for internships, as you might have heard. I think it's a great opportunity. Not just through the class, we get to spend time with them.

Javier Quirós: From our perspective, I think today's market it's very tough to find a job. Especially with LinkedIn making it easy to apply for everything, there are over 500 applicants. How do you distinguish yourself from 499 resumes? I think these events and the Industry Field Study and the CBIPS really give us an edge, to find something, at least in the city. The

connections that we make are here. Otherwise trying to differentiate ourselves or stand out is virtually impossible.

Rick Bell: Ruben, you have seen the IFS experiences at AECOM and at STV and know other firms such as Thornton Tomasetti. How did you make a career decision between the offers you may have had in the public sector and offers from other firms. How do you make decisions?

Ruben Bazalar: Complementing what Javier mentioned, and as an undergraduate student as well here at Columbia, I think the university plays a huge role. For those of you that know Dr. Ibrahim Odeh, one of the best advice that I have received from him was to network as much as possible and to get myself be known by people in the industry as well. Both experiences at STV and AECOM were great. They laid out the field for me to also engage with professionals, not only the teachers though I've learned a lot from them, but also every guest lecturer that they've brought in, and every guest lecturer that Columbia brings in. Even as an undergraduate, the opportunities for networking and the opportunities to have firsthand contact with industry experience, not only with industry leaders but also by site visits. That is one of the main reasons why I decided to continue in the Masters. And regarding career decisions, I will join Bechtel in January. I think it was mainly because of that advice. I connected with one of the industry leaders there and that's where the conversation was. I am taking a point from what Javier was mentioning. Whenever I had the chance, either as a TA or whenever I get asked, I don't recommend regular traditional application processes, just precisely as Javier mentioned before, your name or whatever you can bring to the table gets lost in the hundreds or thousands of applications. All the firms that we have here present, of course, and other world-renowned businesses. The applications get lost. It's very tough sometimes if you don't know or haven't the opportunity to know someone in the company to help you with the screening process.

Rick Bell: On both sides of the divide, do career fairs work? Or are the discussions are so short, from both an interviewer and interviewee perspective?

Ruben Bazalar: To me personally, I think that career fairs are helpful to a certain extent, getting to be known, connecting with people at particular companies. But I think that how you manage communications with them after the career fair, that is what makes a huge impact, if you are a potential candidate or not. Not just leaving your email or contact information at the career fair.

Rick Bell: I'll take the liberty of saying that that is a great concluding remark. Because communications including across this divide will be triggered by presentations of some of the current thinking. We're not at the end of the semester yet, but unlike previous years when we have convened here, we are a month later. Usually, we've gotten together in October when the discussions about ongoing research efforts were pretty incipient. Now there has been a lot of discussion, a lot of refinement of the four topics that the current cohort has been pursuing. And without stepping on Lizzie's thunder, I'd like to re-introduce Lizzie Song, who was in the first class of CBIPS Fellows and who has the distinction of making the suggestion of reanimating an alumni board, with over 100 alumni 108 people some of whom are at the table some of whom said they would be on the Zoom and they are also a resource, a resource the Alumni Board, and the alumni of the program itself, a resource for possible navigational tools. Lizzie, do you want to do the introductions of the research that we are about to hear? We have saved the best for last. And I hope that everyone at the table can stay until we finish and will have a chance to talk a little bit afterwards. We didn't do poster sessions deliberately because the verbal presentations give real face time and a chance to hone presentation skills and anticipate from your remarks and comments and reactions where the endgame will be for the end of the semester will be in a few weeks.

Lizzie Song: Thank you very much Rick. I also want to echo Ruben. I believe I found my first job through CBIPS and through one of the Board members on the Advisory Board, and it's been a

very fantastic experience so far. I personally want to keep this tradition and to get to know the students and to try to help them find more opportunities and help them with their career trajectory. So yes, I was one of the research Fellows in the first cohort back in 2018, and I remember it was a truly transformative experience for the students. And now we've grown into more than a hundred people in the alumni group and me and Rick, we have been working on different opportunities to help the community grow and help the community thrive. Without further ado let me introduce the next generation of Fellows who will keep the tradition of innovation and of excellence. I've had the honor to sit with them for several research and brainstorm sessions in person. I am very excited to see what they have prepared so far. They prepared four very timely and critical topics: Energy and Technology; Transit and Mobility; Housing and Sustainability; Bridges and Resiliency. Let's welcome the students to the stage.

Research presentations were made by: Mathias Berthelot, Sophie Chen and Cassandra Pin on Energy and Technology; Yugandhar Devanaboina, Camilo Ferreira, Chi Hin Tam and Anvitha Yadama on Transit & Mobility; Aarti Dasari, Saitejasvi Deshmukh and Shivani Venugopal on Housing & Sustainability. All final presentations, including those of Marion Ndubi on Transit & Accessibility and Ruben Bazalar on Bridges & Resiliency can be seen on the CBIPS website.

Survey Questions (abbreviated) and Multiple-Choice Question Survey Responses

Question 1: How will capital projects continue after the 2025 change of administration?

Question 2: How will environmental standards continue after the change of administration?

Question 3: What keeps you up at night?

Question 4: What is the best way to recruit and hire such talented young CEEM professionals?

Question 1: Capital Projects

	Board	Alumni	Fellows
Assume that projects will have funding that is assured until completion	23%	0%	0%
Assume that projects have enough flexibility to accommodate changes in scope	0%	25%	33%
Assume that there is enough work in the pipeline to allow for project terminations	23%	0%	0%
All of the above	39%	50%	33%
Other: concern about loss of funding because NYC is a 'blue city '	15%	25%	34%

Question 2: Environmental Standards

	Board	Alumni	Fellows
Assume that NYC and NYS environmental regulations will remain in place	8%	25%	0%
Assume that for some projects the environmental scope will necessarily change	17%	50%	67%
Assume that design and construction professionals will maintain standards	17%	0%	0%
All of the above	42%	25%	33%
Other: concern about federal overturning of state and local standards	16%	0%	0%

Question 3: Concerns

	Board	Alumni	Fellows
Concern about offices maintaining a high level of incoming capital projects	0%	0%	0%
Concern about offices maintaining a talented and motivated professional staff	54%	50%	33%
Concern about competition impact on operations, methodologies or technologies	0%	0%	0%
Concern about increased natural and man-made disasters	0%	0%	33%
All of the above	31%	25%	34%
Other: concern about changes in immigration policy	15%	25%	0%

Question 4: What works best for hiring graduating CBIPS Fellows

	Board	Alumni	Fellows
Career fairs at Columbia's School of Engineering & Applied Science	0%	25%	0%
Direct contact between students and members of the CBIPS Advisory Board	8%	25%	0%
Contact with other hiring personnel abetted by CBIPS Advisory Board members	0%	0%	0%
All of the above	61%	50%	100%
Other	31%	0%	0%