Long Island Regional Planning Council

LIRPC Meeting – September 26, 2024
Zoom Virtual Meeting Summary Minutes

LIPRC Members Present
John D. Cameron, Jr., Chair
Jeff Kraut, Treasurer
Theresa Sanders, Secretary
Supervisor Don Clavin
Elizabeth Custodio
Nancy Engelhardt
Jeff Guillot
Mayor Barbara Donno
Mayor Robert Kennedy
Supervisor Ed Wehrheim

Staff and Guests Present
Richard V. Guardino, Jr., Executive Director
Elizabeth Cole, Deputy Executive Director
Missy Leder, Executive Assistant
Rachel Titus, Program Coordinator

Richard Annito
Greg Schundler

Alan Belniak
Katherine Heaviside
Mark Smith

AFGC Director – C. Rice
Allyson Murray
Andrew Mulvey
Angelica Apolinaris
Ann Fangmann
Annemarie Stutzmann
Brian Macri
Bob Arnold
Brandon Ray
Carl LoBue
Chris Cirruzzo
Chris Kobos
Chris Poelker
Chris Schubert
Chris Gosley
Christopher Fevola
Christopher Nolan
C. Lucas

Charles Flagg
David Bligh
D. Creighton
D. McNaughton
Donna Boyle
E. Blumenfeld
Elizabeth Papa
Emily Dantonio
George Paralemos
Greg Cergol
Henry Rosoff
Howard Fein
H Rhodes-Teague
T. Dejesu
Jessica Zanca Woreth
J. Guarino
Joanne Schiefer
Joseph Martelli
Kara Welling
Karen Blumer
Karina Kovac
Kim Cline
Anthony Piccirillo
Lindsay Ekizian
Lisa Broughton
Madison Ennis (Senator Canzoneri-Fitzpatrick)
Marci Bortman
Mark Loughry
Mark Wagner
Marty Glennon
Mary Byrne
Michael Hagen
Michael Selig
Nancy Siry
Natalie Wright
Nicholas DeVito
Pam Panzenbeck
Patti Bourne
Paul Hoole
Patricia Walsh
R. Esposito1
Rich DePalma
Rich Murdocco
Rich Zapolski
Rob Watson
Sagar Mehta
Sarah Lansdale
Scott Grupp

N. Sehgal
Shameika Hanson
Shirley Leung
Steve Hadjiyane
Sarah Zepeda
Tiffany Smith
Tyronza Murray
Will O'Brien
WNBC
WCBS

Meeting Commenced:
John D. Cameron, Jr., opened the meeting at approximately 10am.

John Cameron:
Good morning and welcome to our September LIRPC meeting.

As we do with all our meetings, we will start with the Pledge of Allegiance.

Supervisor Wehrheim:
Pledge of Allegiance

John Cameron:
As we all say the pledge, we attempt to remember the men and women of our armed forces who put themselves in harm's way each and every day so that we can enjoy the freedoms that we do.

Thank you for joining today. We have an excellent presentation.

Our Executive Director, Rich Guardino, will now conduct a roll call.

Rich Guardino:
Welcome, everyone. Thank you all for being with us this morning.

Roll Call
John D. Cameron, Jr., Chair
Jeff Kraut, Treasurer
Theresa Sanders, Secretary
Don Clavin
Mayor Barbara Donno
Nancy Engelhardt
Jeff Guillot
Mayor Robert Kennedy
Supervisor Ed Wehrheim

We are aware that Liz Custodio will be joining us after she finishes a call.

Alan Belniak:
Thank you for joining us this morning. My name is Alan Belniak with VHB. I am here to help support this meeting today. After some opening remarks and some orders of business, we'll have a presentation. After that, the comment and question opportunities are given to members of the LIRPC. After the members of the LIRPC, we will turn to the public to ask questions and share comments in one of two ways. You can use the Q&A function below. If you move your mouse to the lower section of zoom, the Q&A button will pop up and you can type in your comment, and I will read it aloud. Alternatively, you can use the raise hand feature, which is also below. That sends a signal to us that you'd like to speak or comment. I'll call out your name, send a command for you to unmute your microphone, and you'll then have a couple of seconds to share your comment or question. Please note, this meeting is being recorded. With that, I'll turn it back over to John and Rich.

John Cameron:
We're absolutely delighted to have Richard Annito and Greg Schundler from LiRo, GIS with us this morning. Richard is the Vice President of LiRo, GIS and Greg is the LiRo, GIS business analyst and today they'll be talking about the Long Island Economic Flood Risk Study.

PRESENTATION
Richard Annito:
Good morning, everyone. The Long Island Economic Flood Risk Study, specifically, is a study of businesses, revenues and jobs at risk in flood zones on Long Island's South Shore. The LIRPC and LiRo, GIS started working together back in 2022 and the first phase of our work was to make a waterfront zoning and uses GIS inventory, which is currently available on the LIRPC website in the environment section. We looked at the zoning designations within a quarter mile buffer area of the coast, which ended up being 79 jurisdictions and 600 zoning designations. It took quite a while to gather that information from all the jurisdictions, and once we had it in place, we were able to analyze it against other spatial data sets, for example the New York State parcel land use database, to see if the descriptions of the zones were accurate. Categories were commercial zones and residential zones, and both had land uses. We also looked at business location data provided by a private purveyor of business location data called Data Axle in context to the HR&A Advisors Blue Economy Study, which picked out certain NAICS codes. We also looked at the Hurricane Sandy buyouts and acquisitions data from the Government Office of Storm Recovery and FEMA flood zones. Finally, we looked at the World Resources Institute Global Power Plants Database in reference to the power plants on Long Island and discussions about offshore wind.

Once we had completed that work, we wanted to look more closely using this business data in context with the business location data and with FEMA flood zones. We were able to make an Esri map dashboard. Esri is the name of the application, and it is available on the LIRPC website.

If someone could share the Hyperloop to the messages, folks will be able to dive right in. The map dashboard is interactive, and it allows the user to select the risk zones and jurisdictions to get summary numbers, summary statistics, and downloadable PDF maps of jurisdictions and consensus designated places.

The study involved FEMA flood zones and some expanded risk areas as well as the actual business location data. As far as we know, it's the first study that focuses on flood risk as a threat to businesses, employees and revenues. Most flood studies we see involve residential property.

Living on Long Island, no one is a stranger to the headlines about rising ocean tides, storms, hurricanes and the various projects that are utilizing federal, state and local funding. Neither is anyone a stranger to the kinds of images and videos that are taken in the wake of these disaster events.

You can see the FEMA flood zone here is purple and the jurisdictions we focused on have black boundaries. Those include villages, cities and in the areas of unincorporated townships, census designated places.

FEMA does a wonderful job of providing these flood maps, and they keep them updated on a schedule, but they really don't capture the whole picture. You see here on the left, the line graph shows days with extreme precipitation of two inches, three inches, four inches, or five inches. The bar graph is essentially summarizing the same information. These extreme precipitation events aren't necessarily hurricanes, nor are they superstorms, but as we saw in August, they can cause extreme flooding events. The other thing that FEMA doesn't necessarily account for is the role of impervious surface or storm water redirection which is how stormwater systems work and where they redirect water. That map on the lower right is showing the percentage of the area covered by pervious surface. You can see Manhattan is almost solid brown and Eastern Long Island has much more open space while Nassau County has much more pavement than Suffolk County, generally speaking.

The conventional flooding that FEMA covers models for river and coastal flooding. Of course, coastal flooding is very relevant to the south shore of Long Island and although there are rivers in Long Island, it's not really a Mississippi River magnitude river system. But again, the increasing frequency of these precipitation events is something of concern. As an example, these are the same colors that you'll find on the map. The purple is a 100-year flood zone from FEMA, and the red is a 500-year flood zone that's based on the probability that an extreme event will occur. What you see in blue here is the inundation area of Sandy. You can see, even with the Sandy event, the FEMA zones don't cover that area. In fact, you can see it really encroaching Montauk Highway in orange and Sunrise Highway in yellow.

Here again you can see the whole island. Montauk highway in orange and Sunrise Highway in yellow. We expanded the flood risk areas. We kept the FEMA zones where they were. We called the 100-Year very high risk and the 500-year high risk. The orange areas are medium risk and are a quarter mile buffer of wherever there were FEMA flood zones. That's why you can see some of the orange areas reaching up into the island along some riparian systems. The yellow zone is the area all the way to Sunrise Highway. The areas for orange and yellow were also buffered a quarter mile on each side of the highway to account for businesses on both sides of the highway. And then here is the business location data. You can see approximately 80,000 businesses that were within jurisdictions we selected.

When we plugged all the numbers in, there were 48,000 businesses and 411,000 employees in the total study area. Those were the total numbers for each of the risk zones in aggregate and we did a couple different aggregations. We took the total FEMA risk, you can see in the first gray horizontal row there, and then added those two other risk zones that we had modeled to get a risk total. The bottom chart is then the percentages of those totals, respectively. We try to put numbers in context, but a lot of times, numbers float around and it's hard to know what they mean. When you look at Federal Reserve economic data and take all of Nassau and Suffolk counties, they're estimated to have a GDP of $246 billion. I know annual sales volume of these businesses in aggregate is not exactly apples to apples with GDP, but to give a perspective, the $56 billion here in the total risk category is 25% of that number. If you were only to look at the total FEMA risk, it would be a small fraction of that number.

Similarly, you can look at the Bureau of Labor Statistics to see there's an estimated 1.5 million jobs in all of Nassau and Suffolk Counties. So, the 369,000 jobs here in a flood risk zone is about 25% of those total jobs. For just the FEMA zones, it is about 5% of total jobs. If you're familiar with the Blue Economy Study where they selected coastal related economic sectors, their total was 68,000 jobs. So, the 369,000 jobs in the flood risk zone here is about five times that number and if you use the 81,000 in just the FEMA flood zone, it's about 20% higher than that Blue Economy jobs number.

I think it's important to note that we did not conduct a full economic impact study. We use the business location data and the sum of their employees, their estimated revenues, and accounts of the businesses. But of course, economic impact studies look at not only direct impacts. They also consider indirect impacts on other businesses in the supply chain, both upstream and downstream, and then induced impacts. Things like what workers will then spend their wages on from those businesses or tax collections, etc.

The Hurricane Sandy response and recovery report to the New York legislature estimated that 265,000 businesses were affected and resulted in about $6 billion in damages to those businesses considering lost revenue, losses, and repairs required.

Rich Guardino:
Greg, before we do the demonstration, we do have a quorum, and I think we can handle the business section pretty quickly. It's just the adoption of the minutes and two resolutions that all the council members are familiar with. I hate to interrupt you, but if you don’t mind, before we get into the demonstration, which is a little more complex, we could just take a minute to handle the business section of our meeting. I'd appreciate it.

Adoption of the Minutes from the May 15, 2024 Meeting.
All in favor.

All in Favor: So moved.

Rich Guardino:
The next resolution is Resolution 2024-110. It authorizes an agreement with NEIWPCC to transfer Long Island Nitrogen Action Plan funds to NEIWPCC to administer the Homeowners Rewards Program for three years; 2025, 2026 and 2027. As you all know, NEIWPCC has administered the program for the past two years. It enables homeowners to be reimbursed for small scale water improvement projects on their properties. Categories for reimbursement include the installation of native plants, rain gardens, and purchasing and use of rain barrels. The cost for the program for the three years is not to exceed $169,905.

Motion to Accept Resolution 2024-110: Supervisor Ed Wehrheim
Seconded: Jeff Kraut
All in Favor: So moved.

Rich Guardino:
Resolution 2024-111 authorizes a contract extension agreement for Water Quality Monitoring Analysis and Reporting in Hempstead Bay with the partnership of Hofstra University and the Town of Hempstead. The partnership has been doing monitoring since 2019. The Council has authorized renewals of the agreement on an annual basis. The monitoring program provides baseline data against

which we can evaluate changes to nutrient loading that are expected in the next decade as a result of Waste Water Treatment Plant upgrades, ecosystem-based upgrades, such as coastal dune restoration, and nutrient bioextraction projects in the bay. It's critical that there's a measure of the outcome of these interventions and the cost of the Contract Extension Agreement for one year is not to exceed $200,000.

John Cameron:
A few weeks ago, there was press conference down in Point Lookout, which basically detailed the program. It's been a very impressive program which has been able to identify where contaminant levels are and where they may be in the future.

Motion to Accept Resolution 2024-111: Barbara Donno
Seconded: Nancy Englehardt
Recused: Don Clavin and Jeff Kraut
All in Favor: So moved.

John Cameron:
We can get back to Greg and the demonstration. Greg, maybe before you continue with your program, we could see if there are any comments or questions from our board members. I believe Jeff, you may have had a question, and I have a question. I appreciate that you look at the methodology in terms of available data, but one of the other economic impact issues we and others experienced during Sandy was that the residents that live in those flood zones are unable to go to work, and we had to shut down capacity as a constant. Does that factor into the methodology at all, residents who would be unable to staff or support other businesses around the island?

Greg Schundler:
I think it's somewhat implied, having used the businesses as the objects themselves. Whether the business itself is wiped out or it's unable to get its workers there, we look at the total business annual revenue. But, I'm talking located outside of the flood zone. So, we're staffing North Shore Hospital, and 20% of its employees live in the flood zone. I think one of the merits of extending the flood zone to those highways is that it might capture that effect a little bit.

Jeff Kraut:
Maybe I can comment. The focus of this study was really because everything we've seen has been principally about how homeowners have been affected by storm surge, flooding and hurricanes in the past. This study focused on the businesses and the economic impact of businesses.

Greg Schundler:
Absolutely.

Let’s move on to the map. The link to the application can be found in the chat of the Zoom meeting.

You'll arrive at what's called a map dashboard. You'll see there are a few panes, and we'll kind of go one by one here. The predominant one is the map pane. You're able to zoom in and out of it. You can pan around the map. You're able to click on the map on specific jurisdictions.

If you ever want to reset the dashboard, you can click this blue reset button in the lower right corner. Some features of a typical webmap include a search bar where you can do an address-oriented search, and it will take you to a precise location. You'll see this looks like a stack of playing cards and they're

called map layers. The application allows you to add and take away various layers. So, here's the jurisdictions that were part of the study, the business locations.

The risk zones are the actual FEMA flood zones and in the flood zones, with mapping technology, we can do interesting things like create a heat map. So, here's the heat map by sales volume. You can see where there are hot spots. Here's the heat map by employee size. Those are the map layers. I'll turn on the risk zones, business locations, and jurisdictions. The final thing you can do is choose a base map. So, if you want, you could do aerial imagery as a hybrid. We added transparency to these layers so you can somewhat see through them and if you really want to see through it, you can turn off the risk zone. Those are just some standard features of a web map.

What you see here is a summary of the entire study area. This was the same table that we were looking at in this slide. You'll see that if I zoom in, these numbers will change because they will only total what's in the map itself.

We also have a summary of the study and a “how to use” feature. After this presentation, if you forget some of the bells and whistles, they're explained in there.

What you'll also see in this main map pane are three tabs which rank the top 10 impacted communities in Nassau County, Suffolk County and both counties taken together. These are the totals of all the risk zones. What you'll notice in the top right-hand corner is that you can not only select a jurisdiction, which we're going to do in a moment, but you can also select the risk categories that go into those totals. If I go to the top 10 impacted communities on Long Island, I can say I just want to consider the very, very high-risk category and I'll click that on and it will reshuffle those rankings based on those numbers. Or, if I want to do the first two, you can see how those will change. If I float my pointer over it, you'll see the total number of annual revenues at risk.

Again, I can reset this. You can also choose which slice of pie you want. With this, it'll enact the same filter. So, I'm going to choose the two high risk categories in the same manner I did from this drop-down menu. So now go back to the map and let's select a jurisdiction. Let's start with Freeport. I can click into Freeport, and you'll see that the boundary considered is highlighted and you can see the risk zones and the businesses within those risk zones. There is also a feature to see each jurisdiction as a PDF, a downloadable principal map. On the right here, this right ribbon says Freeport PDF. It has a little icon of a document. So, if I click that, then I have a one pager that summarizes the numbers for Freeport. It has the map legend, a short summary of the study, and, of course, the data sources used. Every jurisdiction has that.

Here is this interactive future flood scenario map by First Street which is a resource research organization we contacted which has done flood reports all around the country. They've created an interactive map as well to look at and be able to toggle the probability of events and projected events 15 years and 30 years in the future. They also have a flood report, which offers some aggregate statistics from past events. But again, their research is very much residential focus, whereas ours is business. They gave us permission to link jurisdiction to jurisdiction so when you drill down to a jurisdiction, you're able to see their take as well.

Let's go to Long Beach. I think everyone's familiar with the fact that Long Beach is very much a risk zone. You can see it's almost 99% in the very high risk 100-year flood plain zone. The summary numbers show $647 million at risk in annual sales and nearly 7,000 employees working in those locations.

We can also go to Suffolk County and look at Montauk for example. You can see the situation there as well. Let's say I really want to just zoom down again to one area, like this section of Montauk. I can just zoom into that part of the map and it will read the totals for me. It's a very nimble, interactive application in that sense.

Are there other jurisdictions that folks would be interested in zooming in on or are there any questions at this point?

John Cameron:
Greg, could you show the PDF for both Long Beach and Montauk?

Greg Schundler:
Sure. Here's Montauk and then we'll go back to Long Beach. You can also, as I said before, kind of pan and zoom around and then just click into the jurisdiction. Here's Long Beach.

The heat maps are very interesting on the local level, too. For example, in Freeport, where there is a lot of economic activity, those heat spots become relative as you zoom in and out to whatever is in the extent of the map. Here's the hottest spot within what we can see on this map.

John Cameron:
Greg, could we also take a look at the most impacted community in Suffolk County?

Greg Schundler:
Yes, let's go into Bay Shore. Click into their PDF to see that you have $91 million in the very high-risk category, and then as you extend towards the highway, you have another billion in Bay Shore, and then all the way to Sunrise would be $2 billion more. That's probably because of the hospital's revenue.

John Cameron:
Greg, I think it's important for the Council and the audience to recognize and understand how different communities are affected. Some communities are at very high risk, which I believe is the 100-year storm category and others are at risk from the 1 in 500-year storm category. Some entire communities, for example Long Beach, are at very high risk, but we note that Long Beach does not have the level of commercial activity that, for example Freeport, has. It was interesting to learn that some areas at medium risk are north of Merrick or Montauk and up to Sunrise Highway.

This is going to be on our website. Decision makers, elected officials, but also the general public and business owners will be able to understand how flooding and storms may affect their risk. This is the first time we've had an assessment of Long Island flood risk focused on the economic impact.

Greg Schundler:
Let's look at a high-risk area taking everything into account. Those are the hot spots and as we add the second category things change a little bit. When we add the third category, there is really a different picture. These two heat maps are sales volume and employee size. You may have areas with a lot of employees in, say, restaurants and more coastal tourism related sectors, but you also may have some heavy hitter manufacturing facilities or hospitals that impact sales and employee count. Hospitals have both lots of employees and big dollars. Heavy hitting manufacturing facilities or port facilities have massive sales volume to employee size ratios. Those are two economic indicators to examine.

John Cameron:
Greg, if I may interject. We have Mayor Kennedy from Freeport on the Council. Freeport is at such high risk and is all the way heading up towards Merrick Road. People do not always understand that flood risk is not just along the coast. We have heard people say that those who choose to live on the shoreline know their risk and should pay for it. But there are canals which bring flooding up north of the shoreline and floods also come up through the storm drainage system. Mayor Kennedy, since Freeport is such an impacted area, maybe you could chime in a little bit here about what you're seeing.

Mayor Kennedy:
During Superstorm Sandy we had 4,000 homes under four to six feet of salt water. We've put catch basins in with pumping stations and check valves so that when the water is at high tide and it rains, the water can't come back in through the check valves from the bay and if it's raining, the pumps pump the water back around the check valves and back into the bay. It's been 100% effective so far. But as you're talking about Merrick Road, there are tributaries coming into the bay at that area, and that's why it backs up all the way up into Merrick Road. The old housing authority buildings were flooded, and they have been condemned and relocated. We are working on these areas. I've worked with the Army Corps over the last six years regarding surge barrier gates, and they've been very uncooperative. I believe there was an improperly studied memo put out with regards to surge barriers. They have them in New Bedford, Massachusetts. They have them in Connecticut. They have them down in New Orleans and all over the world. They work fine. There's no reason that we don't have them on the south shore of Long Island, which would eliminate this risk. You could protect all of Nassau County by adding surge barriers to Jones Inlet and Debs Inlet. This is something I think that we have to work on. I think we need to prevent the flooding rather than spending resources to try to figure out where it's going to flood. If we put surge barrier gates in, we would be protecting all of Nassau County. We could probably do Suffolk County too.

John Cameron:
We should point out that over a year ago, we had a meeting down in the Freeport Village Hall and Malcolm Bowman from Stony Brook University did a presentation. We discussed the issue of storm surge barriers, because Long Island, as many of you may know, has six major inlets. If we could stop the flooding or the flow of water from the ocean during a major storm event, or prior to that storm event, it's quite possible we could mitigate and significantly reduce the flooding and therefore economic impact from that storm surge. The Village of Freeport happens to be directly north of Jones Inlet which means they are likely to be most impacted by storm surge.

There are challenges here on Long Island and storm surge and flooding specifically need to be addressed. It's not if Sandy 2 comes, but when it comes. In fact, over this past week due to a Harvest Moon, a lot of the shoreline communities had major flooding coming over the bulkheads. Mayor Kennedy, did you have some flooding coming over to bulkheads?

Mayor Kennedy:
Yes, we did, and on three or four different high tides. I just want to elaborate a little bit more on those surge barrier gates. I've been in touch with the Army Corps of Engineers. They spent $3 million doing feasibility studies in New York. When I went down to Washington, DC to speak to Director Schulman, he said to me, “You know, off the record, they should not have done this study, because it's a cobra zone. That's why we transferred the study to Philadelphia.” Before observing the laws on cobra zone, the Army Corps didn't realize that from Sheepshead Bay to Montauk is a cobra zone, which means you are

not allowed to build there. But there's a subsection there which says, “except for health and safety reasons, under which cases, you can build.” The Army Corps turned around and said they didn't realize that and now they are going to have to reanalyze. So, there are significant issues.

John Cameron:
Yes, those are significant issues. Thanks Mayor Kennedy. Greg, if you would like to continue.

Greg Schundler:
Sure. Hopefully folks now know how to look at things on this map and have the link to do it. We can also use it to contextualize any conversation. I think the transition was already kind of made into the notion of adaptation projects. Generally speaking, there is what’s considered green infrastructure, for instance, which is expanding marchlands, wetlands, and acquiring parcels and letting them grow back. Then you have your gray infrastructure which are some of the things that have been mentioned like storm surge barriers, wastewater system upgrades, tidal gates, pumps, valves, so on and so. I think a lot of that is underway.

John Cameron:
There's a lot here, Greg, and I think once the users access the report and the maps online, they'll be able to really see how flooding affects their neighborhood, their business, etc. We are not aware of another study that's been done like this, in particular, on Long Island. As Mayor Kennedy has alluded to, we've done some work here, but frankly, we have a lot to do. Sandy wasn't worst-case. When Sandy made landfall, it was in New Jersey and it occurred during a non-rain event. It was not high tide and when the winds hit, they were not hurricane force. So, while Sandy was a big wake up call, it was not a worst-case situation. We're very vulnerable here.

And people have asked, “What about the North Shore?” We can look at that too, but most hurricanes and major storm events originate in the south and they work their way up north, so the South Shore is much more vulnerable than the North Shore. But we do get nor'easters when the movement of water could be from Great South Bay and move west to South Oyster Bay, East Bay, and Hempstead Bay. There are many communities which would be adversely impacted.

Alan, maybe we can take questions now.

Alan Belniak:
For any audience member who joined late, just to remind you all, there's a few ways you can submit questions or comments. You can raise your hand by using the raise hand button below, like some of you already have, or you can use the Q&A function below to type in your question. And we will start with the first question that came in, typed from Chris. “Can we please look at the most affected place in Nassau?”

Greg Schundler:
We're going to select all the categories. We're going to unclick the negligible risk. Here's the top 10. In terms of annual sales at risk: Freeport, $3 billion, Inwood, $2.2 billion, Rockville Centre $2.2 billion and Oceanside, $2 billion.

Alan Belniak:
Great. Thank you. I encourage any of you here to look in the chat to access the two links. If you're looking at this on a computer screen or even a phone, just open them now and save them for later that way you can come back to this and spend as much time as you like. They're fantastic resources.

John Cameron:
Alan, if I may chime in. It is interesting and maybe surprising that the chart shows Rockville Centre and Lynbrook. Mayor Kennedy alluded to this before. It's not necessarily just those communities which are on the shoreline or on the bays that are at risk due to tributaries and canals.

Alan Belniak:
Excellent points, John. We'll go to a hand raised. Karen Bloomer, Karen, you should now have the ability to unmute your mic, and when you do, you can ask your question or share your comment.

Karen Bloomer:
Greg and the Council, this is a fantastic study because, as John says, it is probably the first of its kind and is only directed at commercial and dollar signs. But there's a larger or equally large underlying condition on Long Island and that's the geology and biology. There are a number of us (groups and organizations) that are looking at nature-based planning. Since you already have this great interactive map, I'm wondering how difficult it would be to add municipalities that have already made both green infrastructure and gray infrastructure efforts. Right now on the North Shore, which you've mentioned, especially in Smithtown, we have a number of dams that have burst. The knee jerk reaction is, oh, let's, mend them. Let's build everything back. I'm not sure we need grist mills anymore to grind our wheat. We really need to look at the difference of sort of going with the flow for the South Shore or moving development inland and protecting more marshes. It would be a very interesting measure to correlate some of the green infrastructure attempts with the economy itself, as you've cataloged here.

John Cameron:
Greg, before you respond to this. Karen, what might be helpful could be an option to add a link to click on for a particular area where you can actually go to that municipal website in order to learn the investment they've made in green infrastructure and also other areas to address this issue. I think of Mayor Kennedy and all the investment and work they have done. I can tell you just firsthand, there are not many municipalities that have done what the Village of Freeport has done on Long Island. Communities like Freeport can serve as a model for other municipalities and other elected officials could understand what has been done in some places. Maybe it would also catch the attention of the public as they learn who is working on this and where gray and green investments have been made. It could get a good dialog going.

Karen, your points well taken, and I am curious to see what we can do on that front. I think we can discuss that. It could be a great tool. Greg, can that be done? And what will it cost?

Greg Schundler:
From a mapping perspective, it's certainly possible. We get a catalog of locations, and we can have those as point data, but we can also identify the parcels and get polygonal areas. I'm going over to our waterfront zoning and uses inventory studied, because we did map out the acquisitions and buyouts from Hurricane Sandy for example. I know some of those property transfers resulted in expansion of wetlands.

I also want to comment on this idea of best management practices and being able to find examples of things that have actually happened or are underway. You can get important information in terms of funding mechanisms or even engineering tips. A floodgate was mentioned. This one is in the Netherlands. A few years ago, I actually made a database that allowed people to look at municipalities in

other countries that were similar to their own. I was able to gather some global data to do that, and it was a way to find relevant examples at a scale that's relevant. You can find the long beaches of Netherlands for example. Scale, appropriate population, appropriate solutions are very helpful. Certainly, information from other states would be helpful. So, regarding another overlay or two, that is definitely possible.

Alan Belniak:
We don't have any more hands raised at the moment, but we do have a good handful of questions in the Q&A. We will start with the first one from Shameika Hanson. Shameika writes, "If businesses use mitigation measures to raise or reinforce their structures lowering their individual flood risk, would this data reflect that? If scaled across an area, would that reduce the community's overall economic risk rating?"

Greg Schundler:
It's a fantastic question. So, the resolution of what's going on with each of these business locations in terms of their actual architectural structure was not part of the collected data set. But it's certainly data to collect. You can imagine that with the 40,000 businesses it would be quite a data collection effort. I don't think there's an existing database for all of that at once.

The point is well taken for mitigation measures. In a prior life, I worked for the Governor's Office of Storm Recovery, and I was tasked with mapping that. The idea is to determine what the actual buffer impact of a wetland is. Sometimes restoration, for example, is difficult to quantify, but it's not impossible. So, I think you can certainly look at projects like that, and then quantify the value of those projects with an assumption that a quarter mile buffer off this project, is going to be assisted by this. I think that's a great way to look at some of the big dollar signs for the prices of these projects and understand that it's worth it.

Alan Belniak:
I just want to read a comment before we get back to another question. The comment is from Rich Murdocco. Rich, just wants to share. "This is a great resource, and the quantification of flood risk will be a helpful tool in communicating the risks of storm vulnerability moving forward. Thank you." I think we appreciate that. That's a nod to the work you and the team have done, Greg.

Next question is from Nancy Siry, and Nancy writes, "I like the idea of floodgates, but wouldn't that cause the water to hit harder on the barrier island and break through there?"

John Cameron:
If I may chime in on this. That question was raised with Professor Malcolm Bowman, and it turns out the effect is actually minimal and does not create concern. When the water hits the gate, it's almost like hitting a barrier island. The dissipation is tremendous, so the effect is minimal.

One thing I would like to revisit is the use of the barrier islands which Mayor Kennedy talked about. I visited a number of the different gate systems in Europe, Netherlands, Thames, etc. If we use our barrier islands as barriers, what would be the risk to the mainland if it overtopped the barrier island? The Army Corps of Engineers is addressing and dealing with raising berms to try to have those events mitigated on the barrier islands. We have these six openings, the inlets, which serve as holes in the dike where the barrier islands can actually serve as the dike. If we had the capacity to close those off prior to a storm and be able to open them when the tide is going back out, we could protect the mainland. We're not

using our barrier islands as barriers. If we didn't have the barrier, we would be in a similar position to Florida. When they have a hurricane coming, it's hitting them directly into the living space, into their communities and their cities, etc. Long Island could protect itself. In New York City, getting the barriers up would be very difficult. They would have to do something out in the river. Geographically, Long Island is better positioned to protect itself. There are only two things we're missing. One is the money to do it, and second is the will to do it. But we've talked about this for years. Sandy occurred many years ago and we are still talking about it. So, we wish Mayor Kennedy success and that could absolutely serve as a model for the rest of the island.

Greg Schundler:
It's very interesting. You can choose the base map here for oceans, and you almost have a map of bathymetry information. For example, the Hudson River is such a key factor in what made New York City such an abundant port city, but you come over here to the inlets that John just mentioned, and you see the water depth is very shallow there.

Alan Belniak:
Mark Wagner asks, "FEMA maps are using the current tidal elevations. Does this study have the ability to make projections based on future increases in the tidal ranges that have been predicted by the Army Corps of Engineers?"

Greg Schundler:
If that data is available, we could certainly look at it. As I mentioned, First Street has a little bit more detail of the projections in their given model and methodology so you can jump over to their study and look at ours and theirs concurrently. If you have two monitors, you can kind of measure them again. If anyone knows that data source exists, please do post it in the chat. We'd love to take a look at it.

Alan Belniak:
Okay, thank you, Greg. We have just two comments left in the Q and A.

Tiffany Smith writes, "What do you hope business owners will take away from going through these maps?" I think that might be a policy question but Rich, why don't you just talk about the value of this study.

Richard Annito:
Well, I think it helps some of the policymakers understand what the vulnerabilities are and motivates people to start to think about the future. You pointed out storm barriers. We have that one slide. Greg, you can pull up the various mitigation opportunities that are there, in terms of both green infrastructure and gray infrastructure.

John Cameron:
We're doing some of these things right now with LINAP in terms of actively working to reduce nitrogen and preserve our wetland areas. I think that this study goes beyond just what we've seen in the past. Greg and Rich have done a great job showing that the vulnerability is much more than we've discussed. They've really enhanced the map to look at the areas that are vulnerable. As far as our policy makers are concerned, I think they should look at some of these adaptation projects and see what's possible. Mayor Kennedy can certainly serve as an example. He's done a terrific job there and he's a great advocate for additional measures.

If I could just make one more comment, Mayor Kennedy talked about the storm surge barriers and the gates. Many, many years ago, the year after Sandy, Congressman Tim Bishop, Malcolm Bowman and I met to discuss the need to close off those inlets and the value of storm surge barriers. He said that would take a tremendous amount of money, billions he said. I said, "Absolutely Congressman, but what's the cost when Long Island loses its residents and its businesses?" When people decide that's it, I'm out of here, I'm moving off the island, the economic impact does not get quantified. When the Army Corps of Engineers looks at cost benefit ratios, they don't consider the consequential effects of the loss of economic activity, they look at the hard cost of impacts and replacement costs. When you start losing your economic base in terms of residents moving down south and to adjacent states, you are in real trouble. We need to do something to mitigate this risk. As I've said, we did a 25-year sustainability plan back in 2010, but we still have a lot of the same issues. We must start addressing them.

Alan Belniak:
Thank you, John. There are no more hands raised. There's one more question from Chris Cirruzzo. Christopher asks, "When will this tool be publicly available? Will these slides be shared with the audience?" I posted the two links in the chat.

John Cameron:
We have it live on our website right now. The map is accessible. If you're talking about the slides, it's just the ability to go to the map and plug in as Greg indicated earlier. You can pull up exactly what the data is for each jurisdiction. The risk is accessible and available.

CHAIRMAN'S REPORT
John Cameron:
I'll try and be brief. At each meeting, I try to discuss what's happening globally, nationally, statewide and locally because, as we all know, we're affected. We're not living in a vacuum here. I think we all would agree that globally we're certainly living in challenging times. The global conflicts that exist between Russia, the Ukraine, Israel and Palestine. Now we also are impacted by Lebanon fighting Iranian backed terrorist groups including Hamas, Hezbollah and the Houthis. These groups are all committed to the destruction of Israel and ultimately us. These are clear, present, existential threats. There is sadly also the Civil War and mass starvation that's occurring in the Sudan in Africa. What's happening there is horrible. There are mass rapes and murders, and that militia is backed by the United Arab Emirates. Our government doesn't necessarily want to confront them on it, but if this was in Europe, we would be all over it. It's happening in Africa, and it's something that we should be paying more attention to.

We know also in our hemisphere, South America has a lot of unrest, particularly in Venezuela. We see a lot of those migrants coming through our southern border because of the problems that are there. We have the uncertainty of China and its global plans, which again, clearly present a potential threat to the United States as their military and economic might prove to be ominous if they continue to strengthen their alliance with Russia.

Nationally, the country is presently heavily divided as evidenced by the polling data for the upcoming elections. The presidential race is presently a virtual toss up and control of both houses of Congress is also at play. Critical issues for most Americans still include the economy, inflation, the border, crime, abortion, national security, taxes, climate change, civil liberties. We have a whole host of issues which really need to be addressed if we're going to again move our country forward. Statewide races are also in play this year in November. Some of the national issues also affect the state including crime, taxes, jobs, the economy, affordability and education. The state is still grappling with many of those issues to

stem the problem of our migration of state residents. New York State has the unfortunate position of leading the nation in percentage of residents moving out to other states. The election this year is not anticipated to produce any major change in control of state legislature so we must continue to work with our elected officials. In New York City I think there's probably too much for me to cover so I don't even want to touch that. On Long Island we continue to feel the effects of a high-cost living environment. As a result, we've been losing not only retirees, but also a significant portion of our young workforce. The two major impediments to our island's future sustainability, as we identified in our Long Island 2035 25-year sustainability plan, are the lack of rental housing and an unsustainable tax burden. These issues are still prevalent as we speak today. There is an inequitable tax imbalance between Long Island and the Federal government in Washington. We identified almost $25 billion. Long Island is a major economic engine. If we don't address the major economic challenges that we have here on Long Island, New York State and the nation will lose a major funder of their budgets. It's something that we really need to address and hopefully our elected officials in Washington and Albany recognize that we need funding here for our economic development. If not, the island that we're planning to leave for our children and grandchildren will not be the same as the one that we enjoyed. Hopefully we can work together collaboratively, and we move on together.

EXECUTIVE DIRECTOR'S REPORT

Rich Guardino:

Thanks, John. I'd like to spend a minute or two talking about the Long Island Nitrogen Action Plan. As you know, the Council is partners with NYSDEC on a number of initiatives. I will just take a moment to talk about a few of them.

The Long Island Water Quality Stem Challenge was developed for all Long Island middle schools and high schools. It's now in its sixth year. The Challenge invites STEM teams of students to develop and design green infrastructure to reduce nitrogen pollution on school grounds. It's been very successful in the past, and I just wanted to let everyone know that a request for expressions of interest for the next Challenge was released on September 16, with a due date of October 13. We've already begun to receive letters of interest and if you happen to have some connections with middle school or high schools, please share this information. We had over 20 participants last year. We hope to have even more this year.

The Aquaculture Lease License Feasibility Study was authorized by the Council with the Town of Hempstead and has utilized grant funds from LINAP to retain Cashin Associates for the work. The preparation of the study looks at possible shellfish and seaweed aquaculture in Hempstead Bay and will provide essential information needed by the Town to consider and adopt a lease license program. The study is almost complete. Public outreach will begin next month. We'll look at some of the stakeholders and get their input, and we'll complete the study by the end of the year.

We also are working on QuickDrops which is an agreement with Save the Sound to train Long Island Water Quality data generators how to participate in a new data platform. QuickDrops makes community science data collected through the region easily accessible to regulators, advocates, academics, government officials, and agency experts, paving the way for more regional science driven decision making. The alpha release of quick drops has been completed. Training modules have been developed, Save the sound has begun training uses, and we'll have a public rollout of quick drops towards the end of next year.

As John already mentioned, and we voted today, the contract with the Town of Hempstead and Hofstra for Water Quality Monitoring has been extended. We had a press conference, and we were very privileged to have our public officials, as well as the president of Hofstra University, Ryan Amira, Dr. Steve Raciti, Don Clavin, and several members of the Council at that press conference.

Finally, Nitrogen Smart Communities is a voluntary program and a part of LINAP designed to promote local action and awareness to reduce and eliminate nitrogen from all sources within municipalities on the island. By participating in the Nitrogen Smart Communities Program, a community can reduce nitrogen pollution integrated water bodies and protect areas before impairments occur. We're absolutely delighted to be working with Smithtown for the pilot program. Thank you, Supervisor Wehrheim. We will also work with North Hempstead. We will work with our consultant, Anchor QEA, and preliminary work has begun on the program. We're really excited about that. Thanks again, Ed, we appreciate your cooperation and your staff.

That completes my report.

John Cameron:
Thank you, Rich. Is there any new business from the Council? Any public comment? The floor is open. Alan, do we have any comments or questions from any of the audience?

Alan Belniak:
We do have a hand raised and it is Karen Bloomer. Karen, you should now have the ability to unmute your microphone.

Karen Bloomer:
Thank you. I was wondering from Rich if we could get a copy or a report of some of the middle school and high school projects on green infrastructure?

Rich Guardino:
Yes, absolutely Karen. I'm going to ask Liz to be in touch with you. We can give you a brief on all the projects that are currently underway and some that have been completed. We'd be delighted to provide that information to you. In fact, I think there was an article in Newsday about our upcoming competition recently. It's been received extremely well by the schools, and participation has been expanding.

Alan Belniak:
All right, thank you both for that. Scanning once more, I don't see any hands raised, and I don't see any new questions. I'll hand it back to you.

John Cameron:
Okay, great. Alan, thank you. I'd like to thank the Council again, and I'd like to thank LiRo. We've been working with them for the last couple of years, and the work has just been exceptional. We look forward to expanding on the capabilities of the Council for providing that public information, which can serve as a planning tool for a number of our elected officials, business owners, and also individuals. Thank you Rich ang Greg for the excellent presentation.

We look forward to our next meeting. We're likely to have another environmental meeting discussing Long Island's water supply and where we stand regarding water balance. We're planning to have that before the end of the year. I'd like to thank you all for attending and wish you all the best.

With that, we will close the meeting for today. Thank you everyone.

Motion to adjourn. So moved. All in favor.