



**Connecting with Our Economic Future:  
A Transportation Investment Strategy for the Life Sciences**

*Transcript of panel discussion, October 31, 2007 at the Federal Reserve Bank of Boston  
Co-hosted by A Better City and the Massachusetts Life Sciences Collaborative*

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Moderated by **Richard A. Dimino**, President & CEO, A Better City

Opening remarks by **Mayor Thomas M. Menino**, Mayor of the City of Boston

Presentation by **Stephanie Pollack**, Senior Research Associate, Northeastern University/CURP

Introduction of panel by **Mitchell Adams**, Executive Director, Massachusetts Technology Collaborative

Panelists:

**Dr. Steven Hyman**, Provost of Harvard University & Professor of Neurobiology at Harvard Medical School

**Jeffrey Lockwood**, Executive Director of Communications, Novartis

**Mark Bamforth**, Senior Vice President for Corporate Operations & Pharmaceuticals, Genzyme Corp.

**Secretary Daniel E. O'Connell**, Secretary of Housing and Economic Development, State of Massachusetts

Response by **Wendy Stern**, Undersecretary of Planning and Program Development, Mass EOT&PW

Closing remarks by **Dr. Gary Gottlieb**, President, Brigham and Women's/Faulkner Hospitals

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**Richard A. Dimino, President & CEO, A Better City:**

If everybody could take their seats, we're going to get started. My name is Rick Dimino. I'm the President and CEO of A Better City and I want to welcome you all here. I'm also very pleased to welcome Mayor Menino here.

First of all I was referenced in The Globe yesterday, not by name but I was one of the suits standing on my tiptoes, looking at the [Red Sox] rally as it was passing by Boston's streets. Mr. Mayor, it was a great event and a great rally and thank you so much. What a great city - and later on when I have to introduce you, Mr. Mayor, I've been thinking about it a lot, so I was thinking maybe the 'Mayor of the Best City in the Universe' or something like that? Yes, it's very good.

Anyway, again thank you for coming. We have a great program ahead of us. We have a wonderful panel presentation, and the focus of this morning's event is directly related to the notion of the future of the life sciences industry, but specifically how the life sciences industry relates to transportation investments and transportation infrastructure, and try to lay out some specific strategies on how we can advance the industry, it's relationship to the larger cluster, which is obviously the medical and academic community, but also the general economy as well. We're very fortunate in that the transportation investments that we're suggesting, while particular to this cluster, also will directly relate to generating economic value and economic opportunity for a wide range of participants.

So one of the things that we did is we immediately reached out to the Life Sciences Collaborative, and we're so proud and pleased to have them collaborating with us on this event. So I would thank Mitch Adams and Glen Comiso and Dr. Hyman for helping us with this, because the Life Science Collaborative is a very important group of leaders in the academic community, in the industry, etc. and the medical industry that have decided to come together to focus specifically on how this industry can move forward,

and that organization will be an important partner for ABC, along with the Mayor and obviously with state government as well.

In regards to state government, we're also very lucky to have Representative Sanchez here today. Representative Sanchez, would you mind standing up? (Applause) Representative Sanchez is a very important part of the life sciences industry and our overall climate here in Massachusetts, and has been working very directly with the Mayor and others to help advance our interests as it relates to this particular matter.

The study that we did was first and foremost headed by a wonderful, incredible research, but more importantly, an awesome person, and her name is Stephanie Pollack. Stephanie spent over a year working with us, together with a staff member, Alex Danahy, coauthor, in putting together this report, and I have to tell you, they did an excellent job, so I would just like to recognize both of them as well.

So, in discussions about transportation and the life science industry, and the Mayor's ongoing interest in people and our neighborhoods being connected to these opportunities, I was very pleased when the Mayor agreed to be a spokesperson and help lead this event this morning. To be honest with you, I got to know the Mayor when I was, I have to admit, a lot younger. I got to be in public office as Transportation Commissioner, and I'm sure both he and I were surprised about that. That somebody would actually give me a job like that, but I actually got to be the Transportation Commissioner way back in 1985 and the Mayor likes to tease me and remind me of how the city was really screwed up during that time period. But I was really fortunate because I got to know Mayor Menino. That was one of the definite blessings of having that job and I have to also be clear that he ended up one of my mentors and leaders. I was, believe it or not, 29 or 30 years old during those days. Yes, I was that young once, and the Mayor actually helped me understand what the importance of the job was, but more importantly, what it meant to really serve the constituents of the City of Boston and to take that very seriously. He was the Ways and Means Committee Chair and then the Council President. He was absolutely one of my bosses, and I was held accountable, and he was a great leader and a great teacher as I said. But in addition to that, the Mayor has led the way.

In his own quiet way, Mayor Menino has actually been ahead of the curve to the lengths of the matters that we're going to be talking about this morning. He was ahead of the curve as it relates to the life sciences industry and creating the life sciences sector initiative with the BRA, as it relates to the Urban Ring. He was the leader of a regional urban compact that pulled all the cities together, regarding the Urban Ring and what it meant to go forward. In fact, now I haven't seen this in my history, but he actually got all those communities to sign a compact that said, 'yes, this project is important,' and most recently he was kind enough to bring those cities back into his office, as we move forward on the Urban Ring, to discuss how that project should go forward. So, it's my great pleasure to introduce this Mayor –obviously the Mayor of the City of Boston, but also the Mayor of the Best Sports City in the Universe.

### **Mayor Thomas M. Menino, Mayor of the City of Boston:**

Thank you Rick, and you still owe me for that Day Square configuration of traffic in East Boston. Still can't figure out when he was traffic commissioner. The best sport city in America, huh? It's amazing the criticism I've taken for that.

Thank all of you for being here. This is a subject that I wish I had more time to spend on. It's about the future, and that's what's so important. One thing I think we don't have is a plan for where we're going and all these issues that affect us in so many different ways. I mean, I think in Boston we're very fortunate right now because we just got the approval of the Life Science Institute over at Harvard, which is a great piece for us because we're in a race with San Francisco and because we were able to move ahead, and a lot of folks have taken notice.

The bio-lab down on Albany Street – I know it's been controversial to some folks, but just think about it. And those two institutions over the next several years with the help of the Governor's planned \$1 billion commitment he's made to it. So, we're there; how do we move it forward? That's really the question we

have here today and how we make it happen. I think you have to give a lot of credit to the A Better City staff for their insight to economic and transportation policies in Boston over the last several years.

I want to talk a little bit today about the life science industry in our city. The role the public sector can play is important in this key industry. The life sciences industry is critical to our city and my administration is dedicated to supporting their commitment to cure and prevent diseases and illnesses. Boston's unique among American cities because we offer every service Bio-tech requires to take a product from a lab to the marketplace. Boston has an unparalleled wealth of intellectual capital. We are home to 74 colleges and universities, and 275,000 college graduate school students.

Boston also has the largest percentage of people over 25 with a bachelor's degree, and more graduate students in science and engineering, than any other American city. We have 22 great hospitals, which give the city a wide variety of clinical environments. Boston has an extremely active finance community. We are first in the nation in per capita venture capital funding. We have top-notch legal expertise in patent law, intellectual property law, and highly diversified real estate services. We're home to a full array of other partner organizations, such as contract researchers and manufacturers.

Clearly these factors are what make Boston a global leader in life sciences. But, they do more than that. They comprise the infrastructure for innovation – infrastructure that any company in the area can connect with and benefit from; infrastructure that provides businesses ultimate competitive advantages. I'm sure you all know that Boston leads the nation, and has for 13 straight years, in funding from the NIH, but did you know that if the Longwood Medical Area, which is only a few blocks, were a city onto itself, it would be ranked third in the nation in NIH funding. Boston biotech's aren't just located in Longwood. They thrive across our city and encircle our downtown, from the Boston Marine Industrial Park, where Dana Farber has invested \$25 million, to the Navy Yard in North Boston.

These companies directly and indirectly employ tens of thousands of area residents and have attracted billions of dollars in investments. Our future success in the industry, however, is not guaranteed. We face global competition. We must all work together to enhance Boston's status as a worldwide leader. I believe the public sector can drive progress, deepen our competitive advantage, improve transportation infrastructure, and strengthen our workforce.

Many times in Boston we have seen the direct connection between infrastructure investment and economic growth. The Central Artery Project has unlocked millions of square feet of development, spurred the growth of the South Boston waterfront, and created over 27 acres of open space, including the new Rose Kennedy Greenway. MSNBC recently cited Logan Airport as one of the top 10 U.S. airports to get to, because it was connected to the Silver Line airport service. This easy access is a tremendous selling point for companies throughout the region, because access and mobility are critical to realizing economic growth.

Companies will expand, relocate and add jobs in Boston, working effectively and efficiently to move people and commerce. Connectivity is especially important, and Boston has it. We see this in the LMA, as many employees live in the surrounding neighborhoods or nearby suburbs. Workers travel throughout the day to other sites within the same institution, and to all the partnering institutions. A lack of connectivity inhibits collaboration, decreases productivity, and reduces our region's ability to compete. Connectivity also means linking jobs to people and people to jobs. In Boston, a number of this report's recommendations will enhance job access for our neighborhoods. I'm interested in realizing these improved connections while ensuring that our residents are well-prepared. Our universities and hospitals are already training Boston residents for the highest skilled life sciences jobs.

For this sector to continue to grow, however, I believe that the public sector needs to focus on workforce investment in two areas. The first one is on our youth. I want today's Boston public school students to be the next generation of scientists and managers of our region's life tech firms. One way to reach this goal is through summer jobs and career exploration opportunities for Boston public school students. These programs provide students with early exposure to dynamic fields, which can inspire youth to pursue these

fields in college and beyond. Last year nearly 350 young people in Boston had summer jobs in health care and life sciences. Other programs, such as the MGH project and the program at the Boston University City Lab, provide more intense education and career exploration opportunities. Over at Harvard, with their new Stem Cell Institute, they're also going to have an institute similar to what we have at City lab at Boston University, which will train our young people for those jobs in the future. Strengthening and expanding these types of programs can help to ensure that continued talent pool of innovative researchers in our area.

The second area of public workforce investment is to ensure that Boston has a qualified workforce to fill jobs to support life sciences. I know Dr. Gottlieb is with us today – he's speaking to you later this morning – he is a great champion and stands for the link between a skilled home-grown workforce and the prosperity of Boston. We predict that roughly 8,000 new jobs will be created in Boston within the next seven years in the supporting industries. Giving Boston residents these jobs, and providing efficient transportation to work to ensure that all residents benefit from this critical sector, is key.

Last year, with the City's Job and Community Service Office, piloted the Math and Science Advancement Pathway to College and Employment Project, the city funded three programs to serve over 100 people determined to climb the career ladders in this field. The participants learned a lot. Many were empowered to continue their progress. They all learned a lot and will use this knowledge to strengthen the programs we have in place today.

So what we're talking about is connectivity, how we work together, in this field. So, I want to say that this report that's been put out is part of this connectivity. So is, working with the Governor on a \$1 billion economic stimulus package; I'm also proud of that. It's all of us working together. Alone, we can't accomplish much. We can work together and make it happen. I think that's so important to all of us.

So we gather here this morning, and Stephanie is going to give her report very shortly. We're all looking forward to that. Not only that, but it's great to see so many people in this room. I don't think we talk about this issue enough in our city. It seems like we're afraid to talk about it. As Mayor, I was never afraid to talk about the bio-lab. I knew that would be good for our city. I was never afraid to talk about the Stem Cell Institute because it's good for our city. It brings jobs, and also the findings that we have learned have saved lives. So I just want to say 'thank you' to all of you who stopped by this morning and staying for Stephanie's report, because if I didn't do that, she'd be after me for a long while outside. Thank you.

**Rick Dimino:**

Thank you, Mr. Mayor. Thank you for those comments. As you said, it's really about partnership and also the partnership with the good working effort currently going on with the life sciences bill that's being debated with the Legislature and how those resources could be devoted towards workforce and transportation is very important. As the Mayor mentioned, we're very fortunate today to be able to share with you the report, and we're also very pleased with the time that you've given us this morning.

Stephanie Pollack is the principle researcher and works with Northeastern' University's Center for Urban and Regional Policy. Stephanie's a very important part of that team. So without further ado, I'm going to turn it over to Stephanie Pollack to make her presentation. Thank you, Stephanie.

**Stephanie Pollack, Senior Research Associate,  
Northeastern University Center for Urban Research & Policy:**

Thank you, and I'm assuming someone else is going to be able to deal with the technology? Thank you. So, thank you all for coming this morning. It's certainly been my pleasure to work with both the staff at ABC but also with a wonderful advisory group that we put together to help us with this study. What we really have been trying to do in the year that we put this study together was to understand the life sciences cluster not just as an economic powerhouse, which it is, but also understand more about it's geography and it's dynamics.

We also took a look, as I'll explain, at other cities. The Mayor mentioned we're in competition with the world, but we're very much in competition with U.S. cities like San Francisco, San Diego, Research Triangle in North Carolina, and understanding what they're doing, their advantages, their challenges, helps us understand what kinds of policies and investments we need to make. In looking at ourselves, examining ourselves critically, and looking at these other cities has allowed us to develop lessons learned and then to apply those. So that's what I'm going to walk us through briefly this morning.

The first and most important thing to understand about the life sciences cluster is it's bigger than it's conventionally defined to be and that's because, when the federal government counts, it mostly counts industry, and for Boston and Cambridge in particular. Massachusetts is a whole. A big part of our life sciences cluster is actually in our academic research hospitals and in our universities. So if you look, you can see that the industry jobs are not insignificant at all at 40,000 and growing, but in fact, the research universities and the teaching hospitals comprise a bigger part of the sector. We don't know what the overlap in that big diagram really is. We don't know what proportion of the teaching hospitals and research employment base is focused on life sciences, but we know it's not insignificant.

It's probably true then that the sectors may be twice the size it would be if you only counted companies, but more importantly, what we know is if you can come up with a policy investment strategy that benefits both the companies and the universities and hospitals, we're going to benefit a far larger piece of our economic pie in Boston, Cambridge and Massachusetts than if we just focus narrowly on companies. So we took a look at the geography of the life sciences cluster, and the centripetal force is generated really by Boston and Cambridge. They represented disproportionate share of cluster defined to include the universities, the hospitals, and the companies, but it's also clear that that force holds together a cluster that extends up to the New Hampshire border, down to Rhode Island and out to Worcester and beyond.

So we have both a very tight cluster, which we in the report refer to as the Boston-Cambridge Life Sciences Corridor, and again that corridor is both important in its own right because it's a huge part of the employment and economic base, and because it is this force that makes it practiced for other locations to hold the life sciences in. As the Mayor mentioned, and we saw this actually in all of the other cities we examined, this is an industry, as I'm about to talk about, that really likes to co-locate. It likes to be close to other companies, universities and hospitals, and that has up-sides, and it has down-sides. So one of the key policies that we need to be aware of is we need to create sort of escape hatches. We need to create secondary locations for this industry that are close to where they want to be, but that are not quite as crowded.

So we divided the cluster into looking at the places where they already are and the fact that we can create emerging clusters in South Boston, and also near the new Harvard campus, and up into Charlestown that will create an escape valve. To be honest, San Francisco's doing the same thing, Denver's doing the same thing, Philadelphia's doing the same thing with their Navy Yard. Other cities are also saying, 'the prime real estate right next to that university or teaching hospital – there will be real competition, and we want to bid the price up.' We want those companies but we also want those smaller and midsize companies that can't pay for that kind of real estate to have a place to be.

So, I've talked a bit about the different competitive advantages of the sector, and the Mayor touched on some, like the access to Logan Airport, but the report really focuses on, and what I want to focus on this morning, is the proximity in connections. This is a really geographically tight cluster. When you look at the clusters in New York or Philadelphia, they actually overlap somewhere in the middle of New Jersey. I mean, what they define as a cluster is really like a state. Our cluster is much tighter geographically and it gives us some real advantages, but the biggest disadvantage that it causes is that, because everybody wants to be close together, we have some real transportation and traffic challenges that we have to face in order to help everybody be close together. What an economist would call 'negative externality.' So if we want the advantages of that proximity, we need to deal with the externality of that, and that's why we're talking this morning about transportation infrastructure.

So in the report, we wanted to get at this issue of, *why does the life sciences like to be so tightly clustered*, and if we can understand those dynamics, it can help us as we try to shape policy and investment. We identified three sets of connections that are really critical, as the Mayor was talking about, to the future success of this industry. One is intra-institutional connections, one is between institutions, and one is the connection between the employers and the workforce, and I'm going to touch briefly on those three.

In part because of this problem of scarce real estate, and also in part of historical reasons, major institutions themselves are not all in one place. In particular, as most of the people in this room know, universities and their medical schools and their teaching hospitals are not in the same place. They haven't been historically, and they're not in other cities either. Maybe that didn't matter as much in the 19<sup>th</sup> century, and maybe it made sense for the university to be in the more bucolic suburban area and teaching hospitals to be downtown where there were lots of patients who needed their care. But in the 21<sup>st</sup> century, research and life sciences are all about interdisciplinary, cross-faculty collaboration, and people are teaching in one place, having a lab in one place, seeing patients in another place and are moving between those sites. So the fact that Harvard has, as we're showing, a Cambridge campus and a growing Allston campus, and Longwood also has its main university campus and its hospital far apart. Even Boston University where they're both in the city – they're in two different parts of the city and they need to connect the Charles River campus to the Bio Square and medical campus.

So institutions need to make connections with themselves. The same thing is happening in the private sector. Novartis has two different locations in Cambridge. Partners HealthCare has expanded into Charlestown. Even though, as the Mayor mentioned, Dana Farber is staying in Longwood, it is also growing in South Boston. So we need to help these institutions and companies travel between their separate locations. That's one set of connections we want to make.

A second of connections that we want to make is we want to continually facilitate face-to-face contact. Bob Krim of the Boston History Collaborative calls it the bump rate. We interviewed folks, and they say, ironically, in the age of the Internet, actual face-to-face contact is becoming more rather than less important. We need to talk to each other. We need to see each other face-to-face. And we also have federal funding as a driver. So one of the reasons that Boston was able to secure the National Emerging Infectious Diseases lab is because the government said that if we put it in Boston, even though it's BU's, other institutions will be able to have their researchers do research projects there. The government is going to be doing more, not less, of that. They're going to make their investments in places where there will be multiple beneficiaries, and we see a lot of collaboration, as I'm sure the panel will talk about, between academia and industry. That's a good thing. That's a competitive advantage of our cluster, but we need to make it possible for the folks who are engaging in those collaborations to get back and forth in an efficient way.

Then the last piece, which the Mayor talked about and that we took a pretty hard look at, is this issue of where's our work force and how can we connect it to this growing and important job sector. It's interesting because really, there are two lessons we draw from the data. On one hand, it is clear that jobs in the life sciences in Boston and Cambridge benefit the entire labor force in Massachusetts and, in fact, beyond into New England. Workers come from all over. The companies benefit from being able to draw on that workforce and the workers benefit by having a variety of employment opportunities. They can come here and work at one place, change jobs over the course of their career and not have to locate to a different area. On the other hand, it is also true that the workforce disproportionately comes from very close to the places they're working. So the City of Boston, the City of Cambridge and actually three other communities – Somerville, Brookline and Newton – account for a huge proportion of folks who work in Longwood Medical Area, and who work at all of Harvard's campuses, and that's also a good thing. The reason it's a good thing is because it's easier to provide high quality frequent transit service when you have a higher density of folks. It's hard not to.

When we looked at Research Triangle Park, they planned and designed a nearly \$1 billion train system, and then they discovered they couldn't build it, because it's so sprawling down there that they can't make the economics of building transit work. We don't have to build transit. We have transit. We have to make

it better. We have to add to the system, but we begin with a level of density and a mature transit system, and so while we talk about all the competitive advantage that North Carolina has because they have lower housing costs and so forth, we have something they'll never have, which is we're overall in one place together and we have the T. We need to build on that competitive advantage.

So we looked at all of these different cities and what they are doing. We wanted to look at two kinds of places. We wanted to look at places that we know are our competition. And we wanted to look at the places that are hungry and nipping at our heels and want to be our competition but don't actually have large clusters yet. We limited the search largely to urban places, because we're an urban cluster, so if we're going to learn, we're going to learn from other urban clusters. All of the case studies are actually available in a much bigger report – if folks are interested, we can provide copies – but we derive four important lessons from these case studies.

One was place matters. Geography matters. Policy decisions are being designed to make it easier to be where companies want to be, mainly near universities and hospitals. Some of those are tax incentives; some of those are zoning incentives; some of those are subsidies, but all of the cities we looked at were not just generically saying, 'we want life sciences in Seattle.' They're saying, 'we want life sciences in South Lake Union, between the Hudson Cancer Research Center and the University of Washington Medical School.' 'We don't just want life sciences in San Francisco. We're going to build a new campus for the University of California, San Francisco in Mission Bay,' which is about the same distance from downtown San Francisco as the seaport is in Boston. 'Then, by the way, we're going to build a transit line to connect downtown San Francisco to that new campus.' So geography matters, and geographically-targeted incentives are what is happening in our competitor cities.

The second point – and the Mayor spoke very eloquently to this – is in all the places where they're getting things done for their industry, it is because state government, the local government, the industry, the universities and the hospitals are working together. Not just informally working together, formally working together, in actual, structured collaboration. So for example, in Pennsylvania, in order to qualify for creating one of these incentive zones like Philadelphia did near UPenn and its research hospitals, you actually have to have an organization with a board that includes a hospital, a university and a private sector company. Until you do that, you don't qualify for any incentives. Formal structured collaboration.

The third point – and I'm going to go into more detail in both the third and fourth points – is: there is no single investment strategy that our competitor cities are using. There's actually a lot of different ways to invest, so the question for us in Massachusetts and in Greater Boston is, 'what makes sense for us?' Then the last point is: everybody has traffic problems. This is good news. It is not a competitive disadvantage. If you're a sprawling cluster, like Research Triangle Park or New Jersey, you have traffic problems because you are sprawling. If you are a tight cluster like San Diego, where literally many of the companies are on the same street on North Torre Pines Road, they have traffic problems because they're all on the same street. So they have our Longwood problem. So everybody's wrestling with this. The question is how do we do it? So it is scary. It is scary to look at some of the things that we are going through with some of the competitor cities. This [pointing to slide photo] is an entirely new campus, it did not exist. This used to be the seaport. It will be a huge billion dollar project when it starts. On the right is an entirely new project done halfway between Denver and Aurora, Colorado on a former military base. Also \$3 billion. They've already moved the entire University of Colorado and Denver Medical School and all the hospitals out to that base and into a new facility. These are just some individual buildings.

It's scary, but here's the good news. We're actually doing as much building and investment as the other places. We're just doing it through a different mechanism. We're not taking state taxpayer dollars and building campuses on empty land. We have teaching hospitals building new facilities in Boston and Cambridge for hundreds of millions of dollars. We have universities building new facilities for hundreds of millions of dollars throughout Boston and Cambridge, including the new Boston science complex that the Mayor talked about. We have the private sector investing in major new lab and research facilities. If you add up the actual investment in those pictures that I just showed you on those three slides, it's comparable to what is being invested in Mission Bay [San Francisco] or in cities in Colorado.

So the good news is: we are spending money. It is not state tax payer dollar money in most cases. So the question then becomes, as the Mayor phrased it, what could the public sector do that most supports what the life sciences cluster is already doing for itself. The answer is: we want to compliment the investments that are already being made and fill in the gaps where the investments aren't being made. So we talked about bricks and mortar R&D. There are a lot of investments going on. There are some gaps, like the Stem Cell Institute that the Governor has proposed, but we're in pretty good shape actually.

Another set of investments we can leverage is that Boston is *the* powerhouse for attracting federal research dollars. There's nothing like the five largest recipients of federal funding all located within the City of Boston, and the rest of the country combined can't do anything close to this. Now is that a guaranteed funding stream? No, but it's a lot of money that's going into R&D. So we talk about how California is going to put \$3 billion into research; well, we already have \$1 billion of other people's money spent on research in this city, and we should be leveraging that.

So this is a framework. What we present is this study is a way of thinking about strategic investment in the life sciences. On the left [of the slide], we see what the competitors are doing, and they have some federal money in each of these categories: bricks and mortar facilities, grants and transportation. They have some institutions and universities. It's not that they have none, but they are taking the state dollars and they are spreading them over these categories, as well as other categories. The workforce development that the Mayor talked about? They have to because they don't have enough of the concentration and investment in one area that they can afford to be more targeted. Here in Greater Boston, we have this unbelievable federal investment on the research side, and this unbelievable institution and corporate investment in bricks and mortar R&D facilities, which allows us the luxury of really targeting investment into transportation and investing in research and bricks and mortar only when it really fills in a gap already left by the private and the federal investment. That's basically what the study proposes to do.

The last lesson that I want to talk about briefly is: transit works for this industry. There's data that the workforce in this industry likes to ride transit, and we know, for example, that the pictures on the bottom for San Francisco and Seattle are streetcar lined but opened up in 2007 that were built specifically to serve new life sciences geographies. They left one that runs from downtown San Francisco right to the new life sciences cluster in Mission Bay; the one on the right serves South Bay Union in Seattle. Much bigger projects –billion dollar projects, which are documented in the case studies – are in the works for these industries.

So our competitor cities are doing it. In some cases they're putting their own money on the table, in some cases they're competing for federal dollars, and Boston needs to think about it too, because we have the same traffic problems that our competitor cities do. The closeness of the cluster generates it. We know that transit can work. Another important part about transit is that areas better served by transit allow us to build more density. So if we want to put more life sciences near universities and hospitals, transit lets us do that. Finally, we know that good transit helps workers because good transit is workers' choice in places to live and be able to afford where they live, and the combined cost for what they pay for housing or what they pay for transportation makes Boston, which can be an unaffordable place, more affordable.

So the good news is that there's a lot of transportation investment underway. In the last economic stimulus package, the Legislature began the process, and we have a lot of planning, and good projects that are being planned: road projects like Melnea Cass Boulevard and transit projects like the Urban Ring and the Green Line extension into Somerville, which serves a big worker base, as we discovered. These are great projects but we're planning them. The real question that we need to grapple with, and then I'm going to turn this over to the panel to discuss, is how are we going to get these built? Planning is short money. Building is big money. These are major investments. They are investments that are leveraging billions of dollars in federal and state and private sector investments. They make sense, but we still have to figure out how to do them.

So the bottom line is simply this. Transportation investments and infrastructure can create connections that support this industry and those same connections are going to support the universities and hospitals. So it's important to remember you're not just investing in the sector. You're investing in people and places, and you're investing in the universities and the hospitals that are the least mobile part of our economy –they're not going anywhere. They're going to be here. If 50 years from now it's nanotechnology instead of life sciences, they're going to still be here and they're still going to benefit from having great connections to each other and to the workers, and that is why if you choose the Massachusetts Life Sciences Collaborative, the whole thing will benefit. Together we can begin to think about how we're going to make sure we make these important investments. Thank you.

**Rick Dimino:**

Stephanie, thank you so much. And one of the other things that you should know is that the transportation planning and the work that's going on is actually well-poised, relative to the opportunities associated with federal funds, as well. As Stephanie mentioned, Boston is very well-positioned from a competitive point of view, relative to the new funding initiatives going on in the federal government, to not only support larger transportation projects and transit projects, but also even smaller and targeted transportation projects. So we think, as we move forward, we'll be very competitive as it relates to those funds as well.

Our co-sponsor this morning is the Life Science Collaborative, and Mitch Adams is one of the leaders of that organization. Also, he is Executive Director of the Mass. Technology Collaborative. We're so pleased to have him here. He wanted to say a few words to welcome the panel this morning. Mitch - thank you.

**Mitchell Adams, Executive Director, Massachusetts Technology Collaborative:**

Thank you. Thank you, Rick. The mission of the Massachusetts Technology Collaborative is to stimulate the innovation economy. We do this for a variety of programs, including the Renewable Energy Trust and the John Adams Innovation Institute. The primary focus for us has been Life Sciences and, in particular, the development of the messages of the Life Sciences Collaborative.

I'm here this morning as a member of this exciting new effort. Two years ago, through the leadership of the Boston Foundation, Harvard, MIT, UMass, Genzyme and the John Adams Innovation Institute, we began developing this collaborative. It's a unique cross-sector coalition of about 100 leaders in the life sciences, in the academia industry and government, all the key stakeholders. Its mission is to provide a forum for all of the key stakeholders to work together to plan and to take action to assure that Massachusetts doesn't lose its leadership position in the world in life sciences.

Under the leadership of Steve Hyman, the chairman of our organizing committee, the Collaborative has worked closely with the Patrick Administration in shaping its one billion dollar life science initiative and has begun to plan for the strategy of the life sciences in Massachusetts. In the plan that is emerging, certain key priorities have been identified. One of the most important of these is transportation and connectivity.

Developing the full potential for life sciences growth and expansion in this state demands connectivity in the form of the very best transportation infrastructure. At the core of the challenge is improving the network of infrastructure connecting MIT, Harvard Square, Boston University, Longwood, Boston Medical Center, Tufts, and the University of Massachusetts. We must also tie into this network the medical complex in Worcester so that the movement among all these companies can be as efficient as possible. The Massachusetts Life Sciences Collaborative is very happy to join A Better City as co-host of this panel discussion this morning.

The ABC report is an extremely important contribution to the solutions our state must fund and implement if we're to support the life sciences and commit this vital cluster to flourish the way that it can. This excellent report has framed the opportunity very well, and I want to thank and commend the work of

Rick and Stephanie and many others who have gotten us to this point. Thank you again for your participation with us this morning. I look forward to the panel discussion and let me hand it back over to Rick Dimino right now. Thank you.

**Rick Dimino:**

Thank you, Mitch, and obviously recorded research goes hand in hand with people providing the resource to get that work done. So I want to thank the Boston Foundation, Harvard University, MASCO and Partners HealthCare for helping to fund that research. It was incredibly useful, and I also want to again thank Barry [Bluestone] at Northeastern because not only did Stephanie do such a wonderful job, but Northeastern put a great effort into this as well. I just want to ask Alex [Danahy] to stand up for a second for her work as a staff project manager in this and give her some recognition.

So we're going to move right to the panel discussion. Stay in your seats. This discussion is going to be lively, vibrant and it's going to keep you on the edge of your seats. So, we're going to move right over there and get it going. We're very fortunate to have Dr. Hyman here; he'll be the first one to speak, and Dr. Hyman's going to talk about the notion of connectivity and the relationship to Harvard University, but in general in the industry overall. Dr. Hyman.

**Dr. Steven A. Hyman, Provost of Harvard University and Professor of Neurobiology at Harvard Medical School:**

Thank you very much. Let me first thank you for ABC's leadership, and Stephanie – thank you for that on-target and sensible report. We're very happy that the Mayor approved that. I know he's on board, but it's very good that we're all on the same team. Mitch, thanks for everything that The Life Sciences Collaborative is doing. It's a pleasure to be serving that purpose.

I want to talk about connectivity, but I can't resist a bit of Rick's introduction to the Mayor and the Mayor's comments about sports. You know we do have a great sports city, but I'm also the kind of guy who - I was beside myself with anxiety when the last game of the series was a one-run game. I was even nervous when the Patriots were up 52-0 and three minutes to go, and I saw Washington getting back in. I think that it is an important attitude that we can not rest on our laurels because, just as everybody wants what we have in terms of our free agents who might be in the Red Sox, everybody wants what we have in terms of sciences, and institutions move a lot of very important research facilities to this area for a reason. Boston is a nice place, and although it's got a drippy Turnpike, it's a terrific place. And then there is this issue of connectivity and collaboration.

So what does it mean? Why do we need a bump rate? Why do we need to have to interact? Is this just rhetoric? And the answer is no. You know science is really different than what it was 20 years ago. Twenty years ago, we built labs almost as cinderblock cells, where individual scientists were like monks of science, and they really didn't have to interact. We organized very much in intellectual silence. It's just a fact of life that the most important problems that we face as a human race, relevant to not only the prevention and cure of illness, which is what we're focused on here, but things like energy and environment, don't fit neatly into silos. What's really going to solve this problem is we've got to network.

So for example, in our Stem Cell Institute, it's quite clear we could have very successful stem cell scientists who work in a cell biology department writing important papers and getting invited to wonderful meetings, becoming famous but not solving the problem of Diabetes or Parkinson's Disease or Alzheimer's Disease or heart failure after somebody's had several heart attacks. In order to do that, we really have to make connections. The connections are just increasingly broad. So those cell and developmental biologists need to be interacting with chemists who are going to help devise very efficient way with molecules that are going to turn undifferentiated cells in a Petri dish into cells of models of disease or even treatments in the cells that will grow into new hearts after a heart attack. If we're going to put cells back into the body, we're going to need a new kind of biological engineer who has to interact with them, who is going to create new tissue samples, so tissue engineering. We're going to need to get

neurologists to figure out how to protect these cells that are put back into the body from being destroyed by the immune response in Type I or childhood-onset Diabetes. As you may know, what happens to the cells that make Insulin is the immune system mistakenly attacks them, and so we can make new cells, but to put them back into the body, we have to address that problem. It's just going to be human cycle. We are going to need clinicians. People have to understand the disease.

So the point is that we're going to have this whole dependence on the field – basically biologists, chemists, engineers, physicists, computer scientists, slide mathematicians and clinicians who understand the disease interacting with each other. Of course if we want these discoveries out into the world where they will benefit anybody, we have to be commercial, and while universities have had long-standing relationships with industry often in the form of patenting and licensing, I think now we have to have much deeper, ongoing collaborations.

What's very interesting about this cluster is that something that is a joint venture between Harvard and MIT, and Harvard and hospitals that have a large pharmaceutical company are working together on the genetics of Diabetes in a way that's outside of the intellectual property barriers so that all the information can be available in the public domain. This is the kind of creative interaction that is only possible in this kind of cluster.

Now it's true you can't do this over the Internet. You've got to bump into each other. We've got to share ideas. The clinician who knows about Diabetes or Parkinson's Disease isn't going to write an email that captures the imagination of the mental biologists or the chemists. We're going to form relationships with the private sector, who are going to cross that and allow us to really share that information and help us to gather. Again, this takes interaction, so it is really critical that we get transportation right. When I don't think we can fit another car in the lot right now, and – the only thing, Stephanie, I would just disagree with on your slides is – actually the Red Sox are part of your life sciences project, because at a Red Sox game, when you want to drive into Boston, you bring a tent.

So I think that we all want to interact, and there are a lot of things that will help us do that. One of the things that we cannot live without is better connectivity; better transit where getting people out so we can really bump into each other, we can go to each other's seminars and we can collaborate and transfer technology. I look forward to making progress on those issues. Thank you.

**Rick Dimino:**

Thank you Dr. Hyman, and in honesty, we look forward to work of the Life Sciences Collaborative and in working with Mitch, because we need partners to move this agenda forward. As Dr. Hyman mentioned, this connectivity issue goes far beyond just connecting workers with jobs, which is very important, but it's about connecting professionals and people in the industry. Jeff is going to talk with us about the importance of the industry and the industry decision makers, and I'm going to turn it over.

**Jeffrey Lockwood, Executive Director of Communications, Novartis:**

So Novartis is a global company, with offices all over the world, 100,000 employees across, and can and do locate facilities all over the place, and came to Massachusetts in 2002 for the basic reason that this is where the innovation of the life sciences is, not only today but what's going to be going on tomorrow. And as seen in this dynamic, our growth has been phenomenal in terms of having been from having zero employees, zero facilities in Cambridge, to today having approximately 1500 employees, about one million square feet of labs and office space all in the span of about four or five years.

Today it's the headquarters for our global research operations, as well as the global headquarters for our vaccines division that came in and was announced in August of this year. So we see Massachusetts as a great place to do business; a great place to have these major divisional headquarters located. Why is that? It's because of what the Mayor and Stephanie hit upon, which is that the innovation infrastructure was located here. It's the teaching hospitals; it's the universities; it's the climate for innovation that exists in

this state that makes our work able to be done at a much faster pace. It's the collaboration that Steve was talking about. It's being able to work with professors and doctors at Mass. General, and Dana Farber, and Boston University, and Harvard, and MIT, and all these other places. It's that stew of innovation.

There's a whole range of factors that go into making these decisions, but at its core is, what is this division of infrastructure that exists in the area. You know that Massachusetts has all that. We see it in what we're trying to do. One of our longest standing collaborations is with Dana Farber and we now have a headquarters for our Cancer research in the local area. And our scientists are able to get face time, literally, in an afternoon or a morning with physicians over at the Navy Yard or Harvard and are able to get into the clinic and work with people face-to-face on what's going on. Does that make sense? Let's go over and have a sandwich and talk about that, rather than do it in an email or telephone conference.

It's why we have the collaboration with the employees and our Diabetes research is headquartered here. We were able to work with the scientists with the growth and really get a jump start about how we think about our approach to Diabetes, and what we've done with that collaboration is run a database that's publicly available, and that basically sequences the entire genome of genes associated with Type II Diabetes and probably be able to pull that up on the web. It's wonderful, and talking to our scientists is what made a difference. They said what really made a difference was being able to work on a daily basis with the guys up the road who completely changed the way we thought about the disease and our approaches to it.

That interaction, that information, you couldn't get anywhere else; you couldn't get by sitting on a plane for three days and coming here. But by being able to talk to these guys and work with them every day, it really made a huge difference. It's also why we announced earlier this month that we created the Novartis MIT center for next generation manufacturing, which is going to be a 10-year, \$65 million collaboration focusing on really transforming the way pharmaceuticals are made. We realized that after being here a few years that there are some engineers and some process guys on my team that really have figured out some things and have some unique ideas about how we can transform the pharmaceutical transferring process. So having that process and being able to meet them on a regular basis really makes a difference and allows us to do our business in a more efficient and forward looking way.

So how does transportation link to all this? Well obviously you have to make/get people to live together and work together. That's critical, but it also leads to workforce, which is definitely something that's hit upon. The workforce that we have is by and large – well, I wouldn't say its PhDs or others who are – in the 25-35-40 range. They're a very mobile workforce. I asked my facilities guy before I came here what's the percentage of the people that take the T to work, and I thought it would be 20-30%. More than 50% of our employees take public transportation to work every day. It's quite staggering. So their being able to get to work and then move around the city is important.

I was talking with a colleague who works in infectious diseases; he's a physician scientist who still sees patients at Boston Medical Center. I asked him, "How do you get back and forth from BMC?" He said, "It's easy, I ride my bike." I said, "Well, why do you do that?" He said, "You can't get anywhere that the T doesn't go, and it's easier than driving. I don't have to put up with the traffic." I started talking to him about this Urban Ring project and he said he would do it in a minute. It would make a huge difference to make that connection smoothly and easily, and in the winter time make my life a lot easier, considering he came from California.

So having that Urban Ring connectivity between all the cyclists, whether it would be in Longwood, whether it'll be in Cambridge, Mass. General, where you have an ability to connect people and get them face-to-face much easier than it currently is will make a huge difference and will serve as a further magnet to the already strong magnet that's here in Boston and Cambridge for the life sciences. They will go a long way to enhancing the collective that's already here.

**Rick Dimino:**

Thank you, Jeff.

Jeff, the notion that your company would grow as fast as it did in that short period of time, and at the same time would ride transit up to 50%, speaks very well to some of the points that Stephanie made earlier about existing density and transit service that we have in the region. A lot of people, including me, talk about smart growth. The fact that we have the industry in this place right now, and with an existing transportation infrastructure, building upon it gives you an added economic value as opposed to having to build it somewhere else. So thanks for your comments.

We're very fortunate to have Mark Bamforth here this morning as well. Mark represents Genzyme. Mark actually, because of his work, has a good sense of what's going on in the competitive market. So Mark's going to talk about that.

**Mark Bamforth, Senior Vice President for Corporate Operations and Pharmaceuticals, Genzyme Corporation:**

Good morning. Thank you. So maybe just by way of introduction, my responsibilities cover global manufacturing, so we're often looking at our locations around the world and where to set up new facilities, especially manufacturing, but all of the other facilities that support Genzyme as well. I'm also on the board of the Massachusetts Science Technology, and the chair of the subcommittee on development. The key question we've really been talking about is, how do we find these kinds of companies to say in Massachusetts or to come and locate to Massachusetts and build the manufacturing here? Because in the long run, that's part of the value that Massachusetts should realize from the tremendous research base that is here.

So again just briefly by way of introduction and about Genzyme, our roots are here in Boston and in Cambridge, and our roots are also deep in the research institutions and other biotech companies within this state as well as globally. Many of our products have come from outside the company, but we work with partners, or we've worked with academic institutions to develop those products. Eventually, of course, take them to market to support patients around the world.

The point really is that research connection is the key to why we're here. We have around 9,500 employees worldwide. Almost half of those are here in Massachusetts. Our main research base is here in Massachusetts. We used to research in Cambridge. We moved most of that out of Cambridge to Framingham and to Newton because again that broader sphere of this being a center of connectivity to regional towns is important to us. But we also manufacture in the state. We have four manufacturing sites from the Cambridge small site to the large site of course in Boston that many people mistake for an office, as well as two out in Framingham. So we're deeply invested in the state and we're deeply interested in the development of the state and how successfully we can help that to happen.

A small thing that we did, recognizing that the issue of the number of employees that we have and the traffic that that causes and the need for connectivity between our internal sites, was we could place a shuttle bus several years ago that actually goes from our Cambridge location to the Boston location then out to Framingham. We set ourselves a great haven for the use of that bus. We said it was at a certain level at which it really made good economic sense, taking a kind of broader view of economics into account, so environmentally it was the right thing to be doing. Today, after a couple of years, we're upgrading to almost double the level that we've set the benchmark that we wanted to get to. So we're very pleased with that, and looking at how to expand the use of that. It's a fairly small effort, but I think it shows the kind of direction we can move things.

Our employees basically live all over the place. We do a zip code analysis of where people live. Some choose to live in the city, but many choose to live outside, so the commutability to get to work is really critical, and an interesting comment was made that a transit system can allow us to build greater density.

When I look out my office window in Cambridge, we're building the greater density. We aren't yet building the transit systems to support that. So my fear is that the community and the connectivity is going to become worse before it gets better. I think that's something that we really need to fix up to. Now that we consider that many of our bridges might be in danger of falling apart, we only need one of those major archways to be severed to cause, really, chaos. So we really have something pretty serious here to deal with, and I'm really delighted at this report and the focus that it brings to it.

So let me just talk briefly before I talk about other states and other areas, just to say, why do companies locate to a particular area? Well, I think you've heard very strongly about why companies come to Boston and the state, but for companies that are already in existence, the easiest thing to do is to draw on what already exists; so, to grow your base. So to make it easier for companies to continue to do that is to work closely with development to dry and develop policies, but also to work to grow within the cluster; so, to grow regionally.

The other reason why we end up in different locations is also because we acquire companies that grow somewhere else. So we end up in different places in the world. As we think about the factors, and transportation as one of the key factors, about where we locate, if you go to the website of Research Triangle Park or you go to the Californian websites for the industry, you don't find transportation on the front page of those websites. On a few of them, if you dig down, you will find it, and you'll find links to the document and their policies. The point is transportation is kind of one of those hidden factors, but it really is a key factor, because at some point the lack of transportation or the lack of efficiency will impact the workforce, which is critical to being able to go and at some point it becomes a disabling factor for growth in the regions.

So anyway, it really is critical, and we've heard of some of the examples of other states that have put it in place. Again, one of the key points is the density we have here, that we have in Boston, really enables us to solutions that are going to be highly productive, highly effective. I think that if there's one criticism that I have of the report, is really the need to look globally. So it's really that our competition against those is global, and if you look at Ireland as something more than the great strides they made in the manufacturing base. What are they doing now? They're turning the focus to research. They want to underpin the manufacturing by creating research clusters. If you look at China or India, they're making tremendous investments in infrastructure and it's not basic infrastructure, though there is a lot of that of course. If you go to Shanghai, they've got the world's first commercial airlift. So it's a system of connected railways taking passengers to airports in Shanghai. So they're making very serious investments, billions of dollars, and we need to keep up with that.

So I think the lessons really are how to condense the cluster here. We can really build on it. I think manufacturing is key to the long-term success of the state and of value to Massachusetts. I'd just like to add my congratulations to Stephanie and the team for putting the report together and for Rick's leadership in this. I think this is kind of one of the understated areas that really is crucial to our long-term success. Thank you very much.

**Rick Dimino:**

The emphasis of the immediate issues that we face is absolutely relevant to next steps. One of our guests is helping us with that effort as it relates to the larger economic development of Massachusetts and also its relationships to strategies that are employed to help us bring forward that economy and strengthen the allegiance of them. We're very fortunate to have Secretary Daniel O'Connell here. Secretary O'Connell has been a leader in this area in the public sector, so we're grateful to have him take on that responsibility. So again thank you so much, and we look forward to your comments as well.

**Secretary Daniel E. O'Connell, State Secretary of Housing and Economic Development:**

Thanks, Rick.

Rick plans far ahead. Several years ago, I was in the private sector, and he recruited me to be on the Urban Ring committee of the early business. He turned me into a convert at that time, and then I found myself in this position in the Administration.

Representative Sanchez is here. We were together yesterday. He's the Vice Chair of the Economic Development and Emerging Technologies Committee. As we sat in the basement in Gardner Auditorium and heard the cries from outside as the duck boats went by, we were focused on life sciences. It is a top priority, if not the top priority of this Administration and this Governor. The Governor was test-responding before the committee as well as three cabinet members and representatives from universities, the clinical hospitals, the teaching hospitals in the industry about this very important program. As the committee said yesterday, and I'm going to use an example, we're this close, the Administration and the Legislature, on the details of that \$1 billion life sciences initiative.

As Stephanie has pointed out, it's an initiative that has funding for infrastructure, for research matching grants, and/or tax incentives for industry to locate here or to grow here. Our focus in my office is not on the glamorous new companies that we might bring in, but making sure that Novartis, or Genzyme, and the colleagues in business continue to grow and expand in the Commonwealth, and we can provide the infrastructure for them to be able to do that. So as we work on infrastructure issues, and it is a major component – about half – of that \$1 billion fund, we are working with the Legislature together.

We work very closely in the Development Cabinet. The Development Cabinet is an entity that the Governor has created to move economic development issues forward in the commonwealth. Every other week, we sit around the table and chambers – the Governor has some chambers – with the Governor as the Chair, and we talk about how we can focus our infrastructure investments on economic development priorities. My colleagues, Secretary Bernard Cohen and his Undersecretary Wendy Stern, who is with us today, and I have been working very closely on targeting transportation investments, and will we get the best return on economic development and jobs creation. It sounds simple, but I think those around here will tell you it really hasn't been done in a coherent way in the past. People are already seeing some results from it.

Aside from the South Coast Rail program to connect Fall River, Bedford and that corridor, the jobs are clustered here in the Boston area. Negotiations with CSX, which Bernard has lead but I've been a part of – railroads are tough to negotiate with. Those of you who work in that arena can confirm it, but we are working on that. The Boston corridor that Stephanie also referred to, in trying to get better service in both directions to connect the cluster in Worcester with the incredible cluster that we have in the Greater Boston area.

Also as I work in my area, I have another responsibility, and that's housing. The Governor proposed, and the Legislature unanimously agreed, that housing should be merged with economic development because of the importance of workforce housing to our economy. That has caused a new focus on smart-growth, transit-oriented development; trying to make sure that those 50% of employees who are coming by transit can also live near a transit facility and enjoy all the amenities that we have in the city of Boston that make our quality of life so high. That can be from the Red Sox to the New Institute of Contemporary Art.

As I learn more in my job, I find that our key resource and the most important product, which is our workforce, is the talented people who we have here, and the need to keep that pipeline going to keep those people here when they graduate from our universities, vocational and technical schools. We need community colleges, not to lose them, have them to be able to make that choice on that first housing opportunity along the T somewhere, along the transit site. That's why extensions like the Green Line to Somerville are so important for to connect us to the institutions, to the jobs that are a part of this cluster.

Mark just mentioned the international side of things. We are very conscious of that. We are competing every day with Singapore and Ireland as we try to recruit companies to join us here in Massachusetts. The Governor has announced that his first trade mission will be leaving on November 30<sup>th</sup> to go to China. Secretary Cohen and I will be part of that trade mission, and one of our focuses is transportation. We are

going along with Mitch Adams at the Tech Collaborative, and Tom Kinton, the Chair of MassPort. We will be working on direct air service from Boston, to Beijing, to Shanghai, to Boston.

That's the part of it that I've been talking about so far. What I'm going to add, as a result of discussions today, from Boston to the Silver Line, to the Blue Line, is I think one of our key elements is our ability to connect to the airport with our public transportation system. I don't know, for those of you who have been taking it, the Silver Line to the tunnel is a wonderful way to go back and forth to the airport.

So in winding up my comments, the business of government is infrastructure. We don't create jobs; we try to provide the infrastructure for private industry to create jobs. 26,000+ new jobs have been created in the Commonwealth since January. The sectors that are creating most of those jobs, health and education are two biggest job creators. One in seven jobs is in the broadly defined healthcare area, including life sciences, biotech devices. This is our future and connectivity is the key to the success of our future. Thank you very much.

**Rick Dimino:**

One of the important parts of the life sciences bill is it's relationship to the infrastructure and infrastructure investments, and obviously the other part of this is the relationship to priority, and moving forward on the transit investments in a timely fashion so that kind of job growth can occur. One dynamic that O'Connell actually reminded me of is that this is related to job growth. One of the things that we're exploring, and one of the things that Representative Sanchez was talking about, is income growth, and then there's tax dollars related to that income growth, and increased public revenues. There aren't many ways for us to look at public revenues that relate to this job growth in this industry that can help sponsor these transit related positions. The Representative and the Mayor are already looking at this connection as really a private firm, but if you step back and actually look at it, from a larger policy perspective, and actually look at this type of job growth that's coming up, and actually capture that with the income growth, and that will increase the income, increase the tax dollars and move it into this infrastructure opportunity.

We need to find ways to move this transit agenda forward. As Secretary O'Connell mentioned, we're very fortunate to have Undersecretary Wendy Stern here and, together with Secretary O'Connell, figure this out. So Wendy, we've asked that you share a few comments in response.

**Wendy Stern, Undersecretary of Planning and Program Development, Mass EOT&PW:**

Good morning, and short of being able to unfold the State's checkbook this morning – I mean that would be the best response, right? – I think Secretary O'Connell mentioned, certainly we have a lot of transportation projects out there. We have a lot of needs. Prioritizing them is extremely difficult; it's extremely important. It's something that we're very focused on, but I think what we've heard today is that access and mobility are certainly key success factors for our economic development, particularly looking at the life sciences cluster.

We heard about connections and intra-connections and inter-connections, and noting that transportation and economic development are inextricably linked. There's no question about that. We're past the time where building more roads is neither practical, prudent, or environmentally responsible. So certainly hearing from the panelists today about how important public transportation is, and hearing that more than 50% of the workforce in Novartis takes public transportation, I mean, I think that's very, very interesting and certainly very important.

If I can personalize this for a minute: my husband works at the Broad and he tells me all the time how he has to visit all of the medical academic institutions in the area. He also reminds me very frequently how difficult it is to get there sometimes, either because of traffic or lack of convenient connections. So not only do I deal with this every day professionally, but I have to come home and listen to it as well.

So certainly I think we're all aware that the Patrick Administration has made a definite commitment to an aggressive life sciences initiative, and we heard about that this morning. Also very, very interesting workforce development and education, but let me spend a few minutes at least telling you where we are on some of the very important transportation initiatives that have been eluded to this morning. First of all, we have the 2006 economic stimulus package, and let me just talk a little bit about some of the projects that are related to the life sciences cluster that are involved in that package that are moving forward.

First is a \$12 million amount for improvements to make Yawkey Station a full-time commuter rail station, and the MBTA has a conceptual design for these improvements and is currently coordinating with the developer of Parcel 7 on the Turnpike air rights. So that is moving forward. Clearly there's more work to be done, but the MBTA is working very, very closely with the development there. They're really hoping that that partnership can further this effort. There's \$5 million allocated for improvements to stations on the Green Line D-branch. This includes construction of improved pedestrian access and spare vehicle storage tracks to handle the Red Sox crowds, as well as handicapped accessibility and improvements at the Longwood station. So once again, the T is working on advancing these improvements. The Commonwealth is also providing funds to the City of Boston for improvements in the Fenway, Longwood and Kenmore area. There's been a study to identify potential improvements and set priorities, and the city has begun work on this study with the cooperation of the Executive Office of Transportation and the T. There's \$12.5 million to make roadway improvements and another \$5.6 million to make traffic operations improvements in this area as well. We're also beginning a \$500,000 study to assess the potential for a new commuter rail and inter-mobile transportation center in Boston. So there are a lot of things going on as part of the economic stimulus bill. Clearly the key is to continue to move these forward.

One of the very large projects in terms of providing connectivity that we've been working on for quite a long time is the Urban Ring, currently in phase II, and EOT is currently leading the ongoing Urban Ring phase II bus transit planning process. As discussed here this morning, the Urban Ring is clearly an important piece of infrastructure for the Boston-Cambridge life sciences cluster, and not only would it better connect the major life sciences institutions to the existing T transit service, which Stephanie and others have indicated is absolutely poor. We have it, all we need to do is build upon it, but also provide important connections among the different institutions, enabling the collaboration that has been recognized as so important this morning.

EOT has made great progress on phase II. We've been doing the alternatives analysis, working closer with the Citizens Advisory Committee, project abutters, neighborhood groups, general public and other stakeholders. We are down to basically three hybrids. We had started out with many, many different alternatives. We're down to three hybrids. As a matter of fact, Ned Cod, the project manager for the Urban Ring is here, and for all of you who know him because he's been so integral to the process, two of the hybrids are all surface and one does include a tunnel in the Longwood Medical Area. We'll be developing ridership projections, which are going to be based on the new Boston MPO demographic assumption.

As you may know, some time ago Secretary Cohen had filed a request for a Notice of Project Change so that we can file the revised DEIR as well as the draft DEIS by May of 2008 instead of November of this year to incorporate some of the revised demographic and ridership projections to make this Urban Ring take advantage of all of the new growth and development that is happening here. So these are still being defined. We expect that we'll continue working on this through mid-December. We're working with stakeholders on implementation strategies, but I have to mention that one of the difficult issues that we're grappling right now is with the tunnel issue in the Longwood Medical Area. I think there were some major decisions to be made; clearly we want to make the right decisions. We don't want to preclude anything. Cost effectiveness is a big issue. Funding strategies is a big issue. Phasing is a big issue, and certainly we're aware of all the development plans at BU and Harvard and MIT. What we want to do is bring together all these players as a subset of the citizens advisory committee and all of the stakeholders, and really get these folks in a room and talk about where we need to be headed with accessing the tunnel, the staging, and making these very, very important decisions. So as I said, we're down to the difficult

issues. We feel that there's a lot of opportunity and potential. We've heard some really great ideas today. Stephanie, I mean your report was just fascinating. The Governor, the Mayor – we heard what the Mayor had to say – we know that the Governor is committed to so much of this. As I said, short of opening the checkbook here today, I think we're making very, very important strides and we are actually committing a lot of transportation money within the Commonwealth to these important initiatives.

**Rick Dimino:**

Well, thank you to the panelists. Thank you, Wendy – and I thought the checkbook was coming – but there is a lot of progress being made, but we still need to keep a focus and actually, even in the short term, we need an infusion of dollars to make sure these projects keep moving forward. So I can commit to you that ABC, and I'm sure working together with Mitch and the Life Science Collaborative, we have to continue to be strident advocates. One of the leaders in this industry and one of the leaders in terms of advocating for the growth of this industry and connecting people to the job opportunities is Dr. Gary Gottlieb. Gary is the President of Brigham and Women's. Many of you know him, and he's going to say some closing remarks this morning. Thank you. Gary?

**Dr. Gary Gottlieb, President, Brigham and Women's/Faulkner Hospitals:**

Thank you, Ricky. How exciting to have two members of the Governor's cabinet, a spectacular member of the Legislature, and all the business community, public and private sector standing together with one voice to understand that now is the time in which we need to make a move. We don't have a moment to wait. We are in a leadership position, but I say Steve, the score is closer to 52 to 70 at the end of the game and we're not piling up.

We have the cluster of science; we have the intellectual capital. The two major challenges that sit at hand are related to workforce and workforce development where there's a substantial skills set. Where we essentially sit is with a flat population base, where we have neighborhoods where people are displaced, or people who are out of the technical workforce who need the opportunity in terms of math and science education, as well as to be able to move the pre-employment and employment programs right into the workforce, and they need to be able to get to work.

The Brigham and Women's hospital, as you see in this report, is developing in a variety of ways. One that's not mentioned is that we valet park 18,000 cars a month. We are the leader in that area. We would like to fall by the wayside in that regard. We'd like somebody else to emerge. We'd like to emerge because there's inadequate infrastructure to bring our workers or our neighbors to our workplace.

Jeff Sanchez held us accountable, and we opened a workforce development and employment office right down the street from Mission Hill, right sitting on 110<sup>th</sup> Avenue, right next to our offices, and if you want to go hang at Penguin Pizza next door, you can do that. That's to be able to bring people who live in our neighborhoods close to the workplace, because it's the easiest to have the stable workforce. You can build from the shoulders if they have adequate access to those workplaces around us. Brigham is a microcosm of the challenges we described to you. We essentially sit in Longwood. We're opening 75,000 square feet over in Charlestown. We have a footprint embedded in Allston and a partnership. We already have space in Cambridge that sits at MIT and just opposite to Novartis. We're members of the Broad Institute. We have workers sitting in nearby Brookline where you have 150,000 square feet of available office space and in Jamaica Plain where we have health centers that serve our community.

It's no mistake that the COO of the department's healthcare centers used to run the T, so that we are able to go from place to place, but the reality is, without this infrastructure, we cannot serve our mission, and the critical component in this mission is the one that we share together. It's the future of this region. It's the future of bringing opportunity to those young people who put their trust in us; to those people who have nothing at this moment and could have everything as a result of this leadership and can allow us to be able to maintain a position that has come from generations of investment in extraordinary intellectual capital.

This is the time, and this is the opportunity. It cannot be delayed. The overall return on investment here will be extraordinary, and it will be sustained. This report needs to be a cornerstone, and now is the time. Thank you all so much.

**Rick Dimino:**

Thank you, Gary, and thank you all for attending this morning and giving us your time. I can commit on behalf of ABC that we're going to stay focused on the implementation of this report. We'll continue to work with Mitch and the Life Science Collaborative, and many of you in this room. To be honest with you, this could not move forward without all of your help. We absolutely need it. We have to continue to work with Representative Sanchez, our Governor, our Mayor and our elected officials and appointed officials to understand that this is a priority and it needs resources now. So thank you very much. We look forward to working with you in the future.

*-- end --*