TASK FORCE ON HIGHER EDUCATION AND THE ECONOMY

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Good afternoon. I appreciate the opportunity to share my thinking on the future of New Jersey's public research universities with the members of this specially constituted Legislative Task Force on Higher Education and the Economy.

New Jersey is home to three accomplished public research universities: a health sciences university, UMDNJ; a land-grant university, Rutgers; and a science and technology university, NJIT.

As a result of discussions that have taken place across New Jersey concerning higher education, we now sit on the cusp of an important decision about whether our State's public research university assets are optimally organized to provide maximum economic and educational benefits to New Jersey citizens or if a realignment is in order.

I think that building, first on the work of the Vagelos Commission, and more recently on the vision of Governor Corzine's Economic Growth Strategy, there is no doubt that world-class research universities are a necessary ingredient in igniting innovation, driving economic development, and improving the quality of life.

New Jersey's leaders know full well that the global economy is becoming knowledge-driven at an increasing rate. It is a challenge that we at NJIT, as well as our higher education partners in Newark, have responded to in the most direct and practical sense.

In fact, the University Heights section of Newark brings together a most dynamic array of educational assets with a real-world, practical focus. Taken together, the higher education institutions of Newark now constitute an incredibly rich and diverse community of more than forty thousand students, faculty, and staff, serving the City and State.

The higher education partners in Newark are a formidable economic driver for the City and region, working cooperatively to: grow University Heights Science Park within the Newark Innovation Zone; grow the residential student, faculty and staff population; attract businesses; participate in City planning and development; and lend expertise to civic organizations and schools.

But there is opportunity for us to build further on our Newark experience and strengths and have greater impact. The State's economic growth in the years ahead will be critically dependent on a vision that brings our research universities in line with the needs of New Jersey's major economic drivers – for example, the pharmaceutical and biotech industries, biomedical device companies, and homeland security technology development, along with those that we might build through incubation or recruitment.

At NJIT, our vision focuses very strongly on practical, real-world issues. The result is an innovative blueprint that emphasizes support for research and development and its impact on the economy through technology transfer and job creation in such areas as stem cell therapies, biomedical devices, engineering, information and communications technology, nanotechnology, and homeland security. And NJIT's Enterprise Development Center, the State's largest business incubator, helps start-up companies commercialize their ideas, thus creating businesses that generate jobs, interact with larger businesses, and bolster the State's economy.

In carrying forward its educational, research, and economic development mission, NJIT has developed extensive collaborations with other Newark higher education institutions: through cross-registration efforts; welcoming and supporting community college transfer students; and in joint academic programs and research efforts.

As one example of this collaboration, the three research institutions, NJIT, UMDNJ, and Rutgers-Newark, were awarded a $1million, 3-year grant from the prestigious Howard Hughes Medical Institute to develop a novel doctoral program designed to educate future neurologists who can integrate approaches used in mathematics, biomedical sciences, and computation as they investigate emerging developments in the neural sciences. Collaborations are a frequent feature among the Newark institutions, as they also are both nationally and world-wide.

But while such collaborations are important in many respects, they often have a finite shelf life, and when completed do not result in a dynamic, unified vision for how higher education can best serve Newark and impact the urgent economic growth requirements of both the City and the State.

In my judgment, the real questions are these: first, can the higher education assets of Newark be leveraged beyond collaboration to impact more strongly the economy of the City and State; and second, can we can equip our citizens with the tools needed to compete effectively in the knowledge and technology-driven global economy, and thus to participate fully in the promise of America.

I believe the answer to both questions is an unqualified "yes," but the pathway to success is one that needs to be developed carefully. It is a path that must contain a clear and compelling vision of a greater good for the City and State, a vision that extends well beyond what is produced by merely piecing together various parts of universities or higher education assets.

What is needed is a clear vision embedded in a logical institutional structure to leverage the existing higher education strengths in Newark and exploit those strengths for a competitive advantage for the City and the State and its citizens. Much of higher education's economic impact derives from the research and development mission of a research university. In Newark, more than 80% of the research enterprise is conducted in the life sciences, medicine, engineering, and technology related fields.

But the point I particularly want to stress is that it is at the *interface* of these disciplines where the advances in the life sciences and medicine will occur, advances in which a university in Newark can take a very significant lead. One need only look at the "roadmap" developed by the National Institutes of Health (NIH) for evidence of how dramatic and often unexpected advances in the life sciences have repeatedly emerged from the systematic interaction of what had previously been thought to be unrelated disciplines, such as the biological and life sciences and engineering.

I would ask you to consider just two examples that illustrate this point: first, recent advances in a novel method for measuring blood pressure in the heart by measuring blood volume changes in the arm developed at Virginia Commonwealth University's Reanimation Engineering Shock Center; and second, software advances in tissue engineering used to design bio-artificial arteries from Teflon, collagen, and muscle cells developed at Rennselaer Polytechnic Institute. Both of these advances have occurred at the interface of medicine, engineering, and technology, and these advances have real impact for health care and for the economy.

Bringing together Newark's medical and technological resources that would result in an institution with a vision of working at these "disciplinary interfaces" would ensure that the State's largest city emerge as a national leader based on its focused strengths in engineering, design, the applied physical, biological, and biomedical sciences.

I would also stress that if a restructuring of research university resources in Newark were to occur, the new model must be organized such that the City's potential is assured well into the future. Under no circumstances should Newark be left as home only to branch campuses with a vision for higher education in Newark set at main campuses elsewhere, out of context. That would be a disservice to the people of Newark as well as to the long term economic interests of the State of New Jersey. Great cities need and deserve great hometown universities intimately connected to the city, serving its citizens, and with a vision and focus that is a major economic driver.

So, if a realignment of the State's research university assets were in fact to take place, one highly desirable result would be a world-class university located in Newark. A university differentiated by its applied focus in a range of disciplines, including the liberal arts and social sciences, with an emphasis on the engineering, physical, biological, and medical sciences, and what can be accomplished at those interfaces to advance science, health care, and impact the economy. Students in all majors would have access to an environment steeped in technology, a pervasive force in society with which all citizens must be comfortable for personal economic success.

But whatever we do to create a model for world-class research universities in New Jersey, it must be designed with the overriding vision of the State's greater good in mind. The worst possible outcome, in my judgment, would be a reshuffling of academic assets without a compelling vision or strategy that fully meets that ultimate test of clear and significant benefit for New Jersey. And along these same lines, we must resist the

temptation to embrace “solutions” to realign institutions that are based on the idea that we can “retrofit later what we leave incomplete today.” The truth is, we must “get it right” from the beginning, or we are unlikely to get it right at all.

With that consideration in mind, I would like to conclude with some final comments, and of course I would be happy to provide additional detail in any follow-up questions you may have.

First, I would note that institutional vision and leadership are crucial factors in any discussion of university realignment. We must be very careful about implementation. In Newark as well as in other research university locations, local autonomy, coupled with clear mechanisms for accountability to the State and its people, is essential for avoiding top-heavy systems of bureaucracy.

In this regard, we are very proud of the culture of ethical leadership and oversight that has developed at NJIT over the years. I am convinced that with an appropriate level of State oversight, rigorous systems of oversight embedded at the local level, and a committed culture of ethical leadership, institutional integrity worthy of public trust and support emerges. I would be pleased to respond to any questions about NJIT’s best practices in accountability and oversight that you might have.

Let me close by noting that NJIT began in Newark 125 years ago when civic leaders recognized that the City’s prosperity depended on education as well as on raw materials and factories. While science and technology has advanced dramatically through the past century, the need to develop greater technological knowledge to impact the economy has grown far stronger. The higher education assets in Newark can be leveraged to move beyond collaboration to a vision of what the enhanced interface between the physical sciences and technology, on the one hand, and the medical and the life sciences, on the other, can mean to the economy of the City and State, as well as to the education of a diverse student body equipped to compete favorably in today’s and tomorrow’s knowledge driven economy.

Thank you.