I’d like to thank you for this opportunity to report to you on the State of the Institute as we begin a new academic year. As usual, we have gathered some of the highlights of the past year in a brochure, and I hope you will take time to read it. It is a supplement to my talk today, and covers much more than I will have time for.

The title of my talk this year is “Intersections of Innovation.” We usually think of intersections as the literal meeting places of the axes and planes of mathematics, the boundary lines and highways of civil engineering, or the orbits and pathways of the heavenly objects of astrophysics. But intersections are also literal and virtual places where people meet and interact with each other, and with ideas. And intersections are moments in time as well.

Literary critic Peter Brooks wrote that “we live immersed in narrative, recounting and reassessing the meaning of our past actions, anticipating the outcome of our future projects, and situating ourselves at the intersection of several stories not yet completed.”

That view captures well the state of Georgia Tech today. We remain mindful of our heritage and continue to reinforce our best traditions, but we also are a university on the move, planning for and anticipating a future that will lift this Institute to new heights. We are at the intersection of many stories whose plots have yet to unfold, but there is every reason to believe that our best days lie ahead.

So today I would like to stand at the intersection of the stories, between the past and the future, and consider the achievements of the past year while we glimpse the challenges and opportunities that lie ahead.

Our goal is maintain the upward trajectory through which we achieve new levels of excellence and recognition… in spite of the often erratic course the world around us follows. As Larry McMurtry put it, “Life can be seen to suffer from a drastic lack of editing. It either stops too quick, or else it goes on too long.”
All you have to do is look back to the heady days in 1999 when we finished drafting our Strategic Plan. The stock market was soaring and some even dared to wonder whether this “new economy” would be recession-proof. Then reality set in. The U.S. stock markets peaked in early 2000, and over the ensuing 27 months, they lost some 5.5 trillion dollars in value – more than all previous stock market declines combined. Terrorists crashed hijacked planes into national icons of economic and political power, starting our nation down the path of war in Afghanistan and Iraq.

The languishing economy created a major drag on virtually all state governments, which, unlike the federal government, must balance their budgets. As Georgia’s revenues declined and delayed tax cuts took effect, state government began to cut the budget, reducing funding for all state agencies and institutions, including Georgia Tech. Our state appropriations hit a high point in the fiscal year that ended June 30, 2001, and have been shrinking since then. Last year’s state appropriation was about the same as we received for fiscal year 1999. The stock market performance has not helped our endowments either, and we are receiving less income from them than in the past.

The circumstances in which we find ourselves today are quite different than those of 1999.

Yet we have remained focused, worked to optimize the resources under our control, and strategically used those available. I believe our accomplishments to date, many of which I will describe for you, demonstrate the validity of our approach. Even so, we are likely to be challenged by further cuts in state allocations the days ahead. The severity of the future cuts will be dictated to some extent by events beyond our control. For our part, we need to stay the course, rely on our team ethic and “can do” attitude, and use our strong positive momentum to carry us through to the time that will come when the world and our state have turned the corner to the next upward draft.

One of the most visible chapters of our story and components of our momentum has been the reshaping of our campus. During the past year, we opened the largest group of new and renovated facilities in Georgia Tech history. The centerfold of your brochure documents nearly 20 construction and renovation projects that were completed and are now in use. Roughly one-sixth of the square footage in use this year is new or renovated.
This dramatic growth of infrastructure is not due to luck, or a sudden infusion of state funding, but a result of what the author Jim Collins says happens when “disciplined people, create disciplined plans, and carry out disciplined actions.” The funding for these facilities was developed by creatively combining resources from state, private, and Institute sources and linking them through innovative financial plans. And they are now offering new opportunities and enhancing our image, while contributing to our momentum at a critical time.

The new facilities derive from the ideas in our Strategic Plan and are guided by our Campus Master Plan, which is a living document that continues to evolve as the Institute moves forward. The Campus Master Plan is about facilities, but it is also a tool to help us realize the other six goals of the Strategic Plan. Its purpose is to create the educational, research, and campus environment that will enable Georgia Tech to define the technological university of the 21st century.

Our building program speaks to our intention to take our place among the great educational institutions of the world. When you arrive on our campus and see restored historical buildings, we want you to feel the value we place on institutional traditions. At the same time you should sense our commitment to innovation in the way our new buildings and laboratories look and the way we bring them together into academic neighborhoods. You should see open spaces that appeal to our aesthetic side, and classrooms and informal meeting spaces that enhance a dynamic learning environment.

So we asked this question: What is it that makes a great campus? Like us, the University of Pennsylvania is an urban institution, and a distinct feature of their campus is the Quadrangle – a group of 38 interlocking buildings that enclose five courtyards where Frisbees and footballs fly through the air as students relax between classes. MIT is a technological university, as we are, and they are in the process of reshaping their campus to give it an edgy, high-tech feel. Like Georgia Tech, the University of Virginia is a top-tier public university, and they model Thomas Jefferson’s “academical village,” which was the original concept of the university campus.

Like Virginia, we want a campus that reflects our unique heritage. Like MIT we want a campus that says we are on the leading edge. Like Penn, we want a campus that offers open space for recreation and relaxation, despite being in the middle of a city. Most of all, we want a campus whose collective visual appearance gives it a strong sense of
place. We want people to look at our campus and come to the conclusion that we are the technological university of the 21st century without anyone having to tell them.

(STUDENT-FOCUSED)
So today, as we look at the achievements of the past year, we are also going to emphasize how new facilities that have opened throughout the year will help us meet the challenges and seize the opportunities of the future. I’d like to begin with idea of student-focused education, which is the first goal of our Strategic Plan and lies at the heart of our mission as a university.

(FRESHMEN)
The caliber of the students who come to Georgia Tech continues to be very high. SAT scores are only a limited indicator of a student’s potential, but they do give us an across-the-board measure of comparison, and our students consistently exhibit one of the highest average SAT scores of any public university in the nation. As you can see, we have been holding the size of the incoming freshman class at a constant level for the past several years, largely because of space limitations for freshman labs.

(ENROLLMENT)
However, our enrollment continues to grow nonetheless. One reason is because we are deliberately growing our graduate enrollment together with our research enterprise. But our undergraduate enrollment also continues to rise because retention has gotten better. After hovering in the mid-80s for many years, our first-year retention rate jumped to more than 90 percent a few years ago. And despite holding the size of the freshman class at a constant level for several years, we presented more bachelor’s degrees last year than ever before in our history.

(ENLIVENING STUDENT EXP)
Increased retention is the result of deliberate efforts to improve the undergraduate experience over the past several years. New initiatives have included promoting undergraduate involvement in research, expanding study abroad opportunities, providing mid-semester performance reports, and improving the skills of our teaching assistants, as well as creating more opportunities just to have some fun.

(STUDENT MUGS)
For their part, our students continue to add to the Institute’s luster by winning prestigious national and international scholarships with storied names like Fulbright, Churchill, Goldwater, and Truman. The three students on the left are now pursuing graduate studies abroad, while the two on the right won scholarships that support their continued studies here at Tech.
Offering a rigorous curriculum to some of the brightest minds in the state and the nation requires quality educational facilities, and we made progress on this score during the past year. When classes began this fall, we had 23 additional new or renovated classrooms and lecture halls compared to the fall of 2002. This spurt of new classroom space will give us a little elbow room to begin taking some of our older classrooms out of service for renovation.

The new classrooms in the Management Building and the Global Learning Center at Technology Square not only incorporate technology seamlessly, but are also designed for optimal lighting and for clear sight lines. The curriculum of the Coulter School of Biomedical Engineering features team-based problem solving, so the new U.A. Whitaker Building includes group workrooms where students can write on the walls as they develop solutions together.

The renovation of the John S. Coon Building demonstrates what we want to do throughout the historic core of campus along Cherry Street. Outside we maintained the signature architecture, but inside construction workers crafted a high-tech, high-quality home for the School of Psychology.

The Library West Commons is a $1 million renovation of the first floor of the west building where the traditional library reference desk now intersects with sophisticated information technology. The center is open round the clock, and usage of the library has increased by an astounding 56 percent since it opened.

The West Commons is a testbed for the information commons that will be part of the undergraduate learning center to be built next to the library. This innovative new facility will be a hub for undergraduates taking science labs and seeking support services. It has been approved by the Board of Regents and is awaiting a state funding component, which should be forthcoming when the state economy gains steam.

Of course, students are only half of the educational equation. The other half is our faculty and staff, and they are equally outstanding. They drive the process of knowledge discovery, whether it is helping students to discover the intricacies of their chosen discipline, or working side by side with students to make the research discoveries that feed innovation. I continue to be impressed with the quality of our faculty, both at the junior and the senior levels.
(NEW LEADERS)
At the senior level, we continue to identify and welcome outstanding leaders who will continue the process of strengthening our academic programs. The new deans and school chairs of the past year are people of exceptional accomplishment who are highly regarded in their disciplines and will contribute to Georgia Tech’s efforts to excel.

(SUPERSTARS)
We have also attracted prominent scholars to hold several endowed chairs during the past year. They add to our luster, as well as to our national academy memberships. Our junior faculty continue to win a remarkable number of National Science Foundation CAREER Awards, which honor the most promising young talent in science and engineering. And we have placed a priority on increasing the size of our faculty to keep up with our growing enrollments. In spite of budget challenges, we began this year with a net increase of more than two-dozen faculty compared to last fall. We are pleased about this progress, but we regret that a $28 million cut in state funding kept us from adding even more faculty.

(FACULTY AWARDS)
Our faculty are doing their part to promote excellence, and the honors they continue to receive reflect well on the Institute. Here you can see a sample of the faculty achievements of the past year, including a tribute to a distinguished and beloved colleague, Kevin Brennan, who passed away a few months after winning the highest award Georgia Tech bestows on faculty.

(RESEARCH RECORDS)
Many of the intersections of ideas are in our research labs, and our research enterprise has virtually doubled during the past decade, both in expenditures and awards. We are also at our highest level in Institute history in invention disclosures and patents. And the arrival of the National Science Foundation Center of Excellence in Photonics from Arizona puts us in a tie with MIT for the most NSF Centers of Excellence in the nation.

(NEW GROUND)
Georgia Tech is using its leading-edge ability to pursue interdisciplinary research to move ahead of other institutions that talk a good game, but do not deliver. Z. L. Wang, director of our Center for Nanoscience and Nanotechnology, is a prolific and widely cited author in this new and exciting field. Damien Gaudry, who is demonstrating the robotic hand, is a graduate student in mechatronics, which involves creating mechanical systems that incorporate electronic and computing components. And our researchers in computing are leading the pace in this rapidly changing technological field.
(THORNY PROBLEMS)
We are expanding our interdisciplinary thrusts towards understanding how technology will impact the economy and society. Science and engineering need to intersect with public policy and decision-making, and the mix of disciplines we have at Georgia Tech offers a unique opportunity to develop and promote that essential engagement.

(RESEARCH FACILITIES)
The research opportunities of hundreds of Georgia Tech faculty and students have been enhanced by several of the new facilities that opened within the past year. The Life Sciences and Technology Complex, which began with the Petit Biotechnology Building, expanded during the past year to include the Ford Environmental Science and Technology Building and the U.A. Whitaker Building. A fourth building focusing on molecular science and engineering will be built to enclose the quadrangle. This complex is a bricks-and-mortar expression of Georgia Tech’s growing interdisciplinary intersections. The ES&T Building, which is the largest academic building on campus, gathers faculty and students from five different schools around environmental issues. The Whitaker Building is the new home of the Coulter School of Biomedical Engineering, which is a unique joint academic program with Emory University.

Across the street from the Life Sciences and Technology Complex on the site of the old Student Health Center, we will soon break ground for the Klaus Advanced Computing Building. It will have a bold architectural design and complete the creation of a neighborhood devoted to information technology and telecommunications work on campus.

Across Fifth Street from the Global Learning Center, where we are now, is the Technology Square Research Building, another intersection where faculty from computer engineering and computer science interact with members of industry in broadband design research.

(CAMPUS LIFE)
Georgia Tech students, faculty, and staff work hard. But it is also important to take time away from classrooms, labs, and offices for recreation and relaxation, and the reshaping of our campus addresses this issue as well.

(CRC)
After years of straining the limited capacity of the old Student Athletic Center, we opened phase I of the sparkling new Campus Recreation Center, built around the Olympic Aquatic Center. The enclosed and refurbished pools give us the ability to host
world-class swimming and diving events. Suspended above the pools is a vast gymnasium that can accommodate six basketball games at the same time, plus dance and aerobic studios, and weight and cardio fitness areas. And, high up under the eaves with a stunning view of the Atlanta skyline, is a four-lane running track. The Center will be completed next fall and will include a leisure pool, courts for racquetball and squash, a climbing wall, an expanded fitness area, a space for roller hockey and indoor soccer, and a two-level parking deck.

Right next door is the new Whitehead Building, home to Stamps Health Services, which offers our students full medical services, including dental, which is rare at a university.

(CONNECTING)
We are also developing more spaces for informal activities and reflection. Following the demolition of the Hightower Building, a new “green” was created near the Student Center. In time, this space will be framed at the other end by the undergraduate learning center, and its landscaping further developed. The annex to the Student Center, which formerly housed the bookstore, is now under renovation and will provide much needed space for student organizations and meetings.

(BOOKSTORE QUOTE)
This afternoon, we are surrounded by the most ambitious construction project ever undertaken by Georgia Tech – Technology Square – and I hope to see all of you at the grand opening October 23 and 24. When we talk about Technology Square, we tend to focus on the exciting new academic, research, and economic development opportunities this new complex provides, but there is an additional benefit. Despite being in the middle of a city, Georgia Tech has never had the nearby shopping and dining opportunities that characterize a typical college town. You couldn’t buy a loaf of bread without getting in your car and driving off somewhere. Technology Square takes a big step in the direction of providing a supportive retail community around campus to serve our students, faculty, and staff.

(TEAMS)
Of course, our athletic programs are an important part of campus life, and generate an enthusiasm that many of our alumni carry with them through the rest of their lives. Many of our technological peers – MIT, Rensselaer Polytech, and Cal Tech, for example – choose not to compete in Division I-A athletics. But we believe that athletics contribute an important dimension to our campus and to our image. We are proud of the accomplishments of our student athletes, both on the field of play and in the classroom.
This year we took a major step forward in providing facilities that are needed for us to remain competitive in Division I-A sports. The re-creation of Bobby Dodd Stadium, the nation’s oldest Division I-A on-campus stadium, has restored it to first class condition, and its unique setting among the skyscrapers of Atlanta shows us to our best advantage. The Russ Chandler Baseball Stadium also got a complete make-over, from the grandstand to the outfield wall. It now compares with the best baseball stadia in higher education, enabling us to host post-season play-offs and tournaments.

Georgia Tech is a leader in environmental sustainability. The international environmental organization Second Nature has paid tribute to us as the first university to incorporate sustainability concepts throughout our curriculum. But it is not enough to talk the talk; you also have to walk the walk. So we are incorporating sustainability into our campus structures and daily operations.

Our newest buildings include environmentally friendly features, and some of them are especially significant or unique. The Management Building at Technology Square is only the second building in Georgia, and one of only 13 buildings in the entire nation, to receive LEED Silver certification. LEED stands for Leadership in Energy and Environmental Design, and is a U.S. Green Building Council rating system.

An aerial view of Technology Square demonstrates one of its most obvious energy saving devices – white roofs that reflect the summer heat of the city rather than absorbing it. The ES&T Building has energy-saving features similar to Technology Square, but it also pioneers some innovative design elements, like a unique rooftop drainage system that collects the rainwater that falls on its roof, then percolates it into the ground.

There are many other ways in which we are working to make our campus more sustainable. The rooftop of the Campus Recreation Center is covered with solar cells, helping us with our energy needs and offering an opportunity for experimentation at the same time. The new Tech Trolley that some of you may have ridden here today is powered by natural gas. And we are paying as much attention to green space in the design of campus as we are to buildings. Shade helps to hold temperatures down in the summer; photosynthesis takes carbon dioxide out of the air and puts back oxygen. And wireless computing environments enable faculty, students, and staff to take full advantage of these attractive outdoor spaces.
Back in its early days, Georgia Tech fenced itself off from the community with a picket fence along North Avenue, and wire fencing around the other three sides. Today, we know that our quality of life is directly related to the quality of the community around us, and we are actively engaged with our neighbors in many ways to our mutual benefit.

When Interstate 75/85 was built, it cut Georgia Tech off from our natural neighborhood constituency, which did not serve either of us well. Today, Technology Square bridges that gap and extends our campus across the interstate into the center of the Midtown Atlanta business community, replacing abandoned buildings and vacant lots with beautiful architecture and busy people. The Department of Transportation has made a commitment to improve the Fifth Street Bridge, and we are in the process of improving Fifth Street on the west side of the bridge. As a result, Technology Square will not only be a place where Georgia Tech is engaged with the Midtown community; it will also be an impressive new gateway to our campus.

We also want Technology Square to be a place where Georgia Tech students, faculty, and staff intermingle with the employees and residents of Midtown. The restaurants, shops, and pedestrian-friendly sidewalks are designed to attract and serve people from the neighborhood as well as from Georgia Tech, bringing an extra element of vitality to this side of campus.

While Technology Square focuses on business and retail engagement, the north side of campus is more domestic. Home Park is a residential neighborhood that is gentrifying and our faculty and staff are increasingly choosing to live there. Recognizing our joint interests in encouraging this trend, last year we partnered with Home Park in building the new R. Kirk Landon Learning Center, to provide quality child care for Georgia Tech faculty, staff, and students, as well as for neighborhood residents.

Of course, facilities like Technology Square and the Landon Learning Center are just the tip of the iceberg when it comes to the intersection of Georgia Tech with the community. Our faculty, staff, and students volunteer in countless ways. Organizations like MOVE and CEISMC provide structured opportunities for service. Fraternities and sororities contribute countless volunteer hours. The library collects books for a crisis shelter for women and children. Even the athletic program got involved, sponsoring a
toy drive to honor Michael Isenhour, a Tech basketball player who passed away last fall.

(GLOBAL INTERSECTIONS)
In addition to these local connections, Georgia Tech continues to strengthen its global ties. Our goal is to create a genuinely international university that educates students from around the world to be leaders in a global economy.

(FOUR CAMPUSES)
The task of building a genuinely international university involves developing and nurturing carefully chosen education and research platforms in strategic locations around the world. In addition to the Internet and satellite connections of the Global Learning Center, which link us to virtually every corner of the world, Georgia Tech now has four campuses on three continents. And this fall nearly 600 degree students are studying on our campuses in Savannah, Metz, or Singapore, or online.

The Georgia Tech Savannah campus just opened this fall, with three new buildings to house the Georgia Tech Regional Engineering Program as well as regional offices for our Economic Development Institute and Advanced Technology Development Center. This campus is a component of the largest technology corridor to be developed in Savannah’s history, and is designed to attract and bolster high-tech development as well as meeting an escalating demand for engineers.

Georgia Tech Lorraine in Metz, France, is the oldest of these three remote campuses. It has been offering graduate degree programs for more than ten years, has well-established research programs, and has begun to spin off new companies. But it continues to grow and develop, and this year it has begun a year-round undergraduate program. Singapore, of course, is the world’s hub for logistics, and that is the focus of our research and education programs there. But we plan to expand into additional fields.

(WORLD CITIZENS)
As a public university, we have an obligation to the State of Georgia, and two-thirds of our students are from inside the state. But once they arrive on campus, we do our best to make them citizens of the world. We have worked deliberately to develop opportunities for our students to study abroad, and students have embraced them. In addition to 56 classical study abroad and exchange programs, we have also developed several with a distinctive Georgia Tech flair. For example, the School of Modern Languages offers a unique year abroad in Germany which incorporates intensive
language study, a semester at the Technical University of Munich and an internship at SIEMENS.

Going the other direction, we now have more international students here on campus than ever in our history. This kind of diversity enriches the life of our campus, and helps our students prepare for a life where social and economic structures around the world are more linked than ever before.

(VIRTUAL INTERSECTIONS)
Even as we reshape our campus to create new physical intersections of innovation, we are also aware that many useful and creative connections are less tangible. And we want to recognize and encourage these virtual intersections of innovation as well.

(CYBERSPACE)
Many of them happen in cyber-space, and here are two good examples of the power of the Internet to create virtual intersections. When Air Force pilot and student Marshall Groves was called to service and sent to Iraq, he took his laptop along and was able to continue work on his master’s degree in mechanical engineering from his tent in the desert.

Steve Potter of the Coulter School of Biomedical Engineering works to bridge the gap between biological and artificial intelligence. The Internet has enabled him to collaborate with a colleague in Perth to develop the “semi-living” artist, whose brain is in Atlanta in the form of a few thousand rat neuron cells living in a special Petri dish that Steve has patented. Tiny electronic sensors in the dish pick up signals from the neurons and transmit them to a computer in Australia, which sends them to the robotic arm. The signals determine what colors the arm uses and what patterns it draws. The scientific questions have to do with intelligence. The broader question is what is the minimum it takes to make a creative, artistic entity? And if you are wondering, rat brains seem a bit erratic at patterns, but pretty good at choosing colors.

(IMAGINATIVE INTERSECTIONS)
Virtual intersections are also being created in the Ivan Allen College. This is our liberal arts college, but the technology-rich environment of Georgia Tech has enabled it to develop into something completely different from your father’s English or history department.

The past meets the sophisticated technology of the future in the augmented reality systems that Jay Bolter creates together with Blair MacIntyre of the College of Computing. They lay computer-generated images on top of images from the real world,
bringing history to life. One of their first projects was a re-creation of the Sweet Auburn neighborhood in downtown Atlanta where Martin Luther King, Jr. was born and is now buried.

(RANKINGS)
If you add up the achievements of the past year and the opportunities that lie ahead, it is clear that Georgia Tech is an outstanding institution. And that is reflected in our national rankings. We have demonstrated our staying power in the top tier of the national universities. Once you get up there toward the top, it is difficult to move higher, but the College of Engineering managed it this fall, with the undergraduate program now joining the graduate program among the top five and all our engineering disciplines but one ranked in the top ten. There are many more science and management programs than engineering programs, so the competition is tougher there but we are doing well. The Forbes business school rankings just came out, and we are in the top 30 there. We also have ample evidence beyond rankings that we are solidifying our position among the nation’s leaders in higher education in all of the fields in which we compete.

(CONCLUDING QUOTE)
The world in which this Institute exists seems always to be in transition. Just when you think things on an even keel, the ground shifts under your feet. In the short term, we will accommodate those shifts as best we can, and remain strategic and focused in making our decisions.

Taking the long view, we intend to hold a steady, forward pace, and the ongoing development of our campus is an expression of that commitment. As we shape our campus, we also are shaping our identity – crafting a campus that not only serves as a tool to help us achieve higher levels of excellence, but also communicates our intent to be the technological university of the twenty-first century – a place filled with intersections of innovation where new ideas are generated and new knowledge discovered that make the world a better place. So whether it is in Atlanta, Savannah or places once considered far afield, I am here to confirm there is a new Yellow Jacket in town, grounded by the past, but ready, willing and able to take on the future.