

Academy Meetings



View of Building I (right) and Building II (left) looking west into the yard of Harvard's Allston Science Complex

Harvard University's New Allston Campus

Christopher Gordon and Stefan Behnisch

This presentation was given at the 1919th Stated Meeting, held at the House of the Academy in Cambridge on November 14, 2007.



Christopher Gordon

Christopher Gordon is Chief Operating Officer for the Allston Development Group at Harvard University.

It is a pleasure to be here. If you look at the existing Harvard campus in Cambridge, and then at Allston, all of this land represents an amazing opportunity. This isn't the first time Harvard has helped to transform a piece of property. One example is the Kennedy School that not too long ago was a rail yard. Harvard owns about 225 acres in Cambridge and about 350 acres in Allston.

Right now, Harvard owns approximately 23.4 million gross square feet of building space in Cambridge, Allston, and the Longwood medical area. If you read all the articles and books about Harvard, the growth curve has been almost linear: between 1–1.5 million square feet over 150 years. In 1962, the campus was a little less than 10 million square feet; now it is at almost 24 million square feet. Cambridge and Longwood will

always see some level of construction, but they are not going to see the significant growth that will occur in Allston, where Harvard owns about 350 acres of land (see Figure 1).

Harvard has been acquiring land in Allston since the late 1980s. The planning process has involved a series of study groups, task forces, and committees both within the university and with the Allston community. The draft master plan was announced in January 2007, and it stresses four themes (see Figure 2):

1) *Teaching and research.* This is not a real-estate project, an architectural competition, or a way to spend the endowment; interdisciplinary teaching and research are at the core of the plan.



Figure 1. Aerial photo of Allston, 2006. Photo by Peter Vanderwarker



Figure 2. Master Plan Rendering of Harvard's proposed Allston campus



Figure 3. Draft Phasing Diagram

2) *Building community.* The Harvard campus is a special place, not a sterile collection of buildings with perfectly aligned streets. The hardest part of this job is to make Allston a special place to work in and visit. We can all line up great buildings, but how do you make them feel like a great place?

3) *Environmental sustainability.* Harvard has put its foot forward and said that it hopes this campus will be the most environmentally sustainable campus in the world. We are targeting every new building to be gold-certified under the LEED system. We are making Allston a green campus not only because it is the right thing to do, but also, with advances in technology, it is the right decision financially.

The draft master plan stresses four themes: teaching and research, building community, environmental sustainability, and economic development.

4) *Economic development.* Part of it is short term. Thousands of people will be needed to design and build the campus, and thousands of people to run it. When it is completed, it will employ about 25,000 individuals. In addition, it will spur other businesses, creating a ripple effect in the economy, specifically in the life sciences.

We took the 50-year plan and divided it into two: Phase I and Phase II (see Figure 3). Phase I of the project may entail moving the Graduate School of Education and the School of Public Health and building more science facilities, some undergraduate houses, a student center, graduate housing, a number of cultural centers, some support space, and new athletic facilities. It will involve about 5 million square feet and take 15 to 20 years to complete. The second 4 to 5 million square feet is in Phase II, but no detailed decisions have yet been developed for it.

The plan calls for a professional school zone in the middle of the Allston campus (see Figure 4). In order to do that, we have to realign

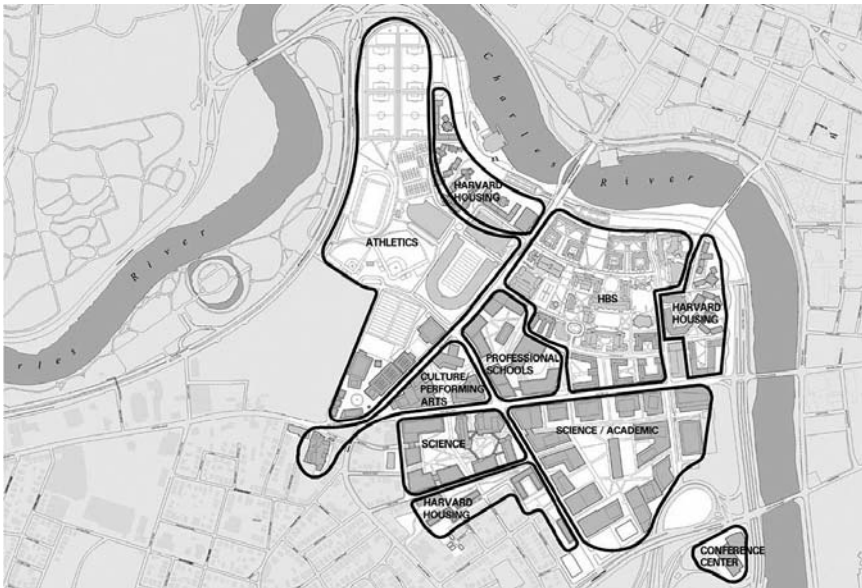


Figure 4. Proposed Harvard Allston Campus



Figure 5. Draft Illustrative Plan

some of the athletic facilities and fields, add more synthetic turf, and incorporate some new technology into the athletic buildings. The leading candidates to move to the professional school zone are the Graduate School of Education and the School of Public Health. That is not a small task. We would have to pick up the entire Graduate School of Education from Cambridge and most of the School

of Public Health from Longwood and move them to Allston. Both schools desperately want new facilities. The School of Public Health, for example, is in 33 different buildings, and most of them are rented. By moving those schools to Allston, we would create a professional school corridor. The Harvard Kennedy School would remain in Cambridge, and the Harvard Business School

would stay on the Allston side. As a result, four of the top schools in the world would literally be side by side. That arrangement is much better for sharing programs, faculty, staff, and facilities, and offers much more opportunity for synergy.

We have also incorporated a cultural component, including a museum district and a performing arts center. An interesting idea for the museums going forward would be to connect aspects of the University Art Museums with the Peabody Museum and the Museum of Natural History. The performing arts center could be primarily a performance space, or it could also have practice and experimental space for everything from dance to music.

We are trying to incorporate such features as small buildings clustered around yards and interesting walkways.

To give you a sense of scale, the first science complex, consisting of four buildings, is one million square feet. The master plan calls for another entire academic space on the Harvard-owned land that is currently rail yards. The area may not be developed until the second phase of the project but we want to reserve the room now so that in the next 50 years, as Harvard grows and academic and research needs change, it can expand into this space.

There is also a provision for graduate housing and further expansion of a conference center. Finally, we will have, throughout the campus, 75 acres of green space and a number of other amenities built into it (see Figure 5).

As we lead up to Stefan's discussion of the first science building, I want to talk about several detailed design principles that we are trying to build into the campus.

Borrow the best from Cambridge. I am not trying to flatter the Harvard folks in the crowd, but every time we have traveled to look at campuses around the world, people always say, "Why are you here? Why don't you go back to Cambridge? You have the best ex-

We want to make this a place where people can enjoy the outdoors by adding a significant amount of green space.

ample of how things should be done.” So while we are still looking at other campuses, we are trying to incorporate such features as small buildings clustered around yards and interesting walkways.

Make Allston green. We mean a lot of yards, trees, and shrubs. Now, the minute you leave the Business School, you encounter almost all asphalt. We want to make this a place where people can enjoy the outdoors by adding a significant amount of green space.

Celebrate the Charles River. For years there has been this angst about having a river in the middle of Harvard if we develop Allston. Most campuses would love to have the Charles River in the middle. So we have tried to reorient the master plan, to make sure the Charles River is a key part of the plan. We are not going to hide it or apologize for it; we are going to feature it.

Assemble a variety of uses in close proximity. We don’t want to have monolithic blocks of big science buildings and big performing arts centers. If you look at the granular nature in and around successful campuses, there might be a library, a coffee shop, or an athletic facility. We are trying to marble those things into the Allston campus. It is not easy because the scientists all want to be together and the athletes all want to be together, but we want to have a creative blending. This also gets to the issue of size. We want a variety of buildings – big, small, wide, and short – so that it doesn’t feel like you are walking down a cookie-cutter space.

Create active gathering places. We want to design places where students, faculty, and staff want to spend time. Most campuses figure this out after the students figure it out. We may not get this right the first time around: we will design beautiful plazas, and people will sit somewhere else. But we are going to try to find places where people want to gather at lunch, after class, and in the evening, and I am sure our design will evolve as we go through the process.

Plan for both the campus and the community.

The North Allston neighborhood has about 9,000 residents. They are not against Harvard, but they are eager to maintain and improve the character of the community they live in. We are working closely with the community and the city of Boston. At this point, we have held 77 public meetings since the formation of the community Task Force appointed by Mayor Menino. It is a good process. The Boston Redevelopment Authority (BRA) has done a great job of trying to figure out how to make a twenty-first century campus work on 350 acres in Allston. We don’t have all of the answers yet, but between the city, and specifically the BRA, the Allston community, and Harvard, we can get there.

Ensure effective transportation to Cambridge and Longwood. Every time I talk to the faculty, they say, “If I can’t get to Allston, I’m not going. I work in Longwood; I work in Cambridge; it’s a long walk; it’s a cold winter; I don’t like shuttle buses, and I’m not going to ride my bike.” I can sympathize. If you are teaching a class in Cambridge, and you have only 20 minutes to get to Allston to teach a second class, how do you get there? The Red Line doesn’t go there, and the shuttle system is not great. If you are in Longwood, it is even worse. So we are trying to make some significant improvements, including, in the early years, a dramatically improved shuttle bus system. In the long term, we hope to have some sort of subway system, but that is a long-term project. We are already adding bike lanes and pedestrian lanes.

Use “best practices” sustainable strategies. Stefan is the best thing that has happened to us on the sustainability front for the first project, but we have also done a lot of things campus-wide, including a voluntary cap on greenhouse gas emissions from the new Allston buildings, up to 30 percent below the current baseline standards. Frank Gehry came up with the idea of a train shed over an open plaza between the museums and the performing arts center. I have been at Harvard for two years, and I have learned that the raw nerve is architecture. When I travel all over the country and the world to talk to donors, alumni, and friends of the university, I can go on for hours about the engineering and the technical aspects, but every question is about architecture.

The plan for the Allston campus is built on four frameworks: transportation, open space, development, and sustainability.

Transportation. In our proposed plan, a new road called Stadium Way would enable vehicles, driving either east or west on the Massachusetts Turnpike, to enter the campus directly, without traversing back streets, and reach the first science building in about two minutes. An on-ramp, East Drive, would lead back onto the Turnpike. One of the more controversial parts of the plan is the idea of using Weeks Bridge for shuttle buses. Weeks Bridge is a beloved landmark, long used as a footbridge, but it would also work well for shuttle buses. We have to look seriously at the historical issues involved in modifying it.

The plan for the Allston campus is built on four frameworks: transportation, open space, development, and sustainability.

Even as we discourage people from driving to Allston, we are still going to need thousands of parking spaces. The plan over the next 50 years is to design primarily underground parking garages, one adjacent to the athletics area and another near the Turnpike. They will be “interceptor” garages, where drivers coming from the main arteries can get into a garage and then walk around campus. Two types of bicycle networks are planned. In the street, there will be separate car and bicycle lanes, and on campus, there will be bike lanes between buildings and through the green spaces. I am amazed at how many people at Harvard – faculty, staff, and students – ride bikes.

Open space. This includes a new community park that will knit the campus together with the community. An idea that we have proposed is to bury part of Soldiers Field Road and put green space above it so that you could walk from the campus or the community directly to the river.

Development. The goal is to distribute different uses around the campus. We want to have places on campus where you can eat,

drink, and shop, but we are leery of over-commercializing the site and ending up with a bunch of generic chain retail stores. We are trying to figure out how you populate the campus with useful retail stores and restaurants without cheapening the effect and destroying the beauty of the plan.

Sustainability. We are looking at dramatically reducing our consumption of energy, and dramatically increasing our generation of power using everything from solar panels to windmills. We are looking at geothermal wells for all the buildings and conducting a study on deep hot-rock drilling as well as heat extraction out of the sewer lines. A sewer line, with 18 million gallons of sewage passing through it every day, runs under Allston; it is estimated that every 600 feet of the line can heat a 100,000 square foot building for free, forever. The efficiency of the campus can be improved dramatically by taking other steps, for example, in the case of the buildings Stefan has designed, we have agreed to a 50 percent reduction in greenhouse gas emissions.

As we move forward, we are focusing on the one-million-square-foot, four-building science complex that was approved by the BRA in fall 2007. Stefan Behnisch is the lead architect for the complex.

Note: Figures 1 – 5 in Christopher Gordon’s presentation are courtesy of the Allston Development Group, Harvard University.



Stefan Behnisch

Stefan Behnisch is Founder and Principal of Behnisch Architekten in Stuttgart, Germany. He also directs Behnisch Architects, Inc., in Venice, California, and Behnisch Studio East, Inc., in Boston, Massachusetts.

I would like to structure this talk by first explaining briefly who we are, then discussing a few examples of what we have done, and finally showing you the first building in the science complex.

Behnisch Architekten has offices in three locations: Stuttgart, Germany; Venice, California; and Boston, Massachusetts. The firm was founded by my father in 1952. I joined the office in 1987, and in 1989 we found out that the best way to work together is in different locations. I founded my own office, with his support, and we were joint partners

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in both offices for more than 15 years. We gain nearly all of our commissions through architectural competitions. My father and I have worked together on 140 buildings, but we have only had four direct commissions; everything else, including the Harvard project, we earned through competitions.

For us, sustainability has been a concern since the late 1980s. Nowadays, the term sustainability doesn’t say a lot. It originally comes from forestry, from the eighteenth century, and it means nothing more than not cutting more wood than grows in the same area at the same time. Generally, the idea is not to use more resources than are produced at the same time by nature. Today, we are far from that ideal. In three seconds, we burn as much fossil fuel as the earth produces in 24 hours. Moreover, for us, sustainability is not limited to the idea of quantity. It has a qualitative aspect that focuses on the

Figure 1. Norddeutsche Landesbank, Germany





Figure 2. Terrence Donnelly Center for Cellular and Biomolecular Research, University of Toronto

usability of buildings and how people enjoy buildings. As a rather stupid example, I could design a building that uses hardly any energy by designing it so badly that nobody will use the building.

Let me consider a few of our buildings. We designed the first big corporate structure in Hanover, Germany: Norddeutsche Landesbank is close to 780,000 to 800,000 square feet and is made of glass (see Figure 1). We take 70 percent of the energy needed for heating and cooling the building out of the seasonal storage below it. The groundwater table doesn't move so we can heat it up in summer and cool it down again in winter, counterbalancing the temperatures we need above ground. Because 20 percent of electrical energy produced on this planet is used for artificial light, having more natural daylight helps save a lot of energy. We were only able to afford all of the glass in this building because we were able to capture so much energy from the seasonal storage.

Another building, the Terrence Donnelly Center for Cellular and Biomolecular Research at the University of Toronto, has an interesting history (see Figure 2). Two scientists were trying to get the university to build a new institute, but the university refused. Acting on their own, they collected enough money to construct the building and asked

the university for a site. The university gave them the worst possible site, a very narrow space between two existing historic buildings and a loading dock. We won the competition, worked with them, and turned this space around. We abutted the new structure directly against one of the buildings and made an interior garden: one of these communicative areas where people can meet and where the circulation is excellent. We can't force people to communicate, but we can create the opportunities to do it.

Architecturally, these buildings are quite different. We always try to find an appropriate solution for a given situation. The basis for sustainable architecture is always the topographical, geographical, climatic, and cultural background of where you are building. One of the biggest misunderstandings in "international architecture" was the idea that all buildings can look the same, no matter where they are on the planet. For example, Hamburg HafenCity is a new development in the harbor of Hamburg that has the most aggressive sustainable agenda I have ever encountered. It is the site of the new headquarters for Unilever which we designed, using foil, for the first time, to build a double wall to protect against noise and fumes. Everybody thinks it's beautiful there, at the waterfront. But the emissions at the harbor are worse than at any turnpike. The ships use diesel fuel, and ship diesel is still 15 percent sulfur. Harbors are not romantic places at all.

Figure 3. Genzyme Center



The basis for sustainable architecture is always the topographical, geographical, climatic, and cultural background of where you are building.

The Genzyme Center in Cambridge is another example of our work (see Figure 3). Because light is only visible if it meets a surface, we introduced big chandeliers, or heliostats, which turn slowly in an atrium, reflecting daylight into the depths of the building. They change the sensation of light in this space.

Now I want to turn to Harvard. As I said earlier, we won this commission in a competition. What amazed me most, when we came into the discussion, is the contrast between how Harvard perceives itself architecturally and how others see Harvard architecturally. To the alumni, it is all brick and ivy; in Germany, it is Corbusier's Carpenter Center. When we studied Harvard, my friend and client at Genzyme, Dan Winnie, told us, "You've got to be careful; Harvard's a bit conservative architecturally."

What will the future Harvard campus look like? There is a master plan, but the final answer is still out there. Architecturally, what





Figure 4. Yards of Harvard University

is Harvard? Is it brick, ivy, wood, stone, limestone, or concrete? Harvard has a wide range of buildings, from excellent to mediocre; that is part of the charm of the campus. But ultimately, the most important part of Harvard is the yards, and not only the yards, but the connection between the yards (see Figure 4). They are never linear, but meandering. Walking from yard to yard, usually over the diagonal, you discover a new place. It is a little bit like an old Italian city, where you go from attraction to attraction to attraction, always discovering something new. At Harvard, there can be a beautiful wooden building next to brick buildings next to limestone buildings, with concrete in the middle. It is a very mixed portfolio. But an important feature is the connecting green.

As Chris explained, the science complex, divided into four buildings, will be built first (see Figure 5). In our design, we were concerned that scale be respected. Buildings should have a manageable size where humans feel comfortable. It is not about height but about length and distance. People want to feel in control of a space somehow, and not like an ant somewhere in a big soccer field. Our second goal was flexibility, within the complex as a whole and in the individual labs. We don't know what is going to happen in the next 15 – 20 years in the sciences, so we want to build in the ability to convert to whatever is necessary. Bridges will con-

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nect the buildings, helping to create an architectural freedom that will promote communication and interdisciplinary work. The plan will incorporate winter gardens; retail, cafeteria, and conference space; libraries; and a child care center.

Figure 5. Harvard's Allston Science Complex design



The elevation of the buildings has been a topic of discussion for a long time. It was already clear in the competition itself that we were not the right architects for neo-Georgian, and that was accepted. Neither the high-rise Norddeutsche Landesbank nor the Genzyme building would be appropriate for the Harvard campus. So we designed buildings that have a rather rigid limestone facade, a big canvas. But a facade nowadays is more than just a nice exterior. If you want to do a sustainable building, it is a highly technical undertaking. You can incorporate light enhancement, natural ventilation, sun-shading devices, high-insulating glasses, opening flaps, everything. For example, on top of an atrium, we can use an epic lens that follows the sun constantly and reflects daylight into the building. Most people think that the mechanical penthouses of science buildings are just a functional element. Actually, they are about 25 percent of the facades of science buildings, and they have to be treated like facades, the most visible element of these buildings

There could quite possibly be a million other designs for this site, but I feel that our concept is both aesthetically pleasing and environmentally sound, incorporating the flexibility at all levels that will be so important in the future. ■

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