GREEN TECHNOLOGY COLLABORATIVE

at Golden Gate Fields

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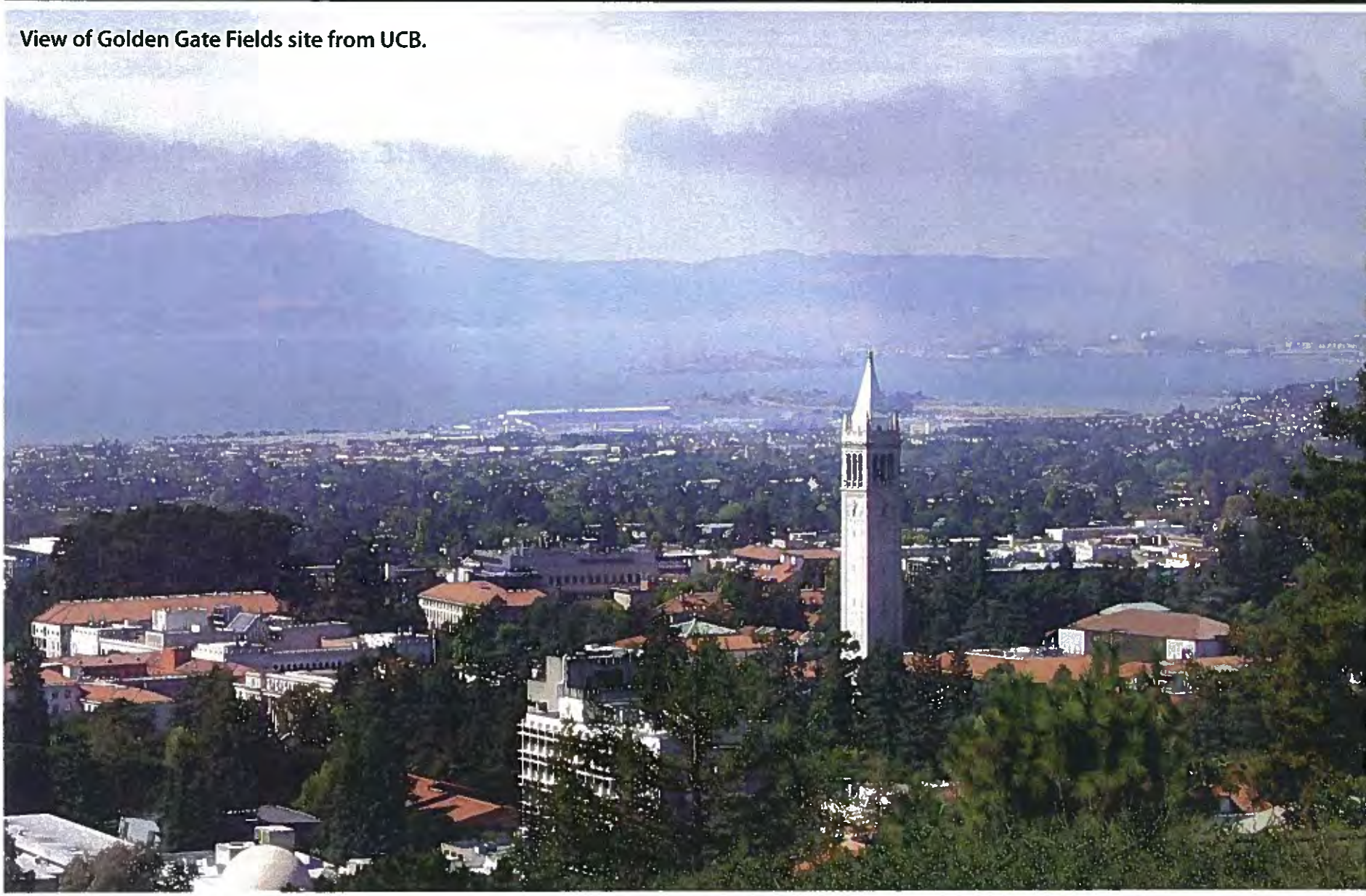
View of Golden Gate Fields site from UCB.



THE SECOND CAMPUS RFQ

On January 3, 2011, the Lawrence Berkeley National Laboratory, in collaboration with the University of California, Berkeley, issued a Request for Qualifications ("RFQ") for the purpose of developing a new "Second Campus" to house existing and future LBNL/UCB research and program initiatives.

The notable attention the RFQ has received and the excitement it has generated are, in no small part, a reflection of the respect accorded the Berkeley Lab as one of the world's leading public research institutions. Since its founding in 1931 as the first national laboratory, LBNL's scientists, including eleven Nobel Laureates, have engaged in a broad spectrum of basic and applied research. In recent years, this research has increasingly included pioneering work on climate change, energy efficiency, and carbon reduction that is fundamentally changing the way we use and generate energy.

With 4,200 employees, a 2010 budget of approximately $718 million, and an estimated annual Bay Area economic impact of nearly $700 million, the Laboratory has become a driving force in the region's economy. Billions more in revenues have been generated and thousands of jobs created by commercial ventures based on Berkeley Lab science.

Where LBNL proposes to collaborate with UCB, a public university whose stature in the research community is also world renowned, the potential to create a truly unique partnership is extraordinary. This is a potential that challenges the imagination – that demands a vision as creative and innovative as the research it will support.

This is also a potential partnership dynamic that demands a site that can inspire, that is compelling in its beauty, that is located in close proximity to the LBNL/UCB main campus, and that is of sufficient size to accommodate the requirements of the Second Campus and, at the same time, reflect the aspirations of the communities of which it is a part.

The vision for a Green Technology Collaborative at Golden Gate Fields that is described in the words and figures that follow was developed in response to this Second Campus RFQ. It is a vision that also seeks to answer the call of the leadership of the East Bay Green Corridor Partnership and its member cities, including Albany and Berkeley, whose priorities include the development of a cleantech incubator adjacent to UCB/LBNL. Finally, it is a vision that has been guided by the open space values and public access objectives of Albany and Berkeley.


Golden Gate Fields Neighborhood
Golden Gate Fields Site
UCB University Village
City of Albany
City of Berkeley

A SITE TRANSFORMED

The **Green Technology Collaborative at Golden Gate Fields** is a story of fundamental transformation and renewal. It is a narrative in which a 140-acre waterfront site that has long played host to the proud tradition of thoroughbred horse racing is recast as a model green technology research community.

This new generation of research and development initiatives will redefine the way in which information and ideas are exchanged, innovation is fostered, and technological solutions to problems of global significance are brought to market. In the process, a diverse range of jobs will be created as the project becomes a major local and regional economic engine.

At the core of this ground-breaking enterprise will be a **public/private/academic partnership** that will bring together:

- the science-based problem solving capabilities of two of this country's most preeminent public research institutions – the **Lawrence Berkeley National Laboratory** ("LBNL") and the **University of California, Berkeley** ("UCB");
- the market-based innovation, business acumen, investment capital, and entrepreneurial energy of the private sector; and
- the policy-based expertise of public interest advocacy groups and not-for-profit organizations.

Its centerpiece – a **Second Campus** for LBNL and UCB – will anchor the project with:

- state-of-the-art R&D facilities;
- cutting edge green technology research; and
- intellectual and creative resources of the highest order.

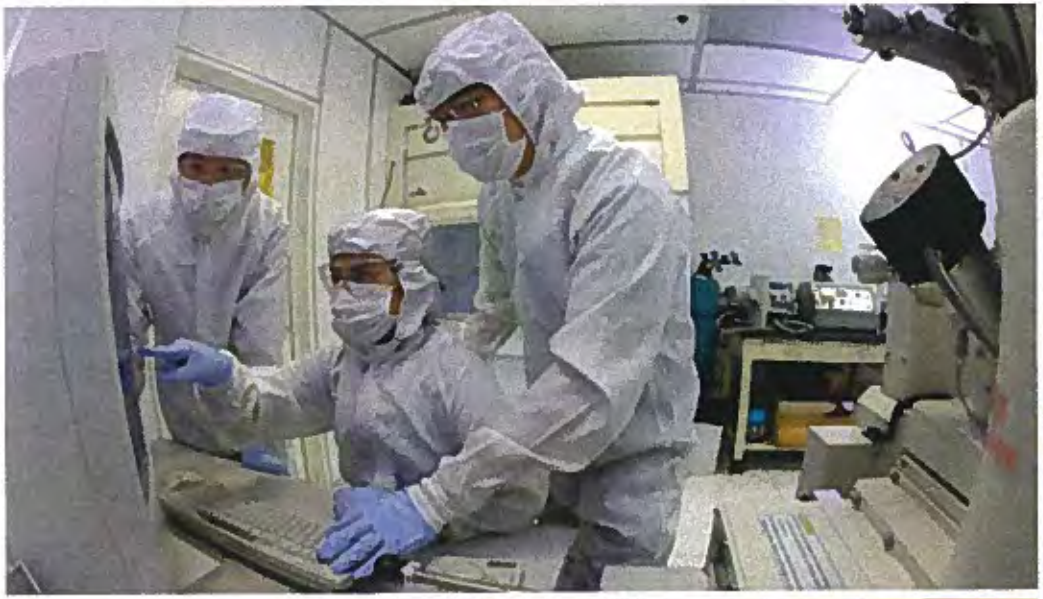
The setting for this story will also be transformative in character, featuring:

- a revitalized waterfront that will include a Bay-side regional park and link of the Bay Trail;
- a "campus-in-the-park" site plan with abundant publicly-accessible open space elements; and
- an urban design that incorporates principles of smart growth, sustainability and environmental stewardship.

The project will embrace its natural surroundings and engage local communities:

- improving the connection of Albany and Berkeley to the Bay;
- stimulating the local economies and creating jobs for local residents;
- generating municipal resources;
- enhancing public education; and
- enriching local culture.

The Green Technology Collaborative is the story of a bold vision of environmental and ecological vitality with a reach that will extend well into the new century. In the near term, it will serve as a catalyst for the new green economy – giving birth to new business ventures that will help put America back to work and restore the nation's economic health. In the long term, it will give technological shape to a sustainable future and, in so doing, provide a legacy for generations to come.

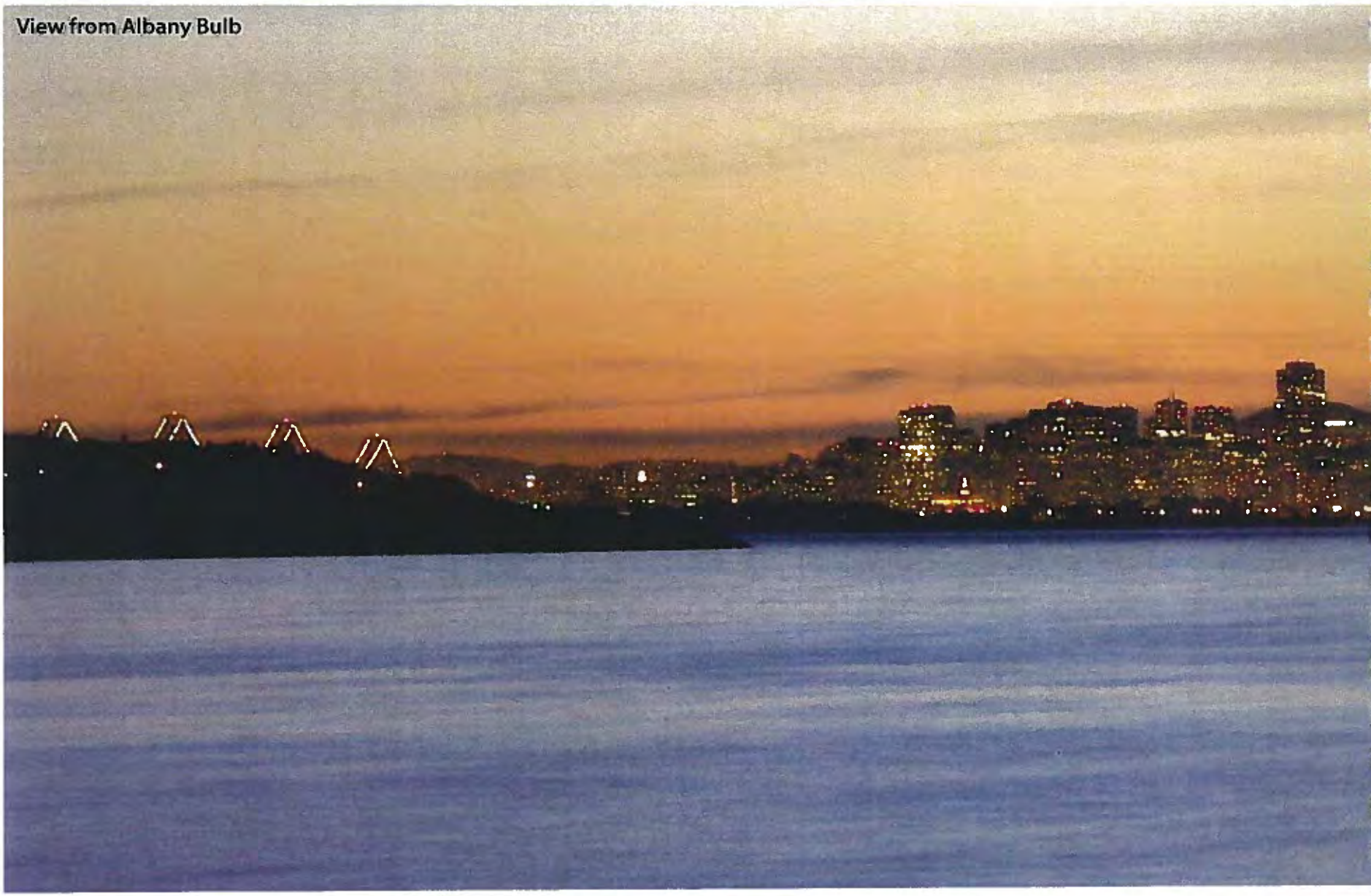


COLLABORATION IN DESIGN

The Green Technology Collaborative will emphasize collaboration not only in the development and commercialization of innovative new green technologies, but also in the design and planning of the project itself. At this point in time, the project takes the form of a vision. It will need to be given shape and brought to life through an inclusive and open collaborative planning process involving those whose interests will be most affected. The project stakeholders are many, including:

- the **Labs** and the **University** – whose Second Campus will be the Collaborative's centerpiece and whose scientists, researchers, faculty, students, and staff will be the driving force behind its research and development mission;
- the cities of **Albany** and **Berkeley** – whose citizens treasure the Golden Gate Fields waterfront site and whose communities will be most directly affected by its transformation;
- the **existing workforce at Golden Gate Fields** – whose lives will be most immediately impacted by the relocation of the race track;
- the **business and entrepreneurial interests** – whose participation in the project is critical to its business incubation function;
- the **public interest advocacy groups** – whose work covers a range of project-related subjects including energy policy, climate change, open space and public access, environmental health, and economic development; and
- the **public agencies**, such as the **East Bay Regional Parks District** and the **Bay Conservation and Development Commission** – whose involvement will play an important role in the planning of the Golden Gate Fields waterfront.

The success of the Green Technology Collaborative planning process will be determined by the extent to which it can effectively engage all stakeholders so that the project becomes a reflection of their goals, aspirations, and dreams.


View from Albany Bulb

Imagine a **Community of Innovation** – a community that will promote the development of new technologies that will shape our green energy future by:

- bringing together the brightest minds from both the scientific and business sectors;
- providing state-of-the-art research facilities; and
- creating an interdisciplinary work environment to bridge the gap between the laboratory and the marketplace.

Imagine a **Community of Ecological Design** – a community where the project's physical form is designed to celebrate healthy, regenerative and sustainable ecological relationships with its environment; through a combination of:

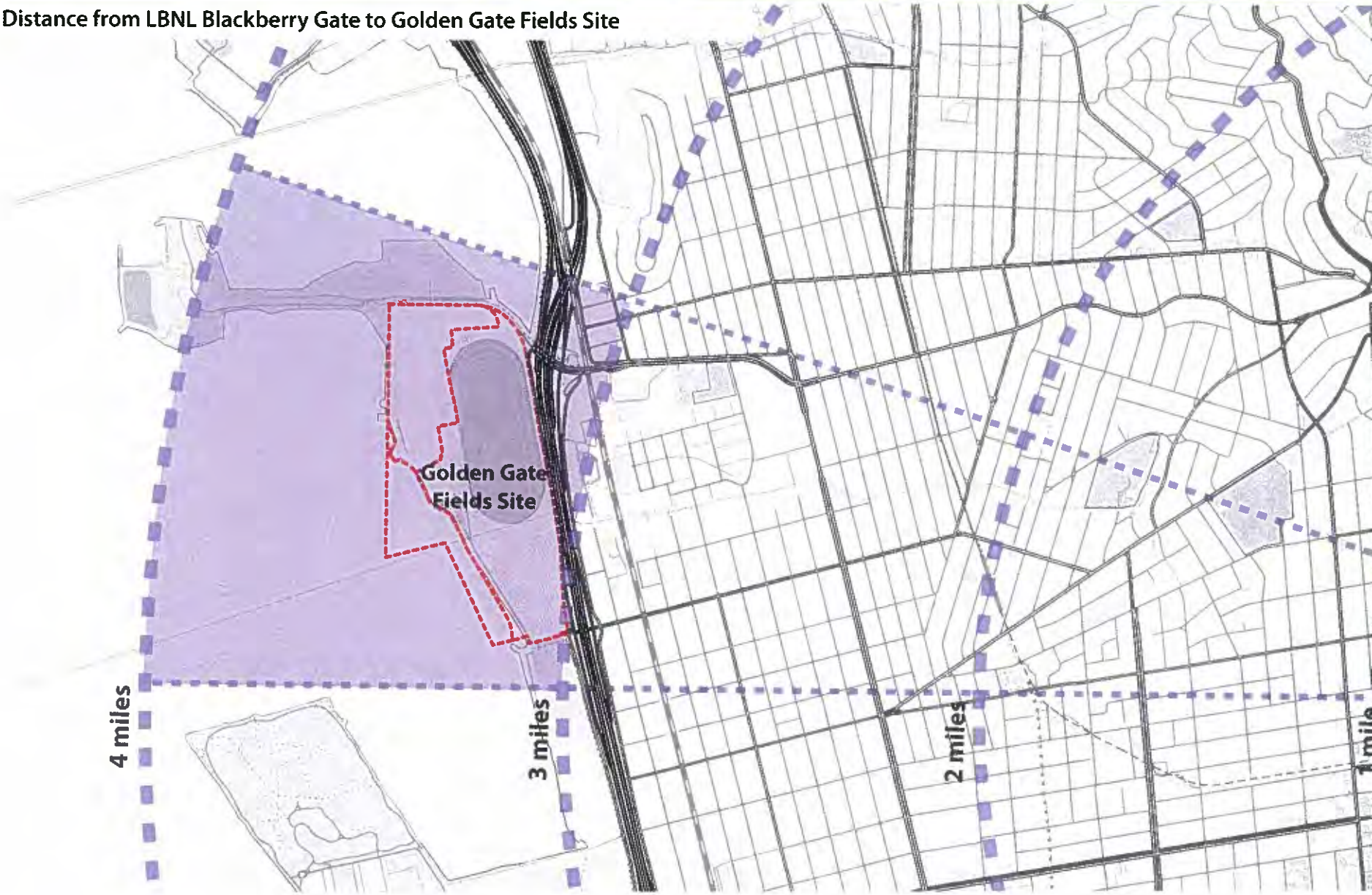
- green space;
- green urbanism; and
- green architecture.

Imagine a **Community of Collaboration** – a community that will foster professional collaboration and social interaction:

- in the common pursuit of knowledge and understanding;
- in the shared enterprise of applying that knowledge and understanding to the solution of problems of global significance; and
- in the transfer of technology from the laboratory to the marketplace.

These community constructs are the cornerstone for the **Green Technology Collaborative at Golden Gate Fields**. The Golden Gate Fields site and the regional assets surrounding it provide tangible synergies for ecological, economical, technological, and cultural vitality on a local, regional, national and global scale.

Distance from LBNL Blackberry Gate to Golden Gate Fields Site



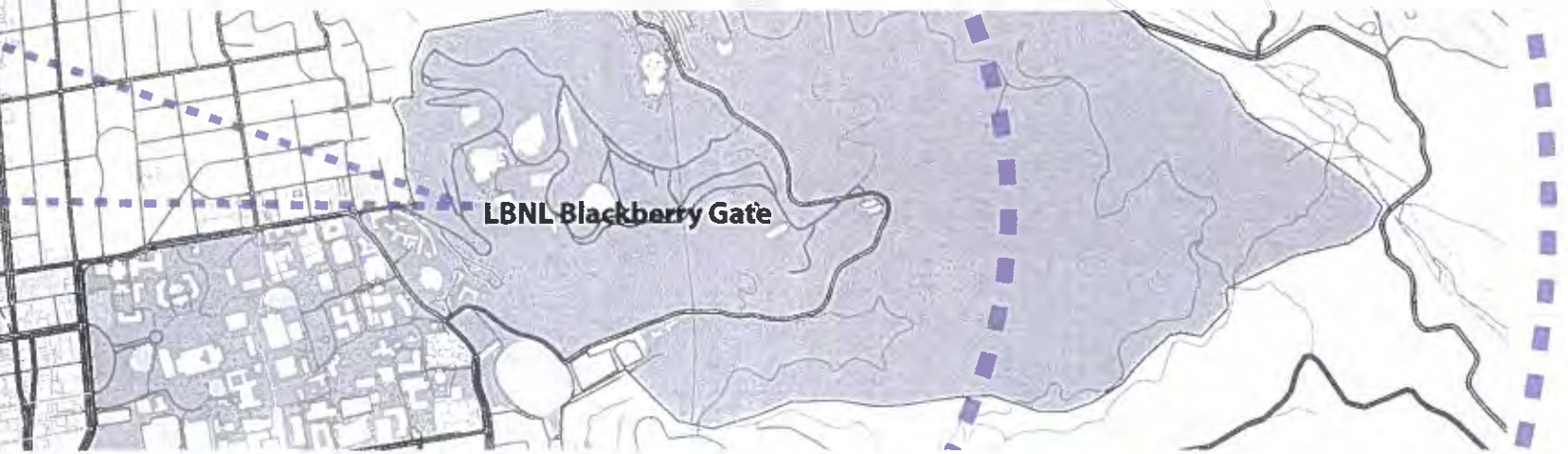
Golden Gate Fields

This land at the edge of the San Francisco Bay is a unique place with extraordinary potential. Its waterfront location brings expansive views of the Golden Gate Bridge, the rolling Berkeley hills, the San Francisco skyline, and the active life of the Bay. Framed by the sky, large regional parks, the ever-changing tidal waters of a world renowned estuary, and an interstate freeway corridor, this land is an island of possibilities, awaiting a new phase of regenerative use and a new way of thinking about the relationship between the site and the communities and environment which surround it.

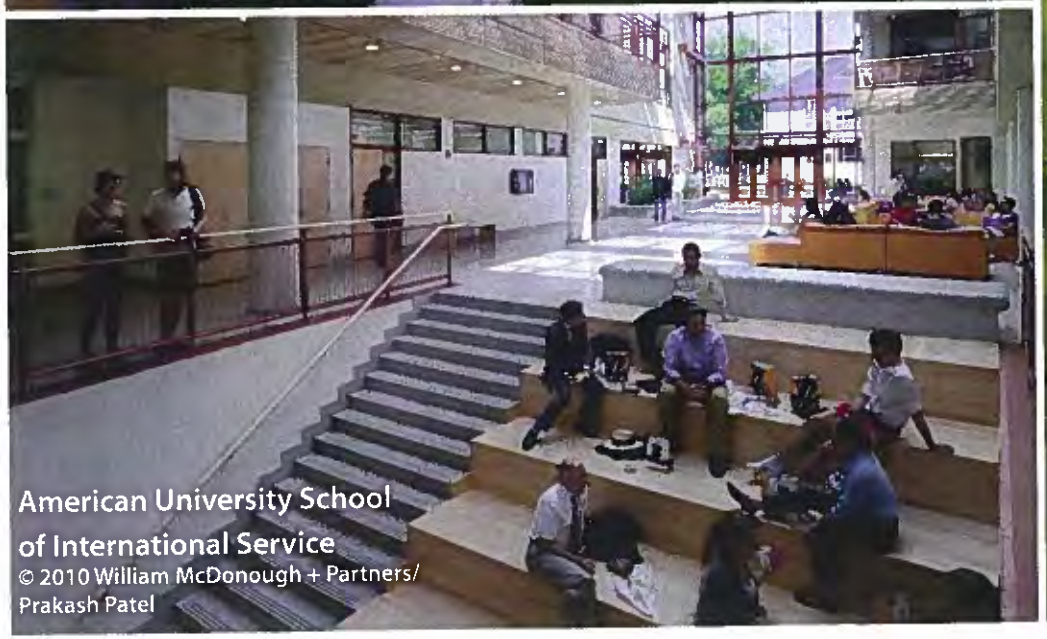
Given these attributes, Golden Gate Fields is a site that challenges us to create a community design that lives up to the land's extraordinary potential. The Green Technology Collaborative is just such a project.

As a site for a LBNL/UCB Second Campus and a model green technology community, this land has no equal. Its unique combination of attributes includes:

- its proximity to LBNL and UCB;
- its size and configuration;
- its central East Bay location;
- its waterfront views and amenities;
- the opportunities it affords to better connect Albany and Berkeley to the vitality of the Bay;
- its viewshed to the bay, the hills, and beyond;
- the restorative capacity of its creek corridor;
- its transit access; and
- the availability of public works.



UC Santa Cruz campus



American University School of International Service
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View of Codornices Creek toward Golden Gate Fields

SYNERGIES/BENEFITS

A Second Campus

The Lawrence Berkeley National Laboratory and the University of California, Berkeley are looking for a new "Second Campus" to house LBNL/UCB research and program initiatives, including existing research in the fields of Genomics, Life Sciences, and Physical Biosciences. The focus of the new campus will be on accelerating the pace of innovation, technology transfer, and commercialization.

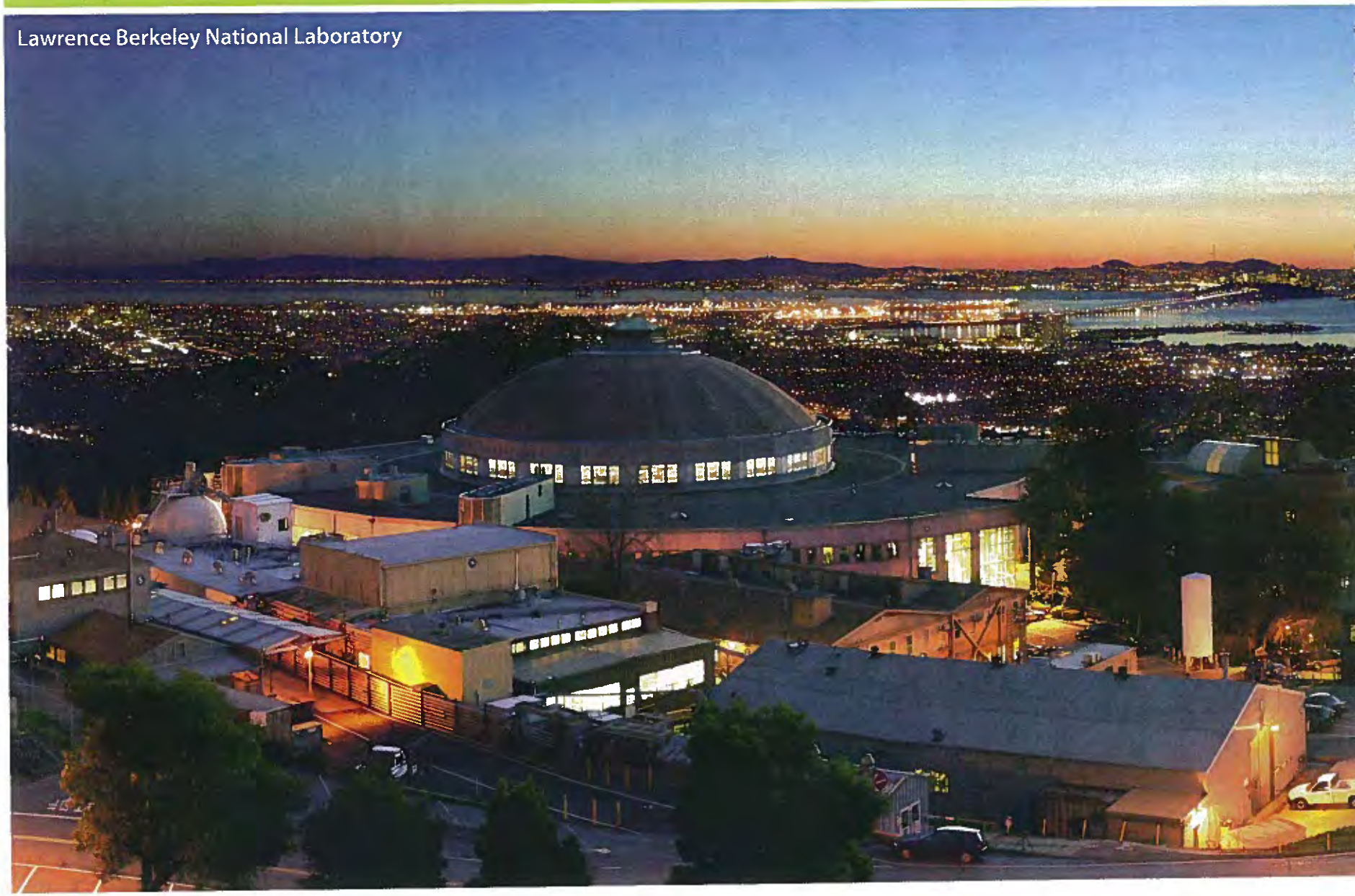
Golden Gate Fields is ideally suited to serve as the home for the Second Campus for the following reasons:

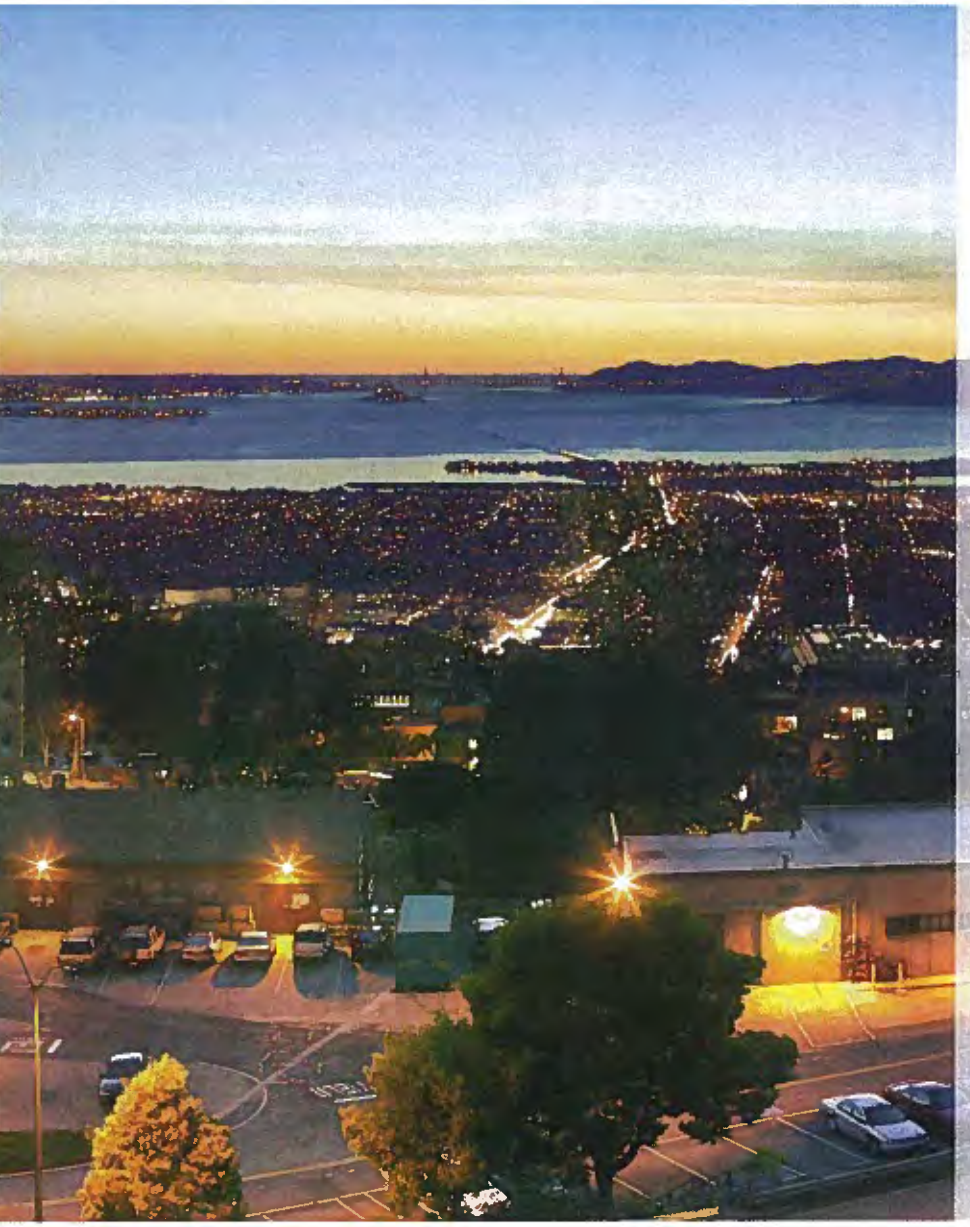
- given its location (approximately four miles from the Berkeley main campus), Golden Gate Fields can function as an extension of the main Berkeley campus rather than a satellite operation;
- given its size (approximately 140 acres), Golden Gate Fields has ample capacity to accommodate the near term consolidation and long term planning requirements of both institutions, including research-related emerging business ventures as well as complementary third party R&D;
- given the beauty of the waterfront site and the vision for its development, Golden Gate Fields will enhance the ability of LBNL and UCB to provide an acceptable alternative to the Berkeley Main Campus as well as to attract and retain the most accomplished scientists, researchers, teachers, students, and staff.

As the project's anchor land use, the LBNL/UCB second campus will:

- be the project's focal point and most important defining feature;
- play the central role in determining the project's form and function;
- serve as a magnet, attracting many of the most promising private sector green technology initiatives;
- bind the project's mix of uses together;
- offer state-of-the-art facilities in a collaborative environment; and
- catalyze public/private/academic collaboration, extending the reach of each sector's respective research and academic functions.

While much of the Green Technology Collaborative's research will be energy-related with an emphasis on energy efficiency and carbon reduction, the project will be designed to accommodate non-energy related research initiatives as well. It is anticipated that the business incubation expertise and resources housed in the Green Technology Collaborative will give rise to a culture of entrepreneurship which will open new pathways to market for a broad range of innovation.


Lawrence Berkeley National Laboratory



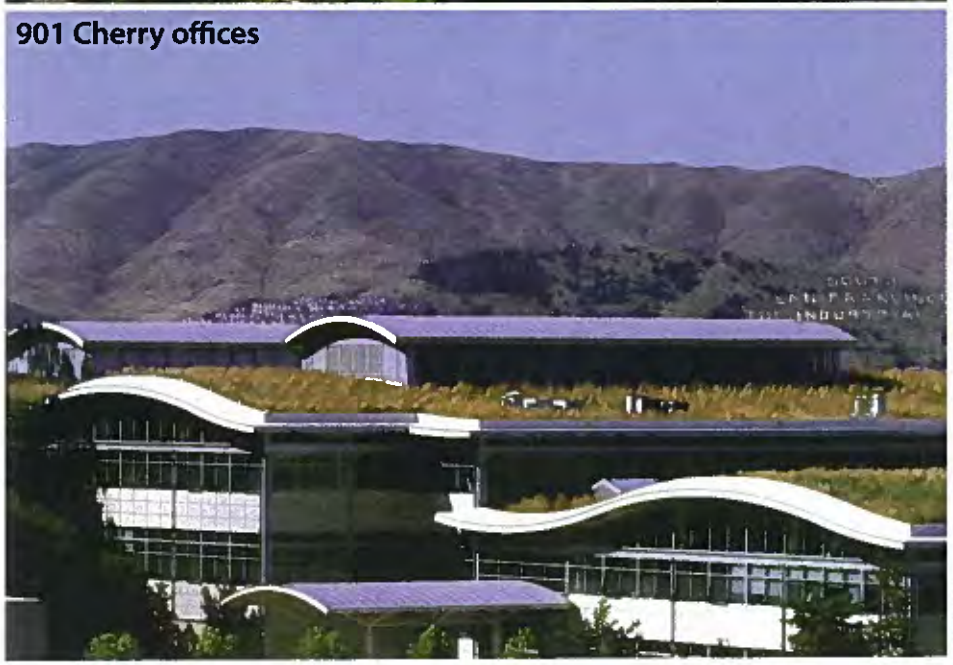
East Bay Green Corridor Partnership

The formation of the East Bay Green Corridor Partnership recognizes the synergies inherent in collaboration; the establishment of the Green Technology Collaborative at Golden Gate Fields reaffirms and realizes them in physical form.

The East Bay Green Corridor Partnership (EBGCP) was formed in 2007 for the purpose of transforming the East Bay into a collaborative for green technology research and development, green business incubation and retention, and green job creation. LBNL, UCB, Berkeley and Albany are all members of the EBGCP. The priorities of the EBGCP for 2010 include:

- the achievement of i-Hub certification to promote green technology innovation and commercialization;
- the establishment of Emerging Green Business Incubators near UCB and LBNL; and
- the development of Green Business Clusters in the East Bay.

The creation of the Green Technology Collaborative at Golden Gate Fields will, in a single stroke, support i-Hub certification, provide a business incubation platform in which UCB and LBNL play critical roles, serve as the focal point of a green business cluster which will spill over into West Berkeley, and otherwise act as a catalyst for the development of the East Bay Green Corridor.



Our Approach

The design for the **Green Technology Collaborative at Golden Gate Fields** will be guided by a philosophy that looks to reach beyond efforts to mitigate the impacts of development and instead seeks to reframe design as a beneficial, affirmative, and regenerative force—one that seeks ecological footprints to delight in, not lament. It expands the definition of design quality to include positive effects on economic, ecological and social health.

The design of the Green Technology Collaborative at Golden Gate Fields will have three overlapping community themes, each with its own set of synergies and benefits:

- A Community of Innovation;
- A Community of Ecological Design; and
- A Community of Collaboration.

The Second Campus of Berkeley Laboratory as a Cradle to Cradle development opportunity

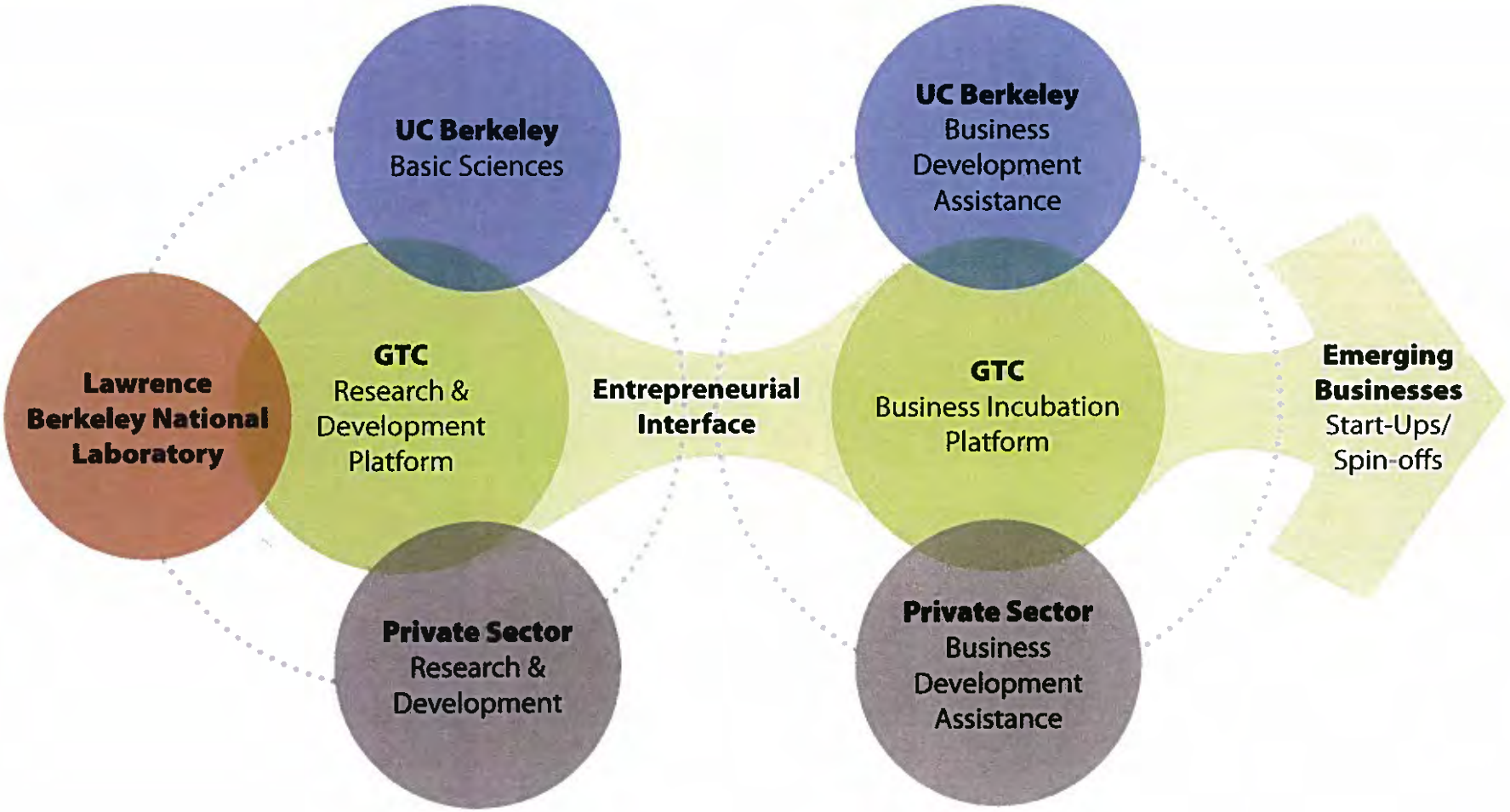
"The potential for locating the Second Campus of the Berkeley Lab at the Golden Gate Fields land is a tremendous opportunity for the University of California and the Greater Bay Area Region. The maritime, industrial and now sport uses have preserved land for this generation to create a new model Technology Campus that should be based upon the highest standard of quality that we call Cradle to Cradle. In a Cradle to Cradle built environment, all operations and facilities are planned to be powered by renewable energy, are optimized for water quality and are designed to celebrate people and ecosystems. In the past decade, application of the Cradle to Cradle design protocol has transformed the manufacture and use of numerous products throughout commerce and various industries around the world.

When applied to the built environment, the Cradle to Cradle vision provides a catalyst for a way of thinking that can lead to innovations and optimizations in practices, procedures, policies, and economics. It moves beyond the goal of only reducing the negative impacts of human activity to provide an engaging vision and comprehensive strategies for creating a positively conceived footprint on the planet—environmental, social and economic. At Golden Gate Fields, the Second Campus of the Berkeley Lab will be such a place."

William McDonough, FAIA, Int. FRIBA

A world-renowned architect and designer, William McDonough is the founding principal of William McDonough + Partners, an internationally recognized design firm and the co-founder and principal of McDonough Braungart Design Chemistry, which employs a comprehensive Cradle to Cradle design protocol to chemical benchmarking, supply-chain integration, materials assessment and sustainability issue management and optimization. Winner of three U.S. Presidential Awards, McDonough is a Consulting Professor of Civil and Environmental Engineering at Stanford University and Professor of Business Administration and Alumni Research at the University of Virginia Darden Business School.

Green Technology Collaborative (GTC)



Community of Innovation

The project's public/private/academic partnership will be anchored by a Second Campus for LBNL/UCB, and dedicated to the development and commercialization of market-compatible green technological innovation.

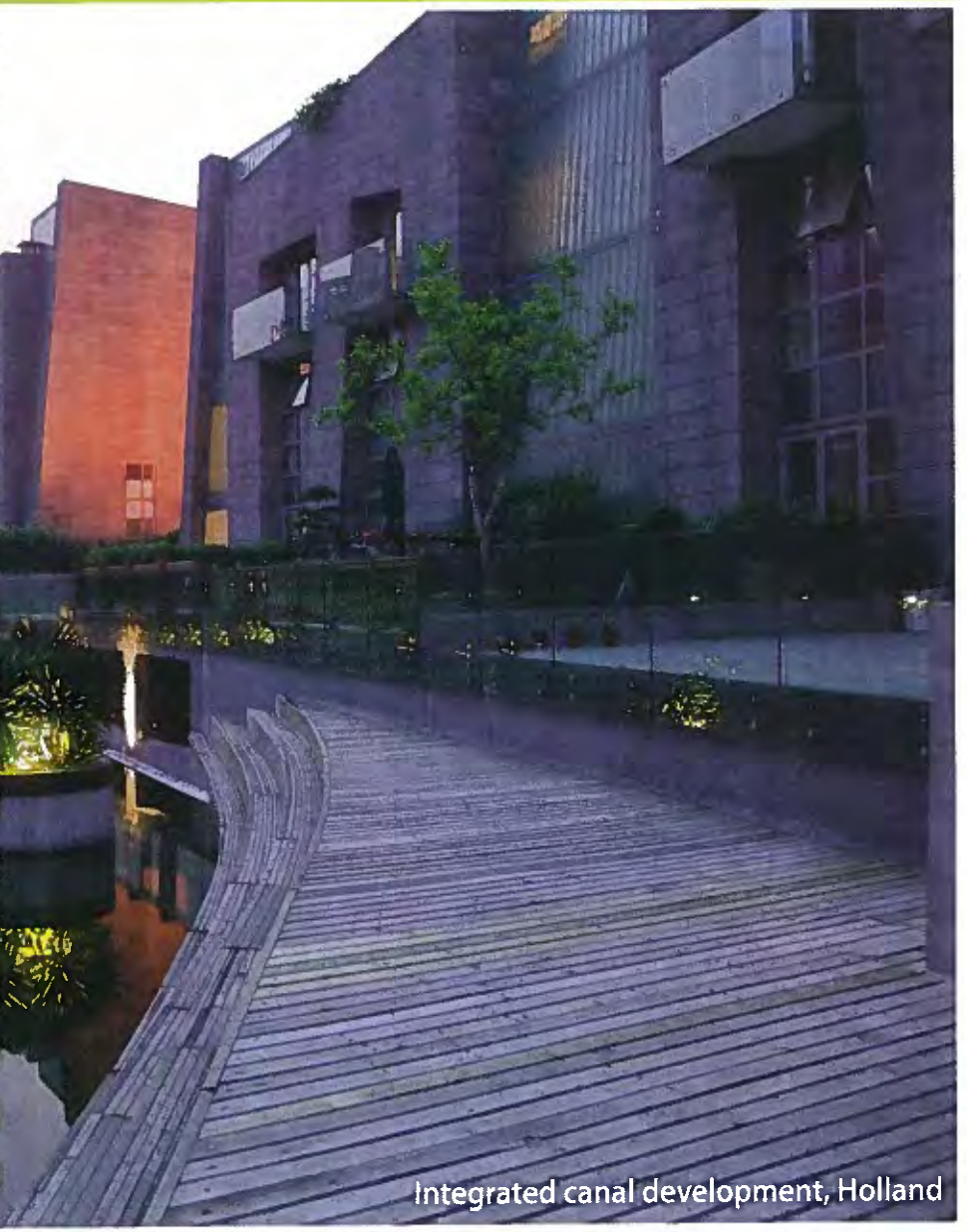
The Green Technology Collaborative represents a structural effort to break down barriers and create opportunities for collaboration within and between the scientific community, the business community and the public policy community. To accomplish this objective, the Project is designed around three core elements:

- a **Research and Development Platform** designed to foster collaboration in the delivery of science-based green technological solutions from LBNL, UCB and private sector laboratories to the entrepreneurial interface;
- a **Business Incubation Platform** designed to foster collaboration between the public, private, and academic sectors in the creation of new business ventures that will transfer the green technological solutions developed in the labs from the entrepreneurial interface to the marketplace; and
- a **Public Policy Platform** designed to foster collaboration in the creation of a public policy framework to support green technological innovation and promote U.S. leadership in the creation of a new green economy.

This approach recognizes that the development of green technologies is not an end game. The goal of the Community of Innovation is to create a holistic model for technological development and commercialization where the whole of the enterprise is much greater than the sum of its parts.

The inserted diagram illustrates the ways in which the R&D and Business Incubation Platforms work to bring together the scientific community and the business community in an integrated effort:

- to develop green technological solutions to problems of national and international significance and
- to develop the start-ups, spin-offs and emerging businesses that provide the critical link between the new green technologies and the real world problems they are intended to solve.



Integrated canal development, Holland

A Community of Ecological Design

Green Space

One of the Bay Area's most treasured waterfront sites will be redesigned to create a new regional resource to replace the rich thoroughbred racing tradition that has served the Bay Area for so many years. This redesign will feature abundant, publicly-accessible green space that will, in turn, shape, link, and inspire the built environment.

The desire to provide the public with an opportunity to enjoy a more intimate relationship with the Golden Gate Fields waterfront is a long held objective of both Albany and Berkeley. This objective will also be a driving force in the planning of the Green Technology Collaborative.

As such, the project will feature:

- a regional waterfront park that will incorporate the Bay Trail link;
- the revitalization of the Codornices Creek ecology;
- a "campus-in-the-park" setting with abundant publicly-accessible open space; and
- a multi-use trail system that will improve the ties that bind these revitalized resources, new open space, and vibrant community amenities to the cities of Albany and Berkeley and the San Francisco Bay.

Nordea Bank Headquarters
Henning Larsen Architects

Green Urbanism

As an urban infill project, the Green Technology Collaborative will be designed to incorporate smart growth principles including:

- a balance of uses that emphasizes self-sufficiency as well as sustainability;
- an open space and resource conservation strategy that optimizes public access and captures the opportunities presented by the natural features of the site;
- a project finance strategy that will generate the public and private funding required to make the open space and resource conservation strategy feasible;
- internal project connectivity that emphasizes pedestrian access;
- a transportation management program designed to significantly reduce automobile use and single occupant trips;
- an Integrated Site Infrastructure Master Plan program designed to make the most efficient and cost-effective use of infrastructure; and
- an information technology strategy designed to better connect the community and improve the integration of community functions.

Green Architecture

At the building scale, strategies to maximize eco-effectiveness and optimize the celebration of nature's abundance will align the project's physical form with its innovative function. This alignment will encourage healthy, supportive, diverse, and regenerative relationships between human and natural communities, while demonstrating the utility, cost-effectiveness, and economic feasibility of the overall pursuit.

Of particular favor will be strategies that:

- actively support the health and well-being of all occupants;
- make use of products and processes that can return safely to the soil as nutrition or to industry for reuse;
- employ systems that will safely return biological nutrients to the biosphere and technical nutrients to the technosphere;
- generate renewable energy in quantities that meet or exceed the project's needs; and
- maximize the efficiency with which we use resources, including water and energy.

The Green Technology Collaborative will serve not only as a source of green technology innovation but also as a demonstration project for sustainable design. As such, the impacts of the project to the environment and to the adjacent communities will move beyond the zero sum target that drives conventional design to a more positive and affirmative result.


Uniquities

A Community of Collaboration

As a model for urban growth, the Green Technology Collaborative will be designed to encourage the pursuit of knowledge and understanding through professional collaboration and social interaction.

At the professional level, the three core elements of the Green Technology Collaborative – the **Research and Development Platform**, the **Business Incubation Platform**, and the **Public Policy Platform** – will bring together the public, private, and academic sectors in an interdisciplinary organizational framework designed to create:

- a shared sense of purpose; and
- the opportunity for collaboration in pursuit of common interests.

At the social level, the project will seek to encourage the less structured, more casual interpersonal relationships that so often feed creative thought and energize the creative process. One of the most effective means of accomplishing this objective is to create an urban fabric that expands the opportunities for interaction beyond the workplace. To this end, the Green Technology Collaborative may include, in addition to R&D and business-related floor space, a balance of complementary and subordinate uses such as local-serving retail, waterfront restaurants, cafes, hotel/conference facilities, residential uses, child care facilities, and recreation/wellness facilities.

The integration of such synergistic uses in a work/learn/live/play social framework would:

- provide a more fertile environment for collaborative engagement;
- transform the Second Campus into an integrated, mixed-use campus community more in keeping with the Berkeley Main Campus environment;
- encourage a cosmopolitan vitality that would resonate inside as well as outside the labs and offices;
- introduce a civic pulse that would continue to beat after the workday is done; and
- provide on-site community amenities that would enrich the work experience.


SATHER GATE

"A few years ago, I changed the course of my scientific work to focus on solving our energy and climate challenges. I did so because of the great national and global urgency of this issue – but also because, as a scientist, I remain optimistic that science can offer us better solutions than we can imagine today. But those solutions won't come easily; they will only come if we harness the creativity and ingenuity and intellectual horsepower of our best scientists in the right way."

Secretary Steven Chu
budget testimony on Hubs, June 3, 2009

The energy and climate challenges of today will require a new approach to technological innovation – an interdisciplinary approach which:

- brings together the best minds from the public, private, and academic sectors;
- provides them with access to state-of-the-art R&D facilities; and, perhaps most importantly,
- provides them with access to each other and the opportunity for collaborative enterprise.

Such a public/private/academic partnership will enable us to reinvent the ways in which we generate and use energy. At the same time, the technological innovation that is born of this collaborative process will help to drive this nation's economic recovery and put people back to work.

The Green Technology Collaborative at Golden Gate Fields represents the first generation of research communities designed to embrace this collaborative process in addressing the challenge not only of developing new green technologies but also of bringing these technologies to market. As such, it is a Legacy Project – a pioneering enterprise that will reshape our approach to solving problems of global significance; mobilize the extraordinary intellectual and creative resources of our scientific and business communities; and, in the process, redefine our future.

CONTACT INFORMATION

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