Office of Economic Development

October 28, 2009

To: Members of the Planning Commission

From: Michael J. Caplan, Economic Development Manager

Subject: Need to Improve Location and Retention of Technology Start-ups in Berkeley

This memorandum explains why staff believes that it is important to allow research and development firms or, at least, the subset of them that are engaged in product development, to locate in "protected" space.

Berkeley's comparative advantage in technology start-ups

Berkeley's greatest potential economic strength comes from the presence here of the University of California, Berkeley (UCB), and the Lawrence Berkeley National Laboratory (LNBNL). This strength has recently been multiplied by more than a billion dollars in new research funding, particularly in biofuels and other alternative energy sources; process technologies to reduce pollution and energy consumption; and a host of other Green technologies. As Michael Cohen of UCB's Office of Technology Licensing showed in his presentation to the Planning Commission earlier in the year, research at UCB and LBNL results in innovations that can lead to new or improved products. In many cases, the research scientist who made the discovery understands its commercial possibilities and forms a new business to develop it commercially. In other cases, an MBA student or recent graduate may license the innovation from UCB and form a new company to develop it.[1] Unfortunately, despite its inherent advantage of proximity to UCB and LBNL, Berkeley fails to attract many of these new technology firms that might have considered locating here.[2]

The West Berkeley Flexibility Project gives us the opportunity to improve one aspect of the process that determines whether start-ups locate here: the zoning requirements for West

[1] The website of the UCB Office of Intellectual Property and Industry Partnerships contains a list of "success stores." http://ipira.berkeley.edu

[2] "Of the 104 businesses that we analyzed, only 14 stayed in Berkeley, while 45 located in other Bay Area cities. We estimate that approximately 50% of these companies moved for reasons outside of the City or the University's control. According to our research, Berkeley missed the opportunity to attract approximately 25 companies in the last nine years." David Agrawal, Elinor Buchen, et.al, *Berkeley Economic Development: Attracting University Spin-off Businesses.* (Goldman School of Public Policy research project, 5/17/2006) p. 34 and Appendix 4.

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Berkeley industrial districts. OED and Planning staff recommend creation of new Uses that would send a clear signal that technology start-ups are welcome. We have also recommended making more permits "by right" Zoning Certificates rather than discretionary AUPs or Use Permits. Some of our recommendations have been non-controversial, but WEBAIC objects to the recommendation that at least some Research and Development firms (that we initially named "Product Development") be allowed to locate in buildings currently "protected" for manufacturing, warehousing, wholesale trade and Material Recovery Enterprise businesses. We want to respond to some of the arguments that have been made against allowing these technology development businesses into "protected" space:

Technology development firms can afford to pay higher rents than traditional manufacturing or artisan businesses and would displace them from West Berkeley.

First, economic trend data (see attached table) shows that the number of manufacturing firms in Berkeley has decreased from 153 firms with 5,025 employees in June 1991 to 93 firms with 3,345 employees in March 2009. If it were not for the considerable expansion of employment at Bayer between these two dates, the picture would be much worse because Bayer by itself now employs about half of all manufacturing employees in Berkeley. Given the decline in manufacturing, it is difficult to see why allowing small technology development firms into protected space would displace manufacturers, artisans or anyone else since it would appear that there is plenty of former manufacturing space available. (Anecdotally, this is what real estate brokers tell us.) In any case, technology development firms by and large do not have the resources to pay high rents: on the contrary, most of them say that they need inexpensive space. (See attached summaries from Berkeley start-ups.) As is indicated below, staff would readily accept a cap on the amount of space that a start-up can occupy.

Space shortage is not a problem for start-ups because plenty of "non-protected" space is available

WEBAIC indicates that West Berkeley already contains plenty of space that is not "protected" where technology start-ups can locate and expand. Since Berkeley has no inventory of "protected" vs. other kinds of space, we cannot directly answer this question. However, research in Assessor's parcel records for the West Berkeley Circulation Master Plan showed that, at least for tax purposes, 7,344,854 of the total 10,844,559 square feet of non-residential space was classified as "manufacturing and wholesale" space. (See attached table) Much of this is probably "protected" by current or past manufacturing, wholesale trade/warehousing or artisan tenancies.

A major goal of the West Berkeley Area Plan is to retain and increase manufacturing in Berkeley. As indicated above, even with zoning policies design to retain them, we have lost many manufacturers, particularly in traditional sectors that are more vulnerable to cost-based competition. However, virtually the only way we can recruit new manufacturers is to allow firms to locate here when they are in their product development phase. Those that are successful may be encouraged to manufacture here, especially if they are producing a high-value product. There are many instances where this has occurred, including Bayer's important blood-clotting product, Kogenate, GU Energy gel and others. In other cases, such as the Green detergent

manufacturer, Vasta, the manufacturing actually takes place in other East Bay Green Corridor cities while the product development and headquarters functions are here in Berkeley. The "Green Corridor" Initiative by eight East Bay cities is intended to encourage just this kind of cooperative"scalable" development that recognizes that Berkeley's strength is as an incubator even if production occurs elsewhere in the region.

If the Planning Commission is concerned about competition for space between technology development firms and existing protected uses, there are several steps that could be taken to limit the impact of technology firms:

- A cap on the amount of space that can be occupied by any one firm. Presumably, if the firm expanded on-site above that threshold it is employing more people and starting to produce a product.
- Require proof that the firm owns or controls "intellectual property" that it is attempting to commercialize into a product. (The purpose would be to exclude from "protected" space pure research and development firms that are attempting to create intellectual property themselves but are not intending to commercialize it themselves.) Proof could take the form of a licensing agreement from UC Berkeley, a patent or an application for the same.

WEBAIC has noted that the Zoning Ordinance allows the conversion of up to 25% of a "protected" building to another Use subject to securing an AUP or Use Permit. (cf.MU-LI provisions, 23E.80.045) In practice, the ability to use this provision at all depends on the physical configuration of buildings (e.g., entrances, loading docks, etc.) and it has proved much more useful for the owners of large structures than for the owners of small single-use buildings.

Conclusion

OED believes that the decline of manufacturing and the attendant loss of jobs for workers without higher education is a major problem for the U.S. and every jurisdiction within it. Staff believes, however, that Berkeley's major contribution to arresting and even reversing it will lie in the new research-based products and processes that will strengthen our manufacturing base. As a priority, then, it makes sense for Berkeley to pay a great deal of attention to technology start-ups, including helping them to meet their space needs. The creation of new Use categories that allow them to locate here expeditiously in the relatively inexpensive, flexible workspace that they require makes good sense as public policy.

Private Employment in the 94710 Zip Code June 1991 & March 2009 (Corrected)

Sector	1991 Businesses	1991 Employees	2009 Businesses	2009 Employees	% Change Employment
Agriculture	9	34	2	***	
Construction	67	1,251	56	933	-25%
Manufacturing	153	5,025	93	3,345	-33%
Transportation & Public Utilities	24	463	7	99	-79%
Wholesale Trade	100	1,488	63	1,040	-30%
Retail Trade (inc. restaurants)	108	2,598	158	2,759	6%
Finance, Insurance, Real Estate	25	160	46	294	84%
Services	258	4,723	405	6,122	30%
Unclassified	14	67	19	***	
TOTAL	758	15,809	849	14,742	-7%

***Sectoral employment suppressed for reasons of confidentiality but included in the total

Figures for June 1991 from West Berkeley Area Plan, Table 2-1, p. 65; Figures for March 2009 from California EDD, Quarterly Census of Employment ai

Fogarty, David

From: Matt Evans [matt.evans@banyanenergy.com]
Sent: Tuesday, October 20, 2009 9:42 AM
To: Fogarty, David
Cc: Caplan, Michael
Subject: Re: Proposed summary on Banyan Energy

Dave,

Banyan Energy is a five-person firm (four co-founder employees and one independent contractor, soon to transition to full-time employee) based in Berkeley. We have invented and filed patent for a new class of optics, applicable to making better (lower cost and more scalable) solar panels and high-efficiency lighting, and we are working to prove out early prototypes and to achieve manufacturing and commercialization as soon as possible. Much of the background work on our optics was done while we were graduate students at UC Berkeley, but our technology is not licensed from UC Berkeley (we have a waiver from the UC Office of Technology Licensing).

We incorporated Banyan Energy in August, 2007, but worked part-time until June, 2009, when we leased the current space at 950 Gilman, suite 800. In June 2009, we also completed a small series A equity offering to bring money from outside investors into Banyan Energy.

Our current 2,300 square foot space is adequate for our current needs of product development, testing, low-level assembly and one-off manufacturing. If we decided to manufacture the commercial product ourselves, we would have to acquire another, larger space in Berkeley or elsewhere. It is also possible that we will sell the rights to our technology to an existing solar panel manufacturer.

Issues

For a firm like ours, it is important that the space we lease be as inexpensive as possible. Rent payments consume the same limited pool of capital that we must live on until our technology is mature and we can derive revenue from it. If there is any way for the City of Berkeley to assist in reducing rent cost for start-ups, it would be much appreciated.

In addition, a start-up such as ours is subject to change, sometimes on a weekly or daily basis. Flexbility is very important to us. Along those lines, it would be very helpful for the City of Berkeley to put in place a clear definition of technology development firms that avoids confusion over whether we are strictly "office" or "industrial." We need both types of space because both are inherent to our work.

Thank you for your consideration.

Matt Evans
Vice President, Business Development
Banyan Energy, Inc.
(415) 609 7250

On Tue, Oct 20, 2009 at 9:00 AM, Fogarty, David <DFogarty@ci.berkeley.ca.us> wrote:
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> Matt,
>
> I would appreciate a summary on Banyan Energy

Fogarty, David

To: David Rabuka
Subject: RE: biotech space in Berkeley

From: David Rabuka [mailto:david.rabuka@gmail.com]
Sent: Wednesday, October 21, 2009 11:21 AM
To: Fogarty, David
Subject: biotech space in Berkeley

Dear Michael and Dave,

Redwood Bioscience is a start-up biotechnology firm that is developing optimized biotherapeutics using precision protein-chemical engineering to extend drug half-life, improve delivery and increase potency. We recently won $999,990 in stimulus funding to pursue our research and product development. Of course, we are also seeking equity investors to commercialize our products.

At present, we are located at 2168 Shattuck Avenue , 2nd floor, in laboratory space we have subleased from the Molecular Sciences Institute. As we hire more researchers, we expect to move to move to a small dedicated laboratory/office space (+- 2,000 sf) somewhere in the East Bay. So far, we have looked at space in Emeryville, Alameda and Mission Bay (SF). We would consider space in West Berkeley if we found any available in our size range.

Our proprietary technology was developed in the lab of Dr. Carolyn Betozzi at UC Berkeley and Dr. Betozzi is an important advisor to our company. For this reason, it is important for our company to be located within a few minutes of the UC Berkeley campus. In a more diffuse way, we also benefit from the intellectual stimulus and recreational facilities available on campus. Most of the key personnel in our company also live in Berkeley or very close to it.

As a start-up, we need inexpensive space consisting of both laboratory and office. We will need to be able to reconfigure this space with new work stations and laboratory benches as we expand. Any required permits need to be issued rapidly because delays could cost us a great deal.

Best Regards,
David Rabuka, PhD
Chief Scientific Officer
619-847-1193
drabuka@redwoodbioscience.com

West Berkeley Circulation Master Plan Development Assumptions - Square Footage and Employment

	Square Footage				
	Manufacturing & Wholesale (a)	Office "R&D"	Retail	Other (c)	Total NonResid
WB Plan Existing Space 1992	5,930,000	855,000	1,350,000	1,140,000	9,275,000
Projected 2005	6,330,000	1,535,000	1,675,000	1,275,000	10,815,000
Projected % Change 1991-2005	7%	80%	24%	12%	17%
Assesor Reported 2007 Conditions (a,b)	7,344,854	972,612	1,712,018	815,075	**10,844,559**
Assesor Vs WB 2007 Projections	1,014,854	(562,388)	37,018	(459,925)	29,559
Assesor Vs WB 1992 Condition's	1,414,854	117,612	362,018	(324,925)	1,569,559
Recorded % Change 1991-2005	24%	14%	27%	-29%	17%

Sources & Notes

a.) Non Residential Square Footage: County of Alameda Assesor Data as pulled by City of Berkeley Planning Department August 2007. In period sin adopted Bayer built 275,000 sq ft new ind and Wareham added 387,000 square feet. These is consistent with WB Plan projections. Remainder may r combination or previously excluded vacant spaces and space clasiified as other. Over 387,000 sq ft of industrial space in West Berkeley is vacant
b) 2007 Residential "Actuals" are DU per MTC 2005 Projection from 2000 Census
c.) 1992 Housing reports 1989 as per the 1989 Housing stock Changes Report