Keep Innovation in Berkeley

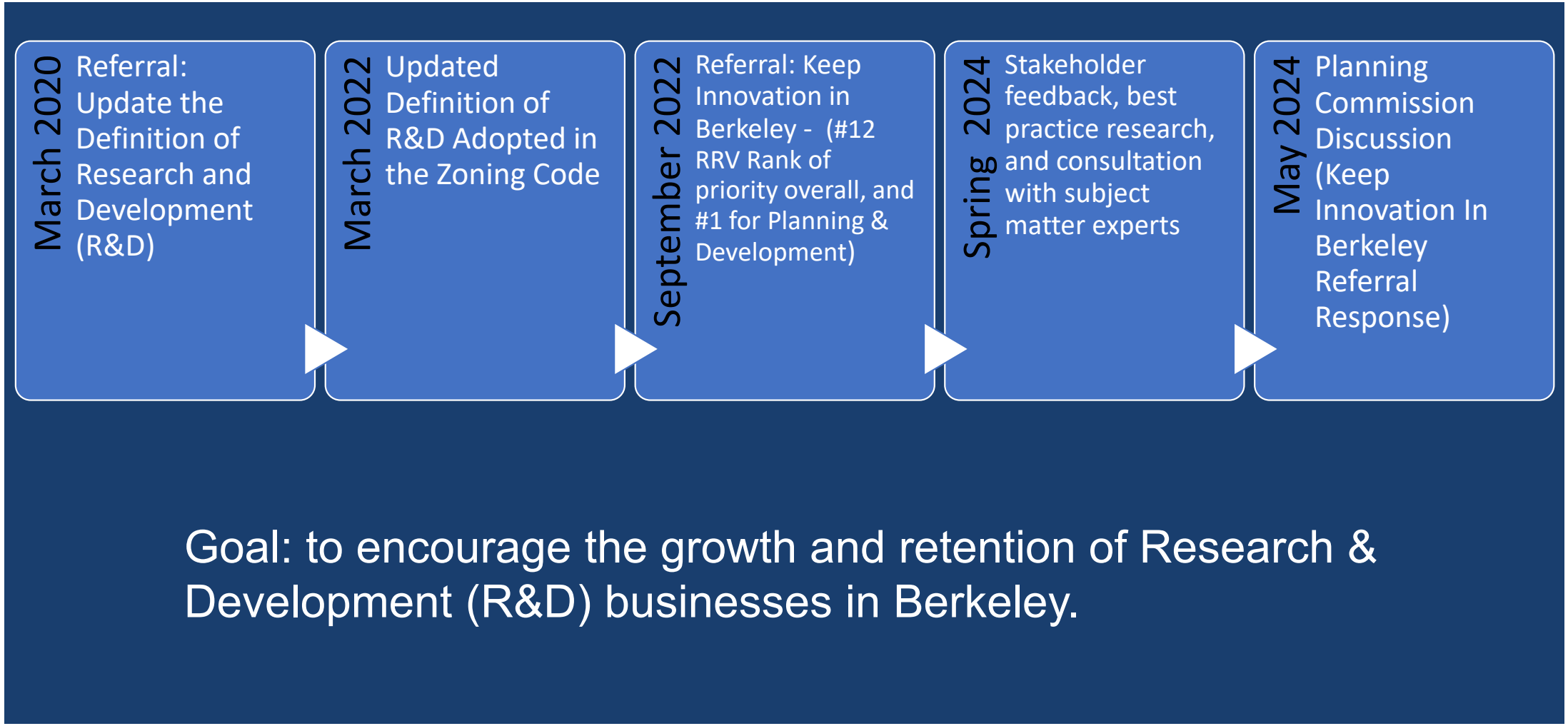
2024 Overview of Berkeley's Innovation Economy & Recommendations for Land Use Policy to Enhance its Social, Environmental & Local Economic Impact

Presented by: Eleanor Hollander
& Elizabeth Redman Cleveland, Office of Economic Development

Planning Commission Discussion Session, May 1, 2024

Background & Timeline

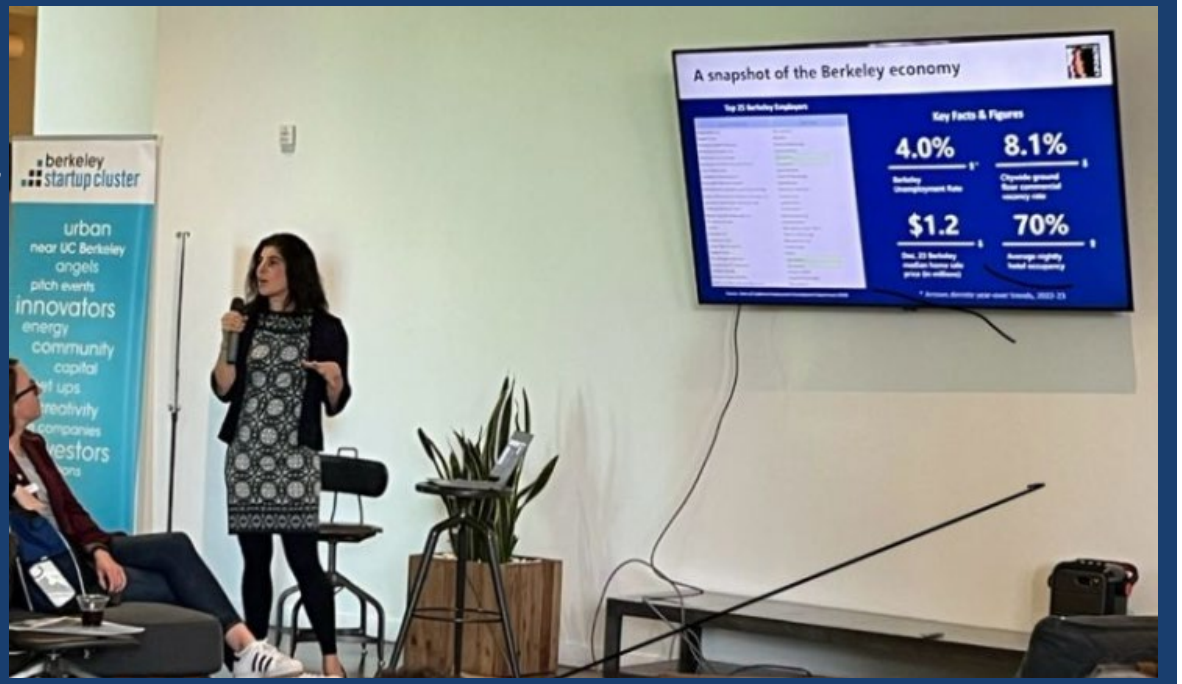
Keep Innovation In Berkeley – City Council Referral



Stakeholder & Best Practices Feedback

OED has consulted more than **75 stakeholders** on this topic through policy specific feedback sessions, working group meetings, and direct conversations. Stakeholder types include:

- Architects, Designers, Project Managers
- Berkeley Startup Cluster Advisors
- Business improvement districts (BIDs) and commercial district networks (Downtown, Telegraph, Solano, etc.)
- Business & industry groups (Berkeley Chamber, Biocom, Commotion West Berkeley)
- Property Owners/Developers
- Real estate brokers
- Regulators (City of Berkeley Toxics, Fire Dept.)
- Startup founders or managers
- UC Berkeley leaders (Innovation & Entrepreneurship Councilmembers, Capital Projects Office, incoming Chancellor Rich Lyons)
- Other neighboring cities for best practices (Emeryville, San Leandro, Alameda, Redwood City, San Diego)



Overview of Referral Recommendations

The referral targets 4 changes to our BMC:

1.Permit Research and Development (R&D) with a Zoning Certificate (ZC), for uses 20,000 square feet and under, in the C-T (Telegraph Avenue Commercial), C-C (Corridor Commercial), C-W (West Berkeley Commercial), C-U (University Commercial), and C-DMU (Downtown Mixed-Use) zoning districts.

2.Revise the “District Purpose” sections of the MM (Mixed Manufacturing) and MU-LI (Mixed Use-Light Industrial) zoning districts to specifically encourage R&D.

3.Revise minimum parking requirements for R&D uses.

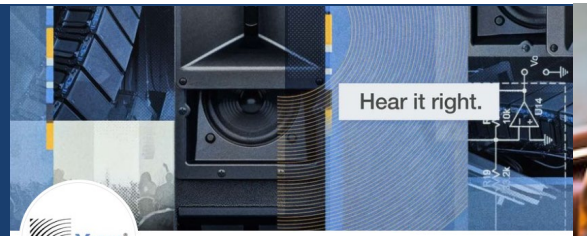
4. Revise the regulation of Biosafety Level (BSL) Class organisms from the zoning ordinance. [BMC 23.206.080 B.5. (MU-LI)]

Background: Berkeley economic snapshot

Top 25 Berkeley Employers

Company	Sector
Backroads Inc.	Recreation
Bayer Corp.	Biotech
Berkeley Bowl Produce	Food & Beverage
Berkeley Cement Inc.	Construction
Berkeley City College	Education
Berkeley Unified School District	Education
City of Berkeley	Government
Fieldwork Brewing Co.	Food & Beverage
Foresight Mental Health	Healthcare
Information Systems and Accounting	Business Services
Kaiser Permanente Medical Group Inc.	Healthcare
Lawrence Berkeley National Lab	Laboratory
Lifelong Medical Care	Healthcare
Meyer Sound Laboratories	Manufacturing
OC Jones & Sons	Construction
Twelve	Manufacturing/ R&D
Safeway Inc.	Food & Beverage
Siemens Corp.	Manufacturing
Sutter Bay Hospital	Healthcare
Target Corp.	Retail
The Wright Institute	Education
University of California	Education
UPSIDE Foods	Biotech/R&D
Whole Foods Market	Food & Beverage
YMCA of the Central Bay Area	Recreation

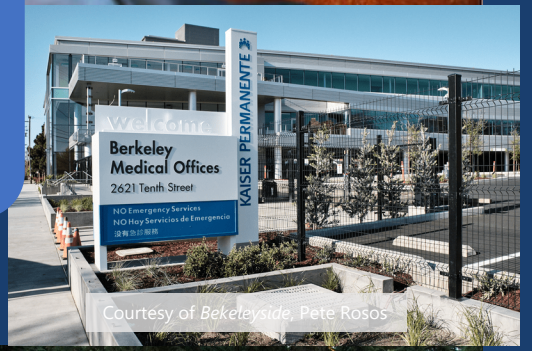
Source: State of California Employment Development Department (EDD), Q1 2023 excluding companies no longer in Berkeley by the end of 2023



courtesy of *Facebook*


Twelve's carbon transformation technology, the O12 reactor
Credit: Business Wire

Berkeley's top 25 employers (by number of employees) are reflective of the city's diverse economy.



Courtesy of *Bekeleyside*, Pete Rosos

courtesy of *Tap Traveler*

Background: Berkeley economic snapshot

The Lab Berkeley

Key Facts & Figures

4.1% *

March '24 Berkeley Unemployment Rate

8.1%

Citywide ground floor commercial vacancy rate (Q4 '23)

13.4%

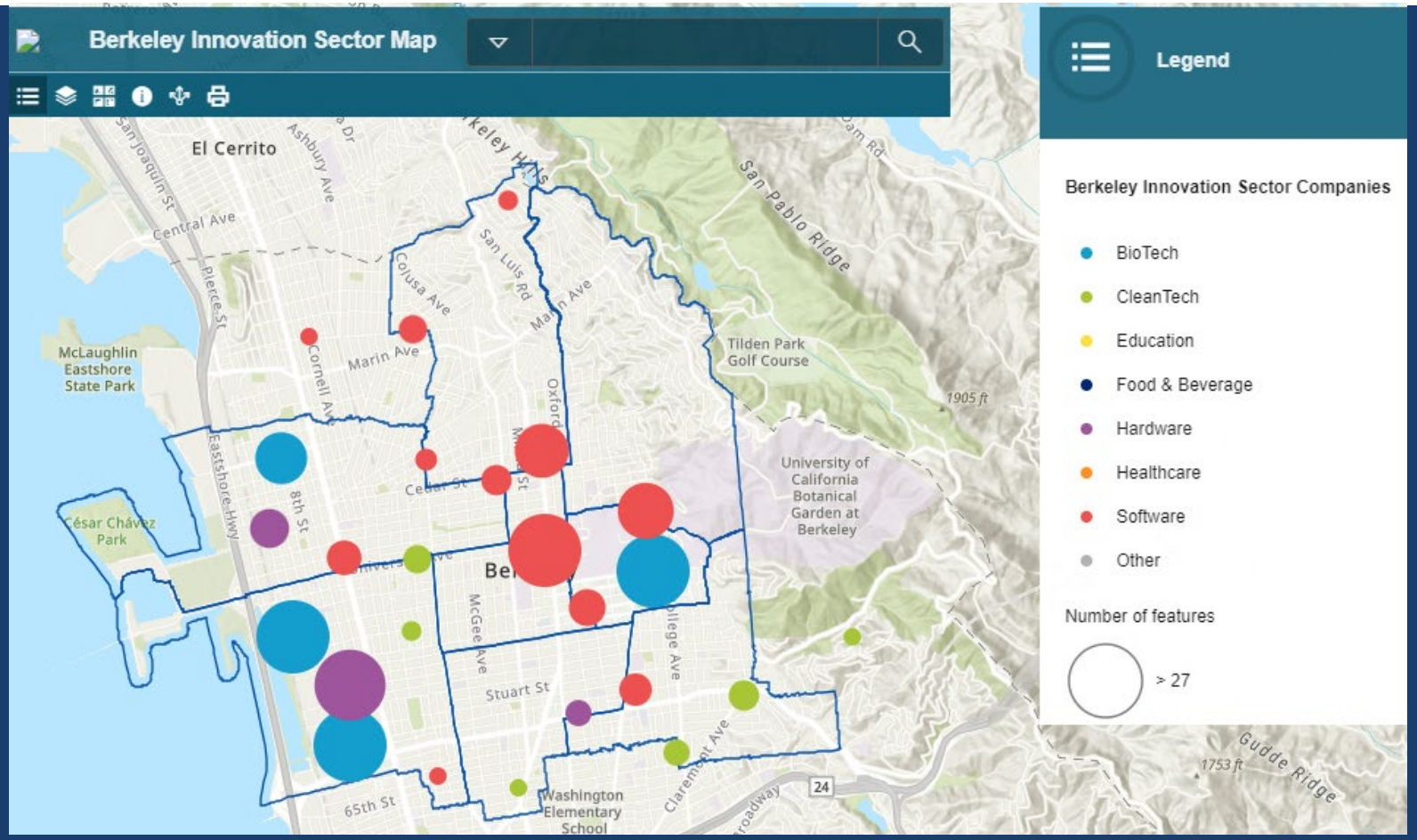
office vacancy rate (Q1 '24)

37.4%

lab vacancy rate (Q1 '24)

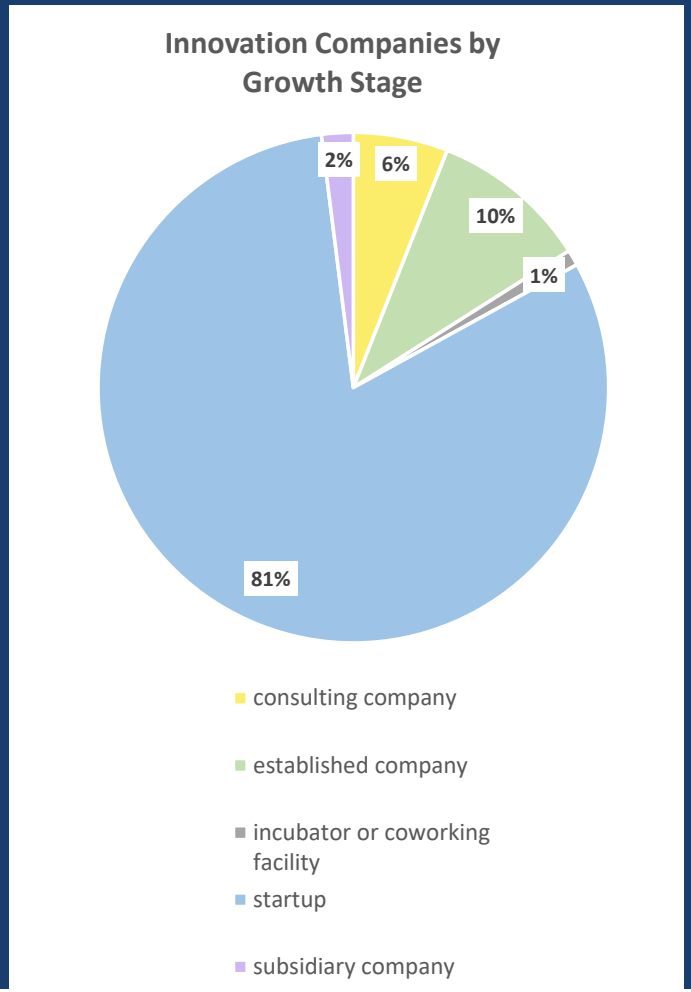
* Arrows denote year-over trends, 2022-23

Background- Berkeley's Innovation Economy

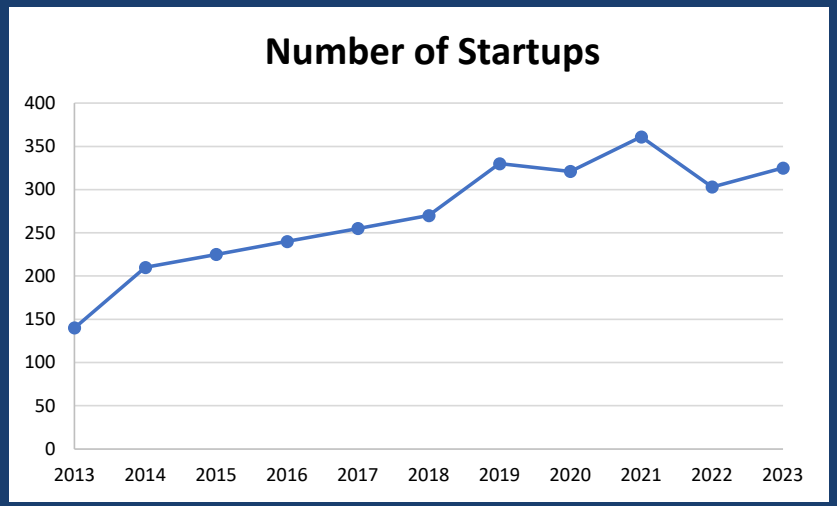


See details on the Berkeley Startup Cluster website: www.berkeleystartupcluster.com/startups

Background - Berkeley is a city for startups



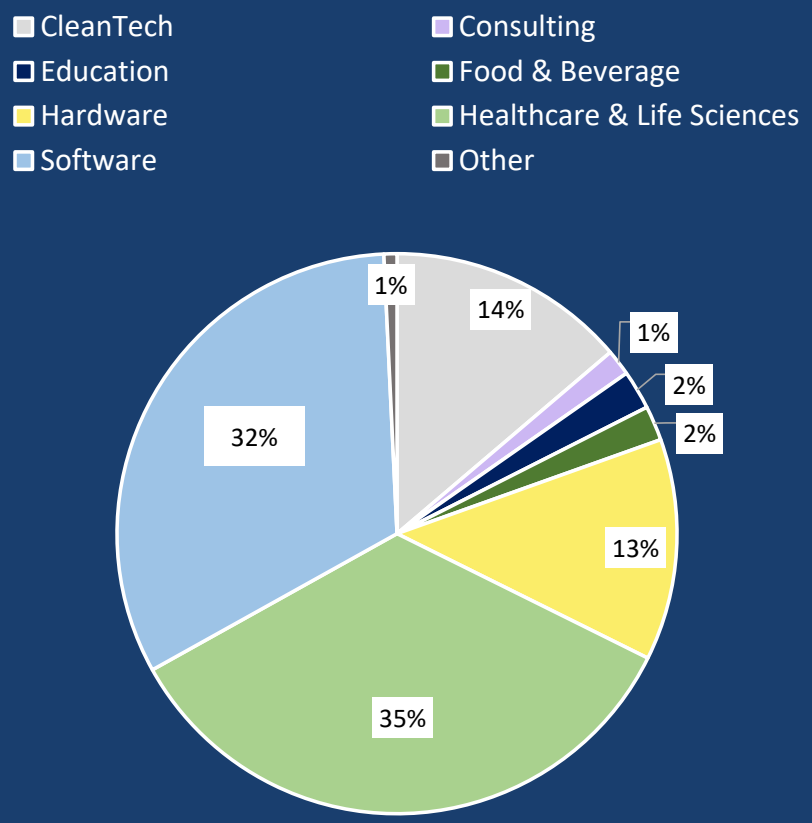
Pitchbook **ranked UC Berkeley #1 in producing venture backed startups** in 2023.



Source: City of Berkeley Office of Economic Development (OED), UC Berkeley IPIRA Pitchbook data

Background – R&D companies create social + environmental solutions + community wealth

Innovation Companies by Industry



Source: OED, UC Berkeley Pitchbook data

84

Berkeley innovation companies raised money, 2023

$840m

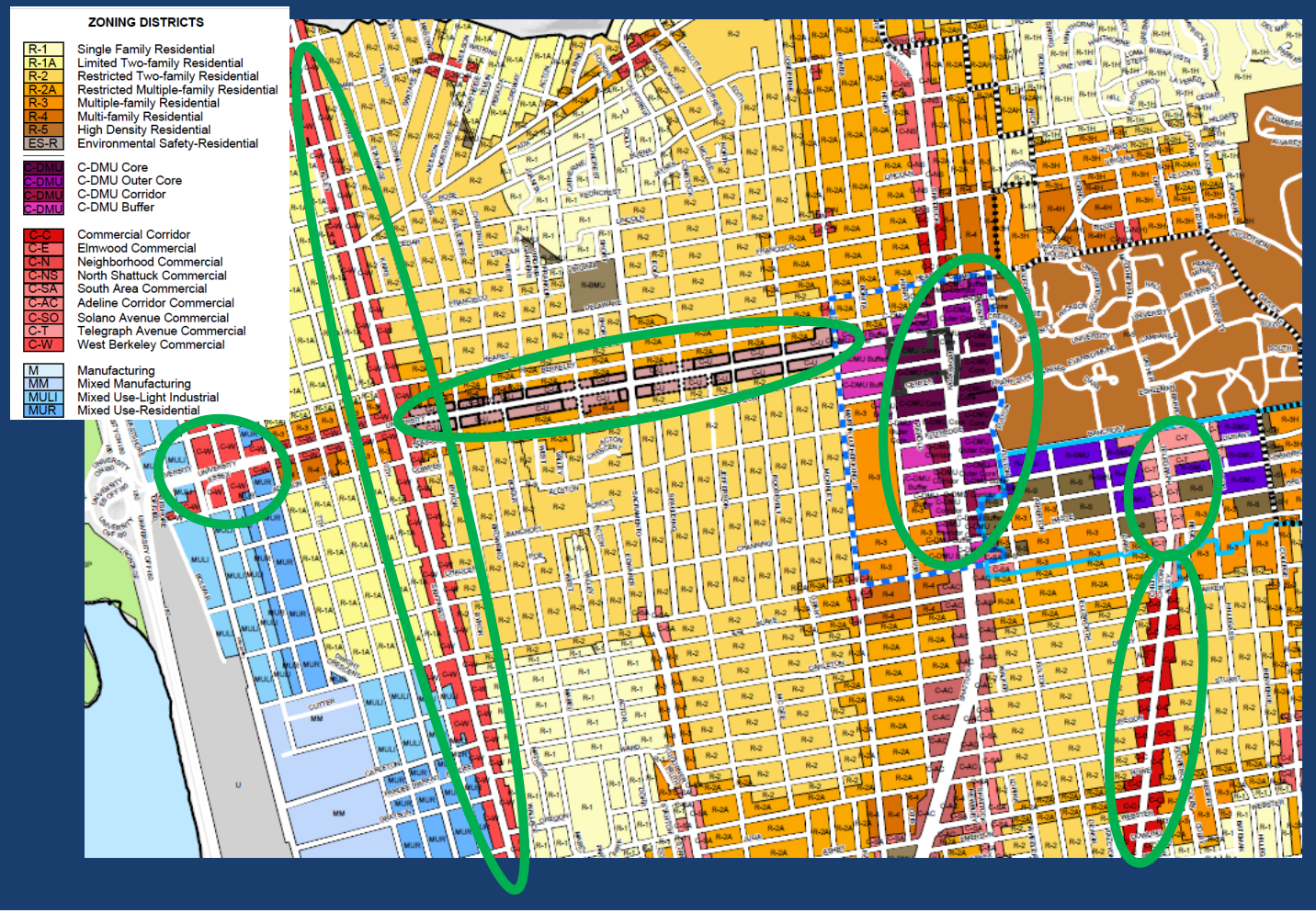
Seed & venture capital raised by startups, 2023

$17m

Govt R&D grants awarded to Berkeley companies, 2023

Permit R&D with a ZC in commercial corridors

1. Permit R&D with a Zoning Certificate (ZC), for uses 20,000 square feet and under, in the following zoning districts:
   - C-DMU (Downtown Mixed-Use)
   - C-T (Telegraph Avenue Commercial),
   - C-U (University Commercial),
   - C-W (West Berkeley Commercial), and
   - C-C (Corridor Commercial).

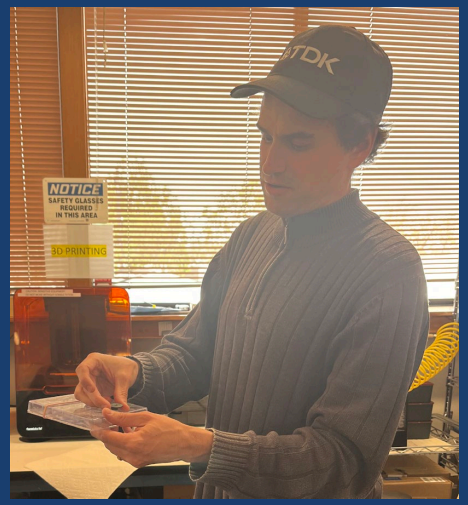


Example: sensors you find in everyday products

Photo: Chirp co-founder Richie Przybyla (now TDK) in their West Berkeley Office, where the company continues to do R&D

The TDK (formerly Chirp Microsystems) ultrasonic sensor technology was developed at UC Berkeley. The team was located in an office in Downtown Berkeley before moving to the Parker Plaza office building in West Berkeley. Their sensors are used in robot vacuum cleaners, AR/VR tracking headsets, contract tracing, smart locks, laptops and other consumer electronics.

Co-founder Richie Przybyla says, it is “helpful for startups to be close to campus resources, like the cleanroom – like we were in early days” and, when they moved, many employees wished their office was closer to BART.



Photos (left to right): Richie showing how 3D printed parts fit on the chip; 3D printed parts; sensor testing

Example: 3D printed robots saving lives

A UC Berkeley robotics spinout is 3D printing parts to make sensors that can be paired with drones to assess risk in hazmat situations before humans risk their lives on the scene.

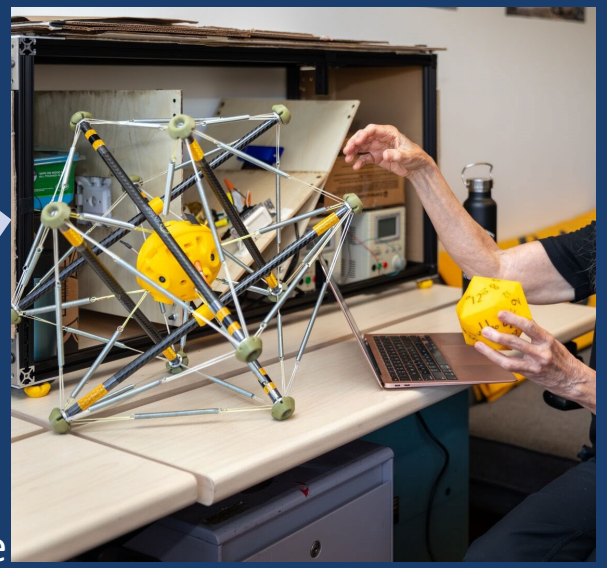
started at

Berkeley Mechanical Engineering

went through the Berkeley SkyDeck startup accelerator in Downtown Berkeley

transformed their West Berkeley office into a “light use lab space”

sometimes has meetings on campus in the professor’s office, which is easier for UC interns to access



"Manufacturing is thought of as different from office, but many are using offices to make things. It may be that new approaches to zoning are needed."

-- Cynthia Kroll, formerly Chief Economist and Assistant Planning Director, Economic Development and Forecasting, for the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) & Executive Director and Senior Regional Economist at the UC Berkeley Fisher Center for Real Estate and Urban Economics

Photo: 3D printer in TDK office

Explicitly encourage R&D in M-M & MU-LI Zones

2. Revise the "District Purpose" sections of the MM and MU-LI districts to specifically embrace & encourage R&D.

M-M

23E.76.020 Purposes

A. The purposes of the Mixed Manufacturing (MM) Districts are to:

1. Implement the West Berkeley Plan's designation of a MM District;

2. Encourage development of a general manufacturing district for the full range of manufacturers, including larger scale materials processing manufacturers sometimes known as heavy manufacturers;

3. Encourage development of a manufacturing district targeted to manufacturing and industrial uses, including R&D so that manufacturers and industrial businesses will not be interfered with by incompatib uses;

4. Encourage the creation and continuation of well paid (often unionized) jobs for people without advanced degrees;

5. Provide an appropriate location for the development of compatible industries, which can provide high quality employment for people at all educational levels, and add significantly to the tax base, such as the biotechnology industry, and other R&D uses.

6. Allow reuse of upper story industrial space as offices to facilitate use of upper story space;

23E.80.020 Purposes

The purposes of the Mixed Use-Light Industrial (MU-LI) Districts are to:

A. Implement the West Berkeley Plan's designation of a Light Manufacturing District;

B. Encourage development of a mixed use-light industrial area for a range of compatible uses;

C. Encourage development of an area where light manufacturers can operate free from the economic, physical and social constraints caused by incompatible uses;

D. Encourage the creation and continuation of well paid jobs which do not require advanced degrees;

E. Provide for the ~~continued~~ availability of manufacturing and industrial buildings for manufacturing uses, especially of larger spaces needed by medium sized and larger light manufacturers;

F. Provide opportunities for office development when it will not unduly interfere with light manufacturing uses and/or the light manufacturing building stock;

G. Provide the opportunity for the development of RESEARCH AND DEVELOPMENT facilities ~~laboratory development~~ in appropriate locations;

H. Support the development of businesses which contribute to the maintenance and improvement of the environment;

Revise minimum parking requirements for R&D uses.

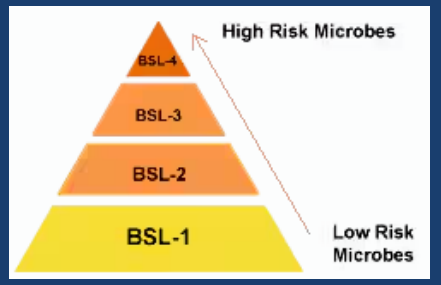
Revise the off-street parking requirements for R&D uses to 1 space per 1,000 square feet of floor area.

The BMC already prohibits parking minimums for most uses within 1/2 mile of transit in accordance with state law.

Photo credit: evening_tao on Freepik

Revise zoning ordinance regulation of Biosafety Level (BSL) class organisms

- BSL levels defined at federal level (by CDC and NIH) to govern the
- design of facilities & required on-site safety equipment/ practices
- Health & safety (e.g. toxic substances and flammable materials) are regulated by city and state regulatory agencies
- Berkeley's zoning rules regulating the location of BSL activities is more restrictive than most other Bay Area jurisdictions
- BSL 2 activities already take place on the UC Berkeley campus, within 500 feet of residential districts, and even in the same buildings where students and professors spend their whole day



23.206.080 MU-LI Mixed Use-Light Industrial District.

B. 5. ~~*Commercial Physical or Biological Laboratories.* Commercial physical or biological laboratories using Class 3 organisms are not permitted the MU-LI district. Use of Class 2 organisms are permitted only in locations at least 500 feet from a Residential District or a MU-R district.~~

CA EHS Regulatory environment

Name	Reference	Threshold-Applicability	Regulatory Agency
Air			
Organic Compounds-solvent cleaning operations	Regulation 8, rule 16	More than 20 gallons per year. for the purposes of this rule, a solvent cleaning operatio	BAAQMD
Organic Compounds-Coating, Ink and Adhesive manufacturir	Regulation 8, rule 35	use of solvents and surface coatings. Needs to be less than 5tons of VOC from any so	BAAQMD
Carbon monoxide emissions	Reg 2, Rule 1-103	greater than 10lbs per day per source	BAAQMD
BAAQMD Annual Report/Data update	BAAQMD	Major facilities as defined (see description herein)	BAAQMD
Air Toxic Risk Screening Analyses	BAAQMD – Permit to operate	Permit to operate	BAAQMD
Asbestos - Asbestos Demolition, Renovation And Manufactu	BAAQMD Regulation 11 Hazardous Pollutant	demolition, renovation, milling and manufacturing of asbestos	BAAQMD
Greenhouse Gas (GHG) reporting program for semiconducto	17 CCR, §95324(a) Semiconductors - Emissi	owner and operators of semi-conductor plants	CARB
Mandatory Greenhouse Gas Reporting – Electronics Manufa	40 CFR, §98.90-109	The electronics manufacturing source category consists of any of the production proces	EPA
High Global Warming Refrigerant: Refrigerant Management I	Regulation for the Management of High Globa	more than 50lbs of high global warming potential refrigerants in stationary systems (not	CARB
Emergency back up generators	Regulation 9, rule 8: Inorganic Gaseous Pollu	more than 50 brake horsepower	BAAQMD , CUPA
New Source Review of Toxic Air Contaminants	Regulation 2, rule 5	new or modified source of toxic air contaminants as listed on the rule and above the trig	BAAQMD
Water			
Industrial Wastewater Discharge	Industrial Waste Discharge Permit Applicatior	If any industrial waste is being discharged to the sanitary sewer (does not include non-ir	City of Berkeley, EBMUD
Stormwater Pollution Prevention Plans (SWPPP)	NPDES General Permit No. CAS000001 issu	Industries in specified SIC codes (see reference link)	SWRCB
Spill Prevention, Control, and Countermeasure (SPCC)	40 CFR, Part 112	Required if a facility has an aggregate aboveground oil storage capacity greater than 1	EPA
Stormwater Control Best Practices Stormwater Permit	See reference link	All businesses are required to comply with best management practices to prevent the c	CUPA, City of Berkeley
Waste			
Hazardous Waste Generator	Title 22, Division 4.5, Chapter 11	facilities that generate hazardous waste as defined	EPA, CUPA, DTSC
Toxic Substances Control Act (TSCA)	15 U.S.C. §2601 et seq.	Facilities that intend to manufacture, import or export a listed chemical	EPA
Solid waste management plans (e.g., recycling program poli	Best Management Practices	any facility that generates municipal solid waste	-
Universal Waste Generator	22 CCR, Division 4.5, Chapter 23, §66273.3(	facilities that generate universal waste as defined	CUPA, DTSC
Phase I/Phase II Environmental assessment			
Hazardous Waste Operations & Emergency Response	8CCR§ 5192	1) Scope: This section covers the following operations, unless the employer can demons	CUPA, CA DIR
Hazardous Materials			
Hazardous materials labeling	2019 CFC 5003.2 22 CCR §66262.31-.34 2	all hazardous materials per Fire code; Hazard Communication standard; Hazardous Mat	CUPA, City of Berkeley, Fire Dep
Flammable liquids and flammable gases	2019 CFC 5703.1.1 Classified Locations for	Flammable Liquids NFPA 55 NFPA 70, and NFPA 497	Fire Department
Hazardous Materials Storage Permits		for hazardous materials use and storage generally above 10 gallons (may vary based o	BTMD, CUPA
Hazardous Material Business Plan (HMBP): Hazardous Mate	HSC §25504(b) 22 CCR §66262.34(a)	hazardous materials storage (for greater than 30 days) of 55 gallons liquid or 500 poun	CUPA
Maximum allowable quantity per control area	Table 5003.1.1(1)	depends on chemicals and quantities	Fire Department
SARA Title III Toxic Chemical Release Inventory (TRI)	EPCRA, Section 313 Toxics Release Inventory	(TRI) Program	EPA

Example: treatment for vision loss

Valitor is developing new medicines for vision-threatening diseases, such as age-related macular degeneration. Current treatments require frequent injections into the back of the eye, and Valitor's technology would reduce the frequency of administration to just 1-2 yearly. The company's co-founder and Chief Scientific Officer, Wesley Jackson, was previously a scientist and researcher at U.C. Berkeley, where he completed his Ph.D. and B.S. in Bioengineering.

When Wes, who lives in Albany and has worked in Berkeley since 2009, needed a larger facility to grow his business, he was hopeful that a vacant space nearby (in a West Berkeley building previously occupied by JFK University) would offer a solution. But, when presenting the option to his board and investors, he had to share his fears that their change of address for their business license would be denied by Land Use because, depending on the starting and ending points used for measurement, their new facility might be found to be less than 500 feet from a M-UR district.

Photo: Berkeley High School students visiting Valitor's offices for a STEM CareerX tour

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Discussion: Staff Recommendations

Referral Topic	Recommendation
1. Expand areas where R&D can be permitted with a ZC (Zoning Certificate)	Permit Research and Development (R&D) with a Zoning Certificate (ZC), for uses 20,000 square feet and under, in the C-T, C-C, C-W, C-U, and C-DMU zoning districts.
2. Revise MM and MU-LI District Purpose Sections	See proposed text edits to these BMC sections
3. Revise minimum parking requirements for R&D uses.	Change R&D requirement to 1 parking space per 1000 sq ft.

Discussion: revision or removal of the regulation of Biosafety Level (BSL) in the MU-LI

1. **<u>Revise</u> existing language to remove distance requirement for BSL-2 uses in the MU-LI zoning district?**

   5. *Commercial Physical or Biological Laboratories.* Commercial physical or biological laboratories using Class 3 organisms are not permitted the MU-LI district. ~~**Use of Class 2 organisms are permitted only in locations at least 500 feet from a Residential District or a MU-R district.**~~

2. **<u>Remove</u> existing language regulating BSL from the MU-LI zoning district?**

   ~~**5. *Commercial Physical or Biological Laboratories.* Commercial physical or biological laboratories using Class 3 organisms are not permitted the MU-LI district. Use of Class 2 organisms are permitted only in locations at least 500 feet from a Residential District or a MU-R district.**~~

3. **<u>Keep language as is</u>**

Additional Issues Raised in Stakeholder Feedback to Date

- Include C-NS (North Shattuck) in the list of commercial districts that would permit R&D with a ZC
- Lower the level of discretion (LOD) required for Laboratory uses in C- districts
- Clarify the definition of Laboratory to differentiate from other defined uses