



## Yale University and the New Haven renaissance

Yale is a global university firmly rooted in its hometown. The impact of its teaching, research, and service extends throughout the world – but its economic impact is focused in New Haven, the region, and Connecticut. The University is deeply committed to improving economic opportunity and quality of life in New Haven and Connecticut.

It is the single largest local economic force in New Haven – larger than fellow nonprofits or any private corporation. Yale University, with annual budget expenditures of \$2.8 billion, including salary and benefits expenditures of \$1.7 billion, is a major catalyst for New Haven's prosperity.

- Yale University is New Haven's largest employer with over 13,000 employees. 4,000 of them live in New Haven.
- Yale is the fourth largest private employer in CT (after the state, UTC, YNNHS, and Hartford Healthcare)
- Yale pays well – Wages and benefits in Local 34 are 36% higher than local market prevailing rates.

**Direct Economic Impact.** The Connecticut Conference of Independent Colleges has commissioned a study of the economic impact of its 16 member institutions, including Yale. The most recent report is based on 2013 spending levels:

- \$1,755,219,651 in salaries, wages, and benefits
- \$713,890,866 spent on goods and services
- \$5,235,125,000 spent on construction, renovation, and equipment (average over five years)
- \$802,382,962 in labor income of alumni living in the state
- \$182,925,000 spent by students
- \$61,236,747 spent by visitors to Yale University
- CCIC estimates that Yale's total contribution to the Connecticut economy is \$8,791,380,982

The vast majority of its income – sponsored research, tuition, alumni donations, investment returns, and medical services – comes from beyond New Haven and Connecticut, but most payroll and much spending for goods and services is in the region. Yale draws substantial capital from outside the region into New Haven, adding new resources to the economic common wealth.

**Promoting a Vital Downtown and Supporting the Tax Base.** Yale devotes significant resources to building jobs and the tax base in New Haven.

- Yale currently makes a voluntary payment to the City of New Haven of \$8.3 M annually; since 1991 Yale has made a total of \$91 M in voluntary payments to New Haven.
- Yale pays property taxes on the non-academic properties it owns as part of strategic effort to revitalize the downtown business district. Yale is one of the top five payers of real estate taxes in New Haven; in 2015 Yale paid \$4.6 M.
- One-third of Yale employees are residents of New Haven, and 34% of new hires in 2015 are New Haven residents. Yale has committed to hiring 1,000 New Haven residents by 2019. Yale is on track to meet or exceed that goal.
- Yale is also an active supporter of New Haven Works.
- Yale monitors work hours allocated to New Haven residents on its major construction projects and works closely with its contractors to meet and exceed targeted goals.
- Yale has contributed over \$40 million to economic development initiatives including funds to the [Economic Development Corporation of New Haven](#), Science Park, and the Broadway and Chapel Street community investment programs.
- The University's strategic investments to promote new retail businesses on Chapel Street and Broadway have reinvigorated the central shopping districts and boosted employment.

**Building Strong Neighborhoods.** New Haven has a rich history of neighborhoods – East Rock, Wooster Square, Newhallville, Dwight, the Hill. Yale has contributed to the revitalization of neighborhoods and has encouraged Yale faculty and staff to purchase homes in New Haven. Strengthening the neighborhoods and improving the schools creates a virtuous cycle that promotes stability and expands opportunity for New Haven's residents.

- Yale committed funds to the restoration of [Scantlebury Park](#), the [Farmington Canal](#), and the improvements of streetscapes and creation of pedestrian and bike paths. Yale's support for Science Park has contributed to the revitalization of the Winchester area. The [Dixwell-Yale Community Learning Center Rose Center \(DYCLC\)](#), built and run by Yale, is open to all.
- The Yale University Homebuyer Program strengthens the tax base and has committed \$25 million to over 1,000 employees to purchase homes in New Haven with a total value of approximately \$175 million.

**Assisting Local Youth through Educational Partnerships.** Yale University works closely with the New Haven Public Schools to develop the potential of local youth and to promote the vitality of New Haven. New Haven Public School students are welcomed to Yale throughout the year as the youngest members of our academic community; students take world language courses on campus, participate in the citywide science fair, explore our shared cultural heritage through visits to the Yale museums, attend lectures on weekends, and conduct research in Yale laboratories through summer internships.

- Each year more than 10,000 public school children participate in academic and social development programs sponsored by Yale on the campus, while more than 1,000 Yale employees and students work in a variety of community partnership programs in public schools across the city.
- The Yale Pathways to Science invites students from New Haven and surrounding towns to take part in events and programs on Yale's campus, gaining behind-the-scenes access to science laboratories and exploring first-hand the new frontiers in scientific research. As of January, 2016, 1,077 students are participating in the program; 61% of those students qualify for free school lunch. A total of 603 Yale faculty, postdoctoral fellows, graduate students, undergraduates, and staff participated as instructors or mentors in 2014-15.
- Yale has several staff who work full-time on educational collaboration with New Haven Schools; in addition to their salaries, Yale spends about \$1.4 million on programs working in the New Haven schools, such as Scholar, Co-op Arts High School, Career High School, Teach for America, Achievement First, Common Ground, and Dwight Hall.
- Yale is a co-founder and principal funder of New Haven Promise, which has awarded scholarships to more than 550 New Haven public school graduates. Scholarships cover full tuition at any public university in Connecticut or \$2,500 at any independent college or university in the state. 18 of the 550 Scholars enrolled at Yale College.

**Promoting Opportunity through Education.** Yale believes that education is key to promoting economic opportunity for students not only in New Haven but the world. Accordingly, Yale strives to ensure that a Yale College education is affordable and accessible.

- Yale asks families to pay only what they can afford. Parents earning less than \$65,000 are not asked to make a contribution. Yale reduces parental contribution for those earning up to \$160,000.
- Yale is need-blind in admissions and is committed to meeting students' full financial need.
- Yale currently spends \$122 M annually on grant aid in Yale College, including more than \$5 million to Connecticut students.
- Average "net price" for students receiving financial aid was \$17,328 in 2014-15, or 27% of the "sticker price." Net price has been flat, after inflation, for more than a decade
- Yale College discourages students from borrowing, and does not include loans in financial aid packages. Some students choose to borrow ... in the class of 2015, 17% had borrowed, and the average debt among borrowers was \$16,000.

**Supporting the Local Community.** Yale University supports the local community in many other ways. For example, Yale University Medical School physicians provide over \$12 million per year in free care to the local community. (Yale New Haven Hospital also provides significant uncompensated care; it is a separate entity from the university with its own independent management). The Yale Jerome N. Frank Legal Services Organization offers free legal assistance to organizations that cannot afford to retain private counsel. The Urban Resource Initiative oversees the planting of trees in New Haven. The Yale Center for Clinical Investigation works on solutions to local health questions.

## Yale's Role in Promoting Innovation

Yale University has three central missions: advancing frontiers of knowledge, preserving knowledge, and disseminating knowledge for public benefit. The University's views of how it can promote public benefit have evolved over time, and for the past two decades, Yale has placed special emphasis on promoting technological innovation in a range of fields, including medicine. Yale promotes biomedical innovation by:

- Educating the next generation of scientists and entrepreneurs.
- Advancing the state-of-the-art by publishing discoveries and providing access to Yale research.
- Promoting commercial development of faculty inventions that have potential to be new drugs, diagnostic tools, or devices.

Yale has had notable success in the past two decades, and is recognized among research universities for its successes in commercialization of university inventions as well as our emphasis on using technology licensing to promote economic development in the Greater New Haven region.

Yale's efforts include the licensing of university inventions by the Office of Cooperative Research, often through startup companies; assistance to student and faculty entrepreneurs who wish to launch a business through the Yale Entrepreneurial Institute, which provides a summer boot camp, mentors, entrepreneurs in residence, and advice for seeking SBIR or STTR awards; operating an "incubator" for medical devices through the Center for Biomedical and Interventional Technology; creating the Center for Engineering Innovation and Design to serve as the hub for interdisciplinary, collaborative design at Yale; and promoting translational research that takes medical discoveries from the lab to the bedside through the Yale Center for Clinical Investigation.

There are currently about 3,753 externally funded research projects underway at Yale in a wide range of fields of science and engineering. They range from early-stage projects that are far from being ready for commercial development to those that are closer to actual application. They include 864 clinical trials; the 3,753 projects also include 90 awards from the State of Connecticut.

Yale receives about 230 invention disclosures and files over 300 patent applications annually. Yale inventions have led to nearly 60 companies in the New Haven region that have attracted more than \$1 billion of professional venture capital investment and have created about 900 jobs. There are currently five Yale drugs on the market and another 37 in pre-clinical or human testing. There are an additional five devices or diagnostic tests in the market, and another 15 in development or testing. The individual companies and products tied to Yale include:

- **NextCure**, a new immune-oncology startup based on a drug discovery platform around the discovery of the PD-1/PD-L1 pathway from Lieping Chen, M.D., Ph.D., United Technologies Endowed Professor of Cancer Research and Professor of Immunobiology, Dermatology, and Medicine at the Yale School of Medicine. The startup is positioned to discover new immunotherapy drugs for use in treating cancer and received a \$67M Series A financing in January 2016.
- **Alexion Pharmaceuticals**, a company that makes therapies for ultra-rare, life-threatening diseases, was founded by Dr. Leonard Bell, Adjunct Assistant Professor of Medicine and Pathology at Yale. Alexion's new 14-story headquarters at Downtown Crossing, a block from the Yale School of Medicine, is positioned to have 1,000 employees by the end of March 2016.

- **Rib-X**, known as **Melinta**, is based on Nobel-Prize winning research by Yale Professor Tom Steitz. Its principal product, the antibiotic delafloxacin, is in Phase 3 trials for FDA approval. In June, 2015, Melinta secured an additional \$67 million from investors. Melinta has facilities in New Haven and Chicago.
- In 2014, Professor Craig Crews launched **Arvinas**, which is based in New Haven's Science Park; Arvinas is developing a highly versatile technology for defeating a wide range of diseases by activating humans' defenses against disease. The pharmaceutical company Merck invested \$434 million in Arvinas, followed by a \$41.6M Series B round.
- In late 2015, three Yale faculty – Michel Devoret, Luigi Frunzio, and Robert Schoelkopf – founded **Quantum Circuits, Inc. (QCI)**. QCI's long-term goal is to develop, manufacture, and sell the first practical and useful quantum computers based on superconducting devices.
- **Kolltan** was founded by Professor Yossi Schlessinger to develop novel monoclonal antibody drugs targeting receptor tyrosine kinases. Kolltan's lead drug is currently in multiple Phase 1b trials for treating adult advanced solid tumors and the company is planning to initiate a Phase 2 clinical trial in 2016. Kolltan has raised over \$125 million in private equity. With three FDA approved drugs already on the market, Professor Schlessinger was recently named one of the top 100 most influential people in drug development and manufacture by the publication *The Medicine Maker*.
- The award-winning company **Novatract Surgical** makes innovative devices for laparoscopic surgery based on designs created by Kurt Roberts, a Yale surgeon. Seed money from Yale was critical to the development of an initial prototype, and pre-seed funding from CI was helpful in launching the company.
- **Isoplexis**, based in Branford, is developing a device for measuring immune response to cancer and cancer drugs. It was formed by Assistant Professor Rong Fan, Sean Mackay (at the time a Yale MBA student) and Kara Brower (at the time a Yale College student). The company has 6 full-time employees.

**YEI Innovation Fund.** Connecticut Innovations, First Niagara, and Yale established a \$3 million fund to invest in top ventures emerging from the Yale Entrepreneurial Institute. Since 2014, the Fund has closed 10 investments of \$100,000 each with the goal of advancing companies to external financing. In its first 24 months the Fund has achieved a 21:1 leverage on investment. Companies receiving investments include:

- **Isoplexis**, described above, has received \$3.5M in external investments.
- **GestVision**, led by a former faculty member together with a School of Management alum, is developing a point of care diagnostic test for preeclampsia.
- **Wellinks**, led by Yale College students working in the Center for Engineering, Innovation and Design, is developing digital technology to improve scoliosis brace compliance and prevent surgeries.
- **Eli Nutrition**, led by a Professor of Surgery, is developing over-the-counter immediate release antacid supplement, branded as "Tummyzen."
- **Dextro**, founded by two Yale College students, helps companies work with unstructured image data.
- **Patientbank**, founded by a Yale student and Yale New Haven Hospital-trained pediatrician, is advancing a platform for sharing medical records.
- **Rally Bus** is a student-founded venture that provides crowd-sourced, on-demand bus travel.
- **Trinity Mobile Networks** is a student venture building software to create direct connections between devices and speed up networks by increasing WiFi offloading.
- **Saphlux** is a student-faculty venture based on Yale Professor Jung Han's discovery of a semipolar GaN/sapphire substrate to produce high efficiency/low cost LEDs.
- **Umi** is a student venture connecting home chefs with people who want a home-cooked meal.

## Yale's community investments support New Haven business and tax base growth

By Michael Morand

March 22, 2016



Crêpes Chouquette — opened last year by Adil Chokairy at 24 Whitney Ave. — is among the nearly 90 commercial tenants in the Yale University Properties' portfolio. More than two-thirds are owned by local and regional retailers and restaurateurs.

Walk along Whitney Avenue from Grove Street on a typical Saturday afternoon and you will find many people from campus, nearby neighborhoods, and beyond who are enjoying the area's mix of restaurants, shops, and community arts venues. The foot traffic is hailed as a good sign for business — and that, in turn, is a good sign for New Haven's tax base, which has grown stronger over the past decade.

Among the places drawing crowds on lower Whitney is [Crêpes Chouquette](#), opened last year by Adil Chokairy at 24 Whitney Ave. as part of Yale's University Properties portfolio. An immigrant from France who came to America in 2005, Chokairy moved to New Haven from the suburbs in 2013. In 2014, he began pedaling a crêpe cart attached to a bicycle. Chokairy has since built on the cart's success at his café on Whitney — where, he reports, take-out and sit-down business is strong during the weekdays, on evenings, and weekends.

Chokairy's story illustrates how New Haven has become a "city transformed," as it was described in a [Washington Post article in 2014](#), which also touted the Elm City as a place "with Boston's historic charm, Philadelphia's artistic pleasures — and Buffalo's beer prices." The [New York Post](#) has said, "Connecticut's capital of higher learning is getting its second wind," while a New York Daily News headline proclaimed: "[New Haven is happening.](#)" Noted restaurateur Mario Battali described [New Haven](#) as "cosmopolitan and yet comfortable," when he and his partners opened Tarry Lodge New Haven as a tenant of University Properties



in the Broadway District in November 2014.

### **Supporting businesses, schools, and more**

Battali's and Chokairy's businesses were brought to New Haven through Yale's longstanding community investment program. For more than two decades, Yale has made strategic investments on Chapel Street, Broadway, and Whitney/Audubon to reinvigorate these downtown districts, support longtime businesses, and attract new retail and restaurants. These efforts downtown are part of a [comprehensive set of initiatives](#) that also include [support for the public schools](#), [homeownership](#), and [workforce](#) and [economic development](#).

There are nearly 90 commercial tenants in Yale University Properties buildings, more than two-thirds of them owned by local and regional retailers and restaurateurs. High-profile tenants include international retailers like Apple, which launched its New Haven store in September 2011 on the same day it opened new stores in [Paris, Sydney, and Shanghai](#), and New Haven originals such as Claire's Corner Copia, which [celebrated 40 years in business in 2015](#), next door to its sister restaurant, Basta Trattoria, which opened in 2004 and is also a University Properties tenant.

Yale pays taxes on all of its non-academic properties, including the entire University Properties portfolio, and is consistently one of the city's top real estate property taxpayers. Yale's total property tax payments for the current fiscal year exceed \$4.5 million.

### **Voluntary \$8.2 million payment to city**

Beyond the taxes paid on all non-academic real estate, Yale makes a substantial voluntary payment each year to New Haven. Every nonprofit college and university in the nation is exempt from paying taxes on its academic property, but very few make such voluntary payments to their home cities. Yale's payment to New Haven is more than \$8.2 million this fiscal year, making it the single largest voluntary payment made by any university to any single city in the nation, even though there are many universities larger than Yale in terms of budget or campus size.

**"New Haven is a place more full of opportunity than it is beset by challenges."**

— President Peter Salovey

Yale's ongoing partnership with its neighbors in New Haven has played a role in helping the city's tax base get its own "second wind" in this new millennium, as the Wall Street Journal noted in a 2011 article, "[Yale Draws Interest to New Haven's Center](#)." In that article, Bruce Becker said of the 360 State St. project, "I wouldn't have done this 15 years ago but today, there's demand from people coming in from the suburbs to live in what's becoming a very vibrant city."

That new development is now one of the city's top taxpayers, as are properties developed by Winstanley Enterprises. That firm's principal, Carter Winstanley, credited New Haven's growth to "[a successful partnership between the city, the university and private investment](#)" in the Wall Street Journal in 2013. The article noted that Yale "has helped stoke the growth of the city's healthy biotech and medical businesses," a process that continues to yield results such as the dedication on Feb. 29, of [the new headquarters of Alexion Pharmaceuticals](#) in the Hill-to-downtown district, Alexion will also soon be one of the city's top taxable properties.

### **New Haven's tax base stronger than Hartford's, Bridgeport's**

Data from the [Connecticut Data Collaborative](#) demonstrate that New Haven's tax base has grown stronger, especially compared to similarly situated cities like Hartford and Bridgeport.

From state FY2004 to FY2014, the latest data available, New Haven's equalized net grand list — a measure of taxable property — grew by 38% in the recent decade, while Hartford's equalized net grand list grew by 6%, and Bridgeport's by 16%. New Haven's tax base overall stands stronger than Hartford's or Bridgeport's, with an equalized net grand list per capita 27% higher than Bridgeport and 29% higher than Hartford as of

state FY2014. (Note: equalized net grand list figures are a measure of only the taxable real and personal property, i.e. the gross property estimate minus any tax exempt properties.)

New Haven's tax rate is likewise lower than that of those two cities. New Haven's equalized mill rate, an "apples to apples" measure of the effective tax rate in cities, is 26% lower than Bridgeport's and 27% lower than Hartford's, according to state data available through the data collaborative.

The positive trends in the tax base coincide with positive demographic trends in New Haven. According to the U.S. Census, New Haven had the largest population growth of any city in New England from 2000 to 2010. New Haven consistently ranks at or near the top of apartment occupancy rates of all markets in the nation. And while the total number of jobs statewide was flat over the last decade, the number of jobs in New Haven grew by 9%.

Considering the positive direction of New Haven's economy and tax base, Bruce Alexander, Yale's vice president of New Haven and state affairs and campus development, recalls remarks made by [Yale President Peter Salovey to the Greater New Haven Chamber of Commerce](#) a few years ago: "New Haven is a place more full of opportunity than it is beset by challenges. Sure, we have challenges — issues in common with cities across nation. But — and most importantly — we have uncommonly abundant assets beyond most cities our size."

"President Salovey is right and New Haven has more opportunity to prosper for all its residents. We at Yale are committed to do our part," Alexander says. "The lessons of the past and our collective progress are very clear — the best recipe for community prosperity is when we cooperate and work together as partners."

