
ECONOMIC CONTRIBUTIONS OF ACTIVITIES AT THE FITZSIMONS LIFE SCIENCES DISTRICT AND THE UC DENVER ANSCHUTZ MEDICAL CAMPUS

PREPARED FOR:

THE FITZSIMONS REDEVELOPMENT AUTHORITY

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THE PAULS CORPORATION

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This analysis examines the current and foreseeable economic contributions of the health care, education, bioscience, and related activities located at Fitzsimons Life Sciences District and University of Colorado Denver Anschutz Medical Campus (Fitzsimons/Anschutz) in Aurora, Colorado to the regional and statewide economies. Such contributions include jobs and income for residents, investments in human and physical capital, and support for other businesses across the state through the purchases of goods and services, and tax revenues accruing to the state and local governments. Moreover, the benefits of the bioscience industry and health care education and delivery extend beyond the quantified economic measures. Intangible benefits include the economic stimulus created by spin-off enterprises elsewhere in Colorado, health care contributions to community and individual quality-of-life, the training of physicians and other health care practitioners, and research into disease prevention, management and treatment.

The economic drivers presently located at the Fitzsimons/Anschutz site, or anticipated to be developed on-site, include:

- University of Colorado Denver, Anschutz Medical Campus (UC Denver)¹
- University of Colorado Hospital (UCH)
- The Children’s Hospital (TCH)
- Colorado Science and Technology Park at Fitzsimons
- U.S. Veterans Health Administration Hospital (VA)
- Colorado State Veterans Nursing Home (CSVNH)
- Commercial trade and services establishments, along with some limited scale multi-family residential development.

The study relies on information regarding current and future operations supplied by the key institutional partners engaged in the Fitzsimons/Anschutz redevelopment project and the IMPLAN regional economic model.² The economic contributions are presented in aggregate terms, not by individual institution, although detailed assumptions regarding the level of development and activities for each institution are the “building blocks” of the analysis.

This analysis is an update of a study completed for the Fitzsimons Redevelopment Authority in 2002. Because major redevelopment activities were just then being initiated, that analysis examined the construction-related impacts, as well as the long-term impacts associated with ongoing operations. The former were quantified in cumulative terms over time, the latter in 2010

¹ The University of Colorado Denver has two campuses, the Anschutz Medical Campus in Aurora and the Downtown Campus in Denver. This analysis includes only the economic contributions of the Anschutz Medical Campus. A separate analysis of the economic contributions of the Downtown Campus was completed in 2007 and is available through the Office of Integrated University Communications (303-315-5816).

² The analytical framework for the analysis is the IMPLAN model; proprietary software marketed by the Minnesota IMPLAN Group. IMPLAN is a widely accepted input-output based regional economic impact model. A description of the analytical methods can be found in the full report from 2002, *Economic Impacts of the Fitzsimons Redevelopment Project*. Copies of that report are available from the Fitzsimons Redevelopment Authority.

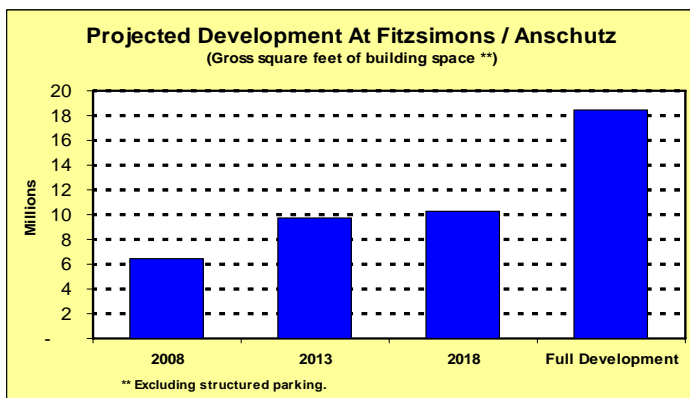
and at full development. The current analysis focuses on the economic contributions of on-going activities in 2008, 2013, 2018, and at full development. No specific year is defined for the latter.

The three milestone years are intended to correspond to three significant, yet distinct levels of development at Fitzsimons/Anschutz. Economic contributions in 2008 represent activity associated with occupancy and use of presently completed development. The 2013 milestone assumes a new Veteran’s Administration hospital is fully operational³, along with completion of the 21 Fitzsimons mixed use project, the UC Denver’s remaining identified planned projects, and additional bioscience and supporting development in FRA/Forest City Enterprises’ Life Science development area. Additional research capacity at UC Denver, substantial new bioscience and supporting commercial and industrial development, and an expansion of the CSVNH are foreseen by 2018. Full development of the site, encompassing an estimated 18.5 million gross square feet of building space, plus extensive structured parking, would be achieved over an extended period. New development beyond 2018, based on current plans of the development partners, would include additional beds and clinical space at the UCH and TCH, completion of additional research facilities at UC Denver, and more bioscience and support buildings.

The development parameters and findings with respect to the economic contributions of these entities are summarized below.

Projected Development at Fitzsimons/Anschutz

- The former Fitzsimons Army Medical Center site encompasses approximately 578 developable acres of land area. Development control of the site is shared by the Fitzsimons Redevelopment Authority, University of Colorado Denver, and City of Aurora.



- Future development at Fitzsimons/Anschutz includes reuse of some existing buildings and construction of new health care, educational, and research facilities. Residential and commercial development is also anticipated on portions of the site.

- Current development plans identified by the institutional partners and private development

community call for reuse and development of nearly 18.5 million gross square feet of building space, plus several million square feet of associated structured parking.

- Full development is anticipated to occur over 25 to 30 years.
- About 6.4 million square feet of new and renovated building space is expected to be completed by 2008, with another 3.3 million square feet coming online between 2008 and

³ Planning efforts to define the size, configuration and development timetable for the new Veterans Administration hospital are on-going. This analysis reflects a stand-alone hospital, based on plans in late 2007.

2013. The remaining 8.8 million square feet will develop over time in response to private sector demand for bioscience research facilities and public demand for health care delivery and research.

- At full development, the three hospitals and related health care affiliates will be the single largest use at Fitzsimons/Anschutz; 6.1 million square feet of space (33% of the total). About 4.9 million square feet of education and related research space are envisioned, along with 3.9 million square feet of space devoted to bioscience research, product development, commercialization, and early production. Lodging, retail, eating and drinking, business services, other support activities, and residential development will account for the remaining 3.6 million square feet.

Development By Use/Activity At Full Development		
Use/Activity	Square Feet of Space	Pct. Of Total
Hospitals and affiliates	6,138,000	33%
Education and research	4,900,000	27%
Bioscience	3,866,000	21%
Commercial and Industrial Support Activities	2,601,500	14%
Other	<u>991,000</u>	<u>5%</u>
Total	18,496,000	100%

The above estimates of built space exclude structured parking.

Long-Term Economic Impacts

The current employment base at Fitzsimons/Anschutz is significant due to the recent relocations of the University of Colorado Denver, University of Colorado Hospital and The Children's Hospital. On-site employment will rise dramatically as more UC Denver research activities relocate in 2008 and construction of the VA hospital and other new buildings are completed and programs expand. Over time the development impetus will shift toward private sector bioscience and related support businesses in the Colorado Science and Technology Park at Fitzsimons. These trends are apparent in the summary of projected on-site employment at Fitzsimons/Anschutz shown below:

Projected On-Site Employment at Fitzsimons/Anschutz *

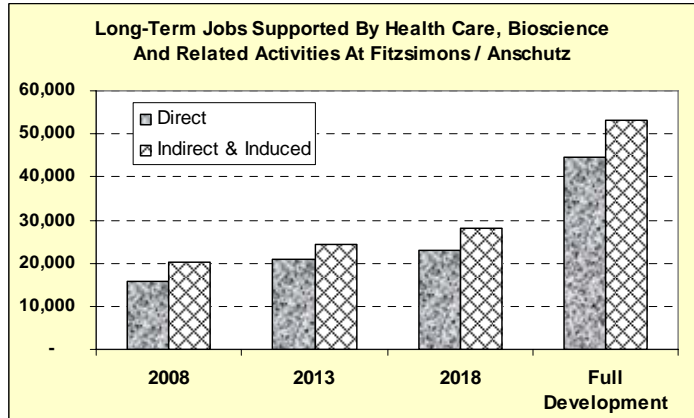
Use/Activity	2008	2013	2018	Full Development
University of Colorado Denver	7,051	8,044	8,794	12,083
Colorado Science and Technology Park	372	1,774	2,852	16,961
Health Care Delivery	7,877	10,601	11,685	14,876
Other	<u>598</u>	<u>622</u>	<u>649</u>	<u>649</u>
Totals	15,898	21,041	23,980	44,569

* Includes medical residents and fellows at the UC Denver, but not students enrolled in health care programs at the UC Denver. The totals do not include the numerous volunteers affiliated with the hospitals.

- In 2008, about 15,900 jobs will be based at Fitzsimons/Anschutz, not including construction jobs. The majority of these jobs will be in health care delivery and education.
- Economic activities at Fitzsimons/ Anschutz in 2008 will support 20,200 other jobs throughout Colorado, yielding a total of 36,100 jobs.
- Volunteers are vital to the functioning of the hospitals and university. The value of their time, the services provide and economic contributions associated with their activities, for

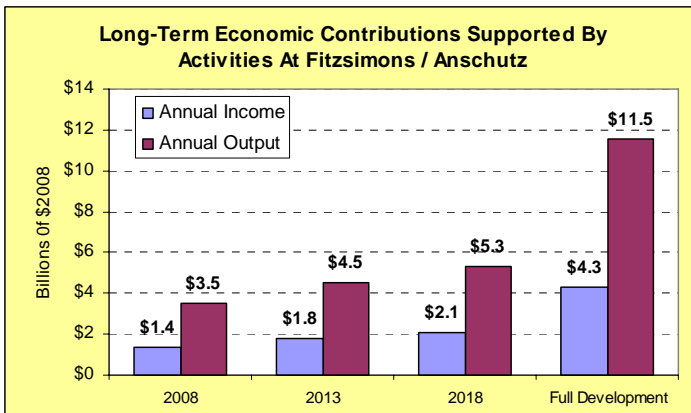
example, food service purchases and transportation-related outlays, though not quantified for this analysis, are significant.

- Activities at Fitzsimons/Anschutz will account for \$3.5 billion of economic production in the statewide economy, generating \$1.4 billion in personal income in 2008. [Note: all monetary values are expressed in \$2008.]



- Economic activities located at Fitzsimons/Anschutz in 2013 are projected to make \$2.8 billion in annual operating expenditures.

- In 2013, following the relocation of the VA Hospital, expected growth in health care service delivery at the UCH and TCH, and development in the Life Sciences District, a total of 21,000 jobs will be based at Fitzsimons/Anschutz, supporting 24,400 more jobs elsewhere in Colorado through the so-called “multiplier”.⁴ These jobs will provide \$1.8 billion in personal income and generate \$4.5 billion in total economic output annually.



- By 2018, the projected economic contributions associated with Fitzsimons/Anschutz include:
 - \$3.3 billion in annual operating expenditures
 - More than 3,200 undergraduate and graduate students at the UC Denver (not including medical residents and fellows)
 - 24,000 jobs based on-site, supporting another 28,100 elsewhere in the metropolitan area and across Colorado
 - Nearly \$2.1 billion in labor income annually.
- Beyond 2018, university and private sector bioscience research and development will continue to expand, along with increased health care delivery. Together these activities are expected to spawn development of support businesses to achieve full development of the site.

⁴ The estimated economic multipliers for the major activities at Fitzsimons/Anschutz are presented below.

	Employment	Income	Output
Colorado Science & Technology Park	2.34	1.94	1.86
Health Care	2.18	1.88	1.97
Education and Affiliated Research **	2.13	1.64	2.37

** Includes the medical residents and staff and member physicians of UPI.

- At full development Fitzsimons/Anschutz is projected to host 44,600 jobs at private establishments and public institutions, with those jobs having combined annual expenditures of \$6.7 billion. Including the “multiplier effects” associated with these expenditures, along with those of students and visitors, yields total statewide economic production of \$11.5 billion, \$4.3 billion in annual personal income, and about 97,800 jobs.
- Vendors and suppliers serving the UC Denver, three major hospitals, and other activities, as well as retail and service establishments catering to consumer markets, will reap benefits from the economic stimulus provided by the redevelopment at Fitzsimons/Anschutz.
- Fitzsimons/Anschutz is, and will continue to be, a catalyst for commercial development along Colfax and other nearby locations. Establishments in these areas will capture some of the secondary job, business incomes and other benefits supported by Fitzsimons/Anschutz.
- Significant tax revenues will accrue to state and local governments as a result of the development and activity at Fitzsimons/Anschutz. The state treasury will realize corporate and personal income taxes, sales taxes, motor vehicle registration fees and other revenues.⁵ Estimated annual revenues, based on the projected level of development, employment, payroll and operating expenditures will exceed \$65 million in 2013 and \$198 million at full development. Additional revenues, not estimated here, would be derived in conjunction with any construction occurring at Fitzsimons/Anschutz.
- The Fitzsimons project will become a major source of local tax revenue, including sales and property tax revenues from on-site development. Initially, such revenues will accrue primarily to the tax increment financing district formed to fund infrastructure improvements required to bring the redevelopment project to reality and realize the economic development opportunities and benefits afforded. Once the district’s financial obligations are met, revenues will flow to the City of Aurora, Aurora School District 28J and Adams County.
 - Future development and activity at Fitzsimons/Anschutz would directly and indirectly support estimated annual sales and use tax receipts exceeding \$36 million in 2013, despite the fact that purchases by the hospitals and UC Denver would be tax exempt. At full development estimated annual local sales taxes would exceed \$111 million.
 - Projected annual property taxes on private development in the Colorado Science and Technology Park and Fitzsimons Commons, based on the current 2007 non-debt tax rates, are \$6.4 million in 2013, climbing to \$31 million at full development.⁶

Short-Term Construction Related Impacts

- Ongoing and future construction represents additional economic stimulus associated with the development activities at Fitzsimons/Anschutz. Total investment to date in infrastructure and new facility construction has been approximately \$1.7 billion. Additional capital investment of about \$3.5 billion is projected to achieve full development under the current development.

⁵ The UC Denver and hospitals are tax-exempt, which is taken into account in the tax revenue estimates.

⁶ Property tax revenues are based on the estimated value of private, real property in the Colorado Science and Technology Park and do not include allowances for personal property. Property tax revenues do not reflect any new off-site development or appreciation of nearby commercial and residential property values supported by activity at Fitzsimons/Anschutz.

- Economic data for Colorado indicate that every \$10 million spent on commercial and institutional construction will support an average of 182 jobs, \$7 million in additional production and total personal income of \$8 million during the course of construction.
- Thus, full development of Fitzsimons/Anschutz over the next 25 to 30 years would be expected to directly and indirectly generate nearly 64,000 temporary, construction-related jobs, \$5.89 billion in total economic production, and \$2.8 billion in personal income.

Other Benefits

- Developing a major research and education effort can have widespread impacts beyond those captured in the economic impact model. As demonstrated by the Research Triangle Park in North Carolina, co-located major research and education facilities result in long-term economic development and diversification as industries cluster and achieve a measure of critical mass. They thereby serve as magnets to attract other firms seeking to capitalize on proximity to similar firms and the advantages of clustering on labor force development and recruiting, the expansion of local supply linkages, and a boost in startups, spin-offs and large-scale production facilities locate elsewhere in the surrounding region.
- Medical treatment, biomedical, and bioscience advances developed at Fitzsimons/Anschutz will contribute to improved quality of life and health care on a global scale, with tangible outcomes in terms of better health, greater life expectancies, and reduced health care costs. Coloradoans stand to realize those benefits in a more measureable and timely manner.
- Revenues to support the research and health care entities located at Fitzsimons/Anschutz will flow in from out-of-state. Such revenues will include billings to out-of-state patients obtaining treatment they can't get in their own community or presently obtain at some other out-of-state facility, and much of the financing and ultimate sales of bioscience firms located in the bioscience park.
- Such sources also include research funded by the federal government, research foundations and private sector clients.
- The influx of new jobs will provide enhanced employment opportunities for area residents. The associated housing needs and the business and consumer expenditure potentials associated with Fitzsimons/Anschutz will provide a vital stimulus for new capital investment, enhancing nearby property values and local government's fiscal position.