

2012 COMPREHENSIVE INSTITUTIONAL PLAN

PREPARED FOR
The Ministry of Advanced Education and Technology, Government of Alberta
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EXECUTIVE SUMMARY

In periods of uncertainty and change, a bold vision for the future is essential. The University of Alberta has such a vision: to be one of the world's top public universities for the public good. This vision is tied to the future—a knowledge-based future characterized by blurring international boundaries, intensifying economic competition, and urgent global challenges. Yet, this vision is also deeply rooted in the history and traditions of the University of Alberta. More than 100 years ago, President Henry Marshall Tory used his first convocation address to commit our institution to the uplifting of the whole people and the whole province.

President Tory's promise highlights the role that the U of A strives to play in communities across the province, nation, and world. As the flagship institution in Campus Alberta, we cooperate with our partner institutions to create pathways to learning for all Albertans. Ground-breaking research conducted at the university contributes to a more diversified and environmentally sustainable Alberta economy as well as an enhanced quality of life.

Most importantly, the quality of teaching and learning at the institution equips our students with the tools to be active and engaged citizens and leaders. As Premier Redford noted in her State of the Province Address, "there is no better investment of public funds than in learning. Without a skilled and highly educated workforce, we will not attract the cutting-edge companies to carry out research and development, much less the finest minds to lead it. We need outstanding schools and post-secondary institutions."

We need outstanding schools and post-secondary institutions because knowledge, creativity, innovation, and entrepreneurialism are now the global currency. Highly skilled people are the pre-eminent natural resource and education is essential to every prosperous society.

Seventy-seven percent of all University of Alberta alumni stay, find employment, and create businesses in Alberta. The rippling economic impacts of the U of A itself are immeasurable. The University of Alberta not only graduates more than 9,300 students per year but also contributes to high demand areas such as engineering and health services.

Alberta has built a strong foundation of excellence in education from kindergarten through post-secondary and

U of A's contribution to Alberta's workforce (selected fields)	2011 Total
Physicians	143
Engineers	836
Industrial designers	43
Lawyers	163
Librarians	30
MBAs	149
Nurses	496
Pharmacists	125
Physical and Occupational Therapists	190
Speech pathologists	52
Teachers	1227

this province is recognized as a place where pioneering talent and innovation can flourish, but we must not become complacent. While Alberta is strong, it faces competition from global competitors, such as India and China, where millions of young, talented people are flocking to higher education as never before and where strategic investments are being made in their respective post-secondary education systems.

As has been the case for more than a century, the University of Alberta can and will deliver the talent, ideas, innovations, and highly-skilled graduates the province needs. We have a proven history of being a major contributor and creator of Alberta's competitiveness, productivity, and economic diversity.

Providing excellent, comprehensive, and diverse academic choices across the sciences, humanities, health sciences, fine arts, engineering, and social sciences, the U of A provides the citizens of this province with the world-class university education they need and deserve. In the last decade, with strong provincial investment in capital and operating budgets, our national and international reputation has consistently risen—the U of A is the only university in the province with the depth and breadth of research and teaching capacity, and reputation for excellence, to become a leader in Canada's post-secondary scene and a top 20 public university in the world.

What does this mean for the province?

The University of Alberta:

- Connects Alberta to the world and the world to Alberta, by attracting and retaining world-class talent.
- Elevates the province's national and global profile by building top-level international partnerships and by transferring made-in-Alberta ideas and innovations to the global community and marketplace.
- Draws attention to Alberta's strengths as its alumni have an impact throughout Alberta, across Canada, and around the world through their leadership and accomplishments.

- Creates increased access and targeted programming to serve the needs of all Albertans, including its rural, immigrant, Aboriginal, and Francophone populations.

The following Comprehensive Institutional Plan—which includes the U of A's academic and research plans, performance measures, capital plan, and 2012-2013 institutional budget—outlines the university's short-term and long-term plans, goals, and resource needs and implications.

The province's mandate for the University of Alberta requires, on the one hand, careful stewardship of existing resources in the day-to-day delivery of our core learning and research mission, and on the other, strategic and visionary long-term planning.

Over the last year, the university has been able to maintain undergraduate and graduate programming, boost research capacity by attracting international funding into the province, open new, forward-looking teaching and research facilities, purchase essential equipment, and recruit exceptional talent to our campuses. However, our forward momentum has slowed significantly with no increases to the Campus Alberta Grant for the past two years.

It is our aim to continue to seek opportunities for strategic, visionary growth and to think boldly about what we strive to accomplish and believe is possible in the service of the public good. However, we will not be able to achieve all of our goals without additional government support. The net result of maintaining the operating grant at 2010 levels is a shrinking of the academy, especially in the numbers of faculty and staff members.

To prevent further reductions to the University of Alberta's faculty, staff, and programming, annual increases of a minimum of four percent in operating funding are required over the next three years. Without increased investment, the access that Albertans and their children currently have to world-class educational opportunities at the U of A will be eroded. Increased investment today in the mission of the U of A is vital—indeed essential—to ensuring Alberta's economic, social, and cultural diversity and prosperity tomorrow.

Environmental Scan: Setting the Stage

Alberta is at an exciting turning point in terms of its role on the national stage. According to Statistics Canada, Alberta's economy expanded by 3.8 percent in 2010 and had the highest GDP per capita of any province and state in North America. The province continues to lead the country in per capita investment. In fact, per capita investment was almost double the national average in 2010. Analysts, such as BMO Capital Markets and RBC Financial Group, have forecasted that Saskatchewan and Alberta, powered by their respective natural resource sectors, will be Canada's economic growth leaders in 2012.

Authorities on post-secondary education are noticing a similar trend. Alex Usher, president of Higher Education Strategy Associates, generated headlines last fall across the country when he stated that "[t]he intellectual centre of gravity of Canada is shifting west much faster than people realize." As Usher notes, the U of A has successfully leveraged past support from the provincial government to achieve impressive results on the national stage. When the federal government awarded the first round of the new Canada Excellence Research Chairs, the University of Alberta received four chairs – the most of any institution in Canada. In December 2011, the announcement of new federally funded industrial research chairs saw the University of Alberta receive six additional positions, bringing the university's Faculty of Engineering to 16 chairs, again more than any other institution.

Continued bold, transformative investments are required to sustain the U of A's remarkable momentum within the Canadian context and to capitalize on new opportunities for national leadership in the post-secondary education

and research sector. Within Alberta's efficient six sector model, the U of A and the other comprehensive academic and research institutions (CARIs) are the key to sustaining and improving Alberta's global competitiveness through graduate education and research. Within this Campus Alberta model, the U of A has a special responsibility and ability through international research partnerships to deliver talented human capacity to Alberta's entire innovation environment. In addition, through strategic planning, the U of A leverages government investment to the benefit of Campus Alberta. We play a leadership role in creating and facilitating collaboration with partnering institutions; we work together to create opportunities for students in rural and remote areas; we share resources and best practices to create administrative and system-wide efficiencies, and continue to leverage economies of scale.

With the Knowledge Infrastructure Program completed and the envelope for future Canada Foundation for Innovation competitions limited, ensuring that Alberta's post-secondary institutions have access to funding for world-class research and experimental facilities is of paramount importance, especially since the U of A serves as a resource for the wider Campus Alberta system. A mechanism for the provision of provincial matching funds would also greatly enhance the U of A's ability to compete for and secure grants from the Tri-Council as well as build international partnerships and collaborations.

In today's global context, competing successfully on the international stage is a key part to the U of A's capacity to be a provincial and national leader. Despite the economic downturn since 2008, nations across the world have

recognized the critical importance of investing in education and research in order to secure both short-term economic recovery and long-term economic competitiveness in the knowledge economy of the future. Aside from these critical investments in education and research, nations are also aggressively pursuing international collaborations that allow them to leverage their own strengths in partnerships with centres of excellence elsewhere. This is especially apparent among emerging economic powerhouses, such as China and India. Even smaller nations, such as South Korea and Taiwan, are also investing strategically and reaping great benefits.

As a result, competition within the global context is fierce. Human capital is mobile: people move from one country to another to live and work, transferring knowledge between countries and developing new ideas, innovations, and solutions in the process. Currently, international students and faculty members are studying and teaching in universities throughout Alberta, but we need to recruit and retain more of them. At the U of A in 2008–09, international students accounted for 18.7 percent of all master's degrees and 29.5 percent of all doctoral students. Through their long-standing and powerful global networks these individuals create informal and formal connections that cross borders.

The University of Alberta also continues to work with the province to establish new, and extend current, multi-levelled research partnerships, involving academic, government, and industry partners. The overall aim of these kinds of partnerships is to establish the University of Alberta as a global leader able to facilitate research and teaching with international impact and influence. If Alberta effectively leverages these partnership connections, it will increase competitiveness, secure economic prosperity, and advance Alberta's position in the global economy.

Alberta needs and deserves the benefits that a globally recognized institution brings to its citizens, who move internationally, and its industries, which engage globally. Alberta's ability to capitalize on strategic opportunities, find effective solutions to issues of provincial interest, and provide leadership in areas of international importance is directly linked to this university's ability to attract the world's best, to partner with global innovators, and to compete at the highest levels on the international stage. To ensure that the U of A—and by extension the province—remains a competitive destination of choice for talented people and productive provincial, national and international partnerships, it is vitally important that the province invest strongly in itself through the U of A's future.

Academic Overview: Access and Research

Recognized as one of the top 100 public universities in the world, the U of A attracts highly-qualified undergraduate and graduate students as well as postdoctoral fellows from Alberta, across Canada, and abroad, who are seeking exceptional learning opportunities that integrate research and creative activities, international experiences, and community service. Such opportunities are the hallmark of leading teaching and research-intensive universities like the U of A. Why? Because they are essential ingredients for preparing students to become well-educated, socially-engaged, globally-aware citizens ready to join the workforce of today and tomorrow.

The strength of the U of A is founded first and foremost on the quality and diversity of our people, programming, research, and resources. A robust professoriate generates the rigorous and challenging inquiry-based undergraduate education and learning environment to which we are committed and that only a research-intensive university can produce and nurture. Sustaining our research and teaching capacity is our greatest priority and most urgent need if we are to continue to deliver to our students and the province of Alberta the quality, breadth, and innovative kinds of education and research that they have come to expect.

Over the past decade, the U of A's five campuses have experienced tremendous growth, which has supported and made possible innovative new programs and stronger connections to communities near and far. These five campuses offer students a range of experience, from the intimacy of the rural community-based Augustana Campus and the French-speaking environment of Campus Saint-Jean to the physical recreation and agricultural research environment of South Campus, the urban vibrancy and integration of Enterprise Square, and the large, dynamic, heavily populated, multidisciplinary

learning and research environments of the North Campus. While the number and diversity of U of A campuses allows us to expand programming, research, and internship opportunities in rural Alberta and for underrepresented populations, it also means that each campus requires appropriate and sufficient resources to support distinctive recruitment, programming, research, community, and facility needs.

Renewal is essential to the health and vigour of a comprehensive academic and research-intensive university, and only with continued and increasing provincial support will the U of A remain in a strong position to manage the challenges and pressures that the university will face during the period of our new academic plan, *Dare to Deliver 2011-2015*. These include:

- Changing demographic trends in the student population.
- Resource constraints that adversely affect the size and range of the professoriate as well as student to faculty ratios.
- Emergence of new technology required in teaching, learning, and research.
- Demands for new programs and research that encompass new forms of learning and knowledge and cross conventional disciplinary borders.
- New structures in research funding.
- Competition for the best students and researchers from increasing numbers of post-secondary institutions around the world.

Core Principles

The overarching principle that guides our academic enterprise is balance—balance between the foundational arts and science faculties and the professional faculties, the number of undergraduate and graduate students, domestic and international students, and professors and students. Overall, we strive for a balance between excellent teaching and learning in academic programs and ground-breaking research and creative activity, across seven areas of critical human activity that are studied in interdisciplinary ways: food and bioresources; energy; environment; health and wellness; humanities and fine arts; science and technologies; and society and culture. This balanced academy allows the university to help define the innovation landscape within Alberta, to create global leadership, and to improve social outcomes.

The remaining core principles that guide our academic programming and research planning are:

- Ensuring positive faculty and student experiences, engagement, and retention, as well as student completion rates.
- Sustaining an undergraduate learning environment that capitalizes on faculty research and scholarship activities.
- Assuring access to under-represented groups, particularly Aboriginal and rural students.
- Requiring that all student spaces be fully funded to ensure a high quality teaching and learning environment.
- Strategically acquiring and allocating resources to continually renew programming, research, scholarship,

and creative activities that deliver leading-edge knowledge across disciplines.

- Delivering intellectual quality and capacity to Alberta's knowledge economy and innovation environment.
- Leveraging and extending international consortia to globalize research activities, deliver shared credential graduate programs with top calibre partner institutions, and attract more international undergraduate and graduate students, postdoctoral fellows, and international research investment to Alberta.
- Strategically managing and advancing shared research resources across the university to accelerate and maximize the initiatives and impact of our people and the region.

Finally, to continue to provide this breadth of activity, and to achieve and maintain the quality and success for which we strive, our academic programming and research enterprise must remain deeply and solidly grounded on and matched by essential new or enhanced core physical facilities, sophisticated information technology, and extraordinary knowledge resources. The U of A's outstanding research library of record is one such resource—it is the second largest in Canada and widely considered to rank among the top 15 in North America.

In 2012-13, consistent with U of A's institutional vision articulated in *Dare to Discover* and academic plan articulated in *Dare to Deliver 2011-15*, we will strive to sustain our range of programming and research in a dynamic, relevant, responsive, and innovative fashion, relying on the flexibility that the Campus Alberta grant offers in combination with our entrepreneurial and creative spirit.

Capital Plan

As mentioned above, the U of A has undergone tremendous growth over the last ten years. Total student enrolment has increased 20 percent in fulfillment of access goals of both the province and the university. Graduate student enrolment has grown by 50 percent. During the same period, we have seen a concomitant increase in our research productivity and rise in our international profile and reputation. The university has been able to manage and capitalize on this growth because of significant and continued capital funding and planning that has enabled both the construction of new learning and discovery spaces and the advancement of much needed deferred maintenance. In the competitive world of post-secondary education, it is important for the U of A to provide high quality learning experiences and infrastructure that attract, retain, and engage outstanding faculty and students.

With the recent completion of large-scale, new capital projects, the university now has the opportunity to sustainably maintain, and where appropriate, repurpose aging assets and infrastructure. As areas/buildings are vacated with programs relocating to newly constructed buildings, smart, forward-thinking planning requires that we look beyond simple renewal and explore repurposing opportunities necessary to meet the needs of today's learners and the university's continued growth in research-intensive activities. The ultimate goal: buildings that can be renewed in a cost-effective manner—that work and make sense now and in the future.

For example, with the completion of the Centennial Centre for Interdisciplinary Science in 2011, several units within the Faculty of Science have been relocated, resulting in backfill projects in a number of buildings, such as the Henry Marshall Tory Building, the Biological Sciences Building, Chemistry West and the Civil/Electrical Building. In addition, the recent completion of the Edmonton Clinic Health Academy, as well as the fit-out of the Li Ka Shing Centre for Health Research Innovation and the Katz Group Centre for Pharmacy and Health Research, has set in motion much needed repurposing and renewal within the Dentistry Pharmacy Building, Medical Sciences Building, and Clinical Sciences Building. All of this will benefit several faculties. By coupling renewal and backfill projects, the U of A is able to

provide a sustainable, best-value model in creating projects that look towards our future operational and academic needs at a reduced capital cost.

The following Capital Plan endeavours to take a balanced approach in identifying the need for capital funding in support of identified planning, engineering, and/or construction activities. As we look forward, the following five strategic priority areas guide our capital planning efforts:

- Ensure that we continue to maintain the condition and functionality of the university's physical assets, which play a critical role in our ability to attract, support, and retain the best students, faculty, and staff.
- Couple backfill requirements with renewal projects to provide a sustainable, best-value model of capital projects that meets the pedagogical needs for tomorrow's learners and researchers at a reduced capital cost.
- Increase focus on planning and pre-design services that provide a clear tie between campus development and its delivery to meet both the immediate and long-term strategic vision of the institution. Create an inventory of shovel-ready projects at the time of economic recovery, and aid in the development of project delivery models that provide maximum value for money and the flexibility to respond to various funding opportunities.
- Continue responding to pressures for additional student residences, as well as faculty and staff housing. Research indicates that the quality of these facilities and the academic program contained within correlate with academic performance and the attraction and retention of students, faculty, and staff. In alignment with its academic goals of assuring access to under-represented groups, the university maintains its vision of providing institutional housing for at least 25 percent of students, especially those from rural areas.
- Strategically plan and construct critical new facilities, respecting the varied needs of the university's five campuses as they each serve unique and separate constituencies within Alberta.

Institutional Budget

In the last decade, the province has emerged as an undisputed leader on the national stage—and is poised to become a significant player on the international stage as well. In today's financial climate in which world economies, particularly those within the European Union, are highly volatile, Alberta has come through the economic crisis in relatively good shape.

The U of A has been a critical part of building Alberta's prosperity for more than a century, educating engaged, intelligent, capable, innovative, and productive citizens. The university has also been the source of world-class expertise in agriculture, environmental sciences, energy, medical and biotechnology, nanotechnology, information and communications technology. In addition, the university feeds Alberta's excellent public service, vigorous music, theatre, literature, and visual arts scene, and diverse social make-up.

Alberta can build upon this strength and invest in highly skilled and talented people to position Alberta for economic growth. To sustain a strong and vibrant economy, Alberta's future depends on continued growth in key sectors of energy, agriculture, education, information and communications technology, and health. Albertans must continue to engage and contribute to the future of their province through creativity, innovation, cultural and social initiatives, and further education. Knowledge, creativity, innovation, and entrepreneurialism are the new global currency. Alberta needs highly skilled people, with the capacity to generate social, technical, and scientific innovations. The provincial government must make strategic decisions about its level of investment in the post-secondary sector to meet the future needs of all Albertans.

Consolidated Budget

Prepared under Canadian Generally Accepted Accounting Principles (GAAP), the University of Alberta's 2012-13 consolidated budget reflects the entire enterprise of unrestricted and restricted funds. This includes general operations, research activities, capital projects, and ancillary operations.

For 2012-13, the budget represents a deficiency of revenue over expense of \$15.9 million based on budgeted revenue of \$1,701.5 million and expense of \$1,717.5 million (rounded numbers). Factors contributing to this include: limited increases in provincial funding, only modest recoveries to investment income, costs to support investments in salaries and benefits, increasing costs of utilities (energy prices) and general inflationary cost pressures.

In order to balance the 2012-13 consolidated budget, the university would require an additional 2.5 to three percent decrease in its operating budget over-and-above the current budget reallocation of two percent. The university does not believe that it is prudent to reduce the operating budget at this time in order to offset the capital amortization expense and balance the consolidated budget, particularly in a year when the university's interest income is far below normal levels due to the current economic situation. The university fully acknowledges that deficiencies in the consolidated budget are not sustainable in the long run. A return to normal levels of interest income, annual government grant increases at a level to offset expenditures, and effective planning over the next year will enable the university to bring the consolidated budget back into balance for 2013-14.

Operating Budget

The operating budget covers the day-to-day operations associated with teaching, administrative support, facility operations, and maintenance for classrooms and buildings. The university continues to strive for a balanced approach in maintaining the quality of the teaching environment, maximizing the use of resources, and continually striving for administrative efficiencies. However, the budget re-allocations that have been applied over the last three years have had an impact on the institution and have reduced the university's capacity to fulfill its mission. Faculties and units across the institution are losing capability through the elimination of vacancies, the loss of staff positions, and limited resources to recruit new faculty and staff. In an effort to maintain a reasonable balance between fiscal responsibility and any further loss of capacity across the institution, the university is budgeting for a deficit of \$5.1 million in 2012-13 based on budgeted operating revenue of \$948.9 million and budgeted expenditures of \$954.1 million (rounded numbers).

Key highlights from the 2012-13 revenue budget are:

- A two percent increase to the base Campus Alberta Grant.
- Roll-in of government enrolment adjustment funding from 2011-12.
- Inclusion of federal government funding in the way of a grant from Canadian Heritage.
- Adjustment to reflect gross tuition revenue versus net tuition revenue.
- 1.45 percent increase to credit tuition fees.
- Continued role-in of market modifier tuition.
- Lower investment income due to market conditions.
- Elimination of unrealized investment gains and losses.
- Continuation of the non-permanent Common Student Space, Sustainability and Services (CoSSS) fee.
- A two percent budget reallocation across the university.

Key highlights from the 2012-13 expenditure budget are:

- Growth in salaries and benefits driven by salary settlements and benefit cost increases.
- Relatively stable utility expenditures.
- Modest growth in scholarships.
- All other expenditures stable or marginally reduced.
- A two percent budget re-allocation across the university.

BUDGET IMPLICATIONS

Sustainable funding from the government in support of the university's mandate of teaching and research continues to be the university's major budget risk. The university requires a minimum annual 4 percent increase to the Campus Alberta Grant with a commitment to these increases over a three-year period.

Specific factors adding financial risks to the university include:

- Legislative constraints on annual tuition increases.
- Realignment of provincially funded research and innovation organizations into Alberta Innovates, particularly as it relates to the former Alberta Heritage Foundation for Medical Research.
- Canada-U.S. exchange rates.
- Unprecedented low short- and long-term interest rates.
- Forecasted risk associated with growth in salary expenditures.
- Rapid increase in benefit plan expenditures, particularly pension plan contributions.
- Presence of a structural operating budget deficit based on a current misalignment of growth in revenue versus growth in expenditures.

Resource and Risk Implications

The University of Alberta must not lose the momentum created by previous years of government funding and strategic investments in students, staff, programs, and infrastructure. Guided by the goals and priorities of *Dare to Discover* and cognizant of the national and global context in which we function, the university has identified a series of resource requests consistent with our role as Alberta's flagship university. The following resource needs are not included in the university's budgets and projections. They have been identified here as vital needs in realizing the university's vision and mission.

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- ❖ Annual grant increases of at least four percent to continue to fulfill its academic mandate, meet the needs of Albertans, and prevent the erosion of invaluable progress made over the last several years. To assist in planning, a commitment of at least three years to this level of increase is also required.
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Resource Implications: Access

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- ❖ \$5.7 million base funding, which includes scholarships and support service for students recruited from underrepresented populations, an expansion to the Augustana Campus rural summer internship programming and Aboriginal student recruitment and programming.
 - ❖ \$4.55 million base funding, which includes support for French language programs and student support services at Campus Saint-Jean, international student scholarships, undergraduate internships and study abroad student support.
 - ❖ \$3.1 million base for additional FLEs in PhD program in engineering, health-team pathways academic programming, and new program and operating costs for Collège Saint-Jean.
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Resource Implications: Research, Scholarship, and Creative Activity

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- ❖ \$12 million base investment to sustain core research operations and cyber infrastructure and research computing.
 - ❖ \$20 million over a six-year period to ensure the success of our Canada Excellence Research Chairs program, with the first \$10 million being provided in the first two years to rapidly enhance the Chair program.
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- ❖ Reinstatement of the Access to the Future fund, to increase the institution's success in securing philanthropic funding that supports broad-based excellence and impact.
 - ❖ \$60 million over five years, to sustain Alberta Innovates Centres that continue to meet standards of international excellence and provincial impact.
 - ❖ \$10 million per year to meet the growing matching-dollar requirements associated with Tri-Council, Genome Canada, and other federal programs.
 - ❖ \$25 million in one-time funding to match potential CFI awards in the 2012 Leading Edge Fund and New Initiative Fund competition, starting in 2013-2014.
 - ❖ \$8.7 million in one-time funding to match CFI awards through the Leaders' Opportunity Fund, over the next three years.
 - ❖ \$1.8 million base funding to reach our goal of 40 new postdoctoral fellow positions, offering stipends of \$45,000 each.
 - ❖ \$19,600 in operational funding for each of its 550 postdoctoral fellows, for a total base investment of \$10.8 million.
 - ❖ \$1.8 million in base funding for TEC Edmonton.
 - ❖ \$1 million base funding for the creation of 200 undergraduate internship positions at \$5,000 per intern.
 - ❖ \$55 million over five years to support international consortia activities in the areas of energy and environment, water, infectious diseases, and food.
 - ❖ \$3 million over five years for student mobility and exchange programs associated with current and future international agreements and consortia.
 - ❖ \$8.8 million over four years to top up grants from Brazil's Science Without Borders program to attract 340 postdoctoral fellows and 680 graduate students to Alberta.
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Resource Implications: Capital Plan

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- ❖ \$20 million in support of pre-design and design projects.
 - ❖ \$677.7 million in support of the university's highest preservation priorities.
 - ❖ \$1.266 billion for the highest new and expansion priorities.
 - ❖ \$3-\$4 million annual funding allowance to support planning pre-design services for capital projects, so that the university will have an inventory of projects in a state of readiness and to achieve a higher level of program and cost certainty.
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Risk Implications

Like all world-class research-intensive universities, the University of Alberta must deal with a variety of risks that have the potential to hinder its growth and the realization of its vision, mission, and strategic objectives. Many of these risks have been identified throughout this document.

1. In moving towards our vision of being one of the world's great public universities, our national and international profile will increase. A higher profile will be accompanied by an increased level of scrutiny and we will be held to a higher standard. Any significant long-term negative event can quickly impact the reputation of an institution.
2. The substantive and continuing economic uncertainty, low interest rates, concerns over rising costs of education, government deficits, and a budget model where expenditures are increasing more rapidly than revenue present the university with a series of fundamental budget risks. The realignment of the university's budget model will be critical if the university is to achieve its vision and academic priorities.
3. Enrolment growth must be managed from the perspective of meeting the labour demands of a province on the road to recovery, while achieving the appropriate enrolment ratio targets that position the university as an internationally competitive research-intensive institution.
4. The university must maintain the morale of its staff during uncertain economic times, while investing in key human-resource systems and processes to ensure the effective operation of the university.
5. For the university to remain relevant to its students and meet the needs and expectations of its faculty to engage in the highest calibre research, it requires continuous investment in leading-edge IT infrastructure and support.
6. The continuation of appropriate levels of Infrastructure Maintenance Program funding to avoid a return to increasing levels of deferred maintenance is vital. In addition, limited or no funding of capital for new, expansion, and/or renewal projects will impact the capacity of the university to meet the strategic goals of the institution and negatively impact the economic goals of the province.
7. Uncertainty brings risk associated with retaining and attracting the best and the brightest students, academics, and staff. Clarity in levels of government investment and confirmation of strategic investments greatly reduces the risks associated with uncertainty.
8. An institution that has aspirations of being among the top publicly funded research-intensive universities in the world can only achieve that goal through the establishment of strategic collaborations and partnerships with an extensive range of stakeholders. These relationships must be managed in an integrated and strategic manner.
9. The university requires access to and flexibility in funding that would enable it to leverage tens of millions of research dollars from provincial, national, and international sources. This type of leveraging strategy will advance the university in achieving internationally recognized research excellence while meeting the economic goals of both the provincial and federal governments.
10. While the university must assume risks in support of its mandate as an internationally recognized research-intensive institution, it must also promote appropriate risk management plans and strategies that develop responsive attitudes and behaviours at all levels of the organization in order to maintain a healthy and safe environment for all.

Through its integrated enterprise risk management framework, the university will monitor, manage, and mitigate these and other emerging risks in an effort to avoid substantial impact on the university's ability to fulfill its strategic objectives.

Tracking Our Performance

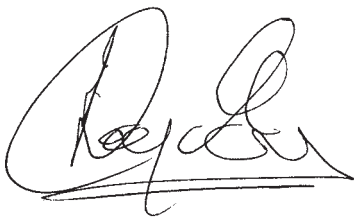
Performance indicators are starting points for monitoring progress toward expected outcomes and goals. These indicators have been chosen and developed on the basis of input from key University of Alberta partners, as well as the planning efforts that have produced the university's vision, *Dare to Discover*, the academic plan, *Dare to Deliver 2011-2015*, and the access and research plans contained within this comprehensive planning document.

The following measures are included at appropriate places throughout the Comprehensive Institutional Plan. See List of Figures on page ii for their location.

- Full-Time Equivalent (FTE) Undergraduate to Graduate Studies Student Ratio, 2009-10 to 2011-12
- Number of postdoctoral fellows
- Proportion of students satisfied or very satisfied with their educational experience
- Enrolment of Selected Student Groups
- Applications and Admissions, Fall 2007 to Fall 2011
- Citations per Full-Time Faculty, University of Alberta and Selected Peers, 2006 to 2010
- Publications per Full-Time Faculty, University of Alberta and Selected Peers, 2006 to 2010
- New Licenses and Options Executed, University of Alberta and Selected Peers, 2005-06 to 2009-10
- Percent of students rating their educational experience as good or excellent
- Graduate Employment Rate Two Years After Graduation
- Completion Rates, University of Alberta
- Average Financial Support per Doctoral Student, University of Alberta and G13 Universities, 2005-06 and 2009-10
- Average Financial Support per Research Masters Student, University of Alberta and G13 Universities, 2005-06 & 2009-10
- G13 Sponsored Research Income by Type, 2008-09 and 2009-10
- Sponsored Research Income per Full-time Teaching Faculty for G13 Universities, 2008-09 and 2009-10 (in \$000s)
- University of Alberta Fundraising Achievement, Latest 10 Years, 2001-02 to 2010-11
- Selected Full-Time Faculty Awards and Honours, University of Alberta and Selected Peers, 1998 to 2010

Accountability Statement

This Comprehensive Institutional Plan was prepared under the Board's direction in accordance with legislation and associated ministerial guidelines, and in consideration of all policy decisions and material, economic, or fiscal implications of which the Board is aware.

A handwritten signature in black ink, appearing to read 'Douglas O. Goss', with a stylized flourish at the end.

Douglas O. Goss, Q.C.

Chair, University of Alberta Board of Governors

Institutional Context

University of Alberta Mandate

As approved by the Minister of Advanced Education and Technology, July, 2009

Created by the *University Act*, 1906 of the Legislative Assembly of the Province of Alberta, the University of Alberta is a board-governed, publicly-funded university that operates as a Comprehensive, Academic and Research Institution under the authority of Alberta's *Post-Secondary Learning Act*. Its fundamental mandate is to offer a broad range of outstanding learning and research programs to prepare citizens and leaders who will make a difference. The university plays a leading role in Campus Alberta through collaboration with other Alberta institutions, responding to vital community relationships at every level and giving a national and international voice to Alberta innovation. Its activities enhance student opportunities and build Alberta's capacity for long-term, knowledge-driven sustainable development at the global forefront.

The university provides instructional excellence through both on-campus and distance delivery in a vibrant and supportive learning and research environment. Its residential, multi-campus setting includes many research and field facilities. The university community discovers, disseminates, and applies new knowledge through the following interrelated core activities.

In a dynamic and integrated learning and research environment, the University of Alberta offers graduate and undergraduate students the opportunity to earn internationally respected credentials, including bachelor's, master's and doctoral degrees, and university certificates and diplomas. It also offers French-language programs leading to university degrees, certificates and diplomas as

well as college certificates and diplomas. A number of its programs are unique within Alberta. Postdoctoral fellows come to the university to refine their teaching, mentoring and research skills.

The University of Alberta is a balanced academy, with strong arts and sciences programs featuring the Faculties of Agricultural Life and Environmental Sciences, Arts, Augustana, Extension, Native Studies, Physical Education and Recreation, Science and Campus Saint-Jean. These faculties are foundational to and interlinked with the university's network of strong professional faculties, including Business, Education, Engineering, Graduate Studies and Research, Law, Medicine and Dentistry, Nursing, Pharmacy and Pharmaceutical Sciences, Public Health, and Rehabilitation Medicine. In addition, all of our faculties are involved in professional development and continuing education.

The university establishes and maintains an environment of inquiry-based learning anchored in strong academic programming and an array of co-curricular student life opportunities. Academic support, social/community enrichment, health and wellness, and career and life development are cornerstones of the University of Alberta student experience. The intellectual and creative diversity of the campus, including its international and multicultural population and exchange programs, makes for an engaging student experience. Fine arts displays, stage performances, museum collections, athletic, and recreational opportunities combine with residence life

to present multi-dimensional possibilities. Experiential learning opportunities based in the community augment on-campus activities with real-life applications.

Transfer and collaborative degree completion agreements with partner institutions broaden student opportunities and provide rural, northern and Aboriginal communities with access to University of Alberta credentials. Similar innovative arrangements centred at the university deliver information and knowledge resources to post-secondary and government communities through both inter-library and online access.

The university's research and creative activities produce a dual impact through the preparation of highly qualified graduates and a continuous flow of innovation. The university attracts scholars of international reputation: undergraduate and graduate students, postdoctoral fellows, staff and faculty. Collectively, they foster, conduct and disseminate research and creative activity, both pure and applied, within and across all the major program areas at an internationally-recognized level of excellence.

University faculties, centres and institutes combine resources and talents for collaborative advantage through research partnerships with other academic institutions, business, governments and public agencies. The university actively transfers new knowledge and creative works to Alberta, Canada and the world for community benefit, including commercial development of intellectual property when appropriate and feasible.

In every aspect of its mandate, the University of Alberta is a partner in social, cultural, and economic development, fostering and establishing the provincial, national and international connections and understandings that support leading global enterprise and citizenship for Albertans. University administrators, faculty, staff and students contribute regularly to public debate and to government and corporate examination of issues. Start-up companies and new technologies licensed to existing companies lead Alberta in new directions and employ graduates. The university continually moves out into its communities through its graduates, its creative and research advances, and its ongoing opportunities for experiential and life-long learning.

University of Alberta Vision, Mission, Cornerstones, and Values

The University of Alberta *vision* is to inspire the human spirit through outstanding achievements in learning, discovery, and citizenship in a creative community, building one of the world's great universities for the public good.

Our *mission* is to create and sustain a vibrant and supportive learning environment that discovers, disseminates, and applies new knowledge through teaching and learning, research, and creative activity, community involvement, and partnerships. The University of Alberta gives a national and international voice to innovation in our province, taking a lead role in placing Canada at the global forefront.

The U of A aspires to become one of the top public universities in the world by 2020 by focusing academic planning and strategic decision-making on *four cornerstones*:

1. Talented People
2. Learning, Discovery, and Citizenship
3. Connecting Communities
4. Transformative Organization and Support

Our *values*: The U of A community of students, faculty, staff, and alumni rely on shared, deeply held values that guide behaviour and actions. These values are drawn from the principles on which the University of Alberta was founded in 1908 and reflect a dynamic, modern institution of higher learning, leading change nationally and internationally.

Excellence: Excellence in teaching that promotes learning; outstanding research and creative activity that fuel discovery and advance knowledge; and enlightened service that builds citizenship.

Student Experience: The centrality of our students and our responsibility to provide an intellectually superior educational environment.

Integrity and Academic Freedom: Integrity, fairness, and principles of ethical conduct built on the foundation of academic freedom, open inquiry, and the pursuit of truth.

Diversity and Creativity: A diverse, yet inclusive, dynamic collegial community that welcomes change and seizes opportunity with passion and creativity.

Pride: Pride in our history and traditions, including contributions from Aboriginal people and other groups, which enrich and distinguish the university.

Comprehensive Institutional Plan Development

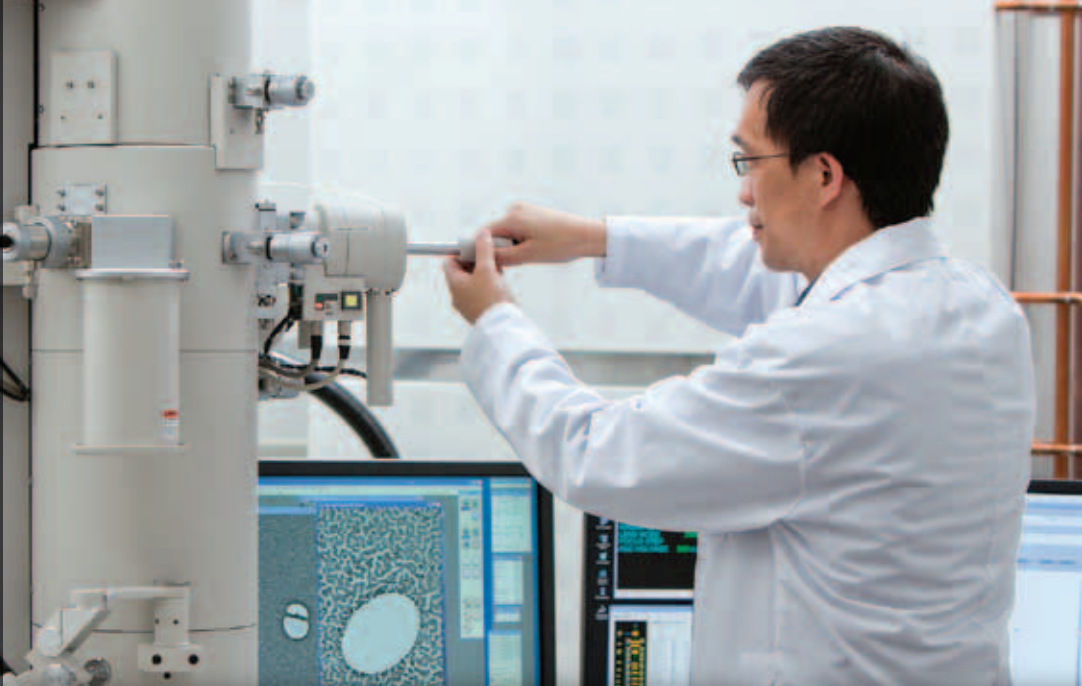
The University of Alberta operates within a four-year integrated planning and budgeting framework. The framework was developed based on the principles of long-term planning, openness and transparency, comprehensive consultation, accountability through performance tracking, and academic priorities (teaching and research) as the drivers of resource allocation decisions.

The university's Board of Governors approves the university's vision document, *Dare to Discover*; the academic community, through General Faculties Council, approves the current academic plan, *Dare to Deliver 2011-2015*. The preparation of the Comprehensive Institutional Plan (CIP) is based on these two guiding documents as well as the guidelines provided by Advanced Education and Technology.

The development of the CIP involved both internal and external consultation for key messages, priorities, and needs. Information from the faculties on the evolution of teaching and research priorities and initiatives, including pan-Albertan and Campus Alberta activities, was solicited in Fall 2011. This information was integrated with other consultations regarding the operating pressures associated with shared research resources and services, and ongoing dialogue on emerging initiatives with local, national, and international external stakeholders. In addition to informal dialogue among units across CARI institutions, there were also structured meetings with the senior executive teams of the University of Calgary and the University of Lethbridge in December 2011 and early January 2012. These meetings identified themes and pressures that are distinct to the CARIs within Campus Alberta as a whole; this document reflects that Campus Alberta consultation.

The U of A's Office of the Vice-President (University Relations) assumed overall responsibility for the process of preparing the CIP and leading it through the review and governance approval process. Once the final CIP was prepared, the entire document was taken through several rounds of briefings and consultations. Based upon the U of A's governance structure, the review process involved the President's Executive Committee, General Faculties Council (Academic Planning Committee), the Board Finance and Property Committee, the Board Learning and Discovery Committee, and the full Board of Governors. Detailed briefings of the CIP were presented to these committees, along with motions recommending approval from the Academic Planning Committee to board committees for Finance and Property and Learning and Discovery. Motions from the board committees were then put to the full Board of Governors recommending approval. The Board of Governors is the university's final approving body of the CIP. With approval by the Board of Governors, the document is now submitted to the Minister of Advanced Education and Technology.

TINY INNOVATION MAJOR DIVERSIFICATION



THE BIGGEST DISCOVERIES OF THE 21ST CENTURY MAY VERY WELL OCCUR AT THE VERY SMALLEST LEVEL—CERTAINLY MANY OF THE INNOVATIONS THAT WILL REVOLUTIONIZE INDUSTRIES RANGING FROM PHARMACEUTICALS TO ELECTRONICS WILL EMERGE FROM NANOTECHNOLOGY RESEARCH.

That's why in 2001 the National Research Council of Canada, the Government of Alberta, and the University of Alberta combined forces to establish the National Institute for Nanotechnology at the University of Alberta—one of only six major nanotechnology research centres in the world.

Today, as Canada's flagship nanotechnology institute, NINT is a \$63 million, 20,000 square-meter facility in which research and innovation thrive. Alberta's researchers are now among the leaders in the world, developing new ways to engineer structures at the molecular scale and making advancements that will transform society in medicine, energy, manufacturing, information processing, and the environment.

Researchers come from fields as diverse as physics, engineering, chemistry, biology, informatics, pharmacy, business, law, and medicine. Partnerships between NINT and corporations such as Hitachi High Technologies, L'Oreal, and Xerox bring industry researchers into the mix as well. They all join forces in a fertile, interdisciplinary environment.

The realization of NINT's short- and long-term goals will be a critical part of the diversification of Alberta's economy. Innovative new applications and commercial opportunities will expand Alberta's \$300 million nanotechnology sector, establishing the province as an internationally recognized centre of nanotechnology research and industrial activity.

OUTCOMES AND BENEFITS:

- **Exceptional talent:** Over 400 principal investigators, postdoctoral fellows, and graduate students are now supported.
- **Cutting-edge facilities:** a class 1000 cleanroom for the production of nanostructured systems; one of Canada's quietest laboratory spaces, ideal for highly sensitive nanoscale experiments; three state-of-the-art electron microscopes; the first Hitachi environmental transmission electron microscope (Model H-9500) in operation outside of Japan; and a nanofabrication facility housing almost 100 pieces of essential equipment worth more than \$60 million.
- **Innovative research projects:** effective and affordable solar cells; anti-wetting coatings to help water wick off spacecraft windows when they re-enter the atmosphere; minute diagnostic devices that will give clinicians the ability to diagnose cancer more quickly and effectively; nanoelectromechanical systems, oil sands upgrading tools, and advanced chemical analysis technologies.
- **The world's first therapeutic application of nanotechnology on the market:** U of A biomedical engineering professor Robert Burrell's invention of Acticoat, a nanocrystalline silver-coated wound dressing that has revolutionized wound care. Acticoat dressings and related products are manufactured by Nucryst Pharmaceuticals Corp. in Fort Saskatchewan and are marketed internationally by UK-based Smith and Nephew Plc. Nucryst, a spinoff of the Westaim Corp., supports the local economy with over 100 high-tech manufacturing jobs.
- **Training for the next-generation workforce:** in 2008, access for 600 undergraduate students was made available by \$30 million in funding from the Alberta government for the development of nanotechnology programming for bachelor of science students at the University of Alberta and the University of Calgary.

ENVIRONMENTAL SCAN

Alberta's future success depends on the province's ability to embrace the next generation economy, the backbone of which is people, ideas, and innovation. When talent, entrepreneurship, and capital converge with discoveries, technology, and positive social outcomes, Alberta's economy will be diversified, innovations and new enterprises will blossom, productivity will increase, and the province's competitive position will be optimized both at home in Canada and on the world stage. The convergence of these essential elements will also serve to enhance quality of life and strengthen the fabric of Alberta's civil society.

The Alberta Environment

Talent, knowledge, innovation, and entrepreneurship are now the global currency. Alberta's ability to compete globally against both traditional economic competitors and emerging economies hinges on our ability to develop, attract, and retain world-class talent. Premier Alison Redford stated in her recent State of the Province Address: "Keeping Alberta strong involves investing in our engine of innovation – people. World-class output requires world-class input. "The Premier stressed the importance of attracting the best and the brightest to Alberta, through the province's post-secondary institutions, noting that "our government is committed to strengthening our universities and post-secondary institutes – through the creation of

new programs that will attract the world's best scholars, researchers, teachers and innovators to this province." As Premier Redford asserts, the province needs to develop a reputation as a region where learning, discovery, creativity, and entrepreneurship are strongly supported. Recruiting and retaining talent is critical to this goal.

Seventy-seven percent of all University of Alberta alumni stay, find employment, create businesses, and enrich the social and cultural fabric of Alberta. The rippling economic impacts of the U of A itself are immeasurable. On average, each continuing faculty member teaches 125 undergraduate and graduate students, supervises four graduate students,

and brings in an average \$250,000 in research funding per year. The University of Alberta not only graduates more than 9,300 students per year but also contributes to high demand areas such as engineering and health services.

Having earned either an undergraduate or graduate degree, a U of A graduate's impact on his or her community accumulates for decades. Each graduate brings advanced expertise and leadership on various aspects of the economy and society, along with improved social outcomes, new enterprises, innovations in existing enterprises and public policy, as well as expanded international engagement and investment. The result for Alberta is an enriched standard of living and quality of life for all residents.

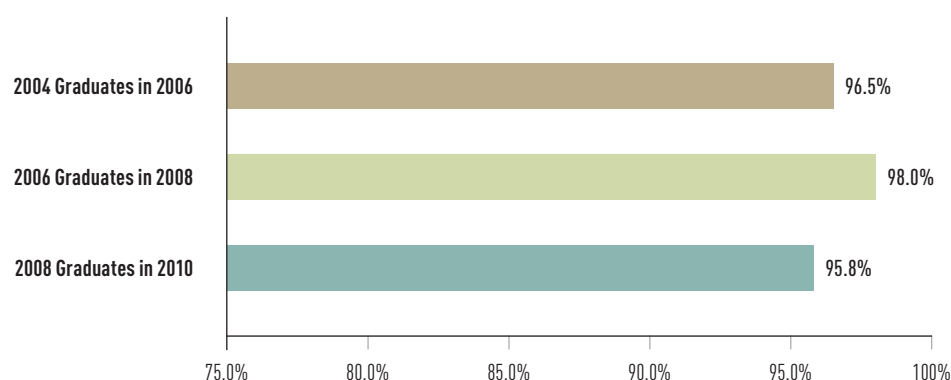
Clearly, the long-term benefits of investments in post-secondary education are indisputable. Premier Redford noted that "we have great foundations that our government will build on. There is no better investment of public funds than in learning." However, in order to remain competitive and not lose ground, Alberta must address head-on risks to competitiveness and productivity. Four of the largest challenges are linked directly to human capital:

1. Low levels of participation in post-secondary education among 18–24-year-olds.
2. Low completion rate of bachelor degrees.
3. An aging population leading to a decline of skilled labour in the workforce.
4. Low numbers of international students being attracted to Alberta.

U of A's contribution to Alberta's workforce (selected fields)	2011 Total
Physicians	143
Engineers	836
Industrial designers	43
Lawyers	163
Librarians	30
MBA's	149
Nurses	496
Pharmacists	125
Physical and Occupational Therapists	190
Speech pathologists	52
Teachers	1227

According to OECD data, Alberta's 15-year-olds consistently score among the best in the world in math, science, and reading, yet Alberta has one of the highest high school drop-out rates and one of the lowest post-secondary participation rates in Canada. In 2010, the *Campus Alberta Planning Resource, 2011* stated that post-secondary participation rates for Albertans aged 18–34 – the prime post-secondary cohort – was only one percent higher than 2009 levels and that it remained in the 16 to 19 percent range, the lowest in Canada. Alberta's participation rate was 17.7 percent in 2010 while Quebec, Ontario, and British Columbia led the country with participation rates of 25.9, 24.8 and 23.8, respectively. In the report *A Primer for Discussion*, prepared by PricewaterhouseCoopers for the Alberta Competitiveness Initiative, Alberta ranked 12th when compared to

FIGURE 1 GRADUATE EMPLOYMENT RATE TWO YEARS AFTER GRADUATION



Source: Alberta Advanced Education and Technology: Alberta Graduate Outcomes Survey

15 domestic and international jurisdictions in terms of bachelor degree completion among 25-64-year-olds.

Even more alarming are the low numbers of master's and PhD students enrolled in Alberta. In graduate student enrolment per thousand of population, Alberta's enrolment stands at 2.5, compared to the Canadian average of 3.2 and the U.S. average of 7.3.

With the changing demographics of Alberta's population and workforce, the attraction of international students is also essential to the continued development of much needed human capital for research, innovation, and highly-skilled labour in a knowledge-based economy. According to the *Campus Alberta Planning Resource, 2011*, Alberta attracted 6.5 percent of all international students to Canada in 2009; this is the fourth highest in Canada, below Ontario, British Columbia and Quebec. At the University of Alberta, in particular, there are strategies in place to increase international student enrolment to 15 percent of the student population for undergraduates, and 30 percent of the student population for graduate students, a ratio that would position the university as one of the top two universities in Canada.

In order to address the challenges related to human capital and the fundamental role it plays in the creation of the

"next generation economy," the Government of Alberta has developed a Campus Alberta and Alberta Innovates framework. Campus Alberta, specifically through the Roles and Mandates framework, recognizes the distinct roles that post-secondary institutions have, and further facilitates the advancement of each component and the relationship between the institutions. The Alberta Innovates framework is the province's recent reformulation of its research and innovation system. It is important that the frameworks reflect current global realities.

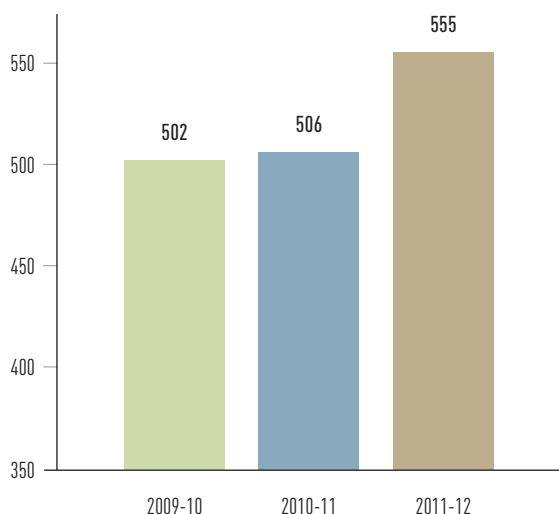
Implications for the University of Alberta

The University of Alberta is strategically positioned to be a key partner with the province in achieving its goal of developing the "next generation economy." Premier Redford noted in her State of the Province Address that "without a skilled and highly educated workforce, we will not attract the cutting-edge companies to carry out research and development, much less the finest minds to lead it." The University of Alberta is a key contributor to the attraction and development of this type of talent. Previous investments made in capital infrastructure, student space and research have made Alberta a destination of choice for faculty, researchers, and graduate students.

However, with the current fiscal environment and the lack of predictable long-term funding increases for post-secondary education, the progress made by post-secondary institutions in the province may be lost. The Government of Alberta made major investments, beginning in 2005, which established a strong foundation and created a period of growth and an ability to attract world-class talent to the province. Without an ongoing commitment to post-secondary funding Alberta will lose its competitive advantage.

Additionally, the Government of Alberta and the post-secondary sector must focus on growing the number of graduate students through both fostering domestic and attracting international applicants. Graduate education drives research breakthroughs, creates innovation, attracts capital and partnerships, and builds vibrant research clusters. The challenge to growing graduate enrolment is threefold: 1) to increase the number of graduate students to globally competitive levels, 2) to ensure that additional professors

FIGURE 2 POSTDOCTORAL FELLOWS



Note: Numbers reflect headcounts of postdoctoral fellows as of October 1 of the reported year. The % of PDFs to total continuing faculty (operating and trust), based on headcount 2010-11: 23.8%, 2011-12: 26.2%. **Source:** U of A staff data, databook table 4.1.

are hired to supervise, train, and engage these young global leaders, and 3) to renew and repurpose undergraduate space to space appropriate for graduate student use. World-class research universities, on average, have a professor-student ratio of one professor to four graduate students.

Within Alberta's efficient six sector model, the U of A and the other comprehensive academic and research institutions (CARIs) are the key to sustaining and improving Alberta's global competitiveness through graduate education and research. Institutions in the other five sectors also fill important provincial post-secondary aims for providing broad access and diverse educational options to students of varying needs, backgrounds, locations, and skills. The differentiation of roles within Campus Alberta's six-sector model is also critical to feeding the diverse economic and social needs throughout all sectors of Alberta society.

Since its inception, the U of A has been a defining and leading partner within this system. We are in the unique position among Alberta's CARIs of offering liberal arts education at two smaller campuses—Augustana Campus and Campus Saint-Jean—in addition to the research-intensive experiences on the North and South Campuses. Our ability to offer different and specialized undergraduate learning experiences stems from our historical mandate to serve not only the needs of the capital region but of the whole province.

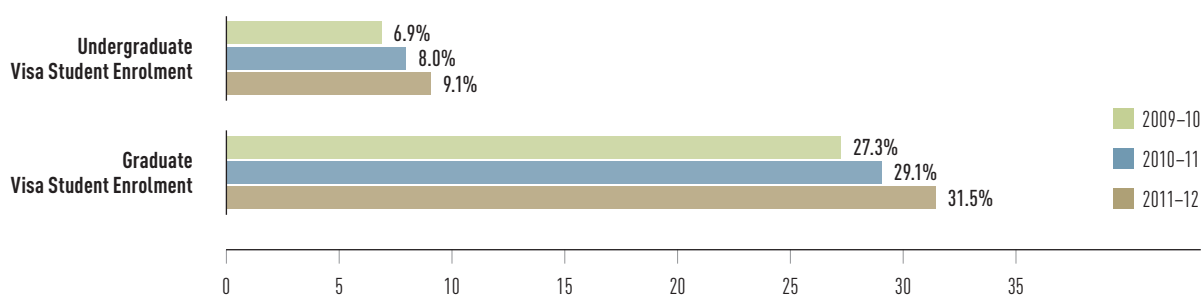
Through several initiatives, the U of A has leveraged government investment in our institution to the benefit

of others within the Campus Alberta system. We play a leading role in creating and facilitating collaboration with partnering institutions; we work together to create opportunities for students in rural and remote areas; we share resources and best practices to create administrative and system-wide efficiencies; and continue to leverage economies of scale. Indeed, investment in the University of Alberta is an investment in Campus Alberta as a whole.

As Alberta's largest and most comprehensive academic research institution, the U of A is also a key contributor in the continued development of the Alberta Innovates structure and an important resource in developing partnerships with countries, institutions and people around the globe. Despite the current global economic challenges, investment in post-secondary education is essential to the development of new revenue streams, new services and new industries for the province.

The Government of Alberta has made substantial investments at the University of Alberta including the Centennial Centre for Interdisciplinary Science, the Li Ka Shing Institute of Virology and the Edmonton Clinic Health Academy, among others. These facilities have contributed greatly to the attraction and retention of top talent and in the future will be facilities in which local talent will be trained and exposed to unique research opportunities. However, for the University of Alberta and Campus Alberta to remain competitive and be a destination of choice for talent and productive partnerships, ongoing, stable funding for the post-secondary sector and continued investment in research and infrastructure must continue.

FIGURE 3 INTERNATIONAL STUDENT ENROLMENT



Notes: Rural and Aboriginal figures are proportions of total Alberta undergraduate enrolment. Rural means home addresses outside greater Edmonton and Calgary census divisions. Visa students include those with statuses of study permit, work permit, diplomatic status, refugee, temporary resident visa and visiting speaker.
Sources: U of A Student Enrolment data, Dec 1 headcount. Summary of Statistics, tables 7.4 and 7.8.

The Canadian Environment

Over the last two decades, successive federal governments have invested in a variety of programs and initiatives in support of advanced research and innovation. Investments in the granting councils, Canada Research Chairs, Canada Foundation for Innovation, Knowledge Infrastructure Program, Canada Excellence Research Chairs, Vanier Scholarships, and Banting Postdoctoral Fellowships have built a solid foundation for Canadian research. The 2011 federal budget provided increased funding to existing research programs, including the Tri-Council agencies and new Canada Excellence Research Chairs, while also announcing new initiatives, such as an international education strategy and a Canada-India Research Centre of Excellence. These investments support the federal government's objective of continuing to lead the G7 in research and innovation funding.

The uncertainty affecting the global economic environment has heightened the federal government's interest in policy areas—such as productivity, competitiveness, and innovation—where the connection to post-secondary education and research is strong. During a ceremony for Vanier Scholarship winners, Prime Minister Harper clearly articulated the benefits of post-secondary education and research for the national economy and communities across Canada and beyond: “Research leads to discoveries and inventions. That leads to patents that build Canadian businesses and create Canadian jobs, and that makes for greater prosperity for Canadian families and workers. Not just for a stronger Canada, by the way, but ultimately a better world.”

Two significant features of the Canadian environment with regards to post-secondary education are the federal government's pledge to gradually reduce its budget deficits and its commitment to spur business research and development. The 2011 federal budget outlined a process for balancing the budget by finding a total of \$11 billion in savings from direct program spending. To locate these savings, a subcommittee chaired by Treasury Board President Tony Clement has asked all departments to examine five percent or ten percent spending reductions, with the results announced in Budget 2012. In the fall

economic update, Minister of Finance Jim Flaherty extended the government's deficit reduction timeline by one year to 2015-16.

The encouragement of business investment in research and development is also a federal government a priority. “Canada still lags other nations in overall business expenditures on R&D. R&D spending by business in Canada has actually been decreasing in real terms since 2006,” stated Minister Flaherty in a speech at a national symposium on innovation at the Perimeter Institute in Waterloo in 2011. In October 2010, an expert panel was tasked with evaluating federal research and development programs with a business innovation focus. The review, completed 12 months later, recommended substantial changes to the federal business R&D landscape, including new agencies and coordinating mechanisms and a shift in emphasis away from tax incentives towards direct program funding. The panel's report, entitled *Innovation Canada: A Call to Action*, also urged greater attention to gaps in Canada's innovation ecosystem, such as large-scale public procurement measures, collaborations between business, academia, and government, as well as Canada's supply of venture capital. Perhaps most relevant to the Government of Alberta, the final report concluded by noting the importance of a national dialogue with the provinces on innovation issues.

Also significant will be an ongoing commitment to Canada Foundation for Innovation funding. Top talent, researchers, and graduate students go wherever they see the greatest opportunities for making the biggest impact. These people are acutely aware of the quality of a university's resources, including the quality of facilities, laboratories and equipment. It is commonly accepted that most scientific infrastructure becomes obsolete in five to seven years. The Canada Foundation for Innovation helps keep Canada's scientific and innovation infrastructure on par with the rest of the world. CFI is also a highly effective mechanism for forging meaningful industry-university partnerships. CFI facilities are one of Canada's key knowledge exchange venues for linking discovery research with sector challenges.

Implications for the University of Alberta

Economic, social and demographic forces are shifting Canada's centre of gravity westward. Analysts, such as BMO Capital Markets and RBC Financial Group, have forecasted that Saskatchewan and Alberta, powered by their respective natural resource sectors, will be Canada's economic growth leaders in 2012. In November 2011, employment in Alberta grew by 4.8 percent on a year-over-year basis, the fastest rate of growth of all provinces; Edmonton led the nation in job growth in 2011, according to the city's chief economist. Immigration patterns are showing increasing favouritism for western provinces such as Alberta, Saskatchewan, and Manitoba at the expense of Ontario. In 2010, only 42 percent of new arrivals settled in Ontario, compared to 60 percent ten years ago.

Authorities on post-secondary education are noticing a similar trend. Alex Usher, president of Higher Education Strategy Associates, recently generated headlines across the country when he stated that "the intellectual centre of gravity of Canada is shifting west much faster than people realize." Concerns over large undergraduate class sizes, dependable government funding, and climbing tuition at Ontario post-secondary institutions are frequent topics of debate in the mainstream media and were widespread concerns on the provincial campaign trail in the 2011 Ontario provincial election.

Bold, transformative investments will ensure that institutions such as the University of Alberta sustain the tremendous momentum of the previous five years and capitalize on new opportunities for national leadership in the post-secondary education and research sector. The University of Alberta has successfully leveraged past support from the provincial government to achieve impressive results on the national stage.

As Usher noted, when the federal government awarded the first round of the new Canada Excellence Research Chairs, the University of Alberta received four chairs – again the most of any institution in Canada. In December 2011, the announcement of new federally funded industrial research chairs saw the University of Alberta receive six additional positions, bringing the university's Faculty of Engineering to 16 chairs, a figure that on its own is more than any other entire university.

With the Knowledge Infrastructure Program completed and the envelope for future Canada Foundation for Innovation competitions limited, ensuring that Alberta's post-secondary institutions have access to funding for world-class research and experimental facilities is of paramount importance, especially since the University of Alberta serves as a resource for the wider Campus Alberta system. A mechanism for the provision of provincial matching funds would also greatly enhance the University of Alberta's ability to compete for and secure grants from the Tri-Council as well as from international partnerships and collaborations.

The implications of the Strategic and Operating Review and the review of federal support to business R&D will be seen over the course of 2012. There is potential that the government's deficit reduction program could include adjustments to agency budgets in areas of interest to the University of Alberta. The institution must also be prepared for possible changes to federal R&D programming, in the event that the government decides to accept some or all of the recommendations of the expert panel's report on business R&D.

The Global Environment

Within the context of an increasingly globalized world, nations are aligning their resources to better compete within the global marketplace. Despite the economic downturn of 2008, and continued economic turbulence worldwide, countries have put investment in education, research and development, and innovation at the heart of their political agendas. This is truly remarkable given the current state of many economies worldwide. In the post-economic downturn reality, nations have recognized the critical importance of investing now in order to secure both short-term economic recovery and long-term economic competitiveness in the knowledge economy of the future. Aside from these critical investments in education and research and development, nations are also aggressively pursuing international collaborations that allow them to leverage their own strengths in partnerships with centres of excellence elsewhere. These investments and linkages will increase by necessity as competition in the global arena comes from both traditional and new, emerging economic powerhouses.

China is one such powerhouse. With 27 million students, China has surpassed the United States to become the largest post-secondary system in the world. Funding for higher education has been increased to 3.5 percent of GDP with plans to increase it to an internationally competitive level of four percent of GDP. Meanwhile, an estimated \$20 billion in purchasing power parity has been spent on building an elite sector in China's PSE sector. The result is that, in the last 16 years, China has quadrupled the number of its tertiary graduates to three million a year while also seeing an 80-fold increase in the number of doctoral degrees in engineering and natural science for this same period. This remarkable change has enabled China to accelerate its economic growth to an unprecedented level and it is likely to continue. China is graduating immense numbers of highly-skilled students in areas that are critical to innovation: science, technology, engineering and mathematics.

As part of the drive to create new growth and jobs and to secure global competitiveness, in November 2011, the EU introduced a new program for research and innovation,

Horizon 2020, which aims to "secure Europe's science and technology base and industrial competitiveness to create new jobs and growth." The program has an overall budget of €80 billion, up from €50.5 billion for its predecessor—the Seventh Framework Programme for Research (2007-2013). *Horizon 2020* will run from 2014-2020 and will combine all research and innovation funding currently provided through the Framework Programmes for Research and Technical Development, the innovation related activities of the Competitiveness and Innovation Framework Programme and the European Institute of Innovation and Technology. *Horizon 2020* is a market-driven approach that aims to create a genuine single market for knowledge, research and innovation, and will create partnerships between the private sector and member states. *Horizon 2020* will be complemented by additional measures to complete and further develop the European Research Area by 2014. These investments come as EU member states face continued economic upheaval. However, the European Commissioner responsible for research innovation and science, Máire Geoghegan-Quinn, has stated that to not invest into innovation fronts now would be "unthinkable."

On January 25, 2011, in his State of the Union address, President Barack Obama stated that by 2020, the United States will produce eight million more post-secondary graduates and have the highest proportion of post-secondary graduates in the world. In July of 2011, President Obama reiterated this commitment, saying "A world-class education is the single most important factor in determining not just whether our kids can compete for the best jobs but whether America can out-compete countries around the world." The U.S. remains the most recognized and respected higher education system in the world, but even the U.S. cannot afford to rest on its laurels. The OECD notes that traditionally high performing economies are increasingly being caught up to by the educational systems of emerging economies. In particular, Japan and the United States, which collectively have 47 percent of all tertiary educated adults, are seeing their advantage being surpassed by both increased attainment and the gross number of tertiary graduates elsewhere.

In Germany, the national research budget is approximately €55.7 billion, two-thirds of which is provided by industry, one third by government, and four percent by foreign investment. The German federal government has adopted a strategy for the internationalization of science and research that includes initiatives for training young researchers, supporting the mobility of researchers, and enhancing the possibilities for international research collaborations. With its reputation for elite higher education and research, it is noteworthy that Germany receives the third-largest number of international students. Moreover, Germany currently attracts €11 billion annually in foreign investment. Germany has committed to building on these strengths with continued investments into education and research.

India is also aggressively pursuing education and R&D as priority areas. The Indian government has committed to ensuring a tertiary education for 30 percent of its youth by 2025 – up from its current rate of 12 percent. To meet this ambitious goal, India has sought out partnerships with world leaders in education to increase both the quality and accessibility of its education system. It also increased the budget for higher education for 2010-2015 to nine times the amount of the previous five years. In 2006 and 2007, the Indian government created ten premier science and research institutes dedicated to research and teaching in the basic sciences with an aim to become science universities of the highest calibre devoted to both teaching and research. In addition, India entered into an agreement with the United Kingdom to establish 14 world-class, research-intensive “innovation universities” in partnership with elite universities such as Oxford and Cambridge. At present, India invests approximately \$21 billion into research and development and has committed to increasing the budgets for both higher education and R&D. India is already among the top ten research countries in the world.

Smaller nations, such as South Korea and Taiwan, are also investing strategically and reaping great benefits. In 1999, the South Korean government introduced *Brain Korea 21*, a project intended to build a sustainable economy by making significant investments in educating an internationally competitive workforce. The second phase of the project, started in 2010, targets the support of 20,000 graduate

students annually and the establishment of ten globally competitive research-intensive universities.

Despite the economic downturn, the *Brain Korea 21* project continues to receive significant government funding. In addition, two other major programs at the centre of Korea’s educational and economic development efforts have been initiated: the World Class University project and the New University for Regional Innovation project – both of which receive substantial government support.

In 2005, Taiwan first announced an investment of \$1.6 billion to lay the foundation for the creation of elite universities and the national government is continuing efforts to invest in the expansion of higher education as a key component of its economic competitiveness. The ascension of Taiwan in higher education and research is noteworthy for its successes; education reforms have long been considered as one of the critical keys to Taiwan’s modernization. According to the World Economic Forum’s 2011 *World Competitiveness Report*, Taiwan now ranks sixth in the world for its ability to compete because of gains made in R&D infrastructure and talent.

Implications for the University of Alberta

Competition within this global context is fierce. Currently, international students and faculty members are studying and teaching in universities throughout Alberta, but as mentioned above, we need to recruit and retain more of them. At the U of A in 2011–12, international students accounted for 25 percent of all master’s degrees and 40 percent of all doctoral students. Sixty percent of Alberta’s international students have stated that they will look for work in the province after completing their studies. The strong pattern of students participating in graduate studies and the retention rate of these students will help stimulate the creation of a knowledge-driven economy in Alberta.

Through their longstanding and powerful global networks, these individuals create informal and formal connections that cross borders. Human capital is mobile: people move from one country to another to live and work, transferring

knowledge between countries and developing new ideas, innovations, and solutions in the process. If Alberta effectively leverages these people connections to create knowledge transfer, it will increase competitiveness, secure economic prosperity, and advance Alberta's position in the global economy.

In order to compete, the province of Alberta should do more to leverage the international connections available through its universities, especially those of the comprehensive research institutions. The University of Alberta will continue to work with the province to establish multi-levelled research partnerships involving academic, government, and industry partners.

Due to significant investments from government in recent years, the University of Alberta has made critical gains in the internationalization of our research and teaching activities. For example:

- The University of Alberta has partnered with Germany's largest scientific organization, the Helmholtz Association of German Research Centres, to form the Helmholtz Alberta Initiative. The Government of Alberta committed \$25 million to the project, while the Helmholtz Association committed €25 million over a five-year timeframe.
- The Li Ka Shing (Canada) Foundation gave the University of Alberta \$28 million, the largest cash donation in the university's history. Along with funding of \$52.5 million from the Government of Alberta, this established the Li Ka Shing Institute of Virology.
- Through targeted efforts, the University of Alberta has signed agreements with the Indian Institute of Technology, Bombay, the Indian Institute of Science, Bangalore, as well as with industry leaders Tata Consultancy Services.

The overall aim of these kinds of partnerships is to establish the University of Alberta as a leading global institution in order to facilitate research and teaching with international impact and influence. Alberta needs and deserves the benefits that a globally recognized institution

brings to its citizenry, who move internationally, and its industries, which engage globally. Alberta's ability to capitalize on strategic opportunities, find effective solutions to issues of provincial interest, and provide leadership in areas of international importance is directly linked to this university's ability to attract the world's best, to partner with global innovators, and to compete at the highest levels on the international stage.

A global university is not just a competitor on the international stage; more importantly, it is a contributor to and leader in the global community. International organizations such as the World Economic Forum and the United Nations continue to remind us that many of the most critical risks and challenges we face—such as climate change, resource scarcity, food security, disease, and armed conflict—cannot be defined by national borders or solved by one country alone. These require collective, international efforts across economic, political, academic, and business sectors to find solutions.

Alberta and the University of Alberta are in a position to lead—especially in strategic areas such as energy, water, food security, and health. Now is the time to invest in the talent, knowledge, innovation, and partnerships that will make Alberta a global leader.

CAMPUS SAINT-JEAN EXPANDING CRITICAL PROGRAMMING TO FRANCO-ALBERTANS



AT THE CORE OF THE UNIVERSITY OF ALBERTA'S MISSION STANDS OUR PROMISE TO UPLIFT THE WHOLE PEOPLE, THROUGH THE PROVISION OF EDUCATIONAL OPPORTUNITIES, LIFE-ALTERING RESEARCH, SOCIAL ANALYSIS, AND CULTURAL RICHES THAT FEED THE DIVERSE NEEDS OF INDIVIDUALS AND SOCIETY.

No better example of this exists than the U of A's Campus Saint-Jean (CSJ), an institution that has played a crucial role in the preservation and promotion of Franco-Albertan culture and community for more than a century. Today, that community includes 70,000 francophone and 225,000 bilingual Albertans.

Home to nearly 700 students, CSJ offers French language or bilingual university education across a breadth of 15 degree programs, including arts, environmental sciences, engineering, education, commerce, and nursing. CSJ produces the vast majority of teachers for Alberta's immersion and francophone school systems that currently enroll about 40,000 students, and is one of the province's strongest links to the global Francophonie world, which numbers about 250 million worldwide and eight million in Canada.

Recognizing a long-standing need within the Franco-Albertan community for college level education, in 2008 the U of A Board of Governors approved the establishment of Collège Saint-Jean

(soon to be renamed le Centre collégial de l'Alberta.) The college will offer two-year diplomas and one-year certificate programs, non-credit language courses, continuing education programs, and workshops in conjunction with several Campus Alberta partners. With federal grants and provincial base budget currently in place, the first program—a bilingual diploma in business administration—will begin in Fall 2012 in association with NAIT.

With dedicated long-term provincial funding, the new college will have the capacity to respond nimbly to evolving labour markets and provide French language learners with highly employable skills training in areas such as practical nursing, early childhood education, and eco-tourism. With CSJ's strong reputation, facilities, and administration underpinning its operations, the college is poised to add a much-needed new dimension to francophone education in Alberta, furthering CSJ's long history of providing excellent service to one of this province's core cultural communities.

OPPORTUNITIES AND CHALLENGES:

- To meet current and expanding teaching, research, and programming needs in the sciences, a new science building for CSJ is a priority capital need.
- Contingent on funding, future college programming is planned in the following areas: Licensed Practical Nurse (with Bow Valley College); Personal Care Aid and Early Childhood Education Assistant (with Educacentre in British Columbia); tourism and Ecotourism (in association with Cégep de Matane, Québec); and Preparatory Program for Post-Secondary Studies.
- MOUs with Campus Alberta partners include Bow Valley College and Northern Lakes College. In future, all Alberta colleges will be able to work with the Collège to offer individual courses or clusters that can be integrated into existing programs or to jointly deliver full programs.
- Catering to francophone and French immersion communities, CSJ and the new college bear certain unique costs as all recruitment, administration, admissions, learning support, etc. require dedicated French-language materials (both print and electronic).
- Any new programs introduced at the college beyond the diploma in business administration will require additional new resources. Base funding to cover ongoing annual operating costs for staff salaries, space, and development of partnerships with other institutions is not yet in place.

ACADEMIC OVERVIEW

The modern state university has sprung from a demand on the part of the people themselves for intellectual recognition, a recognition which only a century ago was denied them. The result is that such institutions must be conducted in such a way as to relate them closely as possible to the life of the people. The people demand that knowledge shall not alone be the concern of scholars. The uplifting of the whole people shall be its final goal.

— HENRY MARSHALL TORY, 1908

The University of Alberta is recognized not only as one of Canada's leading comprehensive academic and research institutions but also as one of the top 100 public universities in the world. Our reputation attracts highly-qualified undergraduate and graduate students as well as postdoctoral fellows from Alberta, across Canada, and abroad who are seeking exceptional learning opportunities that integrate research and creative activities, international experiences, and community service. Such opportunities are the hallmark of leading teaching and research-intensive universities like the U of A because they are essential for preparing students to become well-educated, socially-engaged, globally-aware citizens prepared to join the workforce of today and tomorrow.

The strength of the U of A is founded first and foremost on the quality and diversity of our people, programming, research, and resources. A robust professoriate is the essential foundation for the rigorous and challenging inquiry-based undergraduate education and learning environment to which we are committed and that only a research-intensive university can produce and nurture. Sustaining our research and teaching capacity is our greatest priority and most urgent need if we are to continue to deliver to our students and the province of Alberta the quality, breadth, and innovative kinds of

education and research that are needed to achieve and maintain social well-being and economic prosperity.

Over the past decade, the U of A's five campuses have experienced tremendous growth, which has supported and made possible innovative new programs and stronger connections to communities near and far. These five campuses offer students a range of experience, from the intimacy of the rural Augustana Campus in Camrose and the French-speaking environment of Campus Saint-Jean to the physical recreation and agricultural research environment of South Campus, the urban vibrancy and integration of Enterprise Square, and the large, dynamic, heavily populated, multidisciplinary learning and research environments of the North Campus. Undergraduate and graduate enrolments have expanded due to provincial investment, and new and repurposed state-of-the-art space for modern forms of education and research has been added. At the same time, the professoriate has been renewed and reinvigorated and has begun to expand through hiring of internationally-competitive scholars.

Over the past two years, however, the freezing of the Campus Alberta Grant has impeded our ability to capitalize on the advances we have made. With two years of no budget increases, we have reached a tipping point where we are seeing erosion of the critical mass of

professors and students that had been built during years of sustained investment. Furthermore, while the number and diversity of U of A campuses allows us to expand programming, research and internship opportunities in rural Alberta and for underrepresented populations, it also means that each campus requires appropriate and sufficient resources to support their distinctive recruitment, programming, research, community, and facility needs.

Renewal is essential to the health and vigour of a comprehensive academic and research-intensive university, and only with continued and increasing support will the U of A remain in a strong position to manage the challenges and pressures that we face during the period of our new academic plan, *Dare to Deliver 2011-2015*. These include:

- Changing demographic trends in the student population.
- Resource constraints that adversely affect the size and range of the professoriate as well as student to faculty ratios.
- Emergence of new technology required for teaching, learning, and research.
- Demands for new programs and research that encompass new forms of learning and knowledge and cross conventional disciplinary borders.
- New structures in research funding.
- Competition for the best students and researchers from increasing numbers of post-secondary institutions around the world.

CORE PRINCIPLES

The overarching principle that guides our academic enterprise is balance—balance between the foundational arts and science faculties and the professional faculties, the number of undergraduate and graduate students, domestic and international students, and professors and students. Overall, we strive for a balance between excellent teaching and learning in academic programs and ground-breaking research and creative activity across seven areas of critical human activity that are studied in interdisciplinary ways: food and bioresources; energy; environment; health and wellness; humanities and fine arts; science and technologies; and society and culture. This balanced academy allows the university to help define the innovation landscape within Alberta, to create global leadership, and to improve social outcomes.

Remaining core principles that guide our academic programming and research planning are:

- Ensuring positive faculty and student experiences, engagement, retention, as well as improving student completion rates.
- Sustaining an undergraduate learning environment that capitalizes on faculty research and scholarship activities.
- Assuring access to under-represented groups, particularly Aboriginal and rural students.
- Requiring that all student spaces be fully funded to ensure a high quality teaching and learning environment.
- Strategically acquiring and allocating resources to continually renew programming, research, scholarship, and creative activities that deliver leading-edge knowledge across disciplines.
- Delivering intellectual quality and capacity to Alberta's knowledge economy and innovation environment.
- Leveraging and extending international consortia to globalize research activities, deliver shared credential graduate programs with top calibre partner institutions, and attract more international undergraduate and graduate students, postdoctoral fellows, and international research investment to Alberta.
- Strategically managing and advancing shared research resources across the university to maximize the talents and initiatives of our people and the region.

Finally, to continue to provide this breadth of activity and to achieve the quality and success for which we strive, our academic programming and research enterprise must remain deeply and solidly grounded on—and matched by—essential new or enhanced core physical facilities, sophisticated information technology, and extraordinary knowledge resources. The U of A's outstanding research library of record is one such resource—it is the second largest in Canada and widely considered to rank among the top 15 in North America.

In 2012-13, consistent with the U of A's institutional vision articulated in *Dare to Discover* and academic plan articulated in *Dare to Deliver 2011-2015*, we will strive to sustain our range of programming and research in a dynamic, relevant, responsive, and innovative fashion, relying on the flexibility that the Campus Alberta Grant offers in combination with our entrepreneurial and creative spirit.

Part A: Access and Programming

Consistent with other leading global institutions and our provincial mandate, the U of A is committed to creating a diverse, comprehensive educational environment that sustains intellectual and organizational strength and leadership through balance across the academy.

We offer students a range of programs, in both our core foundational faculties and specialized professional faculties, which allows for flexibility in the pursuit of advanced education, with various entry and exit points for acquiring post-secondary credentials. Our undergraduate, masters, and doctoral degrees are buttressed by pre-baccalaureate diploma programs, embedded and freestanding certificate programs, and postdoctoral fellowships. These academic programs are complemented by an important array of co-curricular and continuing education opportunities that enhance student and alumni education at all levels through the experience and practice of teamwork and development of essential professional and workforce skills.

Alignment with Alberta's Priorities

The U of A is committed to offering a breadth and depth of programming to a broad and diverse demographic of undergraduate and graduate students with a range of interests, aspirations, and needs. This array of students includes high school graduates from Alberta, Canada, and abroad; transfer students from our partners in Alberta's Comprehensive Academic and Research Institution (CARI) sector as well as institutions in other Campus Alberta sectors; francophone and francophile students seeking a post-secondary degree or diploma in a French-language or

bilingual learning environment; mature students seeking a university education for the first time and those returning for advanced study; Aboriginal, Métis and Inuit students from urban, rural, and First Nation communities; students seeking a rural-based education and/or employment in rural areas following graduation; immigrant Canadians; those from socio-economic groups for whom university access is a financial challenge; and those who are the first in their family to attend university.

Nearly every ministry in the Alberta government has an Aboriginal initiative in alignment with provincial objectives; so, too, nearly every faculty at the U of A has one or more key initiatives focused on Aboriginal education and research priorities. The U of A stands respectfully on lands once known only by Aboriginal peoples and we have a particular commitment and responsibility to Alberta's Aboriginal peoples. Our academic plan, *Dare to Deliver 2011-2015* commits to celebrating diverse Aboriginal histories and cultures throughout the physical, virtual, ceremonial and intellectual spaces of the university. The U of A hosts the only Faculty of Native Studies in Canada. We have increased the number of Aboriginal persons appointed as academic staff as well as undertaken numerous initiatives to increase the number of Aboriginal students. Our Access and Programming Plan includes several programs, including the highly successful Aboriginal Teacher

Education Program in the Faculty of Education. Capping these initiatives is the high-priority capital request for funding to build a gathering place for Aboriginal and other students, faculty and staff on our North Campus.

In the last decade, the U of A has also emerged as a national leader in science and policy to improve health and education for Aboriginal peoples. Not only have we educated Aboriginal teachers who have had a significant impact on education in rural and First Nations communities across Alberta, we have trained more Aboriginal physicians than any other institution in Canada, and the recent appointment of a Canada Research Chair in Aboriginal and Global Health is a sign of our continuing priorities in this area. We are home to the multidisciplinary CIHR Network for Aboriginal Health-Research Training, which assembles professionals in Aboriginal health care, education, public health, sociology, nursing, and nutrition. As well, the Aboriginal Health and Education initiative investigates culturally appropriate health care and services, and indigenous approaches to health service and delivery issues. These initiatives also support the priority given to marginalized populations within the *Alberta Health Research Innovation Strategy*.

As one of the first institutions founded by the new province of Alberta in 1906, the U of A takes seriously its responsibility to support and participate in the social and economic lives of rural Albertans. We offer outstanding educational opportunities to students in a rural environment as well as leading-edge research on important rural issues. In Camrose, the U of A's Augustana Campus offers a residential campus experience for students seeking a liberal arts and sciences undergraduate education at a research-intensive university in a rural community. Augustana, as well as the Faculties of Education and Medicine and Dentistry, offers practicum placements for students in rural Alberta while the Faculties of Education, Nursing, and Rehabilitation Medicine partner with Augustana for delivery of some

programs based on North Campus to rural students. Augustana also hosts an Aboriginal Student Office to recruit and support Aboriginal students and has transfer agreements with Campus Alberta institutions in smaller communities such as Red Deer and Grande Prairie.

The U of A's Augustana Campus has a special responsibility to partner with and contribute to the quality of life in the city of Camrose. The planned new Camrose Performing Arts Centre project is a stellar example of community-university partnership that will enrich the intellectual and cultural lives of students and Camrose residents. The Alberta Centre for Sustainable Rural Communities, an initiative of the Faculty of Agricultural, Life, and Environmental Sciences and Augustana Campus, is just one example of rural research initiatives.

The University of Alberta offers francophone Albertans, western Canadians, and international students a liberal arts undergraduate education in French at Campus Saint-Jean, located in and an integral part of Edmonton's francophone community. CSJ also has a responsibility to contribute not only to the intellectual and cultural enrichment of its students but also to Alberta's francophone communities. In addition to arts and sciences undergraduate and graduate programs, CSJ offers a bilingual BSc in environmental and conservation sciences, and in partnership with U of A's professional faculties, CSJ also offers bilingual undergraduate degrees in nursing, commerce, and engineering to students registered in those faculties. A majority of teachers in Alberta's immersion and francophone schools have studied at CSJ. In 2012, the U of A will expand access to French-speaking students seeking pre-baccalaureate education with the introduction of our first college-level program, a two-year bilingual diploma in business administration at the new Collège Saint-Jean. More college diploma programs are planned, subject to securing additional base funding. *See also* page 28.

Access and Enrolment Plan

Top universities in North America and around the world identify engaged and enriched undergraduate and graduate student environments and enhanced teaching and research environments through three critical target ratios: 1:3 graduate student to undergraduate student, 1:4 professor to graduate student, and 1:16 professor to overall student number. To achieve these ratios and their effects, we must continue to differentially increase the number of graduate students while maintaining a stable undergraduate enrolment and increasing the complement of professors.

Furthermore, to serve as a globally engaged and internationally respected university, we must attain an international undergraduate enrolment target of 15 percent,

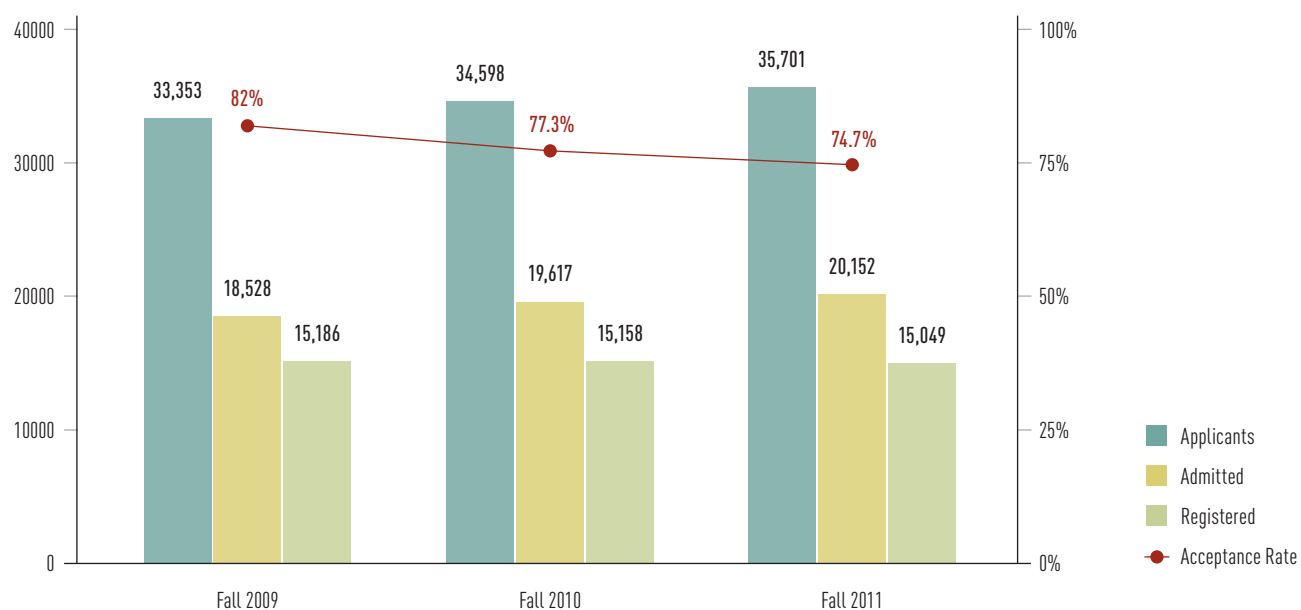
and sustain our international graduate enrolment at 30 percent or above of the graduate student body.

The U of A's institutional benchmark for access is based on a detailed analysis of our enrolment data over the past decade including:

- Base enrolments per degree program.
- ACCESS and EPE funded incremental enrolment over time.
- The modified rate of increase in incremental FLEs from 2009–10 to 2013–14 following cessation of the EPE program.

The impact of the latter was moderated in 2011–12 when new base funding to relieve enrolment pressures was

FIGURE 4 APPLICATIONS AND ADMISSIONS, FALL 2009 TO FALL 2011



Notes: The numbers reported reflect unique individuals. Processing of applications changed in Fall 2010 with the implementation of Apply Alberta. Comparability of data reported before Fall 2010 is compromised by this change. The acceptance rate is the proportion of those admitted who registered. **Source:** UG data from Summary of Undergraduate Applications for Fall Admission (Strategic Analysis and Registrars Office). Data are as of October 4 of the reported year.

received from the Ministry of Advanced Education and Technology, including funding for 225 FLEs specifically to maintain third- and fourth-year engineering enrolments, thus raising our 2010-11 base enrolment target of 32,780 to 33,005 in 2011-12. In addition, the ministry approved a reallocation of FLEs to the newly approved B.A. and B.Sc. in planning, ensuring its implementation as planned. Over the next three years, to encourage and accommodate new programming and to increase graduate enrolment, we anticipate some further reallocation of FLEs, in particular from undergraduate to graduate programs, within our new overall projected enrolment number of 33,005, a number that we plan to maintain through 2014-15.

In the health sciences disciplines, specifically, trends indicate that stable enrolment is predictable until 2014 with minor changes each year for the additional health graduates who are or may be funded. The Health Workforce Action Plan program targets (e.g., nursing, medicine) will remain in place to 2013-14.

Finally, using 2004-05 as the base year, we have differentially increased the numbers of graduate students and medical students, while maintaining our undergraduate population. That is, between 2004-05 and 2010-11, we increased graduate student enrolment by 37 percent (from 4,900 to 6,734 FLEs) and medical student

enrolment by 44 percent (from 505 to 729 FLEs). We intend to continue the differential increase of graduate students until institutional target ratios are achieved. While progress had been made between 2007 and 2009, with two consecutive years of no change in the Campus Alberta Grant, progress on student ratios has stalled and the professor to student ratio has reverted to pre-2007 levels.

The financial, human, and capital resource implications associated with our projected mix of students are found in the Resources and Risk Implications chapter.

Access and Programming Themes and Goals

With input from all U of A faculties and academic administrative groups, 24 access and programming goals, strategies, and initiatives have been organized under the following five overarching themes. We plan to maintain these five themes during the four-year lifespan of the current academic plan, which encompasses the interdependent activities of education, research, and community service that comprise the U of A's mandate.

- I. Quality:** Quality of people, programs, and experiences defines the world's leading universities in general, and the U of A in particular.
- II. The Learning Environment:** The U of A's learning environment is composed of quality teaching, both physical and virtual, with appropriate and relevant use of various learning technologies.
- III. Student Experience and Engagement:** The U of A strives to improve student retention and completion rates by creating an outstanding student experience by engaging all students in intellectual and creative activities in the classroom, studio, lab, field, or community, and by committing to providing an array of co-curricular opportunities for students.

IV. Innovative Programming: New and continuing innovative and relevant programs integrated in the U of A's research-intensive environment are the foundation for undergraduate and graduate education, as well as pre-baccalaureate and continuing education programs.

V. Connections and Collaborations: The U of A is strongly positioned to offer innovative and interdisciplinary programming through interfaculty connections, Campus Alberta collaborations, and with national and international consortia.

The goals, strategies, and initiatives under these themes as detailed on pages 41-62 are by no means inclusive of the full range and quality of activity ongoing at the University of Alberta; such detail would be impossible to capture in this document. Instead, we have highlighted examples of current initiatives and, for a number of goals and strategies, provided selected updates of implementation in 2011 and plans for further development in 2012.

ACCESS THEME I: QUALITY

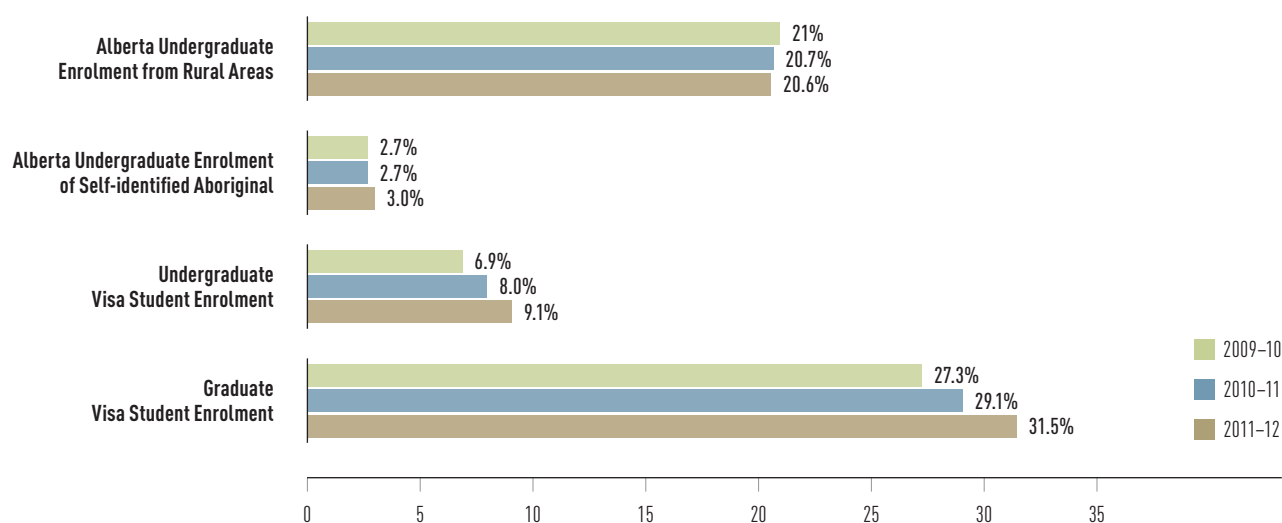
Certain characteristics define every major university. Chief among these is the quality of its people—faculty, staff, students, and alumni. Attracting and engaging talented, committed people is the hallmark of a great university and certainly the foundation of the University of Alberta’s ongoing successes. This is clearly evident in the professoriate, research, and support staff across the academy, and also true of the undergraduates, graduate students, and postdoctoral fellows who surge onto campus each year, the lifeblood of the University. We will continue to celebrate and find inspiration in the quality and dedication of all members of the academy.

— DARE TO DELIVER 2011–2015

Quality is central to access and programming. Top-quality professors and administrators help to renew and design high quality, innovative programs that serve to entice, excite, attract, and retain quality undergraduate and graduate students. We aim to provide high-quality student experiences that are life altering, resulting in graduates

who are engaged citizens prepared to contribute to the social and economic well-being of the province, and to do their part in fulfilling the U of A promise to uplift the whole people.

FIGURE 5 ENROLMENT OF SELECTED STUDENT GROUPS



Notes: Rural and aboriginal figures are proportions of total Alberta undergraduate enrolment. Rural means home addresses outside greater Edmonton and Calgary census divisions. Visa students include those with statuses of study permit, work permit, diplomatic status, refugee, temporary resident visa and visiting speaker.
Sources: U of A Student Enrolment data, Dec 1 headcount. Summary of Statistics, tables 7.4 and 7.8.

Access Goal 1: Attract and retain outstanding students.

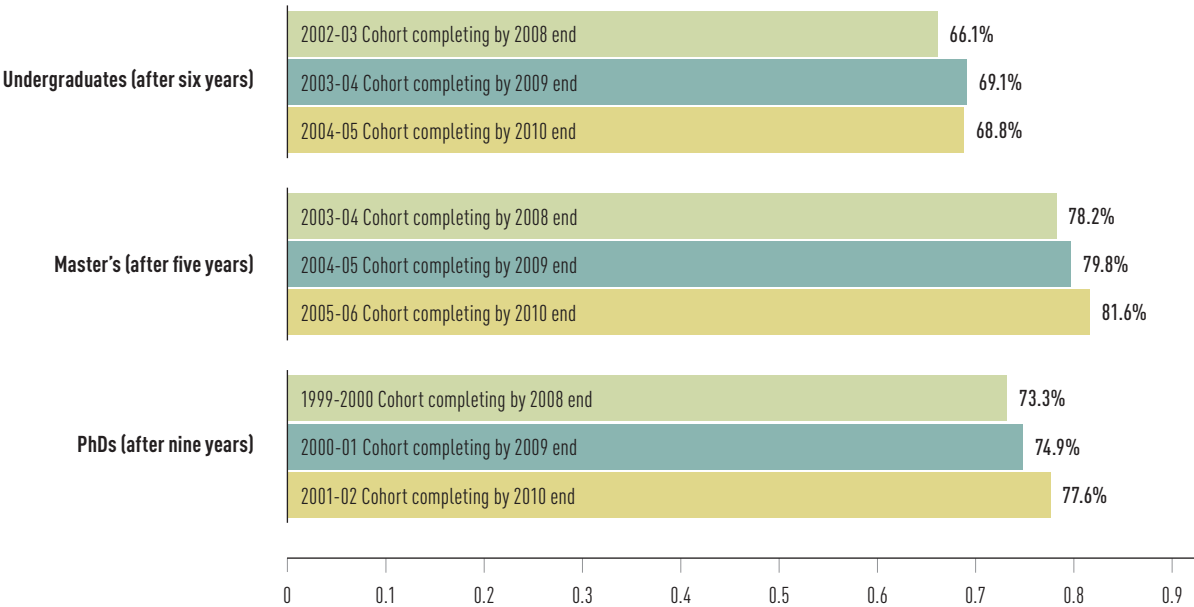
Access Goal 2: Provide foundational support structures for students to create a nurturing environment that allows for positive student experience and engagement.

Access Goal 3: Provide foundational support structures for Aboriginal students in order to create a supportive and nurturing environment that allows for positive student experience and engagement.

Access Goal 4: Recognize and celebrate the accomplishments of our students.

Access Goal 5: Implement a system of quality assurance processes and mechanisms to ensure the programs offered by the University of Alberta are of the highest quality.

FIGURE 6 COMPLETION RATES, UNIVERSITY OF ALBERTA



Notes: Completion Rate methodology defined and implemented by the Strategic Analysis Office. Completers in the Undergraduate Completion Rate represent students who graduated from the U of A in any program. Completers in the Masters and PhD Completion Rates represent students who graduated with either a Masters or PhD. The Masters Cohort includes students enrolled in either a thesis-based or course-based Masters program; and students graduating with a Masters may be either a thesis-based or course-based Masters. **Source:** University of Alberta Strategic Analysis Office undergraduate figures as submitted to CSRDE (Consortium for Student Retention Data Exchange); Masters and PhD figures as submitted to the G13 Data Exchange.

ACCESS THEME II: THE LEARNING ENVIRONMENT

Our research and creative activities are driven by both passionate curiosity and pressing social need, fostering a culture that enables the pursuit of both. It sets an indelible example of engaged scholarship and civic involvement for scholars at every level.

— DARE TO DELIVER 2011–2015

Rapid evolution of the knowledge and skills required of university graduates has resulted in increasing demands for innovation in teaching and learning. The learning environment in a research-intensive university comprises not only the physical spaces for research, teaching, and learning, but also policies that assure high quality instruction and optimal learning, continuous professional development of instructors, and enhanced integration of research into undergraduate experiences. Further, advances in information and communications technology continue to transform the digital learning environment. The U of A's information technology infrastructure is evolving to meet the demands of the global shift to mobile computing. We are positioning our institution, and in particular our learning environment, to support the mobile, connected IT campus that students now expect.

The research library lies at the heart of a great learning environment in a top-tier university. The U of A is distinguished by its library, the second largest in Canada and ranked among the 15 best research libraries in North America. The U of A Library is one of a handful worldwide that serves as a "library of record" – a physical and digital series of holdings and collections of sufficient quality, magnitude, and diversity that extends beyond its institutional mandate to serve provincial, national, and international roles. The library contributes in extraordinary ways to creating the U of A's incomparable learning environment for students.

Access Goal 6: Ensure a high level of teaching quality.

Access Goal 7: Ensure the development and maintenance of quality formal and informal learning spaces.

Access Goal 8: Enhance the digital environment and online presence of our institution.

ACCESS THEME III: STUDENT EXPERIENCE AND ENGAGEMENT

A great university has at its foundation the ability to offer an outstanding student experience. While that experience starts in the classroom, studio, laboratory, field, or community, the research-intensive environment at the University of Alberta offers a qualitatively unique educational and training experience for students. Through curricular and co-curricular activities, students learn fundamental skills, attitudes and values as they contribute to the advancement of knowledge and society.

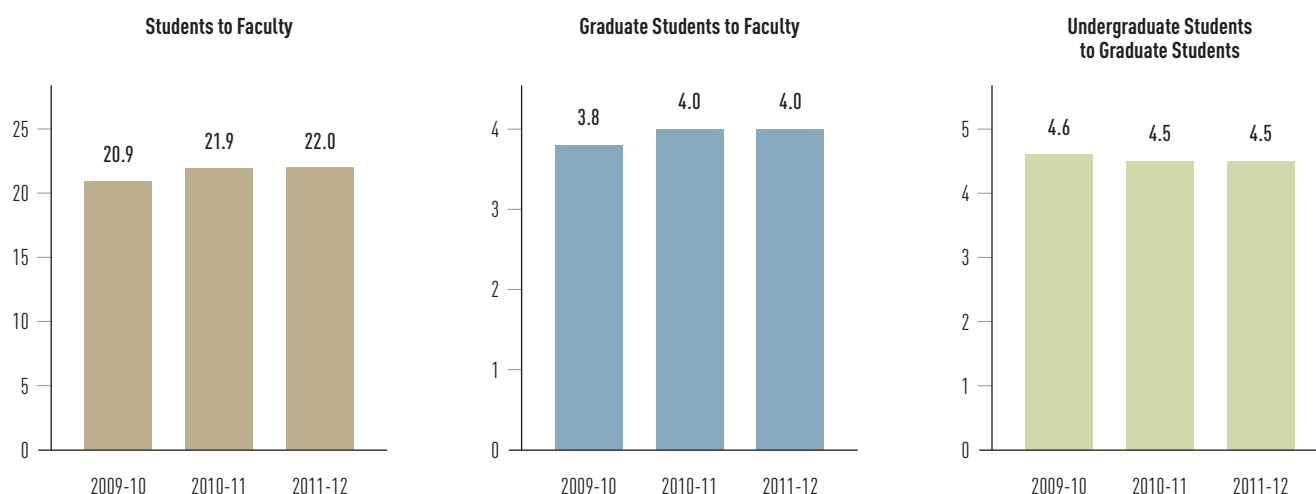
— DARE TO DELIVER 2011–2015

The University of Alberta student experience encompasses opportunities for academic engagement as well as social and community involvement; it also promotes health and wellness alongside career and life development. We value the involvement of students with professors, other students, librarians, staff, alumni, and the broader community, both inside and outside the classroom. The outcomes of engagement are many, but most readily identifiable are the pursuit of truth, involvement in communities both near and far, a sense

of belonging and affiliation with the U of A, as well as self-formation and personal development. Ideally, all students will seize opportunities beyond their academic programs and aspire to learn new life skills, deepen or broaden their engagement with their creative, athletic, or intellectual passions, and contribute to their university, communities and the world in countless ways.

Because the U of A houses only about 13 percent of our student population on our campuses, it is imperative that

FIGURE 7 FULL-TIME EQUIVALENT (FTE) RATIOS, 2009-10 TO 2011-12



Notes: Enrolments based on active fall enrolments. Post-graduate medical education students are excluded. FTE (full-time equivalent) represents the number of full-time students plus one-third the number of part-time students, and is based on the number of individual students within each reporting category. **Source:** Student enrolments based on U of A RegStats Archive data as of December 1 of each respective academic year. Faculty counts based on U of A Human Resources data as of October 1 of each respective academic year.

we offer students multiple ways and means to engage deeply during the hours spent on campus so that their experiences here form an integral part of their lives both in and away from the university during their years of study and beyond. To that end, the university supports the development of the whole student and dedicates resources to both academic and student life development.

The U of A also supports Aboriginal, rural, and francophone students who require additional services and facilities for their distinctive experiences and needs, including translation into French of English-language materials, specialized academic and personal counselling, and core sciences facilities on the Saint-Jean and Augustana campuses. The Faculty of Native Studies, Augustana Campus, and Campus Saint-Jean have growing communities of such students drawn from across Alberta and are increasingly developing programs and services required to enhance their experience and engagement. Operating budgets in these faculties are no longer sufficient to allow these faculties to develop new initiatives or meet the demand for these services and programs. (*See also* Access Strategy 3.1 on page 48.)

Access Goal 9: Improve admissions and registration processes for all students.

Access Goal 10: Support programs and initiatives to help increase retention and completion rates.

Access Goal 11: Provide enhanced experiential learning opportunities.

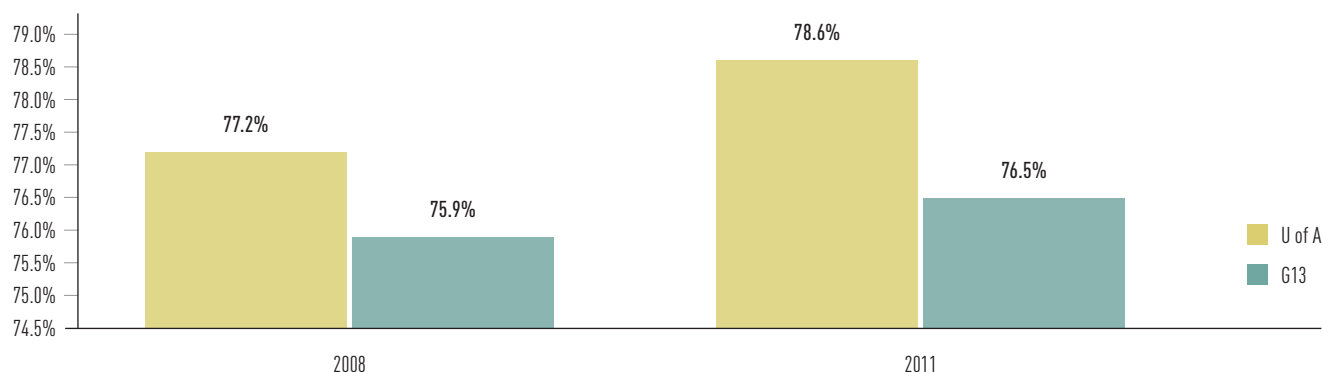
Access Goal 12: Enhance extra-curricular and co-curricular learning opportunities (i.e., supporting services, activities, and campus facilities that encourage and help facilitate student success).

Access Goal 13: Continue to create international opportunities for students.

Access Goal 14: Provide foundational support structures for students in order to create a nurturing environment that allows for positive student experience and engagement.

Access Goal 15: Create a safe and secure environment on U of A campuses that is supportive of a positive student experience.

FIGURE 8 PERCENT OF SENIOR STUDENTS RATING THEIR EDUCATIONAL EXPERIENCE AS GOOD OR EXCELLENT



Source: Source: U of A Frequency Distribution Report, NSSE (National Survey of Student Engagement), 2008 and 2011.

ACCESS THEME IV: INNOVATIVE PROGRAMMING

Dare to Deliver 2011-2015 challenges members of the academy to continue to think deeply about how to connect their research with their students' learning experiences, and to engage students in the excitement of pursuing their own research projects. ... We will harness the innovative talents of our teachers and researchers to find fresh new ways of integrating the university's tremendous breadth and depth in traditional academic disciplines with training focused on specific attributes and competencies.

— DARE TO DELIVER 2011–2015

During the past two years when financial resources for new programming have been limited or not available, faculties and departments have focused on innovative methods to ensure that programming can continue to evolve to meet student and employment demands. Curricular and program reviews and renewal have become an increasing focus with particular emphasis on possibilities for reallocation of existing resources, including FLEs, from current programs to those with greater demand or new relevancy.

The U of A is also actively exploring and implementing new methods and programming to provide current and prospective students with opportunities to ladder from one level of post-secondary study to another, and to ladder from post-secondary study to additional professional development. These laddering opportunities take a number of different forms designed to meet the needs of different kinds of learners, including certificates, summer institutes, bridging programs, and pre-baccalaureate college-level programming.

Furthermore, as we work toward a ratio of one graduate student to three undergraduate students, in line with the world's top public universities, we are differentially increasing graduate student enrolment relative to undergraduate enrolment. Thus, we have a particular focus on innovative programming at the graduate level both to attract outstanding graduate students and to lead programming for advanced study in new and important fields.

See details related to Access Goal 16 (page 54) for a list of program initiatives at the U of A, including recently approved or newly implemented programs and new programs being contemplated.

Access Goal 16: Continue development of additional innovative programming to meet the needs of learners and the community.

Access Goal 17: Increase access to current high-demand programs.

Access Goal 18: Ensure appropriateness and relevancy through course and program reform.

Access Goal 19: Provide valuable laddering opportunities from high school to post-secondary study, undergraduate to graduate study, and post-secondary study to professional experience.

Access Goal 20: Continue to offer a range of lifelong learning opportunities through continuing and professional education programs.

ACCESS THEME V: CONNECTIONS AND COLLABORATIONS

By connecting our students and researchers with institutions and communities around the globe, we will be able to influence and help shape the future prosperity and well-being of the province, our country, and the world.

— DARE TO DELIVER 2011–2015

The University of Alberta has developed many connections and collaborations across all portfolios. From an academic programming perspective, partnerships are formed internally among faculties on our campuses and externally across a range of sectors, including Campus Alberta, other Canadian universities, and well-ranked international universities and research institutions. Our goals are threefold:

- To offer students innovative and relevant globalized educational opportunities.
- To engage students in the study of both established and emerging knowledge in a learning environment of active, internationally recognized research.
- To leverage talent, expertise, and financial resources.

Collaborative programming—across the institution, throughout Campus Alberta, and across the nation and world—creates exciting opportunities for students. We are examining collaborative programming options for both new and existing programs as part of program renewal at our institution. Cost analyses of partnerships will be an important consideration in moving forward

with these options. (See Access Strategy 18.3 for a few specific examples of interdisciplinary collaborative program development. A full list of program initiatives being considered at the U of A can be found in Access Goal 16.)

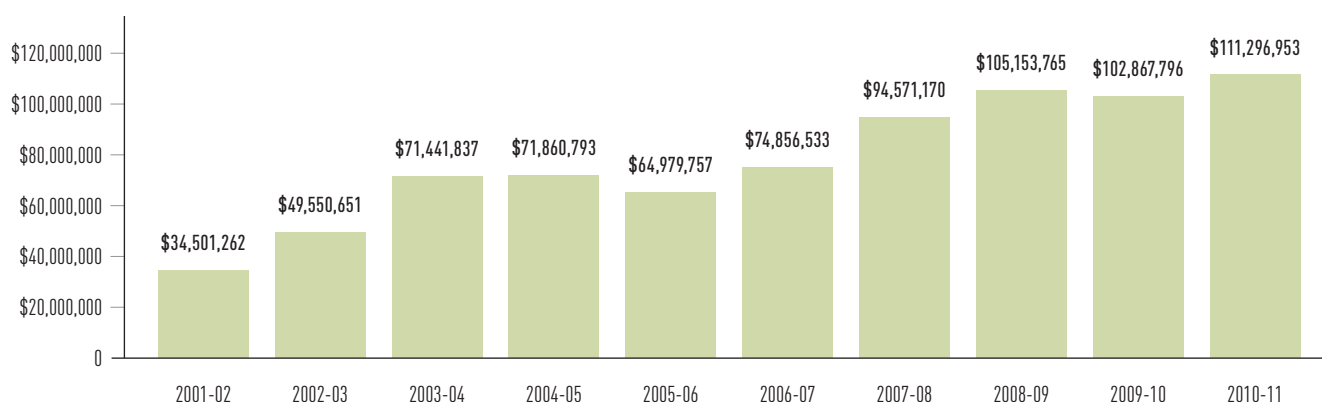
Access Goal 21: Increase interdisciplinary, collaborative program and initiative development in order to offer students innovative and relevant educational opportunities.

Access Goal 22: Maximize program innovation at the Campus Alberta level in order to create exciting learning opportunities and program efficiencies.

Access Goal 23: Maximize program innovation in collaboration with national partners in order to create exciting learning opportunities.

Access Goal 24: Leverage and extend our international research consortia, and use these as a platform for delivering innovative shared credential graduate programs with top-calibre partner institutions.

FIGURE 9 UNIVERSITY OF ALBERTA FUNDRAISING ACHIEVEMENT, LATEST 10 YEARS, 2001-02 TO 2010-11



Note: Fundraising achievement totals consist of new pledges, grants, and gifts (including matching gifts); pledge payments and write offs are not included. **Source:** Board of Governors' Reports, University of Alberta.

Access and Programming Measures: How we track our progress

Access Theme I: Quality:

- application to registration yield
- home address of student application
- number of self-identified Aboriginal students, faculty, and staff
- retention and completion rates of undergraduate and graduate students
- ratios of undergraduate to graduate students; professors to all students; professors to graduate students
- student satisfaction

Access Theme II: The Learning Environment:

- participation rate in CTL programming and number of TLEF applications
- number of national teaching award recipients
- student satisfaction

Access Theme III: Student Experience and Engagement:

- application, admission and registration yields
- retention and completion rates
- student satisfaction
- number of funded internship and undergraduate research opportunities and study abroad opportunities

Access Theme IV: Innovative Programming:

- number of new programs approved and/or implemented
- application, admission, and registration yield rates

Access Theme V: Connections and Collaborations:

- number of new collaborative partnerships each year
- participation rates in internship and study abroad programming

Access and Programming Resource Requests:

ACCESS THEME I: QUALITY	BASE FUNDING
Undergraduate scholarships and support services for students recruited from underrepresented populations	3.00M
Expand Augustana Campus rural summer internship programming	0.20M
Aboriginal student recruitment and programming	2.50M
TOTAL	5.70M

ACCESS THEME III: STUDENT EXPERIENCE AND ENGAGEMENT	BASE FUNDING
Support for French language program and student support services at Campus Saint-Jean	0.75M
International student scholarships	3.00M
International internship and study abroad student support	0.80M
TOTAL	4.55M

ACCESS THEME IV: CONNECTIONS AND COLLABORATIONS	BASE FUNDING
Additional FLEs in PhD in Engineering	1.10M
Health team pathways academic programming	0.25M
New program and operating costs for Collège Saint-Jean	1.75M
TOTAL	3.10M

Access and Programming Goals and Strategies (in detail)

ACCESS THEME I: QUALITY

ACCESS GOAL 1—Attract and retain outstanding students.

Access Strategy 1.1—Recruit exceptional *undergraduate* students locally, nationally, and internationally.

- Evaluate and improve institutional recruitment activities and admission processes.
 - ☑ The Academic Policy and Process Review Task Force (APPR) is now reviewing processes for transfer students.
- Continue focused recruitment nationally in Vancouver, Calgary, and Toronto.
- Improve the web strategy for recruitment.
 - ☑ Redesigned U of A website was launched with particular focus on recruitment and student engagement.
 - Faculties are building on this new platform for their own webpages and web presences.
- Progress towards an international undergraduate enrolment target of 15 percent of undergraduate students (targeted countries for undergraduate recruitment include: China, India, U.S., Malaysia, and the Middle East).
 - ☑ Fall 2011 undergraduate international enrolment was 9 percent, up from 7 percent in 2009.
- Implement and continue to explore additional recruitment strategies for international students including foundation programs, agents, and articulation programs.
- Explore options to develop a university-wide preparation year program for qualified international students who are unable to achieve immediate entry to university because of academic English-language skills.

- ☑ Expanded enrolment and support programming in the Bridging Program for international students. Registration in Fall 2011 was 354 students, up 79 percent from 198 in 2010.
- Develop effective recruitment techniques targeted to diverse communities of Aboriginal learners.
 - ☑ Recruitment materials developed specifically for Aboriginal prospective students.
 - ☑ Recruiter in the Office of the Registrar devoted to Aboriginal recruitment.
 - ☑ Aboriginal Discovery Days, an opportunity for prospective Aboriginal students to tour campuses and learn about programs and services.
 - ☑ Aboriginal Students Office at Augustana Campus serves as a key liaison with selected communities, including Ermineskin and Samson First Nations (Hobbema).
 - ☑ The number of self-identified Aboriginal students at Augustana Campus has doubled since 2008.
 - ☑ U of A Annual Round Dance was held at Augustana Campus with approximately 1,000 guests and over 100 volunteers.
- Increase the recruitment and enrolment of rural students through planned recruitment visits to rural Alberta, specially organized Rural Discovery Days, and scheduled early admission and registration workshops throughout the province.
- Support recruitment and retention initiatives to increase undergraduate enrolment in the faculties of Native Studies, Augustana, and Saint-Jean.
 - ☑ Faculty of Native Studies' enrolment increased by 29 percent from 83 FLEs in Fall 2009-10 to 107 in Fall 2011-12.

RESOURCE REQUEST:

- ❖ **\$3.0 million for undergraduate scholarships and support services for students recruited from underserved populations.**

Access Strategy 1.2—Retain exceptional *undergraduate* students and increase completion rates.

- *See also* Theme III: Student Experience and Engagement for in-depth information.
- Ensure the development of housing on campus that includes appealing and relevant programming elements (e.g., cohort learning) for undergraduate students.
- Develop programs and partnerships with other institutions that allow for program delivery close to where students live throughout the province.
 - ☑ Faculty of Education launched M.Ed. program in Indigenous People's Education at Blue Quills First Nations College. Graduates study at Blue Quills but will receive a U of A degree.

Access Strategy 1.3—Expand further the integration of teaching and research, to offer undergraduate students a unique educational experience that fully leverages the U of A's status as a research-intensive university that invests strongly in and places high value on leading edge scholarship and teaching and learning.

- Re-allocate internal resources to administer and co-ordinate research opportunities for students across faculties and within the community, in collaboration with existing mechanisms, and with external partners.
 - ☑ Launched the Undergraduate Research Initiative to facilitate undergraduate student involvement in research activities with support of the U of A Alumni Annual Fund. *See* www.uri.ualberta.ca.

- Seek additional resources to increase the number of undergraduate research internships available to a wider variety of undergraduate students.
- Explore increased undergraduate internship opportunities in rural Alberta.
 - ☑ Augustana Campus offered 12 Community Based Learning undergraduate rural summer internships.

RESOURCE REQUEST:

❖ \$200,000 to expand Augustana Campus's rural summer internship programming

- Increase the number of structured undergraduate research opportunities throughout the academy (e.g., self-selected learning opportunities such as directed studies and attendance at conferences; research opportunities as part of courses).
- Ensure mechanisms are in place to assist undergraduate students in finding opportunities to participate in research projects as research assistants.
 - ☑ The Undergraduate Research Initiative Office was established to identify, seek, and link students to research opportunities and funding resources.
- Explore creating, in conjunction with the Students' Union, an annual undergraduate research symposium.
 - ☑ In November, the Students' Union hosted the first annual Undergraduate Research Symposium. More than 150 undergraduate students participated in the symposium, which featured guest speakers and adjudicated poster presentations.
- Expand the number of disciplines that are participating in NSERC-MITACS (Mathematics of Information Technology and Complex Systems) internship programs, which are an important mechanism for attracting international undergraduate and graduate applicants to our institution.
 - ☑ New NSERC-MITACS participants included earth sciences, life sciences, social sciences, fine arts, and humanities. The number of students

supported grew from 14 in 2009-10 to 47 in 2010-11.

Access Strategy 1.4—Differentially increase graduate student enrolment.

- Develop and maintain effective recruitment strategies for all graduate programs. Recruitment activities should be local, national, and international.
- Recruit the U of A's best undergraduate students to graduate programs by ensuring enhanced undergraduate research and creative opportunities across the academy.
 - ☑ Undergraduate Research Initiative and the Students' Union Undergraduate Research Symposium Launch.
- Identify current master's students who are promising candidates for doctoral programs, either after completion of their master's program or through fast-track options.
- Recognize, implement, and connect the roles of departments and the Faculty of Graduate Studies and Research in the graduate student recruitment and admissions process.
- Enhance graduate research opportunities across the academy and in areas identified as existing or emerging areas of strength that will distinguish the U of A nationally and internationally.
- Use the federal Vanier Scholarship program to recruit top international graduate students.
- Engage alumni and current students in activities that support international recruitment.
- See Access Strategy 16.4 for information on graduate recruitment through international training programs.

Access Strategy 1.5—Improve retention and completion rates of graduate students.

- Restructure the internal scholarship funds available and redeploy resources for most effective use.
 - ☑ Implementation of the Graduate Funding Task Force to support recruitment, foster retention, and assist completion.

- Ensure that funding, support, and recognition mechanisms are appropriate for all research, critical, and creative inquiry.
- Establish innovative scholarship networks within and between faculties, particularly in areas of disciplinary strength.
- Increase the graduate student scholarship pool through advancement and fund development.
- Ensure appropriate orientations for graduate students and graduate student supervisors.
- Ensure new graduate supervisors receive appropriate mentoring.
 - ☑ Implementation of the Quality in Graduate Student and Postdoctoral Fellow Supervision Advisory Committee to examine and recommend ways to foster and maintain excellence in supervision.
- Ensure appropriate counselling and ombudsperson support for graduate students.
- Ensure development of housing that is appealing to graduate students and supportive of their requirements.
- Provide professional development opportunities related to teaching for graduate students.
 - ☑ A new non-credit Graduate Teaching Program is in development in the Faculty of Graduate Studies and Research with launch planned for winter term 2012.

ACCESS GOAL 2—Provide foundational support structures for students to create a nurturing environment that allows for positive student experience and engagement.

Access Strategy 2.1—Reorganize student services to maximize support for students on all campuses.

- Create physical and virtual welcome centres for students.
 - ☑ A Virtual Welcome Centre concept for new students is under development by the Office of the Registrar, with

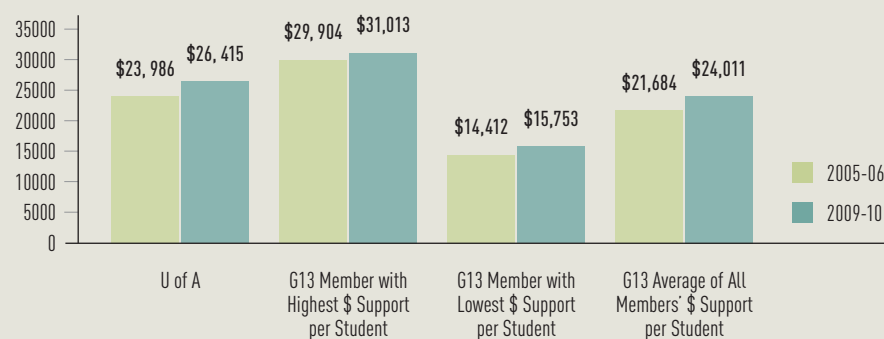
- preliminary planning underway for a physical presence within the repurposed facilities vacated for the Edmonton Clinic Health Academy.
- Continue to provide meaningful student orientations in departments, faculties, and across campuses through Week of Welcome and other events.
 - ☑ The TURN (Transition to University: Residence Network) program was initiated to help students, who are the first generation in their families to attend university, adjust to their new environment. The program is delivered by Residence Services in collaboration with University Student Services.
- Ensure adequate counselling for mental health and academic success.
 - ☑ Services for students were strengthened by consolidating a range of student support services into a new Student Success Centre and Mental Health Centre.
- Create a seamless academic advising infrastructure across the university to support students.
- Provide specialized services for students that need accommodations for learning through the Specialized Support and Disability Services unit.
- Present university-wide services based on students' needs and wants, rather than by administrative unit, by developing of a student web portal.
- Improve faculty-student connectivity and facilitate high-quality student access to instructors through the Birds of a Feather program, which aims to promote increased interactions and connections between undergraduate students and faculty members.
 - ☑ Birds of a Feather was incorporated into the mandate and activities of the Undergraduate Research Initiative.
- Foster relationships between and among all campuses for improved co-ordination and connectivity (social, campus recreation, cultural).
- Review support programs for international students, especially those designed to assist them in their cultural and linguistic transitions in coming to the U of A.

- ☑ Focusing on this need are the expanded bridging program for international students as well as a new Success on Alternative Routes Task Force.

Access Strategy 2.2—Create policies and procedures that enhance opportunity for student success.

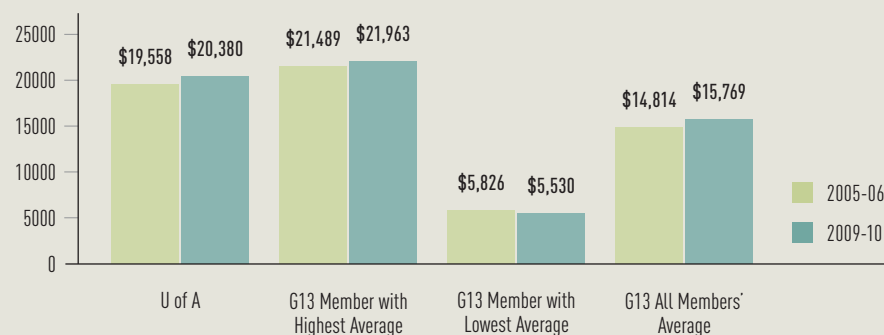
- Ongoing communication and implementation of our newly approved Helping Individuals at Risk (HIAR) Policy.
 - ☑ the HIAR Policy and corresponding program are now in place and active.
- Implement behavioural residence and community standards that include a restorative justice model.
 - ☑ The Board of Governors approved this new model in spring 2011 and it was implemented for fall 2011.
- Ensure that administrative policies and procedures for academic programs do not present unnecessary barriers to student success and experience. The Academic Policy and Process Review Task Force (APPR) is responsible for this strategy.
 - ☑ Projects underway under the auspices of APPR include a review of international and Campus Alberta

FIGURE 10 AVERAGE FINANCIAL SUPPORT PER DOCTORAL STUDENT, UNIVERSITY OF ALBERTA AND G13 UNIVERSITIES, 2005-06 AND 2009-10



Notes: Data is based on 10 universities in 2005-06 and 13 universities in 2009-10. Source: G13 Data Exchange.

FIGURE 11 AVERAGE FINANCIAL SUPPORT PER RESEARCH MASTERS STUDENT, UNIVERSITY OF ALBERTA AND G13 UNIVERSITIES, 2005-06 AND 2009-10



Notes: Data is based on 10 universities in 2005-06 and 13 universities in 2009-10. Source: G13 Data Exchange.

transfer credit practices at the U of A, consideration of a broader system to support students at academic risk, and the development of a certificate handbook to facilitate certificate-related initiatives.

Access Strategy 2.3—Provide financial assistance programs that support the educational aspirations of University of Alberta students.

- Through the Student Resources Task Force, identify all sources of financial assistance, and remove barriers, if any, to accessing that assistance.
 - ☑ Development of the final report for this task force is underway.
- Ensure financial support that is currently available for undergraduate and graduate students is being used effectively and for maximum benefit.
 - ☑ The Graduate Funding Task Force was established.
- Use endowments to increase financial support for undergraduate and graduate students.
 - ☑ The University of Alberta Annual Fund contributed significant resources to launch and sustain into the near future three initiatives: the Undergraduate Research Initiative, the Green & Gold Student Leadership and Professional Development Grant, and the International Research Internship program.
- Work towards a financial infrastructure that strives to offer every interested and qualified individual an opportunity to complete a degree at the University of Alberta.

ACCESS GOAL 3—Provide foundational support structures for Aboriginal students in order to create a supportive and nurturing environment that allows for positive student experience and engagement.

Access Strategy 3.1—Provide appropriate student support for Aboriginal students in addition to goals listed in Access Strategies 2.1 and 2.2.

- Expand and develop effective and accessible academic support services that meet the unique needs of Aboriginal applicants and students, including the Transition Year Program for Aboriginal students.
- Ensure appropriate development of initiatives for Aboriginal students through the Council for Aboriginal Initiatives.
- Raise the profile of existing programs (e.g., the Aboriginal Teaching Education Program) and develop new academic programs that are attractive and relevant for prospective Aboriginal students.
 - ☑ New certificate programs in Aboriginal Sport and Recreation and Aboriginal Governance and Partnership are two examples.
- Seek new resources to enhance Aboriginal student recruitment, services, engagement and experience, retention and completion initiatives in the Faculties of Native Studies, Augustana, Saint-Jean, and Education.
- Support social, housing, and child-care needs of Aboriginal learners through provision of on-campus housing and the construction of the Gathering Place.

RESOURCE REQUEST:

- ❖ **\$2.5 million for Aboriginal student recruitment and programming.**
-

ACCESS GOAL 4—Recognize and celebrate the accomplishments of our students.

Access Strategy 4.1—Create and maintain formal celebratory events intended to recognize the efforts of our students, staff, and faculty

- Celebrate accomplishments in learning and leadership through the Celebration of Teaching and Learning.
- Celebrate accomplishments in learning and discovery through the Research and Innovation Celebration.

- ☑ The Celebration of Teaching and Learning and the Celebration of Research and Innovation were merged into a single ceremony: Celebrate! Teaching–Learning–Research. This new annual ceremony will provide an opportunity for the entire U of A community to recognize the exceptional accomplishments of students, instructors, classroom and lab support staff, and researchers.
- Create regular opportunities to highlight and recognize student achievement.
- Ensure we maintain the high standard we have set for meaningful convocation ceremonies, including special convocation recognition for Aboriginal students.
- Support the Students' Union and Graduate Students' Association in their annual awards events.

ACCESS GOAL 5—Implement a system of quality assurance processes and mechanisms to ensure the programs offered by the University of Alberta are of the highest quality.

Access Strategy 5.1—Continue to enhance our unit review processes.

- Unit reviews are part of the quality assurance process on our campuses. We will complete an internal review of our current process, and adjust and implement the new guidelines for reviews beginning in 2011–12.
 - ☑ Unit reviews have been undertaken in the Faculty of Education, the School of Public Health and the Office of the Registrar.
- The Faculty of Engineering will undertake both accreditation and unit reviews.

Access Strategy 5.2—Ensure accreditation reviews, where required, are done on a timely basis.

- ☑ Successful accreditation review of the Faculty of Medicine & Dentistry. The report on the accreditation review of the Faculty of Nursing is forthcoming in spring 2012.

FIVE-YEAR PLAN FOR ACADEMIC UNIT REVIEWS

ACADEMIC UNIT NAME	REVIEW YEAR	SITE VISIT DATE
Faculty of Arts - Completed	2010-11	February 7-8, 2011
Augustana Faculty - Completed	2010-11	February 14-15, 2011
Faculty of Pharmacy and Pharmaceutical Sciences – Completed	2010-11	April 4-5, 2011
Faculty of Education	2011-12	November 7-8, 2011
School of Public Health	2011-12	April 30 – May 1, 2012
Faculty of Engineering	2012-13	TBD
Alberta School of Business	2013-14	TBD
Faculty of Extension	2013-14	TBD
Faculty of Rehabilitation Medicine	2013-14	TBD
Faculty of Graduate Studies & Research	2013-14	TBD
Faculté Saint Jean	2013-14	TBD
Faculty of Law	2013-14	TBD
Faculty of Native Studies	2013-14	TBD
Faculty of Agricultural, Life & Environmental Sciences	2014-15	TBD
Faculty of Medicine & Dentistry	2014-15	TBD
Faculty of Nursing	2014-15	TBD
Faculty of Arts	2015-16	TBD
Augustana Faculty	2015-16	TBD
Faculty of Physical Education and Recreation	2015-16	TBD
Faculty of Science	2015-16	TBD

- Accreditation reviews scheduled for 2012-13 include the Faculty of Law (new Federation of Law Societies of Canada Report on the content of the Canadian common law degree) and the Faculty of Engineering.
- Ongoing curriculum development process in order to meet accreditation standards to become the first free-standing School of Public Health in Canada.
- The accreditation review team will visit the School of Public Health in spring 2012.

Access Strategy 5.3—Continue to review and update program content and relevancy through an internal curricular review process.

- Some specific examples of curricular review initiatives identified by units for review in 2012-13 include:
 - Ongoing curricular changes in the Faculty of Agricultural, Life & Environmental Sciences, including changes to the environmental and conservation sciences and forestry degree programs and completion of the review of the nutrition and food science program.
 - Review of the Bachelor of Arts curriculum in the Faculty of Arts. Specific changes may include amalgamation of language programs in East Asian studies and introduction of a new Korean studies concentration,

and splitting Middle East and African studies.

- Curricular review and renewal in the MD and the DDS programs.
- Ongoing review of impacts of recent curricular changes to the after degree program in nursing. Curricular and program review at Campus Saint-Jean.
- Program review in the Faculty of Science in the psychology, paleontology, and computing science programs and to the BSc general program.

Access Strategy 5.4—Participate in Campus Alberta Quality Council Audit Pilot Project.

- ☑ The first pilot joint AUA/CAQC Internal Quality Assurance Process audit took place at the University of Alberta.

Access Strategy 5.5—Foster institutional dialogue about the desired attributes and competencies of University of Alberta graduates across all programs.

- Many units will articulate a set of skills, attitudes, and values that are or will be incorporated into graduate and undergraduate programs and supporting units. These identified skills, attitudes, and values will be developed through targeted learning opportunities in both credit and non-credit spheres.
- ☑ The GFC Committee on the Learning Environment has initiated an Attributes and Competencies Subcommittee to consider a list of competencies for the institution as a whole, above and beyond those already in place in individual faculties and programs.

ACCESS THEME II: LEARNING ENVIRONMENT

ACCESS GOAL 6—Ensure a high level of teaching quality.

Access Strategy 6.1—Encourage and provide professional development for all instructors.

- Provide professional development opportunities for instructors through the Centre for Teaching and Learning and the Endowment Fund for the Future Teaching and Learning Enhancement Fund.
- Encourage informal and formal mentoring programs for the development of teaching.
- Implement the Certificate in Teaching and Learning in Higher Education.
- Encourage the adoption of leading-edge information technology resources and provide training and support for instructors in the use of these resources.

Access Strategy 6.2—Recognize the value of high-quality teaching.

- Recognize professors and instructors for excellence in the classroom at Celebrate! Teaching–Learning–Research.
- Highlight and recognize the importance of teaching and learning in the annual Faculty Evaluation Process.
- Highlight accomplishments in teaching and learning through the annual Festival of Teaching.
 - ☑ The Festival of Teaching was expanded to a four-day event, with open classrooms, an international keynote speaker, a TED-talk style event, and teaching innovation banner event.
- Nominate our best teachers for prestigious national and international awards.
 - ☑ Two more professors won Canada's top teaching award, the 3M Teaching Fellowship, bringing to 34 the number of 3M awards won by U of A instructors, the highest number in Canada.
 - Implement the newly created Award for Excellence in Graduate Teaching, approved by General Faculties Council in November 2011.

Access Strategy 6.3—Examine assessment and grading practices.

- Review our university-wide principles and practices on assessment and grading.
 - ☑ The two-year review was completed.
- Informed by academy-wide discussion and participation, renew university-wide policies, and implement new procedures, as necessary, on assessment and grading.
 - Recommended changes to policy and procedure; begin GFC consultations in winter 2012.

ACCESS GOAL 7—Ensure the development and maintenance of quality formal and informal learning spaces.

Access Strategy 7.1—Establish a Learning Spaces Subcommittee.

- Under the direction of the Facilities Development Committee, initiate a Learning Spaces Subcommittee comprising members from all constituency groups on campus, in an effort to ensure that the process for the development of formal and informal learning spaces is effective and meets the needs of learners and instructors on campus.
- Once approved, implement the recommendations from the Learning Spaces Subcommittee.
 - ☑ The GFC FDC Subcommittee on Learning Spaces submitted its report and began GFC consultation on the report and its recommendations.
 - Complete the consultation process on the report and begin the implementation process on the report's recommendations.
- Continue the practice of “design charettes,” an intensive, hands-on workshop that brings people from different disciplines and backgrounds together to explore design options for a particular area or site, in the development of new and the redesign of older formal and informal learning spaces.
- Develop learning spaces that maximize interaction (student to student, student to instructor, undergraduate to graduate student) and flexibility as learning needs evolve with time.

- Ensure the continued development of individual study space.

Access Strategy 7.2—Ensure the availability of quality space generally on campus.

- Continue to consult with students on new and repurposed student space (e.g., CCIS, ECHA, Physical Activity and Wellness Centre).
- Transform existing library space to support new learning and group program study needs.
- Use space to minimize disruption and costs incurred on renewal and repurposing projects.
- Develop a capital plan for student housing that focuses on deferred maintenance (keeping older housing facilities online and affordable) and expansion to meet the needs of our students. *See* the Capital Plan chapter for details.

ACCESS GOAL 8—Enhance the digital environment and online presence of our institution.

Access Strategy 8.1—Ensure quality IT support for our teaching and learning environments.

- Maintain evergreening funds for all instructional based IT (e.g., hardware, software, and classroom technologies).
- Audit teaching and learning spaces to determine level of IT modernization required.
- Develop and implement a suite of IT policies on campus related to use, management, and security.
 - The next policy material to be brought forward will be the university's new Encryption Procedure, with a focus on mobile devices.
- Increase awareness of students and staff of IT security policies.
- Ensure all centrally controlled classrooms are equipped with IT infrastructure.
 - ☑ The process of installing IT infrastructure in all centrally-booked classrooms was completed.

Access Strategy 8.2—Create a comprehensive, unified and integrated online experience for U of A students.

- Complete implementation of Moodle as the university's single centrally supported learning management system.
- Complete the adoption of the Google Apps for Education Edition as the university's single uniform email and calendaring platform; integrate this with Moodle.
- Support interactive distance delivery of material through Elluminate.
- Enable access to all instructional IT services via single sign-on technology.

Access Strategy 8.3—Campus of the future: Mobility computing

- Invest in mobility computing infrastructure.
- Complete the process of upgrading the university's wireless infrastructure.
- Develop innovative mobile applications for a variety of mobile devices, building on the success of the uAlberta iPhone application that was released in summer 2010.
- Ensure the U of A's web presence is mobile friendly.

Access Strategy 8.4—Improve web presence overall.

- Ensure the uniformity of the look and feel of our web presence.
 - Continue to build on the success of our new website, launched in fall 2011, receiving and responding to feedback from the community with a goal of continual refinement of the web presence.
- Expand the U of A's social media presence (Facebook, Twitter, etc).

Access Strategy 8.5—Incorporate discipline-specific advanced technologies into learning and training.

- In the newly created Health Sciences Education and Research Commons (HSERC) in the Edmonton Clinic Health Academy, use simulated learning environments to provide team-based educational experiences to shape the health professional of the future.
- See Access Strategy 18.3.

ACCESS THEME III: STUDENT EXPERIENCE AND ENGAGEMENT

ACCESS GOAL 9—Improve admissions and registration processes for all students.

Access Strategy 9.1—Prioritize and implement recommendations received from admissions and student awards process reviews. Specific recommendations include:

- Simplify admissions requirements for students.
- Streamline internal transfer admission practices.
- Use consistent terminology for admissions and registration across faculties.
- Review course load requirements for student award renewals.
 - ☑ 2011 and ongoing: These initiatives are being addressed by the Academic Policy and Process Review (APPR) Task Force.

Access Strategy 9.2—Develop and implement a strategic plan for recruitment.

- Ensure improvement in communication between Faculty-specific and central recruiting strategies and initiatives.
- Streamline international recruitment activities among University Alberta International, the Office of the Registrar, and faculty offices.
- See further strategies under Access Goal 1.

RESOURCE REQUEST:

❖ \$750,000 base funding to support French-language program and student support services at Campus Saint-Jean.

ACCESS GOAL 10—Support programs and initiatives to help increase retention and completion rates.

Access Strategy 10.1—Develop and support programs and initiatives for students at risk.

- Enhance early identification of students at academic risk and support these students early in their programs.
 - ☑ The Office of the Dean of Students hosted the first Take Back the Term event to provide information and support to students at academic risk at mid-term. One hundred and thirty students participated.
- Review and expand Fresh Start Programs to assist students in transition and improve academic success.
 - ☑ The new Success on Alternate Routes Task Force is undertaking this review.

Access Strategy 10.2—Continue to emphasize the importance of Academic Student Services and the Writing Centres.

- Faculties are engaged in a significant number of initiatives related to services for students. These are in addition to the reorganization of central student services mentioned in Access Goal 2. Examples include:
 - ☑ The early intervention program for students at risk in the Faculty of Agricultural, Life & Environmental Sciences.
 - ☑ Review of Undergraduate Student Services in Arts to ensure ease of access and responsiveness.
 - ☑ Reallocation of resources to base fund the Writing Centre at Augustana.
 - ☑ Development of enhanced web-based supports and resources for students in the Faculty of Physical Education and Recreation.
 - ☑ Barrier and strategy identification in the School of Public Health to address the needs of a diverse student body.
 - ☑ Expansion of the newly developed Decima Robinson Support Centre for Mathematical and Statistical Sciences with particular focus on weekly review seminars.

- ☑ Continuation of the Faculty of Science Student-At-Risk initiative, linking at-risk students with advising and support services.

ACCESS GOAL 11— Provide enhanced experiential learning opportunities.

Access Strategy 11.1—Increase the number of community service learning opportunities

- Examples include:
 - ☑ Expansion of community service learning and other forms of experiential learning in the Faculty of Agricultural, Life & Environmental Sciences.
 - ☑ Community service learning project requirement in the Integrated Community Clerkship program in the Faculty of Medicine & Dentistry.
 - ☑ Continuation of the physical therapy Augustana program and launch of the satellite program in Calgary in September 2012.
 - ☑ New Science Citizenship course piloted in the Faculty of Science.

Access Strategy 11.2—Develop academic cohorts in residence.

- Continue the development of academic cohorts in residence (faculty-based groupings) with home faculty participation in programming.

Access Strategy 11.3—Increase outreach activity in communities.

- Increase the number of outreach activities in communities within Edmonton, Alberta, and further afield.
 - ☑ 2011 and ongoing: The Faculty of Physical Education and Recreation is bringing teaching and research activities to the attention of community partners by incorporating them into the day-to-day running of the new Saville Community Sport Centre.
- Develop opportunities for faculty and students to engage in outreach to Aboriginal communities.
 - ☑ 2011 and ongoing: The Faculty of Native Studies hosts the Wicahitowin

Research Action Circle to act as a conduit between the urban Aboriginal community in Edmonton and relevant university expertise on Aboriginal issues.

- Encourage development of research opportunities in rural communities.
- Develop university programming intended to encourage university graduates to seek employment in rural communities, especially from professional programs.
 - ☑ The Faculties of Augustana and Education launched the new Bachelor of Science/Bachelor of Education combined degrees program with a requirement that students complete at least one of their practicum opportunities in a rural school.

Access Strategy 11.4— Increase the number and breadth of practicum experiences across faculties.

- Examples include:
 - ☑ Expansion of the Faculty of Arts Work Experience Project (piloted in 2010-11).
 - ☑ New international practicum placements in School of Library and Information Studies, including sites in Australia, Finland and the United States.
 - ☑ Continued development of the MD program of Pre-Clerkship Networked Medical Education in rural communities, offering more 4-week experiences in more courses.
 - ☑ Inter-professional experiential rotations between Pharmacy students, Nursing students and MD students.
 - ☑ The School of Public Health has increased the number of practicum partner institutions to more than 100.
 - ☑ Practicum experience required in the newly approved BSc and BA in planning.
 - ☑ Increase placement capacity in Calgary and rural Alberta (Integrated Community Living, Primary Health Networks) for Rehabilitation Medicine.

ACCESS GOAL 12— Enhance extra-curricular and co-curricular learning opportunities (i.e., supporting services, activities, and campus facilities that encourage and help facilitate student success).

Access Strategy 12.1—Provide social/ community activities and events that contribute to social development and community engagement in order to enhance the quality of the student experience and assist in the development of engaged citizenship. Examples include:

- Student groups: more than 400 student groups bring current students together through shared interests, activities and causes.
- Learning communities, both formal and informal, including those found in residences, faculties, departments, and programs.
- Community service learning opportunities.
- Participation in institutional governance with opportunities ranging from academic program units to Board of Governors.
- Student participation in volunteering abroad programs through faculties, departments, programs, and student groups.
- Further development of student volunteer opportunities through the Office of Sustainability.

Access Strategy 12.2—Provide health and wellness activities that contribute significantly to student success. Examples include:

- Campus recreation, fitness, and athletics.
- Health services, counselling, and mental health services.
- Support services for diverse communities of students, including those based on disabilities, diversity, and spirituality.

Access Strategy 12.3—Provide career/ life development resources to students. These resources play an important role in the effective transitioning of students out of university. Examples include:

- Career services, internships and work experience.
- Mentorship between faculty and students.
- Lifelong learning activities.
- Active connections with alumni.

ACCESS GOAL 13—Continue to create international opportunities for students.

Access Strategy 13.1—Enhance collaboration between central and faculty units to inform, advise, and support faculties in providing increased international opportunities for students

- Develop faculty-led programs for education abroad.
 - ☑ 2011 and 2012: University of Alberta International (UAI) is implementing a new funding model for education abroad programming to foster faculty-led and individual student study abroad activities.
- Expand international internship opportunities including collaboration with current co-op and internship programs.
 - ☑ UAI's Summer Research Internship program hosted 70 students from partner universities in China and India.
 - 2012: UAI's Research International program will be expanded to include students from Australia, New Zealand, Brazil, Germany, Korea, Mexico and USA.
- Develop academic programs where study abroad is an integrated requirement for degree. This could include models of joint or dual degrees.
 - ☑ A number of joint and dual degrees were initiated, including a partnership with Shantou University for students in the PhD in Medical Sciences program.

- Review and consider administrative issues related to transfer credit for study abroad courses.

- ☑ The Academic Policies and Procedures Review Task Force has delegated this to a subcommittee reviewing many aspects of transfer credit.

Access Strategy 13.2—Increase international education opportunities and enhance global education learning.

- All faculties of the University of Alberta are engaged in the development of international experiential opportunities for students. Some new examples include:
 - ☑ Expansion of the Cortona program in Arts with addition of a spring semester and expanded course offerings in Cortona.
 - ☑ MOUs to facilitate student/faculty exchanges between Augustana Campus and United International College in Zhuhai, China and Universidad de Oriente in Santiago, Cuba.
 - ☑ Off shore teacher practicum experiences in Macau for students of the Faculty of Education.
 - ☑ Law summer program at the University of Granada, Spain and the University of Woollongong, Australia.
 - ☑ Development of exchanges between the School of Native Studies and the University of Otago, New Zealand.
 - ☑ Expansion of international exchange program for Pharmacy students with Toho University, Japan, Al-Ahram Canadian University, Egypt, the University of Naples, Italy and the University of Grenoble, France.
 - ☑ Possible study abroad programs for Earth and Atmospheric Sciences students with Ludwig Maximilians Universität (Munich).

RESOURCE REQUESTS:

- ❖ **\$3.0 million base funding for international student scholarships.**
 - ❖ **\$800,000 base funding for international internship and study abroad student support.**
-

ACCESS GOAL 14—Provide foundational support structures for students in order to create a nurturing environment that allows for positive student experience and engagement.

- See points under Strategy 2.1.

ACCESS GOAL 15—Create a safe and secure environment on U of A campuses that is supportive of a positive student experience.

Access Strategy 15.1—Develop safety and security features on and off campus.

- Continue development and maintenance of the university's Integrated Emergency Master Plan, including the university's Public Health Response and Crisis Communications Plans, to deal with any emergency and public health issues that may arise throughout the year.
- Collaborate with the City of Edmonton and AHS in the organization and holding of emergency preparedness tabletop exercises.
- Continue development of the emergency notification system on campus.
- Within the university's enterprise risk management framework, ensure annual updating of institutional risks.
- Continue development of resource materials and web-based health and safety information relating to both curricular and non-curricular activities.
- Continue university communication strategy on implications of the new Off-Campus Activity and Travel Policy and procedures.

ACCESS THEME IV: INNOVATIVE PROGRAMMING

ACCESS GOAL 16—Continue development of additional innovative programming to meet the needs of learners and the community.

Access Strategy 16.1—Continue to propose new programs that would be funded with existing resources through the reallocation of existing FLEs. These reallocations allow for the ministry to point to new programming in a priority area, the university to produce new programming in tight financial times, and most importantly, for students to access new, innovative, and highly relevant programs.

- ☑ This model was recently used to ensure that the new Bachelor of Arts and Bachelor of Science in planning programs proceeded after first-year direct entry admission to the Faculty of Education was restored, enabling targeted and immediate recruitment of excellent high school graduates to the Faculty of Education.

Access Strategy 16.2— Develop additional innovative programs using a cost-recovery model. Examples of new programs that have the potential to be funded with a cost recovery model include:

- New online offering of the existing Master of Library and Information Studies program (in response to market demand).
- New full cost-recovery Executive Master of Engineering program.
- Free-standing credit certificate programs.

Access Strategy 16.3—Develop innovative and varied programming opportunities and methods of delivery at the graduate level.

- ☑ Policies and procedures on shared credentials were approved by the Board of Governors in fall 2010. Further evolution of our processes in these areas is now underway, as are university-wide conversations regarding implementation of the new policies.

- A variety of graduate offerings have been proposed by the academy, including:

- Developing and implementing fast-track programs that allow students to move to a more advanced degree before completion of a lower level degree. Examples include moving from a master's program to a PhD

program before the master's program is completed.

- Developing and implementing new/revised course-based master's programs. A number of faculties have proposed new course-based programs (some of which may be cost-recovery), particularly with international partners for international students.

PROGRAM INITIATIVES AT THE UNIVERSITY OF ALBERTA

Recently approved programs to be implemented

BA and BSc in planning
PhD in the history of art, design and visual culture
PhD in performance studies (AR)
Doctor of pharmacy (PharmD)
University certificate in Aboriginal governance and partnership
College-level programming (CSJ) - diploma in business administration

New program initiatives

New majors in watershed management and plant biotechnology (ALES)
Northern studies major at Yukon College (ALES, NS)
PhD in East Asian studies (AR)
PhD/MA/BA/BFA in interactive media (AR)
MA/PhD in political theory (AR)
MA/PhD in cultural studies (AR)
MA in women's studies (AR)
MA in science, technology and society (AR)
PhD in writing studies (AR)
MA in peace and governance (AR)
New Korean studies concentration (AR)
MA in public economics (AR, BU, ALES)
MA in medical humanities (AR, MD)
BA (economics)/BCom (AR, BU)
BA/BSc in gaming (AR, SC)
Post-baccalaureate certificate in translation
Combined MBA/BSc in pharmacy (BU, PH)
New online offerings of existing MLIS program (ED): Rural, small, and medium-size public librarianship; digital curation
New freestanding certificates in library and information studies (ED)
Freestanding credit certificates (EX)
BSc in ophthalmic sciences (MD)
International foundation certificate/Diploma in biomedical science (MD)
MSc in laboratory medicine and pathology (MD)
Joint degree in Aboriginal sport and recreation (NS, PER)
Master of coaching (PER)
BSc in occupational sciences (RM)
Specialized doctor of rehabilitation medicine (RM)
PhD program in études canadiennes (CSJ)
MEd with various specializations (CSJ)
BA major in theatre studies (CSJ)
BEd/BA combined degrees program (CSJ)
BSc in computing sciences with specialization in 3-D multimedia (SC)
New major in computing sciences in BSc/BEd program (SC)
New specialization in science of the global environment (SC)
Wildlife biology specialization (SC, ALES)

- Developing and implementing blended delivery programs that allow for increased student flexibility. Specific examples include:

- ☑ The distance Master of Education program with Northern Lights School District.
- ☑ New online offering of the existing Master of Library and Information Studies Sciences program.

Access Strategy 16.4—Pursue innovative international training programs.

- Increase international graduate enrolment through international research consortia and partnerships, priority partner institutions, and sponsored student agreements.
- Develop shared credential programming with international institutions to attract international graduate students, leveraging our international profile and consortia. Recent examples include:
 - ☑ Exchange agreement with Shantou University for PhD students in the Medical Sciences program.
 - ☑ Seoul National Dual Graduate Degree for PhD students in the Faculty of Education.

Access Strategy 16.5—Reallocate existing FLEs to graduate programs.

- We will continue to increase enrolment in graduate programs by reallocating enrolment from undergraduate programs where appropriate.

ACCESS GOAL 17—Increase access to current high-demand programs.

Access Strategy 17.1—Reallocate existing FLEs to high-demand programs from programs that are redundant, no longer relevant, or in lower demand. Proposed examples include:

- Reallocation of FLEs from the Bachelor in Physical Education to the B.Sc. Kinesiology program.
- Planned increase in undergraduate Mining Engineering enrolment, balanced by planned reductions elsewhere.
- See also Access Strategy 22.2 for Campus Alberta access to high demand programs.

Access Strategy 17.2—Work with AET to restore graduate program FLEs lost in previous budget actions where reallocation is not viable because of high demand in undergraduate programs.

RESOURCE REQUEST:

- ❖ **\$1.1 million in base funding for 43 FLEs for expansion of the PhD in engineering.**

ACCESS GOAL 18—Ensure appropriateness and relevancy through course and program reform.

Access Strategy 18.1—Implement more cornerstone courses.

- Create cross-discipline, interest-based learning experiences for first- and second-year students to enhance establishment of class cohort-based learner communities.
- Continue enhancement of engineering qualifying year (first year) structured timetable patterns that lead to the formation of 20-25 student cohorts of approximately 30 students (affecting 600-750 students).

Access Strategy 18.2—Explore alternative models of program delivery, including distance education and blended models. Specific examples from faculties include:

- Distance education nutrition courses for professional upgrading.
- New online MLIS program delivered with no residency requirement.
- New opportunities for simulation learning using the state-of-the-art facilities in the Edmonton Clinic Health Academy for students in the health-related faculties.

Access Strategy 18.3—Increase collaborative, interdisciplinary program development.

- Develop theme-based (e.g., sustainability, northern studies, international studies) and skill-specific certificates that enable students to pursue multiple interests and interdisciplinary learning.
 - ☑ ALES and Augustana Campus have established the Alberta Centre for Sustainable Rural Communities to foster collaboration in undergraduate

teaching, research, and policy development led by a professor appointed jointly to the two faculties.

- ☑ School of Business implemented a new major/minor in natural resources, energy and environment in association with the Faculty of Arts.
- Approval of the Certificate in Sustainability and the Certificate in Global Citizenship is expected in winter 2012.

- Maximize opportunities provided by the Edmonton Clinic Health Academy for inter-professional and interdisciplinary study for students in the health sciences faculties and to promote scholarship in the health sciences for faculty across all campuses.

- ☑ ECHA opened in September 2011. Its role is to lead the integration of health team education or inter-professional learning into professional curricula, an integrated collaborative learning model that is beginning to be required by the health professions regulatory bodies.
- The goal is for all health science professional students at the U of A to have three or four health team learning experiences (considered a 'pathway') for a total of 3000-4000 student health team experiences a year. Both curriculum and operating resources will need to be procured to ensure the long-term sustainability of this new model of health care education.

RESOURCE REQUEST:

- ❖ **\$250,000 base funding to support health-team pathways academic programming.**

- Develop interdisciplinary programs in the Faculty of Science, including watershed management and wildlife biology (with Faculty of Agricultural, Life & Environmental Sciences) and immunology and infectious diseases (with Faculty of Medicine & Dentistry).
- Review and revise the combined BSc/BEd offered by the Faculties of Science and Education to make available to students seeking this credential all major and minor combinations, such as computing science, that exist in the Faculty of Science's B.Sc. General program.

- Develop a new MBA/BSc in Pharmacy combined degrees program to join other combined degrees program linking professional programs with the MBA for implementation in 2012.

ACCESS GOAL 19—Provide valuable ladder opportunities from high school to post-secondary study, undergraduate to graduate study, and post-secondary study to professional experience.

Access Strategy 19.1—Foster institutional dialogue about the role of new certificate programs, both embedded and freestanding, in adding value to the degree experience and in providing valuable post-professional educational opportunities.

- Support the development of embedded certificate programs across disciplines that add value to existing degrees and allow students to tailor degree programs to meet learning goals (e.g., Sustainability, Global Citizenship, Northern Studies and International Studies).
 - ☑ A new embedded Certificate in Community Mental Health Theory and Practice has been approved for implementation at Augustana Campus in September 2012.
- See also Access Strategy 18.3
- Support the development of freestanding certificate programs that provide enhanced study for graduates of degree programs and valuable connections to professional communities.
 - ☑ The Certificate in Aboriginal Governance and Partnership is now approved in the Faculty of Native Studies.

Access Strategy 19.2—Develop college-level programs in French at Collège Saint-Jean to support the education needs of Alberta's francophone community.

- Implement the first college-level programming at Collège Saint-Jean upon final approval by Advanced Education and Technology.
 - The first proposed program is a two-year bilingual diploma program in Business Administration.

- Potential future diploma programs for Collège Saint-Jean include Licensed Practical Nurse, Tourism and Ecotourism, and Personal Care Aid.

RESOURCES REQUEST:

- ❖ **\$1.75 million base funding to support new program and operating costs for Collège Saint-Jean.**
-

Access Strategy 19.3—Expand bridging programs.

- Expand bridging program opportunities for students in the Faculties of ALES, Arts, Augustana, Physical Education and Recreation, Native Studies, and Science. The goal of the program is to assist students who are otherwise admissible to the university with achieving their English Language Proficiency. The program has already seen significant uptake with further growth anticipated in coming years. (See Access Strategy 1.1)
- Explore a number of other discipline-specific bridging opportunities within faculties, including the possibility of Collège Saint-Jean offering post-secondary preparatory offerings in French.

ACCESS GOAL 20—Continue to offer a range of lifelong learning opportunities through continuing and professional education programs.

Access Strategy 20.1—Continue to offer a full range of continuing and professional education.

- Continue to offer a variety of continuing education opportunities through our Faculty of Extension.
 - Consider the development of freestanding certificates through the Faculty of Extension in areas such as qualitative inquiry, leadership in professional practice (with Faculty of Engineering), occupational health and safety (with the School of Public Health) and policy and social innovation (with ALES and Augustana).
 - Continue to offer continuing professional education opportunities in the Faculty of Medicine and Dentistry and the School of Business.

- Implement the new Doctor of Pharmacy option for returning pharmacists in the Faculty of Pharmacy and Pharmaceutical Sciences.

- Provide French-language training and immersion programs through Campus Saint-Jean and Collège Saint-Jean.

Access Strategy 20.2—Determine the level of non-credit activity on campus.

- Continue implementation of the new registration system for non-credit programs, compatible with the credit registration system, to capture non-credit enrolment in the Faculty of Extension in the first instance, with the opportunity to make this system campus-wide in the future.

ACCESS THEME V: CONNECTIONS AND COLLABORATIONS

ACCESS GOAL 21—Increase interdisciplinary, collaborative program and initiative development in order to offer students innovative and relevant educational opportunities.

Access Strategy 21.1—Encourage interaction between faculties for the creation of programs and initiatives that transcend traditional disciplinary boundaries in order to provide exciting opportunities for students.

- Continue offering most of the courses in the first-year engineering program in French at Campus Saint-Jean, coupled with the opportunity to complete third-year engineering courses in French as a visiting student at one of several universities in Québec or France.
- See Access Strategy 18.3 for a few specific examples of interdisciplinary collaborative program development.
- A full list of program initiatives being considered at the U of A can be found under Access Goal 16.

ACCESS GOAL 22—Maximize program innovation at the Campus Alberta level in order to create exciting learning opportunities and program efficiencies.

Access Strategy 22.1—Work with Campus Alberta partners to determine program possibilities, develop and implement new programs.

- Ongoing faculty-specific examples of Campus Alberta collaboration include:
 - ☑ Discussions between ALES, Olds College and Grant MacEwan University (GMU) for delivery of select undergraduate programs.
 - ☑ Recent 2+2 arrangements between Augustana Campus and Red Deer College and Grande Prairie Regional College for students in music.
 - ☑ Maskwachees Cultural College 1+3 arrangement into Bachelor of Management at Augustana.
 - ☑ Master's in Indigenous People's Education in partnership with Blue Quills First Nations College, offered via blended models of delivery in September 2011.
 - ☑ Aboriginal Teacher Education Program cohort in collaboration with Northern Lakes College and Northlands School Division in 10 northern community sites.
 - ☑ Certificate-level collaboration between the Faculty of Extension and Campus Alberta institutions.
 - ☑ Preclinical networked medical education initiative in partnership with the University of Calgary, Grande Prairie Regional College and local community agencies.
 - ☑ Shared pharmacy faculty position with the University of Calgary family medicine program.
 - ☑ Collège Saint-Jean collaborations with NAIT and Bow Valley College.
 - ☑ MOU signed with Grande Prairie Regional College to offer a collaborative pilot program in secondary education.

Access Strategy 22.2—Work with AET to address Campus Alberta enrolment pressures in high demand programs that emerged with past budget action.

- ☑ Faculty of Engineering first year partnerships with seven Campus Alberta institutions and transfer opportunities for students from these and other Campus Alberta partners are compromised by the current enrolment target that is 270 FLEs lower than previously planned. The usual transfer rate of approximately 400 students per year fell to 46 in 2011-12 as a result of the higher minimum grade averages required for admission because of continued high demand.

ACCESS GOAL 23—Maximize program innovation in collaboration with national partners in order to create exciting learning opportunities.

Access Strategy 23.1—Work with Canadian partners to determine program possibilities, and then develop and implement new programs.

- Faculty-specific initiatives related to national partnerships include:
 - New northern studies major in the ENCS program at Yukon College.
 - Formalization of pilot partnership in Faculty of Native Studies with Dechinta Bush University.
 - Partnership with University of Saskatchewan on doctor of pharmacy course offerings.
 - Collaborations with Collège Maisonneuve and Collège de Matane in Quebec for the Collège Saint-Jean initiative.

Access Strategy 23.2—Create national partnerships to maximize national and international reach of the university.

- Continue to develop the CALDO partnership (a consortium of the universities of Alberta, Laval, Dalhousie and Ottawa) and its initiatives to better access international opportunities, particularly for graduate student recruitment, in countries where large sponsored student programs are run by national governments, foundations, or corporations that do not normally work with individual institutions. The consortium will focus on a select number

of partner countries, such as Chile, Brazil, possibly Vietnam, and Iraq.

- ☑ 2011 and ongoing: Under the CALDO banner, the University of Alberta has entered into agreements with Brazil's National Council of Science and Technology (CNPq) and the Federal Agency for Support and Evaluation of Graduate Education (CAPES) to promote sponsored graduate student recruitment and undergraduate research internship opportunities.
- The University of Alberta, along with our CALDO partners, is working on an agreement with the three northern colleges to facilitate student mobility.

ACCESS GOAL 24—Leverage and extend our international research consortia, and use these as a platform for delivering innovative shared credential graduate programs with top-calibre partner institutions.

Access Strategy 24.1—Work with international partners to determine program possibilities, and then develop and implement new programs. Some developing partnerships include:

- Partnership in ALES with institutions in China for 2+2 programs.
- Partnership between Arts and Aga Khan University in East Africa to build the first AKU Arts program.
- Master of Financial Management partnership with Xian Jiaotong University in China.
- Dual graduate degree with Seoul National University in education. This MOU was signed in July 2011.
- Further development of the dual JD program with the University of Colorado to improve student and faculty participation.
- PhD program in medical sciences with Shantou University, funded by Li Ka Shing (Canada) Foundation in the Faculty of Medicine and Dentistry.
- Campus Saint-Jean PhD program in Canadian studies in collaboration with the Sorbonne in Paris.
- Development of shared credential programs that build upon the research activities of the Helmholtz Alberta Initiative.

Part B: Research, Scholarship, and Creative Activity

Today, the U of A connects Alberta to the world and the world to Alberta by attracting and retaining world-class talent, by elevating the province's national and global profile, and by building top-level international partnerships and transferring made-in-Alberta ideas and innovations to the global community and marketplace.

With this growing international profile, the U of A is the only university in the province with the depth and breadth of research and teaching capacity, and reputation for excellence, to become one of Canada's top two universities and one of the top 20 public universities in the world.

Aligning with Alberta's Priorities

The U of A conducts sponsored research and joint projects with every one of the Government of Alberta's ministries, including those with mandates relating to children's services, Aboriginal affairs, international relations, sustainable land management, community and northern development, infrastructure and transportation, parks and recreation, and mental health. In this way, the university continues to produce research, policy development, and evidence-based analysis of great social and economic benefit to Albertans. In addition, the U of A provides instrumental leadership and opportunities within Campus Alberta and the Alberta Innovates framework, through the development of provincial, national and international research and teaching consortia involving other academic institutions, industries, governments, foundations, and/or community organizations.

Currently, excellence in research at the U of A encompasses the following seven areas of critical human activity that are studied in interdisciplinary ways:

1. **Humanities and Fine Arts**
2. **Society and Culture**
3. **Science and Technology**
4. **Energy**
5. **Environment**
6. **Food and Bioresources**
7. **Health and Wellness**

The problems facing Alberta and its global neighbours are complex and can only be thoroughly examined, understood, and eventually solved through interdisciplinary and cross-disciplinary approaches. Through the seven broadly-defined categories that encompass and mix defined disciplines, the U of A integrates and leverages comprehensive and complementary research and teaching endeavours, and works in alignment with provincial strategic priorities to the benefit of both students and faculty, and further afield to the well-being of Alberta society as a whole.

HUMANITIES AND FINE ARTS

Humanities scholarship and creativity in the fine arts are essential to a flourishing, democratic, socially cohesive, and culturally vibrant Alberta. The U of A's investment in humanities and fine arts scholarship advances the strategic priorities of the *Spirit of Alberta*, which underscore the importance of cultural expression, insight, and experience for Alberta's citizens and for Alberta's place on the world stage.

The *Spirit of Alberta* vision rests on four core principles: 1) providing access for all Albertans to a wide range of cultural experiences and opportunities; 2) enhancing community capacity to support and promote cultural activity; 3) encouraging excellence in Alberta's cultural and professional organizations; and 4) fostering growth and sustainability of cultural industries. There is little question that the depth and breadth of U of A's humanities and fine arts excellence continues to be a key driver of the artistic and cultural reputation of Edmonton and Alberta. The university has done this through its sustained commitment to attracting and retaining leaders in creative arts, particularly in printmaking, music performance, music theory, and design. Capacity in these areas is a key element of the university's success in broadening the disciplinary focus of its international research relationships, for example through collaborations in fine arts with Germany's Ludwig Maximilians Universität.

U of A exhibitions recently staged in New York City galleries will be available at Enterprise Square in the coming year, increasing Albertan's access to made-in-Alberta creative works that are traveling through top tier

international venues. Following on the province's 2002 decision to develop and expand design studies, the U of A has built core competency in these areas, including interdisciplinary work that spans across fine arts, health sciences, and more recently, nanotechnologies.

The university continues partnerships with Edmonton and Alberta film producers and directors, creating high calibre television and film documentaries. Strategic directions in music research range from analyzing and composing music with advanced computing technologies to designing new systems for sound quality and improving vocal health of music teachers. This research is, in turn, creating opportunities to advance Alberta's sound recording industries, and informal partnerships with this sector are in place. According to a recent external review committee, the Timms Centre for the Arts is among the very best theatre teaching performance facilities in North America. The university has leveraged this distinction to establish the endowed Clifford E. Lee Playwright-in-Residence program (the first in Canada) and to create the Canadian Centre for Theatre Creation.

Other strategic directions in humanities and fine arts align with specific objectives of the province's cultural strategy and also with Advanced Education and Technology's vision for innovative collaborations among Campus Alberta institutions. A partnership between the U of A and the Banff Centre resulted in a new residency program for national and international scholars engaged in advanced research on themes and topics in culture. The university also draws national activity in literature and literary studies into the province and into the community through The Canadian Literature Centre/Centre de littérature

canadienne. This initiative serves as the western hub of the Canadian literary sector of translators, authors, publishers, collectors, and the reading public, and promotes research of Canadian literature, in both English and French. Teams of scholars in Aboriginal literature are closely engaged with First Nations, Métis, and other distinct communities, providing more opportunities for these cultures to share, express, and preserve their perspectives —another core objective of the *Spirit of Alberta*.

The university's broader strengths in linguistics, history and classics, philosophy, literary theory, cultural studies, and Ukrainian and East European history and culture, continue to grow with the addition of recent Canada Research Chairs. The Kule Institute for Advanced Study is a newly established vehicle for aggregating and engaging interdisciplinary and comparative scholarship in humanities, social sciences, and fine arts, and for drawing international scholars to the U of A as a place for innovative thinking in these areas.

In both the public and academic sector, research on complex historical, economic, health, social, and cultural issues is increasingly dependent on advanced computing tools needed to access and synthesize extensive databases of digitized material. Over the past 12 years, the university has emerged as a national and international leader in humanities computing. This area continues to expand into the broad realms of digital social sciences with the development of advanced cyber-infrastructure for “big social science” on regional, national, and international levels. Through humanities and computing science collaborations, the U of A is well-placed for new initiatives in interactive entertainment (e.g. computer gaming) and the digital economy. These activities continue to support local industries in computer gaming, and through new technologies, strengthen Albertans' ability to share and experience culture.

SOCIETY AND CULTURE

In the *Spirit of Alberta's* Land Use Framework, there is a clear recognition that Albertans' well-being will continue to be both defined and measured by the presence of vibrant, healthy, well-governed, and prosperous communities.

Social science research activities at the U of A constitute some of the institution's most direct impact on Alberta issues. These activities include, for example, issues in health economics, natural resource conservation and allocation policies, the engagement of marginalized populations, mental health practice and policy, environmental protection legislation, and intellectual property frameworks. All of these matters align with several provincial mandates and concerns, and constitute the basis for valuable, informed advisory relationships between the U of A social science professoriate and the province.

Research and inter-institutional partnerships that the university creates in social sciences, law, business education, and community engagement are aligned with Alberta's international strategy of creating “externships:” competitive placements for talented Albertans in international organizations, foundations, multilateral institutions, and the private sector. Work in family, contract, and tort law, and alternate dispute resolution provides core leadership in matters of interest to Albertans and practicing Alberta lawyers.

Similarly, the university's research capacity in retail management, entrepreneurship and family enterprise, institutional dynamics of markets, behavioural accounting, and corporate development informs and advises private, municipal, and provincial sectors on matters of economic and business development.

The U of A's CAIP Chair in Innovation Policy and Technology Translation aligns with key priorities of the Ministry of Alberta Advanced Education and Technology

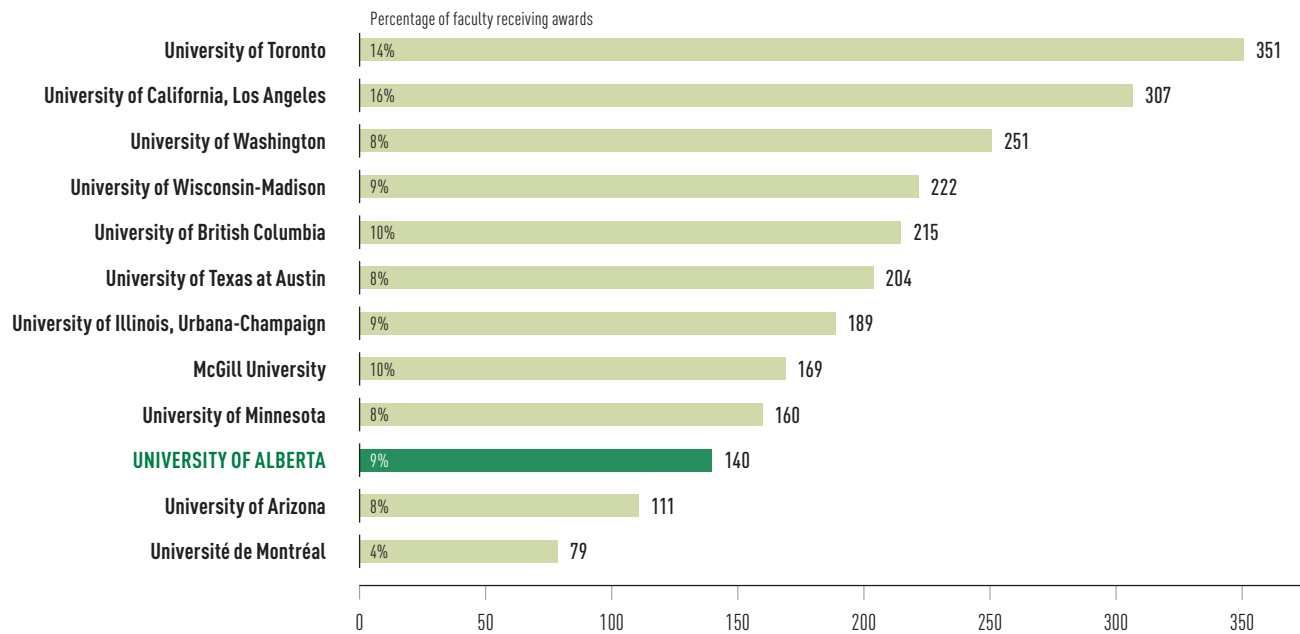
and of Alberta Innovates—Technology Futures. It will ensure that the university continues to play a leading role in providing business and entrepreneurial skills training across the sciences, medicine, and engineering. These programs will also enable the university to recruit top international students, better facilitate mobility, and develop talent at the science-business interface to enhance commercialization, innovation, and economic diversification goals.

The U of A educates Alberta’s teachers within a research environment that has recognized excellence in curriculum and pedagogy, science education and literacy, multi-modal literacies, policy development, educational

assessment and measurement, educational and mental health, the educational needs of multicultural and Aboriginal populations, and the appropriate integration of technology within scholarship and teaching. With this institutional capacity, we remain positioned to develop, assess, and contribute to new programs and frameworks across several ministries, including the Ministry of Education and Alberta Health and Wellness.

Research activities in Aboriginal and First Nations issues, especially in the realm of legal, social, cultural, and educational scholarship, is aligned with the provincial mandate to strengthen relationships with Aboriginal communities and people. The recently opened Rupertsland

FIGURE 12 SELECTED FULL-TIME FACULTY AWARDS AND HONOURS, UNIVERSITY OF ALBERTA AND SELECTED PEERS, 1998 TO 2010



Awards include: 3M (1998 - 2010), American Academy of Arts and Sciences (1998-2010), CIS Coach of the Year Award (1998-2010), Federal Tri-Council Highest Awards (1998-2010), Fulbright Scholars (1998-2010), Guggenheim Fellowship Awards (1998 - 2010), ISI Highly Cited Researchers (inception-2009), Killam Research Fellows (1998-2010), Molson Prize (1998-2010), National Academy of Engineering (1998-2010), National Academy of Sciences (1998-2010), Nobel Prize (inception-2010), Royal Society of Canada (1998-2010), Royal Society of Canada Awards (1998-2010), Royal Society of London (1998-2010), Sloan Research Fellowships (1998-2010), Steacie Fellows (1998-2010). **Source:** Award data from individual award websites; individual university websites. Faculty counts based on Statistics Canada: Salaries and Salary Scale of full-time staff at Canadian Universities Reports.

Centre for Métis Research is the culmination of a decade-long partnership between the U of A and the Métis Nation of Alberta, and will co-ordinate and sustain academic research activity with and for Métis communities.

The U of A's Northern Strategy mobilizes capacity around topics that span education, cultural development and art, national sovereignty, security, cryosphere sciences and climate change, and health. These activities are aligned with the ministries that advance the social, educational, and economic opportunities for Alberta's First Nations' peoples and the development of Alberta's northern resources. The university is also leveraging its capacity in these areas to create international partnerships with other universities that have a strong investment in the culture and society of indigenous people, present and past. The university's research on first peoples on the western prairies, Russia, and Hokkaido, and early humans in Tanzania is aligned with institutional priorities to secure international funding and collaborations with top-tier partners, such as the University of Washington, the Russian Academy of Science, Oxford University, and the University of Tokyo.

The province has a strong commitment to ensuring that rural Alberta develops a culture of learning, innovation, and community vibrancy. Here, the U of A contributes significant research and training activities that focus especially on educational and health issues of both rural and urban settings. The Community University Partnership program, and institutes such as the City-Region Studies Centre, mobilize and develop research on the nature of towns, cities, and regions through collaborative projects with community partners. Work on the Francophonie, minority-language rights and legislation, as well as intercultural research, distinguishes the university nationally and supports the mandate of the province's Francophone Secretariat to recognize and preserve the province's francophone heritage.

In proposing its CAIP Chair in Food Security and Sovereignty, the U of A strategically chose to build on

its capacity in society, culture, and resource economics to build additional capacity in cross-sector and cross-disciplinary issues that will frame Alberta's food production sector in the coming decades. These range from how climate change is expected to alter the agricultural profile of Alberta and, consequently, its economic role in Canada and internationally, to the role of innovation and entrepreneurship in Alberta's agri-food sector, to the meaning of food security for different socio-economic groups.

SCIENCE AND TECHNOLOGY

U of A research programs in natural and physical sciences, engineering, human and animal behavioural sciences, mathematics, and information sciences position the university to advance knowledge and contribute to Alberta's specific innovation challenges, as they exist today and as they may develop in the future.

The U of A has an institutional commitment to lead and participate in international collaborations that advance the understanding of our universe, our planet's history, and its current challenges. One priority is the study of fundamental physical phenomena. Investments in thermodynamics, theoretical physics, cosmology, and plasma physics have placed the U of A in a leadership position in these research areas and have established innovative science education programs that enable secondary school students and teachers to participate in international particle physics experiments.

Another institutional priority is advancing knowledge about the evolution of the planet. With Alberta's unique geological history at its doorstep, U of A paleobiologists and geophysicists continue to make global headlines that redefine theories of evolution and geophysical change. These breakthroughs are supported by capacity in geochemistry, geochronology, and cryospheric sciences.

Extensive research breadth and depth in sedimentary basins and resources support discoveries and innovations in seismic imaging and signal processing, gas and hydrocarbon chemistry, and petroleum hydrogeology and carbon sequestration. These research areas underpin advances in efficient energy production.

The university's work in climate change, advanced remote sensing, biodiversity assessment, and carbon cycling is undertaken in Canada's Arctic regions, Alberta's boreal forests and prairies, and throughout South America. These capacities align with the commitment to healthy ecosystems and environments as one of three key outcomes of Alberta's Land Use Vision.

With a decade of provincial investment in ICT and mathematics, the U of A has established internationally leading groups in areas of computing science, computer engineering, and mathematics, such as computational and machine intelligence, interactive entertainment, wireless network communication, theoretical mathematics, and mathematical biology. This base puts the university into position for expansion into new programs in the digital economy and digital innovations for improved health services.

With nearly \$400 million invested in nanosciences and nanotechnologies through the NINT partnership and successful federal infrastructure funding to U of A researchers, the university has powered the province's nanotechnology strategy over the past ten years. New research agendas are extending this capacity into strategic diversification areas for the province (e.g., nano-enabled biomaterials; nano-based medical devices and implants). Nanoscience and nanotechnology programs are sustained by core disciplines, such as analytic, organic, and inorganic chemistry; condensed matter physics and low temperature quantum physics; metabolomics; microbial glycobiology; molecular genetics; and advanced materials science.

Basic discoveries that drive new approaches to energy and resource utilization are supported by cross-disciplinary research programs in climate change, condensed matter physics, environmental monitoring technologies, integrated landscape management, computational intelligence, chemical engineering, nanotechnologies, materials engineering, and resource geosciences. As the future global community grows less dependent on carbon-based energy sources, large-scale adoption of alternative energy sources, such as solar cells, will require advanced materials that will make these devices more efficient and less costly. U of A innovation in this area resides at the nanolevel, such as making discoveries in advanced materials, fabrication, nanosciences, and nanotechnologies for viable fuel cells. The large-scale adaptation of alternative energy sources will also require advances in how these alternative energies are distributed. This is supported by research programs for designing and modeling microgrid systems and high performance power electronic interfaces to effectively integrate energy generated by wind, solar, or other alternative sources.

ENERGY

The U of A's strategic initiatives in clean energy and clean environment are inextricably linked, and mirror the Government of Alberta's renewed focus on cross-ministry vision and collaboration to make Alberta the national leader in energy efficiency and sustainability. The university's advances here rely on a base of fundamental core disciplinary strengths across the natural and physical sciences, mathematics, engineering, bioresources, business, and economics.

A CAIP Chair in Enhanced Geothermal Systems will address how geothermal systems can contribute to reducing the greenhouse gas emissions in the oil sands extraction process. There are regions in Alberta amenable to EGS clean energy production and this program will

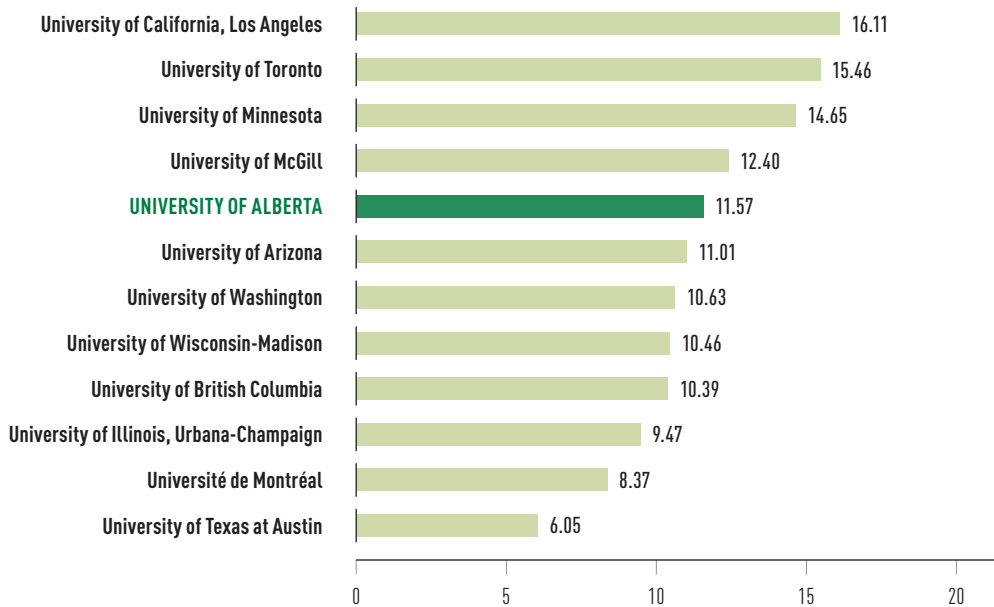
address a number of the significant barriers to establishing cost-competitive EGS power and electricity.

Building upon many advanced research facilities and interdisciplinary initiatives such as the Imperial Oil-Alberta Ingenuity Centre for Oil Sands Innovation, the Canadian Centre for Clean Coal/Carbon and Mineral Processing Technology, the School of Energy and the Environment, and the Helmholtz Alberta Initiative, a CAIP Chair in Interfacial Polymer Engineering for Oilsands Processing will address many of the crucial technical challenges in separating tailings and water, in order to eliminate tailings ponds before they form, thereby solving a key

environmental challenge. The work of this CAIP chair and the other advanced research centres aligns with priorities of the Ministry of Energy and Alberta Innovates—Energy and Environment Solutions relating to bitumen upgrading, new non-aqueous and advanced extraction technologies, clean carbon/coal, improved recovery, and reduced environmental impact. The U of A's innovation in these areas is accomplished via cross-disciplinary teams in chemical engineering and geophysics, molecular modeling, microbiology, and geo-environmental sciences.

The U of A continues to invest in geosciences and engineering to advance nearly every aspect of resource

FIGURE 13 PUBLICATIONS PER FULL-TIME FACULTY, UNIVERSITY OF ALBERTA AND SELECTED PEERS, 2006 TO 2010



Notes: Publication counts reflect the number of papers published in the last five-years, to the average of full-time faculty during the same period. **Source:** Canadian university faculty counts based on Statistics Canada UCASS Final Reports for each respective year. US university faculty counts based on their respective Common Data Sets for each respective year. Citations based on InCites™, Thomson Reuters (2011). Data Source: Web of Science®.

exploration, exploitation, remediation, management and monitoring. This includes research activities in oil and gas reservoirs, non-conventional exploration, ground and surface waters, and global geophysics. Extensive activity in geosciences and geotechnical engineering continues to address issues of CO₂ emissions, and now extends to include nanoscience and biological approaches to CO₂ reduction and sequestration. The university's successful M.Sc. program in Integrated Petroleum Engineering, designed for professional upgrading within the energy sector, builds on the research excellence and draws participants from multinational corporations.

Clean energy and clean environment initiatives also intersect with institutional depth in environmental and energy economics, regulatory analysis, and public policy. The university has cross-disciplinary strength in legal, cultural, economic, and policy studies of the complex challenges that emerge at the intersection of energy, environmental sciences, ecology, land management, First Nations' rights, and conservation sciences. This activity aligns with the 2012 initiatives of the Ministry of International, Intergovernmental, and Aboriginal Relations.

Well-established research initiatives in energy policy have expanded to include economic analysis of clean energy technologies and the adoption of clean environment policies and regulations. These include electricity restructuring policies and proposals; environmental and land-use goals; employing new carbon sequestration technologies as part of enhanced oil recovery processes; environmental regulation on the development of clean pricing for oil, coal, and other fossil fuels; and market-based approaches to meet land use and environmental quality objectives. The depth of expertise is a critical resource for the Government of Alberta as it works towards its objectives of implementing the Regulatory Enhancement Task Force recommendations, and the development of future coal-fired recommendations with the federal government.

ENVIRONMENT

The U of A's depth and breadth in energy research and innovation is paralleled by similar institutional reputation and capacity in environmental research, including biology and ecology; water, forestry, and agricultural management; climate change; and biodiversity monitoring. The university's strategy to link capacity in energy innovation with ecology and environmental sciences defines its most prominent initiatives with our international partners, and many of our joint projects with several government ministries, such as Sustainable Resource Development and Alberta Tourism and Recreation.

The university provides significant cross-disciplinary research capacity in scientific, economic, policy and cultural issues associated with biodiversity and conservation practices, and the remediation of land impacted by natural resource extraction and processing. A CAIP Chair in Integrated Watershed Management will address key watershed issues that face multiple provincial stakeholders, such as the Alberta Water Council and regional Watershed Planning and Advisory Councils, as they aim to develop regional integrated watershed management plans that can mitigate the cumulative effects of resource development, urban growth, and changing climates. This research capacity is aligned with several provincial objectives, such as those contained in the *Water for Life* strategy.

We have long-standing collaborative research partnerships with many of Alberta's ministries, and with federal and international collaborators, on the development of earth observation technologies for environmental monitoring, mining and exploration applications, agriculture, and land use applications. The Alberta Biodiversity Monitoring Institute is an example of a key institutional collaboration with industry and the province that provides sound, scientific, longitudinal data on the impact of human activity on Alberta's flora and fauna. This institute, along with the university's extensive satellite and wireless

sensing network research, provides a world-class foundation for progress on the Ministry of Environment and Water's mandate to develop open source information systems of science-based environmental indicators.

The university's foundation in natural and physical sciences, mathematics, social sciences, humanities, and health sciences supplies the necessary capacity to understand the influences of natural forces (e.g. climate change) and human forces (e.g. food production, energy production) on water and air quality, water demand and supply. These are investigated not only at the global level but also within the Alberta context in collaboration with provincial partners, particularly in the forestry and agricultural sectors.

The U of A continues to build in areas of science and technologies (e.g., nanoscience, electromagnetic methods, and remote satellite and ground based sensor systems) that address contaminant detection, pipeline integrity, climate change, and the impact of relevant carbon dioxide on the growth and development of boreal forests. Through the NINT partnership, the university aligns expertise in nanotoxicology and oil sands wastewater treatment to develop advanced technologies for environmental monitoring and reduced environmental degradation. This broad base of research activities aligns with Alberta Innovates - Energy and Environment's priority for "environmental technologies in enhanced ecology" that support better water, land, and air management, as well as sustained biodiversity.

The U of A has broad and cross-disciplinary research programs on the social and cultural responses to ecological change, particularly as they impact rural communities, northern communities, First Nations communities, and the agricultural sector. This includes work on the ecological and economic impact of land management practices and policies, as well as the development of the science, social, and cultural frameworks for sustainable agriculture. This

research capacity is aligned with the core objectives of the Ministry of Agriculture and Rural Development and of the Ministry of Intergovernmental, International and Aboriginal Relations.

FOOD AND BIORESOURCES

Food production and the bio-economy—bioproducts, biomaterials, and bioenergy—is a strategic priority for Alberta, Canada, and the world. The U of A has established capacity in a range of disciplines that underpin social, cultural, scientific, and technological innovation in food and the bio-economy, aligned with Alberta Innovates – BioSolutions' priorities of value chain sustainability; advancing the bioeconomy; quality food for health; industry challenges and emerging opportunities; and prion and prion-like protein misfolding diseases. U of A research capacity in these areas will also support the new mandates of the Ministries of Agricultural and Rural Development, and Sustainable Resource Development: to expand market access, attract investment, and make Alberta a preferred global supplier of agriculture and forestry products.

The university plays a key role in positioning Alberta as a leader in innovative plant genetics and bio-based technologies for water and nutrient efficiency, sustainable livestock and crop practices, and forestry stewardship and management. Areas of institutional strength include fundamental research on protein folding and prion diseases of wildlife; livestock genomics; plant and animal sciences; plant stress, crop and forest systems; the development of disease and insect resistant plants; and the use of plants for innovative production of pharmaceuticals.

The U of A's initiatives in biofuels, bioenergy, and biomass conversion take an integrated approach to optimizing the value of Alberta's ample biological resources. This work shifts the focus from biorefining for biofuels production, which has dominated commercial

developments in the bioeconomy, to creating a series of biomass processing stages that extract the highest possible value from each component of the feedstock. Research strengths in systems biology and biochemistry, proteomics, chemical and environmental engineering for petroleum processing, and nanoscience are being adapted and applied to the processing of renewable resources, to convert feedstocks to higher value products, and to develop novel enzymes for the degradation of biomass and new catalysts for the conversion of biomass into greener platform chemicals. Facilities such as Agri-Food Discovery Place continue to link research capacity in food safety, agri-industrial technologies, and functional foods with provincial, national, and international industrial partners in the bio-economy.

A CAIP Chair in Food and Nutrition will extend existing capacities in these areas and contribute to the key outcomes outlined in “Making the Food-Health Connection: An Alberta Framework for Innovation.” The resulting research program will build on a critical mass of medical science, food sciences, public health, physical education, and clinical researchers whose expertise addresses health across the lifespan through appropriate food and nutrition. This is a core priority of Alberta Health Services and of Alberta Innovates-Bio Solutions and Health Solutions, through the *Tomorrow Project*.

HEALTH AND WELLNESS

The U of A has invested strategically in research and teaching to establish an integrated approach to human health and wellness that addresses all aspects of the determinants of human health, including clinical factors and predispositions, social-political and economic environments, and an individual’s characteristics and behaviours. This approach is fully aligned with the strategic philosophy of holistic wellness in Alberta’s Health Research and Innovation Strategy. The university’s

chronic disease and cancer research—a continuing priority of Alberta’s health and wellness planning framework—has also developed to reflect this holistic perspective, spanning molecular and genetic techniques for islet engineering, to physical determinants of individual health, to social determinants of population health. Through visionary capital investments such as the Health Research Innovation Facility, the Health Sciences Education and Research Commons, the Katz Group Centre for Pharmacy and Health Research, the Li Ka Shing Centre for Health Research, and the Edmonton Clinic, the university has aligned research, training, and learning across its professional health sciences faculties and has strengthened its translational health sciences.

A primary means for U of A contributions to the health and wellness of Albertans is through partnerships with Alberta Health Services and Alberta Health and Wellness. The university is pursuing a strategic opportunity to leverage its capacity in public and population health to create an Alberta registry for population health and health service interventions. The university has also established the Population Health Outcomes Research and Clinical Effectiveness Institute as an Alberta approach to health outcome research. This initiative complements work in population and public health, and will integrate research results more broadly into health care decision-making and clinical practice. The university has also begun to work with Alberta Health and Wellness to construct an environmental health surveillance system to benchmark publicly-funded addiction and mental health services, and is starting a community-driven project with the First Nations and Métis communities in Fort McKay to enhance their capacity to conduct community health assessments. With Alberta Health Services, the U of A is also working to develop pan-Alberta research networks to link with strategic clinical networks in key service delivery areas.

The U of A supports Alberta’s health strategy through its research programs in health promotion and treatment

for vulnerable populations, including areas such as quality of life, mobility, and pain management for an aging population; physical rehabilitation through neural rehabilitation technologies; ethnicity and health; and Aboriginal health. This work is aligned with Alberta Innovates – Health Solutions’ priorities of child and maternal health, health issues for aging populations, mental health and addictions, and the health issues of marginalized groups, and with Alberta’s Health Research Innovation Strategy focus on injury protection and rehabilitation.

Research programs in behavioural and cognitive neuroscience, metabolomics, microbial glycobiology, and molecular genetics are essential to drive and integrate fundamental and translational work in health and human wellness. Here, the university’s key contributions range from clinically-driven work on advanced materials to supporting the creation of non-invasive biomedical sensors, to linking virology, infectious diseases, glycomics, and drug development research with the development of health diagnostics, to predicting spread of biological invasions (epidemics) by better mathematical modeling. The institution also has a strategic focus on molecular and biochemical research of environmental risks to human and animal health, with near-term investment in the molecular diagnostics for bacteria, viruses, prions, and parasites occurring in the environment, as well as in monitoring the spread of disease.

The U of A’s biomedical engineering strategy has targeted regenerative medicine, diagnostic devices, wound care, implant devices and biomaterials, and rehabilitation engineering as areas of growth. Specific priorities here are craniofacial reconstruction and neural prostheses and neural implants. Other rehabilitation science capacity is directed at the needs of the aging population, pediatric and development disorders, and musculoskeletal disorders, aligning with Alberta’s health research strategy and *Alberta Innovates – Health Solutions’* focus on wellness at every age, and on injury control and treatment.

A CAIP Chair in the Structural Biology of Protein Mis-folding and Prion Diseases will advance the fundamental science needed to develop diagnostic tests, vaccines, and drug design. The importance of this to Alberta is clear: four prion diseases threaten the province, all of which are incurable and at least two have an ability to infect humans. Building on the university’s fundamental molecular imaging sciences, this CAIP chair aligns with a broad set of provincial priorities, ranging from Alberta’s health strategy focus on environmental health, to the continued viability of its livestock industry, to the health benefits for Albertans through advances in the treatment of dementia.

Research, Scholarship, and Creative Activity Themes and Goals

In Part A of the Academic Chapter, plans for access and programming are outlined under the broad themes of quality, learning environment, student experience and engagement, innovative programming, and connections and collaborations. Matching and complementing them are plans to advance U of A research, scholarship, and creative activity through strategies aimed at strengthening and expanding four of the essential ingredients of any great global institution: research excellence, state-of-the-art research operations, talented people, and international partnership and influence.

These essential ingredients are the focus of the three themes that structure the next section of the Academic Overview:

I. Competitive and Well-Managed Research

Resources: Shared research resources and services form the platform for all research, innovation, discovery, applied research, teaching, and community engagement at the U of A for the benefit of, and often in partnership with, the Government of Alberta, the City of Edmonton, Campus Alberta partners, the private sector, and international partners.

II. Diversified Excellence and Impact: With investment in outstanding faculty, undergraduate and graduate students, and postdoctoral fellows, the U of A creates an environment for excellence across disciplines with the capacity to have widespread local, national, and international impact.

III. Internationalization: International partnerships and activities are the threads that weave together the recruitment of talented people, the development of innovative and internationally-mobile programs, and production of globally relevant and leading research.

RESEARCH THEME I: COMPETITIVE AND WELL-MANAGED RESEARCH RESOURCES

The shared research resources and services essential to the U of A's overall research enterprise are extensive, highly specialized, and diverse. Examples of these shared resources and services include specialized animal care facilities, greenhouse facilities and remote research stations, advanced research computing facilities, aquatic experimental facilities, statistical and technology consulting, the Edmonton Health Academy knowledge integration space, machine shops that produce customized materials for scientific research, specialized analytic equipment such as mass spectrometers and NMRs, and specialized imaging facilities.

These research resources and services support discovery, translational, and pre-commercialization activities that the institution undertakes internally and with private sector partners. The existence of these shared research resources, their management, and their competitiveness are particularly important to industrial partners, especially those assessing the innovation potential of partnerships with the province, via collaborations with the Campus Alberta Comprehensive Academic and Research Institutions (CARIs). These shared research resources directly and indirectly constitute Alberta Innovates' research and development capabilities.

Such shared research resources and services must be operated by specially trained professional staff, and require continual improvements in infrastructure, equipment upgrades, security, and regulatory support. The presidents and the vice-presidents (research) of the CARIs share a common position on the need for a funding model that enables thoughtful planning and implementation of shared research resources, with each institution addressing its highest research and innovation priorities.

Challenges and Opportunities

- The operating costs associated with the complexity of running and sustaining a research enterprise of this magnitude presents the University of Alberta, and the other CARIs, with financial responsibilities and pressures that are distinct within the Campus Alberta system.
- The U of A's base operating grant is tied primarily to student enrolment and the cost elements of our direct educational mission for undergraduate and graduate

students, but this basis for determining the operating grant does not align with our additional mandate to sustain and evolve core research infrastructure, shared resources, and the personnel required to operate it.

- Ongoing facility operating costs for high intensity, shared research resources fall outside and exceed the funding available through the indirect costs of research.
- Periodic grant competitions and one-off provincial and federal grants are designed to fund limited-term, highly targeted projects, rather than to sustain long-term management and thoughtfully planned renewal of shared research resource services. They are not set up to reward proposals that present needs for large-scale shared resources that support unrelated research and innovation agendas. This leads to duplication and inefficiencies.
- There are opportunities to establish signature institutional-level research infrastructure that builds on our strengths in partnership with federal agencies.
- Operationally shared research resources and services within an institution can promote new kinds of collaborations, and allow for more intelligent management, reduction of duplication, and more efficient use of specialized staff.
- Centralized shared research resources and services can be marketed more effectively to industry and to international partners, and can support a more effective use of operating resources and specialized staff. Institutions must present capacity at the institutional level, not at the group or individual level.
- CFI has been a valuable resource for acquiring equipment and facilities, but provides only limited support for operating; funding from other grants is not sufficient to support more than a single investigator's needs, leaving little to sustain the infrastructure.

Research Goal 1: Ensure that the U of A's shared research resources and services have the management and resources required to support the objectives of internal and external communities.

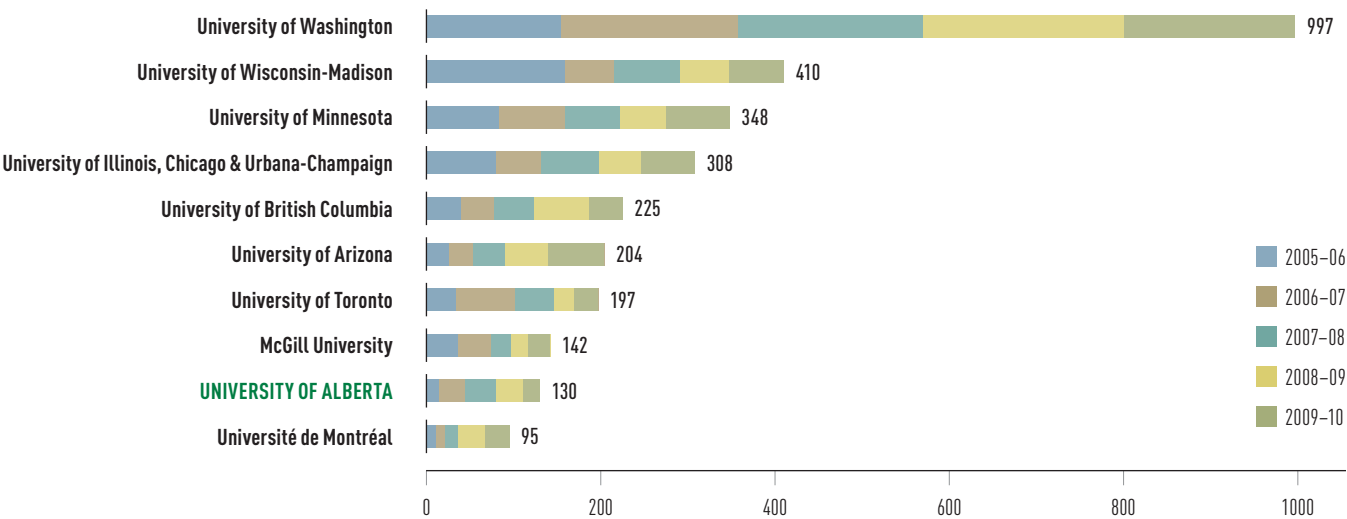
RESEARCH THEME II: DIVERSIFIED EXCELLENCE AND IMPACT

Generating positive social outcomes for engaged citizens relies on innovations and contributions from the social sciences, humanities, and fine arts as much as it relies on advances in science, technology, engineering, and health sciences. The U of A's commitment to the diversified and balanced research portfolio across disciplines described in the seven research categories (outlined on pages 58 to 68) underscores our ability to make holistic contributions to Alberta's overall well-being and prosperity in ways that not only include economic factors but also extend beyond them to social and cultural contributions that define a full and vibrant society.

The university aims to attract and retain the best minds from many disciplines to the institution. To do so, the U of A must foster an environment where diversified

excellence is supported and awarded. Talented people will gravitate to universities where they can have the best opportunity of having the biggest impact in their disciplines. Their assessment of that opportunity rests on many factors: competitive shared research resources and services which grant proposals can leverage; incentives and mechanisms which attract and support postdoctoral fellows and graduate students across disciplines; and an exceptional institutional and provincial environment of support in securing federal and international dollars. With its institutional commitment to being among the top publicly-funded institutions in the world, the U of A is committed to developing a reputation for advancing knowledge and impact across the broad spectrum of human concerns, by supporting emerging and existing excellence in all disciplines.

FIGURE 14 NEW LICENSES AND OPTIONS EXECUTED, UNIVERSITY OF ALBERTA AND SELECTED PEERS, 2005-06 TO 2009-10



Notes: UCLA and Texas - Austin are not represented in this chart as they do not report separately to AUTM, but are included in their respective university systems. The University of Illinois data represents two of its largest campuses: Chicago and Urbana-Champaign as reported in the AUTM Licensing Survey.
Source: AUTM Licensing Survey, FY 2005/06 to FY 2009/10.

When we succeed at attracting and retaining diversified talent, the U of A is able to play a leadership role on the global stage and position Alberta as a place for cultural, social, scientific, and technological insights and advancements.

Challenges and Opportunities

- A base operating budget model that is tightly linked to enrollment does not allow the U of A, as the largest CARI for the Alberta Innovates System, to do what it needs to do: bring in a larger cohort of postdoctoral fellows (PDFs)—across all disciplines—into Alberta. The institution’s current and target PDF cohort size has not, to date, figured into the calculation of the base operating grant.
- There are increasing expectations under federal funding programs for in-kind or cash support for large grants for social sciences and humanities research, which rarely enjoy the private sector opportunities for partnership that other disciplines do.
- The province has a vision for advancing culture and the arts and addressing community needs; however, no provincial funding mechanism that can leverage university capacity in these areas currently exists.
- A number of countries, such as India, Brazil, and China, are establishing intensive training programs that will send their graduate students and postdoctoral fellows abroad. Top national and international institutions will be competing to attract these individuals in disciplines across the academy.
- Endowment revenue is a critical way for the university to accelerate excellence, especially in areas that do not have private sector investments or targeted funding support, such as teaching innovation, social sciences, humanities,

and fine arts. Decreases in endowment revenue caused by low interest rates has measurably curtailed internal investment in these areas, presenting both retention and attraction challenges.

- The research administration environment supports excellence and promotes achievement by being responsive to the needs and demands of successfully-funded faculty. However, the funding overseen by research administration staff has grown by 27.4 percent in the last four years, while that same research administration staff complement has decreased by 5.5 percent. With additional reporting and auditing requirements, and increased complexity of private sector and international partnerships, the university is not able to meet all of the internal and external demands for timely research administration processes. This undermines both institutional and individual excellence and impact.

Research Goal 2: Ensure that talented researchers, postdoctoral fellows, graduate students, and visiting faculty have the resources and opportunities they need to have impact in their fields.

Research Goal 3: Raise the U of A’s international profile as a top publicly-funded institution with expertise within and across disciplines, and support faculty and initiatives that have the capacity to lead and influence global change.

Research Goal 4: Ensure effective and responsive research administration, serving both internal and external stakeholders.

Research Goal 5: Foster and facilitate a broad set of knowledge and technology transfer mechanisms that engage our provincial, national, and global stakeholder communities, the industrial sector, and the public sector.

RESEARCH THEME III: INTERNATIONALIZATION

Research, scholarship, creative activity, and innovation are among the few areas where national boundaries have little influence. Researchers, scholars, and innovators are in the most mobile of all professions in today's world; they interact with colleagues and establish strong partnerships around the globe. As a result, many opportunities exist for different institutions, nations and regions that share common global challenges and opportunities to form partnerships of mutual strategic interest.

In the past few years, the U of A has achieved some extremely high-profile successes that have leveraged Alberta resources and provincial connections with the investment of some top-tier foreign collaborators. The university has done this through a strategy of focused effort on a limited number of targeted countries, all of which have excellent international research reputations and have expertise in areas that are aligned with university priorities and provincial priorities. These targets—Germany, India, U.S., China, Mexico, and most recently, Brazil and France—are countries with which the provincial government has nurtured relationships and signed specific memoranda of understanding. The priority areas—energy, environment, food and bio-industries, water, and health—represent the critical intersection of university strength, provincial interests, and global challenges and opportunities for innovation impact.

This strategy has proven to be successful and the partnerships and collaborations have gained momentum in two ways:

1. The number of partners seeking collaborations with the University of Alberta in key areas is increasing.
2. The same partners are exploring and seeking to expand existing collaboration agreements into new areas of cooperation.

In addition to creating international research consortia, we have established partnerships with other jurisdictions and institutions that can advance our objectives in undergraduate and graduate recruitment, global citizenship, faculty and student research mobility, innovative graduate programs, and increased federal funding. This includes conducting research, fieldwork, and mentoring on post-secondary program development in Tanzania, Ghana, Korea, and the sub-Sahara. The university has targeted relationships with particular institutions, such as the Aga Khan University and Seoul National University, to frame other efforts that are important to us as an institution. The U of A also puts a strong emphasis on leading and participating in international research programs, namely those that, by definition, require the talent and resources beyond what any one nation can provide, spanning disciplines from sub-atomic physics to space sciences to archaeology.

There are several reasons why such international partnerships are pivotal to the U of A's role within the Alberta Innovation system and our ability to foster holistic social and cultural innovation for Alberta more generally. International partnerships allow us to share infrastructure investments and funding programs associated with other national research programs. They make it possible to share human talent and develop innovative graduate and undergraduate training programs and mobility programs that make Alberta students globally competitive, especially in their career pursuits. International partnerships are also a key recruitment mechanism for foreign graduate students and postdoctoral fellows, many of whom may stay within the province.

Aligning with provincial research and international activities, the U of A aims to leverage the activity and international collaborations already taking place at the university and within the province to advance collective strategic goals.

Challenges and Opportunities

- The U of A's foreign partners provide funds for collaboration but their expectation is that the university will match their contributions to enable our researchers and students to participate. Currently, there is no funding structure available to meet this expectation.
- The U of A runs the risk of losing out when it is unable to leverage appropriate funds in a timely manner to take advantage of these opportunities. This loss is three-fold: 1) it loses invaluable partnerships for the university and the province; 2) competitors exploit those same partnerships to their advantage and the institution's and province's detriment; and 3) significant foreign investment that could be brought to Alberta through the University of Alberta is lost.
- The university's current collaborators in China, Germany, and most recently, Brazil and France, are actively seeking to expand the scope of, and investment in, the existing research consortia into areas that align with university capacity and provincial strategic direction.
- The U of A is collaborating with the University of Toronto and the University of British Columbia to capture \$12 million of federal funding to establish the Canada-India Centre for Research Excellence; the U of A will lead the nano aspect of this initiative should the application be successful.
- The Canada-Brazil Framework Agreement for Cooperation on Science, Technology and Innovation entered into force in both countries in 2010 and has opened opportunities for the U of A and Alberta. The agreement promotes greater collaboration in research and development in areas of mutual interest, including ocean technology, life sciences, information and communications technology, clean energy, green technologies, and nanotechnology.
- Brazil's goal of sending 100,000 learners (undergraduate and graduate students as well as PDFs) overseas in the next four years represents significant opportunity for Alberta's CARIs. The benefit of attracting these individuals will pay long-term benefits in strengthening Alberta's innovation relationships with Brazil.

Research Goal 6: Selectively expand existing consortia to include new topics or new partners in ways that align with institutional objectives.

Research Goal 7: Establish a broad base of meaningful international engagements for global citizenship, education, and outreach.

Research Measures: How we track our progress

Research Theme I: Competitive and Intelligently Managed Research Resources

- Consolidation of separate resources into common services
- Reinstatement of specialized support staff
- Upgraded shared research resources through deployment of special funding

Research Theme II: Diversified Excellence and Impact

- Assessment of our institution relative to our selected peer group in
 - total research funding, and Tri-Council funding
 - prestigious national and international awards for faculty, postdoctoral fellows, and graduate students
 - numbers of fully or partially funded international graduate students and postdoctoral fellows
- Diversity of funding organizations, government bodies, and other groups that sponsor or engage with our research and creative activities
- Number of large-scale national and international research, scholarship, and creative activity initiatives in which U of A researchers serve as leaders or collaborators
- Success on institutional review visits by Tri-Council, CFI, and other agencies
- Contract research dollars from Alberta companies, Alberta government, and NGOs
- Research initiatives with city and rural stakeholders
- Number of entrepreneurs and researchers advised by TEC Edmonton
- Number of companies created by TEC Edmonton
- Direct contribution to the regional economy from TEC Edmonton activities
- Number of graduate student internships occurring in Alberta
- Number of formal undergraduate interns and co-op students undertaken in Alberta

Research Theme III: Internationalization

- Level of international research investment from foreign national agencies and funding bodies
- Increase in foreign postdoctoral fellows and graduate students
- Increase of formal and active mobility programs for researchers and students

Research Resource Requests:

RESEARCH THEME I: COMPETITIVE AND WELL-MANAGED RESEARCH RESOURCES	BASE FUNDING
Planning, establishing, and sustaining shared research resources and services that are crucial for institutional priorities and regional innovation objectives	10.00M
Shared research computing resources	2.00M
TOTAL	12.00M

RESEARCH THEME II: DIVERSIFIED EXCELLENCE AND IMPACT	BASE FUNDING
Reinstatement of the Access to the Future fund, to increase the institution's success in securing philanthropic funding that supports broad-based excellence and impact	TBD
Postdoctoral stipend support	1.80M
Postdoctoral operating support to increase numbers of international postdoctoral fellows through newly emerging foreign training programs	10.78M
TEC Edmonton	1.80M
Undergraduate research internship support	1.00M
TOTAL excluding TBD amounts	15.38M
	MULTI-YEAR FUNDING
Canada Excellence Research Chairs Program: half (\$10M) in first 2 years to rapidly enhance the Chair program and to ensure its success	20.00M over 6 years
Continued support of existing Alberta Innovates Centres	60.00M over 5 years
Matching funds for CFI awards through the Leaders' Opportunity Fund	8.70M over next 3 years
Earmarked potential matching funds for federally adjudicated competitions such as Tri Council or Genome Canada (operating and/or equipment expenses)	10.00M per year
Matching funds for CFI NIF/LEF competition	25.00M for 2013

RESEARCH THEME III: INTERNATIONALIZATION	MULTI-YEAR FUNDING
Funds available to facilitate global multi-partner initiatives with select countries and top-tier research institutions.	55.00M over 5 years
Matching funds for trainee mobility and exchange agreements	3.00M over 5 years
Funds for all of Alberta's CARIs to offer modest top-up grants to Brazil's Science without Borders program to attract a total of 340 postdoctoral fellows and 680 graduate students to the province	8.8M over 4 years

Research, Scholarship, and Creative Activity Goals and Strategies (in detail)

RESEARCH THEME I: COMPETITIVE AND WELL- MANAGED RESEARCH RESOURCES

RESEARCH GOAL 1—Ensure that the U of A's shared research resources and services have the management and resources required to support the objectives of internal and external communities.

Research Strategy 1.1—Identify key core research facilities that serve large numbers of internal or external stakeholders.

Research Strategy 1.2—Demonstrate to external stakeholders that exceptionally funded shared research resources and services enhance the ability to leverage funding and to attract higher calibre faculty, researchers, and international partners to Alberta. Seek operating and sustainability funding for shared research resources that provide support for regional innovation activities and strategies, in ways that will reduce the one-off requests for funding that Alberta Innovates Corporations constantly receive.

Research Strategy 1.3—Institute a transparent policy for the use of limited CFI infrastructure operating funds, including a means for winding down infrastructure.

Research Strategy 1.4—Demonstrate to the internal community the merits of centralized shared research resources and services, and develop management and funding structures for these resources that meet needs across the institution.

Research Strategy 1.5—Foster sustainability by establishing a framework that encourages, when appropriate, the use and expansion of existing infrastructure and human resources, rather than the duplication of separate facilities and operational needs.

Research Strategy 1.6—Position the U of A as the western leader in defining and executing federal strategies to address Canada's next national investment in high performance computing, data archiving, storage, and management, and e-science.

RESOURCE REQUESTS

❖ \$10 million base budget for planning, establishing, and sustaining shared research resources and services that are crucial for institutional priorities and regional innovation objectives and \$2 million base budget for shared research computing resources.

RESEARCH THEME II: DIVERSIFIED EXCELLENCE AND IMPACT

Implementation of 2011 CIP: Highlights

- ☑ With industry and government partners, established a nationally and internationally unique facility with a focus on research, training, and the production of a wide range of key medical isotopes without the need for nuclear reactors.
- ☑ Completed and deployed a Prion Level III Facility.
- ☑ Opened the Centennial Centre for Interdisciplinary Science.
- ☑ Worked with other Campus Alberta research institutions and AET to define and implement the CAIP chair program, with an expanded reach into social sciences.
- ☑ Launched an undergraduate research initiative with two year seed funding from internal resources.
- ☑ Supported impact of society and culture scholarship through the Festival of Ideas (City of Edmonton), the launch of *18 Bridges Magazine* (humanities and arts writing), and the sponsorship of a CBC documentary of "CodeBreakers," that highlighted U of A anthropology and archaeology research.

- ☑ Launched two pilot programs to enhance application success in CIHR and SSHRC, which had significant impact on our success rate.
- ☑ Established interfaculty and interdisciplinary graduate studentships.
- ☑ Engaged the Trudeau Foundation about doctoral scholarships, and established Fulbright Visiting Chairs Program in the School of Business and in the Faculty of Arts.
- ☑ Established new agreements or MOUs, as appropriate, with NINT, IBM Centers for Advanced Studies, and the TRLabs university-industry consortium.
- ☑ Continued to formulate a pan-Alberta approach to several areas, including neuroscience, '-omics', and humanities and the arts funding.
- ☑ Collaborated on the restructuring of the former Alberta Cancer Research Institute into the Cancer Research Institute of Alberta to ensure that our cancer researchers continue to receive salaries and operating support from Alberta Health Services.
- ☑ Led the harmonization of clinical trial operations in Alberta among the U of A, the U of C and Cancer Care.
- ☑ Achieved a very positive assessment on our Tri-Council Financial Monitoring visit.
- ☑ Successfully retained health sciences researchers through the use of AHFMR transition funding.
- ☑ Received seven additional Canada Research Chairs, along with nine renewals and two advancements, for a total of 94 chairs (second in Canada) worth \$17.1 M.
- ☑ Had six individuals admitted as Fellows of the Royal Society of Canada.
- ☑ Increased the number of postdoctoral fellows by ten percent in 2011-2012.
- ☑ Increased visa graduate students by 2.4 percent over 2010-2011.

RESEARCH GOAL 2—Ensure that talented researchers, postdoctoral fellows, graduate students, and visiting faculty have the resources and opportunities they need to have impact in their fields

Research Strategy 2.1—Address the issue of shared research operations and services to retain and attract researchers and postdoctoral fellows.

Research Strategy 2.2—Continue to allocate CRC and CFI opportunities and support across disciplines.

Research Strategy 2.3—Restructure our Henry Marshall Tory Chairs and Killam Memorial Chairs to work in a more flexible manner for the recruitment of exceptional individuals.

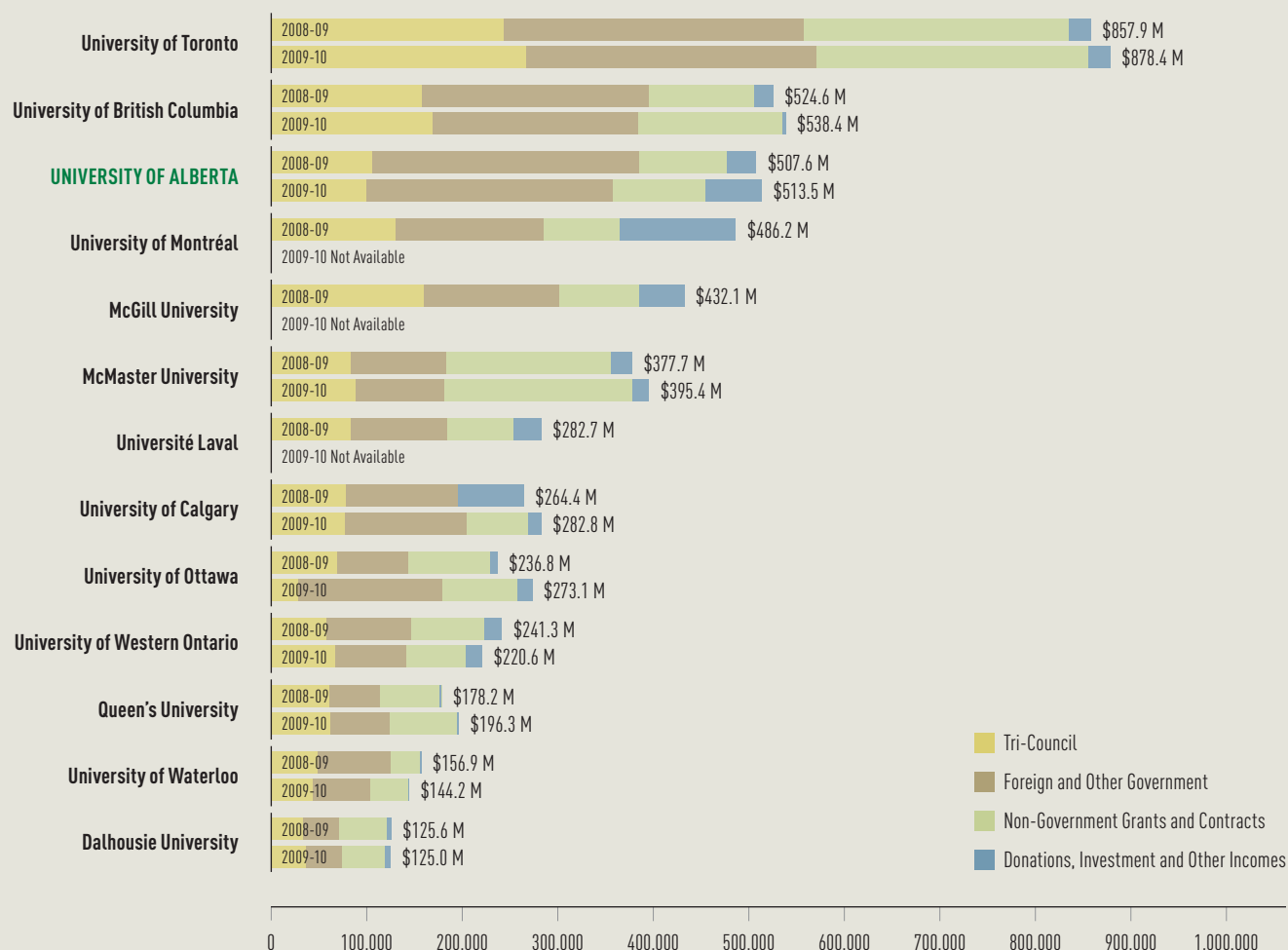
Research Strategy 2.4—Develop and resource internal mechanisms that lead to increased success within national and international funding competitions,

especially on large cross-disciplinary team grants.

Research Strategy 2.5—Continue to redefine our graduate student recruitment strategies and partnership programs to ensure that we can offer timely, competitive offers to top graduate students.

Research Strategy 2.6—Obtain the resources required to take advantage of funding programs in Europe, China, and South America that will bring partially or

FIGURE 15 G13 SPONSORED RESEARCH INCOME BY TYPE, 2008-09 AND 2009-10



Notes: Income from Tri-Council includes: Social Sciences and Humanities Research Council; Natural Sciences and Research Council; and Canadian Institute of Health Research (CIHR). Other Government income reflects income from all government departments and agencies - grants and contracts, less Tri-Council and foreign government income. Donations, non-government grants and contracts, and investment and other incomes, are reported in each respective category on the CAUBO report. **Sources:** Canadian Association of University Business Officers (CAUBO): Financial Information of Universities and Colleges 2008-09 and 2009-2010, Report 3.1. The 2009-10 information is not yet available for Université de Montréal, University of McGill and Université Laval.

fully funded graduate students and PDFs to the U of A.

Research Strategy 2.7—Work closely with advancement activities to secure philanthropic and private sector endowment funds as additional resources for all areas of our academy.

RESEARCH GOAL 3—Raise the U of A's international profile as a top publicly-funded institution with expertise within and across disciplines, and support faculty and initiatives that have the capacity to lead and influence global change.

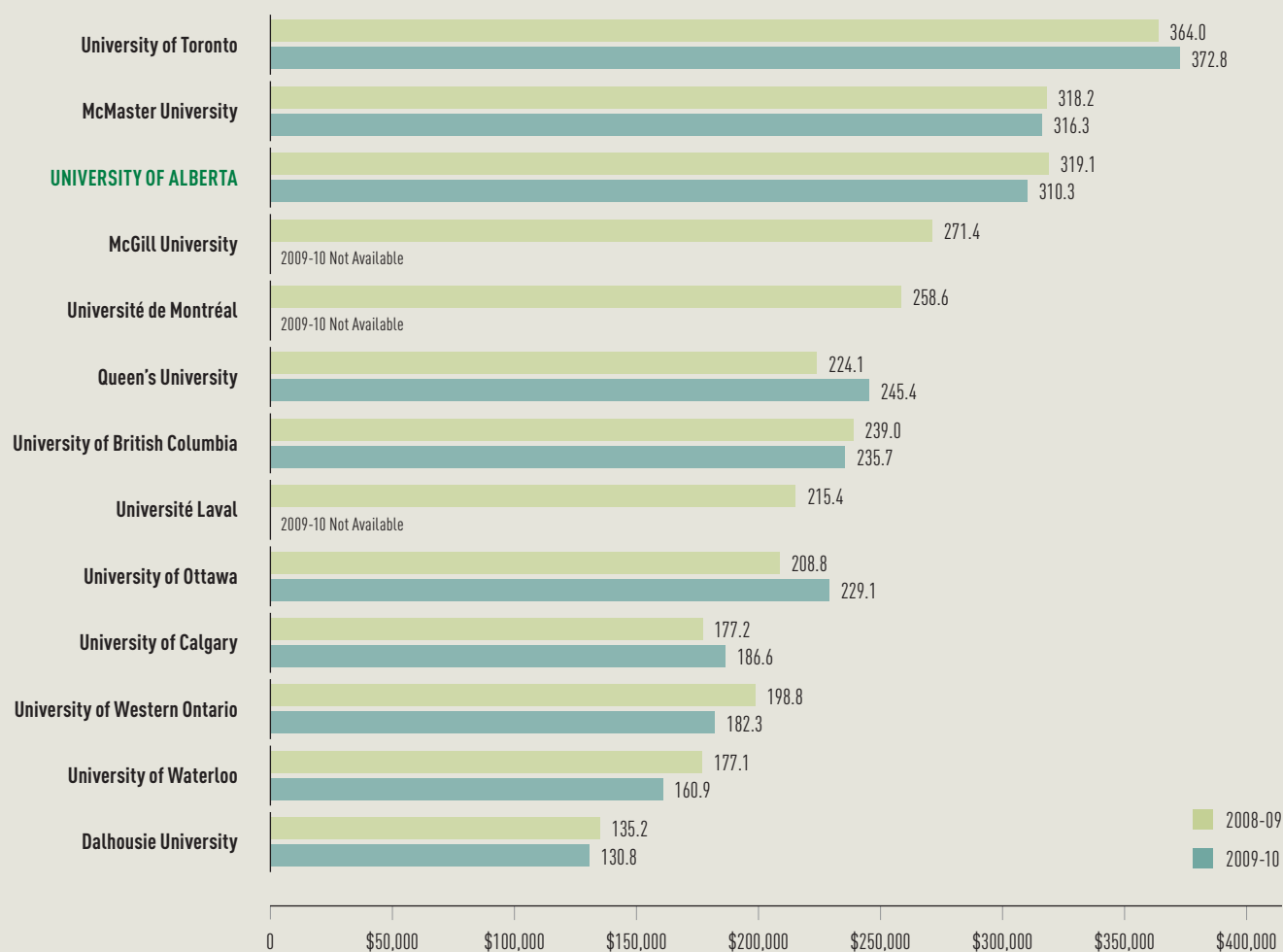
Research Strategy 3.1—Create an institution-wide water initiative to mobilize the 90+ water researchers to address complex issues in water that emerge at the intersection of policy,

legislation, and institutions; human health; environmental health; and food and energy production.

Research Strategy 3.2—Continue to participate in national and international initiatives in areas such as fundamental physics, archaeology, palaeontology, and digital humanities and social sciences.

Research Strategy 3.3—Continue to support undergraduate research initiative and its links to our local community as a way to mobilize our expertise.

FIGURE 16 SPONSORED RESEARCH INCOME PER FULL-TIME TEACHING FACULTY FOR G13 UNIVERSITIES, 2008-09 AND 2009-10 (IN \$000s)



Notes: Full-time teaching faculty (Including Medical/Dental) are Professors, Associate Professors and Assistant Professors. **Source:** CAUBO Financial Information of Universities and Colleges, 2008-09 and 2009-10. The 2009-10 information is not yet available for Université de Montréal, University of McGill and Université Laval. Statistics Canada Salaries and Salary Scales of Full-time Teaching Staff at Canadian Universities, 2008/09: Final Report and the 2009/2010: Preliminary Report, with the exception of the following universities whose data source is G13 Full-Time Faculty Salaries Report (with preliminary data for University of Toronto) 2009-2010: Dalhousie University, University of Western Ontario, Queens University, University of Waterloo, University of Toronto, Université de Montréal, University of McGill and Université Laval.

Research Strategy 3.4—Foster and support faculty and institution-wide activities that raise the U of A's profile as a global leader, with the expertise to define social, scientific, cultural and technological issues, policies and initiatives, nationally and internationally.

RESEARCH GOAL 4—Ensure effective and responsive research administration, serving both internal and external stakeholders.

Research Strategy 4.1—Implement, manage, and develop state-of-the-art financial and administrative research systems, and invest in and reward top staff in these areas.

Research Strategy 4.2—Show internal and external leadership on institutional research ethics policies and procedures.

Research Strategy 4.3—Increase staffing in research administration to ensure that we meet reporting requirements and that we operate efficiently in our dealings with private and public sector partners.

RESEARCH GOAL 5—Foster and facilitate a broad set of knowledge and technology transfer mechanisms that engage our communities, the industrial sector, and the public sector.

Research Strategy 5.1—Develop a certificate program in Entrepreneurial Leadership.

Research Strategy 5.2—Continue to evolve TEC Edmonton's role as the regional technology transfer and commercialization vehicle.

Research Strategy 5.3—Continue to work with the provincial government and venture capital firms to identify the critical features of an effective innovation environment.

Research Strategy 5.4—Create better mechanisms to connect U of A expertise with potential external collaborators.

Research Strategy 5.5—Continue to develop and offer a range of programs to help create the next generation of entrepreneurs, such as Executives in Residence, seminars on essential issues such as intellectual property and company development, and sessions such as Entrepreneurship 101 for postdoctoral fellows, graduate students, and faculty.

Research Strategy 5.6—Increase the direct interaction between TEC Edmonton and research teams to identify potentially interesting technologies and ways of bundling them for commercialization.

Research Strategy 5.7—Continue our collaboration with industry and government partners through affiliated institutes that transfer or mobilize our capacity, such as Institute of Health Economics, the Alberta Biodiversity Monitoring Institute, and TRILabs.

RESOURCE REQUESTS

- ❖ Reinstatement of the Access to the Future fund, to increase the institution's success in securing philanthropic funding that supports broad-based excellence and impact.
- ❖ \$20 million over a six year period to ensure the success of our Canada Excellence Research Chairs program, with the first \$10 million being provided in the first two years to rapidly enhance the Chair program.
- ❖ \$60 million over five year period for continued support of existing Alberta Innovates Centres.
- ❖ \$10 million/year earmarked as potential matching funds for federally adjudicated competitions, such as Tri-Council and Genome Canada programs (operating and/or equipment expenses).

- ❖ 2013: \$25 million to match CFI NIF/LEF competition.
 - ❖ Postdoctoral stipend support: 40 PDFs @ \$45,000 = \$1.8 million per year
 - ❖ Postdoctoral operating support: 550 PDFs at \$19,600 each per year = \$10.78 million base funding, so that the U of A can recruit increasing numbers of international postdoctoral fellows through newly emerging foreign training programs (see internationalization goal below).
 - ❖ TEC Edmonton - \$1.8 million base
 - ❖ Undergraduate research internship support: 200 internships @ \$5,000 = \$1 million per year.
-

RESEARCH THEME III: INTERNATIONALIZATION

Implementation of 2011 CIP: Highlights

- ☑ Expanded the Helmholtz Alberta Initiative (HAI) in the area of virology. HAI has allocated EURO 400,000 to facilitate collaboration with us in this area.
- ☑ Initiated discussions with Helmholtz Association in the area of earth observation sciences and neuroscience.
- ☑ Received \$2.5 million over five years from the Chinese government to develop collaborative relationships between Chinese research institutes and universities and the U of A.
- ☑ Exploring Chinese proposal for a China-Alberta Virology Institute.
- ☑ Increased formal relationships with France, opening doors for joint proposal with two European partners in the future.
- ☑ Working with U of T and UBC to capitalize on emerging Canada-India investment programs.

☑ Leading five World University Network research projects (attracting \$210,000 in funding) and participating in another 15, in year two of the U of A's participation in the WUN. These strong initial results, coupled with President Samarasekera's role as the new Chair of the WUN Partnership Board, indicates that the connections and research fostered through WUN will continue to grow and extend U of A's global leadership.

RESEARCH GOAL 6— Selectively expand existing consortia to include new topics or new partners in ways that align with institutional objectives.

Research Strategy 6.1—Align existing relevant partnerships into four immediate areas of institution focus: water, energy and environment, food, and infectious diseases, with interdisciplinary elements to all of them.

Research Strategy 6.2—Leverage our existing relationships with Brazil as a potential partner in all or some of these areas.

Research Strategy 6.3—Increase attention on expanding partnerships in social sciences, humanities, and creative arts with nations that have strong cultural and fine arts investments (e.g., Germany and France).

Research Strategy 6.4—Move our existing international relationships to the next level of engagement and investment, involving joint projects, exchanges, or graduate programs. These include, but are not limited to:

- Several top German universities, including Ludwig Maximilian University and Technical University of Munich.
- Tata Consultancy Services (India).
- Aga Khan Development Network (worldwide).

- Indian Institute of Technology-Bombay (India).
- Zhejiang University (China).
- Tec de Monterrey (Mexico).
- National Commission of Science and Technology (Mexico).
- German Research Foundation (Germany).
- Brazilian Federal Agency for the Support and Evaluation of Graduate Education (CAPES)¹.
- Not-for-profit research institutions, such as the Houston Advanced Research Center.
- China Scholarship Council.

RESEARCH GOAL 7— Establish a broad base of meaningful international engagements for global citizenship, education, and outreach.

Research Strategy 7.1—Encourage and support faculties' research and global citizenship activities with internal support, and by aiding their efforts to attract international development funds (e.g., CIDA, IDRC).

Research Strategy 7.2—Continue to use the China Institute and expertise in East Asian studies to anchor discussions in China relating to scholarship, creative activities, science, and programmatic initiatives.

Research Strategy 7.3—Continue to use our membership in the Worldwide Universities Network (WUN) to develop new research partnerships with other institutions in this network.

Research Strategy 7.4—In partnership with the Vice-President (Academic) and University of Alberta International,

leverage existing consortia agreements to develop innovative undergraduate and graduate student learning opportunities and mobility programs.

Research Strategy 7.5—Secure additional international research funding through partnerships with agencies and institutions in countries such as China, Brazil, India, and the U.S., and leverage that funding to support these new innovative research consortia.

RESOURCE REQUESTS

- ❖ \$5 million over five years, to fill the gap that currently exists for a flexible and agile mechanism for rapid and timely deployment of funds that facilitate global multi-partner initiatives with select countries and top-tier research institutions.
- ❖ \$3 million over five years, to match trainee mobility and exchange agreements.
- ❖ \$8.8 million over four years for all of Alberta's CARIs, to coincide with Brazil's Science Without Borders program and offer modest top up grants to attract a total 340 postdoctoral fellows and 680 graduate students into the province.

¹ The Coordination of Improvement of Higher Education Personnel plays a fundamental role in the expansion and consolidation of post-graduate studies (master's and doctorate) in all states of the Federation of Brazil.

RESEARCH CAPACITY ENVELOPE NEEDS

The following section identifies initiatives and strategic directions, grouped by thematic area, which may entail near-term funding requests to provincial, federal, and international level competitions. This is not an inclusive list and does not cover emerging opportunities.

This section also identifies research operation and space pressures that impinge on effective or efficient advancement in areas of institutional or provincial priority. Full and detailed discussion of capital infrastructure and building requirements, in the context of long term capital planning, are provided in the Capital Plan chapter.

Humanities and Fine Arts

- Advance and leverage initiatives in culture, literature, philosophy, history and classics, fine arts and performing arts.
- Work with the City of Edmonton on the Edmonton Pipelines Project to create a digital interactive map of the city of Edmonton.
- Develop cross disciplinary research programs in vocal acoustics, among engineering, music, and IRCAM (Institut de recherche et coordination acoustique/ musique), a world-leading acoustics institute in Paris.
- Build partnerships among theatre artists, health educators and social scientists to develop theatre as mechanism to promote community health promotion and development.
- Align humanities and computing science capacity to develop innovative programs in interactive entertainment such computer games.

Core Facility Pressures:

- Art design studios
- Music performance facilities
- Repurposing of the Tory building

Society and Culture

- Build partnerships that leverage expertise in indigenous education and educational policy.

- Re-align capacity in Middle Eastern Culture and Society, Indian Policy and Cultural studies, and European Studies.
- Extend research capacity in food security and sovereignty (CAIP).
- Extend research capacity on innovation policy and technology translation (CAIP).
- Expand interdisciplinary links between legal studies and native studies.
- Establish research program on the health of francophones in minority communities.
- Integrate business research and develop technology commercialization research on processes of nanotechnology entrepreneurship and the structure of successful innovation regimes.
- Explore a multi-disciplinary research initiative in Canadian mountain studies and pursue collaborations with Alberta and U.S. northwest regional partners.

Core Facility Pressures:

- Alberta School of Business Building
- Integrated research design and support operations

Science and Technology

- Advance and leverage knowledge in natural and physical sciences, engineering, human and animal behavioral sciences, mathematics, and information sciences.
- Align cross-disciplinary expertise for advanced research in the digital economy, such as interactive entertainment, digital health and wellness innovations, and humanities computing.
- Expand and align science, biomedical, and clinical capacity in interfacial biomechanics.
- Establish facilities for new research and technology development for clinically driven medical devices.
- Work towards establishing a National Institute for the Cryosphere, in collaboration with Natural Resources Canada.
- Develop metagenomics as applied to the oil sands and tailings ponds remediation process.
- Expand metabolomics and proteomics strategies and programs in partnership with NINT programs.

- Leverage NINT's new strategic directions and mandates to help coordinate a provincial nano strategy and to embrace a broader cross section of university activities.
- Expand work in "green chemistry" to enable future technologies for cleaner and safer chemicals and pharmaceutical production.
- Build further capacity in watershed management (CAIP).
- Upgrade facilities for nanosynthesis and nanoscale characterization and modeling.
- Establish coordinated and upgraded metabolomics facilities for health, agriculture, and clinical support.

Core Facility Pressures:

- Biogeochemical analytic facilities and low-level mercury analytic facilities, for water research for government, industry, and other university clients.
- Aquatic and water research experimentation facilities.
- Research materials production shops (e.g., instrumentation, special glass, electronic devices).
- Augustana and Campus St Jean Science buildings.

Energy

- Continue investment and growth in oil sands research (i.e., upgrading, non-aqueous extraction, water and tailings management, energy intensity, process measurement, monitoring, control and improvement, clean coal/carbon and mineral processing, and the development of conventional and unconventional oil and gas resources).
- Extend capacity in enhanced geothermal system research (CAIP).
- Extend capacity in interfacial polymer engineering research (CAIP).
- Establish research facilities in support of electromagnetic measurements in support of electrical engineering and systems research.
- Expand capacity in geochemistry of hydrocarbon (traditional and unconventional resources) and mineral deposits (diamonds, precious metals, iron).

- Upgrade the oil sands and interfacial engineering research facility.
- Upgrade the oil sands tailings research facility.
- Create facilities for geological reservoir characterization and CO2 storage assessment.

Core facility pressures:

- Repurposing of Chemical and Materials Engineering Building.

Environment

- Expand programs in surveillance and modeling of the spread of prion related diseases and impact of human behavior on wildlife health, disease and toxin spread, animal-to-animal or animal infected environments.
- Extend research activities in biogeochemistry for whole ecosystem functioning and carbon dynamics.
- Extend research activities using remote tracking research facilities to support wildlife monitoring and management, and studies of disease (e.g., chronic wasting disease) and pollutant spread.
- Work to establish a research station at Miquelon Lake in collaboration with the province and the Beaver Hills initiative, to support research in sustainable lands for tourism and recreation.
- Support expanding initiatives at the intersection of water, agriculture, rangeland and pasture management, biodiversity, and integrated land management.

Core Facility Pressures

- Upgrade and operating of greenhouses for plant experimentation.

Food and Bioresources

- Extend research capacity in food security and sovereignty (CAIP chair).
- Extend research capacity in nutrition and health (CAIP chair).
- Accelerate synthetic biology advances for bioconversion, plant genetics, nutrition, and other areas, through a 'biofoundary' framework.

- Expand sustainable agriculture and water resources research programs.
- Expand and retain research capacity in epigenetics, human nutrition, bioresources, and soil sciences.
- Support bio-based sciences, plant genetics and technologies for advances in nutrient efficiency and water usage.

Core Facility Pressures

- Facility and operation resources to sustain nutraceuticals collections.
- Operating expenses for large animal care facilities.

Health and Wellness

- Establish an interdisciplinary rehabilitation neurosciences and engineering facility.
- Leveraging university capacity in health analytics and health services assessment, develop a sustainably resourced approach that will address the significant challenges associated with access to external administrative health data and secure storage.
- Sustain and expand leadership in developing Pan-Alberta population health and health service research, especially in the areas of health trends, health care access, rural health, and the detection, prevention, and management of chronic disease.
- Establish a cross-faculty initiative in personalized medicine and diagnostics, to integrate metabolomics, bioinformatics, and clinical sciences for translational research on disease mechanisms and treatment.
- Update and expand multi-team facilities for metabolomics and proteomics research.
- Expand metagenomics and metabolomics for viral discovery related to chronic diseases, infectious diseases, and antiviral therapies.
- Expand research capacity to develop, assess, and apply new imaging technologies to characterize the causes and progression of neurological and psychiatric disorders, cardiovascular diseases, and cancer.

- Sustain NANUC as Alberta and Canada's open access facility for NMR technologies available for small company research in disease diagnosis and nanomaterials sciences.
- Establish research capacity in military and veterans' rehabilitation medicine.
- Expand research capacity in primary care, bioinformatics, epigenetics, cardiovascular sciences, tissue engineering/regenerative medicine, mental health and addictions, diabetes, and health outcomes.
- Launch a best practices implementation initiative for the management of pressure ulcers, bladder management, and pain.
- Leverage interdisciplinary and integrated health professional training capacity to evaluate models for inter-professional health care.
- Further develop use of innovative technologies to improve health outcomes in the clinic and in communities.
- Expand programs in regenerative medicine and tissue engineering, epigenetics, and health outcomes.

Core Research Infrastructure Pressures

- Resources to outfit Edmonton Health Academy - Phase II.
- On-going operating costs for compliant and humane animal care facilities.
- Clinically-annotated biobanks to facilitate translational and clinical research.
- Integrated technical and human access to provincial administrative and health data holdings.
- Radiopharmaceutical facility at South Campus.
- GMP facility for human islets transplantation.
- Additional biosafety facilities.
- Repurposing and upgrading of Clinical Sciences Building, the Medical Sciences Building, Heritage Medical Research Building, Biological Sciences Building and Chemistry West Building.



BOLD VISION AND INVESTMENT

ALBERTA'S OIL SANDS INDUSTRY CURRENTLY PRODUCES 1.6 MILLION BARRELS OF OIL PER DAY, EMPLOYS MORE THAN 100,000 PEOPLE, AND SENDS ROYALTIES OF \$1.9 BILLION INTO PROVINCIAL COFFERS ANNUALLY.

Every dollar invested in the oil sands generates nine dollars of economic activity inside and outside of Alberta. By the International Energy Agency's estimation, Alberta's oil sands is an essential resource fuelling the world.

Since its very beginnings, the University of Alberta has played a vital role in the oil sands industry's growth. Today, the university is the only organization in the world that spans the full range of oil sands research, including mining, extraction, upgrading, land reclamation, *in situ* production, and carbon dioxide sequestration.

How did Alberta and the U of A become world energy leaders? Through bold, visionary investments in people and research infrastructure at critical points in the province's history.

Consider decisions made more than 35 years ago, when many in the energy industry believed that oil sands production would never be economically viable. Alberta's leaders

took a step back and undertook a thoughtful assessment of where we could be today. That assessment prompted the creation of the Alberta Oil Sands Technology and Research Authority with government funding of \$100 million.

The result? Sustained investments by, and collaborations between, the U of A, government and industry. These partnerships have stimulated the rapid industrial adoption of discoveries and innovations that have significantly increased oil sands yield and production efficiencies, while also reducing energy and water consumption and impact on the environment. They have also fuelled the development of world-leading post-secondary educational programming that has prepared the highly-skilled and strongly motivated labour force that has built Alberta's most important industry. In short, visionary, strategic investments made over three decades ago propelled Alberta into the position of a pre-eminent global energy leader.

OUTCOMES AND BENEFITS:

- U of A's industry partners have collectively invested close to \$50 million in the past decade alone in U of A research and faculty and student support.
- A \$29 million partnership with funding from Alberta Innovates and Imperial Oil supports the Centre for Oil Sands Innovation (COSI), under the direction of Dr. Murray Gray, Canada Research Chair in Oil Sands Upgrading.
- NSERC currently funds 16 Industrial Research Chairs, three Canada Research Chairs and one Canada Excellence Research Chair, all devoted to oil sands research.
- U of A's status as a world leader in oil sands-related research has attracted stellar talent to the province, including Dr. Thomas Thundat, Canada Excellence Research Chair in Oil Sands Molecular Engineering.
- Global partners are eager to work with the university to address common challenges, among them are India's Institutes of Technology, Petrotech and the Helmholtz Association of German Research Centres.
- U of A is a leading partner in a regional cluster of oil sands research centres, which includes the Alberta Research Council, CANMET Energy Technology Centre in the Natural Resources Canada laboratories in Devon and Syncrude Canada, that together produce 60 percent of the world's publications on oil sands.
- From 2004 to 2009, 136 graduate theses in North America were focussed on the oil sands; 55 percent of these were produced by students at the University of Alberta. A large majority of these graduates went on to become highly skilled employees in Alberta's oil and gas industry.

CAPITAL PLAN

Over the past ten years, the University of Alberta has undergone tremendous growth. Total student enrolment has increased 20 percent in fulfillment of access goals of both the province and the university. Graduate student enrolment has nearly doubled. During the same period, we have seen a concomitant increase in our research productivity and international profile and reputation.

The university has been able to manage and capitalize on this growth because of significant and continued capital funding and planning that has enabled both the construction of new learning and discovery spaces and the advancement of much needed deferred maintenance. In the competitive world of post-secondary education, it is important for the U of A to provide high-quality learning experiences and infrastructure that attracts, retains, and engages outstanding faculty and students.

With the recent completion of large-scale, new capital projects, the university now has the opportunity to sustainably maintain, and where appropriate, repurpose aging assets and infrastructure as new funding is made available. As areas/buildings are vacated by programs relocating to newly constructed buildings, smart, forward-thinking planning requires that we look beyond simple renewal and explore repurposing opportunities necessary

to meet the needs of today's learners and the continued growth in research-intensive activities. The ultimate goal: buildings that can be renewed in a cost-effective manner—that work and make sense now and in the future.

For example, with the completion of the Centennial Centre for Interdisciplinary Science (CCIS), several units within the Faculty of Science have been relocated, resulting in backfill projects in a number of buildings, such as the Henry Marshall Tory Building, the Biological Sciences Building, Chemistry West, and the Civil/Electrical Building. In addition, the completion of the Edmonton Clinic Health Academy (ECHA), and fit-outs of the Li Ka Shing Centre for Health Research Innovation and the Katz Group Centre for Pharmacy and Health Research, have set in motion much needed repurposing and renewal within the Dentistry Pharmacy Building, Medical Sciences Building (MSB), and Clinical Sciences Building

(CSB). All of this will benefit several faculties. By coupling renewal and backfill projects, the U of A is able to provide a best-value model in creating projects that look toward our future operational and academic needs at a reduced capital cost.

The following Capital Plan endeavours to take a balanced approach in identifying the need for capital funding in support of identified planning, engineering, and/or construction activities. As we look forward, the following five strategic priority areas guide our capital planning efforts:

- Ensure that we continue to maintain the condition and functionality of the university's physical assets, which play a critical role in our ability to attract, support, and retain the best students, faculty, and staff.
- Couple backfill requirements with renewal projects to provide a best-value model for capital projects that meets the pedagogical needs of tomorrow's learners and researchers in a more cost effective manner.
- Fund planning and pre-design services for strategic institutional capital priorities, creating an inventory of projects that can respond to future funding opportunities and be readily implemented through a variety of project delivery models.
- Provide student housing for at least 25 percent of full time enrolment to keep pace with G13 peers, enhance completion rates, and ensure accessibility for rural and underrepresented Albertan students as well as international students.
- Strategically plan and construct critical new facilities, respecting the varied needs of the university's five campuses as they each serve unique and separate constituencies within Alberta.

Aligning with Alberta's Priorities

This Capital Plan forms the basis of the institution's request for capital funding from the Government of Alberta—the U of A's primary funding partner. It outlines both short-term priority projects, which address current space, program, and renewal needs in light of expected differential growth, and long-term forecasted needs anticipated over the next ten years. Through the Capital Plan, the university continues to align with government priorities and goals as identified through the ministries of Advanced Education and Technology and Infrastructure, and seeks opportunities to leverage capital planning priorities with public, private, and institutional partners. Flexibility and consultation between university and provincial officials is critical as the Ministry of Infrastructure further develops and implements such directives as achieving sustainability through LEED®, Green Globes™ and BOMA BEST™ certification, prudent management of capital grant expenditure in capital project implementation, and identification of deferred maintenance.

As we move forward through the institution's second century, the U of A's vitality and vibrancy can only be maintained through well-supported, well-planned, and strategic repurposing and renewal of its facilities. Currently, the university's facility inventory totals 1.65 million square meters, and while we realize that there are limited dollars for new capital, we continue to plan and partner to accommodate strategic and critical expansion needs across our five campuses. Examples of current partnered initiatives being considered include the Twin/Triplex Arena project (South Campus), Student Residences/Housing (various sites), and Phase 1 District Energy Plant for South Campus.

Given current marketplace and best-value procurement models, envelope funding for planning and preliminary engineering of critical projects puts the U of A and government in the position to quickly enter the construction market as funds become available. This planning process begins with updating and refining elements of the Long Range Development Plan (LRDP)—specifically land use—to ensure that the university can continue to plan and develop its campuses to meet the short- and long-term needs of the institution. This envelope funding allows the university to better refine project scope and budget, and in turn, be in a stronger position to identify the most appropriate implementation strategy, including public-private (P3) options. The South Campus master planning is just one example where pre-design efforts have focused on the types of utility infrastructure needed to support sustainable practices of today and facilitate future innovation. The U of A was able to capitalize on the Knowledge Infrastructure Program (KIP) because of this kind of shared long term vision for the future which allowed plans to be quickly formalized in response to the aggressive timeframes of the program.

While past capital funding has provided new and renewed formal learning and research spaces, enrolment increases, and student demand continue to strain existing academic support space like fitness facilities, formal and informal collaboration/social space, libraries, collections and storage, housing, and daycares. These facilities are critical to the attraction and retention of students, faculty, and staff and provide an environment that is conducive to achieving a successful academic experience. Student housing, for instance, is a key driver in encouraging

successful learner outcomes and developing strong alumni relations with the institution. The university will continue to work with government to explore various development models and minimize initial capital investment while still providing housing options that are attractive and suited to our students. New student housing projects are particularly attractive investments because they do not require continuing operating grants while supporting the mission and mandate of the university.

In response to the measures and goals outlined in the Academic Overview, and in light of continued growth, program enhancements, changes in program delivery methods, and the need for additional academic support space, a number of strategic new and expansion projects across the five campuses of the university are in process and will be needed in future. While all U of A campuses work together as a whole, each serves distinct and separate constituencies within Alberta, putting the

university in a unique position within the Campus Alberta Model. As a result, special financial consideration should be given the U of A to properly meet the needs of each of our campuses without any one being overshadowed by the needs of any other.

The capital priorities outlined at the end of this chapter advance the goals of the institution and provide a rational context for addressing areas of greatest need. Outside of identifying needs and capital requests to government, the Capital Plan provides a mechanism for the university to target and leverage partnered funding. The U of A remains committed to seeking partnership opportunities that leverage provincial funding and maintain the momentum of the university's initiatives in support of its vision and of government's priorities for post-secondary education.

Highlights of 2011-12

INITIATIVES IN 2011-12

- **10-Year Strategic Preservation Plan for Maintenance and Functional Renewal:** The U of A and the provincial government continue to refine data, reporting, and collection tools (RECAPP) for methods to assess priorities and understand the scope of conditional and functional problems, and identify potential funds for remediation. Prioritization of the application of available funding is required to strategically address those facilities in poor condition and requiring functional improvement to meet the needs of increased and changing programming.
- **Campus Planning:** While the university remains committed to the fundamental tenets of the Long Range Development Plan, it is imperative that we continue toward the next level of consultation and planning (Sector Plans). These discussions remain focused on land use but do provide more detail about pathways, community connections, sustainability, and campus/urban planning principles, thus further refining the development and open space zones of our various campuses. As the consultations around these plans conclude, the university will consult with surrounding communities on how these discussions affect and may change the land use plans within the current LRDP. Any required amendments will follow the required consultation process.
- **Ecological Learning Centre:** Located at the Devonian Botanic Garden, this project addresses several current

needs of the facility: renewal of existing infrastructure that has reached the end of its serviceable life; improvement in the ability of the Garden to operate year round; development of sustainable water management; growth of outreach programs; and support for additional research activities. This project also provides a link to the new gift of an Islamic garden. This project is highlighted in Table 3 – Highest New and Expansion Priorities.

- **Energy Management Program:** Given the success of the current program, the university has initiated a second generation of the Energy Management Program. As in previous years, it is proposed that this program be financed through borrowing and paid back through resulting energy savings.
- **Innovation Centre for Engineering:** Even with the renewal and repurposing of the existing Chemical and Materials Engineering building, there is a continued and pressing need to develop additional program space for the Faculty of Engineering. Through an aggressive fundraising campaign and additional faculty resources, the university is proceeding to build the shell and core of the new infill project. This facility will provide a contiguous home for the administrative office of the faculty, as well as necessary research and collaborative space for the faculty's graduate students. The fit-out of this project is highlighted in Table 3 – Highest New and Expansion Priorities.

- **Physical Activity and Wellness (PAW) Centre:** In response to the growing demand for additional space on campus for recreation and fitness as well as research and programming in the Faculty of Physical Education and Recreation and the Steadward Centre, the university has partnered with the Students' Union and the Graduate Students' Association in the programming, planning, and schematic design of the PAW Centre. A student referendum was passed in 2010 allowing the councils of each student group to support the collection of a universal fee to support a borrowing requirement of up to \$30 million for the student activity areas programmed within the facility. The university has also received an additional \$9.5 million in grants and private donations, which are currently being matched by various institutional dollars. This project is highlighted in Table 3 – Highest New and Expansion Priorities.

- **Sustainability:** The Office of Sustainability formally brings together and takes a focused approach to building on the many sustainability practices and programs already in existence at the U of A. The ultimate goal of the office is to demonstrate leadership and instil sustainability as a core value at the U of A. The Office of Sustainability continues to provide the conduit and overarching co-ordination of all the institution's sustainability activities, including design and operations, teaching and research, and engagement and outreach. The U of A is a charter member of the Sustainability Tracking Assessment and Rating System and our submission in February 2012 resulted in the university being awarded a rating of Silver and ranked second among participating Canadian universities.

GOVERNMENT OF ALBERTA FUNDING IN 2011-2012

- **Dentistry Pharmacy Repurposing:** The province provided \$3.2 million to advance the planning and preliminary engineering for the repurposing of the Dentistry Pharmacy building. This funding will allow the university to complete additional investigations to properly prepare the business case and subsequent budget required to advance a top institutional priority project. The project is currently at the design development stage (base, shell, and core). The assessment concept approach that has been used to define this building's renewal program has proven to be extremely valuable and the university will be considering this methodology for future large preservation and renewal projects.
- **Devonian Botanical Gardens Base Infrastructure:** The province has provided \$13 million for much needed infrastructure improvements to address access, parking, and water issues facing the garden. This funding also played a key role in progressing the concept planning and design of the Islamic garden.
- **Infrastructure Maintenance Program:** Current levels of regular Infrastructure Maintenance Program (IMP) grants, together with recent one-time special project funding, have allowed the university to maintain its trend in reducing the deferred maintenance liability facing the university. Maintaining IMP funding levels, at a minimum, is critical for preventing increases in our deferred maintenance liability. In addition, increases to either base funding or additional one-time grants are required to limit growing risk to this liability (Refer to Figure 18 in the "Current State of Assets" section of the report).
- **Preservation Projects:** Projects funded and undertaken in recent years have resulted in reductions in the Facility Condition Index (FCI) of some facilities. Refer to Figure 17 in the "Current State of Assets" section of the report for a listing of current preservation projects and their associate of reduction in FCI.

2011-2012 PARTNERSHIPS WITH COMMUNITIES, POST-SECONDARY INSTITUTIONS, AND PRIVATE ORGANIZATIONS

- **Balmoral Repurposing:** In response to the imminent closure of the Chalk River nuclear facility, the U of A and Alberta Health Services (AHS) are working in partnership under a master agreement with Advanced Cyclotron Systems Inc. (ACSI) to establish a research project that will produce medical isotope ^{99m}Tc for distribution to local hospitals. With the support of AHS, Alberta Infrastructure, and Alberta Advanced Education and Technology, construction of this research and production facility has commenced to meet the restrictions of the original federal grant agreement.
- **Camrose Performing Arts Centre:** The university has entered into a memorandum of understanding with the City of Camrose and Camrose County to develop a performing arts complex at Augustana. This facility will serve a large number of local and surrounding area groups. The university and the City of Camrose are finalizing various construction and operating agreements with an anticipated construction start date of July 2012. Through future expansion plans, this project also accommodates opportunities to develop and construct space to further support Augustana's Fine Arts program.
- **Canada Foundation for Innovation (CFI)**
Contributions: Over the last ten years, the university has received approximately \$186 million from CFI for major infrastructure purchases, including equipment, renovation, and new construction. This funding has directly leveraged approximately \$279 million from other sources, including the province of Alberta, corporate partners, and other funding agencies.
- **Enterprise Square:** The U of A continues to work with the City of Edmonton, TEC Edmonton, and other private partners to determine opportunities that would provide continued utilization, program synergies, and operational support in Enterprise Square. The university and city are also working together to develop a partnership using the vacated Art Gallery of Alberta as a showcase space for arts and culture that celebrates our respective museum collections and the work of local artists.
- **Islamic Garden:** In June 2009, His Highness the Aga Khan announced plans to create a traditional Islamic garden within the university's Devonian Botanic Garden to express the growing partnership between the university and the Aga Khan University. The lead garden architect has been chosen and the concept planning has begun. The project will be developed in consultation and collaboration with the Ismaili Council for Edmonton and the Ismaili National Council for Canada, and will allow for further program development and community outreach. The Ecological Learning Centre is intended to integrate this and the other gardens within the Devonian Botanical Garden site.
- **Saville Community Sports Centre:** This is a community based multi-use recreation and sports complex on South Campus developed in partnership with the Go Community Group. The facility provides international standard courts for basketball and volleyball as well as facilities for a substantial gymnastics program. This facility expands on the university's commitment to build joint use recreational facilities on the South Campus that support both the public good and university programming. The official opening of this building was September 17, 2011.

PROJECT COMPLETION IN 2011-2012

The following projects were recorded as substantially completed in fiscal year 2011-12:

- **Centennial Centre for Interdisciplinary Science**

(CCIS): With continued support to direct positive project variances, additional fundraising, and a \$7.5 million Faculty of Science mortgage, CCIS was completed within the institution's capital funding envelope. While this project was caught in the peak of the escalated construction period, through the efforts of all parties, this project was able to meet its program obligations and provide the university with a teaching and research facility for years to come. The official opening of the facility was September 23, 2010. This project will be seeking LEED® Silver certification.

- **Edmonton Clinic Health Academy:** This project provides an integrated, interdisciplinary model of ambulatory care, teaching, and research. While the approved budget is \$425 million, the projected cost identified in the mitigation plan was in the order of \$469 million. In 2009, a mitigation plan was developed and issued to government, which identified areas of continued cost savings as well as additional funding targets. This project continues to track under budget and classes began within the building as scheduled in September 2011. The official opening occurred on January 18, 2012. In accordance with the initial work scope, we continue working with our grant partners to advance the south pedway infrastructure that will connect the Edmonton Clinic South, Walter C. Mackenzie Centre, the City of Edmonton LRT platform, and the Edmonton Clinic Health Academy. This project will be seeking LEED® Silver certification.

- **Knowledge Infrastructure Program (KIP):** Advanced planning and design allowed the university to meet the aggressive timelines of the KIP program and ensure that funding was maximized. In partnership with the province, the university was able to leverage approved project funding for a variety of projects and receive

federal KIP funding of \$62 million. This program and all associated projects were completed on budget and by the October 2011 deadline. Project readiness, the ability to enhance and expand research capacity, and the accommodation of additional students were all contributing factors towards the selection of projects put forward for funding under this program.

- *Biological Sciences/Chemistry Centre West/Chemical Materials Engineering Building Upgrades:* Select modernization of building systems in these two facilities on North Campus was completed. Government of Alberta funding of \$14.5 million and Faculty of Engineering funding of \$13.1 million were used to match \$10 million in KIP funding.

- *Li Ka Shing Centre for Health Research Innovation and Katz Group Centre for Pharmacy and Health Research:* The completed research space has helped the university to attract additional grant funding and top tier researchers. With the integration of pedway connections between Edmonton Clinic Health Academy, Medical Sciences Building, Heritage Medical Research Centre, and Education South, the entire area will be interconnected by a series of interior and exterior pedways.

- **Student Housing:** Building off of the opening of the new East Campus graduate housing project, the university continues to review ways to deliver additional beds during low market rate conditions and yet still relatively high construction costs – currently the highest in Canada.
- **Utility Expansion, Phase 3:** Phase 3 was completed in July 2011 to service both buildings associated with the Edmonton Clinic project. This project provides expansion of existing infrastructure required to provide a range of utilities to all of the proposed facilities in the greater North Campus area.

MAJOR FUNDED CAPITAL PROJECTS UNDERWAY IN 2011-2012

- **Agricultural, Life & Environmental Sciences (ALES) Research Stations:** Facilities at several ALES locations are being upgraded to meet expanding research and infrastructure requirements. Sites benefitting from the build and capital investment include South Campus, St. Albert, Kinsella, and the Mattheis Ranch. Work includes new buildings, renewal of various existing farm assets, basic underground services, and expansion of our rolling stock equipment inventory.
- **Balmoral Repurposing:** As noted in our list of partnerships, the existing Balmoral facility is being repurposed to facilitate research initiatives and the production of medical isotope ^{99m}Tc . The building footprint will be expanded to suit the requirements of the cyclotron and is being developed in partnership with Alberta Health Services.
- **Edmonton Clinic Pedways:** As the mitigation strategies for the Edmonton Clinic budget reductions were realized, planning and design continued to work with the infrastructure requirements to connect the Edmonton Clinic South, Edmonton Health Academy and the Walter C. Mackenzie Centre via an overhead pedway system (part of original grant work scope). The layout will also accommodate a connection to the City of Edmonton LRT platform, which will allow students, staff, and the visiting general public to travel between the three facilities and reduce 114th Street crossings.
- **Innovation Centre for Engineering:** Formerly known as Chemical Materials Engineering Infill project, this project has continued into the construction phase. After the noted renewal and repurposing of the existing CME is complete, there will still be a need to develop additional program space for the Faculty of Engineering. The project is being funded by the faculty and is being constructed as a shell and core structure. Once fit out, ICE will provide a contiguous location for the faculty's administration offices and necessary research and collaborative space for the faculty's graduate students.
- **Pharmacy Fit-Out:** This development of new Faculty of Pharmacy and Pharmaceutical Sciences space will be incorporated into the second and third floor footprint of the Katz Group Centre for Pharmacy and Health Research. The overall project budget, including Phase 1 fit out in Katz, is \$33,800,000, and is funded through a provincial, one-time capital grant. Work began in early 2010, and Phase 1 is complete. At the turnover of the Edmonton Clinic Health Academy, Phase II will commence with the renewal and repurposing of assigned space within the Medical Sciences Building and is scheduled for completion in early 2013.

MAJOR FUNDED PRESERVATION PROGRAMS UNDERWAY IN 2011-2012

- **Chemical and Materials Engineering Building**

Renewal (Phase 2): The completion of the remaining renewal is estimated at \$60.3 million and is dependent upon additional funding. As this is a high priority project, work will proceed and be continually phased as funding becomes available.

- **Infrastructure Maintenance Plan (IMP) Priorities:**

- *Asbestos Management:* Development of a more comprehensive asbestos management database is complete. The data is now available to assess impacts to project budgets.
- *Emerging Projects:* Over the last five years, the university has experienced emerging projects that are a result of system or building failures. Examples managed through IMP include failures of the mechanical systems in the Humanities Building and at Campus Saint-Jean, as well as building envelope concerns in the General Services Building and the Universiade Pavilion. These projects were managed as emergency work. Given the value of deferred maintenance on campus, this trend of unexpected serious issues may continue to occur and new projects that are not identified within the Capital Plan will be brought forward. One area of concern is that as select building elements, such as electrical vaults, have exceeded life expectancies and

component parts are not available, failures in these areas could be significant and result in shutting a building down for a period of time.

- *Fire and Life Safety:* These continue to be priority projects for the university with significant investments being made for renewal of fire detection and emergency communication systems. The next level of projects will require provisions for upgrades to additional fire suppression systems.
- *Facility Condition Index (FCI):* Facilities and Operations has developed an approach to these challenges that focuses limited capital funding into facilities supporting excellence or facilities with high maintenance costs. This proactive approach has resulted in a lowering the FCI in key strategic buildings.

Key Priority Areas and Capital Planning Considerations

The Capital Plan assumes that government guidelines and directions, including sustainability initiatives, must be met in undertaking planned projects. The university continues to work with government to develop a sustainability model for the institution that would be approved by all parties to facilitate sustainable design and operational practices.

The university's highest project priorities, listed below in alphabetical order, have been identified as needing additional funding support from the Alberta government. Due to continual review of budgets and scopes of previous and emerging projects, the priorities and estimated costs within the Capital Plan may not match the university's

list of capital projects or values as outlined in the 2012 BLIMS submission. Project cost estimates are reviewed and updated annually and adjusted as required. The projected cash flow requirements for completion of these projects to support the U of A's vision and this Comprehensive Institutional Plan are outlined in the Major Capital Requirements: Ten-Year Forecast, located in Appendix 1. Estimates have been adjusted to align with current market conditions and the university's and government's experience of the current construction costs and projected market escalation.

PRIORITY 1: CONTINUE REDUCTION IN DEFERRED MAINTENANCE LIABILITY

The Government of Alberta's commitment to nearly double our Infrastructure Maintenance Program (IMP) funding 4 years ago has facilitated significant progress in addressing deferred maintenance. IMP funding remains a critical source of funding which continues to be leveraged in partnerships with other internal and external funds, multiplying the value of the money many times over.

Recognized deferred maintenance specifically identifies condition-related deficiencies recommended for remediation within five years under a series of events that are established by government. As of Dec. 31, 2011, the estimated total liability of deferred maintenance on supported and unsupported university facilities totalled \$820 million: \$694 million for supported facilities and \$126 million for unsupported (ancillary) facilities.

The provincial reporting process for deferred maintenance uses Facility Condition Index (FCI) values, which are calculated by totalling the value of deferred maintenance and dividing it by the estimated replacement value of the facilities. The campus average deferred maintenance liability has been trending down as a result of recent increases to annual and one-time funding. As well, the FCI for specific targeted buildings has improved significantly as reported in the annual "Good News" reports issued to the government.

ASSUMPTIONS

It is assumed that, as a minimum, the current IMP funding levels will be maintained. Furthermore, given there may be no new capital funding commitment announced, the university's main focus will be on the continued preservation, repurposing, and renewal of its facilities. It is hoped that the economic slowdown will continue to present opportunities for more competitive bidding and excellent value for approved projects.

It is assumed that any building planned for renovations will have associated decant space available during construction, and any facility planned for major renovation or renewal will remain in use for an extended period of time after the renewal program is complete. Also, the university and government assume that a portion of annual IMP funding available must be either initially uncommitted or have the potential to be reallocated to allow for contingency and emerging issues that arise during each year's operations.

Finally, it is assumed that the institution must support whatever a building's primary function is, now and in the future. This strategy is aimed at ensuring effective and efficient building use, and maintaining the university's existing inventory while transforming learning environments to meet the needs of tomorrow's learners, educators, and researchers.

OBJECTIVES

- Ensure that we continue to maintain the condition and functionality of the university's physical assets, which play a critical role in our ability to attract, support, and retain the best students, faculty and staff.
- Identify and proactively address deferred maintenance in a collaborative way with government and identify assets at, or near, the end of their functional life.
- Aid in the assignment of preservation funding. The university will continue to address renewal programs such as roofing, building envelope, piping, sidewalks, life safety, and security. The university will support these programs by allocating a portion of IMP dollars across the institution, as accepted by the province and within the guidelines set by the IMP.
- Obtain sufficient resources to meet priority and contingent needs for maintaining and upgrading existing facilities.

INITIATIVES

- **Three-Year Infrastructure Maintenance Program Expenditure Plans:** This initiative was adopted by the university in 2004 and formalized with a request by government for an initial submission in 2008. The rolling three-year plan is now part of the university's annual reporting to government. This plan has recently faced new restriction challenges by the Ministry of Infrastructure and the university is working through a process to have the conditions reassessed.
- **Update to the 10-Year Strategic Preservation Plan for Maintenance and Functional Renewal:** This initiative began in 2005 and was updated in 2010–11. This will provide the university and government with updated strategies and project prioritization to maintain and renew the institution's owned facilities, as a result of new IMP funding commitments, IMP guidelines, and changes in building renewal priorities.

- **Life-Cycle Costing:** The university will be working with government to prepare a planning document related to infrastructure, deferred maintenance, renewal, and repurposing needs that would provide a long-term life-cycle cost approach addressing all aspects of a facility. This plan would allow for a long-term funding approach to address the backlog of deferred maintenance and facilities renewal/repurposing requirements. This plan must be data driven and, while the U of A has accurate data to support this undertaking, not all institutions do. Therefore, the university will be breaking new ground regarding support for funding requests with this process.
- **Preservation - Good News Stories:** Initiated in 2010, the university has now prepared and delivered two "Good News Story" brochures on our achievements in reduction of deferred maintenance and renewal of facilities. The university intends to continue reporting good news stories on an annual basis.

KEY ISSUES

- **Sustainability:** Renewal of target buildings that are functional and structurally sound results in lowering the carbon footprint and energy requirements associated with these older assets. The potential social, environmental, and economic benefits can be dramatic.
- **Operational Continuity:** An inability to maintain the operations, functionality, and utilization of capital assets places the institution at risk of negatively impacting current and future research, teaching, and learning.
- **Space Utilization:** The university is reviewing space utilization to determine how under-used space could assist in providing swing space to facilitate a more logical and comprehensive renewal/repurposing project.

PRIORITY 2: COMBINATION PHYSICAL/FUNCTIONAL RENEWAL PROJECTS VIA BACKFILL OPPORTUNITIES

ASSUMPTIONS

Recent investment in new facilities has created an opportunity to creatively address the need to accommodate both physical renewal of our buildings and functional renewal resulting from the institutional mandate to grow its research capacity as a comprehensive academic and research institution.

Older facilities are not designed to accommodate the increased functional and operational demands associated with the research-intensive programming in the university's vision and mandate.

Coupling functional with physical renewal projects through backfill projects provides a best-value model of capital projects that minimizes the need for new buildings and meets the pedagogical needs for tomorrow's learners and researchers at a significantly reduced capital cost.

OBJECTIVES

- Maximize the opportunities to identify and proactively address deferred maintenance in recently vacated space, through the combination of joint renewal and repurposing projects.
- Support the academic and research goals of the institution and maximize use of existing space, by ensuring that space is functional for current and future learning and research while extending the life of our existing infrastructure.

INITIATIVES

- **Dentistry Pharmacy Repurposing:** The completion of the Edmonton Clinic projects will result in the vacating of the university's Dentistry Pharmacy building. With the support of government funding, the university will complete programming, on-site investigations, and preliminary design to identify best fit for the renewal and

repurposing of one of the university's landmark facilities and complete the business case for future investment.

- **Functional Deficiencies Data:** The U of A, in partnership with government and other post-secondary institutions, is in discussions to develop a system to address the issue of lack of data for functional deficiencies in buildings. This will be a long-term initiative.
- **Project Identification:** Working with various faculties' General Space Programs, the university will identify opportunities where backfill opportunities exist in buildings with deferred maintenance needs.
- **Student Housing:** The university has recently completed studies with respect to the modernization of HUB and Lister Centre student housing communities as well as the redevelopment of family housing at Michener Park. We are also working with the community to finalize land use and preservation plans for East Campus Village.

KEY ISSUES

- **Reduce Capital Requirements:** Renewal and repurposing of target buildings that are functional and structurally sound result in lower costs when compared to the cost of a new building and/or simple systems replacement.
- **Renewal and/or Repurposing:** Adequate funding for repurposing space in key buildings is still a challenge. Deferred maintenance is an ongoing issue, but when renewal projects are coupled with modernization projects, the entire functionality of the building is upgraded to meet the needs of today's learners, teachers, and researchers.
- **Backfill:** While backfill is not normally thought of as being a part of preservation, nearly every project has some backfill and adjacency impacts. Upgrades required in adjacent facilities have an impact on the cost of major projects, such as when these spaces can accommodate required swing space to lower project costs associated with multiple phasing of larger renewal projects.

PRIORITY 3: ENVELOPE FUNDING FOR PLANNING AND PRE-DESIGN SERVICES

ASSUMPTIONS

It is assumed that, prior to entering design phases for a capital project, certain services, beyond the capacity of the institution's staff, must be procured in order to clarify needs (e.g. general and functional space programming), identify solution alternatives, select the preferred solution, and determine scope, size, and a relatively firm cost of the solution. When dealing with existing facilities, it is imperative to understand the constraints presented by the facility, within which the project team must work in the case of a redevelopment/renewal program. In addition, services of external professionals are often required to assist with significant initiatives, such as studies and master plans, to clearly define objectives, future use, and adjacency issues.

The traditional funding model sees projects initiated once full funding is secured, and the projects generally take three to five years to deliver, depending on scale and complexity. The university has also had significant success using partnerships to deliver its capital priorities, which in turn has reduced the capital requirements when compared to a more traditional approach. To effectively develop and explore partnership opportunities, significant up-front work is required to prepare the university to properly scope, budget, vet and respond to these opportunities. Planning and pre-design funding is required for the university to have an inventory of projects in a state of readiness as new capital funding and/or partnership opportunities become available.

There are a number of examples where upfront planning and pre-design have aided the university to actively engage and leverage partnership and future funding opportunities. For example, taking a staged approach with the Li Ka Shing Centre for Health Research Innovation and the Katz Group Centre for Pharmacy and Health Research buildings allowed for a proactive response to future growth needs and maximized the funding request and successful delivery of the federal KIP program. Other examples include our partnership with the City of Edmonton in Enterprise Square and subsequent joint bids for Universiade 2015 and Expo 2017.

North Campus has nearly reached its growth capacity and is one of North America's densest campuses. For the university to continue to grow and meet its obligations under the Roles and Mandates document, expansion of South Campus is becoming critical. Master planning is underway to determine the critical mass required for the sustainable development of South Campus.

Planning and pre-design services must provide a clear tie between campus development and the immediate and long-term strategic vision of the institution. The university understands that approval of planning and pre-design does not constitute approval or provide a promise of a future commitment to receive capital funding for a specific project. This funding allows the institution to quickly move into the construction marketplace as funds become available and potentially save millions of dollars in inflationary costs that might be incurred if construction is delayed.

OBJECTIVES

- Establish a funding envelope to ensure that strategic and critical projects or initiatives can be funded adequately and in a timely manner. The funding plan for the envelope would include government contributions through capital grants as well as contributions from internal sources where possible.
- Provide strong and clear campus planning documents that are rooted in leading urban design and sustainability principles. The plans will seek to provide the necessary direction, ensuring the academic program needs of the university are provided, with careful consideration to the expressed interests of the surrounding neighbourhoods.

INITIATIVES

- **Secure Funding for Planning and Pre-Design Services:** In October of 2009, a letter was submitted to government outlining the importance of planning and pre-design funding in the current economy. The

letter outlined two potential approaches to planning and pre-design funds. The first was a list of projects and estimated design costs per project, with funds proposed to be disbursed over three fiscal years. The second approach was to work with government to establish an annual funding allowance. At that time, the suggested annual planning request was \$3–4 million.

- **Project Readiness and Responsiveness:** Within this framework, projects yet to be approved would be partially advanced prior to project approval. Taking this action provides significant benefits since better defined project scopes and budgets provide a higher level of program and cost certainty. It also facilitates both a quantitative and qualitative approach in matching the project with the most appropriate delivery model, whether that is a traditional design bid build or a more entrepreneurial P3 approach. Lastly, it positions the institution and government to respond quickly to the ever-changing construction marketplace and new potential funding programs, such as the Knowledge Infrastructure Program.

KEY ISSUES

- **Backfill Planning and Repurposing:** With the completion of a number of new buildings, there is an opportunity to leverage renewal with redevelopment. Given the goals and aspirations outlined in the CIP and the existing deferred maintenance associated with these buildings, there are a number of factors that require consideration in assessing the residual capacity resulting from new construction. Upfront planning will enable the university to create a renewal and repurposing plan to ensure today's assets can deliver tomorrow's programs in the most sustainable way.
- **Increased Research Intensity:** As a research-intensive institution, there is a growing need to convert administrative and undergraduate space to accommodate growth in the graduate, doctoral, and postdoctoral programs. These research programs require significantly more physical space and infrastructure

than the university's aging inventory can accommodate. Advanced planning is essential to investigate how to best renew and repurpose these areas to maximize utilization.

- **Increasing Area of Aging Infrastructure:** While new construction has accommodated the planned growth of the institution, the university must continue to respond to the learning goals of the institution. There are a number of targeted buildings for which planning work must be completed to ensure that issues such as access, teaching, learning, and support needs are addressed in a planned and sustainable manner. These buildings include: Dentistry/Pharmacy, Medical Sciences Building, the Clinical Sciences Building, and the Civil/Electrical Building. Advanced planning and pre-design funding for condition concept studies and reports would provide the opportunity to responsibly accommodate future growth, while aligning with the expectations of government.
- **Campus Planning and Community Expectations:** As part of building relationships with our surrounding communities, the university continually engages its neighbours and stakeholders in the planning and design of its campuses as they develop. Communities are requiring the university's planning documents be detailed enough so they are fully aware of the impacts of development. Critical to a project, such as the development of sector plans for the South Campus, is the creation of a framework that in turn provides clarity and understanding, as well as an interpretive plan that guides a multitude of designers and planners for the next 30-plus years. There are a variety of Sector Plans that need to be updated, and depending on the outcomes of these consultations, there may be the need to update the LRDP to reflect changes to land use resulting from these consultations.
- **Long Range Development Plan:** The LRDP needs to be updated to reflect new lands acquired, such as Enterprise Square, St. Albert lands, Devonian Botanic Garden, Kinsella Ranch and Mattheis Ranch.

PRIORITY 4: STUDENT AND WORKFORCE HOUSING

ASSUMPTIONS

The university continues to respond to pressures for additional student residences, accommodation for visiting researchers, as well as faculty and staff housing. Research indicates that the quality of these facilities and the academic program contained within correlate with academic performance and the attraction, retention, and success of students, faculty, and staff. The university maintains its vision of providing purpose-built housing for at least 25 percent of full-time students, which is in line with our peer institutions.

In alignment with the university's white paper on student housing, the academic plan, and the priorities of the Government of Alberta, it is assumed that there is an increased need for on-campus, purpose-built, and accessible housing. There is also an increasing need to integrate support programs and academic learning space into student housing communities in order to attract and retain targeted groups such as graduate, rural, Aboriginal and international students, as well as students with families. There is a continued need to explore funding strategies for student housing in support of increased access.

It is further assumed that during this planning period, there will be emerging pressures to strategically develop market housing options for staff and faculty in order to remain competitive with respect to attracting and retaining talented faculty and staff.

OBJECTIVES

- Present and discuss the findings and recommendations contained in the U of A's white paper, "Student Housing – for Now and for the Future" (August 2009).
- Continue working with Advanced Education and Technology, other ministries, and stakeholders to develop creative housing solutions that meet the goals of the university, students, and their families.
- Emphasize the importance of funding for program space in residences that supports the academic mission and student success.

INITIATIVES

- **Residence Services Accommodation and Program Study:** Purpose-built, accessible, on-campus student housing has the ability to augment and enrich students' academic experiences. The *Residence Services Accommodation and Program Study: Dare to Deliver* presents a road map with respect to how residences might develop in the future as well as what types of programs and activities should occur in support of the development of the whole person. The university will be using this document as a guide in planning and developing additional space to provide opportunities and access to rural, Aboriginal, under-represented, and international students, as well as students with families.

- **Condition and Functionality:** The university does not receive targeted deferred maintenance funding for student residences. Student residences have high infrastructure needs and these are compounded by the university's inability to recover the cost of maintenance or modernization backlog via rental revenues. In 2010–11, the university began reviewing strategies that would help build a reserve fund to be accessed for maintenance, renewal, and expansion of student residences (Residence Services Capital Reserve Strategy, June 2010). Changing student demographics and requirements as well as improved understanding of program delivery are driving the need for modernization in several student residence communities.
- **Capacity:** The university continues to explore strategies to add student residence capacity on its campuses, as well as to provide workforce housing options on the West 240 lands at South Campus. Locating students closer to other campus services and facilities has an important impact on student engagement and how they relate to their experiences at university and supports the institution's stated goal of achieving a target of 25 percent of full time students living in university residences.
- **Partners:** The university will continue to meet with private sector developers to explore viable options to achieve our residence and housing targets.
- **Property Taxes:** The university will continue to discuss means of eliminating property tax assessment on student housing, thereby improving accessibility.
- **Support for Program Areas:** In some student housing communities (especially in first and second year residences) as much as 20 percent to 35 percent of the gross area is being utilized to provide space that accommodates co-curricular programming, study halls, and other student support services. If these spaces did not exist in residences funded through rents, there would be pressure to provide these spaces elsewhere on campus. The university will continue to work with government to find ways to acknowledge these aspects of student development as the residence system is expanded and modernized.
- **Lights-On-Funding:** Further to the above, the university will continue to discuss ways to bring lights-on funding to residence spaces used to provide student support.
- **Deferred Maintenance:** Further to comments earlier in the plan, the university will continue to work with government to identify one-time and continuing deferred maintenance funding for student housing in order to prevent closure of much needed residence spaces.

PRIORITY 5: NEW SPACE

ASSUMPTIONS

Over the last few years the university, through the support of government, has added approximately 150,000 square metres of new/expansion space, most of which has already been accounted for in approved program expansions. As the university continues to take a measured response to growth in accordance with its mission and vision, there is still a need for strategic construction of critical new facilities, while recognizing that the needs of our campuses vary, as they each serve unique and separate constituencies within Alberta.

The institution has identified a number of new expansion projects critical to the mission, vision, reputation, and global competitiveness of the institution, a majority of which were identified prior to the economic downturn. Some of these highest priority projects include: a building expansion to accommodate the science programs at Campus Saint-Jean; a new School of Business building to accommodate growth within the Faculty of Business; space for humanities and social science departments within the Faculty of Arts; Innovation Centre for Engineering; relocation and program accommodation at South Campus for the faculties of Agricultural, Life & Environmental Sciences and Physical Education and Recreation.

There are also a number of critical academic support facilities that have been identified, including the Physical Activity and Wellness Centre, Cameron Library and Information Pavilions, and the Gathering Place. These academic support facilities are discussed in greater detail in the next section.

OBJECTIVES

- Outline the capital needs of the institution in order to deliver the vision and programs included within this Comprehensive Institutional Plan. Through this process, the U of A, in partnership with government, can continue to be an institution of choice for Albertans, Canadians, and the global communities we seek to serve. Space must not only provide simple access, but also ensure that the entire educational and life experience is supported for student success.
- Confirm the state of the current inventory of academic support facilities, identify adequacy, appropriateness and availability, and engage government in discussions to outline the importance of these facilities and remediate identified shortfalls in these integrated program areas.

INITIATIVES

- **Priority Setting:** Continue to work with government to align priorities for new capital and partnerships.
- **Strategically Advance Planning:** Continue to work on advanced planning of high-priority projects in order for those projects to be in a state of readiness once new capital funding becomes available.
- **Partnerships:** Continue to explore partnerships through donations and alternate financing and project delivery models to leverage any available funding and/or reduce initial capital investment.

KEY ISSUES

- **Provincial and Global Economies:** Currently the key issue affecting new space is the need for new capital funding during continued economic uncertainty and volatility.
- **Lack of Adequate Academic Support Space:** Academic support facilities play an instrumental role in academic achievement and fundamentally support learning and research, as well as the attraction and retention of students, faculty, and staff. Over the past

ten years, there has been a concentrated focus on funding projects that lead directly to much-needed increase in access. This has now put a strain on our academic support spaces. The current economic situation provides an opportunity to take a second look at determining how best to accommodate the need for adequate academic support space, which has not grown proportionally with recent increases in enrolment.

Additional Planning Considerations

SPACE MANAGEMENT

- **Provision of Appropriate Space:** The university continues to work to provide adequate and appropriate space in order to accommodate changing pedagogy, program requirements, and research.
- **Campus Alberta:** Another challenge facing the university is how to address the space needs related to attracting, recruiting, and retaining students and faculty in alignment with the province's Roles and Mandates Policy Framework. The university will continue to explore strategies in collaboration with other institutions to aid in student recruitment and retention.
- **Leveraging Funding:** The university continues to leverage funding from government (e.g. grants, KIP), donations, and public/private partnerships (e.g. Saville Community Sports Centre, Camrose Performing Arts Centre, Devonian Botanic Garden, Physical Activity and Wellness Centre) to develop its current space and building assets.

INSTITUTIONAL STRATEGIES AND SUPPORT

- **Borrowing:** It is critically important that the university work with government and its financial entities to develop alternative financial models that address current fiscal constraints within government while planning and building an internationally recognized research-intensive institution that will attract the best and the brightest faculty and students in the years to come.
- **Alternate Financing Arrangements:** Along with pursuing innovative partnerships for property

development, the university also looks for alternate financing arrangements where feasible and advantageous. Other alternative financing, such as bond issues and P3s, will also be explored where appropriate. Increasingly, the funding of projects in this plan will reflect the partnerships noted above and will include funds from multiple sources. Donations, as well as partner contributions, will be sought and used to complete needed facilities. Leasing options will also be considered to lessen the demand for capital funding. The university will continue to look at ways to involve the private sector in the repair, development, and operation of new and existing housing inventory.

- **Partnership Development:** Opportunities to develop partnerships could allow the university to leverage funding and develop its physical resources in a cost-effective manner. While this priority initiative presents a major opportunity for the university to develop its physical resources in an innovative and cost effective manner, it also presents significant challenges to both the institution and province. First, the institution, along with government as its primary funding partner, must work within current public policy. Second, the university must carefully weigh the advantages apparent in a partnership arrangement against the potential loss of control over the future of its resources.
- **Campus Alberta:** The university continues to work with its post-secondary partners to explore opportunities for sharing resources, both physical and operational, for the mutual benefit of all parties. The university has a significant intellectual resource base and capacity to assist and support these institutions as requested.

- **Data Systems:** In order to abide by government mandate, determine investment need, and track results of investing, appropriate data systems with reliable, detailed, and consistent information are essential. Facility data is contained in several different information systems, which are maintained and used for a variety of purposes.
 - For building operations and asset management, computerized maintenance management systems provide the critical means to manage responses and maintenance, budget, inventory supplies, parts and materials, track building labour costs, and build system life cycles, equipment, and structure. In addition, faculty work requests and project financial tracking provide the university with the ability to accurately manage costs and apply charges.

In this regard, Facilities and Operations' Utilities Department has successfully deployed a billing system that has replaced an in-house legacy system. As Utilities fully explores the capabilities of the new system, customers will be provided with timely access to their usage data so they can successfully manage their operations.

At different levels, all internal constituents have a stake in the appropriate quality and quantity of university facilities. However, when planning the functional renewal and the operation of facilities, there are key stakeholders who must understand issues, have access to available data, and be able to contribute to identifying necessary, achievable, and effective investment options.

The legacy system used by Facilities and Operations is currently being updated in order to accommodate reporting requirements. The update will also help to

mitigate risk to operations and operational data, as well as provide meaningful information to internal and external stakeholders in a consistent manner.

UNSUPPORTED SERVICES

- **Information Technology:** Although grants cover purchases for information technology, there is a need for agreement on government support of maintenance and replacement for core information technology services. A key element to this support is that it must be a new funding source and not take funds away from the existing facilities' deferred maintenance grant. Information technology is foundational in a modern building. It can be used to control security, power usage, air conditioning, elevators, telephones, and many other core services. This infrastructure eventually wears out and/or needs upgrading to continue meeting operational, teaching, and research needs.
- **Residences:** Government considers residence operations to be cost recovery and does not currently provide any level of funding support. The university, in conjunction with other institutional partners, published a white paper on student housing, which was submitted to government in August of 2009. This white paper makes practical recommendations with respect to how the U of A, while working with the government, can ensure the availability of accessible student housing that facilitates access by rural Albertan students and others, supports the development of the whole person, and meets the goals and aspirations of the province and the university. The white paper also discusses the fact that effective student housing can include 20-35 percent program area spaces that are used for the delivery of

co-curricular and other programs that help students succeed. These spaces are currently funded via student rents and receive no central support.

- **Child care:** The lack of available and affordable child-care options on campus is becoming a deterrent, not only to the recruitment of staff and faculty, but also to the attraction and retention of graduate students and students from traditionally under-represented groups, such as Aboriginal people.

OTHER INFLUENCES AND CHALLENGES

- Facility operating costs for high intensity research facilities may still be greater than the funding provided through the Base Operating Grants. The university must carefully monitor actual costs in these facilities to determine if a significant shortfall continues and report to government accordingly.
- While the university appreciates and acknowledges the government's efforts to provide lights-on funding for the Centennial Centre for Interdisciplinary Science and Edmonton Clinic Health Academy, failure to provide adequate operational support/bridging would result in a significant operational shortfall to the institution that would directly impact overall operational service for existing facilities. As buildings are repurposed to accommodate additional research-intensive programming, there may also be a need to review operating costs and associated funding requests for differential lights on funding to accommodate the program change within the building.
- The objectives of accessibility, affordability, and quality education contained in Campus Alberta and Access to the Future will continue to influence the university's planning processes. Also, the government's initiative to ensure sustainability of facilities will influence planning and implementation of both renovation and new construction projects.
- Many elements influence planning and implementation of preservation, expansion, and new construction projects, including:
 - Business case development required for projects outlining the need for additional space and/or grant funding.
 - The deferred maintenance liability cannot be significantly reduced unless an increase in grant funding and/or one-time funding is received for preservation and renewal projects. Although not recognized as deferred maintenance, there is also a need to expend significant amounts on functionality issues for which data is not readily available.
 - The provincial government's capital planning process and its timing of approval decisions and funding announcements greatly influence the ability of institutions to plan and implement capital projects, including presentation of final budgets.
 - New construction is required to achieve LEED® Silver certification level. The university continues to engage government to look for the most economical means of validating building designs and operations in the interest of achieving the university's sustainability goals and is actively pursuing alternative, cost effective strategies to provide equal or greater certification levels at a lower cost.
 - The ability to leverage donor contributions and other sources of funds with government funding for capital projects is decreasing but still pursued.

Current State of Assets

The university manages a portfolio of facilities totalling 1.65 million gross square metres over more than 500 buildings, of which nearly 50 percent are over 40 years of age.

DEFERRED MAINTENANCE PROGRAM

The university is grateful for the continuation of the increased IMP base funding support, which was received in 2010–11, and additional one-time grants, which have helped to address some serious condition and functional deficiencies, benefitting the students and faculty of the university. The Uof A, with assistance from the Government of Alberta, continues to make progress in reducing the overall deferred maintenance value, which has resulted in significant improvements to the

Facility Condition Index for a number of our buildings (see Figure 17). The university will continue to provide a separate report on the progress made and the benefits of its deferred maintenance program. While current levels of regular IMP grants and replacement of older facilities have resulted in slight decreases to the measured deferred maintenance liability, current funding is inadequate to eliminate the backlog of infrastructure renewal required without supplementary one-time grants for large, high-priority projects. Additional deferred maintenance funding envelopes and/or one-time grants for deferred maintenance are needed for the university to make significant inroads in reducing the deferred maintenance liability. With current fiscal constraints, should there be a pull back on one-time funding assistance for preservation projects, the trend of a slight decrease to deferred maintenance is expected to reverse.

FIGURE 17 MEASURED FACILITY CONDITION IMPROVEMENTS

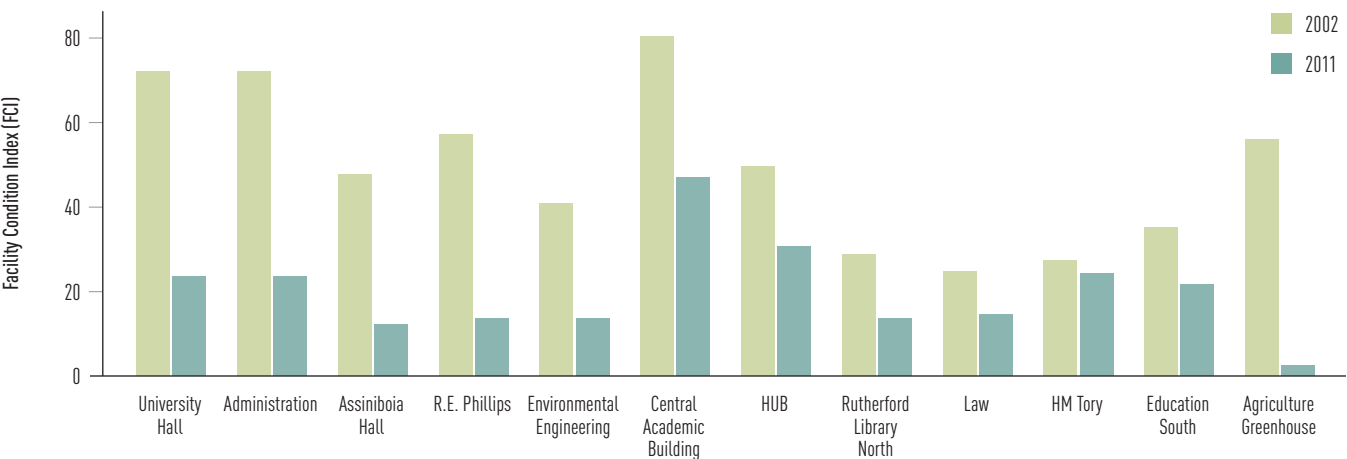


Figure 18 (Facility Deferred Maintenance vs. IMP and One-Time Funding) illustrates current comparisons between deferred maintenance backlog, current funding commitments, and the trend over the last seven years.

UPGRADING

While the extent of functionality issues is known, there is no current system in place with government for measuring, tracking, or funding of functionality issues. Additionally, there is no support for functional deficiencies such as code upgrades, life safety, and hazardous materials removal. For the 2011–12 fiscal year, Facilities and Operations will be preparing a model for presentation on the impact of functional renewal for budget planning.

Figure 19 (Recognized and Unrecognized Deferred Maintenance for All Facilities, as of December 2011, Five Years Costs by Event Type), shows the deferred maintenance backlog for supported facilities by type of event (green bars -2011) and the upgrades or events not recognized by government as deferred maintenance (red bars), which have been estimated to date. Functional renewal costs associated with deferred maintenance are not included. Depending on use, functional renewal costs can vary from two to five times the deferred maintenance value for a given facility. It is expected that a systematic audit of functionality deficiencies will uncover substantially higher dollar figures. Only a detailed audit on asbestos has been performed internally, with the resulting figure shown in the chart.

FIGURE 18 FACILITY DEFERRED MAINTENANCE VS. IMP AND ONE-TIME FUNDING

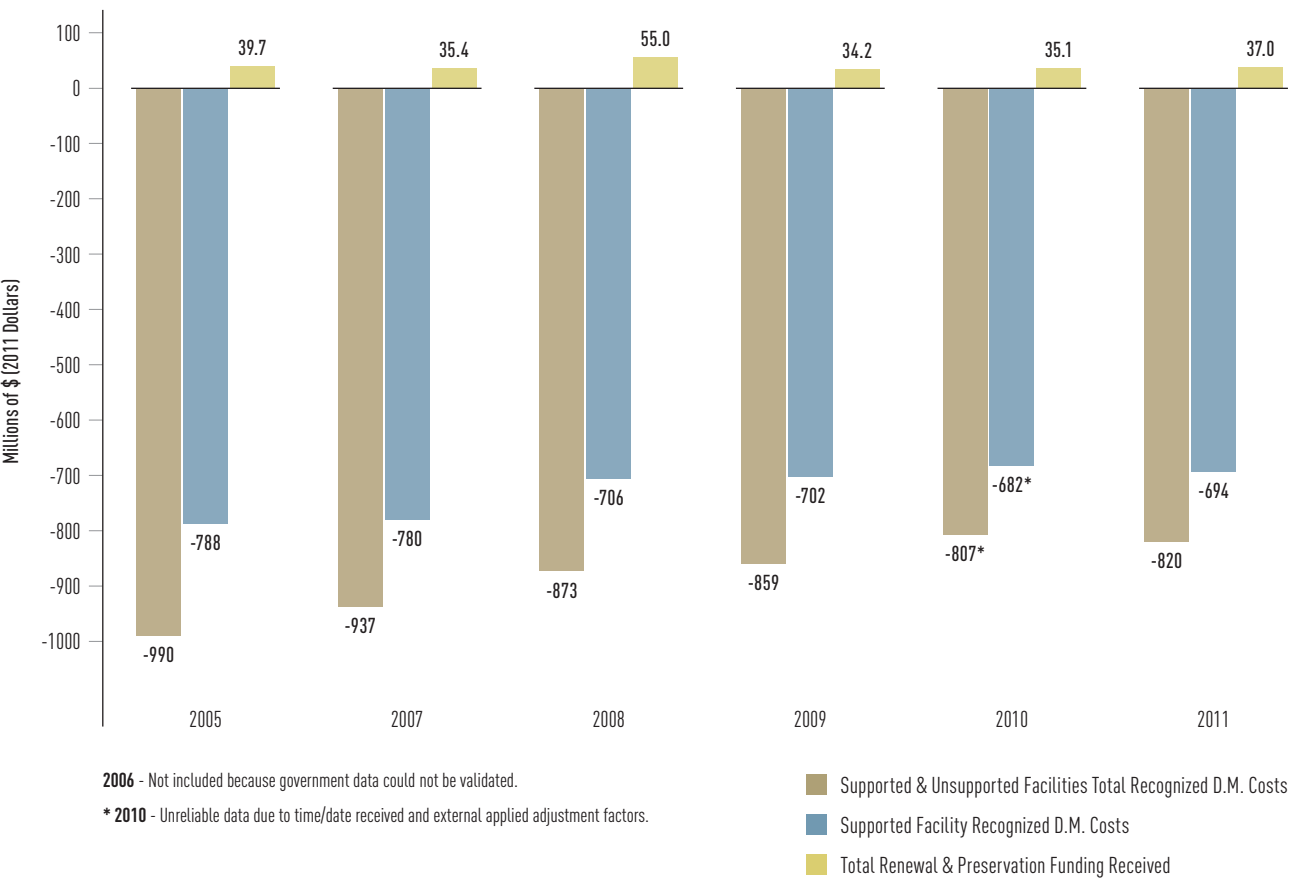
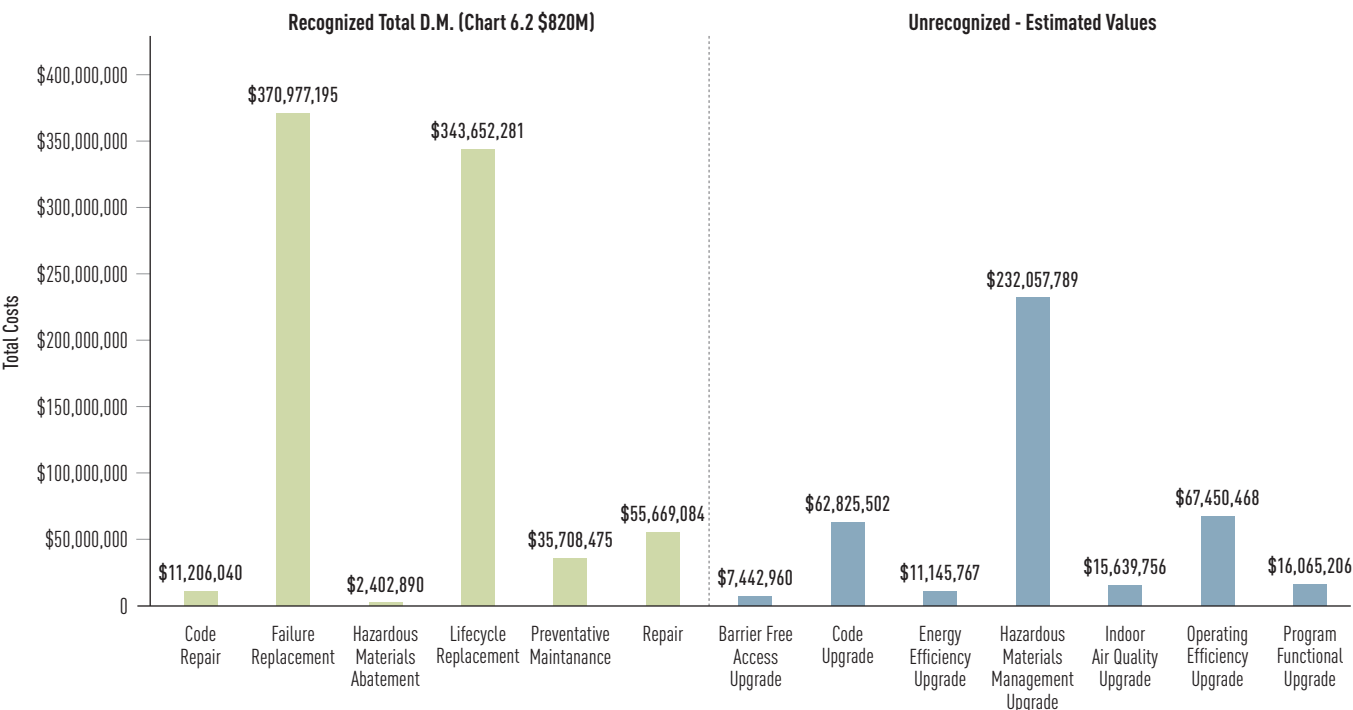


FIGURE 19 RECOGNIZED AND UNRECOGNIZED DEFERRED MAINTENANCE FOR ALL FACILITIES, AS OF DECEMBER 2011, FIVE YEARS COSTS BY EVENT TYPE



Note: Failure replacements are audited events that are recognized as required to be done. Life cycle events are events that are projected typically in year five.

RESIDENCES

Student residences have high infrastructure renewal needs. This is compounded by the inability to recover the cost of the backlog from rental revenues. At the U of A, a large portion of current residence accommodation is not only at the end of its useful life, but also is functionally challenged to support the directions of the university and government; as an example, supportive accommodations directed at increasing the numbers of Aboriginal students attending the U of A are not available. As new facilities are brought on stream, capital reserves have been established as part of the operating budget.

RISK MANAGEMENT/LIFE SAFETY ISSUES

Despite continued funding pressures and deferred maintenance backlog, some projects must proceed in order to respond to emergency situations. These projects may have to be funded from internal or alternate sources until specific grant funding is available from government. Also, contingency funds from existing funding can be inadequate to cover major system failures in large, aging facilities. Due to a number of major failures over the past 3-4 years, the university has advised government officials that adjustments may be required to the three year rolling IMP plan to deal with emergent issues. The university continues to proactively monitor and coordinate with government on the growing operational pressures within our aging infrastructure so that we can maintain access and minimize the risk of shutting down teaching, learning, and research space.

Capital Funding Requests

PRE-DESIGN PROJECTS REQUIRING FUNDING

Planning and pre-design services work is critical to the long range planning of the institution because it demonstrates how best to maximize utilization of land holdings, buildings available for repurposing, or projects critical to the delivery of the institution's academic program. The projects listed below represent priority

planning projects that are planned over the next three to four years. **Due to the critical nature of these projects, some of the planning projects have proceeded with partial funding in advance of needed and formalized government funding (denoted by*).**

TABLE 1 PRE-DESIGN / DESIGN PROJECTS REQUIRING FUNDING (LISTED IN ALPHABETICAL ORDER)

PROJECT	DESCRIPTION	REQUEST (\$)
Agricultural, Life & Environmental Sciences (ALES)	Planning for the growth and emerging priorities of the faculty in research and teaching and the feasibility of consolidating faculty departments in a single facility on the South Campus, including the assessment of other lands.	2,500,000
Augustana Science Building	Planning and design schematics to facilitate the renewal and expansion of the current labs servicing the Augustana science program.	500,000
Biomedical Engineering Building (Pre-Design)	Pre-design to build infrastructure and acquire equipment necessary to facilitate development of Canadian Institute of Bio-Medical Engineering on the U of A North Campus.	1,250,000
Campus Saint-Jean – Science Expansion *	Expansion and infrastructure improvements of the existing facility to meet the needs related to the expansion and improvement of science programs, partnerships with other faculties, and dedicated research space.	1,500,000
Campus Wide Renewal Project Planning	With limited decant space the institution needs to develop a holistic plan that allows the institution to plan how various renovations and renewals can occur with minimal disruption to teaching, learning, and research.	2,500,000
Cameron Library and Information Pavilion - Phase 2 (BARD)	The existing leased facility does not meet the program growth or storage requirements of the existing BARD collection. Pre-design services would confirm the size of the facility, establish a preferred location and allow for a detailed overview on the operations and formalized business case.	1,000,000
Gathering Place *	Design for a centre focused on students, faculty, and staff to serve as a community gathering place that embraces and provides an inclusive and supportive learning environment to increase participation by First Nations peoples within the post-secondary sector.	500,000
Institutional Backfill/Repurposing Planning	With the recent turn over of new facilities there is a need to provide a coordinated review of critical institutional areas affected by changing use and occupancies. Primary building inventories would include Clinical Sciences, Medical Sciences Building (ECHA influenced) and Biological Sciences (CCIS influenced). Coordinating efforts would provide a consolidated approach for a “best fit” solution.	1,000,000

PROJECT	DESCRIPTION	REQUEST (\$)
Physical Education and Recreation (PER) new faculty building and research consolidation	Planning for the growth and emerging priorities of the faculty in research and teaching and the feasibility of consolidating faculty departments in a single facility on the South Campus, including the assessment of other lands.	2,500,000
School of Business	Development of a building for the School of Business in a partnered opportunity with private sector. A building for the School of Business also accommodates backfill requirements of social sciences and supports their growth needs.	1,750,000
School of Music	Development of a building that could house the School of Music program in partnership with a private sector developer. Concept pre-design, business case development to facilitate fund development, building schematics and delivery strategies.	1,500,000
Scientific Support Facilities Master Plan *	Plan to undertake a comprehensive review of all scientific support facilities and their locations and develop strategies to meet the challenges of providing this program in a multi-faculty, multi-location setting in the most cost effective manner without sacrificing access, care, or quality.	1,000,000
South Campus Master Plan *	Sector planning needs to be completed for the land use and for a phased and sustainable utilities/infrastructure strategy that will accommodate projected long-term growth on this site and the possible relocation of some of the existing operations to off-site research stations.	2,500,000
TOTAL		\$20,000,000

UNFUNDED PRIORITIES

The following are the university's highest priorities in the categories of preservation and new and expansion, for which the institution is requesting consideration of government approval and funding support. Due to continual review of budgets and scopes of previous and emerging projects, the priorities and costs within the Capital Plan may not necessarily match the university's list of capital projects outlined in the 2012 BLIMS submission. However, the university assumes that projects identified as priorities in this update will, for the most part, be carried forward in the 2013 BLIMS submission.

The project costs are adjusted annually with current values representing rounded 2012 construction dollars. Escalation values are provided by Alberta Infrastructure at the time of final entry. The projected cash flow requirements for completion of these projects to support both the university's vision and the University of Alberta's CIP are included in Appendix 2.

TABLE 2 HIGHEST PRESERVATION PRIORITIES (LISTED IN ALPHABETICAL ORDER)

PROJECT	DESCRIPTION	REQUEST (\$)
Agriculture Forestry Lab Renewals *	Upgrade base building infrastructure to allow for full functional renewal of laboratory spaces. This will permit increased program use in the facility.	3,000,000
Biological Sciences Renewal Program – Phase 1	Phase 1 of renewal program for Biological Sciences. Significant upgrades to mechanical and electrical base building infrastructure to support current and future needs.	57,100,000
Cameron Library Information Pavilions Phase 1 *	Phase 1 redevelopment and upgrade of Cameron Library to create an integrated learning environment with comprehensive user support, group study rooms, and a variety of settings for group discussion and quiet study zones.	10,500,000
Campus Saint-Jean Electrical Distribution *	Upgrade the existing site electrical distribution and main service to effectively manage the aging infrastructure issues and to facilitate future expansion objectives.	3,000,000
Campus Wide Fire Alarm Modernization *	Replace/retrofit/renew fire alarm infrastructure in university buildings.	11,300,000
Campus Wide Fire Suppression Upgrade *	Replace/retrofit/renew fire suppression infrastructure in university buildings.	11,200,000
Chemical and Materials Engineering Building – Renewal (Phase 2)	Renewal and repurposing of the building to provide needed wet lab space for Engineering and address building envelope and operational issues. Phase 2 is the continuation of the project and would fully renew the existing building. Due to the critical need for this space, the Faculty of Engineering is providing bridge financing of \$5,000,000 toward Phase 2 of the renewal in advance of government funding.	60,300,000
Chemistry West – Phase 3 of Renewal – Building Envelope Perimeter Heating and Interior Upgrades	Upgrades for remaining floors on the north portion of the facility to the same standard as floors 4 and 5. Remaining floors to be upgraded on north 50% - basement, L1, L2, and L3. Replacement of perimeter heating system with individual controlled room zones.	4,800,000
Chemistry West – Floor Renewal *	As the base building upgrade and renewal work is now completed, the delivery model for the remaining fit outs can be accommodated as smaller phases of work. Levels 7, 3 and 2 can be split out as separate work packages. Value noted would provide funding for one of the levels noted.	4,000,000
Chemistry West & Chemistry East – Electrical Vault / Emergency Power Upgrade *	Electrical services for the facility are at capacity; no emergency power is available for building life safety systems. New electrical room and generator required.	3,100,000
Clinical Sciences Building: Phase 1 Design and Renewal	Building renewal and backfill with the completion of Edmonton Clinic Health Academy is complete. Focus is for renewal and repurposing. The project would be approached in three phases of renewal of the tower. Phase one is for design and building prep for phased renewal	10,750,000
Clinical Sciences Building: Phase 2 Renewal and Repurposing	Building renewal and backfill with the completion of Edmonton Clinic Health Academy is complete. Focus is for renewal and repurposing. Phase 2 would accommodate 1/3 of the project and allow for decanting of remaining tower.	30,000,000
Convocation Hall Renewal	Renewal of hall stage, front lobby and interiors; all timed to coincide with building's Centenary.	2,500,000
Dentistry/Pharmacy Building - Renewal	Functional renewal of the building once the Edmonton Clinic Health Academy is complete and faculties have relocated. The existing building, constructed in 1921, has a high deferred maintenance liability and must be completely retrofitted before new tenants can be moved in. Selection of consultants for pre-design has taken place. The project will require advance work in the West Lecture Theatre to accommodate decant needs.	195,000,000

PROJECT	DESCRIPTION	REQUEST (\$)
Earth Science Building – Central System Upgrade *	ESB has had a significant increase in wet lab space. This has driven the need for base building mechanical and electrical upgrades. Initial studies indicate the upper floor can be isolated from the existing base systems and would allow the existing systems to manage the remainder of the building.	8,000,000
Heating Plant – Boiler #7	Purchase and installation of new boiler required to ensure plant reliability. About 50 percent of the plant's boiler capacity is close to 40 years old.	38,000,000
Institutional Backfill	Backfill renewal and repurpose of space that is becoming available with the completion of CCIS, primarily within Biological Sciences, Earth Sciences, Chemistry and Civil Electrical Engineering for other institutional growth needs across the institution. Costing based on detailed assessment of backfill options.	26,000,000
Medical Sciences Building: Phase 1 Renewal *	Select building renewal and repurposing/backfill to occur once the Edmonton Clinic Health Academy is complete.	26,900,000
Medical Sciences Building: Phase 2 Building Upgrade	Full facility renewal program and backfill.	86,200,000
Replacement of Remote Control Monitoring System (RCMS) *	Current remote control monitoring system provides control and monitoring of the major mechanical systems and space conditions in all major buildings, both on and off main campus. Replacement of obsolete system which is critical to day-to-day operation of university buildings.	22,000,000
Roofing Program *	Campus-wide program for upgrading of roofing systems for a three-year period to deal with roofing systems that are in the 12 to 15 year range and will be nearing the end of life expectancy.	8,000,000
South Academic Building Link *	Renewal/addition to the South Academic Building (SAB formerly Civil Engineering Building) to accommodate change in use of SAB and move Council Chambers to Dentistry Pharmacy as first phase of renewal.	4,000,000
Tory Tower Basement Upgrade *	Continuation of renewal program within Tory, basement and Level 1 will become available for renewal with the planned decant of Science.	4,000,000
Universiade Pavilion: Building Envelope Upgrade *	Renewal of building envelope to replace failing panels.	7,650,000
University Hall – Building System Upgrades *	Complete replacement of mechanical systems serving University Hall. Will require architectural renewal to accommodate changes. Work has been progressing on a select deferred maintenance project basis to support overall building renewal	8,150,000
Van Vliet East & West – Upgrade of Mechanical Systems *	Complete renewal of building mechanical systems currently in very poor condition. Given student support of the Physical Activity and Wellness Centre project, there is an opportunity to partner for partial renewal of Van Vliet. Partial renewal deferred maintenance funds for this phase of work would be \$4 million.	11,500,000
Various Facilities – Electrical Vault Upgrades *	Campus-wide upgrades of electrical vaults currently in poor condition and close to failure.	20,700,000
TOTAL		\$677,650,000

*Denotes preservation projects that are included in the \$40 million dollar annual deferred maintenance one-time grant program identified within the Major Capital Requirements Ten-Year Forecast table (Appendix 1).

TABLE 3 HIGHEST NEW AND EXPANSION PRIORITIES (LISTED IN ALPHABETICAL ORDER)

PROJECT	DESCRIPTION	NEW SPACE (M ²)	REQUEST (\$)
Agricultural, Life & Environmental Sciences Bldg – South Campus	Planning for the growth and emerging priorities of the faculty in research and teaching, and the feasibility of consolidating faculty departments in a single facility within South Campus. Assessment of the impact of other lands being utilized by the faculty on its operations and programs.	61,000	357,000,000
Augustana Classroom Building Upgrade	Repurpose of existing library space after completion of new library at Augustana. Includes abatement, exterior, code, and repurposing.	22,290	9,000,000
Augustana Science Expansion and Renewal	Expansion and renovation of the existing building and infrastructure to meet the needs of the student enrolment and science program requirements.	1,500	21,000,000
Cameron Library & Information Pavilions (CLIP) – Phase 2	Construction of new Book and Records Depository (BARD) in order to meet program growth and storage requirements of the existing BARD collection.	14,870	85,000,000
CLIP – Phase 3	New space for Museum and Collections Services (MACS) to provide centralized space for collections with proper temperature and humidity controls.	32,437	195,000,000
Campus Saint-Jean Science Building	Expansion and renovation of existing facility to meet the needs related to differential program enrolment throughout the entire campus, the creation of new programs and partnerships with other faculties, and dedicated research space, which will allow opportunities for reuse within the backfill area. The university is targeting an additional \$10M in federal support. Total project estimate is \$44M	5,319	34,000,000
Innovation Centre for Engineering – Fit-out	Shell and core construction of an adjacent North Tower expansion (\$60,000,000) has proceeded with funding through the Faculty of Engineering. The fit-out is required to provide teaching and research space to accommodate the program growth within the faculty. This project will also consolidate and co-locate department's offices and administrative units.	29,406	40,000,000
Ecological Learning Centre – Devonian Botanic Garden	New facility to allow Devonian Botanic Garden (DBG) to open year-round and support community outreach. Addition of parking lot and sound walls, as well as a new formal gate. The university is targeting \$10M of fundraising. Total Project estimate is \$39M	3,861	29,000,000
Gathering Place	Centre focused on Aboriginal students, faculty and staff to serve as a community gathering place that embraces and provides an inclusive and supportive learning environment. Project will be aligned with current Education Tower location and be aligned with the building's current infrastructure and program areas. The university has secured a donation of \$1M to initiate the project. Project is estimated at \$18M	3,000	17,000,000

PROJECT	DESCRIPTION	NEW SPACE (M ²)	REQUEST (\$)
Housing – East Campus Village	Development of 500 to 750 additional bed spaces to enhance the university's ability to accommodate projected growth. The request represents a cost of \$117,000 per bed with an equity component of 30 percent.	32,900	35,000,000
Housing – Michener Park	Renewal and replacement of all building systems for row houses, walk-ups, high rise, and supporting infrastructure. Assumes a 30 percent equity component.	N/A	18,000,000
Pedway – Underground 115 Street & 87 Avenue	Construction of an underground pedway to allow easy and safe access between the Physical Activity and Wellness Centre and the Edmonton Clinic Health Academy. This will finalize the connection of the Health Sciences precinct to the campus north of 87th Avenue.	N/A	9,600,000
Physical Activity and Wellness (PAW) Centre	Construction of an addition and upgrades to the physical education and fitness centre for use by the entire campus community and for more efficient placement/expansion of services. The university expects to contribute an additional \$46,500,000 from various sources.	6,500	10,500,000
School of Business Building/Social Sciences Departments	Development of a building for the School of Business in a partnered opportunity with private sector. A building for the School of Business would facilitate accommodation of the backfill requirements of the social sciences and support their growth needs. The social sciences are currently experiencing significant shortfall of space.	27,000	172,400,000
School of Music	Development of a building that could house the School of Music Program in partnership with a private sector developer. The budget represents the potential equity required within the partnership arrangement.	12,400	100,000,000
South Campus – Infrastructure for Shared Use Facilities	New infrastructure to support the development of the NE sector of South Campus – deep sewer, water supply, road lighting, and improvements specifically to support the siting of community complexes on campus. Work has proceeded in support of projects and timelines to accommodate federal grant timing.	N/A	6,750,000
South Campus – Utility Infrastructure	Initial Infrastructure to provide first phase of utility and services in support of campus growth and to accommodate infrastructure located on adjacent Government of Alberta land (could also be provided through a P3 model).	N/A	127,150,000
		TOTAL	\$1,266,400,000



PIONEERING NEW COMMERCIAL INNOVATIONS

"ALBERTANS' BEST CHANCE FOR SUSTAINED PROSPERITY WILL BE TO PIONEER ONCE AGAIN—TO FIND COMMON CAUSE AND MOVE FORWARD WITH INTENT, AS WE HAVE DONE SUCCESSFULLY IN THE PAST." SO OPENS *SHAPING ALBERTA'S FUTURE: REPORT OF THE PREMIER'S COUNCIL FOR ECONOMIC STRATEGY*, A PASSIONATE CALL FOR A RESURGENCE OF THE PIONEERING IMAGINATION, INNOVATION AND ENTREPRENEURSHIP THAT SPARKED AND ENRICHED ALBERTA'S THRIVING NATURAL RESOURCE ECONOMY.

It's time, the authors of the report argue, for Alberta to be bold and increase investments in the cultivation of the new 21st century industries and next-generation pioneering talent that will be essential to the province's prosperity in the future.

At the University of Alberta, we can already see what is possible when government and community partners come together to build new companies and industries with TEC Edmonton—the university's primary vehicle in the commercialization of research discoveries and innovations. With long-term foundational funding from the Edmonton Economic Development

Corporation and Western Economic Diversification Canada, and more than \$7 million from various funding streams in the Alberta Government, TEC Edmonton has brought together university researchers, entrepreneurs, business service providers, government, and technology providers to generate a wide array of new commercial ventures.

In 2010–2011, for every dollar invested in TEC Edmonton—seven dollars in direct, new economic activity has been generated. Eighteen companies have been created, 23 licenses and options executed, and \$39.7 million contributed to the economy in Alberta's capital region.

RECENT SUCCESSSES:

(source *Driving Innovation/Creating Opportunity: Annual Report 2010/11*, TEC Edmonton)

- **A new way to diagnose and treat cancer:** With TEC Edmonton's help, the U of A's Department of Oncology was able to secure grants from Natural Resources Canada's Non-reactor-based Isotope Supply Contribution Program (\$4.4M), as well as Western Economic Diversification Canada (\$3M) to develop a new process for manufacturing medical isotopes used in the diagnosis and treatment of cancer, cardiac and other diseases and neurological conditions. An additional \$12M was received from Alberta Health Services to support the relocation of the Edmonton Radiopharmaceutical Centre, a division of AHS that supplies radiopharmaceuticals to the Northern Alberta medical community. The goal? To replace nuclear reactors with cyclotrons in the diagnostic medical isotope supply chain, ensuring radiopharmaceuticals are available when and where needed.
- **Innovation in hazardous gas detection:** Smaller than an eraser, the MEMS (Micro-Electro-Mechanical-Systems) tunable laser could save lives. Under development through a partnership among the U of A, Norcada and Boreal Laser, the MEMS tunable laser is being created to detect hazardous and toxic gas at oil refineries, petrochemical/chemical plants and other manufacturing, industrial and agricultural locations. TEC Edmonton recently helped to secure \$540,000 in funding from nanoWorks, a program of Alberta Innovates Technology Futures. The goal? To speed the commercialization process from identified industry need to applied research and development to effective, marketable product.

INSTITUTIONAL BUDGET, 2012-13

Aligning with Alberta's Priorities

In the last decade, the province has emerged as an undisputed leader on the national stage—and is poised to become a significant player on the international stage as well. In today's financial climate, in which world economies, particularly those within the European Union, are highly volatile, Alberta has come through the economic crisis in relatively good shape. Why is Alberta in this enviable position, even as the global community continues to face further economic difficulties?

The short answer is that we are blessed with natural resources that the rest of the world wants and needs, but, in truth, the explanation for the province's current prosperity is not so simple. Alberta's vast natural resources are a gift, yes, but making them into viable, thriving industries has required enormous long-term planning, investment, and talent. As has been stressed throughout this document, the U of A has been a critical part of building Alberta's prosperity for more than a century, educating engaged, intelligent, capable, innovative, and productive citizens. The university has also been the source of world-class expertise in agriculture, a range of environmental sciences, energy, medical and biotechnology, nanotechnology,

information and communications technology, in addition to feeding Alberta's excellent public service, vigorous music, theatre, literature, and visual arts scene, and diverse social make-up.

Alberta can build upon this strength and invest in highly skilled and talented people to position Alberta for economic growth. To sustain a strong and vibrant economy, Alberta's future depends on continued growth in key sectors of energy, agriculture, education, information and communications technology, and health. Albertans must continue to engage and contribute to the future of their province through creativity, innovation, cultural

and social initiatives and further education. Knowledge, creativity, innovation, and entrepreneurialism are the new global currency. Alberta needs highly skilled people, with the capacity to generate social, technical and scientific innovations. The provincial government must make strategic decisions in its level of investment in the post-secondary sector to meet the future needs of all Albertans.

In the absence of sufficient investment by the provincial government in the way of increases to the university's Campus Alberta Grant, the 2012-13 fiscal year will present the university with a number of budgetary and operational challenges. Three consecutive years without increases to the Campus Alberta Grant have started to adversely impact the university. To avoid substantial impact on the capacity of the university to fulfill its core mission of teaching and research, a return to adequate annual increases to the Campus Alberta Grant is essential. Over the past two years with no base funding increases, the university has eliminated vacancies, and in some cases reduced staff complements. The university's ability to offer world-class teaching and research will be significantly affected if this trend continues.

In 2011-12, the university took steps to minimize the negative effects of receiving no increase to the Campus Alberta Grant. This included an average two percent budget reallocation across the institution and a continuing focus on achieving administrative efficiencies. Without new levels of government investment at a minimum of a four percent increase to the operating grant, a minimum two percent budget reallocation will be required within the university's 2012-13 budget.

University Budget

In 2011, the Public Sector Accounting Board (PSAB) issued a financial reporting framework for government not-for-profit organizations. This framework will apply to all institutions controlled by the government of Alberta, which includes post-secondary institutions. While this change will affect the university's financial reporting and budgeting it will have little impact on day-to-day operations across faculties and units.

Some of the key changes under this new reporting framework include:

1. **Reporting of Expenses:** Expenses will be reported by function, such as academic instruction or administration, rather than by categories such as salaries, benefits and supplies.
2. **Investment Income:** Unrealized gains and losses will no longer be recognized in the statement of operations.
3. **Budget Reporting:** Budget information will be presented in the financial statements.

In the development of the budget, every attempt was made to conform to the new PSAB standards and frameworks currently being finalized by Advanced Education and Technology (AET); however, because the transition to PSAB is not yet complete, budgets may be revised or restated in the future to align with the updates to the new framework.

Consolidated Budget

Prepared under Canadian Generally Accepted Accounting Principles (GAAP), the University of Alberta's 2012-13 consolidated budget reflects the entire enterprise of unrestricted and restricted funds. This includes general operations, research activities, capital projects, and ancillary operations.

For 2012-13, the budget represents a deficiency of revenue over expense of \$15.9 million. Factors contributing to this include: limited increases in provincial funding; only modest recoveries to investment income; costs to support investments in salaries and benefits; and general inflationary cost pressures. In addition, the deficiency is driven by the amortization of capital expenditures in the operating accounts. Previously, amortization of capital was offset by additional sources of revenue. The amortization of capital is now an issue because overall capital funding is lower than in previous years, the university is receiving less in the way of interest income, and because of the impact of insufficient increases to the university's operating grant.

In order to balance the 2012-13 consolidated budget, the university would require an additional 2.5 to 3 percent decrease in its operating budget over and above the current budget reallocation of two percent. The university does not believe that it is prudent to reduce the operating budgets at this time in order to offset the capital amortization expense and balance the consolidated budget, particularly in a year when the university's interest income is far below normal levels due to the current economic situation. The university fully acknowledges that

deficiencies in the consolidated budget are not sustainable in the long run. A return to normal levels of interest income and annual government grant increases at a level to offset expenditures, and effective planning over the next year will enable the university to bring the consolidated budget back into balance for 2013-14.

Revenue and expense details are presented in Table 4. Please note that the projected deficiency excludes an estimated \$1.4 million provision for the university's share of the Universities Academic Pension Plan (UAPP) unfunded pension liability expense. The provision represents the 2012-13 allocation of the net actuarial losses on the accrued benefit obligation, which are being amortized over the expected average remaining service life of the employee group.

The statement of financial position and statement of changes in net assets is presented in Appendices 3-4.

TABLE 4 CONSOLIDATED BUDGET, 2012-13 (\$'000)

	2011-12		Budget	Projections		
	Budget	Forecast		2013-14	2014-15	2015-16
Revenue:						
Provincial government	752,660	774,186	768,750	796,944	816,476	834,756
Federal and other government	180,292	162,498	178,327	172,312	177,309	182,950
Student Tuition and Fees	246,916	249,269	277,728	291,173	305,226	307,839
Grants and donations	102,116	83,556	89,840	88,711	90,732	93,671
Investment Income	57,986	10,530	49,603	55,562	60,171	63,420
Sales of services and products	214,394	218,357	219,488	212,079	207,275	211,096
Amortization (deferred capital contribution)	104,925	105,312	117,796	120,829	123,262	125,793
Total Revenue	1,659,290	1,603,708	1,701,532	1,737,610	1,780,451	1,819,525
Expense:						
Salaries	807,061	815,605	838,528	854,814	875,654	903,226
Employee benefits	160,406	156,969	169,096	186,218	200,003	215,079
Materials, Supplies and Services	325,375	312,732	320,886	325,360	334,789	347,357
Maintenance	69,682	79,049	70,881	70,046	70,889	71,965
Utilities	48,795	44,411	51,214	52,883	54,601	58,786
Scholarships and Bursaries	87,948	89,578	92,772	96,497	100,274	104,222
Amortization	158,123	159,489	174,085	178,762	182,902	187,211
Total Expense	1,657,390	1,657,833	1,717,462	1,764,580	1,819,112	1,887,846
Excess of Revenue Over Expense	1,900	(54,125)	(15,930)	(26,970)	(38,661)	(68,321)
Investment in Capital Assets	(26,161)	(25,640)	(7,413)	6,175	16,153	17,357
Transfer from Endowment	-	35,680	-	-	-	-
Increase (decrease) for the Year	(24,261)	(44,085)	(23,343)	(20,795)	(22,508)	(50,964)
Unrestricted Net Assets (deficiency), Beginning of Year	(60,646)	(3,536)	(50,691)	(75,386)	(95,768)	(118,276)
Universities Academic Pension Plan	(3,276)	(3,068)	(1,352)	412	-	-
Unrestricted Net Assets, End of Year	(88,183)	(50,689)	(75,386)	(95,769)	(118,276)	(169,240)

* Due to the timing of budget development relative to implementation of the new framework, the budget may be revised, or restated, to ensure alignment with the framework.

CONSOLIDATED REVENUE

Budgeted revenue for 2012-13 is \$1,702 million. As illustrated in Figure 20, 45 percent of this comes from the province of Alberta, mostly through the Campus Alberta grant and sponsored research.

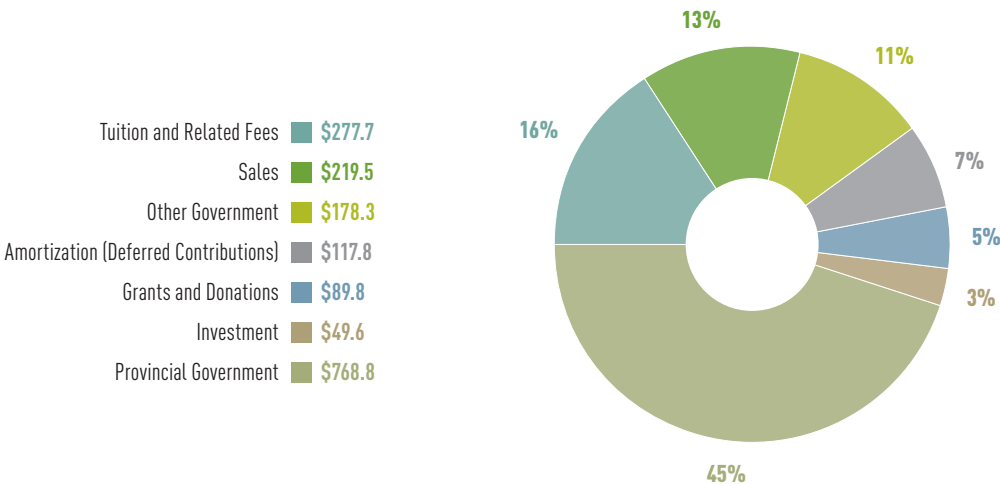
Tuition and related fees are budgeted at \$278 million and is the second largest source of revenue. This includes all instructional fees, market modifiers, and non-instructional fees. These revenue sources are effectively part of general operations and are discussed in greater detail in the section below discussing the operating budget.

Sales of products and services represents 13 percent of total revenue, or \$219 million. This is primarily derived from ancillary operations such as residence services, the bookstore, parking, and food services. These revenues

also come from operating activities across all faculties and units. Examples include sales associated with physical education and recreation activities (passes, camps, etc.), medical clinical assessments, and rental of equipment.

For the 2012-13 fiscal year, investment income is budgeted at almost \$50 million. While this represents only three percent of consolidated revenues it remains an essential, yet volatile, source of revenue for the institution. This year's projection continues to reflect the poor performance in the equity markets and a continuation of historically low interest rates.

FIGURE 20 CONSOLIDATED REVENUE, 2012-13, \$1,702 MILLION



CONSOLIDATED EXPENSE

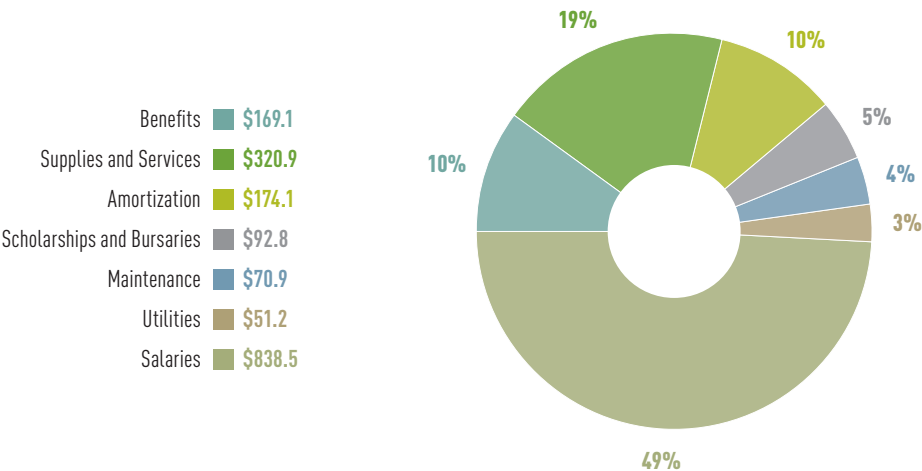
For 2012-13, consolidated expense is budgeted at \$1,717 million. Compared to the prior year's budget, it is approximately 3.6 percent higher. As Figure 21 illustrates, investments in salaries and benefits to maintain teaching, research and other critical activities account for 59 percent of total expense.

The next largest expense is for materials, supplies and services. Budgeted at \$321 million, these expenses provide essential support across campus from information systems/technology, and library resources to day-to-day operations such as insurance premiums, communications, and classroom maintenance.

Also a significant expense in the consolidated budget is \$174 million for the amortization of capital assets. Under Canadian GAAP, amortization recognizes the useful life of an asset, specifically the reduction in its useful life thorough an annual expense. This represents assets such as buildings, scientific and computing equipment, software, and learning resources.

At the consolidated level, utility expenses include the provision of utilities for the university's core teaching and research activities, and ancillary operations.

FIGURE 21 CONSOLIDATED EXPENSE, 2012-13 \$1,717 MILLION



Operating Budget

The operating budget covers the day-to-day operations associated with teaching, administrative support, facility operations and maintenance for classrooms and buildings. The university continues to strive for a balanced approach in maintaining the quality of the teaching environment, maximizing the use of resources and continually striving for administrative efficiencies. However, the budget reallocations that have been applied over the last three years have had an impact on the institution and have

reduced the university's capacity to fulfill its mission. Faculties and units across the institution are losing capability through the elimination of vacancies, the loss of staff positions, and limited resources to recruit new faculty and staff. In an effort to maintain a reasonable balance between fiscal responsibility and any further loss of capacity across the institution, the university is budgeting for a deficit of \$5.1 million in 2012-13.

TABLE 5 OPERATING BUDGET, 2012-13 (\$'000)

	2011-12		Budget	Projections		
	Budget	Forecast	2012-13	2013-14	2014-15	2015-16
Revenues:						
Provincial Government	581,513	585,287	591,556	603,387	618,615	631,093
Other Gov't, Donations & Grants	-	-	6,810	6,946	7,085	7,227
Tuition Fees	192,173	195,111	222,636	234,971	247,894	249,346
Non-credit Fees	42,298	41,329	42,109	42,961	43,837	44,739
CoSSS Fee	10,676	11,010	11,193	11,417	11,645	11,878
Investment Income	22,751	9,223	11,104	15,513	18,550	20,116
Sales of Products & Services	52,651	60,029	63,530	64,600	65,691	66,804
Total (Revenue)	902,061	901,989	948,938	979,795	1,013,317	1,031,203
Expenditures:						
Salaries	575,729	579,064	602,379	621,596	644,337	668,345
Benefits	127,383	120,098	133,861	151,465	165,807	180,347
Utilities	42,162	38,117	44,735	46,180	47,697	51,644
Materials, Supplies & Services	78,367	77,823	78,738	81,051	85,580	88,652
Repairs & Maintenance	22,973	26,800	25,742	26,227	26,722	27,226
Scholarships and Awards	27,621	34,100	35,179	36,391	37,471	38,334
Capital Acquisitions	32,677	33,141	33,441	33,473	33,808	34,146
Total (Expenditures)	906,913	909,143	954,075	996,383	1,041,422	1,088,694
Surplus (Deficit)	(4,852)	(7,154)	(5,137)	(16,588)	(28,105)	(57,491)

* Due to the timing of budget development relative to implementation of the new framework, the budget may be revised, or restated, to ensure alignment with the framework.

OPERATING REVENUE

Budgeted revenue for 2012–13 is \$949 million, compared to a forecast of \$902 million for 2011–12. Key highlights from the 2012–13 revenue budget are:

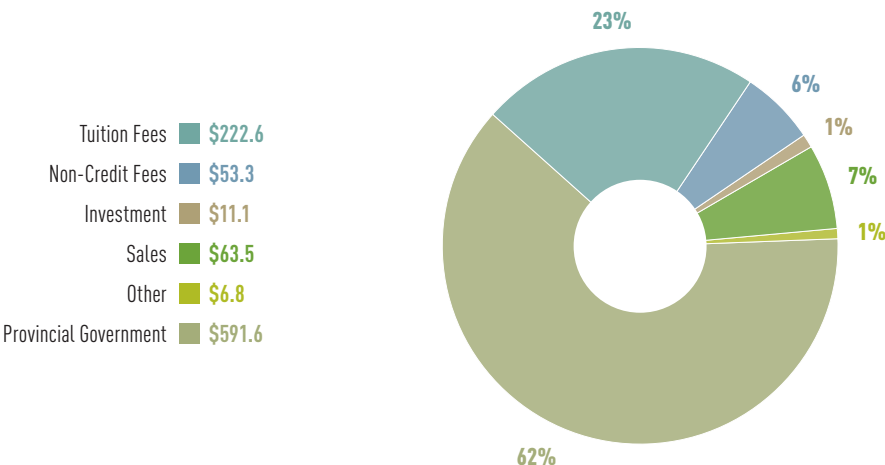
- a two percent increase to the base Campus Alberta Grant.
- roll-in of government enrolment adjustment funding from 2011–12
- inclusion of federal government funding in the way of a grant from Canadian Heritage
- adjustment to reflect gross tuition revenue versus net tuition revenue
- 1.45 percent increase to credit tuition fees
- continued phased approach to full implementation of market modifier tuition
- lower investment income due to market conditions
- elimination of unrealized investment gains and losses
- continuation of the non-permanent Common Student Space, Sustainability and Services (CoSSS) fee

As illustrated in Figure 22, the base Campus Alberta Grant is the primary funding source of the operating budget. For 2012–13 the university is budgeting for a two percent increase to the grant, which is approximately \$11.6 million.

Although the university acknowledges the importance of this grant increase, a two percent reallocation in budgets will still be required to achieve budget targets. 2012–13 will be the fourth consecutive year that the university has instituted budget reallocations, which cumulatively place large budgetary pressure on the university. In addition, the purchasing power of the institution continues to be reduced due to inherent increases in fixed costs, particularly from inflationary and related pressures.

The university has also budgeted \$1 million in provincial “lights on funding” to accommodate new facilities coming online in 2012–13. Recognizing this represents only a

FIGURE 22 OPERATING REVENUE, 2012-13, \$949 MILLION



portion of actual funding requirements, the university will continue to work with the province to address support for government approved facilities. Also included in the budget is lights on funding for buildings such as the Interdisciplinary Centre for Engineering and Physical Activity and Wellness Centre as they become operational in 2014-15.

The university has also budgeted \$6.8 million for 2012-13 in other government funding, which consists primarily of federal grant funding from Canadian Heritage under its official language support programs.

The second largest source of operating revenue comes from tuition and other related fees. In the last several years, calculating overall tuition revenue has grown in complexity at the university. In addition to base tuition, the university has international fee differentials, program fee differentials, market modifiers, grandparenting provisions, and a new tuition model for graduate students. At the same time, the university is experiencing a shift in student enrolment between graduate and undergraduate, and international and domestic students.

These changes have required significant enhancements to the forecasting model used by the university to calculate tuition revenue. Starting in 2012-13, as part of the new methodology in budgeting for tuition as well as the application of the PSAB standards, tuition revenue will be budgeted as gross tuition revenue instead of net tuition revenue. This will improve quarterly reporting of actual tuition revenues against budget and increase the transparency in reporting of tuition revenue. Budgeting tuition at gross tuition level results in a significant increase in budgeted tuition revenue for 2012-13 compared to the 2011-12 estimated actuals. This increase in budgeted tuition revenue is offset by corresponding increases in the various expenditure lines.

For 2012-13, tuition and non-credit fee revenue combined is budgeted at \$275.8 million, or 29 percent of total revenue. This includes the CoSSS fee, a non-permanent fee introduced in 2010 and reviewed annually by the Board of Governors.

Tuition revenue for 2012-13 also reflects the continuing change in the university's student mix and a 1.45 percent tuition increase for 2012-13, which is in alignment with the maximum allowed under the provincial Tuition Fee Regulation. The regulation limits annual tuition increases to the Alberta consumer price index (CPI). In seeking Board of Governors' approval for the increase, consultations were held with students primarily through the Budget Advisory Committee, which has senior representation from the Students' Union, the Graduate Students' Association, and university administration.

Other major sources of operating revenue include investment income and sales of products and services. Investment income for 2012-13 has been budgeted at \$11.1 million, which is significantly lower than the 2011-12 approved budget and marginally higher than the 2011-12 estimated actuals. Low interest rates continue to be driven by weak global economies and substantial uncertainty in the European markets. Some growth in investment income is forecast in future years based on the assumption of modest improvements in interest rates. Sales of products and services are budgeted to increase to \$63.5 million.

OPERATING EXPENDITURES

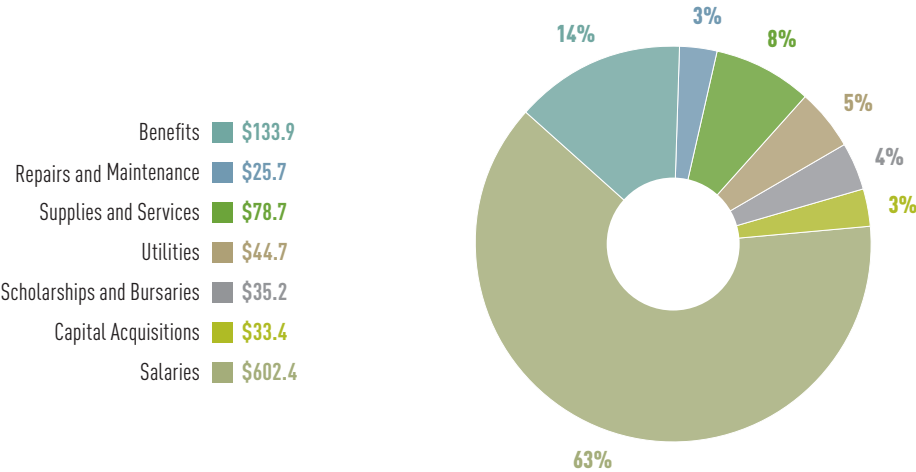
Operating expenditures are budgeted at \$954 million for 2012-13. With limited revenue growth and rising teaching and related costs, such as contractual obligations, library acquisitions, and information technology, the university continues to manage resources carefully while facing significant challenges. In 2012-13 the university will be entering its fourth consecutive year of budget reallocations. The impact of these budget reallocations has been to eliminate any flexibility in the university's operating budget, which will reduce the university's capacity to fulfill its core mission of teaching and research. With a proposed two percent budget reallocation planned for the 2012-13 budget, in addition to previous budget reallocations, the capacity of academic programs and the ability of administrative units to support academic operations may be negatively impacted.

Key highlights from the 2012-13 expenditure budget include:

- growth in salaries and benefits driven by salary settlements and benefit cost increases
- relatively stable utility expenditures
- modest growth in scholarships
- all other expenditures stable or marginally reduced
- a two percent budget reallocation across the university

As illustrated in Figure 23, 77 percent of operating expenditures, or \$736.3 million, is spent on salaries and benefits for faculty and staff—an expense which is essential in providing a high-quality learning environment. Overall, salary and benefit expenditures are higher than last year. The growth is driven by negotiated salary

FIGURE 23 OPERATING EXPENDITURES, 2012-13, \$954 MILLION



settlements, the awarding of merit, the inflationary pressures of statutory and non-statutory benefits, and budgeting for the introduction of a provincial health care payroll tax. Increases in benefit costs year over year ranged from a low of one percent to a high of 15 percent for pension plan contributions. The dramatic increases in pension plan contributions present a fundamental risk to the university. For the first time, in 2012-13 pension benefit contributions will represent just over 50 percent of the total benefit plan costs, with contribution rates forecast to continually increase over the next three years.

In addition to labour costs, the purchase of materials, supplies, and services accounts for eight percent of total operating expenditures in 2012-13. This \$78.7 million represents a modest increase in budget from 2011-12. Examples of these expenditures include purchases related to risk management, such as insurance premiums and hazardous waste disposal, the purchase of teaching lab equipment, and contracts for cleaning services. Scholarships and bursaries have remained stable over the last two years and will increase marginally going forward with the continued implementation of market modifiers and the resulting commitment to invest 20 percent of this revenue towards student support. It is important to note that, despite four consecutive years of budget reallocations, scholarship budgets have increased.

In the absence of a minimum four percent grant increase, and with conservative assumptions regarding increases in major expenditure categories, the university's operating budget will immediately reach unsustainable deficit levels in its operating budget. For example, with only modest increases of two percent annually and factoring in all

other revenue and expenditure forecasts the university will reach an unsustainable operating budget deficit of over \$57 million by 2015-16. This problem can only be resolved through increases to the university's operating grant at a minimum of four percent to keep pace with rising costs, or through dramatic budget reductions across the institution.

Budget Assumptions and Sensitivities

The university prepares its budgets using a comprehensive integrated planning and budget process involving key stakeholders from across the institution. The key budget assumptions and sensitivities are cornerstones of the university's multi-year budgeting process. The goal is to achieve improved accuracy in forecasting elements of the budget and provide common assumptions for budget planners across the university.

The university has budgeted for modest operating grant increases of two percent per year. Given that annual cost increases are upward of four percent, this is in effect a reduction to the university and will have significant repercussions across the institution. To prevent these negative repercussions, the university must obtain a grant increase of at least four percent to the annual base operating grant.

Future tuition increases must adhere to the forecast of the Alberta CPI as stipulated in the tuition fee regulation. Tuition increases over the next three years are therefore forecast at 2.2 percent. Short-term interest rates are forecast to remain stagnant for 2012-13 with marginal increases in future years. For 2012-13, the university has budgeted short-term interest rates at 1.15 percent, with rates increasing to 2.15 percent by 2015-16.

On the expenditure side, the university's agreement with AASUA extends to 2012-13 with a negotiated across-the-board increase of two percent. The current wage re-opener agreement with NASA concludes at the end of fiscal 2011-12 with a new salary agreement to be negotiated in 2012-13. As noted earlier, approximately 77 percent of the university's operating expenditures are allocated to salaries and benefits. As an organization driven by its

human capital, any variance in salary and benefit costs has a significant impact on the university's total operating expenditures.

The university's operating budget is dependent on support from the provincial government through increases to the Campus Alberta Grant, particularly given the limited ability to generate other forms of operating revenue. Even two percent grant increases, although of significant assistance to the university, will not prevent further budget reallocations across the university. As such, the budget has been developed based on the implementation of a two percent budget reallocation for 2012-13.

BUDGET SENSITIVITIES

Revenue Approximate Value

- one percent on Campus Alberta grant: \$5.9 million
- 0.25 percent on short-term interest rate: \$1.5 million
- one percent increase on credit tuition: \$2.2 million

Expense

- one percent increase in salary settlements: \$4.5 million
- \$1/GJ increase on natural gas: \$2.6 million (ancillary budget)
- one percent operating budget reduction: \$6.1 million

Institutional Budget Risks

Sustainable funding from the government in support of the university's mandate of teaching and research continues to be the university's major budget risk. The cumulative effect of consecutive years with no increases to the operating grant has already resulted in substantial budget reallocations. Without adequate investment going forward, the ability of the institution to provide a high quality educational experience and fulfill its research mission is at risk.

Specific factors adding financial risks to the university include the following:

- Next to the Campus Alberta Grant, tuition is the second largest source of unrestricted funding for the operating budget. Legislative constraints on annual tuition increases prevent the university from responding to market conditions, aligning tuition levels with its key competitors, and recognizing the higher costs of program delivery in specific faculties.
- The impact of realignment of provincially funded research and innovation organizations into Alberta Innovates, particularly as it relates to the former Alberta Heritage Foundation for Medical Research (AHMFR) has placed capacity constraints on the Faculty of Medicine and Dentistry. Although the transition funding was of critical importance, the funding was only one-time. As such, during the period of this transition funding, the net impact on the university is a reduction in faculty positions and in overall capacity. This is due to the fact that some positions will not be refilled once the one-time funding expires or faculty will be moved into vacancies, eliminating the opportunity to recruit other faculty to those vacant positions.
- The Canada-U.S. exchange rate will have both an upside and downside risk to the university. The upside risk will be in lower costs for such things as library materials and some lab equipment if the Canadian dollar remains close to par. Conversely, given that almost half of the university's endowment investments are denominated in foreign currencies, the high Canadian dollar will reduce potential investment returns.
- Short and long-term interest rates are affected by fluctuations in credit conditions, economic events, inflation expectations and the Bank of Canada's monetary policy. There is significant risk of continuing low interest rates.
- The greatest forecast risk associated with expenditures is salaries. The NASA agreement is open for negotiation in 2012-13. Any settlement beyond the assumptions in the budget will result in greater deficit pressures on the operating budget.
- The continuing increase in pension plan contributions represents a significant risk to the university. Without structural reforms to the pension plans, the level of pension plan contributions as a percentage of total benefit costs will be unsustainable.
- In the past, utilities represented a significant expenditure risk due to rapidly rising natural gas prices. More recently, as natural gas prices have moderated, the forecast risk to the university is lower than in previous years.

Capital and Ancillary Budget

CAPITAL

The university's capital budget reflects over \$200 million in projects. This includes projects underway or proceeding and annual capital programs in support of health and safety, energy management, building systems, renovations and site replacement and/or upgrading.

Capital projects ultimately support the university's academic plan and are in alignment with the goals and objectives within the Comprehensive Institutional Plan. They also align with provincial priorities in addressing space and program needs, and focus on renewal and preservation of facilities. Further, these projects have been approved through the university's capital expenditure authorization request policy and, as required, approved by the Board of Governors.

Table 6 lists the projects for 2012-13, including as major initiatives the Edmonton Clinic Health Academy, which is nearing completion, the Innovation Centre

for Engineering, and the Physical Activity and Wellness Centre. In total, approximately \$174 million is budgeted in 2012-13 from funding provided through a variety of external and internal sources. Similarly, the budget includes almost \$26 million for annual capital programs. This includes \$22 million in funding from the provincial infrastructure maintenance program (IMP) which is assumed to continue in the upcoming year.

In addition to approved projects, there are a number of priority capital projects around pre-design and renewal that require funding (*see* Table 1). Additional information on the university's capital plan can be found in pages 85 to 117.

TABLE 6 CAPITAL EXPENDITURES AND BUDGET, 2012-13 (\$'000)

	Actuals to Date (prelim)	+	2012-13 Budget	+	Forecast to Complete	=	Total Approved Project Budget
Capital Projects (underway or proceeding):							
Agric Research Infrastructure - St Albert & Kinsella	4,500		5,500		2,000		12,000
Balmoral Centre – ERC/ Cyclotron	6,000		15,000		-		21,000
CCIS Phase Two	464,015		2,000		-		466,015
Chemical Materials Eng. -Phase 1 Functional Renewal	36,950		-		-		36,950
Chemistry West Building Systems Modernization	18,330		-		-		18,330
Dentistry Pharmacy Redevelopment	-		3,500		1,200		4,700
Devonian Botanic Garden – Infrastructure Upgrades	-		8,000		5,000		13,000
Edmonton Clinic Health Academy	376,300		30,000		-		406,300
Edmonton Clinic Health Acad. (South - Dental Operatories)	2,594		-		-		2,594
HM Tory - Phase 2 Building Systems Upgrade	6,413		1,591		-		8,003
HRIF Project (Li Ka Shing / Katz Group) Base Bldgs	236,245		-		-		236,245
HRIF Project (Li Ka Shing / Katz Group) Fit Outs	102,660		3,000		-		105,660
HRIF Project (CTRIC cGMP Fit Out - Li Ka Shing L7)	2,658		7,942		1,400		12,000
Innovation Cntr for Eng. (ICE) (formerly CME Infill Tower)	33,612		50,392		5,756		89,760
Pharmacy Fit Up	31,431		12,000		1,000		44,431
Physical Activity & Wellness Centre (PAWC)	3,100		27,000		29,900		60,000
Scientific Support Facilities	44,524		1,500		-		46,024
South Campus Infrastructure - Phase I	3,050		1,500		-		4,550
Utilities - North Campus Expansion	81,000		-		-		81,000
Other Capital Projects	9,456		5,405		-		14,861
Total	1,462,838	+	174,330	+	46,256	=	1,683,424
Annual Capital Programs:							
Infrastructure Maintenance Program			22,000				
Energy Management			3,904				
Total			25,904				
TOTAL							
			200,234				

* The Capital Budget was finalized on October 31, 2011 and contains values which may not align with or may not include projects identified in the 2011-2015 Capital Plan.

ANCILLARY SERVICES

The major units within Ancillary Services include Residence Services (Student and Staff Housing, Residence Life programs), Hospitality Services (Contract Services, Vending, Conference Services and Guest Accommodations), Operations (Parking Services, ONEcard, Managed Print Services, Information Systems Services and Finance groups), and Real Estate and Property Management Services. Ancillary Services also manages the university's day care liaison function.

Student residences and commercial properties (HUB mall, Newton Place) are all close to maximum capacity. Parking demand, which decreased by approximately five percent between October 2009 and 2010 due to the successes of the Travel Demand Management (TDM) program, has stabilized among university clients, but continues to soften among non-university personnel (contractors). Conference Services has completed a comprehensive review of its operations and Residence Services has commenced a review of its administrative operations.

Ancillary Services completed a number of initiatives in 2011 – 2012 including:

- A comprehensive analysis and unit review of Conference Services.
- Renovation of administrative office space in Lister Hall to optimize delivery of critical student programs and services.
- Execution of a new contract with Aramark for the provision of food services.
- In collaboration with Aramark executed over \$5 million of renovations and expansions to food services facilities in Lister Hall and other locations.
- Implemented a new three-year meal plan program in Lister Hall.

- Expansion of point of sale (POS) machines across all Aramark serviced food locations on North Campus.
- Installation of a new housing management software solution (CBORD).
- A comprehensive analysis of modernization options for Lister Hall and HUB residences.

Major risks to Ancillary Services include:

- Deferred maintenance risk at Michener Park residence.
- Continued deferred maintenance challenges in the older ECV residences, the overall level of deferred maintenance in other residences, and the need for modernization and functional renewal.
- Inflation of some operating costs (labour, maintenance, construction) will exceed CPI (this year 1.66 percent), as per institutional Budget Planning Document forecasts.
- Continued impact of the current economic climate on conference activity.
- Parking Services is completing a comprehensive allocation and delivery plan aligned with the anticipated client environment to mitigate future revenue risks.
- Managed Print Services will continue to see decreasing revenue streams in external photocopying due to technology changes. This decrease is expected to be offset by increases in integrated printing services revenues.
- Residence rent rates and parking rates are in many cases at or near market, reducing flexibility with respect to additional revenue generation.

Housing and Food Services

On December 12, 2011 the Board approved a residential rate increase of 1.66 percent on all of its campuses, including Augustana. All rate increases will be effective May 1, 2012. Residence rent increases are required to offset increases in salary and benefit costs for the residence operation, general inflationary pressures, and to address deferred maintenance issues, several of which have direct health and safety implications, or projects which offer the opportunity to reduce energy consumption. The following table provides examples of market adjustments for 2012-13 by residence.

Rental Rates by Residence, 2012-13

Residence/Unit	Effective May 1, 2012
Augustana (double room)	\$315
East Campus Village Apartments (2 Bedroom)	\$623
East Campus Village Houses	\$415 to \$1019
Residence Saint-Jean	\$587
HUB (2 Bedroom)	\$581
Lister (Double, 8 months)	\$350
Michener (2 Bedroom Row House)	\$806 to \$874
Newton (1 Bedroom)	\$959 to \$1,034
Schaffer (Single)	\$658

The University of Alberta currently has 4,694 residence bed spaces for approximately 12.5 percent of the total student population including Augustana Faculty (11.3 percent excluding Augustana).

Dining Services will enter year two of a three-year meal plan program approved by the Board in December 2010. Conference Services is developing implementation plans for a number of initiatives recommended in its recently completed operational review.

Parking Services

On December 12, 2011, the Board approved parking rate increases of 1.66 percent for monthly and annual rates. Visitor rates were proposed to remain unchanged for 2012-13. All rate increases will be effective April 1, 2012.

Parking Services capital reserves will continue to grow in anticipation of South Campus development and other capital and maintenance priorities.

TABLE 7 ANCILLARY BUDGET, 2012-13 (\$'000)

2011-12			Budget	Projections		
	Budget	Forecast	2012-13	2013-14	2014-15	2015-16
Augustana: Residence, Conferencing, and Food						
Revenue - Internal	48	54	49	50	52	53
Revenue - External	2,819	2,830	2,890	2,955	3,029	3,121
Total Revenue	2,867	2,884	2,939	3,005	3,081	3,174
Reserve Balances:						
Operating Closing Balance	1,000	1,000	1,000	1,000	1,000	1,000
Capital/Maintenance Closing Balance	2,691	2,901	2,767	2,844	2,927	3,025
Bookstore						
Revenue - Internal	3,760	3,212	3,700	4,000	4,000	4,000
Revenue - External	26,930	23,815	24,481	25,000	25,500	26,000
Total Revenue	30,690	27,027	28,181	29,000	29,500	30,000
Reserve Balances:						
Operating Closing Balance	(251)	335	(196)	(387)	(398)	(412)
Capital/Maintenance Closing Balance	-	(2,076)	(1,880)	(1,493)	(1,095)	(683)
Ancillary Services*						
Revenue - Internal	3,675	3,892	3,893	3,982	4,048	4,348
Revenue - External	51,918	50,743	51,570	53,250	54,715	56,837
Total Revenue	55,593	54,635	55,463	57,232	58,763	61,185
Reserve Balances:						
Operating Closing Balance	(2,471)	(297)	(2,030)	(1,640)	530	4,162
Capital/Maintenance Closing Balance	11,553	12,611	15,174	18,579	21,906	24,847
University Health Services						
Revenue	5,463	5,743	5,677	5,758	5,829	5,901

2011-12			Budget	Projections			
Budget	Forecast		2012-13	2013-14	2014-15	2015-16	
Reserve Balances:							
Operating Closing Balance	429	-		353	41	-	74
Capital/Maintenance Closing Balance	170	-		200	200	58	58
Utilities							
Revenue - Internal	69,182	68,985	72,949	76,722	80,704	85,782	
Revenue - External	20,029	19,880	21,507	22,502	23,621	25,254	
Total Revenue	89,211	88,865	94,456	99,224	104,325	111,036	
Reserve Balances:							
Operating Closing Balance	2,865	9,566		9,566	9,566	9,566	9,566
Capital/Maintenance Closing Balance	16,740	19,147		19,147	19,147	19,147	19,147
TOTAL REVENUE	183,824	179,154	186,716	194,219	201,498	211,296	
Reserve Balances:							
Operating Closing Balance	1,572	10,604		8,693	8,580	10,698	14,390
Capital/Maintenance Closing Balance	31,154	32,583		35,408	39,277	42,943	46,394

*Ancillary Services includes: Enterprise Square, Commercial Property, Parking Services and Housing & Food Services

THE CHINA INSTITUTE ALBERTA'S CALLING CARD



CHINA MATTERS TO ALBERTA. OUR SECOND LARGEST TRADING PARTNER, WITH ANNUAL EXPORTS TOTALING \$2.75 BILLION AND ANNUAL DIRECT IMPORTS AVERAGING \$1.54 BILLION, CHINA REPRESENTS OPPORTUNITY WITH A CAPITAL “O.” OVER THE LAST DECADE, CHINA’S ECONOMY HAS TAKEN OFF, GROWING ON AVERAGE 10 PERCENT PER YEAR, AND ALBERTA HAS BEEN THERE, BUILDING PARTNERSHIPS, EXPANDING MARKETS AND EXCHANGING TALENT.

In the next decade, Chinese investment in Alberta could, by some estimates, increase to as much as \$150 billion and open much desired new markets for Alberta’s energy products in particular. To fulfill this potential, relationships between the province and the world’s largest consumer of energy must be managed through nuanced cross-cultural negotiation and strategic, evidence-based policy building. The University of Alberta’s China Institute has the expertise, existing Chinese-Canadian networks, research capacity, credibility, and profile to smooth the path to success.

Home to dozens of faculty members and thousands of students with direct ties to China, the University of Alberta is one of the province’s—indeed the country’s—most important links to China. The China Institute at the University of Alberta was established in 2005 with a \$37 million endowment, created by a matching grant from the Alberta Government equal

in value to the gift of the Mactaggart Art Collection by Sandy and Cécile Mactaggart. Bringing together the U of A’s longstanding China-related initiatives and scholarship under one umbrella, it has quickly become a leader on the provincial and national scene, working with the Alberta and Canadian governments to organize meetings, conferences, and workshops and develop agreements involving Chinese officials at the highest levels of government, academia, business, and industry.

The very existence of the China Institute, and the magnitude of its endowment, signal just how seriously Alberta takes its relationship with China. Doors are opening; multiple and diverse collaborations are proliferating; new government, industry and philanthropic investments in research and education are flowing; and exceptionally talented people are arriving in record numbers.

OUTCOMES AND BENEFITS:

- Almost 2000 students from China study fulltime at the U of A. We are the choice destination of China Scholarship Council award-winners coming to Canada.
- The U of A Association of Chinese Canadian Professors has more than 100 active members, including such world leaders as Chris Le, Canada Research Chair in Bioanalytical Technology and Environmental Health, and Gane Wong, iCORE Chair in Biosystems and Informatics.
- The U of A has 60 active memorandums of understanding with a focus on building partnerships with China’s top universities, research institutes, and government agencies. A new MOU establishing the Canada-China Strategic Energy Centre was signed with Tsinghua University in February 2012.
- China Institute reports, such as the 2011 Building a Long Term Energy Relationship between Alberta and China and Albertans’ Views on China, provide government ministries with high-quality, evidence-based strategic advice.
- Special exhibitions of the magnificent Mactaggart Art Collection have toured Canada, raising Alberta’s cultural profile across the country.
- The U of A secured the largest cash donation in its history in 2009 from the Li Ka Shing Foundation to establish the Li Ka Shing Virology Institute—in large part because of the province’s clear investment in promoting academic exchange and partnership with China.

RESOURCE AND RISK IMPLICATIONS

As the University of Alberta's short-term operational and long-term strategic plans are inextricably linked, the university has identified both immediate and long-term resource implications. Immediate resource implications directly support academic and research priorities as identified in the academic chapter of this document.

In every case, where resource implications are identified, the first course of action by the university has been to determine if and how existing resources can be better leveraged, re-allocated or re-purposed. This also includes any new resources the university can bring to bear through partnerships and other initiatives before consideration is given to requesting funding from government.

At the same time, driven by *Dare to Discover*, the university has identified a series of resource requests that are linked to our role as Alberta's flagship university, and its

responsibility in providing comprehensive and diverse educational choices that prepare Albertans for citizenship in the world and address Alberta's need for undergraduate and graduate students who will contribute to the economic, social and cultural prosperity of tomorrow. Resource implications are also identified that will facilitate connection to international communities, enabling the U of A to undertake world leading research and create innovative research agreements that will link researchers, graduate and undergraduate students, international foundations, industry and government.

Immediate Resources Implications

The university must not lose the momentum gained during previous years of growth in government funding, which enabled strategic investments in students, staff, programs and infrastructure. The U of A has always been committed to maximizing the use of its resources, directing its resources to its academic priorities, and continually investigating and implementing administrative efficiencies. However, there are core areas across the university that require continuing investments, most importantly our people, but also fundamental areas that contribute to the quality of the learning experience such as information technology and libraries. A two percent grant increase will not be sufficient when factored against general inflationary pressures in the areas of contractual obligations, benefits, and other costs drivers. The following resource needs are not included in the university's budgets and projections. They have been identified here as vital to the realization of our vision and mission.

-
- ❖ Annual grant increases of at least four percent to continue to fulfill its academic mandate, meet the needs of Albertans, and prevent the erosion of invaluable progress made over the last several years. To assist in planning, a commitment of at least three years to this level of increase is also required.
-

Resource Implications: Access

In the Academic Overview chapter, five themes associated with access and quality are outlined. These themes are: quality (people, programs, and experiences); the learning environment; student experience and engagement; innovative programming; and connections and collaborations. The cornerstone of all of these themes is people. The University of Alberta is its people - professors, undergraduate and graduate students, postdoctoral fellows, as well as the technicians and staff who provide an extensive range of essential services that support the core mission.

ACCESS THEME I: QUALITY

Quality is central to access and programming. Top-quality professors and administrators help to renew and design high quality, innovative programs that serve to entice, excite, attract, and retain quality undergraduate and graduate students. We aim to provide high-quality student experiences that are life altering, resulting in graduates who are engaged citizens prepared to contribute to the social and economic well-being of the province, and to do their part in fulfilling the U of A promise to uplift the whole people. Fundamental to the university's promise to uplift the whole people is our aim to provide access to students from underserved populations and Aboriginal students.

-
- ❖ \$5.7 million base funding, which includes scholarships and support service for students recruited from underrepresented populations, an expansion to the Augustana Faculty rural summer internship programming and Aboriginal student recruitment and programming.
-

ACCESS THEME III: STUDENT EXPERIENCE AND ENGAGEMENT

The U of A student experience encompasses opportunities for academic engagement as well as social and community involvement; it also promotes health and wellness alongside career and life development. We value the involvement of students with professors, librarians, staff, alumni, and the broader community, both inside and outside the classroom. The outcomes of engagement are many, but most readily identifiable are the pursuit of truth, involvement in communities both near and far, a sense of belonging and affiliation with the U of A, as well as self-formation and personal development.

The university also supports Aboriginal, rural, and francophone students who require additional services and facilities for their distinctive experiences and needs, including translation into French of English-language materials, specialized academic and personal counselling,

and core sciences facilities on the Saint-Jean and Augustana campuses.

Based on the university's ongoing commitment to enhancing the student experience and engaging the student, the following resource requirements have been identified.

-
- ❖ **\$4.55 million base funding, which includes support for French language programs and student support services at Campus Saint-Jean, international student scholarships, undergraduate internships and study abroad student support.**
-

ACCESS THEME IV: INNOVATIVE PROGRAMMING

At the U of A, faculties and departments continually focus on innovative programming that evolves to meet student and employment demands. The university is also actively exploring and implementing new methods and programming to provide current and prospective students with opportunities to ladder from one level of post-secondary study to another, and to ladder from post-secondary study to additional professional development. Furthermore, as we work toward a ratio of 1:3 graduate student to undergraduate students, in line with the world's top public universities, we are differentially increasing graduate student enrolment relative to undergraduate enrolment. Thus, we have a particular focus on innovative programming at the graduate level.

In support of ongoing innovative programming the university is seeking the following new resources.

-
- ❖ **\$3.1 million base for additional FLEs in PH.D. program in Engineering, health-team pathways academic programming and new program and operating costs for Collège Saint-Jean.**
-

Resource Implications: Research, Scholarship, and Creative Activity

The University of Alberta is committed to discovery-driven research, scholarship, and creative activity across the academy that will drive the next generation economy. Excellence in both translational and discovery-driven research, scholarship, and creative activity is the responsibility of research-intensive teaching institutions in our society today, and is consistent with an institution and a province that must be positioned to compete on the global stage. As with the U of A's access and programming priorities, we have also identified three core research themes to be pursued by the institution: competitive and well-managed research resources; diversified excellence and impact; and internationalization.

RESEARCH THEME I: COMPETITIVE AND WELL-MANAGED RESEARCH RESOURCES

The shared research resources and services essential to the U of A's overall research enterprise are extensive, highly specialized, and diverse. Examples of these shared resources and services include specialized animal care facilities, greenhouse facilities and remote research stations, advanced research computing facilities, aquatic experimental facilities, statistical and technology consulting, the Edmonton Clinic Health Academy knowledge integration space, machine shops that produce customized equipment for scientific research, specialized analytic facilities such as mass spectrometers and NMRs, and specialized imaging facilities.

These research resources and services support discovery, translational, and pre-commercialization activities that the institution undertakes internally and with private sector partners. The existence of these shared research resources, their management, and their competitiveness

are particularly important to industrial partners, especially who are assessing the innovation potential of partnerships with the province, via collaborations with the Campus Alberta Research Institutions. These shared research resources directly and indirectly constitute Alberta Innovates' research and development capabilities.

❖ **\$12 million base investment to sustain core research operations and cyber infrastructure and research computing.**

RESEARCH THEME II: DIVERSIFIED EXCELLENCE AND IMPACT

The Canada Excellence Research Chairs (CERCs) program is just one example of key tools needed to advance our competitiveness and enhance our prosperity. It is also an excellent example of the power of leveraging of investments across government sectors. The U of A will be receiving \$30 million in federal investment dollars through this program, which requires matching dollars at the provincial level. The recruitment of CERCs enables the university and province to form a critical mass of research expertise leading to the formation of a knowledge cluster. This ultimately facilitates the retention and attraction of researchers, postdoctoral fellows, graduate students, and visiting professors. This critical mass or knowledge clusters also enable the university and province to leverage international partnerships.

❖ **\$20 million over a six-year period to ensure the success of our Canada Excellence Research Chairs program, with the first \$10 million being provided in the first two years to rapidly enhance the Chair program.**

❖ **Reinstatement of the Access to the Future fund, to increase the institution's success in securing philanthropic funding that supports broad-based excellence and impact.**

Investment through the programs of the former Alberta Ingenuity and iCORE, and more recently through the Alberta Innovates Corporations, allowed the university to

establish centres that have unequivocally become world-class. These centres include the Alberta Machine Learning Centre (formerly Alberta Innovates Centre for Machine Learning), the Alberta Glycomics Centre (formerly Alberta Innovates Centre for Carbohydrate Sciences), the Centre for Oil Sands Innovation, the Canadian Centre for Clean Coal/Carbon and Mineral Processing, Phytola, and Livestock Gentec. In each case, the programs presented top-calibre researchers the opportunity to remain at or join the university and build visionary centres with recognized scope and impact. Continued investment in these established centres, which leverage significant federal and international dollars, will sustain the excellence and impact that has been built over the last decade.

❖ **The University is seeking \$60 million over five years, to sustain Alberta Innovates Centres that continue to meet standards of international excellence and provincial impact.**

Additional resources are required to support the U of A's research strategies for advancing diversified excellence. The university continues to be a beneficiary of federal government investments. However, many of these investments require matching dollars at the provincial and/or institutional level to make funding applications more competitive.

❖ **\$10 million per year to meet the growing matching-dollar requirements associated with Tri-Council, Genome Canada, and other federal programs.**

In support of both excellence and internationalization, there is a critical need for investment in infrastructure and associated operating costs. Alberta's continued participation in regional and national infrastructure initiatives, such as Westgrid, TRIUMF, and future CFI Major Initiatives Competitions, will require additional investment. In particular, the university wishes to signal the need for matching dollars, over the next three years, related to CFI competitions.

-
- ❖ **\$25 million in one-time funding to match potential CFI awards in the 2012 Leading Edge Fund and New Initiative Fund competition, starting in 2013-2014.**
 - ❖ **\$8.7 million in one-time funding to match CFI awards through the Leaders' Opportunity Fund, over the next three years.**
-

Postdoctoral fellows are highly qualified academics training to enhance their teaching, research, and mentorship skills. They represent a core element of any internationally competitive research-intensive institution. PDFs bring a unique level of skill and expertise to an institution and add to the vibrancy and intellectual capacity of a university and its teaching and research teams. It is essential that the U of A secure necessary operating support for its existing postdoctoral fellows and continue to attract new PDFs to Alberta. As with masters and PhD students, the U of A lags behind in the number of postdoctoral fellows compared to peer institutions.

-
- ❖ **\$1.8 million base funding to reach our goal of 40 new postdoctoral fellow positions offering stipends of \$45,000 each.**
 - ❖ **\$19,600 in operational funding for each of its 550 PDFs, for a total base investment of \$10.8 million.**
-

Currently the U of A provides \$1.8 million in direct funding annually to TEC Edmonton for operating. This funding, which supports provincial commercialization and diversification objectives, comes directly from the university's base operating grant. Having dedicated funding to ensure this organization's financial stability will help TEC Edmonton continue to meet its mandate.

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- ❖ **\$1.8 million in base funding for TEC Edmonton.**
-

The U of A has had a decade-long commitment to the integration of research and teaching. It has undertaken many initiatives to ensure that undergraduates reap the benefits of receiving their post-secondary education within

a research-intensive institution that is among the top in Canada and in the world. A special way this occurs is to provide as many undergraduates as possible with the direct experience of mentored research. This can be achieved through the establishment of undergraduate internships. These internships allow undergraduate students to work side by side with leading graduate students and internationally recognized professors. These students leave the university for Alberta's public and private sector with specialized skills, analytic capabilities, and more direct exposure to careful, rigorous quality work and leadership. These internships also increase the likelihood of undergraduates electing to enter graduate school, and contribute to a steady stream of Alberta students who seek post-graduate training.

-
- ❖ **\$1.0 million base funding for the creation of 200 undergraduate internship positions at \$5,000 per intern.**
-

RESEARCH THEME III: INTERNATIONALIZATION

Research, scholarship, creative activity, and innovation are some of the few areas where national boundaries have little influence. Researchers, scholars, and innovators are in the most mobile of all professions in today's world; they interact with colleagues and establish strong partnerships around the globe. As a result, many opportunities exist for different institutions, nations and regions that share common global challenges and opportunities to form partnerships of mutual strategic interest.

In the past few years, the U of A has achieved some extremely high-profile successes that have leveraged Alberta resources and provincial connections with the investment of some top-tier foreign collaborators. The Helmholtz initiative is but one example. The university aims to build on these successes by accessing the necessary funding to develop new and extend existing global consortia in targeted areas of excellence.

❖ **\$55 million over five years to support international consortia activities in the areas of energy and environment, water, infectious diseases, and food.**

These international agreements and consortia provide exceptional opportunities for our undergraduate students to participate in various student exchanges. These exchanges are consistent with our goals of internationalization, enhancing the student experience and educating students in a global context. Funding to support student mobility is critical.

❖ **\$3 million over five years for student mobility and exchange programs associated with current and future international agreements and consortia.**

❖ **\$8.8 million over four years to top up grants from Brazil's Science without Borders program to attract 340 postdoctoral fellows and 680 graduate students to Alberta.**

Resource Implications: Capital Plan

The Capital Plan sets the framework for how the U of A is building toward the future by outlining key capital priorities, assumptions, objectives, and risks as they relate to meeting the outcomes outlined within the academic chapter. The Capital Plan seeks to draw a balance between the current provincial fiscal environment and the emerging issues to which the university must respond as part of its mission and vision. The plan also endeavours to take a balanced approach in identifying the need for capital funding in support of identified planning, engineering, and/or construction activities.

As we look forward, the university has identified five strategic priority areas that guide capital planning efforts.

These include:

- Maintaining the condition and functionality of the university's physical assets.
- Coupling backfill requirements with renewal projects to provide a sustainable, best-value model of capital projects.
- Increasing our focus on planning and pre-design services that provide a clear tie into campus development and its delivery to meet both the immediate and long-term strategic vision of the institution.
- Responding to pressures for additional student residences, as well as faculty and staff housing.
- Undertaking a measured response to growth in accordance with the CIP, recognizing the need for strategic planning and construction of critical new facilities and to respect that the needs of our campuses vary as they each serve unique and separate constituencies within Alberta.

The university has identified the following resource needs in support of these five priority areas.

❖ **\$20 million in support of pre-design and design projects.**

❖ **\$677.7 million in support of the university's highest preservation priorities.**

❖ **\$1.266 billion for the highest new and expansion priorities.**

❖ **\$3 to \$4 million annual funding allowance to support planning pre-design services for capital projects, so that the university will have an inventory of projects in a state of readiness and to achieve a higher level of program and cost certainty.**

RISK IMPLICATIONS

Like all internationally competitive research-intensive universities, the University of Alberta must deal with a variety of risks that have the potential to hinder its growth and the realization of its vision, mission, and strategic objectives. Many of these risks have been identified throughout this document.

1. In moving towards our vision of being one of the world's great public universities, our national and international profile will increase. A higher profile will be accompanied by an increased level of scrutiny and we will be held to a higher standard. Any significant long-term negative event can quickly impact the reputation of an institution.
2. The substantive and continuing economic uncertainty, low interest rates, concerns over rising costs of education, government deficits, and a budget model where expenditures are increasing more rapidly than revenue present the university with a series of fundamental budget risks. The realignment of the university's budget model will be critical if the university is to achieve its vision and academic priorities.
3. Enrolment growth must be managed from the perspective of meeting the labour demands of a province on the road to recovery, while achieving the appropriate enrolment ratio targets that position the university as an internationally competitive research-intensive institution.
4. The university must maintain the morale of its staff during uncertain economic times, while investing in key human-resource systems and processes to ensure the effective operation of the university.
5. For the university to remain relevant to its students and meet the needs and expectations of its faculty to engage in the highest calibre research, it requires continuous investment in leading-edge IT infrastructure and support.
6. The continuation of appropriate levels of Infrastructure Maintenance Program funding to avoid a return to increasing levels of deferred maintenance is vital. In addition, limited or no funding of capital for new, expansion, and/or renewal projects will impact the capacity of the university to meet the strategic goals of the institution and negatively impact the economic goals of the province.
7. Uncertainty brings risk associated with retaining and attracting the best and the brightest students, academics, and staff. Clarity in levels of government investment and confirmation of strategic investments greatly reduces the risks associated with uncertainty.
8. An institution that has aspirations of being among the top publicly funded research-intensive universities in the world can only achieve that goal through the establishment of strategic collaborations and partnerships with an extensive range of stakeholders. These relationships must be managed in an integrated and strategic manner.
9. The university requires access to and flexibility in funding that would enable it to leverage tens of millions of research dollars from provincial, national, and international sources. This type of leveraging strategy will advance the university in achieving internationally recognized research excellence while meeting the economic goals of both the provincial and federal governments.
10. While the university must assume risks in support of its mandate as an internationally recognized research-intensive institution, it must also promote appropriate risk management plans and strategies that develop responsive attitudes and behaviours at all levels of the organization in order to maintain a healthy and safe environment for all.

Through its integrated enterprise risk management framework, the University will monitor, manage, and mitigate these and other emerging risks in an effort to avoid substantial impact on the University's ability to fulfill its strategic objectives.

APPENDICES

Appendix 1: Major Capital Requirements Ten-Year Forecast

Funding Dollars are in millions and represent cash flow requirements, not total project cost.

PROJECT LISTING BY TYPE	PREVIOUS	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-2021	2021-2022	TOTAL
PRESERVATION & REPURPOSING	\$4	\$198	\$275	\$187	\$150	\$196	\$191	\$142	\$116	\$56	\$56	\$1,569
Biological Sciences Renewal Program		\$28	\$25	\$4								\$57.1
Chem Materials Phase 2 Renewal		\$30	\$26	\$4								\$60.3
Chem West- Phase 3 Renewal- Building Envelope		\$2	\$3									\$4.8
Clinical Sciences Building- Phase 1 design/renewal		\$5	\$4	\$2								\$10.8
Clinical Sciences Building- Phase 2 Renewal			\$10	\$10	\$10							\$30.0
Convocation Hall Renewal		\$3										\$2.5
Dentistry/Pharmacy Repurpose	\$4	\$10	\$50	\$25	\$35	\$25	\$25	\$22				\$195.0
Institutional Backfill		\$12	\$12	\$2								\$26.0
Medical Sciences Building - Phase 2 Building Upgrade		\$11	\$40	\$35								\$86.0
Repurposing and Renewal Services Bundle *		\$40	\$40	\$40	\$40	\$40	\$40					\$240.0
10 Year Deferred Maintenance Plan		\$57	\$65	\$65	\$65	\$81	\$76	\$70	\$66	\$31	\$31	\$607.0
Capital Reserve (1.5% capital replacement value)						\$50	\$50	\$50	\$50	\$25	\$25	\$250.0
NEW	\$-	\$59	\$160	\$290	\$303	\$263	\$198	\$80	\$90	\$90	\$37	\$1,570.3
Agricultural, Life & Environmental Sciences South Campus			\$12	\$75	\$100	\$100	\$70					\$357.0
Augustana Classroom Building		\$6.0	3									\$9.0
Camrose Performing Arts Phase 2				\$8	\$9	\$2						\$19.0
CLIP Phase 2 (BARD)				\$5	\$32	\$30	\$18					\$85
CLIP Phase 3 (Curatorial)			\$30	\$60	\$60	\$45						\$195
ECO Centre - Devonian Botanic Garden		\$6	\$18	\$5								\$29.0
ECV Housing (500-700 beds)		\$15	\$15	\$5								\$35.0
Edmonton Clinic Health Academy Expansion						\$8	\$70	\$80	\$90	\$90	\$37	\$375.0
Gathering Place		\$1	\$8	\$8								\$17.0
Michener Park Family Housing			\$4	\$10	\$4							\$18.0
Pedway - Underground 115 St & 87 Ave PAW to ECN				\$7	\$3							\$10.0
Physical Activity and Wellness Centre		\$12	\$28	\$17								\$10.5
School of Business Building/Social Sciences		\$4	\$3	\$45	\$45	\$33						\$172.4
School of Music			\$20	\$20	\$20	\$20	\$20					\$100.0
South Campus Utilities Infrastructure		\$12	\$15	\$25	\$30	\$25	\$20					\$127.2
South Campus Infrastructure (Shared-Use Facilities)	\$-	\$3	\$4									\$6.8
EXPANSION	\$-	\$41	\$59	\$12	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$112.0
Campus Saint-Jean Science Building	\$-	\$20	\$14									\$34.0
Innovation Centre for Engineering Fit Out (CME)		\$14	\$20	\$6								\$40.0
Heating Plant - Boiler #7		\$7	\$25	\$6								\$38.0
PRE-DESIGN / DESIGN PROJECTS	\$-	\$4	\$4	\$4	\$4	\$4	\$-	\$-	\$-	\$-	\$-	\$20.0
Planning and Pre-Design Services Bundle		\$4	\$4	\$4	\$4	\$4						\$20.0
TOTAL PROJECT COSTS	\$4	\$302	\$498	\$493	\$452	\$463	\$389	\$222	\$206	\$146	\$93	\$3,271.8

* Refer to Table 6.3 Highest Preservation Projects included in Repurposing and Renewal Service Bundle

Appendix 2: Current and Emerging Capital Projects

OTHER CURRENT AND EMERGING CAPITAL PRESERVATION PROJECT PRIORITIES (Not ranked - listed in alphabetical order)		
PROJECT	DESCRIPTION	REQUEST (\$)
Augustana Auxiliary Building Repurpose	Building redevelopment including upgrades to the architectural, mechanical, and electrical systems.	2,100,000
Augustana Storm Water Management	Correction of storm-water management issues and addition of secondary access to ravine entrances.	3,000,000
Balmoral Centre Repurpose	Repurpose to accommodate future program needs.	4,300,000
Clinical Sciences Building	This project is for the continuation of the renewal requirements related to Edmonton Clinic Health Academy backfill.	65,000,000
Elevator Upgrades	Campus-wide program for renewal of aged elevators that are experiencing failures.	8,100,000
Mechanical Engineering Building (pre-design, minor upgrades)	Planning and design for renewal of the building systems to meet new functionality and utilization requirements.	5,250,000
Quad Redevelopment	Redevelopment of this historic heart of North Campus in celebration of the University's first successful century of achievement and development.	40,000,000
Research Transition Facility – Building Systems Upgrade	Replacement of various building system elements and upgrades to internal spaces to address building code and system performance issues for continued use of the facility.	2,750,000
Various Facilities – Card Access System Renewal	Campus-wide program for upgrade of the card access system that has reached the end of its service life.	2,700,000
Various Facilities – Cooling Coil Upgrade Program	Campus-wide upgrade of cooling coils for major ventilation systems that have exceeded their life expectancy.	3,800,000
Various Facilities – Medium Voltage Electrical Systems Upgrade	Campus-wide program for upgrade of the medium voltage electrical systems that have exceeded their service life and capacity requirements.	7,000,000
Various Facilities – Motor Control Centre Upgrade Program	Campus-wide upgrade of motor control centres that have exceeded their life expectancy.	5,300,000
Various Facilities – Canada School for Energy and the Environment	Renewal of space in existing facilities to accommodate the new program initiative of the Canada School of Energy and the Environment (CSEE) and to address deferred maintenance.	175,500,000
TOTAL		324,800,000

OTHER CURRENT AND EMERGING CAPITAL NEW AND EXPANSION PROJECT PRIORITIES (Not ranked - listed in alphabetical order)		
PROJECT	DESCRIPTION	REQUEST (\$)
Campus Wide Wireless Network – New Infrastructure	Development of a campus wide wireless system for information system access across campus.	4,500,000
Camrose Performing Arts Centre (Phase 2)	Expansion of the facility aimed to increase its flexibility while increasing the support space capacity, allowing for growth of existing programs and development of new programs related to theatre, drama and the performing arts.	19,000,000
East Campus Village	Repurpose to accommodate future program needs.	4,300,000
Edmonton Clinic Health Academy Expansion	Continued expansion for medicine, U of A clinics, nursing, and rehabilitation medicine to address continued program growth and reduce leasing costs.	375,000,000
TOTAL		417,000,000

Appendix 3: Statement of Financial Position at March 31, 2011 to 2013 (\$'000)

	Actual 2010-11	Forecast 2011-12	Budget 2012-13
ASSETS			
Current			
Cash and cash equivalents	\$122,800	\$234,546	\$322,385
Short-term investments	663,337	540,952	393,488
Accounts receivable	177,119	161,726	147,671
Inventories and prepaid expense	21,125	22,507	23,979
	984,381	959,731	887,523
Long-term investments	969,485	961,812	1,062,606
Capital assets and collections	2,670,255	2,719,696	2,745,921
	\$4,624,121	\$4,641,240	\$4,696,050
LIABILITIES AND NET ASSETS			
Current			
Accounts payable and accrued liabilities	215,801	234,545	254,917
Current portion of employee future benefit liabilities	8,667	11,723	15,742
Current portion of long-term liabilities	12,659	10,959	11,532
Deferred contributions, research and other	412,671	487,428	532,702
Deferred revenue	21,140	21,605	22,080
	670,938	766,260	836,973
Employee future benefit liabilities	135,830	139,039	137,349
Long-term liabilities	197,170	195,913	192,441
Deferred contributions, research and other	90,000	90,000	90,000
Deferred contributions, capital	275,916	153,531	58,439
Unamortized deferred capital contributions	1,964,182	2,070,473	2,124,745
	3,334,036	3,415,216	3,439,947
Net Assets			
Endowments	783,340	740,794	788,154
Investment in capital assets and collections	510,283	535,923	543,335
Unrestricted (deficit)	(3,538)	(50,693)	(75,386)
	1,290,085	1,226,024	1,256,103
	\$4,624,121	\$4,641,240	\$4,696,050

Appendix 4: Statement of Changes in Net Assets for the Years Ended March 31, 2011 to 2014

	Endowments	Investment in Capital Assets and Collections	Unrestricted Net assets (Deficit)
NET ASSETS, March 31, 2011 (Actual)	\$783,340	\$510,283	\$(3,538)
Excess (deficiency) of revenue over expense	-	-	(54,126)
Investment income	27,064	-	-
Gifts of endowment principal	29,167	-	-
Transfers	(36,033)	-	35,681
University Academic Pension Plan Unfunded Liability	-	-	(3068)
Net investment in capital assets	-	25,640	(25,640)
Contributions of assets not subject to amortization	-	-	-
NET ASSETS, March 31, 2012 (Forecast)	\$740,794	\$535,923	\$(50,691)
Excess (deficiency) of revenue over expense	-	-	(15,929)
Investment income	16,297	-	-
Gifts of endowment principal	31,063	-	-
Transfers	-	-	-
University Academic Pension Plan Unfunded Liability	-	-	(1,352)
Net investment in capital assets	-	7,412	(7,412)
Contributions of assets not subject to amortization	-	-	-
NET ASSETS, March 31, 2013 (Budget)	\$788,154	\$543,335	\$(75,386)
Excess (deficiency) of revenue over expense	-	-	(26,969)
Investment income	17,339	-	-
Gifts of endowment principal	33,082	-	-
Transfers	-	-	-
University Academic Pension Plan Unfunded Liability	-	-	412
Net investment in capital assets	-	(6,175)	6,175
Contributions of assets not subject to amortization	-	-	-
NET ASSETS, March 31, 2014 (Forecast)	\$838,575	\$537,160	\$(95,768)



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— HENRY MARSHALL TORY, FOUNDING PRESIDENT, 1908

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