Supplementary Information Tables:
2014–15 Departmental Performance Report

National Research Council of Canada

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Departmental Sustainable Development Strategy

Goal 7: Waste and Asset Management	
Target 7.2: Green Procurement	
As of April 1, 2014, the Government of Canada will continue to take action to embed environmental considerations into public procurement, in accordance with the federal *Policy on Green Procurement.*	
Performance Measurement	
Expected Result	
Environmentally responsible acquisition, use and disposal of goods and services.	
Performance Indicator	**Performance Level Achieved**
Departmental approach to further the implementation of the *Policy on Green Procurement* in place as of April 1, 2014	March 31, 2014
Number and percentage of procurement and/or material management specialists who completed the Canada School of Public Service Green Procurement course (C215) or equivalent, in fiscal year 2014-15.	28 Procurement Officers/Material Management Officers 100%
Number and percentage of managers and functional heads of procurement and material whose performance evaluation includes support and contribution toward green procurement, in fiscal year 2014-15	1 100%
Departmental Green Procurement Target	
By March 31, 2016, NRC will have completed implementation of a consolidation and standardization initiative for the purchase of computer workstations and laptops via the use of PWGSC consolidated procurement vehicles (thereby reducing packaging, transportation, and increasing green procurement measures already incorporated in the PWGSC procurement tools).	

Performance Indicator	Performance Level Achieved
Percent reduction in the number of individual purchases.	100%
Departmental Green Procurement Target	
By March 31, 2016, NRC will have completed implementation of a standard for all new leased multifunctional devices/copiers to incorporate energy efficient criteria.	
Performance Indicator	**Performance Level Achieved**
Percentage of purchases made of energy-efficient devices, using the PWGSC procurement vehicle.	100%
Departmental Green Procurement Target	
By March 31, 2015, 100% of all new vehicles purchased are right-sized for operational needs and/or are the most fuel efficient vehicle in their class in the Government Motor Vehicle Ordering Guide when operationally possible and cost effective.	
Performance Indicator	**Performance Level Achieved**
Percentage of vehicle purchases that meet the target relative to total number of all vehicle purchases in the given year.	100%
Departmental Green Procurement Target	
By March 31, 2017, 80% of all janitorial service contracts will include the use of environmentally preferable products, equipment and processes that minimize the environmental impact.	
Performance Indicator	**Performance Level Achieved**
Percentage of vehicle purchases that meet the target relative to total number of all vehicle purchases in the given year.	On track and ongoing
Implementation Strategy Element or Best Practice	**Performance Level Achieved**
7.2.1.5. Leverage common use procurement instruments where available and feasible.	Achieved

Best Practice 7.2.3. Train acquisition cardholders on green procurement	Achieved

7. Strategic Environmental Assessment

During the 2014–15 reporting cycle, the NRC considered the environmental effects of initiatives subject to the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals, as part of its decision-making processes. As the NRC did not develop any initiatives that required a strategic environmental assessment, no related public statements were produced.

Transfer Payment Programs of $5 Million or More

General Information

Name of transfer payment program	International Astronomical Observatories Program (voted)
Start date	1978
End date	ongoing
Fiscal year for terms and conditions	2014-15
Strategic Outcome	SO 2: R&D Infrastructure for an innovative and knowledge-based economy
Link to department's Program Alignment Architecture	Sub-Program 2.1.1: National Science Infrastructure
Description	Astronomy is a global science. The increasing cost of leading-edge observatories and the scarcity of ideal observation sites have led to international collaborations for large-scale astronomy projects leading to advances in our knowledge and understanding of the universe. NRC, in collaboration with other international bodies, provides financial contributions to support the management and operations of offshore ground-based observatories and their related facilities, including the Canada-France-Hawaii Telescope (CFHT, commissioned in 1979), the James Clerk Maxwell Telescope (JCMT, 1987), the twin telescopes of the Gemini Observatory (GEMINI, 1993), and the Atacama Large Millimeter Array (ALMA, 2008). NRC also participates in the oversight and direction of these facilities and their science programs. NRC represents Canada in the Square Kilometre Array (SKA) consortium for the pre-construction phase of the telescope. International agreements governing these observatories are long-term commitments that specify contributions to support preconstruction design and development, construction, operations and maintenance, capital improvements (e.g., development of new astronomical instruments and other facility upgrades) and decommissioning of the observatories and their related facilities. In addition, they include commitments to support user communities to ensure a fair and progressive use of these observatories. NRC participates in the governance of these international facilities on behalf of the Canadian astronomy research community, providing support, which includes sophisticated data management services and the development of instrumentation. Through NRC’s financial contribution as well as in-kind contributions, the Canadian astronomy community is

	assured merit-based access to these facilities. The TPP currently has no repayable contributions.
Results achieved	• In 2014, the Canadian Astronomy Data Centre (CADC) delivered 38 million individual files, comprising 1,080 Terabytes of data to roughly 8,300 professional astronomers. • 335 users accessed Canada's share of four international telescopes. During 2014, Canada's participation in JCMT ended, leading to a decrease in the number of users of this telescope for the year. Also, both Gemini and CFHT either implemented or extended a large program initiative which awards large amounts of time to a small number of users. This also resulted in a decrease in the number of distinct users of these facilities. • 24% of astronomers requesting time from CFHT, JCMT and Gemini were students and postdoctoral researchers, highlighting the continuing access to these telescopes by qualified students and postdoctoral researchers. • 451 scientific papers were published by users based on data obtained using CFHT, JCMT and Gemini. 97 scientific papers were published based on data obtained using ALMA. • Demand by astronomers for telescope access continued to be high as demonstrated by high subscription rates for Canada's international telescopes (CFHT: 1.53; JCMT: 2.12; Gemini: 2.09, and Alma 4.05[1]). • $1.7M in contracts with industry partners in support of astronomy technology R&D activities • The Very Large Array (VLA) continues to produce exciting new scientific results across astronomy, thanks in large part to the enormously improved bandwidth and spectral capability enabled by the correlator designed and built by NRC-Herzberg and installed in 2013. Among the many important results are gas rotation curves from high-redshift galaxies, direct measurements of grain size distributions in nearby star-forming regions, the first detection of solar-like quiescent emission from other stars, and exquisitely detailed maps of magnetic fields and relativistic particles in galaxy clusters. • o NRC- Herzberg researchers played a key role in the New Horizon space probe program (NASA mission to Pluto) by using CANFAR and the Hubble Space Telescope to identify Kuiper Belt targets for the post-Pluto

[1] Canada participates in ALMA as part of a North American partnership, so this rate reflects North American demand. Also, ALMA does not follow a regular semester system. Its most recent call for proposals was in 2013; there was none in 2014 and a fresh call closes 23 April 2015. The subscription rate reported for ALMA is therefore the 2013 rate.

	part of the mission.
Comments on variances	• The Planned Spending amount of $10.0M represents the authorities reflected in the Main Estimates. The Total Authorities of $12.2M includes the Planned Spending as well as $2.2M in additional funding provided through the supplementary estimates process and an internal transfer from other NRC Transfer Payment Program. Specifically, $1.8M of the National Science Infrastructure's Operating funds was converted to contribution funds, and $0.4M was transferred from NRC-IRAP. The Variance of $2.2M is the net difference between Actual Spending and Planned Spending, and is the result of increased authorities. The funding requirements for this Program are based on the obligations arising from the international agreements where the needs of the international observatories are approved by the respective observatory Boards (of which Canada is a member) and where they fluctuate from year-to-year. It was agreed to manage this uncertainty by having a fixed component of G&C reflecting roughly 90% of the anticipated annual cost of $10.0M and then, make adjustments accordingly via the supplementary estimates process and internal transfers. As per Treasury Board approval, cost increases are normally funded through reallocations from the NRC's Operating Expenditures Vote.
Audits completed or planned	Based on level of risk, no audits were planned. Audit activity will be assessed again as part of the next fiscal year risk-based audit plan.
Evaluations completed or planned	An evaluation was completed in 2011-12, with the next evaluation scheduled for completion in 2016-17.
Engagement of applicants and recipients	NRC's International Astronomical Observatories Program is guided by the Long Range Plan for Astronomy and Astrophysics in Canada (LRP2010), a strategy developed by the research community that is the recipient of NRC services. To ensure alignment with Canadian priorities, NRC participates on the Boards of ALMA, CFHT, Gemini, TMT and SKA (pre-construction stage), providing input to both science programs and instrumentation development of interest to Canadian industry. The support NRC provides to the user community is highlighted by the high subscription rates for Canada's international telescopes and the continued delivery of data through the CADC. In addition, NRC engages on a regular basis with ACURA, working closely with university representatives to keep abreast of new developments and to mutually share information of importance to Canada's astronomy initiatives.

Performance Information (dollars)

Type of Transfer Payment	2012–13 Actual spending	2013–14 Actual spending	2014–15 Planned spending	2014–15 Total authorities available for use	2014–15 Actual spending (authorities used)	Variance (2014–15 actual minus 2014–15 planned)
Total grants	0	0	0	0	0	0
Total contributions	10.7	11.3	10.0	12.2	12.2	2.2
Total other types of transfer payments	0	0	0	0	0	0
Total program	10.7	11.3	10.0	12.2	12.2	2.2

General Information

Name of transfer payment program	TRIUMF (voted)
Start date	1 April 1977
End date	ongoing
Fiscal year for terms and conditions	2014-15
Strategic Outcome	SO 2: R&D Infrastructure for an innovative and knowledge-based economy
Link to department's Program Alignment Architecture	Sub-Program 2.1: Science Infrastructure and Measurement
Description	TRIUMF is Canada's national laboratory for nuclear and particle physics, and one of Canada's key investments in large-scale research infrastructure. It provides world-class facilities for research in sub-atomic physics, accelerator science, nuclear medicine and materials science. A consortium of eleven Canadian universities own and operate TRIUMF in conjunction with 7 associate members. TRIUMF receives its federal funding from NRC in five-year allocations via a Contribution Agreement. NRC plays an important oversight and stewardship role for TRIUMF on behalf of the Government of Canada. TRIUMF was allocated funding of $222.3M for the 2010-15 period of its plan. This TPP does not currently administer any repayable contributions.
Results achieved	During 2014 – 2015: • TRIUMF provided training and employment opportunities for 40 post-doctoral researchers, 30 graduate students, 71 undergraduate students (7 from outside of Canada) and 5 high-school students.

	• TRIUMF had over 500 unique visits from scientific, business, and commercial partners. • 283 manuscripts were published in scientific journals. Nuclear Science and Particle Physics • Tokai to Kamioka (T2K), a project that is part of an international collaboration, published the most precise measurements to date of neutrino mixing properties and established first indications for a non-zero CP violating phase. • TRIUMF successfully completed the $62.9M ARIEL-I project on time and on budget. Underway since 2010, this phase of ARIEL (Advanced Rare IsotopE Laboratory) included civil construction for the new facility, as well as the design, manufacture, and deployment of a state-of-the-art superconducting electron linear accelerator which is in the process of being commissioned. • A number of scientific and technical advancements were achieved through the ISAC program: o The CFI-funded GRIFFIN gamma-ray spectrometer for decay studies was completed and first experiments were carried out. o Important reaction studies on light-mass halo nuclei were carried out with the TIGRESS gamma-ray spectrometer and the new CFI-funded solid hydrogen target facility. o The TITAN facility, enabled by the new Ion-Guide Laser Ion Source that suppressed contaminants, was able to make a first mass measurement of Mg-20 to test the isobaric multiplet mass equation. o The Francium Trapping Facility for fundamental symmetry tests was successfully commissioned, and the first hyperfine spectroscopy experiments on Francium were carried out. o Delivery of charge-bred Sr-95/96 beams to TIGRESS established high mass beam delivery as routine operation at TRIUMF. o First tests of thorium target open new possibilities for the production of heavy and neutron-rich isotopes. Nuclear Medicine • Cyclomed99, the TRIUMF-led NRCan ITAP consortium, set a new world record for the cyclotron-based production of technetium-99m (Tc-99m). Over the course of a six hour run on a conventional medical cyclotron, the TRIUMF team was able to produce 34 Ci of Tc-99m – enough to satisfy the daily demand for a population the size of British Columbia. • The TRIUMF-led Cyclomed99 team was also awarded the 2015 NSERC Brockhouse Prize for their ongoing work on developing a cyclotron-based solution for the production of Tc-99m. • Supported by the CIHR Open Operating Grant Program,

	TRIUMF scientists are investigating the role of oxidative stress in 'triple negative' breast cancer. This research will result in the development of a novel radiotracer to image oxidative stress in tissue as a function of disease progression or response to therapy. The preliminary work on this project has been recognized with prominent awards from the nuclear medicine community. • Enabled with funding from the Canadian Cancer Society, TRIUMF has obtained the first astatine-209 single-photon computed tomography (SPECT) images using the VECTor SPECT/PET/CT scanner located the UBC Centre for Comparative Medicine. This development will enable scientists to move novel isotopes produced at TRIUMF from concept into practice, realizing novel innovations in molecular imaging and targeted radiotherapy. Other • TRIUMF and UBC jointly initiated an NSERC CREATE program on Isotopes for Science and Medicine (IsoSIM) that will provide training in the production, preparation, and application of nuclear isotopes for science and medicine. This program helps students develop the unique skills required for employment in isotope-related fields. In addition, it supports the development of new radioisotopes, and promotes the use of isotopes in new applications in environmental science and medicine. • ARTMS, began operation in 2014. This for-profit company was established in 2013 by TRIUMF's commercial arm, Advanced Applied Physics Solutions Inc to commercialize the medical isotope production technology developed by TRIUMF and its partners under the NRCan ITAP program. • Measurements at TRIUMF's betaNMR facility shed light on the lithium ion transport in thin films of pure and lithium-salt-doped polyethylene oxide – a material relevant for lithium-ion batteries.
Comments on variances	
Audits completed or planned	Based on level of risk, no audits were planned. Audit activity will be assessed again as part of the next fiscal year risk-based audit plan.
Evaluations completed or planned	An evaluation of NRC's contribution to TRIUMF was completed in 2013-14.
Engagement of applicants and recipients	As part of NRC's oversight of the contribution agreement funding TRIUMF's operations, NRC convenes the Advisory Committee on TRIUMF (ACOT) twice a year in order to monitor progress against goals and to enable interchanges with TRIUMF Management. As part of this mechanism, each meeting has a community portion which invites feedback from the Institute of Particle Physics, the NSERC Subatomic Physics Evaluation Section and the Canadian Institute of Nuclear Physics. The Committee is thereby apprised of how TRIUMF's initiatives are aligning with community priorities. TRIUMF's Strategic 5-year Plan included input from the

	community of researchers who use the facility and TRIUMF's Board of Management (BoM). TRIUMF BOM is composed of the member and associate member universities who are the primary users of TRIUMF; key issues are brought to TRIUMF Management through regular meetings of this body. TRIUMF also manages a Policy and Planning Advisory Committee, which includes one member from each of the full member universities. To ensure representation from all areas of scientific interest to the laboratory a limited number of members from the larger TRIUMF community may also be appointed to the Committee. The TRIUMF User Group meets every few months and with TRIUMF's Director a few times annually to provide feedback on TRIUMF services. The research community therefore has a range of avenues to provide feedback to the facility.

Performance Information (dollars)

Type of Transfer Payment	2012–13 Actual spending	2013–14 Actual spending	2014–15 Planned spending	2014–15 Total authorities available for use	2014–15 Actual spending (authorities used)	Variance (2014–15 actual minus 2014–15 planned)
Total grants	0	0	0	0	0	0
Total contributions	44.0	44.3	45.0	45.0	45.0	-
Total other types of transfer payments	0	0	0	0	0	0
Total program	44.0	44.3	45.0	45.0	45.0	-

General Information

Name of transfer payment program	Industrial Research Assistance Program (voted)
Start date	1 April 1965
End date	Ongoing
Fiscal year for terms and conditions	2013
Strategic Outcome	SO1: Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	Program 1.2: Industrial Research Assistance Program
Description	The program contributes to the growth and prosperity of Canadian small and-medium sized enterprises (SMEs) by stimulating innovation, adoption and/or commercialization of technology-based products, services, or processes in Canada. This is done through: 1) technical and related business advice and networking facilitated by a cross-Canada network of field professional staff; 2) cost-shared merit-based contributions; and 3) contributions supporting employment of post-secondary graduates. This program uses funding from the following transfer payments: IRAP Contributions to Firms; and Contributions to Organizations. Through its Canadian HIV Technology Development (CHTD) component, NRC IRAP supports SMEs that participate in the development of an HIV vaccine and other technologies related to the prevention, treatment and diagnosis of HIV. As well, NRC IRAP supports the placement of post-secondary graduates in SMEs through its participation in the delivery of Employment and Social Development Canada's Youth Employment Strategy (YES). In 2014-15, NRC-IRAP received $30M of incremental funding over two years (2014-15 and 2015-16) to support an additional 2,000 post-secondary graduates. NRC Concierge expanded as a single access point to information on funding, expertise, and facilities for SMEs seeking to grow through innovation. Expert innovation advisors engage with SMEs to provide to innovative SMEs customized guidance and direct referrals to the most relevant resources available from our partner organizations across the country. The program does not currently administer repayable contributions.
Results achieved	In 2014-15, IRAP provided SMEs with technical and business advice and funding by way of IRAP, the Youth Employment Program (YEP) and the Canadian HIV Technology Development Program (CHTD). IRAP also provided financial contributions to not-for-profit organizations offering services to SMEs. NRC-IRAP met its performance targets whereby a total of 2564 SMEs were served through direct financial contributions, with 9240 jobs supported including 1555 for post-secondary graduates. Concierge surpassed its 2014-15 target of clients served by 20%,

	providing assistance to 3,578 clients. For more information, see Program 1.2 Industrial Research Assistance Program.
Comments on variances	The Planned Spending amount of $179.4M represents the authorities reflected in the Main Estimates. The Total Authorities of $195.8M includes the Planned Spending, the incremental contribution funding announced in Budget 2014 for contributions to Youth Employment Strategy provided through the supplementary estimates process, transfers between programs under the IRAP portfolio less transfer to another Transfer Payment Program within the NRC. The net difference between the Planned Spending and the Actual Spending is $11.6M representing the increased authorities from the incremental funding of $15.0M for Youth, $1.8M transfer from NRC-BIAP, the transfer of $.4M to the International Astronomical Observatories Program less $4.8M year-end lapse in the NRC-IRAP contribution budget.
Audits completed or planned	Following the cyber intrusion that occurred at NRC in July 2014, NRC implemented an Interim Operating Environment (IOE) to enable the organization to continue to deliver services and value to clients and the Canadian public. Due to key systems being offline until the risk is eliminated, new tools and workarounds were developed as part of the IOE to resume business activities. Subsequently, an internal audit of NRC IRAP under the IOE started in 2014-15 and will be completed in 2015-16.
Evaluations completed or planned	An evaluation of NRC-IRAP was completed in 2012-13. The next evaluation is scheduled to be completed in 2017-18.
Engagement of applicants and recipients	Applicant and recipient engagement information is available in the body of NRC's 2014-15 Departmental Performance Report.

Performance Information (dollars)

Type of Transfer Payment	2012–13 Actual spending	2013–14 Actual spending	2014–15 Planned spending	2014–15 Total authorities available for use	2014–15 Actual spending (authorities used)	Variance (2014–15 actual minus 2014–15 planned)
Total grants	0	0	0	0	0	0
Total contributions	173.2	192.5	179.4	195.8	191.0	11.6
Total other types of transfer payments	0	0	0	0	0	0
Total program	173.2	192.5	179.4	195.8	191.0	11.6

General Information

Name of transfer payment program	Canada Accelerator and Incubator Program (CAIP) (voted)
Start date	1 October 2013
End date	31 March 2018
Fiscal year for terms and conditions	2013-14
Strategic Outcome	SO1: Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	Program 1.2: Industrial Research Assistance Program
Description	The CAIP is a 5-year non-repayable contribution program, aimed at establishing a critical mass of outstanding business incubators and accelerators that can develop innovative, high-growth firms, which themselves represent superior early-stage investment opportunities. In support of the Government's efforts to strengthen venture capital in Canada, Budget 2013 announced new initiatives to complement the Venture Capital Action Plan and promote the broader venture capital system. The CAIP was included as one of the initiatives.
Results achieved	In 2014-15, a total of 15 contributions agreements were signed, as part of the $100 million CAIP providing funding assistance over five years, to outstanding business incubators and accelerators in Canada. The CAIP projects are currently in their start-up phase, with NRC having disbursed approximately $10.6 million during the program's first year. Initial progress includes the following: • Existing facilities of the supported organizations are being expanded, and new facilities are also being setup, at various locations across Canada. • The service offering of the CAIP supported organizations is being broadened, both in terms of service type and geographical reach. • New collaborative linkages are being developed, among the supported organizations and other key players of the incubator/accelerator ecosystem. By virtue of the program, early stage firms are being provided with increased access to innovation support services, including services aimed at improving their investment readiness.
Comments on variances	The Planned Spending amount of $14.2M represents the authorities reflected in the Main Estimates. The Total Authorities of $20.6M includes the Planned Spending as well as $6.4M of lapsed funding in FY 2013-14 which was reprofiled in FY2014-15 through the supplementary estimates process. The Variance of

	$3.6M is the net difference between Planned Spending and Actual Spending representing the lapsed amount of funding. Yet, the net difference of Total Authorities and Actual Spending is the result of increased authorities following the reprofile funding of $6.4M in FY2014-15 from FY2013-14 and $10.0M of total year-end lapse funding in the NRC-CAIP contribution budget. A formal funds reprofiling case will be prepared which will seek endorsement from Finance Canada and Treasury Board, to then be reflected in the 2015-16 Supplementary Estimates and 2016-17 ARLU processes. Delays in expenditures of this type are a normal feature of new programs as recipients work to ramp up eligible activities and process eligible costs through the claiming process.
Audits completed or planned	Based on level of audit risk, no internal audits are currently planned. Risk and resulting audit activity is assessed each year's risk-based audit plan.
Evaluations completed or planned	As outlined in the program's founding submission to Treasury Board, a mid-term evaluation of the program is scheduled to be completed in 2015-16 and a final evaluation is scheduled to be completed in 2017-18.
Engagement of applicants and recipients	Applicant and recipient engagement information is available in the body of NRC's 2014-15 Departmental Performance Report.

Performance Information (dollars)

Type of Transfer Payment	2012–13 Actual spending	2013–14 Actual spending	2014–15 Planned spending	2014–15 Total authorities available for use	2014–15 Actual spending (authorities used)	Variance (2014–15 actual minus 2014–15 planned)
Total grants	0	0	0	0	0	0
Total contributions	N/A	N/A	14.2	20.6	10.6	3.6
Total other types of transfer payments	0	0	0	0	0	0
Total program	N/A	N/A	14.2	20.6	10.6	3.6

General Information

Name of transfer payment program	Business Innovation Access Program (BIAP) (voted)
Start date	1 April 2014
End date	31 March 2016

Fiscal year for terms and conditions	2014-15
Strategic Outcome	SO1: Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	Program 1.2: Industrial Research Assistance Program
Description	Budget 2013 announced $20M over two years to provide funding to small- and medium-sized enterprises (SMEs) to help them access business services or technical assistance at Canada's learning institutions and publicly-funded research organizations to bring bigger and better innovations to market faster. The central objective of the NRC-IRAP Business Innovation Access Program - Pilot is to enable more SMEs to commercialize their products or services more effectively by providing them with funding to acquire business or technical services. The program does not currently administer repayable contributions
Results achieved	In 2014-15, a total of 376 Contribution Agreements were signed suggesting that the BIAP delivery was successfully ramped up. The BIAP is therefore in a position to achieve its overall objective to enable more SMEs to commercialize their products or services more effectively by providing them with funding to acquire business or technical services. A formal evaluation of the program was initiated in 2014-15 in order to assess relevance and need of the program. For more, see Program 1.2 Industrial Research Assistance Program.
Comments on variances	Budget 2013 announced $20M over two years to provide funding to small- and medium-sized enterprises (SMEs) to help them access business services or technical assistance at Canada's learning institutions and publicly-funded research organizations to bring bigger and better innovations to market faster. The Planned Spending amount of $10.0M represents the authorities reflected in the Main Estimates. The Total Authorities of $8.2M represents the Planned Spending amount of $10.0M, offset by a transfer to another Transfer Payment Program within NRC-IRAP portfolio. The Variance of $1.8M is the net difference of Planned Spending and Actual Spending, and is a result of decreased authorities, representing the amount transferred to NRC-IRAP. A normal feature of new programs, the delays in expenditure result as recipients work to ramp up eligible activities and process their costs through the claiming process.
Audits completed or planned	As part of the internal audit of NRC IRAP under the Interim Operating Environment described above, BIAP transactions were tested. The audit started in 2014-15 and will be completed in 2015-16.
Evaluations completed or planned	An evaluation of BIAP was commenced in 2014-15 and is anticipated to be complete in August 2015.
Engagement of applicants and recipients	Applicant and recipient engagement information is available in the body of NRC's 2014-15 Departmental Performance Report.

Performance Information (dollars)

Type of Transfer Payment	2012–13 Actual spending	2013–14 Actual spending	2014–15 Planned spending	2014–15 Total authorities available for use	2014–15 Actual spending (authorities used)	Variance (2014–15 actual minus 2014–15 planned)
Total grants	0	0	0	0	0	0
Total contributions	N/A	N/A	10.0	8.2	8.2	1.8
Total other types of transfer payments	0	0	0	0	0	0
Total program	N/A	N/A	10.0	8.2	8.2	1.8

General Information

Name of transfer payment program	Digital Technology Adoption Pilot Program (DTAPP) (voted)
Start date	1 December 2011
End date	31 March 2014
Fiscal year for terms and conditions	2011-12
Strategic Outcome	SO1: Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	Program 1.2: Industrial Research Assistance Program
Description	DTAPP was a three-year pilot program aimed at accelerating the adoption of digital technologies in SMEs through advisory and financial support to SMEs and related partner organizations as part of the Government of Canada's Digital Economy Strategy. This program ended on March 31, 2014.
Results achieved	DTAPP ended on March 31, 2014. At that time, it had been successful in reaching its intended clients and delivering the planned program activities. The evaluation found evidence that DTAPP undertook a number of activities that raised awareness of the Program among SMEs, organizations and colleges. As planned, outreach activities evolved over time to allow for a transition from awareness of the Program to awareness of the benefits of adopting digital technology. At the time of the evaluation, these outreach activities resulted in over 600 engagements with firms. DTAPP clients reported positive benefits of Program services on their ability to adopt digital technologies,

	with more than half having already adopted a digital technology and the remaining planning on adopting in the future. DTAPP clients anticipated many benefits from the adopted technologies, including lower production costs; increased productivity; improved management systems; and improved quality of products or services. Financial assistance had been provided to close to 400 of these firms in support of a digital technology adoption project. As well, funding to 34 colleges and 31 organizations contributed to the provision of various types of services for SMEs, ranging from awareness sessions to the conduct of diagnostic assessments.
Comments on variances	This Program sunsetted in 2013-14.
Audits completed or planned	Based on level of risk, no audits were planned.
Evaluations completed or planned	Evaluation completed in 2012-13. Funding for this pilot program ended on March 31, 2014. As such, no further evaluations are planned.
Engagement of applicants and recipients	Not applicable for reporting year.

Performance Information (dollars)

Type of Transfer Payment	2012–13 Actual spending	2013–14 Actual spending	2014–15 Planned spending	2014–15 Total authorities available for use	2014–15 Actual spending (authorities used)	Variance (2014–15 actual minus 2014–15 planned)
Total grants	0	0	0	0	0	0
Total contributions	24.2	34.8				
Total other types of transfer payments	0	0	0	0	0	0
Total program	24.2	34.8				

Horizontal Initiatives

General Information

Name of horizontal initiative	Genomics R&D Initiative (GRDI)
Name of lead department(s)	National Research Council Canada (NRC)
Federal partner organization(s)	Agriculture and Agri-Food Canada (AAFC), Fisheries and Oceans Canada (DFO), Environment Canada (EC), Health Canada (HC), National Research Council (NRC), Natural Resources Canada (NRCan), Public Health Agency of Canada (PHAC), Canadian Food Inspection Agency (CFIA). Canadian Institutes for Health Research (CIHR) received a one-time allocation in 1999-2000
Non-federal and non-governmental partner(s)	Not applicable
Start date of the horizontal initiative	Phase I: 1999-2002; Phase II: 2002-2005; Phase III: 2005-2008; Phase IV: 2008-2011; Phase V: 2011-2014; Phase VI: 2014-2019
End date of the horizontal initiative	March 2019
Total federal funding allocated (start to end date) (dollars)	$393.8M
Funding contributed by non-federal and non-governmental partners (dollars)	Not applicable
Description of the horizontal initiative	The Genomics R&D Initiative (GRDI) supports genomics research inside federal government laboratories. It focuses on mandates and priorities of participating departments and agencies. Research supported by the GRDI covers areas such as health care, food safety and global food security, sound management of natural resources, a sustainable and competitive agriculture sector, and environmental protection, with collaboration with university and private sectors. Since the implementation of the GRDI in 1999, participating departments and agencies have built a solid genomics research capacity and have gone a long way to deliver on the Initiative's stated objectives, as confirmed by two independent evaluations (2006 and 2011) and an audit by the Office of the Comptroller General (2012). Additional information may be found on the **GRDI web site**.
Shared outcome(s)	A Performance Measurement Strategy was developed for the Initiative in 2011. It presents two intermediate outcomes: 1) Government policy makers and regulators have used research results for evidence-based regulatory, policy, and resource management decisions, and 2) Private and public stakeholders involved in the innovation continuum in Canada have adopted innovative or improved tools and processes using research

	results; as well as three long-term outcomes: 1) Improved human health in Canada, 2) Enhanced sustainability and management of Canada's environment, agriculture, forestry and fisheries sectors, and 3) Improved food safety and security in Canada.
Governance structures	An interdepartmental ADM Coordinating Committee (CC) has been established to oversee collective management and coordination of the federal GRDI. It is chaired by the lead agency (NRC) with membership at the ADM-level from each of the organizations receiving funding, the Canadian Food Inspection Agency (CFIA), and guest representatives from Industry Canada and Genome Canada. It is responsible for the overall strategic direction for the GRDI and approval of investment priorities. It ensures that effective priority setting mechanisms are established within departments and agencies, and that government objectives and priorities are addressed. The Committee also ensures that common management principles are implemented and collaborations between organizations are pursued wherever relevant and possible. It typically meets three times a year at the call of the Chair, more often when warranted by specific needs for decision-making. An Interdepartmental Working Group (WG) supports the work of the committee. It is chaired by the lead agency (NRC) with membership at the Director level from all participating departments/agencies, CFIA, and Industry Canada. The mandate of the WG is to provide recommendations and strategic advice to the Assistant Deputy Minister Coordinating Committee (ADM CC) regarding strategic priority setting and overall management of the GRDI. The WG is responsible for providing direction to GRDI program activities related to operational delivery, implementation planning and investment priority setting. The WG also supports evaluation and reporting requirements related to the Initiative. It meets about every two months, more often when warranted by specific needs for recommendations and advice, as well as to develop and approve the GRDI Annual Performance Report. A Coordination Function, housed at NRC, provides GRDI-wide program coordination, communication, networking and outreach support. This includes support to the ADM CC and the GRDI WG, transparent and effective communication to departments of the planning cycle, process requirements, financial administration and other project management requirements, and support for interdepartmental shared project planning and implementation. This function is also responsible for conducting studies and analyses to serve as input to determination of GRDI-wide research priorities, and providing management and administration support, as well as support for performance management, reporting, evaluation, and communications.
Performance highlights	Performance information is presented below this table.
Comments on variances	

Results achieved by non-federal and non-governmental partners	Not applicable
Contact information	Roman Szumski, Vice President, Life Sciences, National Research Council Canada, 613-993-9244

Performance Information

Federal organizations	Link to department's Program Alignment Architecture	Contributing programs and activities	Total allocation (from start to end date) (dollars)	2014–15 Planned spending (dollars)	2014–15 Actual spending (dollars)	2014–15 Expected Results	2014–15 Actual results against targets
AAFC	Science Supporting an Innovative and Sustainable Sector	Canadian Crop Genomics Initiative (CCGI)	108,500,000	4,440,000	4,440,000	See Notes 1 and 2	See Notes 1.1 and 2.1
CFIA	Food Safety Program, Animal Health Program, Plan Resources Program	GRDI	3,600,000	720,000	720,000	See Note 3	See Note 3.1
DFO	Biotechnology and Genomics	Aquatic Biotechnology and Genomics Research and Development	16,490,000	720,000	720,000	See Note 4	See Note 4.1
EC	Climate Change and Clean Air	Strategic Technology Applications of Genomics in the Environment (STAGE)	18,550,000	800,000	800,000	See Note 5	See Note 5.1
HC	Canadian Health System Policy	GRDI	59,100,000	1,600,000	1,600,000	See Note 6	See Note 6.1
NRC	Technology Development and Advancement	GRDI	108,500,000	4,440,000	4,440,000	See Notes 1 and 7	See Notes 1.1 and 7.1
		Shared	28,850,000	3,980,000	3,980,000	See	See

		Priorities				Note 8	Note 8.1
NRCan	Innovation for New Products and Processes	GRDI	36,100,000	1,600,000	1,600,000	See Note 9	See Note 9.1
CIHR	N/A	N/A	0.5	0	0	See Note 11	N/A
Total			393.3	19.9	19.9		

Note 1
Using genomics to significantly increase Canada's share of global wheat production
Note 1.1
NRC continues to support the Canadian Wheat Improvement Program in the areas of tolerance to disease and abiotic stress, genomics-assisted breeding, and seed development. This program is NRC's contribution to the Canadian Wheat Alliance, a large-scale research alliance to improve the yield, sustainability, and profitability of Canadian wheat for the benefit of Canadian farmers and the economy. AAFC supports the objectives of the Alliance through its Canadian Crop Genomics Initiative. The Alliance also includes significant contributions by the University of Saskatchewan, and the Government of Saskatchewan. In 2014-2015, all key planned deliverables were achieved, and more than 80% of the project's milestones were completed. For example, a tool that improves the efficiency of breeding is now in the pilot stage before transfer to the breeders.

Note 2
Using genomics to improve the value of Canadian crops and agri-products
Note 2.1
Genomics is an important field of research in the agriculture, agri-food and agri-products sector. Through genomics research, scientists can better understand basic plant and animal functions, find the genes responsible for particular traits, and develop molecular markers. Genomics research benefits farmers by increasing crop yields and resistance to diseases and pests. It also benefits consumers by meeting their demands for sustainable food production. AAFC researchers are using the latest genomic tools to help give farmers an edge in the race to feed the planet. For example, AAFC researchers are working to protect farmers from a fungal disease called Fusarium Head Blight (FHB) which is one of the most destructive diseases of cereals crops (mostly wheat growing regions) around the world. It impacts producers' profitability through reduced grain yield and quality. In North America it causes losses in excess of $1B. Using genomic tools, AAFC researchers have successfully sequenced the genomes of FHB strains to help understand how this fungus can adapt to diverse plant in Canadian environments. This research is helping developing cereal cultivars resistant to multiple FHB and as a result will better control the disease.

Note 3
Using genomics for food safety, animal health and plant protection
Note 3.1
Genomics research funded by the GRDI sought to increase the genomics capability within the CFIA to support on-site diagnostic tools and surveillance capabilities. This is being achieved through the ongoing development of tools and knowledge to support risk management of

zoonotic disease and reportable and emerging animal diseases; formation of whole genome sequencing databases for food-borne pathogens, detection and identification of plant pests and continuing development of infrastructure and bioinformatics tools to support genomics activities in CFIA’s Food, Plant and Animal Business Lines.

Note 4
Genomics knowledge and advice for the management of fisheries and oceans
Note 4.1
Genomics research supports fisheries management and the protection of fish and seafood products. Research milestones (including marker development and testing, genotyping, genome sequencing and characterization, microsatellite panel optimization and application, analysis of differential gene expression profiles, and statistical analysis) are ongoing for 10 projects to: understand the population genetics and structure of commercially important fish species and marine mammals (Capelin, Redfish, Atlantic Salmon, Narwhal); determine the effects of aquaculture escapees and enhancement programs on the health of wild salmon populations; provide alternatives (i.e., parental-based tagging of Chinook Salmon) to inefficient and expensive tagging programs; detect and monitor the impacts of stressors on salmon to inform sound management decisions; use genomic markers in the management of marine ecosystems and resources (Green Crab, Sea Scallops); and identify invasive species encroaching upon a sensitive environment (Arctic).

Note 5
Genomics-based tools and technologies for responsible decision-making
Note 5.1
Genomics research supports Environment Canada for decision-making related to: the risk assessment of chemicals; the management of wildlife and migratory birds; and monitoring of Canada's ecosystems. Environment Canada carries out its genomics research through the Strategic Technology Applications of Genomics in the Environment (STAGE) program. Environment Canada developed genomic tools and approaches to better determine and predict the effects of industrial chemicals of high priority for environmental risk assessments; to monitor populations of wildlife exposed to stressors in areas of concern such as the Hamilton Harbour and St. Lawrence River; and to better predict cumulative impacts on ecosystem health from multiple stressors interacting over time. Research also focused on developing DNA fingerprints for key species of wildlife in Canada in support of conservation management and the *Species at Risk Act.*

Note 6
Genomic knowledge for the Canadian health regulatory system
Note 6.1

Genomics research supported knowledge development to regulate therapeutics and biologics, food safety and nutrition, environmental contaminants and consumer products. Developments in the respective HC research programs are well on track to deliver anticipated research outcomes. For example, HC developed a list of candidate biomarkers that identify human mesenchymal stem cells that are safe and effective for treating immune disorder, as well as developed a respiratory syncytia virus (RSV) titration assay for virus quantification. HC is developing genomic- based regulatory tools to assess chemicals that alter allergic responses or cause other types of adverse health outcomes, which may lead to reducing animal use in regulatory testing. Researchers also developed a portable, rapid detection system for genetic identification of E.coli, as well as validated sequencing methods and developed bioinformatics tools to analyze composition of the gut microbiome and to identify immune markers of change in gut microbiota in an effort to understand the physiological outcomes associated with feeding fermentable materials in infant formula. Additionally, HC collaborated with the Health and Environmental Sciences Institute's Genomics Technical Committee to validate a genomic biomarker that predicts toxicity pathways associated with DNA-damaging agents on over 50 chemicals, on two genomics platforms, and in three cell culture model systems, demonstrating the biomarker’s utility in human health risk assessment. A detailed mechanistic characterization of mouse lung responses to a variety of nanomaterials with diverse physical-chemical properties was achieved to identify physical-chemical properties of concern and to map toxicity pathways for lung emphysema and lung fibrosis induced by nanomaterials. A new genomics method also was developed to enable unprecedented analysis of the types of mutations induced in rodent sperm following chemical exposure.

Note 7

Commercially-relevant advances in genomics R&D related to human health

Note 7.1

Mammalian expression systems employing Chinese hamster ovary (CHO) cells are the workhorse of the biopharma industry. The CHO production platform developed at NRC includes many proprietary improvements that facilitate the expression and purification of biologics and has made a positive contribution to several industrial partners. With support from the GRDI, NRC scientists continue to improve on this critical platform, using genomic and metabolomic technologies to optimize performance, enabling the development of a new generation of biotherapeutics by Canadian SMEs such as AvidBiologics, Zymeworks and Alethia Biotherapeutics. NRC aims to transfer the platform to Canadian biomanufacturers to foster a thriving biomanufacturing sector thereby creating jobs and increasing Canada’s return on its innovation investments.

Note 8

Concerted interdepartmental research along shared priorities and common goals on issues that are beyond the mandates of single departments

Note 8.1

The shared priority project *Protection of Canadian biodiversity and trade from the impacts of global change through improved ability to monitor invasive alien and quarantine species* (the Quarantine and Invasive Species project) is a collaborative effort by six departments and agencies (AAFC, CFIA, DFO, EC, NRCan, NRC) to protect Canada from introductions of unwanted species through the design of innovative protocols and a DNA barcode reference database that will provide the capacity to anticipate and respond quickly to potential introductions. Significant progress has been achieved towards completing project objectives and milestones. Numerous multidisciplinary interdepartmental success stories have emerged, confirming the economic impact of this research.

The shared priority project *Strengthening Food and Water Safety in Canada through an Integrated Federal Genomics Initiative* (the Food and Water Safety project) is a collaborative effort by six Federal departments and agencies (AAFC, CFIA, EC, HC, NRC, and PHAC) to address food and water safety by controlling and/or preventing contamination with microbial pathogens. This is achieved through the development of tools and infrastructure to support applying genomics-based methods for pathogen isolation, detection and characterization from a variety of food matrices and water, focusing on verotoxigenic strains of *Escherichia coli* and *Salmonella Enteritidis* bacteria. Significant progress was achieved producing improved sample preparation methodologies, new and rapid detection tools, microbial genomics sequence data and bioinformatics tools that are now available to all collaborators.

Note 9

Genomic knowledge for forest generation and protection

Note 9.1

Molecular markers were developed for desired characteristics in spruce and pine trees. Based on these, tree breeding recommendations for white pine were transferred to Québec’s Ministère des forêts, de la faune et des parcs. The identification of various resistance genes in pine species will allow tree breeders to develop more durable genetic resistance against forest pathogenic rusts. Hundreds of tree pathogens were sequenced and target regions were translated into highly specific and sensitive DNA identification tools that have been transferred to governments (provincial, municipal, and federal), industrial and NGO end users. The proof of concept for a diagnostic tool to detect living Phytophthora of phytosanitary concern was achieved. The molecular nature of the defense response of ash trees to the Emerald Ash Borer was identified and used in a diagnosis tool for early detection and survey. Genes and enzymes of spruce budworm were identified with implications for the development of biological controls. Using genomics approaches, the microbial diversity of the soil in natural forest stands and areas under reclamation are being evaluated.

Note 10

Genomics knowledge to strengthen public health programs and activities related to infectious and chronic disease

Note 10.1

Research projects focused on the study of pathogens associated with infectious diseases, the detection and control of these pathogens, the identification of subpopulations susceptible to chronic diseases and the development of bioinformatics tools. For example, tools were developed to prevent and manage infectious pathogens (such as HIV, *Mycobacterium tuberculosis*, drug resistant and food-borne bacteria) and research improved the genomic epidemiology of surveillance programs to enable evidence-based management of outbreaks and emerging pathogens.

Note 11

CIHR received a single allocation in 1999-2000 to assist in the creation of the Genome Canada Secretariat. There are no expected results for 2013-2014

Internal Audits and Evaluations

[A.]Internal Audits Completed in 2014–15

Title of Internal Audit	Internal Audit Type	Completion Date
Audit of Research Facilities Management	Financial Management and Controls	2014-15

[B.]Evaluations in Progress or Completed in 2014–15

Link to Department's Program Alignment Architecture	Title of the Evaluation	Status	Deputy Head Approval Date
1.1.8. Sub-Program: Human Health Therapeutics	Evaluation of NRC Human Health Therapeutics	Completed	November 2014
2.1.2. Sub-Program: Measurement Science and Standards	Evaluation of NRC Measurement Science and Standards	In progress	June 2015
1.2. Program: Industrial Research Assistance Program (IRAP)	Evaluation of the Business Innovation Access Program	In progress	August 2015
Internal Services	Evaluation of NRC Class Grants to International Affiliations	In progress	October 2015
1.1.10. Sub-Program: Security and Disruptive Technologies	Evaluation of the National Institute for Nanotechnology (NINT)	In progress	October 2016

Response to Parliamentary Committees and External Audits

Response to parliamentary committees
NRC made two appearances before Parliamentary Committees in 2014-15: 1. 2 June and 11 June 2014, House of Commons Standing Committee on Industry, Science and Technology (INDU), Impact of Research, Technology and Innovation on the Pipeline Industry, J. McDougall (two dates but on the same topic) 2. 4 November 2014, Standing Senate Committee on National Finance, Main Estimates, B. Ciobanu, M. Piché, G. McLellan
Response to the Auditor General (including to the Commissioner of the Environment and Sustainable Development)
There were no performance audits completed by the Auditor General in 2014-15 that implicated NRC.
Response to external audits conducted by the Public Service Commission of Canada or the Office of the Commissioner of Official Languages
There were no external audits performed by the Public Commission of Canada or the Office of the Commissioner of Official Languages in 2014-15 that implicated NRC.

Status Report on Projects Operating with Specific Treasury Board Approval

Project Name and Project Phase	Original Estimated Total Cost (dollars)	Revised Estimated Total Cost (dollars)	Actual Total Cost (dollars)	2014–15 Main Estimates (dollars)	2014–15 Planned Spending (dollars)	2014–15 Total authorities (dollars)	2014–15 Actual Spending (dollars)	Expected Date of Close-Out
Link to department's Program Alignment Architecture:								
There were no such projects planned in the RPP for 2014-15 to report.								

Status Report on Transformational and Major Crown Projects

Project name	No such projects were underway in 2014-15.

Up-Front Multi-Year Funding

General Information

Strategic Outcome	No such funding was provided in 2014-15.

User Fees, Regulatory Charges and External Fees

Reporting on the *User Fees Act*

Reporting on the *User Fees Act*

General and Financial Information by Fee

General Information

Fee name	Access to Information and Privacy
Fee type	Other products and services
Fee-setting authority	*Access to Information Act*
Year introduced	1983
Year last amended	2015
Performance standard	Response provided within 30 days following receipt of request; the response time may be extended pursuant to Section 9 of the ATIA. Notice of extension to be sent within 30 days after receipt of request. NRC's web site provides additional information on the Access to Information Act requirements and NRC's ATIP services, in addition to NRC's Annual Reports to Parliament.
Performance results	NRC received 36 access to information requests and 56 consultations from other government departments.
Other information	

Financial Information, 2014–15 (dollars)

Forecast revenue	Actual revenue	Full cost
500	517	271,714

Financial Information, 2015–16, 2016–17 and 2017–18 (dollars)

Planning year	Forecast revenue	Estimated full cost
2015–16	500	275,000
2016–17	500	275,000
2017–18	500	275,000

Reporting on the *Policy on Service Standards for External Fees*

General Information by Fee

General Information

Fee name	Certified Reference Material Program
Service standard	3 business day turnaround time between reception of order and shipping of order
Performance results	• 534 of 594 orders (90%) of Biotoxin CRMs were shipped within 3 days of receiving the completed order form from the client. • 441 of 664 orders (66%) of Inorganic/Organic CRMs were shipped within 3 days of receiving the completed order form from the client
Stakeholder consultation in 2014–15 or prior fiscal years	Comment forms for feedback were provided to all North American customers with shipments as per standard protocol. No major issues were identified.
Other information	

Fee name	Parking Fees
Service standard	3 day turnaround time between request and delivery of parking passes; ongoing monitoring of parking sites.
Performance results	All requests for parking passes were filled on time, and regular monitoring of sites took place.
Stakeholder consultation in 2014–15 or prior fiscal years	NRC's parking policy was published on its internal website along with the approved rates, guidelines and questions and answers. The rates were reviewed in 2014-15.
Other information	

Fee name	Sale of National Code Documents and other documents
Service standard	Orders processed (shipped) 1-14 days after receipt of all required information
Performance results	95% of orders were shipped within the target of 14 days. There were 3500 orders processed via the virtual store and manually from Publication Sales. Of these, 2635 were paper copy delivered to the client (of which there were 27

	exchanges and/or refunds) and 865 were electronic format (of which there were 2 returns). (see Notes 1 – 3)
Stakeholder consultation in 2014–15 or prior fiscal years	Internal stakeholders consulted annually (March-April of each year) and benchmarked against delivery standards for similar products.
Other information	April 2016 is planned as the next date for consultation and revision of the delivery standard, to account for delivery times associated with on-line sales and the growing predominance of electronic products.

NOTES:

1. Service standard data for Codes delivery after the cyber intrusion is unreliable as orders were filled (product delivered) on time, while entry of the order in the system was itself often delayed. Prior to the cyber intrusion, the service delivery was approximately 99% of orders within target.
2. Total order numbers are down from the previous year, which is accounted for in historic codes development/sales cycle trends; the 2015 Codes are due out in 2015-16 and increased orders are anticipated upon release.
3. Lower electronic Codes sales show impact of the cyber intrusion.