



THE PRESIDENT

September 4, 2018

Commissioner Teresa Lubbers
Indiana Commission for Higher Education
101 West Ohio Street
Indianapolis, IN 46204

Mr. Jason Dudich
Director, Indiana Office of Management and Budget
Indiana State House, Room 206
Indianapolis, IN 46204

Dear Colleagues:

On behalf of the Indiana University Trustees, students, faculty, staff, and alumni, I am pleased to submit IU's FY 2019-21 operating and capital request. In addition to detailed information about IU's operating and capital request, this document includes an institutional narrative that provides a report on some of IU's major accomplishments and initiatives over the past two years.

In 2020, IU will celebrate its Bicentennial: 200 years of rich history in its core mission of academics, research, and service to Hoosiers and the state. In conjunction with its Bicentennial, IU has prepared a strategic plan that will help ensure that IU's excellence in these three areas will continue as the university begins its third century of service. In the coming months, we look forward to the opportunity to present IU's operating and capital request to the Indiana Commission for Higher Education, the State Budget Committee, and the Indiana General Assembly as work proceeds on development and enactment of the state's FY 2019-21 budget. We pledge our full assistance with this process.

Finally, I wish to thank you and your colleagues for your ongoing support for Indiana University. It is this partnership with state policymakers, including the Governor and the Indiana General Assembly, that has enabled IU to grow from its infancy in 1820 to a major research university with an international reputation for quality and excellence.

Yours sincerely,

A handwritten signature in blue ink that reads "Michael McRobbie".

Michael McRobbie
President

MAM/sbt

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**INDIANA UNIVERSITY
2019-21 BIENNIUM**

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Operating Request

Components of Operating Appropriations Submission

In accordance with the joint instructions issued by the Indiana Commission for Higher Education and the Indiana State Budget Agency, Indiana University has submitted performance funding data. This data will enable ICHE to produce biennial funding recommendations in late 2018, rewarding IU for success in pursuing state higher education goals, particularly student persistence and degree completion. In addition, IU's biennial operating request includes fee replacement appropriations necessary to make debt service payments on state approved facility bonds. Finally, IU's request includes a modest inflationary increase for existing special line items and a request for first time funding for two new line items, which are discussed in detail in Section 1.

Performance Funding Formula (PFF)

President McRobbie has long stated his support for performance funding that equitably rewards high achieving institutions for progress in meeting the state's higher education goals. In addition, he believes that a performance funding model must recognize the differing missions of Indiana's diverse set of public institutions and that even within Indiana University, the mission of the Bloomington campus is different from that of IU's regional campuses.

President McRobbie greatly appreciated the opportunity to meet with Commissioner Lubbers during summer, 2017 to present Indiana University's recommendations for revisions the state's performance funding formula. He was also appreciative that the Commission's final PFF for the upcoming biennium incorporated some of IU's recommended changes.

As indicated in the following "Institutional Narrative", IU is a national leader in student success programs. In recent years, these programs have produced positive results and consequently, IU has performed well on the PFF metrics. Specifically, more IU students are persisting with their studies and graduating. In addition, more students are attempting 15 credit hours of coursework each semester leading to higher four-year graduation rates.

For the FY 2019-21 biennium, most IU campuses continue to perform well on most of the metrics, except for graduate degrees. The negative result for graduate degree metrics relate to decreased enrollments in education and other academic areas, most likely related to a healthy economic environment in which fewer students are pursuing an advanced degree. Results for each metric by campus are found in the table below.

IU Performance on Metrics

	BL	IUPUI	EA	KO	NW	SB	SE
Overall Degree Completion							
Bachelor's Degree	30	253	148	140	79	18	8
Master's Degree	-45	-92	6	-1	-42	-29	-
Doctoral Degree	4	-5					49
STEM Degree Completion							
Bachelor's Degree	160	125	21	13	16	23	9
Master's Degree	-4	-36	0	0	0	-1	0
Doctoral Degree	-5	5					
At Risk	-7	125	58	66	34	21	12
At-Risk, On-Time	98	61	15	8	9	21	21
At-Risk Composite Value**	98	186	73	74	43	42	33
On-Time***	271	168	30	27	32	46	49
Student Persistence*** 30			39	75	83	132	52
60			34	51	67	105	73
90			23	12	26	49	22

** New Composite Value adds the overall, At-Risk degree completers with the Per Unit Value of At-Risk, On-Time recipients

*** Per Unit Value - Change in 3-year rate x latest average 3 year cohort size

IU Schools of Medicine and Dentistry

Because enrollment in IU's Schools of Medicine and Dentistry is dominated by graduate students and the metrics are primarily related to undergraduate students, the state funds these schools "outside" the performance funding formula. Specifically, the combined appropriation for the schools was increased by the same percentage increase in total state operating funds appropriated under the performance funding formula. IU requests that this precedent and funding mechanism again be applied for the FY 2019-21 biennium.

Fort Wayne Health Sciences Program

Pursuit to an agreement between the Indiana University and Purdue University Trustees, IU is assuming responsibility for providing health sciences programs in Fort Wayne in Fall 2018. Under this agreement, IU will be offering nursing, dental hygiene, and medical imaging programs (in addition to medical degrees offered for many years at the IU School of Medicine regional medical education center) beginning with Fall, 2018. Initial funding for these programs was included in the FY 2017-19 biennial budget approved by the General Assembly in the amount of \$4.85 million for FY 2019. IU is excited about the opportunity to serve the Fort Wayne community and to continuing to partner with Purdue University in a new manner.

IU anticipates that the programs at Fort Wayne will eventually be funded via the PFF. However, since IU is taking over program responsibility as of Fall, 2018, it will be several years before the data required to determine performance on the various PFF metrics will be available. Thus, IU

requests that additional funding for the FY 2019-21 biennium be determined by the same methodology used for the IU Schools of Medicine and Dentistry, as discussed above.

Fee Replacement Appropriations

Working in collaboration with ICHE and the Indiana Finance Authority, IU has submitted updated fee replacement data. For the FY 2019-21 biennium, changes in fee replacement appropriations are determined by additional fee replacement amounts required for any capital projects authorized by the General Assembly for funding by the state.

Special State Appropriations

In addition to its general operating appropriation, IU also receives state appropriations for several special state line items for programs that provide a unique service to the state. (IU is requesting restoration of \$150,000 for the Indiana Advisory Commission on Intergovernmental Affairs. Its appropriation was used during the FY 2017-19 biennium for start-up of the Agriculture Law Program at IUPUI.) Section 2 includes detailed information about each of these programs. IU requests an inflationary increase of 2.5% each year of the biennium as indicated in the Special State Appropriations Summary.

Finally, IU is requesting state appropriations for two new special line items for programs that will provide additional state services. Section 1 provides detailed information about IU's existing and newly requested special line items.

Capital Request

Special R&R Projects

Beginning more than eight years ago, Indiana University instituted a plan to eliminate the university's deferred maintenance backlog by 2020. Through consistent funding by the university and the state of Indiana, IU has reduced its deferred maintenance backlog from \$1 billion in 2010 to \$343 million at the end of fiscal year 2018. Continued funding for repair and rehabilitation projects will enable IU to perform repairs and renovations while updating facilities to current standards. These improvements will have long-term impacts including budget savings realized via the use of new technologies to improve energy efficiency and reduce utilities usage, while also providing a safe, effective and modern environment responsive to the needs of students, faculty and staff.

Bicentennial Repair and Rehabilitation Plan

As Indiana University looks forward to its bicentennial in 2020, the university seeks to ensure the continued availability and appropriateness of facilities and infrastructure necessary to its teaching and research mission. The Bicentennial Repair and Rehabilitation Plan is the top priority project for Indiana University, and will continue to address work begun in Phases I-III of the Regional Campus Deferred Maintenance requests as well as Phases I-III of the Bloomington Old Crescent Renovation projects while also including the IUPUI campus.

Nine projects impacting 23 buildings on seven campuses will provide safe, effective and efficient learning and work environments for students, faculty, and staff through critically-needed repairs and renovations of facilities and infrastructure. Renovations will include replacing or updating windows, roofs, campus infrastructure, and building systems (mechanical, electrical, plumbing, data, fire protection); remodeling restrooms for accessibility and efficiency; and renovating classrooms and labs for accessibility, safety, and modern technologies. This project is estimated at \$124,000,000 and is the university's highest priority for 2019-2021.

IUPUI Campus – School of Dentistry Renovation

Indiana University proposes the renovation of the School of Dentistry building on the IUPUI campus, to include the original 1934 facility as well as additions that opened in 1961 and 1972. Renovations will include energy efficient mechanical systems, upgraded building systems (electrical, plumbing, data, and fire), accessibility upgrades, facade repairs, window replacements, and updates to classrooms and labs. The mechanical, plumbing and electrical systems in particular are antiquated, and in some cases, are original to the building. This project is estimated at \$15,000,000 and is the university's third highest priority for 2019-2021.

IUPUI Campus – Bryce and Ott Buildings Renovation

The university's fourth highest priority is the renovation of the Bryce and Ott Buildings located on the IUPUI campus. Bryce (1924) and Ott (1923) are the original buildings of the former Wishard Hospital campus. Renovations will reinvigorate these buildings and make them an integral part of the IUPUI campus. This project consists of renovating and transforming former hospital support spaces into academic and administrative spaces for the IU School of Medicine and the IUPUI campus. Renovations will include new energy efficient mechanical systems, upgraded building systems (electrical, plumbing, data, and fire suppression), accessibility upgrades, and updated roofs. This project is estimated at \$15,000,000.

Fort Wayne Campus – Health Sciences Planning Study

This project proposes an assessment of space needs for programs in Health Sciences at the Fort Wayne campus. Academic programs currently offered on the Fort Wayne campus include Dentistry, Medical Imaging and Medicine, Nursing, and Social Work. A study is needed to assess the current and future programmatic needs of these disciplines in the context of enrollment growth as well as the university's ability to provide the state with an increased supply of highly-trained health professionals to serve growing demand. This study will assess physical space needs as well as infrastructure. Estimated at \$3,000,000, this project is the university's fifth highest priority for 2019-2021.

New Construction

IU School of Medicine Research Laboratory Building V

The university's second highest priority for 2019-2021 is construction of an approximately 120,000 gsf research facility for the IU School of Medicine in Indianapolis. This project is part of the university's continuing life sciences initiative, as well as the Bicentennial Strategic Plan calling for growth in research capacity and generation of external research funding. Consisting primarily of clinical research labs, with flexible lab space and related support areas, the facility will enable researchers to work across disciplines. This, in turn, can increase funding opportunities and overall academic growth and discoveries. The facility's programming will support the School of Medicine's goal of creating synergies between research and real-life applications and practice, including an emphasis on communication and collaboration among researchers, patients and doctors. This project is estimated at \$75,000,000 and is the university's second-highest priority for 2019-2021.

State Formula R&R Funds

State formula R&R funds, in combination with university funds, are crucial to proper maintenance and repair of Indiana University academic facilities and infrastructure. The following chart summarizes current asset values at each of IU's campuses. These figures are submitted for use by the state to determine funding for the FY 2019-2021 biennium.

2019-2021 CHE R&R Formula - TOTAL		
Indiana University	R&R Asset Total (based upon Academic Space)	Infrastructure Asset Total
Bloomington	\$2,466,772,503	\$327,692,989
East	\$69,941,423	\$9,499,793
Kokomo	\$102,161,844	\$7,121,172
IUPUI*	\$2,037,281,769	\$99,304,022
Northwest	\$197,126,744	\$15,156,658
South Bend	\$195,152,921	\$13,653,913
Southeast	\$176,972,436	\$21,801,343
IU TOTALS	\$5,245,409,640	\$494,229,890
*Includes IUPU-CO, Stone Family Center for Health Sciences (Evansville), and FW Medical Education Building		

Indiana University Institutional Narrative

Introduction

Indiana University (IU) will celebrate its bicentennial of service to the state in 2020. In celebrating this milestone, IU prepared its ***Bicentennial Strategic Plan for Indiana University***, which through eight priorities, details programs and initiatives that the university is undertaking to ensure that IU's excellence in academics, research, and service continue well into the university's third century. This narrative provides a sampling of such initiatives using the framework of the eight priorities set out in the strategic plan.

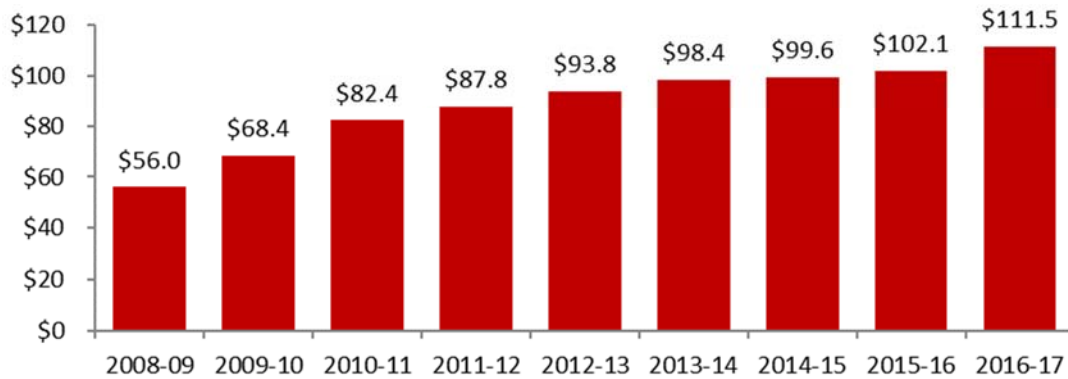
Priority 1: Commitment to Student Success

Affordable Education: Student success starts with an affordable education that permits all qualified Hoosiers to enroll and persist to graduation. IU enrolls nearly 100,000 degree seeking students (about 70% Hoosiers), more than any other institution in Indiana. IU provides affordable access in two primary ways: by minimizing tuition increases and by providing IU students with substantial financial aid.

In setting tuition, IU seeks to achieve a balance between the goals of offering affordable access to IU and ensuring that the university has adequate resources to provide an outstanding student educational experience. IU's resident undergraduate tuition increases during the 2016-17 and 2017-18 academic years were 1.4% each year at its Bloomington and Indianapolis campuses and 1.9% each year at its regional campuses. These modest increases – ranging from \$65 to \$75 per semester – compare favorably with national tuition increases. According to the College Board, the national average resident, undergraduate tuition increase at 4-year institutions was 3.1% in 2017-18. The amount of IU tuition also compares favorably nationally: at the Bloomington campus, resident undergraduate tuition for 2017-18 was \$10,533 compared to \$10,830 for other doctoral institutions. At IU's regional campuses, 2017-18 resident undergraduate tuition and fees was \$7,207, nearly 17 percent lower than the national average of \$8,670 for master's level public institutions.

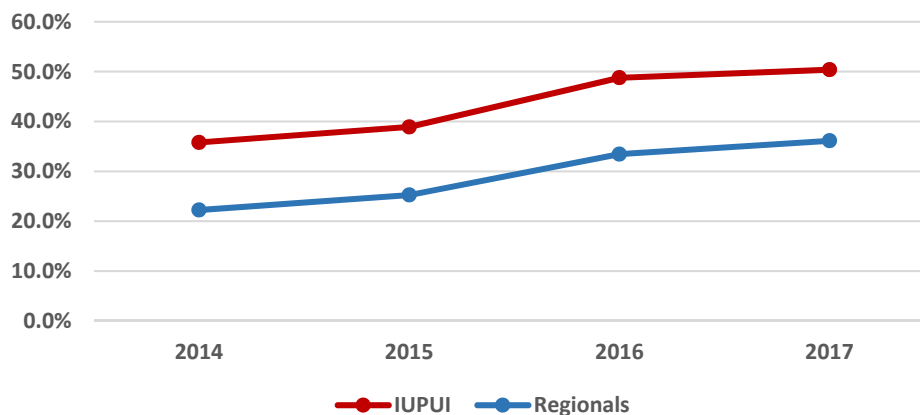
Most students do not pay the tuition “sticker prices” mentioned above because state, federal, and university-based financial aid can significantly reduce the net cost. IU provided nearly \$112 million in university financial assistance to undergraduate resident students during the 2016-17 academic year (AY), nearly double the amount provided during AY 2008-09. Continuing and expanding financial assistance programs is a primary goal of IU's fundraising efforts, including its current Bicentennial Campaign.

IU Student Financial Assistance Resident Undergraduate Students (In Million \$)



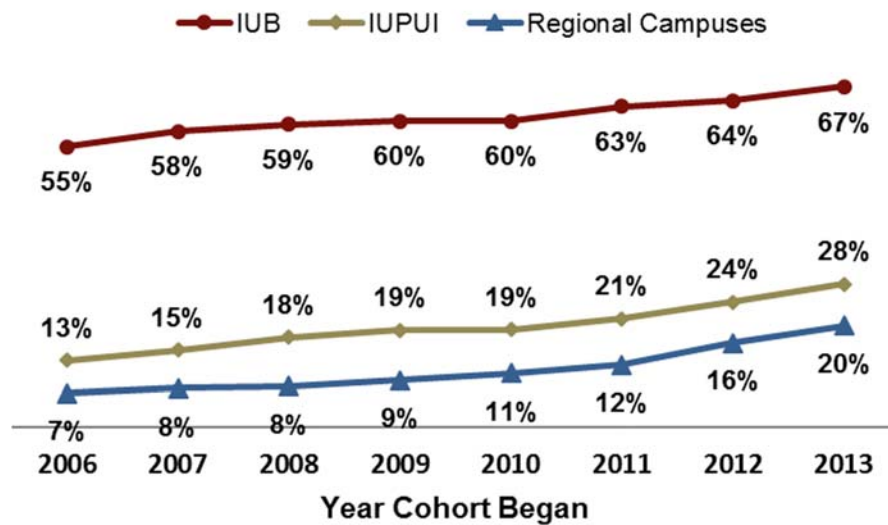
Shortening the Time to Graduation: One of the best methods for reducing college costs, is completing a degree as quickly as possible. IU's regional campuses and IUPUI, have been particularly successful with encouraging more students to enroll in 15 credits a semester through both advising and implementation of banded tuition, as illustrated by the graph below.

Undergraduate Students Taking 15 Credits or More Fall 2014-2017



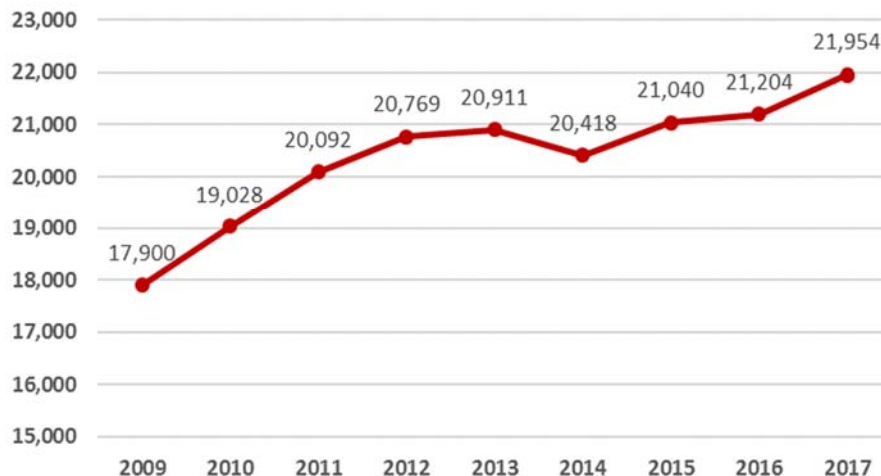
Encouraging students to take more credit hours, along with other student success initiatives, has enabled IU to help students graduate in less time. The chart on the next page shows dramatic improvements in the four-year graduation rate improvements for IU's Bloomington, Indianapolis, and regional campuses.

Four Year Graduation Rates



Workforce Preparation and Degree Production: Ultimately, student success is measured by degree attainment. During the 2016-17 academic year, IU awarded nearly 22,000 degrees, which accounts for almost 50 percent of total degrees awarded by all Indiana public institutions combined.

IU Degree Production 2009-2017



IU's Leadership in Student Success Programs: Building on prior initiatives, IU continues to invest in tools and technology to support student success. IU's newest tool, the Student Engagement Roster, allows faculty to provide a full range of feedback to students as well as make recommendations for ways to better engage students in the academic life of IU campuses. IU has also implemented an interlocking grid of tools, including IU's degree map

system (iGPS) and its FLAGS early warning system (faculty and advisor tool to identify underperforming students), that help IU work with students when they fall off track. These tools also ensure that students are aware of the full range of opportunities for assistance on IU campuses, which are critically important to the first-generation students who make up over 40% of the students at IU's regional campuses.

By making greater use of technology, IU is freeing up time for advisors to have deeper face to face conversations with students and IU has initiated special training to ensure that advisors have the skills to facilitate student development and decision making. As a result, advisors report having richer conversations with students and students are taking more ownership in their academic progress.

IU's regional campuses have been participating in a national initiative, *Reimagining the First Year*, supported by the Bill and Melinda Gates Foundation. As part of this initiative, IU is revising and improving new student orientations, first semester advising, summer bridge programs, new student convocations, first year seminars, faculty learning communities, programs for undecided students, and monthly cross-campus meetings of Academic Affairs and Student Affairs leaders regarding these efforts. Campuses have collected baseline data and set goals for improvements and are monitoring progress towards these goals.

IUPUI is expanding its Diversity Enrichment and Achievement Program (DEAP), which provides coaching and mentoring to students from under-represented groups. This program has been highly successful and participating students have higher retention rates than the average IUPUI student. Another highly successful program, the Nina Scholars, funded by the Nina Mason Pulliam Charitable Trust, serves students who have dependents themselves, have physical disabilities or are a young adult with a history of abuse, neglect or time in foster care.

IU Bloomington is closely analyzing performance by different sub-populations of students and is employing multiple new strategies to promote student success. For example, exploratory and pre-major students are assigned a career advisor (in addition to an academic advisor) to explore multiple majors to help them make academic career choices. In addition, recovery courses are offered to students who are on probation or need help with study skills. The focus of these programs is on personalizing outreach and providing peer mentor and advisor resources to help guide student decision-making.

Financial Literacy: Challenges that students and their parents face with financing college can be a barrier to college completion. IU's pioneering student financial literacy initiative begun a few years ago and continues to be successful: 45 percent of bachelor's-degree recipients at all IU campuses will graduate with no student-loan debt - compared to less than 30 percent nationally. Over the past four years, total borrowing by IU students has been reduced by almost \$100 million. As part of a new initiative, IU has launched an information portal to help IU employees learn more about saving for college for their children through Indiana's 529 college savings plans.

Serving Underrepresented Minority Students: The Office of the Vice President for Diversity, Equity, and Multicultural Affairs (DEMA) is committed to fostering an inclusive environment where IU's faculty, staff, and students thrive regardless of race, ethnicity, sexual orientation, socioeconomic status, or any personal characteristic. By maintaining its dedication to this charge, DEMA has made great strides in increasing diversity and inclusion at IU. Between 2005 and 2017, IU increased total domestic minority student enrollment by 81 percent. In 2017, IU set records for the total number of minority students (24.1 percent of the student population), exceeding the state's minority population (23.3 percent). IU also values the contributions and inherent worth of all faculty members, and works hard to develop initiatives that support diversity and inclusion. Between 2005 and 2016, IU's minority faculty population grew by 49 percent. During that same time, African American faculty, Hispanic faculty, and Asian/Pacific Islander faculty populations grew by 45 percent, 31 percent, and 56 percent respectively.

Priority 2: A Community of Scholars

Re-vitalizing Academic Schools: Continuing IU's academic excellence into its third century, IU is meeting the evolving needs of students and employers through new schools such as the Lilly Family School of Philanthropy at Indianapolis and the Schools of Public Health at both Bloomington and Indianapolis. IU has also re-organized and merged existing schools to ensure their responsiveness to the student and employer market, while achieving institutional efficiencies. At IUPUI, the new School of Health & Human Sciences was established by merging the existing schools of Physical Education and Tourism Management and the School of Health and Rehabilitation Sciences, to strengthen the role that the campus plays in supporting the health and well-being of Hoosiers. At the Bloomington campus, the renamed School of Informatics, Computing and Engineering reflects the broad spectrum of the school's offerings in computing, information technology, and IU's new program in intelligent systems engineering. Also, at Bloomington, the newly named School of Art, Architecture and Design highlights IU's new architectural program.

Academic Excellence through Strengthening University Teaching and Learning: During his 2017 annual State of the University address, President McRobbie introduced a new initiative to ensure "pervasive excellence in teaching and learning" on all IU campuses. The initiative signifies IU's commitment to its core missions of education and research, and incorporate several key strategies aimed at enhancing the teaching and learning experience at IU including:

- A review of each school's academic programs to foster use of best practices in teaching and learning
- Ensuring that first-generation and at-risk students receive the support they need to persist and complete their degrees
- An effort to translate excellent research on learning at IU into improved instructional practices at IU
- The establishment of small, "prototyping" grants to support full-time faculty experimenting with new techniques in teaching and learning.

Online Learning: To facilitate the efficient expansion of online education, President McRobbie established IU's Office of Online Education (OOE) in 2011. Rather than centralized online education," IU's academic programs are offered collaboratively by its seven campuses. This allows each campus to participate in course development and delivery while a single brand, IU Online, is managed by OOE, including recruitment and marketing efforts. During the Spring, 2018 semester, more than 4,900 students were enrolled in 120 programs and nearly 29,000 students – 30% - were enrolled in at least one online course.

Priority 3: Catalyzing Research

IU's Research Engine: IU holds international prominence as a major research institution with particular expertise in the life sciences, information technology, and arts and humanities. IU's research success is fostered by prominent faculty and excellent research facilities, resulting in \$604 million in external funding in FY 2018. The Indianapolis campus generated more than \$365 million in external funds, with the IU School of Medicine, the nation's largest, generating \$313 million. The Bloomington campus generated nearly \$111 million in funding, led by the College of Arts and Sciences, with more than \$56 million in awards. Other schools that have achieved external funding growth are the relatively new Indianapolis and Bloomington Schools of Public Health and the School of Informatics, Computing, and Engineering.

IU research is important to Indiana because it involves scientific investigation that can foster new discoveries - such as medical treatments and products – which not only improve patient care but can lead to new company start-ups and increased state employment. In addition, research funding supports thousands of jobs at IU, including faculty, research assistants and technicians as well as provide undergraduate and graduate students with outstanding practical learning experiences.

IU's Grand Challenges Initiative: President McRobbie announced IU's \$300 million Grand Challenges initiative in September 2015, IU's most ambitious single research initiative. Grand Challenges is an IU initiative focused on problems facing humanity that can only be solved by the application of dedicated research findings across disciplines in collaboration with community partners. IU faculty and students from all disciplines are working in partnership with cross-sector teams of community and business leaders to tackle vitally important issues that impact our state such as the opioid abuse crisis, curing diseases, and addressing unpredictable severe weather and dwindling natural resources.

Cybersecurity Leadership: Indiana University is a national leader among research universities in the increasingly important cybersecurity field. Three initiatives demonstrate this leadership. In early 2018, IU, Northwestern University, Purdue University, Rutgers University and the University of Nebraska-Lincoln launched OmniSOC, a cyber-security operations center (SOC). Based at IU, Omni-SOC's goal is to help higher education institutions reduce the time needed to satisfactorily resolve cybersecurity threats. In its first nine months, OmniSOC has raised \$1M and has created 10 jobs in Indiana, employing primarily graduates of Indiana-based

universities. In the coming year, OmniSOC plans to develop additional services and add member universities from across the nation to create additional jobs based in Indiana.

OmniSOC also works in close coordination with the federally chartered Research and Education Networking Information Sharing and Analysis Center, also located at IU. REN-ISAC's primary mission is to aid and promote cybersecurity protection, response and information sharing among its 580 members within the research and higher education communities. IU's Center for Applied Cybersecurity Research (CACR), funded by the National Science Foundation, the U.S. Department of Homeland Security and other federal agencies, identifies and addresses difficult cybersecurity problems facing public and private entities. The Center draws on IU's wide range of expertise in computer science, informatics, accounting and information systems, criminal justice, law, organizational behavior, public policy, and other disciplines, as well as the extensive practical cybersecurity experience of its operational units.

Emerging Areas of Research Program: The Emerging Areas of Research program, launched in 2016, supports areas of research and creative strength on the IU Bloomington campus that enhance the quality, impact, and reputation of the campus's research enterprise. One funded project uses the framework developed by IU Nobel Laureate Lin Ostrom, to coordinate an innovative and interdisciplinary effort to analyze food systems from varying perspectives in both local and international contexts to identify what it takes to create environmentally sustainable, socially just, and resilient systems for food, from production to procurement.

Research in Arts and Humanities: Recognizing the strengths of arts and humanities research at the Bloomington campus, the **Andrew Mellon W. Foundation** awarded a four-year \$1 million grant to support student and faculty research focused on Indiana studies and global popular music.

Priority 4: Reimagining Education

Addressing the State's Teacher Shortage: The IU School of Education offers one of the world's premier programs for preparing tomorrow's teachers, counselors, school psychologists, educational leaders, curriculum designers, and educational scholars. To expand the reach and impact of the IU School of Education, the IU Board of Trustees endorsed a recommendation to separate the IU School of Education into two independent schools on the IU Bloomington and IUPUI campuses. The move will enable each school to sharpen its focus on historic and emerging areas of strength and more effectively meet the educational needs of Indiana.

IUPUI will enhance its programming and reputation in urban education, including providing pathways for individuals from underrepresented groups to become classroom teachers. The IUPUI campus is focused on getting students out of the university classroom and into community schools by placing 140 interns each year that teach in IPS, a total of 5,460 hours is spent by students gaining field experience, and about 30,100 hours are spent in IPS schools. In order to continue to close the state's teacher shortage gap, the IU School of Education at IUPUI and MSD of Lawrence Township have developed the District Based Alternative Certification

Program which aims to help non-certified school employees, such as teaching assistants and behavior specialists, obtain elementary teacher certification while they work. The 18-month program consists of night courses offered in Lawrence Township and a semester of student teaching. IUPUI is in discussions with other Marion County schools in hopes of expanding the program.

IU Bloomington continues to strengthen its undergraduate teacher education and graduate programs to better connect students with faculty who are engaged in cutting edge research that is impacting the field of education. IU Bloomington has also been transitioning to year-long student-teaching residencies and the program has been well received by both partner schools and students.

Improving Local Schools: Recognizing that teaching can pose unique challenges, a team from the IU Bloomington School of Education has been working with local middle school teachers to work through those challenges while improving how math is taught through the IDReAM project. The project, in its fifth year and funded by a career grant from the National Science Foundation, engages an IU professor co-teaching with a middle school teacher at the local middle school for five to six weeks at a time, focusing on differentiating instruction for students by tailoring instruction to their individual needs and developing a cohesive classroom community. The goals of the project include a greater understanding of how students learn rational numbers and rational reasoning to improve mathematics instruction in middle school.

Engaging Teachers and Students in STEM Learning: Faculty at IU Bloomington are studying engagement in science, technology, engineering and mathematics (STEM) activities with a \$1.1 million grant from the National Science Foundation. The project team will help educators design better ways to engage students and help them learn. The IU School of Education in Bloomington also received a \$2.49 million grant from the 21st Century Science Initiative to study, in conjunction with UCLA, over a five-year period, how teachers use representations such as drawings, pictures, and graphs to teach science concepts, and how their students learn from those lessons. The project aims to generate materials and models for supporting and training teachers to improve student learning in the STEM field using representations. In the fall of 2017 the IU School of Education's Center for P-16 Research and Collaboration partnered with several organizations to provide around 200 students from three different local school corporations the opportunity to participate in a workplace STEM simulation project. The final presentation of the project at the French Lick Resort, demonstrated how STEM classes are integrated with algebra, chemistry, physics, engineering and computer science, by working together to design and build the project.

IU Southeast's School of Education is offering 12 credit hours of free graduate tuition to students enrolled in the **Advance to Teaching** and dual credit pathways in STEM content areas. This tuition benefit is part of a larger **Growing Tomorrow's STEM Teachers (GTST)** initiative to enhance recruitment of STEM teachers in Southern Indiana and help future dual credit STEM high school teachers meet the new state requirement of 18 credit hours in graduate level courses in their discipline. The tuition assistance initiative is made possible by a STEM teacher

recruitment grant from the Indiana Commission for Higher Education. The collaborative and innovative GTST initiative engages both area PK-12 schools and area businesses. The GTST initiative provides multiple benefits beyond tuition assistance, such as support for conference attendance, classroom materials, project-based research, and long-term mentoring.

Innovative Training of School Administrators: The ***MBA for Educators*** program was established in 2015 by the IU Kelley School of Business, in partnership with the IU School of Education, with funding from the Woodrow Wilson National Fellowship Foundation. IU is one of only five universities in the nation invited to be part of the program. The overall goal of the 18-month program is to increase the quality and relevance of principal and superintendent education by preparing them to lead organizational change, and have a material impact on the outcomes of school systems.

Indiana University Center on Teacher Quality: Personnel from the center work intensively with teachers and staff at five school corporations and one charter school to establish comprehensive job-embedded professional growth and support that are driven by district-level data. Funded by a \$5 million federal grant to the Indiana Department of Education, activities focus on system supports and structures designed to improve teacher quality to meet academic and behavioral needs of all students.

Priority 5: A Global University

Recognizing the pervasive internationalizing of society, President McRobbie has set greater engagement of students in international study as a major goal for the university, especially relevant to Indiana and its business community because the state ranks high nationally as an exporter of products produced in the state. By bringing Indiana to the world and the world to Indiana, IU is ensuring that its students are prepared for success as adults with an increased cultural understanding and experience, promoting the ability to work productively with people from diverse cultures and traditions. To facilitate international learning opportunities, IU has entered into 52 primary university partnerships with 94 separate agreements in 30 priority countries around the world. There are an additional 90 agreements between individual IU schools and international counterparts.

Success with Engaging Students in International Learning: IU Bloomington ranked seventh among U.S. universities for sending students abroad and nineteenth in the number of international students according to the Institute for International Education. At IU Bloomington, 2,720 students attended study abroad programs for the 2015-16 academic year, a 14 percent increase from the previous year and a 26 percent increase from 2012-13. The IUPUI campus set a campus record for the number of students embarking on study abroad programs with 531 students participating, a 20 percent increase over 2014-15 and a 48 percent increase over 2012-13.

Bringing International Learning to IU Campuses: IU is a national leader in offering international study opportunities. IU-Bloomington offers degrees, certificates, or both in more

than 90 areas in global and international studies and offers approximately 2,300 course sections with explicit international content, enrolling more than 37,000 students. The campus' School of Global and International Studies is the hub for international activity and has helped foster extensive student engagement in international studies. IUPUI also enjoys strong student engagement through offering 20 degree and certificate programs in international areas enrolling more than 6,700 students.

Priority 6: Health Sciences Research and Education to Improve the State's Health

The State Leader: IU is the state's largest and most important center for health sciences education and research with highly ranked programs in medicine (offered in Indianapolis and eight Centers for Medical Education), nursing, dentistry, public health, optometry, speech and hearing, social work and health and rehabilitation sciences. IU alumni dominate practicing health care professionals in communities throughout the state. In addition, as the one of the nation's leading public research universities, IU has made major investments in research designed to establish new protocols for the prevention, treatment, control and cure of disease, pain and suffering. Finally, the university's impact is tremendously amplified through its close partnership with IU Health, the largest hospital and health care system in Indiana, serving tens of thousands of patients each year, and home to numerous nationally prominent specialty practices.

Grand Challenges Initiative Addressing Opioid Addiction: Indiana is one of four states where the fatal drug overdose rate has more than quadrupled since 1999. According to the IU Richard M. Fairbanks School of Public Health, the total cost of drug overdoses in Indiana tops \$1 billion annually, measured in medical expenses and lifetime earnings losses. In light of these concerns, Gov. Eric Holcomb announced "**A Strategic Approach to Addressing Substance Abuse in Indiana**" in January 2017. This plan calls for a "data-driven system focused on substance abuse prevention, early intervention, treatment, recovery and enforcement" to reduce the prevalence of substance use disorder and help those with substance abuse disorder to recover. Responding to the call for action, Indiana University President Michael A. McRobbie announced in fall 2017 that "Responding to the Addictions Crisis," IU's third Grand Challenges initiative, would focus the University's unique resources on addressing the crisis.

This initiative is the nation's largest and most comprehensive state-based response to the opioid addictions crisis, and the largest led by a university. It's a unique partnership that stretches across all sectors -- a research university, state government, the health care industry, communities, nongovernmental organizations, other business, and nonprofits. With an investment of \$50 million over five years, the initiative will meet three goals: 1. reducing the incidence of substance use disorders; 2. decreasing opioid deaths; and 3. decreasing the number of babies born with neonatal abstinence syndrome.

Clinical and Translational Science Institute: The Indiana Clinical and Translational Science Institute (CTSI) is primarily funded with a prestigious \$33 million National Institutes of Health grant but also funded by the state as a special line item. While IU is the grant recipient, Purdue

University and the University of Notre Dame are partner research institutions. The goal of CTSI is to translate basis scientific research to the bedside in the form of new medical treatments. More detailed information about CTSI is found in the line items section of IU's biennial request document.

Evansville Multi-Institutional Academic Health Science Education and Research Center: This unique collaboration between the state of Indiana, the city of Evansville, community leaders, area hospitals, and higher education institutions will celebrate the opening of the new Stone Family Center for Health Sciences, a 145,000 square foot facility in downtown Evansville in summer 2018. The IU School of Medicine's regional medical education program will be housed in the facility along with health science programs offered by the University of Southern Indiana and the University of Evansville. This partnership will help ensure that adequate number of health care workers will be available to the citizens of the Evansville area.

Bloomington Health Initiative: Construction is underway on the new IU Health Regional Academic Health Center on the Bloomington campus that will, in addition to providing quality patient care, educate the next generation of health professionals. The new Center will have two components, a new **IU Health Bloomington Hospital** and the new **Indiana University Academic Health Sciences Building** (funded with Big Ten Network revenue) and will bring together the extensive academic health science programs on the Bloomington campus including the Medical Sciences Program, nursing, social work, optometry, public health, and speech and hearing. In addition, the IU School of Dentistry will begin a new program in the center. The colocation of these programs into the new IU Academic Health Sciences Building will enable a major increase in the number of students enrolled, thus helping to address the shortage of healthcare workers in the state. Colocation will also enable the various academic programs to fully participate in inter-professional health sciences education activities permitting students from various health science disciplines train together in the same way that they will work together when they begin to practice their professions.

Priority 7: Building a Prosperous and Innovative Indiana

An Innovative University: IU is engaged statewide in fostering economic development by employing IU's considerable expertise in multiple areas statewide. IU's economic engagement enterprise is focused on fostering innovation, developing talent, and enhancing quality of place. In 2017, IU was ranked among the most innovative universities in the world by Reuters Top 100: The World's Most Innovative Universities - 27th worldwide, 19th among U.S. universities and 1st among universities in the state of Indiana.

Technology Transfer: Technology transfer involves bringing to market new medical treatments, products, and services developed through scientific research. Innovation and commercialization managers work with researchers who have developed intellectual property with commercialization potential and assist with applications for patent protection on disclosed inventions. They also market and license the patented- and patent-pending inventions to industry. Technology transfer metrics are found in the "IU Fact Sheet".

The IU Research and Technology Corp. (IURTC) was named Tech Transfer Unit of the Year by Global University Venturing (GUV), an analytics organization that tracks university startups and funds created to invest in university startups. GUV cited IURTC's record of starting and growing successful businesses, its reorganization and collaboration with the university's Office of the Vice President for Research, and the creation of the IU Philanthropic Venture Fund (discussed below) as key to earning the top spot.

Examples of Recent Initiatives:

- Leaders at IU and Naval Surface Warfare Center, Crane Division (NSWC Crane) have renewed a partnership which provides NSWC Crane with an avenue to move innovative technology through the commercialization pipeline with a goal of increasing the number of licensing and startup deals for both Crane and IU. IU is also participating in the Indiana Innovation Institute, a collaboration between NSWC Crane, IU, Purdue and the University of Notre Dame. The Institute was created to enable NSWC Crane and its university partners pursue large grants and contracts and help southwest central Indiana further develop its research and technology economy.
- IU is participating in development of both 16 Tech and the Indiana Biosciences Research Institute (IBRI). Proximate to IUPUI, 16 Tech is a 60-acre urban innovation community where companies, startups, and entrepreneurs in tech, bioscience and advanced engineering can connect, collaborate and innovate together. IBRI is the anchor tenant of 16 Tech, a \$360 million initiative led by the private sector and partially funded by the state, which is bringing together leading biosciences experts across disciplines to develop innovative solutions to metabolic disease. IU's expertise in life sciences and information technology enhances opportunities presented by 16 Tech and the IBRI.
- The IU Philanthropic Venture Fund is a newly created evergreen fund managed by the Indiana University Research and Technology Corp. and is designed to provide early stage capital to faculty, students and staff at all IU campuses to help further develop their research and innovations into startup companies. It is initially capitalized with non-state funds at \$15 million but has the potential to reach \$50 million or more, primarily through gifts to the university.

The Unique Mission of IU's Regional Campuses: IU's regional campuses are recommitting to their missions to serve the communities in their region with the goal that they be the "first-choice institutions" for Hoosier students who are looking for a close-to-home, flexible education with access to the resources of a major public university. Students attending regional campuses tend to be from, stay in, and contribute to the economic well-being the regional campus service region. In addition, the campuses are committed to be engaged with and support development of the communities they serve by:

- Partnering with regional governments, schools, health care organization and businesses to address critical state and regional needs, including economic development
- Offering certificate, undergraduate and graduate academic programs that support adult learners and fill regional development needs
- Supporting faculty research and service directed to regional needs

- Connecting students to employment opportunities and partnering with businesses to do so

Priority 8: Towards a Culture of Building and Making

IU Architecture Degree Program: Beginning in fall, 2018, IU's Bloomington campus will offer a new Master of Architecture degree program based in the campus's new School of Art and Design. The program will have its primary focus in Columbus, Indiana, an internationally recognized center for architecture, with courses also offered on the IU Bloomington campus.

Intelligent Systems Engineering Program: IU began offering degrees in intelligent systems engineering with the 2016-17 academic year at the Bloomington campus, in response to demands for these skills from major south central and southwest Indiana employers. The new program takes advantage of the campus's longstanding strengths in the sciences and technology and prepares students for the high-demand jobs of the future while supporting Indiana's entrepreneurial culture and economic competitiveness. During the 2017-18 academic year, 60 students were enrolled in undergraduate programs while 40 students were enrolled in graduate programs.

IUPUI Manufacturing Research Center: This new center's primary goal is to develop executive talent ready to lead manufacturing enterprises by focusing on providing strategic and leadership training for Kelley Evening MBA and undergraduate students. Instrumental in the center's founding is a \$1 million gift from a Kelley alumnus and a \$75,000 grant from the National Association of Manufacturers.

Section 1 Special State Appropriations

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**INDIANA UNIVERSITY
2019-2021 OPERATING APPROPRIATION REQUEST**

Summary of Proposed Requests							
	FY2018-19	FY2019-20		FY2020-21			
	Appropriation	Amount Change	Percent Change	Amount	Amount Change	Percent Change	Amount
Existing Line Items							
Clinical and Translational Science Institute	\$ 2,500,000	\$ 62,500	2.5%	\$ 2,562,500	\$ 64,063	2.5%	\$ 2,626,563
Dual Credit*	\$ 2,620,300	////////////////////////////////////					
Global Network Operations Center (formerly known as Abilene)	\$ 721,861	\$ 18,047	2.5%	\$ 739,908	\$ 18,497	2.5%	\$ 758,405
Indiana Advisory Commission on Intergovernmental Relations	\$ -	\$ 150,000		\$ 150,000	\$ -	0.0%	\$ 150,000
Indiana Geological Survey	\$ 2,783,782	\$ 69,595	2.5%	\$ 2,853,377	\$ 71,334	2.5%	\$ 2,924,711
Indiana GigaPOP Operations	\$ 672,562	\$ 16,813	2.5%	\$ 689,375	\$ 17,235	2.5%	\$ 706,610
Indiana Institute for Disability and Community	\$ 2,105,824	\$ 52,646	2.5%	\$ 2,158,470	\$ 53,961	2.5%	\$ 2,212,431
I-Light Network	\$ 1,508,628	\$ 37,717	2.5%	\$ 1,546,345	\$ 38,655	2.5%	\$ 1,585,000
IU Spinal Cord/Head Injury Research Center	\$ 553,429	\$ 13,836	2.5%	\$ 567,265	\$ 14,182	2.5%	\$ 581,447
Existing Line Items Total	\$ 13,466,386	\$ 421,154		\$ 11,267,240	\$ 277,927		\$ 11,545,167

*Calculation based on per credit hour formula

	FY2019-20			FY2020-21		
	Amount Change	Percent Change	Amount	Amount Change	Percent Change	Amount
New Line Items						
Regional Community Engagement			\$ 1,250,000	\$ -	0.0%	\$ 1,250,000
Rural Engagement			\$ 1,250,000	\$ -	0.0%	\$ 1,250,000
New Line Items Total			\$ 2,500,000	\$ -		\$ 2,500,000

IU Center for Rural Engagement

Origins and Purpose of the Program

Indiana University Bloomington started the Center for Rural Engagement (CRE) in March, 2018. Its mission is to connect the university's research, teaching, and service directly with rural Hoosiers and small regional cities. Its goal is to work in partnership with those citizens, their governments, and the other nonprofits and businesses that serve them to improve the lives and communities of the more than 1.4 million Hoosiers who live in rural areas.

The CRE resulted from the *Strategic Plan for Economic and Community Prosperity in Southwest Central Indiana* and a substantial initial investment by Lilly Endowment Inc. The CRE leverages Indiana's investment in Indiana University Bloomington (IUB), which has transformed the lives of Indiana citizens and the state for nearly 200 years, and it will create a replicable and scalable model for a public research university to partner with, serve, and welcome its rural neighbors.

How the Program Serves Indiana

The rural communities of Indiana, like those of the nation, face a variety of challenges that may include flat or declining populations and decreasing tax revenues; lower rates of post-secondary enrollment and graduation; shifting employment opportunities; and worse health outcomes than many urban areas. Access to transportation, childcare, healthy food, affordable housing, and the internet may also be more difficult. The state of Indiana has just released its Strategic Plan for Rural Indiana, and the work of the CRE closely aligns with many of its goals. The CRE will work with local governments, public and private agencies, school districts, businesses, faith-based groups, and citizens working in their communities. The CRE is collaborating with IU's Grand Challenges program and its research-based focus on environmental change and the addictions crisis; the Clinical and Translational Science Institute; the Indiana Geological and Water Survey; as well as Purdue University and its long-established work around agriculture and community development.

The CRE will benefit the students, faculty and staff of the university by connecting them with the many assets of Indiana's rural communities. Benefits to the communities will include new opportunities to engage with Indiana University as a community partner; access to university resources, faculty expertise, and the creative energy of students; innovative, low cost assistance customized to local needs; human and leadership capacity development to sustain and improve local prosperity; talent recruitment and retention through relationship building; and data, plans, and strategies that can lead to success with competitive grants and acquiring funding.

Initiatives & Accomplishments for the Current Biennium

The Center for Rural Engagement identifies community needs and opportunities in areas of health, education, sustainability, quality of place, and capacity building, areas chosen based on community input and to complement existing rural development initiatives that already exist in Indiana, particularly at Purdue and Ball State Universities. In its first few months of existence, the CRE has already engaged in significant work with communities:

- I. **Sustaining Hoosier Communities (SHC)** Based on a national model of community engagement used by more than 35 universities, the SHC program matches community identified projects with IUB faculty committed to using those opportunities as the backbone of their classes. In the 2017-18 academic year pilot, more than 550 students in 15 courses collaborated with Bedford, Mitchell and Lawrence County partners to complete projects including the following:

Tourism and Recreation	Healthy Communities
Light sensors developed by IU professor deployed by students in order to pursue Dark Sky designation for parts of Hoosier National Forest.	Law and social work students researched and analyzed social and legal issues of drug use, abuse and addictions and impacts on families and individuals in Lawrence County.
Students studied and proposed new uses for decommissioned Avoca Fish Hatchery which is being transferred from DNR to the Lawrence County community.	In collaboration with Live Well Lawrence County, students in human biology and public health developed physical activity goals and tests using the Gus Grissom Trail.
Capacity Building and Development	Quality of Place
Students assessed the feasibility of adjusting the current route of Highway 50 away from downtown Bedford square, the impacts of an alternate corridor and the potential for business development in the downtown area.	Students from the School of Art, Architecture, and Design, learned about the community identities of both Bedford and Mitchell and presented city entrance gateway designs for each community to reflect their unique attributes.
Class teams researched walkable and bicycle-friendly communities and local planning efforts in Bedford; made recommendations for a complete streets policy. Such a policy was later adopted by Bedford City Council.	In partnership with stakeholders from Bedford North Lawrence Schools, students developed a civics and personal financial health curriculum for middle school students at Bedford Middle School.

Sustaining Hoosier Communities will partner with Orange County for the 2018-19 academic year, with the following projects set to kick off with the fall semester:

Tourism and Recreation	Healthy Communities
<ul style="list-style-type: none"> ○ Dark Sky designation planning using sensors and GIS mapping. ○ Solar eclipse readiness public education campaigns. ○ Paoli Plays: Reimagining community playgrounds as intergenerational spaces using accessible design and public art. 	<ul style="list-style-type: none"> ○ Impacts of opioid addiction on jail services in Orange County and stigma reduction around provision of mental health and addictions services. ○ Community health promotion through blood-pressure screening and flu-shot clinics. ○ Prenatal and postpartum health support for young moms.
Capacity Building and Development	Quality of Place
<ul style="list-style-type: none"> ○ Creating programs to build the public relations, branding, social media, and technical savvy of local area non-profits and health providers to develop efficiencies in internal processes, and improve external communications to their constituents. ○ Research tax base and revenue forecasting to provide information for school systems. 	<ul style="list-style-type: none"> ○ Designing accessible, tech/tele-med equipped tiny homes for cooperative aging in place communities. ○ Rural history of Orange County to trace the county's development from its founding using archives and oral histories. ○ Rural studio model for low-cost, innovative and sustainable architectural designs.

II. IU Corps

IU Corps uses the power of more than 40,000 IU students through a newly created network to bring together service and volunteer work from local to global locations. In rural areas, IU Corps will connect students, faculty and staff to Hoosier communities. From spring 2010 to spring 2018, our students provided more than 300,000 hours of community engagement through service-learning classes alone, providing over \$7 million in services to a large number of communities.

III. Faculty-led Projects

Faculty from across university disciplines have proposed a variety of projects involving research and programming in rural communities. Illustrative upcoming projects include but are not limited to:

Community Health Improvement Plans (CHIPs) Pilot Project: School of Public Health faculty will work with Martin, Daviess, Orange and Lawrence Counties to develop health implementation plans and a planning process model for rural communities.

Aging in Place: School of Informatics, Computing and Engineering faculty are investigating and implementing technologies that would support the healthy, independent living of older adults in rural areas.

IUB Rural Arts Outreach: In partnership with local communities and the Mellon Foundation, the CRE is developing arts programming and capacity building workshops designed for rural counties.

Trails and Public Land Assessment: The Eppley Institute for Parks and Public Lands, housed in the School of Public Health, will work with southwest central Indiana communities on a regional assessment of trails, parks, and public land.

Food System Networking: Faculty from the School of Public Health will lead planning for a regional food system including aggregation and distribution points for institutional buyers.

IV. Community Collaborations to Access Funding

IU-Ready Schools Distance Learning Collaborative: The CRE partnered with ROI to apply for a USDA rural development grant for distance education equipment. The proposal would bring advanced technology and innovative curriculum designed by IU to four middle and high school classroom sites in Brown County and Loogootee Community Schools.

Program Goals for the 2019-21 Biennium

The CRE plans to continue its mission and expand its reach to match faculty researchers, data support, teaching and classes, and student volunteers to the needs and opportunities identified by communities in health, community resilience and the arts. It will also convene events to bring stakeholders together on issues of regional and statewide importance, bring administrative expertise in areas like learning technology into communities and schools, and look for ways to harness the purchasing power of the university to support regional suppliers. Working with school, community, regional, and state partners, the CRE will help to address the challenges and opportunities of the region's K–12 schools, from curriculum design to college awareness and readiness to professional development for teachers and school staff. The CRE will also support workforce and economic development efforts in Indiana.

2019-21 Biennial Operating Appropriation Request

Indiana University requests a \$1.25 million for each fiscal year of the biennium.

Regional Campus Community Engagement

Introduction

On issues ranging from economic development to support for teachers and the schools to regional planning to community health and more, the IU regional campuses work with a wide range of local and regional stakeholders to identify problems, reciprocally explore potential solutions, and test those solutions. Currently, the regional campuses (Kokomo, East, South Bend, Southeast and Northwest) serve 52 counties in Indiana. With a network of well-supported and campus-based community engagement centers, the IU regional campuses will increase economic development and assist the state with a more highly-educated workforce, consistent with Governor Holcomb's "Next Level Jobs Plan".

Background: The Regional Campuses of Indiana University as Stewards of Place

From their earliest days, the Regional Campuses of Indiana University have proudly served in their role as, what the American Association of State Colleges and Universities (AASCU), calls "stewards of place." Public universities, as stewards of place, answer the call from their public and private community partners to mutually take advantage of opportunities and confront challenges common to all. On issues ranging from economic development to support for teachers and the schools to regional planning to community health and more, the IU regional campuses have worked with a wide range of local and regional stakeholders to identify problems, reciprocally explore potential solutions, and test those solutions. Currently, the regional campuses (Kokomo, East, South Bend, Southeast and Northwest) serve 52 counties in Indiana. The faculty and staff of each of these campuses are working in the communities they serve in collaboration with mayors, school corporation superintendents, economic development directors, chamber presidents, non-profit organizations, etc. to combine leadership, knowledge, and expertise for building a prosperous and innovative Indiana.

This proposal focuses on addressing the college participation (college-going) rate in the state of Indiana and its impact on workforce and economic development. The locus of responsibility will be community engagement centers, housed on each of the five regional campuses and coordinated by the Office of University Academic Affairs.

Economic Growth

One of the five pillars in Governor Holcomb's 2018 Next Level Agenda is to develop a 21st Century skilled and ready workforce with the following guiding principles:

- Provide every Hoosier child an effective baseline education infused with skills and attributes that prepare them for life after high school;
- Ensure students graduate from high school set on a pathway that prepares them for college, career training or a quality job; and

- Connect working-age adults to education and training that leads them directly to employment aligned with industry needs. This sets the framework for local governments and communities to assist the state to determine resource needs and operationalizing solutions to accomplish these goals.

IU's regional campuses are well-suited and well-situated (structurally, geographically and culturally) to support local communities and the state to accomplish the goals outlined in the Next Level Jobs Plan. The academic and physical infrastructure at IU's regional campuses is available and is frequently used to support K-12 programming, partnerships with the local school district superintendents and principals are in place, hosting community engagement and government related events, provide IU students with experience-based learning opportunities by partnering with local businesses, and the regional campus leadership is deeply imbedded in their local communities. The requested funding will be used to increase partnerships with local business, programming with K-12 school districts, and increase economic development activities in the communities served which will further help the state.

The State's Educational Attainment Level

The national college participation rate has increased steadily over the past three decades, as has Indiana's. While the Indiana Commission for Higher Education (ICHE) reports that Indiana's rate is 65%, the state ranks 34th in the nation, placing it at a significant economic disadvantage compared to other states in the Midwest such as Michigan and Kentucky, which are ranked 15th and 17th respectively.

According to ICHE's 2017 College Readiness Dashboard, southeastern, north central, northwestern, and eastern parts of Indiana have significantly lower college participation rates than the rest of Indiana. Furthermore, ICHE data show that these regions are among the most economically depressed in the state. According to the Federal Reserve, one of the greatest barriers facing low and middle income high school graduates is the belief that a college degree, and the investment of time and resources that it requires, is not worth the risk. (Source: St. Louis Federal Reserve, 2013) In addressing education's responsibilities, IU President Michael McRobbie has noted that, "Simply asking high schools to deliver good students to our campuses will no longer be enough. Furthermore, we must convince them that it is all of our responsibility to ensure that more low-income, first-generation, and minority students realize the benefits of a college degree, which in turn, can generate greater economic mobility and a stronger state workforce." This is a cultural challenge that the IU regional campuses are uniquely suited to address.

Project Goal and Proposed Scope of Activities

All of the IU regional campuses have strong working relationships with their regional school districts, local businesses, and philanthropic institutions. This project, however, will be a coordinated effort on the part of all five campuses to use these strong working relations in

order to enhance their regional economies in significantly large way than is currently possible. Such an investment by the state aims to have the following additional outcomes:

- Increased median incomes in our service regions,
- Increased post-secondary engagement,
- Established and recognized community engagement centers on each regional campus,
- Enhanced job placement for graduates,
- Increased entrepreneurial activity and investment in the regions, and
- Increased ability to attract new talent to the regions.

The \$1,250,000 funding requested will be distributed evenly across the five IU regional campuses, \$250,000 each, and will be used for the following activities;

- Forge new, and enhance existing partnerships with local industry, chambers of commerce, and other entities to increase training, work, and experience-based learning opportunities
- Provide academic programming and incentives for K-12 students, e.g. math and reading programs,
- Increase K-12 visits to IU's campuses to introduce students to college and emphasize to them the importance of understanding all career pathways as well as helping them to choose the best pathway for them,
- Increase parental and family outreach, and encourage enrollment in 529 plans, and
- Support local community events, fairs, boards of art, and other cultural organizations to promote economic development and service to the community.

Clinical and Translational Sciences Institute

Origins and Purpose of the Program

The Indiana Clinical and Translational Sciences Institute (CTSI), established in 2008 as part of the NIH 50+ member consortium, is a statewide institute created to significantly enhance and coordinate the biomedical research infrastructure in Indiana with the primary goal of translating biomedical research discoveries in Indiana to new medical treatments to improve health outcomes. The Indiana CTSI provides a statewide laboratory to experiment with innovative methods aimed at transforming life sciences research with the vision of helping Indiana become one of the nation's healthiest states. The Indiana CTSI, which just received its third award from NIH bringing total funding to \$94M, is led by the major health science schools at Indiana University (IU), with its two research campuses (Indianapolis – IUPUI; Bloomington - IUB), Purdue University (PU), and the University of Notre Dame (ND).

How the program Serves Indiana

The Indiana CTSI provides an integrated home for clinical and translational research that creates a statewide infrastructure to provide resources, services, and training to conduct research dedicated to improving the health and economy of Indiana. All state residents benefit from the discovery and adoption of biomedical discoveries that promote health, prevent disease, support early diagnosis, and provide effective interventions efficiently

Initiatives & Accomplishments during the Current Biennium

Indiana CTSI production metrics:

- Bringing research money to Indiana
 - \$31M for Federal grants directly to the CTSI
 - \$220M of Federally funded programs supported by the CTSI
 - \$83M of Industry clinical contracts supported by the CTSI
- Creating jobs in Indiana
 - 133 FTE supported by the CTSI and its various programs
- Developing a successful startup incubator in Indianapolis
 - 14 Companies
 - \$7M in Federal SBIR and \$7.5M in Venture funding brought to Indianapolis
 - Approximately 40 biotech jobs
- Providing individual research teams access to research equipment
 - 58 CTSI designated cores across all three partner institutions
 - Over \$750K in awards given to investigators to access core/research equipment services leading to nearly \$125M in new funding to support research

Indiana CTSI Case Studies:

Reducing infant mortality in central Indiana: Indiana CTSI supported IU School of Medicine professor Debra Litzelman, who launched the WeCare Indiana program in 2016 to reduce infant mortality and poor birth outcomes in central Indiana. The program has built a network of community health workers trained to connect mothers and mothers-to-be with local health resources such as smoking cessation programs, food banks and safe sleeping environments. Now in its third year, WeCare has engaged more than 1,500 mothers and mothers-to-be so far and has begun training fathers, emergency responders and opiate-addicted mothers. The program has received additional funding from the Indiana State Department of Health, IU's Addictions Grand Challenge and the Richard M. Fairbanks Foundation.

Keeping kids safe from lead poisoning in South Bend: Lead levels were recently discovered to be extremely high in children living in downtown South Bend - in some cases the levels were five times higher than those reported from Flint, Michigan. Leaded paint is a major source of lead exposure to toddlers, who often chew painted surfaces, eat paint chips, or lick leaded paint dust from their hands. The problem extends across the U.S., so finding leaded paint in spaces occupied by small children is important for controlling and mitigating lead exposure. Commercially available home screening tests are expensive and show false positive or negative results with dark paint colors. University of Notre Dame staff and students, supported by the Indiana CTSI and the City of South Bend, are working together to develop and validate a quick field test for leaded paint that works on any paint color and costs less than \$1.

Creating rapid screening technology for deadly opioids: Dirty fentanyl is a synthetic opioid that is one of the most dangerous substances in the nation. Because of its small size, fentanyl is one of the easiest opioids to smuggle, however, that also makes it difficult for drug dealers to guess how to dilute the drug. In Indiana, nearly half of the overdose deaths in Marion County are connected to fentanyl exposure. The Indiana CTSI supported a team of researchers at Purdue University, the University of Notre Dame and Indiana University-Purdue University Indianapolis, to develop a paper card device that may be used by first responders and law enforcement officers to test street drugs for the presence of substances such as fentanyl and other dangerous opiates. The researchers are working with the Marion County Coroner's Office to validate the accuracy of the device against toxicology reports. The card device would be an inexpensive and practical way to help save lives from this epidemic.

Curing a crippling bone disease in children: Indiana CTSI-supported research led by two IU School of Medicine faculty members has culminated in U.S. Food and Drug Administration approval of a new drug for patients with an uncommon, painful and deforming bone disease. The drug, burosumab, treats X-linked hypophosphatemia, or XLH. After three decades of bench to bedside research, it was brought to market in the U.S. and Europe in 2018. The first-ever human dose of burosumab was administered by an Indiana CTSI Clinical Research Center (CRC) nurse in January, 2009. CRC staff conducted study procedures for all clinic study visits associated with the Phase I – III studies (eight studies total), which included 46 patients (aged 1

year to 70 years) and 822 total study visits, and the CRC continues to support this important work with an upcoming Phase IV study.

Program Goals for the 2019-21 Biennium

The Indiana CTSI plans initiatives to start, expand, or enhance program services in the following areas over the next biennium:

- The Indiana CTSI is partnering with community organizations and agencies of the Indiana state government to develop and implement health interventions to address critical health issues, such as the addictions crisis, in targeted communities with the goal of improving health measures in those communities.
- The Indiana CTSI will further streamline support process for clinical and translational research will continue to minimize delays to and costs for the conduct of research and to support more efficient movement of discoveries into medical practice to improve health outcomes.
- The Indiana CTSI will build on the extensive partnerships with businesses to provide experiential learning opportunities to expand the research workforce to conduct efficient, high-quality health research.

2019-21 Biennial Operating Appropriation Request

Indiana University requests a 2.5% increase for each fiscal year of the biennium. This increase will be used to cover increased staffing and operational costs.

Spinal Cord and Head Injury Research

Origins and Purpose of the Program

The Spinal Cord and Head Injury Research Center is administered by the Department of Neurological Surgery of the IU School of Medicine. The program collaborates with the Purdue Veterinary School Center for Paralysis Research. The two Centers have expanded their ongoing collaborations in recent years with the addition of new researchers and projects.

How the Program Serves Indiana

The program supports basic, translational, and clinical research programs in spinal cord and head injury, which advances knowledge of the fundamental mechanisms of injury and recovery as well as explores potential new therapeutic and recovery strategies for Hoosiers who have suffered traumatic brain and/or spinal cord injury. With approximately 20,000 documented traumatic injuries occurring in Indiana per year, new approaches to prevention, mitigation, and rehabilitation leveraged through research efforts of the program are critical. Furthermore, the IU School of Medicine (IUSM) has gained a national reputation as a premiere center of excellence for brain injury and concussion research and treatment and, as the only academic medical center in the state, is vital to the health of its citizens.

Initiatives & Accomplishments for the Current Biennium

Major program accomplishments include:

- **Infrastructure and Leadership:** Indiana University Health (IUH) and Indiana University (IU) have established a groundbreaking Neuroscience Center. The center is a two-building complex housing outpatient clinics and faculty for the Departments of Neurology, Neurological Surgery, Psychiatry, Otolaryngology, Radiology, and Physical Medicine & Rehabilitation and a unique translational laboratory with novel design features specifically purposed for neurotrauma research. Nicholas Barbaro, MD, the Chair of the Department of Neurological Surgery also serves as Medical Director of the Neuroscience Center. Bruce Lamb, PhD, an internationally recognized researcher in both neurodegenerative disorders and neurotrauma mechanisms is the Executive Director of the Stark Neurosciences Research Institute (SNRI), the lead unit in the research building. The Spinal Cord and Brain Injury Research Group in the SNRI headed by Xiao-Ming Xu, MD, PhD leads basic and translational research efforts in traumatic spinal cord and brain injuries. The Group has received multiple grants from the NIH, DOD, VA and private foundations and has published over 60 peer-reviewed research articles. Finally, Tom McAllister, MD, Chair of the Department of Psychiatry, is an international expert in research and treatment of concussion and has secured major research funding in this high-profile issue in team sports.

- **Clinical Program Update:** The Neurological Surgery Group heads the clinical research effort in neurotrauma. The group is now involved in TRACK-TBI, a National Institutes of Health (NIH) funded multisite study in TBI as well as a Department of Defense clinical trial evaluating the use of hypothermia in spinal cord injury. Collaborators with the IU Departments of Orthopaedics and Anesthesia along with the SNRI are partnering with industry in multiple trauma related studies. In partnership with Biomedical Engineering at Purdue, clinicians are also exploring potential therapeutic applications in patients with a variety of brain and spinal cord disorders.
- **Basic and Translational Research Update:**
 - The IU **Spinal Cord and Brain Injury Research Group (ISCBIRG)** is composed of about 20 Core and Associate Members whose major research interests are on traumatic spinal cord and brain injury research. The ISCBIRG is an integrated part of the **Stark Neurosciences Research Institute (SNRI)**. The Center has been very successful in terms of new discoveries, new publications and new grant awards received from federal and private foundations in the last biennium. The Group's long-term goal is to be successful as a national leader in spinal cord and brain injury research, to make significant scientific discoveries and to translate these discoveries to benefit people with these detrimental diseases.
- **Return on Investment:**
 - With state support, our Group has made significant progress in research and education. We have established ISCBIRG Research Forums and have continued Core Member meetings to discuss key issues related to the Center's development and to stimulate new ideas and directions for research. We have organized the first IU-PU Joint Symposium on Spinal Cord and Brain Injury Research to enhance regional collaborations between the two universities in 2017, which will become an annual event. We have successfully received numerous new grant awards and published many important scientific papers, indicative of continued growth. We have trained numerous students and postdocs at all levels.

Program Goals for the 2019-21 Biennium

- **Basic and Translational Science:** Maintenance of critical core facilities (e.g. Rodent Surgical Core, Behavioral Core, Imaging Core, Electrophysiological Core, and Histology Core) utilized by all investigators in the center. Support will include personnel, supplies, and salary support for investigators directing these cores. Support Annual Joint Symposium between IU and Purdue University on Spinal Cord and Brain Injury Research.
- **Clinical Research Program:** Continued growth and advancement of current clinical research structure including 24-hour availability of research staff. Philanthropic and research funding has recently allowed for an investment in advanced neuromonitoring

that will allow for improvements in clinical care and position the site for selection in upcoming NIH trials for TBI.

- Education: Continued increase in the number of IUSM students and resident trainees involved in research on brain and spinal cord injury. A recently authorized increase in the number of neurosurgical residents in the program reflects the strong clinical and educational environment. In addition, a relatively large number of IU School of Medicine students enter the field of neurosurgery each year. All of these trainees are encouraged to work in research laboratories. Also planned is an advanced graduate level elective course in neurotrauma and concussion.

2019-21 Biennial Operating Appropriation Request

Indiana University requests a 2.5% increase for each fiscal year of the biennium. This increase will be used to cover increased staffing and operational costs.

IU Dual Credit

Origins and Purpose of the Program

Indiana University's dual credit program, the Advance College Project (ACP), established in 1982, collaborates with 200 high schools and 900+ teachers, and will enroll 22,000 across 70 Indiana counties during the 2018-2019 academic year. IU anticipates continued during the FY 2019-2021 biennium. According to ICHE data, Indiana University is currently the second largest dual credit provider and the relative footprint increases when considering Priority and Liberal Arts courses (which correspond to the HLC credential challenge). The Higher Learning Commission (HLC) requires that all dual credit instructors, teaching "general education" courses must possess a Master's degree, with at least 18 hours of graduate coursework in the discipline of instruction by 2022. More than 2,000 dual credit instructors across the state do not currently meet the HLC requirements. IU's Dual Credit Teacher Graduate Pipeline project is intended to expand this partnership to every Indiana public high school and, and provide the graduate coursework necessary to ensure that all IU dual credit teachers offering courses on *and after* Sept 1, 2022, are eligible, trained, supported, and delivering the highest quality course.

The ACP program is nationally recognized for quality and a hallmark of best practice. ACP staff currently serve the National Alliance of Concurrent Enrollment Partnerships (NACEP) as Board President, Institutional Representative, Accreditation Team Member and Vice-Chair. IU is committed to quality and has effectively maintained a focus on highest standards during program growth. There is strong institutional support for dual credit and IU has a robust and efficient institutional infrastructure. The ACP program is managed centrally from the Bloomington campus, in order to guarantee consistency in course delivery, content, rigor, grading and student evaluation. Faculty from Bloomington and IU's regional campuses are involved in teacher support, oversight, and instructor development.

All ACP high school instructors receive extended discipline-specific training led by the course-specific faculty liaison. Course-specific training seminars are held centrally on the IU Bloomington campus and are *two to five days* in duration (varies per course), and cover: curriculum, course philosophy, instructional strategies, syllabus construction, academic policies, general education, how the course articulates with other courses in the discipline, and IU policies on academic misconduct. The trainings are *intense workshops focused primarily on course and disciplinary elements*; administrative orientation during these sessions (IU systems, grading, learning management systems, etc.) and ACP procedures is a very small portion of the preparation experience.

In addition to initial training, Indiana University provides annual professional development seminars that provide faculty and instructors with an opportunity to discuss questions or problems, including: updates to course content, discussion of emerging pedagogy; relevant research in the field; content materials/labs; exam review and calibration; class observations;

interaction with other university faculty; faculty panel discussions; presentations by textbook authors; and development/refinement of exams.

Statutory Authority

Statutory authority, if any Along with ICHE, the Indiana General Assembly has encouraged dual credit offerings through statutory provisions:

Indiana Code requires public secondary schools to offer at least two (2) dual credit courses (20-30-10), and

Indiana Code authorizes Indiana University to establish dual credit programs through the *eligible institutions* and *program* parameters outlined in I.C. 21-43-1-2.5 through 21-43-1-10.

Other history related to the establishment of the program

The Advance College Project has delivered dual credit courses since 1982 through collaboration between Indiana University and high schools in Indiana, Michigan, and Ohio. The program selects and trains eligible teachers to provide regular IU courses in the high school setting. The ACP program offers 29 IU courses in 15 academic departments.

There are currently more than 200 secondary schools (public and non-public) offering one or more ACP course in their high school curriculum.

How the Program Serves Indiana

1. The program's appropriation supports direct instruction of college courses to high school students prior to matriculation on a postsecondary campus. This activity includes: instructor selection, training and oversight; curriculum development; student assessment, recruitment, enrollment, transcription; and necessary administrative support.
2. Dual credit coursework is beneficial to high schools because it allows them to meet state curricular obligations, such as the two course requirement and the honors diploma requirements. It also increases school and corporation letter grades under the APR accountability system. Further, dual credit allows schools to better align their upper division curriculum with postsecondary expectations, better preparing students who choose to attend higher education to succeed. Dual credit is beneficial to students and families. Students may use dual credit courses to satisfy Academic Honors Diploma (AHD) requirements (the AHD is the minimum diploma level for selective colleges and universities). Additionally, students may accumulate college credits prior to matriculation, at a fraction of the regular tuition cost, which represents both real savings in costs per credit, but potential savings if a shorter time-to-degree is realized. And even if time-to-degree is not necessarily shorter, the

extra credits earned in high school through dual credit allows students to participate in experiential opportunities such as study abroad or internships that grow their resumes and workforce preparation. Students also benefit significantly by early introduction to college rigor and expectations.

3. Finally, dual credit courses are a component of state and federal initiatives involving college and career readiness, and are a considerable part of the state effort to increase degree completion (both on-time, and overall percent of population).

Initiatives & Accomplishments for the Current Biennium

1. New initiatives:
 - a. IU launched the IU Dual Credit Graduate Course Pipeline, providing free graduate courses to ACP teachers in key disciplines (Math, English, History, Chemistry, Biology, Political Science, and Speech). This initiative will allow ACP instructors to meet the HLC credentialing requirement, and is funded in part by the CHE's STEWM Teach grant.
 - b. ACP partnered with the DOE to expand access to Graduate Pipeline Courses to dual credit instructors working with all Indiana dual credit providers.

2. Data on number of units of service:

- a. FY 2017-18

Students	Credits
16787	85034

- b. FY 2018-19

Students	Credits
21000	111300

Program Goals for the 2019-21 Biennium

1. Continued expansion of the Pipeline Project (providing graduate courses to dual credit teachers), with a special emphasis on offering dual credit STEM courses in every high school by 2022
2. Continue to provide quality and enhanced services to dual credit students

2019-21 Biennial Operating Appropriation Request

IU requests continued funding by the state in the amount of \$50 per credit hour in return for the university limiting tuition to no more than \$25 per credit hour.

Indiana Geological and Water Survey

Origins and Purpose of the Program

The Indiana Geological and Water Survey (IGWS) is codified in statute IC 21-47-2 as an institute of Indiana University. A significant change occurred in the past biennium when SB 416 in 2017 added “water” to the geological survey’s long-standing name, highlighting the IGWS’s expanded role in water resources investigations. The IGWS is also the managing organization for the licensing of Indiana’s professional geologists (IC 25-17.6). The mission of the IGWS is to provide unbiased, authoritative, and reliable geological information to the citizens of Indiana. The IGWS generates and disseminates information about the water, energy, and mineral resources of Indiana, as well as promoting their sustainable use. The IGWS engages in:

- Focused research initiatives and cooperative investigations with governmental agencies, municipalities, businesses, industries, and education organizations at all levels;
- Geologic sample and geological data collection and curation for continued and future reference;
- Dissemination of information in many forms of media, including published research in print, digital, and online interactive maps, reports, databases, and education outreach programs; and
- Mentoring and employing students to prepare the next generation of earth scientists.

How the Program Serves Indiana

The IGWS serves Indiana citizens directly or indirectly by contributing to the study and use of the state’s water, mineral, and energy resources, by providing answers to environmental questions, or via educational programs that reach all age groups and levels of geological knowledge. Businesses, municipalities, and governmental agencies receive geological information vital to their operations. These groups include land and minerals owners; coal, petroleum, aggregate and building-stone industries; city and county administrators and planners, and various Indiana governmental agencies, including the Indiana Finance Authority (IFA); the Departments of Natural Resources, Environmental Management, Homeland Security, and Transportation; the Board of Health; and State Chemist. Thousands of information requests from the general public are handled annually with reference to available maps, reports, and data. A 2017 study by the IU School of Public and Environmental Affairs conservatively estimates that the IGWS has an annual economic impact of \$110.4 million on the state of Indiana.

Outreach efforts include assisting with Indiana University undergraduate and graduate instruction and advising, Mini University program, Indiana Master Naturalist Program, and various events that occur throughout the year, such as the Hoosier Association of Science Teachers annual convention, Science Olympiad, Indiana GIS Conference, and Earth Science Week. As one measure of the success of IGWS outreach, the conservative annual number of visitors to the IGWS’s website totals nearly a quarter million, where these individuals download

approximately a million page views of information. Another site managed by the IGWS, *IndianaMap.org*, generates 1,000 custom maps per day and is used by many state governmental agencies as well as the public.

Initiatives & Accomplishments for the Current Biennium

Among its many and diverse activities, the following provides a sample of the range and depth of IGWS efforts:

- The IGWS has undertaken two IFA projects related to water use in Indiana. The first examined high-capacity water withdrawals from surface and subsurface areas, and the second project sampled more than 75,000 fixtures in schools for lead contamination.
- The IGWS continued its mapping excellence in the state with the release of a set of 12 paper and online-interactive economic and environmental resource maps for Bartholomew County and traditional paper maps of bedrock and unconsolidated deposits in Morgan County. The latter work follows the northward expansion of I-69.
- The IGWS website expanded its interactive maps and narrative story maps with the addition of *Major Sources of Carbon Dioxide Emissions from Coal in Indiana*, *CUSEC Region Historic Epicenters and Seismic Stations*, *Underground Coal Gasification Potential in the Illinois Basin*, *Directory of Industrial Mineral Producers in Indiana*, *Bedrock Core Information System*, and several others.
- The IGWS Earthquake Simulator completed its fifth and sixth years of operation, educating more than 12,000 Hoosiers about the risk of earthquakes in Indiana and preventable measures to take in the event of an earthquake. Additional outreach efforts include scouting workshops, library programs, quarry tours, and Master Naturalist courses, reaching over 13,000 children and adults in 2017. New lesson plans, interactive web pages, and social media campaigns also were developed to increase awareness of Indiana geology throughout the state.
- The IGWS continued to receive federal funding to investigate the sequestration of carbon dioxide in the subsurface to mitigate atmospheric impacts.

Program Goals for the FY 2019–21 Biennium

Plans include continuing many ongoing programs of directed research and education. Among them, the following projects display the depth and variety of activities of the IGWS scientists and staff.

- *IndianaMAP*, one of the nation's leading web-based geographic information systems, is supported almost entirely by IGWS appropriation. Efforts will be redoubled to find a funding mechanism to sustain this valuable Indiana resource and revamp its public interface.
- Geological and computational mapping of Indiana and the Midwest at appropriate scales, where such information will be used to protect surface and groundwater from contamination, sequester carbon dioxide, help plan transportation corridors, identify

geologic hazards, and sustainably develop the state's mineral, energy, and water resources.

- Expanded outreach in the form of K-12 and undergraduate classroom presentations, continuing education programs, short courses, public lectures, travelling exhibits, and hosting the 130th annual meeting of the Geological Society of America.
- Rapid and convenient dissemination of geological information to individuals who use it in support of the Indiana economy and workforce, accomplished by providing open access to all IGWS publications, geologic samples and collections, onsite visits, and web-accessed databases.

2019–21 Biennial Operating Appropriation Request

Indiana University requests a 2.5% increase for each fiscal year of the biennium. This increase will be used to cover increased staffing and operational costs.

Indiana GigaPoP

Origins and Purpose of the Program

The Indiana GigaPop was created in 1998 by The State of Indiana, Indiana University and Purdue University to support the growth, access and connectivity of all Indiana higher education institutions to national research and education networks as well as to other universities across the country. The available resources have expanded to include direct access to international research networks, federal science networks supported by the Department of Energy, NOAA and to every state education network in the US.

The Indiana GigaPop continues to maintain multiple physical connections to the largest research and education network in the US, the Internet2 Network, at their node in Indianapolis utilizing the I-Light fiber infrastructure. This configuration provides direct access to the Internet2 network and for qualifying participant institutions access to multiple Commodity Internet Service providers. With multiple locations in the Indianapolis, including the Indianapolis carrier facilities on the Henry St. area, the Indiana GigaPop is easily accessible via multiple commercial carriers.

How the Program Serves Indiana

Cost for services are geographic independent - every school pays the same rate regardless of where in Indiana they are located. The smallest private college or Ivy Tech campus has essentially the same access to national and international networking resources as Purdue or Indiana University.

As a member of Quilt Network, the largest national organization of regional network operators, the GigaPoP has direct access to large group purchase pricing for Internet capacity, cloud services and hardware. Direct connectivity to local service providers in Indianapolis provides redundant services for all users of the service.

Initiatives & Accomplishments for the Current Biennium

Initiatives and accomplishments of the current biennium include:

- In 2017 the Indiana GigaPoP connected to ESnet's LHCone (Large Hadron Collider) resources in Switzerland. Notre Dame, Purdue and Indiana University as well as I-Light members are taking advantage of this service. The Indiana GigaPoP is now considered an LHCone L3VPN Provider.
- The Indiana GigaPoP implemented a service starting in mid-2017 to protect member organizations from distributed denial of service (DDoS) attacks. The service, implemented in conjunction with Internet2 and their commercial partner Zenedge,

actively monitors for DDoS attacks against members and employs mitigation when required.

- Connected the Indianapolis Zoo to the GigaPoP.
- In 2017, the Indiana GigaPoP upgraded the Monon100 links between Indianapolis and Bloomington with a second diverse 100Gigabit per second link. The Monon 100 was the first 100G connection to Internet2, and has provided a 10x performance increase, available for all of the Indiana GigaPoP connected institutions, including IU, Purdue, Notre Dame, NCAA, and all I-Light connected universities.
- GigaPOP core routers were upgraded to allow for 100G connections for Notre Dame, IU, Purdue and I-Light
- Through increased use of new cost-free peering agreements with Google, Netflix, and Akamai, along with improved private commercial Internet agreements, the GigaPoP oversaw a 70% drop in commodity internet pricing for all of its members.
- Key data on service provided include:
 - Total available Bandwidth (Internet2): 200Gigabits per second
 - Total available Bandwidth (CIC) 100Gigabits per second
 - Total available Bandwidth (Commercial Internet): 90Gigabits per second
 - Total connections: 29

Goals for the FY 2019-21 Biennium

Indiana GigaPop goals for the FY2019-21 Biennium include:

- A focus on other security mechanisms in the coming biennium, learning from the data gathered during DDoS attacks to institute better protection for members.
- Exploring options to increase bandwidth and redundancy to the Big Ten Academic Alliance (BTAA) by adding a second 100G link to diverse infrastructure in Chicago.
- Improve reliability, cost, and performance of resources for Indiana universities. The Indiana GigaPoP will be exploring additional fiber paths from South Bend into Chicago. This will open up reliable access to additional low cost commercial internet providers and allow for more collaboration with other schools in the Big Ten, who have networking into Chicago.
- Explore new additional connections with like institutions in Ohio and Kentucky. These new connections would allow for additional collaboration or sharing of resources with Indiana's sister states to the east and south.
- Engineers will continue to offer network design consultation for schools in the state, to help them with high performance networking.
- Goals for number of units of service include an additional 10% drop in commercial internet pricing with a 30% growth in bandwidth usage.

FY 2019-21 Biennial Operating Appropriation Request

Indiana University requests a 2.5% increase for each fiscal year of the biennium. This increase will be used to cover increased staffing and operational costs.

Global Network Operations Center

Origins and Purpose of the Program

The Global Network Operations Center (GlobalNOC) formed in 1998 to design, build, and manage a new national Research and Education network, now called Internet2. Building on the success of supporting this national scale network, the GlobalNOC has competed for and won contracts to support over 20 additional research and federal networks. The GlobalNOC is a unique national resource for the higher education community and is dedicated to not only providing high quality support services, but also influencing how large-scale networks are designed and built. Building on the state's continued investment, the Network Operations Center has grown from a three-person staff to an organization of 130 people who provide carrier grade operations, tools, and network expertise for advanced state, regional and national research networks.

How the Program Serves the State

The GlobalNOC has attracted many of the best network engineers, software developers and operations staff in the nation to work and live in Indiana. They not only directly support the GlobalNOC but also higher education networks in Indiana. For example, the GlobalNOC provides software and operational support to the I-Light network here in Indiana. This support includes working with I-Light members, which include nearly all of the higher education schools in the state, to improve their local campus networks. Network performance monitoring and benchmarking is an important factor in how effectively researchers can move data to collaborators. The GlobalNOC has developed specialized software tools and helps campuses understand limitations to their local network infrastructure, and can help the campus design solutions to these issues. I-Light and all its member institutions, including the State Government, are direct recipients of services provided by the GlobalNOC.

Initiatives & Accomplishments for the Current Biennium

- Working with researchers at Indiana University, the GlobalNOC is named on a new 3-year \$3.5M award to investigate improving the ability of researchers to move large data sets more effectively. This research will include a number of universities and colleges in Indiana.
- Undertook an extensive evaluation for a new Information Management System. ServiceNow was selected as our new product and will implemented over the next 12 months. Progress has been made moving member networks to the new platform and all networks will be moved by December 2018.
- In 2015, the National Science Foundation selected the GlobalNOC as its International Research Network Connections project. Now in its 3rd year, the project has created a new international research network map, which is used by researchers to understand resource availability. The map can be found at: <https://irncnoc.globalnoc.iu.edu/irnc/network-status.html>. This award (IRNC-NOC) is a 5 year \$3.6M award and is designed to support end-to-end performance assurance and

researcher support. In addition, many of the GlobalNOC tools will be utilized to provide a common view of network operational data, usage and performance.

- Expanded our role with the National Oceanic and Atmospheric Administration (NOAA) to support various research offices across the country. By expanding this support, we have been able to hire additional staff who have specialized skills supporting large wireless networks.
- Supported I-Light in the deployment of the 100GB backbone network upgrade. Created additional monitoring tools and reporting tools.
- An accurate measure of the GlobalNOC activities and growth are clear by reviewing statistics from its 24x7 service desk:

Calls received 2017: 20,172
Calls received 2016: 18,923
Calls received 2015: 18,972
Calls received 2014: 17,997
Calls received 2013: 17,146
Calls received 2012: 10,624

Emails received 2017: 408,425
Emails received 2016: 314,039
Emails received 2015: 251,995
Emails received 2014: 227,817
Emails received 2013: 204,510
Emails received 2012: 173,034

Tickets opened 2017: 41,830
Tickets opened 2016: 38,226
Tickets opened 2015: 35,915
Tickets opened 2014: 24,916
Tickets opened 2013: 17,835
Tickets opened 2012: 8,380

Goals for the FY 2019-21 Biennium

- Review all process and procedures and follow industry ISO/ITL frameworks to create an improved service management effort. This includes vendor/supplier management, change management, process improvement goals and other performance goals.
- Create a relationship/opportunity position to seek new targets for our service. This will include new services for existing users and potential or future areas that may be interested in our support.
- Continue to leverage the ongoing investment by the State of Indiana to draw additional support contracts and attract highly skilled staff to the state. With the improving economic conditions, especially in the tech sector, hiring and retention has become one of our largest challenges.
- Add at least one major new support client.
- Improve quantifiable measures of process and procedures such that the organization can obtain process improvement certification in ISO or other certifying standards.

FY 2019-21 Operating Appropriation Request

Indiana University requests a 2.5% increase for each fiscal year of the biennium. This increase will be used to cover increased staffing and operational costs.

The Indiana Advisory Commission on Intergovernmental Relations

Origins and Purpose of the Program

The Indiana Advisory Commission on Intergovernmental Relations (IACIR) was established by the Indiana General Assembly (IC 4-23-24.2-12) to provide a forum for enhancing coordination and cooperation between state and local government by:

- Reviewing legislation or court decisions affecting local government.
- Facilitating consultation between state and local government.
- Conducting research on intergovernmental issues.
- Reviewing studies of intergovernmental issues prepared by academia or other research organizations.

The statute names the Indiana University Center for Urban Policy and the Environment (predecessor to the Indiana University Public Policy Institute) to staff and administer the Commission. The IU Public Policy Institute (PPI) and its parent organization, the IU School of Public and Environmental Affairs (SPEA), brings to the IACIR a strong reputation for merging policy analysis and research with the experience of practitioners to serve state and local governments in Indiana.

How the Program Serves Indiana

With the support of PPI and SPEA, the top public affairs school in the U.S., the IACIR is able to undertake important and complex issues of state and local governance that will improve intergovernmental decision-making and increase the quality of life of all Hoosiers through better information, analysis, and policy recommendations. The PPI has undertaken important ongoing and periodic work that creates a foundation for the IACIR to address the important issues commonly facing state and local governments in Indiana.

For example, on behalf of the commission, the PPI has undertaken a biennial survey of local elected officials to identify the most pressing issues perceived by local government officials (e.g., cybersecurity of local government IT systems). As a result, PPI is able to identify important policy issues that are long-term, pervasive or emerging. Under the direction of the Commission, PPI also has undertaken a series of studies and public forums on several important issues facing Indiana's local governments and citizens, including:

- Annexation;
- The implementation of the new property tax assessment and appeals procedures;
- Estimates of needed investments in water and wastewater infrastructure;
- Progress in reforming 911 emergency services funding;
- County-level service consolidation, and
- Local government employee health insurance costs and management options.

Initiatives & Accomplishments for the Current Biennium

IACIR's most recent work includes the following:

- Analysis of 2017 Survey of Local Elected Officials:
 - Commission staff worked with staff and faculty from the PPI and SPEA, the Association of Indiana Municipalities (formerly the Indiana Association of Cities and Towns), the Association of Indiana Counties, the Indiana Association of Commissioners, the Indiana Criminal Justice Institute, and the Cybersecurity Program in the Indiana Office of Technology to create the 2017 survey. The questionnaire addressed a number of issues regarding community conditions and services. The survey also addressed several “hot topics” affecting local communities, including local government cybersecurity, placemaking, and local needs associated with criminal justice reform.
 - PPI administered the survey between September and November, 2017, and is currently finalizing the results, which will be published in a complete technical report, *Intergovernmental Issues in Indiana: 2017 IACIR Survey*. The publication is expected in June 2018.
 - The PPI issued a policy memorandum and issue brief on cyber security (March 2018), which was shared with Indiana Executive Council on Cybersecurity including the local government, water/wastewater, economic development and elections work groups.
- *Financial Needs for Water and Wastewater Infrastructure in Indiana (2015–2034)*
 - PPI produced a companion issue brief, *Indiana Faces Significant Funding Gap for Water Infrastructure over the Next 20 Years*, in February 2017.
 - The IACIR Director, Jamie Palmer (PPI Senior Analyst), provided testimony on *2018 HEA 1267 Water Infrastructure Task Force*, at the invitation of Representative Ed Soliday, on the water infrastructure needs documented in the above report, and the case for including water infrastructure in the charge of the task force.
- Presented preliminary results from the 2016 surveys of fire departments and EMS agencies to the Indiana Volunteer Firefighters Association Annual Meeting on June 12, 2018. Delivered comprehensive fire department service maps to the Indiana Fire Alliance, including the State Fire Marshal, and continue to analyze survey data.
- Supported the publication of two *Indiana Nonprofits Project* issue briefs prepared using IACIR survey data: *Indiana Local Government Officials and 2-1-1 Service* (authors: Kristen Gronbjerg and Hannah Martin; published Fall 2017) and *Indiana Local Government Officials' Opinions on Nonprofit-Government Relationships* (authors: Kirsten Gronbjerg, Hannah Martin, and Tyler Abbott, published Spring 2018).

Upcoming work in the current biennium will include:

- Disseminate 2017 IACIR Survey results to the IACIR membership, Legislative Council, state legislators, the state administration, and selected agencies (e.g., Indiana Criminal Justice Institute).
- Complete two additional issue briefs from the 2017 IACIR Survey.
- Complete Local Fire and EMS Services study.
- Any additional priorities identified by legislative leadership and the commission chair and membership.

Goals for the FY 2019-21 Biennium:

The IACIR is poised to provide research, as well as a discussion forum, for complex issues affecting state and local government. The IACIR anticipates several initiatives during the upcoming biennium, including:

- Providing a forum for research and discussion of current intergovernmental and local government issues, particularly those identified by legislative leadership and the commission chair and membership;
- Increasing state policymakers' awareness of key local and regional challenges and provide information that enables policymakers to make more strategic investments in local communities and regions of varying size and character.
- Providing research on current and innovative practices to increase regional collaboration, including government and funding.
- Providing information that enables policymakers to make more strategic investments in local communities and regions of varying size and character.
- Increasing participation in the 2019 and 2021 surveys of local elected officials.
- Hosting a 2019 Gubernatorial Candidate Forum in partnership with the PPI that will give candidates an opportunity to address critical local and regional issues identified by the IACIR.

In the current and upcoming biennia, the commission and its staff remain available to complete work assigned by the Indiana General Assembly and the Legislative Council.

2019-21 Biennium Operating Appropriation Request:

The budget request amount for 2019-21 is the same as the appropriation for the 2015-17 biennium. The requested funds will be used to cover staffing and operational costs.

No appropriations were provided in for the 2017-19 budget enacted in 2017. The PPI was able to provide the studies and services to the IACIR cited above because many projects were a continuation of work that began in fiscal year 2017. There also was a small amount of remaining funds from its last appropriation that have been used to complete projects.

Indiana Institute for the Study of Developmental Disabilities

Origins and Purpose of the Program

The Indiana Institute on Disability and Community (IIDC) has received an appropriation from the Indiana Legislature since 1969. In 1993 the IIDC was charged in Indiana statute (IC 12-11-8) (P.L.210-2015, SEC.24) with operating an autism resource center, known as the Indiana Resource Center on Autism. The missions of IIDC and its centers is to:

- Provide informational services provided to individuals with autism and their families by federal, state, local, and private agencies.
- Develop a database of information.
- Offer training and technical assistance to families, educators, and service providers.
- Conduct research and evaluation and develop model curricula.
- Serve as the state clearinghouse for information and resources.
- Work with communities to welcome, value, and support the meaningful participation of people of all ages and abilities through research, education, and service.

In fulfilling this mission, The IIDC provides information, training, research and other services to people with disabilities, families, schools, government agencies and organizations statewide. The IIDC strives to improve professional skills, improve systems, bring evidence-based practices to scale across Indiana, and provide people with disabilities and families accessible, timely, and relevant products and information.

How the Program Serves Indiana

The IIDC's training and technical assistance activities touch thousands of Hoosiers, conducting 651 training and technical assistance events involving more than 76,642 people during 2016-17. The IIDC provided nearly 8,710 hours of training and technical assistance to schools, community agencies, and government agencies and its website is viewed by over 751,000 users. The IIDC's scholarly and knowledge translation publications record demonstrate its research in these areas by producing 133 scholarly outlets including conference presentations, newsletters, reports, distance education modules, refereed articles, and dissertations/theses. In 2017, a total of 239 students received pre-service and in-service education, coursework, and mentoring; and, a total of 892 undergraduate and graduate credit hours were taught across the Indiana University system. Finally, supporting state task forces, committees, and advisory groups, and supporting implementation of best practices within and across state and local government demonstrates the IIDC's state service.

Initiatives & Accomplishments for the Current Biennium

During the 2017-2019 biennium, the IIDC was successful in creating a number of high quality, innovative approaches to addressing some of the biggest challenges facing Hoosiers with disabilities. Some of the most notable initiatives & accomplishments include:

- Established a health promotion training intervention for people with intellectual and developmental disabilities and their caregivers or support providers.
- Implemented the state's strategy to address mental health issues in school-age children by creating and implementing the Indiana School Mental Health Initiative.
- Developed and implemented a state-wide, quality improvement data collection and reporting system and process called the Day and Employment Services Outcome Survey.
- Conducted 31 regional events for families, people with disabilities, and professionals about challenging behavior and positive behaviors support.
- Provided technical assistance and authoring the report for HB1102 - Task Force for Assessment of Services and Supports for People with Intellectual and Developmental Disabilities in 2017.

Goals for the FY2019-2021 Biennium

The IIDC's five highest priorities to serve the state include: 1) Improving the Indiana First Step Program early intervention program; 2) Responding to the growing demands of schools and communities to address behavioral and mental health challenges across the lifespan; 3) Supporting education reform to improve academic outcomes for youth with disabilities; 4) Improving healthcare, health equity, oral health and health promotion approaches in Indiana; and, 5) Improving employment services and outcomes of Hoosiers with disabilities.

The IIDC intends to continue or expand many of the initiatives above and do the following:

- Develop a professional development training program addressing topics related to values in the disability field, disability history, best practices, employment, and health promotion.
- Conduct a state-wide needs assessment survey targeting parents and family members of people with autism;
- Respond to the robust information and training needs of families, practitioners, and systems related to supporting children and adults with autism;
- Conduct targeted, policy-relevant research on the following topics: school inclusion, Home and Community-Based Services, employment, sexuality health education, social relationships, and self-determination.

2019-21 Biennial Operating Appropriation Request

Indiana University requests a 2.5% increase for each fiscal year of the biennium. This increase will be used to cover increased staffing and operational costs.

I-Light Network

Origins and Purpose of the Program

I-Light is codified in Indiana statute (IC 8-1-32.7-3). The State of Indiana initially built the I-Light fiber network to connect its primary research universities of Indiana University Bloomington, Purdue University West Lafayette, and the joint campus in Indianapolis. Since that time, the network has proven its value in helping to grow research and education funding through high performance computing, competitive research grant success in Life Sciences and Engineering, connections to Internet2, NOAA, ESNNet's LHC (Large Hadron Collider), and favorable economics with the Indiana GigaPoP for the State to efficiently pool network traffic. Connected schools have access to the same resources at the same pricing structure as every other school.

How the Program Serves the State

I-Light connects nearly every Higher education institution in Indiana to each other as well as to national and international research resources and is operated solely for the good of its membership. Members use I-Light to directly connect to other members for research or to advance academic opportunities. Members have also successfully used I-Light to collaborate on federally funded research projects. I-Light member institutions who have not traditionally received federal funding have received approximately \$850,000 to improve campus network infrastructure. The success of these awards are attributed directly to being connected to the I-Light.

I-Light higher education, related research and State Government connected locations:

Higher Education Connected Sites:

<i>Anderson University 1G</i>	<i>Huntington University 1G</i>	<i>Rose-Hulman 10G</i>
<i>Ball State University 10G</i>	<i>Huntington University Ft. Wayne 200Mb</i>	<i>Rose Hulman Ventures 1G</i>
<i>Bethel College</i>	<i>Indiana State University 10G</i>	<i>Saint-Mary-Of-The-Woods College 1G</i>
<i>Ball State Fishers 50Mb</i>	<i>Indiana State Federal Hall 1G</i>	<i>Taylor University 1G</i>
<i>Bethel 1G</i>	<i>Indiana Tech 1G</i>	<i>Trine University 2G</i>
<i>Butler 10G</i>	<i>Indiana University 100G</i>	<i>Trine Ft. Wayne 800 Mb</i>
<i>Calumet College of St. Joe 1G</i>	<i>Indiana Wesleyan 10G</i>	<i>University of Evansville 2G</i>
<i>Columbus Learning Center 100MB</i>	<i>Manchester University 10G</i>	<i>University of Indianapolis 10G</i>
<i>DePauw University 10G</i>	<i>Manchester School of Pharmacy 10G</i>	<i>University of Notre Dame 10G</i>
<i>Earlham College 10G</i>	<i>Marian University 1G</i>	<i>University of Notre Dame 100G</i>
<i>Franklin College 1G</i>	<i>Martin University 100 Mb</i>	<i>University of Southern Indiana 10G</i>
<i>Goshen College 1G</i>	<i>Oakland City University 1G</i>	<i>University of St. Frances 1G</i>
<i>Grace College 1G</i>	<i>Purdue University 10G</i>	<i>Valparaiso University 2G</i>
<i>Hanover College 1G</i>	<i>Purdue Northwest 10G</i>	<i>Vincennes University 10G</i>
<i>Holy Cross 1G</i>	<i>Purdue South Bend 1G</i>	<i>Wabash College 10G</i>

Ivy Tech Connected Campuses

<i>IVY Tech Anderson - 1Gig</i>	
<i>IVY Tech Bloomington - 1Gig</i>	<i>IVY Tech Lafayette – 1Gig</i>
<i>IVY Tech Central Office - 10Gig</i>	<i>IVY Tech Lawrenceburg – 1Gig</i>
<i>Ivy Tech Columbus - 1Gig</i>	<i>IVY Tech Madison – 1gig</i>
<i>IVY Tech Connersville - 1Gig</i>	<i>IVY Tech Marion – 1Gig</i>
<i>IVY Tech Elkhart –1Gig</i>	<i>IVY Tech Michigan City – 1Gig</i>
<i>IVY Tech Evansville - 1Gig</i>	<i>IVY Tech Monticello – 1Gig</i>
<i>IVY Tech Fairbanks – 10Gig</i>	<i>IVY Tech Muncie - 1Gig</i>
<i>IVY Tech Fort Wayne - 1Gig</i>	<i>IVY Tech Richmond - 1Gig</i>
<i>IVY Tech Franklin - 1Gig</i>	<i>IVY Tech Sellersburg - 1Gig</i>
<i>IVY Tech East Chicago - 1Gig</i>	<i>IVY Tech South Bend - 1Gig</i>
<i>IVY Tech Gary - 1Gig</i>	<i>IVY Tech Terre Haute – 1Gig</i>
<i>IVY Tech Greencastle - 1Gig</i>	<i>IVY Tech Valparaiso – 1gig</i>
<i>IVY Tech Kokomo – 1Gig</i>	<i>IVY Tech Wabash – 50Mbps</i>

State Agency Sites

<i>IOT – 2 10Gig Waves</i>	
<i>Service Center #1 Merrillville – 250mbps</i>	

Public Broadcasting

<i>WFWA-Ft. Wayne 100 Mb</i>	<i>NWIT – South Bend 100Mb</i>
<i>WYFI – Indianapolis 100 Mb</i>	<i>NYIN – Lakeshore 100 Mb</i>
<i>WNIN – Evansville 100 Mb</i>	

Higher Education needs for high performance network resources are different from those available by common carriers. In addition to an overabundance of bandwidth on an as needed basis, the research and education community need specialized end-to-end technologies such as multi-cast, IPV6, OpenFlow and PerfSonar test facilities. PerfSonar is a tool used by network engineers to benchmark connectivity and performance parameters to other institutions. Using this tool engineers can determine in real time if a network is experiencing chronic performance issues and pinpoint areas for improvement.

As more institutions vie for federal research funding, having an advanced network is a requirement to be competitive. We are told by our membership that not having I-Light services available to their campus would be a competitive disadvantage. Conservative estimates show the initial I-Light network connecting Indiana University, Purdue and IUPUI has directly contributed to over \$250M in awarded grant activity. The continuing and active goal of I-Light is

to have more institutions participate in grant opportunities. We know this improves the educational opportunities for students and faculty and draws talented individuals to Indiana study and teach.

Accomplishments FY 2017-2019

The following initiatives and service improvements are being completed during the current biennium:

- Evansville to New Albany was upgraded to 100G bandwidth.
- I-Light 100G Network Upgrade project completed.
- Member connections migrated to 100G network completed.
- Upgrade of all Customer Premise Equipment (CPE) at member institutions to a single vendor platform and software, which aids in streamlining functions such as provisioning, troubleshooting, monitoring and measurement.
- Connected the new multi institution Medical Sciences building in Evansville.
- Notre Dame upgraded to 100G on I-Light to support their High Performance Computing (HPC) initiative.
- DePauw University received a National Science Foundation award to improve campus networking infrastructure and build a redundant path to the I-Light backbone. The relationship with I-Light was cited by the National Science Foundation reviewers as key to this successful award.
- Multiple “above the network” services are available to members of the I-Light network, including disaster recovery services, Cloud data hosting, VOIP/SIP voice services, IPv6 wireless network implementation, redundant connections, capacity planning services, BGP Peering, router and firewall upgrade consulting, video conferencing solutions.

Goals for the FY 2019-21 Biennium

New initiatives for the upcoming biennium include:

- I-Light is one of 39 state or regional networks in the country. By connecting directly to neighboring networks, we are able to create a more cost effective and efficient path for researchers to collaborate and share information. For example, I-Light recently established a connection to KyRON (Kentucky Regional Optical Network) in Louisville. Now any data transferred between the two networks is a direct transfer and no longer will go to a national data exchange point in Chicago or Atlanta.
- Likewise, I-Light is working with OARnet, the Ohio state Research and Education network to set up direct peering/connection relationship. This will greatly improve connectivity between the two networks.
- Focus on security mechanisms in the coming biennium learning from the data gathered during DDoS attacks to institute better protection for its members, implement a proactive approach to eliminating negatively impacting traffic versus a reactive mitigation approach.

- Exploring a new connection into Chicago through South Bend to provide additional resiliency and access to BTAA, Internet2 and Commodity Internet providers.
- I-Light has deployed 6 perfSONAR nodes at selected member locations (Butler, Notre Dame, Ivy Tech, Oakland City, DePauw and Indiana State University). If this trial goes well we plan to deploy these management nodes at all I-Light University/college member locations. I-Light will be working on gathering measurement data from these nodes utilizing advanced analytics software developed as a result of a National Science Foundation project, NetSage, at Indiana University.

FY 2019-21 Operating Appropriation Request

Indiana University requests a 2.5% increase for each fiscal year of the biennium. This increase will be used to cover increased staffing and operational costs.

Section 2
Capital Request

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Fort Wayne Health Sciences Planning Study.....86

Institution: Indiana University System	Project: Bicentennial Repair and Rehabilitation Plan
Biennium: 2019-2021	Project No: A-0-19-2-06
Submitted: Yes	Last Updated: 8/23/2018 3:35 PM

General Project Information

Project Name/Title:	Bicentennial Repair and Rehabilitation Plan	Institutional Priority:	1
Budget Agency Project No:	A-0-19-2-06	Project Type:	Repair and Rehabilitation
Previously Approved by General Assembly:	No	Previously Recommended by CHE:	No
		Part of the Institution's Long term Capital plan:	Yes

Justification Of Cost

No costs per square foot are provided as this project involves building systems, envelope projects and other repair and rehabilitation needs that may involve reuse of some components and replacements of others as evaluated on a case-by-case basis for the level of repair/replacement required.

Comparable projects include IU Regional Campus Deferred Maintenance - Phase I (estimated at \$29,000,000); IU Regional Campus Deferred Maintenance - Phase II (estimated at \$27,875,000); IU Regional Campus Deferred Maintenance - Phase III (estimated at \$28,500,000). These projects estimated costs for projects at IU's regional campuses only, and did not include the Bloomington or IUPUI campuses, as this project requests. Similar whole-building renovation projects include the IUB Franklin Hall Academic Core Renovation estimated at \$152/gsf, IUB Old Crescent Renovation - Phase II estimated at \$183/gsf, and IUB Old Crescent Renovation - Phase III estimated at \$162/gsf.

Funding

The cost of this project is estimated to be \$124 million. Indiana University will issue fee-replaced Student Fee Bonds under IC 21-34 for \$124 million with annual debt payments of \$9,950,081.

Institution: Indiana University System

Project: Bicentennial Repair and Rehabilitation Plan

Biennium: 2019-2021

Project No: A-0-19-2-06

Submitted: Yes

Last Updated: 8/23/2018 3:35 PM

General Project Information

Project Size

	GSF	ASF	ASF/GSF
Project Size:	<input type="text" value="0"/>	<input type="text" value="0"/>	
Net Change in Overall Campus Space:	<input type="text" value="0"/>	<input type="text" value="0"/>	

Project Cost Summary

Total Project Cost:	<input type="text" value="\$124,000,000"/>	Cost Per GSF/ASF:	GSF
			ASF

Project Funding

	Funding Amount	Funding Type	Funding Source Description
Funding Sources:	<input type="text" value="\$124,000,000"/>	<input type="text" value="State"/>	<input type="text" value="Student Fee Bonds (IC-21-34)"/>
Total Funding	\$124,000,000		

Annual Cost

Estimated annual change in cost of building operations based on the project:	<input type="text" value="\$0"/>
Estimated annual repair and rehabilitation investment:	<input type="text" value="\$0"/>
Estimated annual debt payment:	<input type="text" value="\$9,950,081"/>
Are the funds for the project secured:	<input type="text" value="No"/>

Institution:	Indiana University System	Project:	Bicentennial Repair and Rehabilitation Plan
Biennium:	2019-2021	Project No:	A-0-19-2-06
Submitted:	Yes	Last Updated:	8/23/2018 3:35 PM

General Project Information

Detail Description of Project

As Indiana University looks forward to its bicentennial in 2020, the university seeks to ensure the continued availability and appropriateness of facilities and infrastructure necessary to its teaching and research mission. This funding request will continue to address work begun in Phases I-III of the Regional Campus Deferred Maintenance requests as well as Phases I-III of the Bloomington Old Crescent Renovation projects while also including the IUPUI campus. Nine projects impacting 23 buildings on seven campuses will provide safe, effective and efficient learning and work environments for students, faculty, and staff through critically-needed repairs and renovations of facilities and infrastructure. Renovations will include replacing or updating windows, roofs, campus infrastructure, and building systems (mechanical, electrical, plumbing, data, and fire protection); remodeling restrooms for accessibility and efficiency; and renovating classrooms and labs for accessibility, safety, and modern technologies.

IUPUI

Health Sciences Renovation - \$50 million
(Health Sciences and Dunlap)

IU BLOOMINGTON

Research Centers Renovations - \$24 million
(Mathers Museum, Glenn Black Laboratory, McCalla Building, and Kirkwood Observatory)

Teaching Lab Renovations - \$10 million
(Jordan Hall and Chemistry)

Infrastructure Updates - \$10 million
(Multidisciplinary Engineering and Sciences Hall [MESH] and Psychology)

REGIONAL CAMPUS DEFERRED MAINTENANCE – PHASE IV

IU East – Natural Gas Conversion - \$5 million

IU Kokomo – Roof Replacements - \$3 million

IU Northwest – Windows, Classrooms and Plumbing Renovations - \$10 million

IU Southeast – Infrastructure, Classroom and Lab Renovations - \$2 million

IU South Bend – Northside Hall Renovation - Phase III - \$10 million

Relationship to Other Capital Improvement Projects: These projects are not dependent on one another to be effective solutions for addressed building or infrastructure problems. However, these projects are vitally necessary on each campus to provide infrastructure, safety, utility, or other needs.

Historical Significance: This project will have no impact on the historic nature of the buildings or structures. Kirkwood Observatory (1900) is included as part of the IUB Old Crescent in the National Register of Historic Places.

Alternatives Considered: As design work begins, all alternatives will be considered, and the most appropriate and cost-efficient design will be selected. It is the practice of Indiana University to use proven technology to meet the challenges of facilities management.

Institution: Indiana University System

Project: Bicentennial Repair and Rehabilitation Plan

Biennium: 2019-2021

Project No: A-0-19-2-06

Submitted: Yes

Last Updated: 8/23/2018 3:35 PM

General Project Information

Need & Purpose

These facilities are vitally necessary to the teaching and research mission of Indiana University and must be kept functioning at a high level. These projects will ensure safe, effective and efficient learning and work environments for students, faculty and staff through improvements including infrastructure and building systems while also upgrading spaces for accessibility and the latest technologies to support learning, teaching and research.

Institution: Indiana University System	Project: Bicentennial Repair and Rehabilitation Plan
Biennium: 2019-2021	Project No: A-0-19-2-06
Submitted: Yes	Last Updated: 8/23/2018 3:35 PM

General Project Information

Space Utilization

This project will not change space utilization.

Comparable Projects

Comparable projects include IU Regional Campus Deferred Maintenance - Phase I (estimated at \$29,000,000); IU Regional Campus Deferred Maintenance - Phase II (estimated at \$27,875,000); IU Regional Campus Deferred Maintenance - Phase III (estimated at \$28,500,000). These projects estimated costs for projects at IU's regional campuses only, and did not include the Bloomington or IUPUI campuses, as this project requests. Similar whole-building renovation projects include the IUB Franklin Hall Academic Core Renovation estimated at \$152/gsf, IUB Old Crescent Renovation - Phase II estimated at \$183/gsf, and IUB Old Crescent Renovation - Phase III estimated at \$162/gsf.

Background Materials

The Indiana University Board of Trustees approved this project as part of the 2019-21 Legislative Capital Request at the August 2018 meeting. Indiana University will issue fee-replaced Student Fee Bonds under IC 21-34 for \$124 million with annual debt payments of \$9,950,081.

Institution: Indiana University System**Project:** Bicentennial Repair and Rehabilitation Plan**Biennium:** 2019-2021**Project No:** A-0-19-2-06**Submitted:** Yes**Last Updated:** 8/23/2018 3:35 PM**General Project Information****Overall Space in ASF**

Space Type Name	Current Space In Use	Space Under Construction	Space Planned And Funded	Subtotal Current And Future Space	Space to be Terminated	New Space In Capital Request	Net Future Space
(100) Classroom	0	0	0	0	0	0	0
(200) Class Lab	0	0	0	0	0	0	0
(200) Non-class Lab	0	0	0	0	0	0	0
(300) Office Facilities	0	0	0	0	0	0	0
(400) Study Facilities	0	0	0	0	0	0	0
(500) Special Use Facilities	0	0	0	0	0	0	0
(600) General Use Facilities	0	0	0	0	0	0	0
(700) Support Facilities	0	0	0	0	0	0	0
(800) Health Care Facilities	0	0	0	0	0	0	0
(900) Resident Facilities	0	0	0	0	0	0	0
(000) Unclassified	0	0	0	0	0	0	0
TOTAL SPACE	0	0	0	0	0	0	0

Space Detail Notes

ASF is not applicable as this project involves building systems, envelope projects and other repair and rehabilitation needs that may involve reuse of some components and replacements of others as evaluated on a case-by-case basis for the level of repair/replacement required.

Institution: Indiana University System

Project: Bicentennial Repair and Rehabilitation Plan

Biennium: 2019-2021

Project No: A-0-19-2-06

Submitted: Yes

Last Updated: 8/23/2018 3:35 PM

General Project Information

Anticipated Construction Schedule

Bid Date:

Start Construction:

Occupancy (End Date):

Estimated Cost for Project

		Cost Basis	Escalation Factors	Project Cost
Planning Costs	Engineering	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Architectural	<input type="text" value="\$7,400,000"/>	<input type="text" value="\$0"/>	\$7,400,000
	Consulting	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
Construction	Structure	<input type="text" value="\$42,000,000"/>	<input type="text" value="\$0"/>	\$42,000,000
	Mechanical (HVAC, plumbing, etc.)	<input type="text" value="\$39,000,000"/>	<input type="text" value="\$0"/>	\$39,000,000
	Electrical	<input type="text" value="\$24,000,000"/>	<input type="text" value="\$0"/>	\$24,000,000
Other	Movable Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Fixed Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Site Development/Land Acquisition	<input type="text" value="\$600,000"/>	<input type="text" value="\$0"/>	\$600,000
	<input type="text" value="Contingency, Admin. & Legal Fees"/>	<input type="text" value="\$11,000,000"/>	<input type="text" value="\$0"/>	\$11,000,000
Total Estimated Cost		\$124,000,000	\$0	\$124,000,000

Cost Detail Notes

Cost Basis is based on current cost prevailing as of: August 2018

Institution: Indiana University System

Project: Bicentennial Repair and Rehabilitation Plan

Biennium: 2019-2021

Project No: A-0-19-2-06

Submitted: Yes

Last Updated: 8/23/2018 3:35 PM

General Project Information

Annual Operating Cost/Savings

	Personnel Services	Supplies and Expenses	Total Operating Cost	Cost per GSF
Operations	\$0	\$0	\$0	
Maintenance	\$0	\$0	\$0	
Fuel	\$0	\$0	\$0	
Utilities	\$0	\$0	\$0	
Other	\$0	\$0	\$0	
Total Estimated Cost	\$0	\$0	\$0	

Cost Detail Notes

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Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Project Name/Title:	Research Laboratory Building V	Institutional Priority:	2
Budget Agency Project No:	A-2-19-1-07	Project Type:	New Construction
Previously Approved by General Assembly:	No	Previously Recommended by CHE:	No
		Part of the Institution's Long term Capital plan:	Yes

Justification Of Cost

The IU School of Medicine Neurosciences Research Building was estimated at \$336/gsf.

Funding

The cost of this project is estimated to be \$75 million. Indiana University will issue fee-replaced Student Fee Bonds under IC 21-34 for \$75 million with annual debt payments of \$6,018,194.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Project Size

	GSF	ASF	ASF/GSF
Project Size:	120,000	62,400	52%
Net Change in Overall Campus Space:	120,000	62,400	

Project Cost Summary

Total Project Cost:	\$75,000,000	Cost Per GSF/ASF:	\$625 GSF
			\$1,202 ASF

Project Funding

	Funding Amount	Funding Type	Funding Source Description
Funding Sources:	\$75,000,000	State	Student Fee Bonds (IC-21-34)
Total Funding	\$75,000,000		

Annual Cost

Estimated annual change in cost of building operations based on the project:	\$1,777,092
Estimated annual repair and rehabilitation investment:	\$1,125,000
Estimated annual debt payment:	\$6,018,194
Are the funds for the project secured:	No

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Detail Description of Project

Indiana University proposes to construct an approximately 120,000 gsf research facility for the IU School of Medicine in Indianapolis. This project is part of the university's continuing life sciences initiative, as well as the Bicentennial Strategic Plan calling for growth in research capacity and generation of external research funding.

Consisting primarily of clinical research labs, with flexible lab space and related support areas, the facility will enable researchers to work across disciplines. This, in turn, can increase funding opportunities and overall academic growth and discoveries.

The facility's programming will support the School of Medicine's goal of creating synergies between research and real-life applications and practice, including an emphasis on communication and collaboration among researchers, patients and doctors. Researchers in the facility will have the opportunity to work with patients and doctors from Indianapolis medical facilities such as IU Health University Hospital, Eskenazi Health, Richard L. Roudebush VA Medical Center, Riley Hospital for Children at IU Health, and IU Health at Methodist.

The School of Medicine has recently seen growth in research funding. In particular, National Institutes of Health funding increased by nearly 40 percent in federal fiscal year 2017 as compared to 2012. However, state-of-the-art facilities are needed to continue and grow funding for School of Medicine research programs seeking to improve the health of Indiana residents while furthering medical science and health care nationally and worldwide. Programs such as the Precision Health Initiative pursue cures and preventive treatments for devastating diseases including breast cancer, Alzheimer's, diabetes, and pediatric sarcoma. Other research includes topics such as concussion risk, opioid dependency, gene and cell therapy, and congenital heart defects.

Additionally, cutting-edge facilities are needed not only for the research itself. The School of Medicine must also recruit and retain leading investigators to conduct these programs while also training future researchers to ensure continued success in improving health outcomes.

Relationship to Other Capital Improvement Projects: This project does not affect any other capital improvement projects.

Historical Significance: This project does not have historical significance.

Alternatives Considered: Due to the nature of the project and the specific needs of this building, no alternatives have been selected.

Relationship to Long-Term Capital Plan for Indiana University: This project is consistent with the master plan for the IU Health Science campus in Indianapolis to serve the School of Medicine and related disciplines, and is included in the university's ten-year plan.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Need & Purpose

Consisting primarily of clinical research labs, with flexible lab space and related support areas, the facility will enable researchers to work across disciplines. This, in turn, can increase funding opportunities and overall academic growth and discoveries. The facility's programming will support the School of Medicine's goal of creating synergies between research and real-life applications and practice, including an emphasis on communication and collaboration among researchers, patients and doctors. Even with an increase in research funding received in recent years, state-of-the-art facilities are needed to continue and grow funding for School of Medicine research programs seeking to improve the health of Indiana residents while furthering medical science and health care nationally and worldwide. Additionally, the School of Medicine must also recruit and retain leading investigators to conduct these programs while also training future researchers to ensure continued success in improving health outcomes.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Space Utilization

This project will create new research and related support spaces.

Comparable Projects

The IU School of Medicine Neurosciences Research Building was estimated at \$336/gsf.

Background Materials

The Indiana University Board of Trustees approved this project as part of the 2019-21 Legislative Capital Request at the August 2018 meeting. Indiana University will issue fee-replaced Student Fee Bonds under IC 21-34 for \$75 million with annual debt payments of \$6,018,194.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Overall Space in ASF

Space Type Name	Current Space In Use	Space Under Construction	Space Planned And Funded	Subtotal Current And Future Space	Space to be Terminated	New Space In Capital Request	Net Future Space
(100) Classroom	293,147	0	16,862	310,009	0	1,074	311,083
(200) Class Lab	248,997	776	30,865	280,638	0	0	280,638
(200) Non-class Lab	646,135	0	24,183	670,318	0	27,586	697,904
(300) Office Facilities	1,930,540	0	57,555	1,988,095	0	5,850	1,993,945
(400) Study Facilities	344,125	17,867	1,636	363,628	0	0	363,628
(500) Special Use Facilities	334,963	0	0	334,963	0	451	335,414
(600) General Use Facilities	326,019	0	25,513	351,532	0	135	351,667
(700) Support Facilities	2,406,582	186	3,679	2,410,447	0	24,165	2,434,612
(800) Health Care Facilities	890,792	0	0	890,792	0	0	890,792
(900) Resident Facilities	538,402	14,610	41,559	594,571	0	0	594,571
(000) Unclassified	210,919	0	0	210,919	0	3,139	214,058
TOTAL SPACE	8,170,621	33,439	201,852	8,405,912	0	62,400	8,468,312

Space Detail Notes

Under construction: Primary Care Center Renovation

Planned and funded: Multidisciplinary Research and Classroom Building, 65,000 asf; Madam Walker Theatre Renovation, 28,815 asf; ICTC Information Technology Renovation, 41,071 asf; Ball Residence Hall Renovation, 66,966 asf

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Anticipated Construction Schedule

Bid Date:	<input type="text" value="May"/>	<input type="text" value="2020"/>
Start Construction:	<input type="text" value="July"/>	<input type="text" value="2020"/>
Occupancy (End Date):	<input type="text" value="January"/>	<input type="text" value="2022"/>

Estimated Cost for Project

		Cost Basis	Escalation Factors	Project Cost
Planning Costs	Engineering	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Architectural	<input type="text" value="\$5,250,000"/>	<input type="text" value="\$0"/>	\$5,250,000
	Consulting	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
Construction	Structure	<input type="text" value="\$36,000,000"/>	<input type="text" value="\$0"/>	\$36,000,000
	Mechanical (HVAC, plumbing, etc.)	<input type="text" value="\$16,500,000"/>	<input type="text" value="\$0"/>	\$16,500,000
	Electrical	<input type="text" value="\$11,250,000"/>	<input type="text" value="\$0"/>	\$11,250,000
Other	Movable Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Fixed Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Site Development/Land Acquisition	<input type="text" value="\$2,250,000"/>	<input type="text" value="\$0"/>	\$2,250,000
	<input type="text" value="Contingency, Admin. & Legal Fees"/>	<input type="text" value="\$3,750,000"/>	<input type="text" value="\$0"/>	\$3,750,000
Total Estimated Cost		\$75,000,000	\$0	\$75,000,000

Cost Detail Notes

Cost Basis is based on current cost prevailing as of: August 2018

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	Research Laboratory Building V
Biennium:	2019-2021	Project No:	A-2-19-1-07
Submitted:	Yes	Last Updated:	8/23/2018 2:28 PM

General Project Information

Annual Operating Cost/Savings

	Personnel Services	Supplies and Expenses	Total Operating Cost	Cost per GSF
Operations	\$0	\$197,592	\$197,592	\$1.65
Maintenance	\$19,920	\$282,996	\$302,916	\$2.52
Fuel	\$0	\$0	\$0	\$0.00
Utilities	\$0	\$1,276,584	\$1,276,584	\$10.64
Other	\$0	\$0	\$0	\$0.00
Total Estimated Cost	\$19,920	\$1,757,172	\$1,777,092	\$14.81

Cost Detail Notes

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Project Name/Title:	School of Dentistry Renovation	Institutional Priority:	3
Budget Agency Project No:	A-2-19-2-08	Project Type:	Repair and Rehabilitation
Previously Approved by General Assembly:	No	Previously Recommended by CHE:	No
		Part of the Institution's Long term Capital plan:	Yes

Justification Of Cost

Similar projects include the IUPUI Rotary Building Renovation estimated at \$256/gsf, IUPUI Center for Drug Discovery - VanNuys and Medical Research Renovation estimated at \$183/gsf, IUPUI Ball Residence Hall Renovation estimated at \$140/gsf, IUB Franklin Hall Academic Core Renovation estimated at \$152/gsf, IUB Old Crescent Renovation - Phase II estimated at \$183/gsf, and IUB Old Crescent Renovation - Phase III estimated at \$162/gsf.

Funding

The cost of this project is estimated to be \$15 million, for which Indiana University requests a cash appropriation.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Project Size

	GSF	ASF	ASF/GSF
Project Size:	<input type="text" value="200,020"/>	<input type="text" value="122,799"/>	61%
Net Change in Overall Campus Space:	<input type="text" value="0"/>	<input type="text" value="0"/>	

Project Cost Summary

Total Project Cost:	<input type="text" value="\$15,000,000"/>	Cost Per GSF/ASF:	\$75 GSF
			\$122 ASF

Project Funding

	Funding Amount	Funding Type	Funding Source Description
Funding Sources:	<input type="text" value="\$15,000,000"/>	<input type="text" value="State"/>	<input type="text" value="Cash"/>
Total Funding	\$15,000,000		

Annual Cost

Estimated annual change in cost of building operations based on the project:	<input type="text" value="\$0"/>
Estimated annual repair and rehabilitation investment:	<input type="text" value="\$0"/>
Estimated annual debt payment:	<input type="text" value="\$0"/>
Are the funds for the project secured:	<input type="text" value="No"/>

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Detail Description of Project

Indiana University proposes the renovation of the School of Dentistry building on the IUPUI campus. The original facility opened in 1934, with additions in 1961, 1972, and 2017. This project includes only the original 1934 facility and the first two additions (1961 and 1972) for a total of 202,020 gross square feet.

Renovations will include energy efficient mechanical systems, upgraded building systems (electrical, plumbing, data, and fire), accessibility upgrades, facade repairs, window replacements, and updates to classrooms and labs. The mechanical, plumbing and electrical systems in particular are antiquated. Additionally, the mechanical systems are combinations of units that do not function together as whole building systems, and in some cases, are original to the building.

Relationship to Other Capital Improvement Projects: This project does not affect any other capital improvement projects.

Historical Significance: None of the buildings or structures in this project are considered historically significant.

Alternatives Considered: No other alternatives were considered due to the nature of this project.

Relationship to Long-Term Capital Plan for Indiana University: This project is part of the university's ten-year capital plan.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Need & Purpose

This renovation will address critically-needed repairs and upgrades within this facility. The IU School of Dentistry is the only dental school within the state of Indiana, and as such, must be a leader in excellence in teaching facilities and technologies in order to provide in-state educational opportunities while serving the state's residents.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Space Utilization

This project will not change the use of space.

Comparable Projects

Similar projects include the IUPUI Rotary Building Renovation estimated at \$256/gsf, IUPUI Center for Drug Discovery - VanNuys and Medical Research Renovation estimated at \$183/gsf, IUPUI Ball Residence Hall Renovation estimated at \$140/gsf, IUB Franklin Hall Academic Core Renovation estimated at \$152/gsf, IUB Old Crescent Renovation - Phase II estimated at \$183/gsf, and IUB Old Crescent Renovation - Phase III estimated at \$162/gsf.

Background Materials

The Indiana University Board of Trustees approved this project as part of the 2019-21 Legislative Capital Request at the August 2018 meeting. The cost of this project is estimated to be \$15 million, for which Indiana University requests a cash appropriation.

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Overall Space in ASF

Space Type Name	Current Space In Use	Space Under Construction	Space Planned And Funded	Subtotal Current And Future Space	Space to be Terminated	New Space In Capital Request	Net Future Space
(100) Classroom	293,147	0	16,862	310,009	0	8,962	318,971
(200) Class Lab	248,997	776	30,865	280,638	0	15,005	295,643
(200) Non-class Lab	646,135	0	24,183	670,318	0	11,025	681,343
(300) Office Facilities	1,930,540	0	57,555	1,988,095	0	33,423	2,021,518
(400) Study Facilities	344,125	17,867	1,636	363,628	0	6,572	370,200
(500) Special Use Facilities	334,963	0	0	334,963	0	6,453	341,416
(600) General Use Facilities	326,019	0	25,513	351,532	0	1,853	353,385
(700) Support Facilities	2,406,582	186	3,679	2,410,447	0	850	2,411,297
(800) Health Care Facilities	890,792	0	0	890,792	0	38,453	929,245
(900) Resident Facilities	538,402	14,610	41,559	594,571	0	0	594,571
(000) Unclassified	210,919	0	0	210,919	0	203	211,122
TOTAL SPACE	8,170,621	33,439	201,852	8,405,912	0	122,799	8,528,711

Space Detail Notes

Under construction: Primary Care Center Renovation

Planned and funded: Multidisciplinary Research and Classroom Building, 65,000 asf; Madam Walker Theatre Renovation, 28,815 asf; ICTC Information Technology Renovation, 41,071 asf; Ball Residence Hall Renovation, 66,966 asf

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Anticipated Construction Schedule

Bid Date:	<input type="text" value="March"/>	<input type="text" value="2020"/>
Start Construction:	<input type="text" value="May"/>	<input type="text" value="2020"/>
Occupancy (End Date):	<input type="text" value="November"/>	<input type="text" value="2021"/>

Estimated Cost for Project

		Cost Basis	Escalation Factors	Project Cost
Planning Costs	Engineering	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Architectural	<input type="text" value="\$900,000"/>	<input type="text" value="\$0"/>	\$900,000
	Consulting	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
Construction	Structure	<input type="text" value="\$6,000,000"/>	<input type="text" value="\$0"/>	\$6,000,000
	Mechanical (HVAC, plumbing, etc.)	<input type="text" value="\$4,200,000"/>	<input type="text" value="\$0"/>	\$4,200,000
	Electrical	<input type="text" value="\$3,000,000"/>	<input type="text" value="\$0"/>	\$3,000,000
Other	Movable Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Fixed Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Site Development/Land Acquisition	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	<input type="text" value="Contingency, Admin. & Legal Fees"/>	<input type="text" value="\$900,000"/>	<input type="text" value="\$0"/>	\$900,000
Total Estimated Cost		\$15,000,000	\$0	\$15,000,000

Cost Detail Notes

Cost Basis is based on current cost prevailing as of: August 2018

Institution:	Indiana University Schools of Medicine and Dentistry, Indianapolis	Project:	School of Dentistry Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-08
Submitted:	Yes	Last Updated:	8/23/2018 2:36 PM

General Project Information

Annual Operating Cost/Savings

	Personnel Services	Supplies and Expenses	Total Operating Cost	Cost per GSF
Operations	\$0	\$0	\$0	\$0.00
Maintenance	\$0	\$0	\$0	\$0.00
Fuel	\$0	\$0	\$0	\$0.00
Utilities	\$0	\$0	\$0	\$0.00
Other	\$0	\$0	\$0	\$0.00
Total Estimated Cost	\$0	\$0	\$0	\$0.00

Cost Detail Notes

Institution:	Indiana University-Purdue University-Indianapolis: General Academic	Project:	Bryce and Ott Buildings Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-09
Submitted:	Yes	Last Updated:	8/23/2018 3:04 PM

General Project Information

Project Name/Title:	Bryce and Ott Buildings Renovation	Institutional Priority:	4
Budget Agency Project No:	A-2-19-2-09	Project Type:	Repair and Rehabilitation
Previously Approved by General Assembly:	No	Previously Recommended by CHE:	No
		Part of the Institution's Long term Capital plan:	Yes

Justification Of Cost

<p>Similar projects include the IUPUI Rotary Building Renovation estimated at \$256/gsf, IUPUI Ball Residence Hall Renovation estimated at \$140/gsf, IUB Franklin Hall Academic Core Renovation estimated at \$152/gsf, IUB Old Crescent Renovation - Phase II estimated at \$183/gsf, and IUB Old Crescent Renovation - Phase III estimated at \$162/gsf.</p>

Funding

<p>The cost of this project is estimated to be \$15 million, for which Indiana University requests a cash appropriation.</p>
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Institution:	Indiana University-Purdue University-Indianapolis: General Academic	Project:	Bryce and Ott Buildings Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-09
Submitted:	Yes	Last Updated:	8/23/2018 3:04 PM

General Project Information

Project Size

	GSF	ASF	ASF/GSF
Project Size:	105,843	63,506	60%
Net Change in Overall Campus Space:	0	0	

Project Cost Summary

Total Project Cost:	\$15,000,000	Cost Per GSF/ASF:	\$142 GSF
			\$236 ASF

Project Funding

	Funding Amount	Funding Type	Funding Source Description
Funding Sources:	\$15,000,000	State	Cash
Total Funding	\$15,000,000		

Annual Cost

Estimated annual change in cost of building operations based on the project:	\$0
Estimated annual repair and rehabilitation investment:	\$0
Estimated annual debt payment:	\$0
Are the funds for the project secured:	No

Institution:	Indiana University-Purdue University-Indianapolis: General Academic	Project:	Bryce and Ott Buildings Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-09
Submitted:	Yes	Last Updated:	8/23/2018 3:04 PM

General Project Information

Detail Description of Project

Indiana University proposes the renovation of the former Wishard Hospital Complex Bryce and Ott Buildings located on the IUPUI campus. This project consists of renovating and transforming former hospital support spaces into academic and administrative spaces for the IU School of Medicine and the IUPUI campus. Renovations will include new energy efficient mechanical systems, upgraded building systems (electrical, plumbing, data, and fire suppression), accessibility upgrades, and updated roofs.

Relationship to Other Capital Improvement Projects: This project does not affect any other capital improvement projects.

Historical Significance: Bryce (1924) and Ott (1923) are the original buildings of the former Wishard Hospital campus.

Alternatives Considered: No other alternatives were considered due to the nature of this project.

Relationship to Long-Term Capital Plan for Indiana University: This project is included in the university's ten-year capital plan.

Institution:	Indiana University-Purdue University-Indianapolis: General Academic	Project:	Bryce and Ott Buildings Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-09
Submitted:	Yes	Last Updated:	8/23/2018 3:04 PM

General Project Information

Need & Purpose

Renovations will reinvigorate these buildings and make them an integral part of the IUPUI campus by providing much needed academic and administrative space for both the IU School of Medicine and the IUPUI campus as a whole.

Institution: Indiana University-Purdue University-Indianapolis: General Academic	Project: Bryce and Ott Buildings Renovation
Biennium: 2019-2021	Project No: A-2-19-2-09
Submitted: Yes	Last Updated: 8/23/2018 3:04 PM

General Project Information

Space Utilization

Hospital support spaces will be converted into academic and administrative space.

Comparable Projects

Similar projects include the IUPUI Rotary Building Renovation estimated at \$256/gsf, IUPUI Ball Residence Hall Renovation estimated at \$140/gsf, IUB Franklin Hall Academic Core Renovation estimated at \$152/gsf, IUB Old Crescent Renovation - Phase II estimated at \$183/gsf, and IUB Old Crescent Renovation - Phase III estimated at \$162/gsf.

Background Materials

The Indiana University Board of Trustees approved this project as part of the 2019-21 Legislative Capital Request at the August 2018 meeting. The cost of this project is estimated to be \$15 million, for which Indiana University requests a cash appropriation.

Institution:	Indiana University-Purdue University-Indianapolis: General Academic	Project:	Bryce and Ott Buildings Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-09
Submitted:	Yes	Last Updated:	8/23/2018 3:04 PM

General Project Information

Overall Space in ASF

Space Type Name	Current Space In Use	Space Under Construction	Space Planned And Funded	Subtotal Current And Future Space	Space to be Terminated	New Space In Capital Request	Net Future Space
(100) Classroom	293,147	0	16,862	310,009	0	0	310,009
(200) Class Lab	248,997	776	30,865	280,638	0	0	280,638
(200) Non-class Lab	646,135	0	24,183	670,318	0	0	670,318
(300) Office Facilities	1,930,540	0	57,555	1,988,095	0	0	1,988,095
(400) Study Facilities	344,125	17,867	1,636	363,628	0	0	363,628
(500) Special Use Facilities	334,963	0	0	334,963	0	0	334,963
(600) General Use Facilities	326,019	0	25,513	351,532	0	0	351,532
(700) Support Facilities	2,406,582	186	3,679	2,410,447	0	0	2,410,447
(800) Health Care Facilities	890,792	0	0	890,792	0	0	890,792
(900) Resident Facilities	538,402	14,610	41,559	594,571	0	0	594,571
(000) Unclassified	210,919	0	0	210,919	0	63,506	274,425
TOTAL SPACE	8,170,621	33,439	201,852	8,405,912	0	63,506	8,469,418

Space Detail Notes

Under construction: Primary Care Center Renovation

Planned and funded: Multidisciplinary Research and Classroom Building, 65,000 asf; Madam Walker Theatre Renovation, 28,815 asf; ICTC Information Technology Renovation, 41,071 asf; Ball Residence Hall Renovation, 66,966 asf

New space: Buildings are currently vacant so all space unclassified

Institution:	Indiana University-Purdue University-Indianapolis: General Academic	Project:	Bryce and Ott Buildings Renovation
Biennium:	2019-2021	Project No:	A-2-19-2-09
Submitted:	Yes	Last Updated:	8/23/2018 3:04 PM

General Project Information

Anticipated Construction Schedule

Bid Date:	<input type="text" value="December"/>	<input type="text" value="2019"/>
Start Construction:	<input type="text" value="February"/>	<input type="text" value="2020"/>
Occupancy (End Date):	<input type="text" value="November"/>	<input type="text" value="2021"/>

Estimated Cost for Project

		Cost Basis	Escalation Factors	Project Cost
Planning Costs	Engineering	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Architectural	<input type="text" value="\$900,000"/>	<input type="text" value="\$0"/>	\$900,000
	Consulting	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
Construction	Structure	<input type="text" value="\$6,000,000"/>	<input type="text" value="\$0"/>	\$6,000,000
	Mechanical (HVAC, plumbing, etc.)	<input type="text" value="\$4,200,000"/>	<input type="text" value="\$0"/>	\$4,200,000
	Electrical	<input type="text" value="\$3,000,000"/>	<input type="text" value="\$0"/>	\$3,000,000
Other	Movable Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Fixed Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Site Development/Land Acquisition	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	<input type="text" value="Contingency, Admin. & Legal Fees"/>	<input type="text" value="\$900,000"/>	<input type="text" value="\$0"/>	\$900,000
Total Estimated Cost		\$15,000,000	\$0	\$15,000,000

Cost Detail Notes

Cost Basis is based on current cost prevailing as of: August 2018

Institution: Indiana University-Purdue University-Indianapolis: General Academic	Project: Bryce and Ott Buildings Renovation
Biennium: 2019-2021	Project No: A-2-19-2-09
Submitted: Yes	Last Updated: 8/23/2018 3:04 PM

General Project Information

Annual Operating Cost/Savings

	Personnel Services	Supplies and Expenses	Total Operating Cost	Cost per GSF
Operations	\$0	\$0	\$0	\$0.00
Maintenance	\$0	\$0	\$0	\$0.00
Fuel	\$0	\$0	\$0	\$0.00
Utilities	\$0	\$0	\$0	\$0.00
Other	\$0	\$0	\$0	\$0.00
Total Estimated Cost	\$0	\$0	\$0	\$0.00

Cost Detail Notes

Institution:	Indiana University System	Project:	Fort Wayne Health Sciences Planning Study
Biennium:	2019-2021	Project No:	A-0-19-6-10
Submitted:	Yes	Last Updated:	8/23/2018 2:43 PM

General Project Information

Project Name/Title:	Fort Wayne Health Sciences Planning Study	Institutional Priority:	5
Budget Agency Project No:	A-0-19-6-10	Project Type:	Other
Previously Approved by General Assembly:	No	Previously Recommended by CHE:	No
		Part of the Institution's Long term Capital plan:	No

Justification Of Cost

As this is a planning study, square footage calculations are not applicable.

Similar projects include the IUPUI Sports District Planning Study (\$3 million) and the Evansville Medical Education Center A&E study (\$2 million).

Funding

The cost of this project is estimated to be \$3 million, for which Indiana University requests a cash appropriation.

Institution: Indiana University System

Project: Fort Wayne Health Sciences Planning Study

Biennium: 2019-2021

Project No: A-0-19-6-10

Submitted: Yes

Last Updated: 8/23/2018 2:43 PM

General Project Information

Project Size

	GSF	ASF	ASF/GSF
Project Size:	<input type="text" value="0"/>	<input type="text" value="0"/>	
Net Change in Overall Campus Space:	<input type="text" value="0"/>	<input type="text" value="0"/>	

Project Cost Summary

Total Project Cost:	<input type="text" value="\$3,000,000"/>	Cost Per GSF/ASF:	GSF ASF
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Project Funding

	Funding Amount	Funding Type	Funding Source Description
Funding Sources:	<input type="text" value="\$3,000,000"/>	<input type="text" value="State"/>	<input type="text" value="Cash"/>
Total Funding	\$3,000,000		

Annual Cost

Estimated annual change in cost of building operations based on the project:	<input type="text" value="\$0"/>
Estimated annual repair and rehabilitation investment:	<input type="text" value="\$0"/>
Estimated annual debt payment:	<input type="text" value="\$0"/>
Are the funds for the project secured:	<input type="text" value="No"/>

Institution:	Indiana University System	Project:	Fort Wayne Health Sciences Planning Study
Biennium:	2019-2021	Project No:	A-0-19-6-10
Submitted:	Yes	Last Updated:	8/23/2018 2:43 PM

General Project Information

Detail Description of Project

Indiana University seeks to assess space needs for programs in Health Sciences at the IU Fort Wayne campus. Academic programs currently offered on the Fort Wayne campus include Dentistry, Medical Imaging and Medicine, Nursing, and Social Work. A study is needed to assess the current and future programmatic needs of these disciplines in the context of enrollment growth as well as the university's ability to provide the state with an increased supply of highly-trained health professionals to serve growing demand. This study will assess physical space needs as well as infrastructure.

Relationship to Other Capital Improvement Projects: This project does not affect any other capital improvement projects.

Historical Significance: The area to be studied does not contain facilities of historical significance.

Alternatives Considered: The nature of this project is to determine possible facility and infrastructure opportunities and alternative uses.

Relationship to Long-Term Capital Plan for Indiana University: This project will codify the current use and potential expansion of Health Sciences programming at IU Fort Wayne.

Institution:	Indiana University System	Project:	Fort Wayne Health Sciences Planning Study
Biennium:	2019-2021	Project No:	A-0-19-6-10
Submitted:	Yes	Last Updated:	8/23/2018 2:43 PM

General Project Information

Need & Purpose

Students, faculty, and staff within IU Fort Wayne Health Sciences programs including Dentistry, Medical Imaging and Medicine, Nursing, and Social Work currently share non-dedicated space with other programs. Depending upon the program, students may learn at the undergraduate or graduate level, with these programs having the potential for significant long term growth. A study is needed to assess the current and future programmatic needs of these disciplines in the context of enrollment growth as well as the university's ability to provide the state with an increased supply of highly-trained health professionals to serve growing demand.

Institution: Indiana University System	Project: Fort Wayne Health Sciences Planning Study
Biennium: 2019-2021	Project No: A-0-19-6-10
Submitted: Yes	Last Updated: 8/23/2018 2:43 PM

General Project Information

Space Utilization

As this is a planning study, current and possible future space utilization will be carefully considered and recommendations made in concert with the programmatic needs of the programs involved.

Comparable Projects

As this is a planning study, square footage calculations are not applicable.

Similar projects include the IUPUI Sports District Planning Study (\$3 million) and the Evansville Medical Education Center A&E study (\$2 million).

Background Materials

The Indiana University Board of Trustees approved this project as part of the 2019-21 Legislative Capital Request at the August 2018 meeting. The cost of this project is estimated to be \$3 million, for which Indiana University requests a cash appropriation.

Institution: Indiana University System**Project:** Fort Wayne Health Sciences Planning Study**Biennium:** 2019-2021**Project No:** A-0-19-6-10**Submitted:** Yes**Last Updated:** 8/23/2018 2:43 PM**General Project Information****Overall Space in ASF**

Space Type Name	Current Space In Use	Space Under Construction	Space Planned And Funded	Subtotal Current And Future Space	Space to be Terminated	New Space In Capital Request	Net Future Space
(100) Classroom	0	0	0	0	0	0	0
(200) Class Lab	0	0	0	0	0	0	0
(200) Non-class Lab	0	0	0	0	0	0	0
(300) Office Facilities	0	0	0	0	0	0	0
(400) Study Facilities	0	0	0	0	0	0	0
(500) Special Use Facilities	0	0	0	0	0	0	0
(600) General Use Facilities	0	0	0	0	0	0	0
(700) Support Facilities	0	0	0	0	0	0	0
(800) Health Care Facilities	0	0	0	0	0	0	0
(900) Resident Facilities	0	0	0	0	0	0	0
(000) Unclassified	0	0	0	0	0	0	0
TOTAL SPACE	0	0	0	0	0	0	0

Space Detail Notes

As this is a planning study, ASF is not applicable.

Institution: Indiana University System

Project: Fort Wayne Health Sciences Planning Study

Biennium: 2019-2021

Project No: A-0-19-6-10

Submitted: Yes

Last Updated: 8/23/2018 2:43 PM

General Project Information

Anticipated Construction Schedule

Bid Date:

Start Construction:

Occupancy (End Date):

Estimated Cost for Project

		Cost Basis	Escalation Factors	Project Cost
Planning Costs	Engineering	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Architectural	<input type="text" value="\$3,000,000"/>	<input type="text" value="\$0"/>	\$3,000,000
	Consulting	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
Construction	Structure	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Mechanical (HVAC, plumbing, etc.)	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Electrical	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
Other	Movable Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Fixed Equipment	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	Site Development/Land Acquisition	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
	<input type="text" value="Other - Please List"/>	<input type="text" value="\$0"/>	<input type="text" value="\$0"/>	\$0
Total Estimated Cost		\$3,000,000	\$0	\$3,000,000

Cost Detail Notes

Institution: Indiana University System

Project: Fort Wayne Health Sciences Planning Study

Biennium: 2019-2021

Project No: A-0-19-6-10

Submitted: Yes

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General Project Information

Annual Operating Cost/Savings

	Personnel Services	Supplies and Expenses	Total Operating Cost	Cost per GSF
Operations	\$0	\$0	\$0	
Maintenance	\$0	\$0	\$0	
Fuel	\$0	\$0	\$0	
Utilities	\$0	\$0	\$0	
Other	\$0	\$0	\$0	
Total Estimated Cost	\$0	\$0	\$0	

Cost Detail Notes

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