



Department of
Higher Education

Mike DeWine, Governor
Randy Gardner, Chancellor

Research Incentive – Request for Proposal

Timelines

Request for Proposals Released	August 9, 2021
Proposals Submission Window	August 9 - September 13, 2021
Proposal Review Begins	September 14, 2021
Notification of Awarded Proposals	October 26, 2021

Submissions

One electronic PDF copy sent by the submission date to <https://icorpsohio.org/apply/>

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Research Incentive – Request for Proposal

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Third Frontier Research Incentives Request for Proposals Submission

I. Program Overview

Section 381.520 (**Research Incentive Third Frontier**) of Amended Substitute House Bill Number 110 of the 134th Ohio General Assembly authorizes the Chancellor of Higher Education to use appropriated funds under this section to advance collaborative research at institutions of higher education and support programs and initiatives specifically identified in this section. Research areas, programs, and initiatives eligible for funding pursuant to this Request for Proposal (RFP) include:

A. Research Areas¹

1. Research regarding the reduction of infant mortality
2. Research regarding opiate addiction issues in Ohio
3. Research and programming regarding the advancement of cybersecurity initiatives in Ohio

B. Programs and Initiatives

1. I-Corps@Ohio program
2. Ohio Innovation Exchange

II. About Third Frontier Funding

Use of funds appropriated through the Ohio Third Frontier Initiatives is governed by the Ohio Constitution. Specifically, funds appropriated via section 321.520 of HB 110 are governed by Article VIII Section 2p (**Issuance of bonds for economic and educational purposes and local government projects**). Section 2p(A)(2) of this article authorizes bonds to be issued for “research and development purposes”. **Pursuant to this section, research and development funded under this article must be in support of Ohio industry, commerce, and business.** Projects or initiatives supported pursuant to this article include:

- A.** General research meeting the intent of this section
- B.** Product innovation
- C.** Development and commercialization through efforts by and collaboration among:
 1. Ohio business and industry
 2. State and local public entities and agencies

¹ Section 381.520 of house bill 110 also includes as focus areas “Research regarding the improvement of water quality” and “Research regarding spinal cord injury.” The request for proposal process for Improvement of Water Quality is administered by the Ohio Sea Grant program at The Ohio State University, Ohioseagrant.osu.edu. The request for proposal process for Spinal Cord Injury will be administered by the Ohio Department of Higher Education in a separate Request for Proposal opportunity.

3. Public and private education institutions, or research organizations and institutions

Applicants will be required to demonstrate how their proposed project meets the intent of Article VIII.02p of the Ohio Constitution.

III. Eligible Applicants

- A. State universities as defined in section 3345.011 of the Revised Code
- B. A community college established under Chapter 3354 of the Revised Code
- C. A state community college established under Chapter 3358 of the Revised Code
- D. A non-profit private institution of higher education with a Certificate of Authorization issues pursuant to Chapter 1713 of the Ohio Revised Code
- E. Non-profit organizations whose primary mission is to engage in research working in collaboration with eligible institutions of higher education
- F. Economic Development organizations working in collaborations with eligible institutions of higher education
- G. Ohio industry and business organizations working in a public/private partnership with an eligible Ohio institution of higher education
- H. State agencies working in collaboration with Ohio institutions of higher education
- I. Administrators of the I-Corps@Ohio program
- J. Administrators and collaborators in the Ohio Innovation Exchange project
- K. Entities and organizations engaged in advancing cybersecurity initiatives, cyber security product development and cyber education in the state of Ohio

Eligible applicants are encouraged to form collaborative partnerships in order to leverage the collective capabilities of participating entities and increase the statewide impact of project awards.

IV. Anticipated Awards

The Chancellor has discretion in each fiscal year to award up to:

- A. \$1,000,000 for Infant Mortality Research
- B. \$1,000,000 for Opiate Addiction Research
- C. \$750,000 for Cyber Security Initiatives
- D. \$300,000 for the I-Corps@Ohio program
- E. \$200,000 for the Ohio Innovation Exchange

V. Eligible Expenses and Project Term

All award expenditures must be properly documented following Ohio Revised Code and Administrative rules.

It is anticipated that awards pursuant to this RFP will be issued beginning October 26, 2021 and will continue through June 30, 2022, with an option to renew the award through June 30, 2023. This time period covers academic years 2021-2022 and 2022-2023. Successful applicants will be required to submit final expense reports on a schedule determined by the Ohio Department of Higher Education.

VI. Award Recommendations

The Chancellor, after considering the recommendations of independent reviewers shall make the final determination regarding which proposals, if any, shall receive an award. **Applicants should pay particular attention to enclosed instructions as to where to submit proposals as the independent review process will not be the same for all focus areas.**

VII. Proposal Review Process and Timeline

Proposals can be submitted beginning August 9, 2021 and are due no later than September 13, 2021. They must be submitted in the following manner:

- A. For proposals related to Infant Mortality research, Opiate Addiction research, Cyber Security initiatives, and the Ohio Innovation Exchange, one electronic PDF file sent to <https://icorpsohio.org/apply/>
- B. For proposals related to the I-Corps@Ohio program, one electronic PDF file sent to csee@highered.ohio.gov

Applicants are responsible for timely submissions of proposals. Proposals become property of ODHE and are subject to public record laws of the state. Proposals containing all the required elements will receive careful consideration but cannot be guaranteed funding. Accepted proposals will be evaluated by an independent review team selected by the Chancellor. The Chancellor will make final decisions based upon the quality of the proposal in addressing the RFP criteria and its required elements and the recommendation of the independent review process. The schedule below may be revised by ODHE due to circumstances and any changes will be communicated to the applicants via e-mail and posted on <https://www.ohiohighered.org/grants-rfps>.

Request for Proposals Released	August 9, 2021
Proposals Submission Window	August 9 - September 13, 2021
Proposal Review Period	September 14 - October 12, 2021
Notification of Awarded Proposals	October 26, 2021

* Funds will be available to awardees after execution of a Memorandum of Understanding with ODHE.

ODHE will provide an opportunity for potential applicants to seek assistance regarding their application through technical assistance. Applicant questions are to be submitted in writing via email to csee@highered.ohio.gov and mdunn@highered.ohio.gov. Responses to questions will be posted online at <https://www.ohiohighered.org/grants-rfps>.

VIII. Proposal Review Process and Timeline

Proposal Requirements

A. Format

Proposals must be submitted in Arial font, 11 points or larger; there is an exception for tables and images. Please see below for page allocations and directions for each section of the proposal.

1. **Cover Letter (one page):** Title of project; identify the primary contact plus the fiscal agent by name, title, address, phone number, and email address.
2. **Executive Summary (one page maximum):** Include: 1) brief overview of the research to be conducted or the initiative or program to be supported; 2) a synopsis of how the research will be conducted or the plan to execute the initiative or program proposed; 3) a description of the anticipated conclusions of the research or outcomes of the program or initiative; 4) a description of any potential development of new products or innovative advances based upon the research being conducted or program or initiative being advanced; 5) a description of how the research or initiative will support Ohio business, industry, or commerce.
3. **Project Narrative (12 pages maximum):** Should address the proposal criteria in the order outlined in **section C** of this proposal.
4. **Budget Narrative & Budget Table (two pages maximum):** The budget narrative will provide background related to the costs of the project and its deployment.
 - a. The budget narrative should include:
 - i. One to two paragraph descriptions of the activities and expenses included in each budget line.
 - ii. Prioritization of activities in order of most critical to project completion or success.
 - iii. Explanation of how the program's costs were calculated.
 - iv. Description of any matching funds that will be leveraged clearly labeled.
 - v. Note: Indirect costs are capped at a maximum of 8%.
5. **Attachments:** Proof of commitment form for all parties responsible for the implementation of the research or project initiative is required: this includes letters of commitment and/or agreements from collaborative partners if applicable.

B. General Principles for Project Focus Areas

Applicants are not limited with respect to the subject matter they propose to address within each identified focus area; however, preference will be given to proposal focusing on the following themes and general principles:

1. Research Regarding Infant Mortality

Infant mortality is the mark of the health of a state or city. Ohio does not fare well, particularly as African-American babies are almost three times more likely to not reach their first birthdays compared to Caucasians (1). While many research and community efforts are under way to address the concerns, this opportunity focuses on putting tools directly in the hands of those affected. Such tools empower women and families to be the best mothers and families they can be, creating a platform for better communication and teamwork, which improves the patient experience and reduces total costs of care. To this end, preferred proposals will include research and other solutions that:

- a. Develop and implement tools that accurately identify women at risk and risk for poor infant outcomes with a focus on African-American women and other high-risk populations using predictive modeling, including:
 - i. Tools that could be linked to clinical decision support, guiding the ideal health care associated with best outcomes, including dyad care for both the mother and infant.
 - ii. Tools that could be incorporated into pregnancy and infant care apps and made available for smart phones, including those that improve social and emotional competence for mothers and leverage social media to connect mothers to peer support.
 - iii. Tools that could be part of the electronic health record for use by hospitals and providers to demonstrate system, population health improvement and dyad care for both the mother and infant.
 - iv. Tools that could be used by community-based organizations, peer mentors, and others working directly with women at risk for poor infant outcomes, including those that provide direct, real-time smart phone connection from mothers to peers and supports (e.g., for infant care questions and resources, including local resources for immediate needs)
 - v. Tools that leverage social media to identify areas where additional support for mothers and infants is needed
- b. Identify and incorporate into their research and solutions community and business organizations that could utilize tools to improve health outcomes, such as community-based organizations that offer navigation, coordination, home visiting, and other support services for pregnant women.
- c. Advance accurate population modeling to incorporate social determinants of health and other factors unique to Ohio.
- d. Develop local mapping tools that could be used by community-based organizations to improve health outcomes and reduce disparities.

2. Research Regarding Opiate Addition Issues

Over 90% of individuals who have opioid use disorder do not think they have a problem that requires treatment. Developing tools for both individuals, families, and treatment providers to identify risk of fatal and non-fatal overdose as well as best opportunities to initiate evidence-based care may raise awareness. To this end, this proposal will focus on research and other solutions that:

- a. Develop tools that accurately identify persons at risk of opiate abuse issues using predictive modeling.
- b. Develop employer and employee-facing apps to monitor effective treatment progress and risk for relapse which could address both treatment and workforce retention issues.
- c. Advance population modeling to incorporate social determinants of health and other factors unique to Ohio.
- d. Develop local mapping tools that could be used by community and business organizations to improve health equity.
- e. Develop local mapping tools that could be used by state, regional and local policymakers to develop targeted interventions in areas of highest need.

References:

Ohio Department of Health. (2019). *2019 Infant Mortality Annual Report*.
https://odh.ohio.gov/wps/wcm/connect/gov/e30e2521-b6ae-4d75-a5fa-09c4241feb42/Infant+Mortality+Report+2019.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-e30e2521-b6ae-4d75-a5fa-09c4241feb42-nq6i5Cy Accessed July 19, 2021.

3. Research and Programing regarding Cybersecurity Initiatives

As society has become more reliant on technology, the need for both business, and consumer to have confidence in the security of the systems that house its data and personal information is ever increasing. For business, and government cybersecurity breaches result in economic loss and loss of reputation. For consumers, cyber security breaches can result in the theft of their identity. To meet the persistent challenge that cybersecurity presents, the state will need to engage in multiple strategies across multiple sectors. To this end, this opportunity will focus on programming and initiatives that:

- a. Advance cybersecurity education and programming to K-12 students and teachers.
- b. Develop virtual and physical environments where Ohio citizens, students and cyber professionals have access to cybersecurity curriculum, programming, and advanced training opportunities.
- c. Advance strategies that systemically foster cybersecurity awareness and training initiatives statewide.
- d. Develop Cybersecurity Centers of Excellence.
- e. Work in collaboration with governmental agencies and other organizations to develop processes to rapidly address cybersecurity breaches at Ohio businesses and governmental entities.
- f. Develop products and other tools that advance how cybersecurity threats can be efficiently detected and remediated.

4. I-Corps@Ohio Program

I-Corps@Ohio is a statewide program that was developed to assist faculty, staff and students from Ohio universities, colleges, and community colleges in validating the market potential of technologies and launching start-up companies.

I-Corps@Ohio is modeled after the National Science Foundation's (NSF) successful I-Corps (Innovation Corps) program, which has been proven to increase innovation, entrepreneurship, and industry collaboration. The I-Corps@Ohio program incorporates lean launch, customer discovery, and business model innovation methodologies to assess technologies and enhance the business acumen and networks of research faculty and students across the state. The long-term objective is to drive sustainable technology-based, entrepreneurial economic development in Ohio. The primary goal of the I-Corps@Ohio program is to advance the translation of fundamental research to innovative products and services that drive scalable business models that serve as the basis for startup companies. This opportunity focuses on programming and initiatives in support of I-Corps@Ohio that:

- a. Establish programing that enables faculty, staff, and students from Ohio's institutions of high education to determine the market viability of technology concepts.

- b. Establish programming that educates Ohio faculty, staff, and postsecondary students on best practices for advancing research to product and technology development and commercialization.
- c. Establish programming that assists present and aspiring entrepreneurs from Ohio institutions of higher education in connecting to Ohio resources that support the advancement of new product development and new technologies.

5. Ohio Innovation Exchange

The Ohio Innovation Exchange (OIEx) connects industry and business with professors, students, equipment, and facilities available at Ohio research universities. OIEx provides access to more than 10,000 faculty and 600 resources from campuses and laboratories around the state, with a mission to facilitate collaboration between Ohio's leading academics & business minds. This opportunity focuses on programming and initiatives in support of OIEx that provide:

- a. Programming and products that will improve the functionality of the Ohio Innovation exchange.
- b. Initiatives that will improve awareness and use of the Ohio Innovation Exchange by Ohio industry and higher education institutions.

All proposals, where applicable, should build upon existing work in Ohio that has advanced understanding in these fields and should take into account Ohio's unique challenges and characteristics.

C. Project narratives are required to address the following criteria:

6. Project Rationale and Area Focus

- a. Describe the research area of focus, initiative, or project to be undertaken.
- b. Provide relevant baseline data or other information used to identify the proposed area of research or program initiative.
- c. Describe prior research or work performed in the area of focus, conclusions reached, and why additional research or work is being proposed.
- d. Describe how the research or execution of the program or initiative will be conducted, and how the chosen method will lead to actionable results.
- e. Describe preliminary assumptions regarding research outcomes or program or initiatives goals (What are you trying to accomplish).
- f. Attach any exhibits, maps, data tables, or other relevant information.
- g. Applicants should identify whether the proposed project is part of an existing effort or if the proposal is a new project. If the proposal is part of an existing effort, the applicant should describe:**
 - i. Previous funding for the existing project.**
 - ii. Available funding at the time of the proposal.**
 - iii. How funds, if awarded through this process, will advance the current work.**
 - iv. How activities described in this proposal are new and distinguishable from activities previously funded.**

7. **Partnerships and Collaborations** - List and describe any collaborations that will be part of the proposed research, program, or initiative. Describe the specific roles and responsibilities of each project collaborator. Collaborations must be documented in a letter of commitment from each anticipated collaborator.
8. **Support of Ohio Industry** - Describe how the research, program or initiative will support Ohio industry, business or commerce, specifically describe where applicable³:
 - a. The specific industry potentially impacted by the research, program or initiative.
 - b. The size of the potential market impact of the research, program or initiative.
 - c. The specific industry problem being addressed.
 - d. The specific customer segment targeted by the research, program or initiative
 - e. Any products or technologies being developed.
 - f. The potential economic impact of the research, program or initiative.
9. **Sustainability** - Describe how the research or initiative will be sustained beyond the funding period and what potential the research, program or initiative has for long-term and lasting impact. **Note: Applicants should provide evidence of commitment to ensure sustainability after the funding period.**
10. **Project Plan** - This section should provide a clear description and timeline for activities to be undertaken and should:
 - a. Outline the roles and responsibilities of key staff members and provide brief biographies.
 - b. Provide a GANNT chart for the entire project with proposed activities, dependencies, and estimated completion milestone for each activity.
11. **Project Evaluation** - Explain how project success will be measured. The evaluation plan should include both formative and summative measurements where applicable. Project evaluation must include a system to measure the success of the research, program or initiative and the impact on Ohio business, industry or commerce. Specifically:
 - a. Describe the evaluation design.
 - b. Describe the ongoing evaluation process, including collecting data, analyzing data, responding to data.
 - c. Provide a timeline for the evaluation process, including formative and summative evaluations complementing the project GANNT chart.

IX. Reporting Requirements

The Ohio Department of Higher Education will monitor each project for which an award is granted to ensure that there is fiscal accountability, and operating progress. Regular reports will be required from all awardees through a standard reporting template or system.

³ Applicants pursuing funding for research regarding Reduction in Infant Mortality and Issues Regarding Opiate Addiction, may consider how any proposed research, program, or initiative impacts Ohio's Healthcare Industry irrespective of potential economic impact.

X. Legal Notices

The applicant understands that if its application is accepted by the State, the applicant shall enter into an agreement with the State governing the use of the awarded funds. The applicant agrees to comply with all applicable federal, state, and local laws and regulations in the conduct of the work hereunder.

The State reserves the right to fund any application in full or in part, to request additional information to assist in the review process, to require new applications from interested parties, to reject any or all applications responding to this announcement, or to reissue the announcement if it is determined that it is in the best interest of the State of Ohio. Issuing this announcement does not bind the State to making any awards. The State reserves the right to adjust the dates for this announcement for whatever reasons are deemed appropriate. The State reserves the right to waive any non-substantive infractions made by an applicant, provided that the applicant cures such infraction upon request.

All costs incurred in preparation of an application shall be borne by the applicant. Application preparation costs are not recoverable under an award. The State of Ohio shall not contribute in any way to recovering the costs of application preparation.

The funding decisions are final. Applicants will be notified of the outcome of their application(s) at the conclusion of the review process.

The applicant understands that the information provided herein is intended solely to assist the applicant in submittal preparation. To the best of the State's knowledge, the information provided is accurate. However, the State does not warrant such accuracy, and any errors or omissions subsequently determined will not be construed as a basis for invalidating this solicitation. Interested parties bear the sole responsibility of obtaining the necessary information to submit a qualifying application. The State retains the right to modify or withdraw this solicitation at any time. By submitting an application, applicants expressly agree to these terms.

XI. Trade Secrets

All lead applicants are strongly discouraged from including in a proposal any information that the lead applicant considers to be a "trade secret," as that term is defined in Section 1333.61(D) of the Ohio Revised Code. All information submitted in response to this RFP is public information unless a statutory exception exists that exempts it from public release under the Ohio Public Records Act in Section 149.43 of the Ohio Revised Code.

If any information in the proposal is to be treated as a trade secret, the proposal must:

- A.** Identify each and every occurrence of the information within the proposal with an asterisk before and after each line containing trade secret information, and underline the trade secret information itself;
- B.** Identify that the proposal contains trade secret information in the cover letter; and
- C.** Include a summary page immediately after the cover letter that lists each page in the proposal that includes trade secret information and the number of occurrences of trade secret information on that page.
- D.** To determine what qualifies as trade secret information, refer to the definition of "trade secret" in the Ohio Revised Code at 1333.61(D), which is reproduced below for reference:
 1. "Trade Secret" means information, including the whole or any portion or phase of any scientific or technical information, design, process, procedure, formula,

pattern, compilation, program, device, method, technique or improvement, or any business information or plans, financial information, or listing of names, addresses, or telephone numbers that satisfies both of the following:

- a. It derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.
- b. (2) It is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.
 - i. The Ohio Department of Higher Education requires non-disclosure agreements from all non-ODHE persons who may have access to proposals containing trade secret information, including evaluators.
 - ii. If the applicant claims that a record is not subject to disclosure under the Ohio Public Records law based on trade secret, it will bear costs of defending this claim.

XII. Exhibits

A. Proposal Cover Letter –Template Example

Name of Lead Institution (only one)	
Project Start Date	
Lead Applicant –	Name and Address of Postsecondary Institution
Chief Contact Individual must be authorized to sign agency grant contract and legally responsible as agency representative.	Name/Title of legal representative Address, Telephone, and E-Mail
Project Director(s)- Key Personnel(s)	Name/Title, Address, Telephone, and E-Mail
Amount of state money requested	\$
Leveraged funds	\$
Brief project description	

XIII. Legal Applicant

Name: _____
Address: _____
City: _____ Zip: _____
Phone: _____ E-Mail: _____
CEO Name: _____

A. Certification by Authorized Official

To the best of my knowledge and belief, data contained in this application are true and correct.
The document has been duly authorized to comply with the required assurances.

Signature of Authorized Official: _____ Typed Name and Title: _____ Date _____

B. Administering Entity

Address: _____
City: _____ Zip: _____ Phone: _____
Contact Person: _____
Title: _____ E-Mail: _____

C. Collaborating Partners (please submit separate information for each partner)

Company Name: _____
Address: _____
City: _____ Zip: _____ Phone: _____ Contact Person: _____
Title: _____ E-Mail: _____

D. Service Provider and Program Partners (please submit separate information for each partner)

Name: _____
Address: _____
City: _____ Zip: _____
Phone: _____
E-Mail: _____
President/CEO/Director Name: _____

SECTION 381.520. RESEARCH INCENTIVE THIRD FRONTIER The foregoing appropriation items 235634, Research Incentive Third Frontier, and 235639, Research Incentive Third Frontier-Tax, shall be used by the Chancellor of Higher Education to advance collaborative research at institutions of higher education. Of the foregoing appropriation items 235634, Research Incentive Third Frontier, and 235639, Research Incentive Third Frontier - Tax, up to \$2,500,000 in each fiscal year may be allocated toward research regarding the improvement of water quality, up to \$1,500,000 in each fiscal year may be allocated for spinal cord research, up to \$1,000,000 in each fiscal year may be allocated toward research regarding the reduction of infant mortality, up to \$1,000,000 in each fiscal year may be allocated toward research regarding opiate addiction issues in Ohio, up to \$750,000 in each fiscal year may be allocated toward research regarding cyber security initiatives, up to \$300,000 in each fiscal year may be allocated toward the I-Corps@Ohio program, and up to \$200,000 in each fiscal year may be allocated toward the Ohio Innovation Exchange program.

Attachment B: Ohio Constitution Section VIII.02p

Issuance of bonds for economic and educational purposes and local government projects.

§2p (A) It is determined and confirmed that the development purposes referred to in this division, and provisions for them, are proper public purposes of the state and local governmental entities and are necessary and appropriate means to create and preserve jobs and enhance employment and educational opportunities; to improve the quality of life and the general and economic well-being of all the people and businesses in all areas of this state, including economically disadvantaged businesses and individuals; and to preserve and expand the public capital infrastructure; all to better ensure the public health, safety, and welfare. Those purposes are:

- (1) Public infrastructure capital improvements, which shall be limited to roads and bridges, waste water treatment systems, water supply systems, solid waste disposal facilities, and storm water and sanitary collection, storage, and treatment facilities, including real property, interests in real property, facilities, and equipment related to or incidental thereto, and shall include, without limitation, the cost of acquisition, construction, reconstruction, expansion, improvement, planning, and equipping;
- (2) Research and development in support of Ohio industry, commerce, and business (hereinafter referred to as “research and development purposes”), which shall include, without limitation, research and product innovation, development, and commercialization through efforts by and collaboration among Ohio business and industry, state and local public entities and agencies, public and private education institutions, or research organizations and institutions, all as may be further provided for by state or local law, but excluding purposes provided for in Section 15 of Article VIII, Ohio Constitution; and
- (3) Development of sites and facilities in Ohio for and in support of industry, commerce, distribution, and research and development purposes.

(B) The General Assembly may provide by law, in accordance with but subject to the limitations of this section, for the issuance of general obligation bonds and other obligations of the state for the purpose of financing or assisting in the financing of the cost of projects implementing those purposes.

- (1) Not more than one billion three hundred fifty million dollars principal amount of state general obligations may be issued under this section for public infrastructure capital improvements. Not more than one hundred twenty million dollars principal amount of those obligations may be issued in each of the first five fiscal years of issuance and not more than one hundred fifty million dollars principal amount of those obligations may be issued in each of the next five fiscal years of issuance, plus in each case the principal amount of those obligations that in any prior fiscal year could have been but were not issued within those fiscal year limits. No infrastructure obligations may be issued pursuant to this division and division (C) of this section until at least one billion one hundred ninety-nine million five hundred thousand dollars aggregate principal amount of state infrastructure obligations have been issued pursuant to Section 2m of Article VIII, Ohio Constitution.
- (2) Not more than one billion two hundred million dollars principal amount of state general obligations may be issued under this section for research and development purposes. Not more than four hundred

fifty million dollars principal amount of those obligations may be issued in total from fiscal years 2006 through 2011, not more than two hundred twenty-five million dollars principal amount of those obligations may be issued in the next fiscal year of issuance, and not more than one hundred seventy-five million dollars principal amount of those obligations may be issued in any other fiscal year, plus in each case the principal amount of those obligations that in any prior fiscal year could have been but were not issued.

(3) Not more than one hundred fifty million dollars principal amount of state general obligations may be issued under this section for development of sites and facilities for industry, commerce, distribution, and research and development purposes. Not more than thirty million dollars principal amount of those obligations may be issued in each of the first three fiscal years of issuance, and not more than fifteen million dollars principal amount of those obligations may be issued in any other fiscal year, plus in each case the principal amount of those obligations that in any prior fiscal year could have been but were not issued.

(C) Each issue of state general obligations for public infrastructure capital improvements or development of sites and facilities shall mature in not more than thirty years from the date of issuance, and each issue of state general obligations for research and development purposes shall mature in not more than twenty years from the date of issuance; or, if issued to retire or refund other obligations, within that number of years from the date the debt being retired or refunded was originally issued. If state general obligations are issued as notes in anticipation of the issuance of bonds, provision shall be made by law for the establishment and maintenance, during the period in which the notes are outstanding, of a special fund or funds into which shall be paid, from the sources authorized for the payment of such bonds, the amount that would have been sufficient, if bonds maturing during the permitted period of years had been issued without such prior issuance of notes, to pay the principal that would have been payable on such bonds during such period. Such fund or funds shall be used solely for the payment of principal of such notes or bonds in anticipation of which such notes have been issued.

Notwithstanding anything to the contrary in Section 2k or 2m of Article VIII, obligations issued under this section or Section 2k or 2m to retire or refund obligations previously issued under this section or Section 2k or 2m shall not be counted against the fiscal year or total issuance limitations provided in this section or Section 2k or 2m, as applicable.

The obligations issued under this division and division (B) of this section are general obligations of the state. The full faith and credit, revenue, and taxing power of the state shall be pledged to the payment of the principal of and premium and interest and other accreted amounts on outstanding obligations as they become due (hereinafter called debt service), and bond retirement fund provisions shall be made for payment of that debt service. Provision shall be made by law for the sufficiency and appropriation, for purposes of paying debt service, of excises, taxes, and revenues so pledged or committed to debt service, and for covenants to continue the levy, collection, and application of sufficient excises, taxes, and revenues to the extent needed for that purpose.

Notwithstanding Section 22 of Article II, Ohio Constitution, no further act of appropriation shall be necessary for that purpose. The obligations and the provision for the payment of debt service, and repayment by governmental entities of any loans made under this section, are not subject to Sections 5, 6,

and 11 of Article XII, Ohio Constitution. Moneys referred to in Section 5a of Article XII, Ohio Constitution may not be pledged or used for the payment of that debt service. Debt service on obligations issued for research and development purposes and for development of sites and facilities shall not be included in the calculation of total debt service for purposes of division (A) of Section 17 of Article VIII, Ohio Constitution.

(D)(1) The state may participate in any public infrastructure capital improvement under this section with municipal corporations, counties, townships, or other governmental entities as designated by law, or any one or more of them. Such participation may be by grants, loans, or contributions to them for any such capital improvements. The entire proceeds of the infrastructure obligations shall be used for public infrastructure capital improvements of municipal corporations, counties, townships, and other governmental entities, except to the extent that the General Assembly provides by law that the state may reasonably be compensated from such moneys for planning, financial management, or administrative services performed in relation to the issuance of infrastructure obligations.

(2)(a) Implementation of the research and development purposes includes supporting any and all related matters and activities, including: attracting researchers and research teams by endowing research chairs or otherwise; activities to develop and commercialize products and processes; intellectual property matters such as copyrights and patents; property interests, including time sharing arrangements; and financial rights and matters such as royalties, licensing, and other financial gain or sharing resulting from research and development purposes. State and local public moneys, including the proceeds of bonds, notes, and other obligations, may be used to pay costs of or in support of or related to these research and development purposes, including, without limitation, capital formation, direct operating costs, costs of research and facilities, including interests in real property therefor, and support for public and private institutions of higher education, research organizations or institutions, and private sector entities. The exercise of these powers by the state and state agencies, including state-supported and state-assisted institutions of higher education, and local public entities and agencies, may be jointly or in coordination with each other, with researchers or research organizations and institutions, with private institutions of higher education, with individuals, or with private sector entities. State and local public participation may be in such manner as the entity or agency determines, including by any one or a combination of grants, loans including loans to lenders or the purchase of loans, subsidies, contributions, advances, or guarantees, or by direct investments of or payment or reimbursement from available moneys, or by providing staffing or other support, including computer or other technology capacity, or equipment or facilities, including interests in real property therefor, and either alone or jointly, in collaborative or cooperative ventures, with other public agencies and private sector entities including not for profit entities. In addition to other state-level monetary participation as referred to in this section or otherwise, state-supported and state-assisted institutions of higher education may, as authorized from time to time by the General Assembly, issue obligations to pay costs of participating in and implementing research and development purposes. In addition to the other obligations authorized in or pursuant to this section, the General Assembly also may authorize the state and state agencies and local public entities and agencies, and corporations not for profit designated by any of them as such agencies or instrumentalities, to issue obligations to borrow and loan or otherwise provide moneys for research and development purposes, including, but not limited to, obligations for which moneys raised by taxation shall not be obligated or pledged for the payment of debt service and which are therefore not subject to Sections 5, 6, and 11 of Article XII, Ohio Constitution.

(b) Implementation of the research and development purposes shall include utilization of independent reviewers to review the merits of proposed research and development projects and to make recommendations concerning which proposed projects should be awarded support from the proceeds of the sale of obligations under this section. Prior to the utilization of an independent reviewer, the state agency proposing to award the support for a project shall provide the name and other descriptive information regarding the independent reviewer to the Governor, the President and Minority Leader of the Senate, and the Speaker and Minority Leader of the House of Representatives. If the recommendations of an independent reviewer with respect to a proposed project are not adopted by the state agency proposing to award the support for the project, the agency shall notify the Governor, the President and Minority Leader of the Senate, and the Speaker and Minority Leader of the House of Representatives of that fact and explain the reasons for not adopting the recommendations.

(c) From the proceeds of the sale of obligations issued under this section, not more than four hundred fifty million dollars may be awarded, promised, or otherwise committed in total for research and development purposes from fiscal years 2006 through 2011, not more than two hundred twenty-five million dollars may be awarded, promised, or otherwise committed for research and development purposes in fiscal year 2012, and not more than one hundred seventy-five million dollars may be awarded, promised, or otherwise committed for research and development purposes in any other fiscal year beginning in fiscal year 2013 and thereafter, plus in each case the amount of the proceeds that in any prior fiscal year could have been but were not awarded.

(3) Development of sites and facilities for and in support of industry, commerce, distribution, and research and development purposes includes acquisition of real estate and interests in real estate, site preparation including any necessary remediation and cleanup, constructing and improving facilities, and providing public infrastructure capital improvements and other transportation and communications infrastructure improvements for and in support of the use of those sites and facilities for those purposes. State and local public moneys, including the proceeds of bonds, notes, and other obligations, may be used to pay costs of those purposes. The exercise of these powers by the state and state agencies and local public entities and agencies, may be jointly or in coordination with each other, and with individuals or private sector business entities. State and local public participation may be in such manner as the entity or agency determines, including by any one or a combination of grants, loans including loans to lenders or the purchase of loans, subsidies, contributions, advances, or guarantees, or by direct investments of or payment or reimbursement from available moneys. In addition to other state-level monetary participation as referred to in this section or otherwise, state-supported and state-assisted institutions of higher education, and local public entities and agencies may, as authorized from time to time by the General Assembly, issue obligations to pay costs of participating in and implementing the development of sites and facilities.

(E) Obligations issued under authority of this section for research and development purposes and site and facility development purposes, provisions for the payment of debt service on them, the purposes and uses to which and the manner in which the proceeds of those obligations or moneys from other sources are to or may be applied, and other implementation of those development purposes as referred to in this section, are not subject to Sections 4 and 6 of Article VIII, Ohio Constitution. Obligations issued under authority of this section, the transfer thereof, and the interest, interest equivalent, and other income and accreted amounts therefrom, including any profit made on the sale, exchange, or other disposition thereof, shall at all times be free from taxation within the state.

(F) This section shall otherwise be implemented in the manner and to the extent provided by law by the General Assembly, including provision for the procedure for incurring and issuing obligations, separately or in combination with other obligations, and refunding, retiring, and evidencing obligations; provision for ensuring the accountability of all state funding provided for the development purposes referred to in division (A) of this section; provision for restricting or limiting the taking of private property under Section 19 of Article I for disposition to private sector entities for the purposes identified in divisions (A) (2) and (3) of this section or restricting the disposition of that property to private sector entities or individuals; and provision for the implementation of the development purposes referred to in division (A) of this section to benefit people and businesses otherwise qualified for receipt of funding for the development purposes referred to in division (A) of this section, including economically disadvantaged businesses and individuals in all areas of this state, including by the use to the extent practicable of Ohio products, materials, services, and labor.

(G) The powers and authority granted or confirmed by and under, and the determinations in, this section are independent of, in addition to, and not in derogation of or a limitation on, powers, authority, determinations, or confirmations under laws or under other provisions of the Ohio Constitution including, without limitation, Section 7 of Article I, Section 5 of Article VI, Sections 2i, 2n, 2o, 13, and 15 of Article VIII, Article X, and Section 3 of Article XVIII, and do not impair any previously adopted provisions of the Ohio Constitution or any law previously enacted by the General Assembly or by a local public agency.

Note: The request for proposal process for Improvement of Water Quality will administered by the Ohio Sea Grant program at The Ohio State University.

Note: The request for proposal process for Spinal Cord Injury will be administered by the Ohio Department of Higher Education through a separate Request for Proposal opportunity.