## WORK SESSION ITEM NO. 9

# POLICY PRINCIPLES DISCUSSION PAPER FOR ARIZONA'S BIOSCIENCE ROADMAP STEERING COMMITTEE

### **Policy Principles**

For a Bioscience Sector that Strengthens Arizona

#### DESCRIPTION

This document is a preliminary draft discussion paper for Arizona's Bioscience Roadmap Steering Committee.

It outlines possible policy principles to position Arizona as a global leader in the biosciences and provides examples of policies and strategies that *might* be considered to achieve this goal. In this context, the list of examples below is intended only to stimulate thinking. The list represents preliminary ideas of several bioscience stakeholders. Consequently, it is not all-inclusive and requires further fleshing out. The possible principles and policies/strategies simply are a starting point for discussion. Feedback from the Steering Committee is being sought and is welcome.

When finalized, the paper would be shared with legislators and other policymakers to ask for their support for the basic principles and to begin a discussion about the types of strategies that would advance the biosciences, a sector that is key to Arizona's economy and has a proven record of performance.

As stated in the paper, becoming a world leader in the biosciences will require a comprehensive approach that includes investments, reforms to our education system, collaborations, and other actions by policymakers and the broader community.

If adopted by the Steering Committee, the paper is not intended to be prescriptive. Instead, it is intended to serve as a catalyst for action by elected officials, business leaders, educational leaders, and others in a position to effect change. It will be incumbent on these leaders to identify the policies and strategies that are the most viable – that contribute the most to Arizona's prosperity and well being – and then lead the necessary efforts to achieve them.

#### **Proven Performance**

Arizona's bioscience sector illustrates the resilience and promise of our state. Since 2002, bioscience jobs have grown three times faster in Arizona than in the nation at large. During the recent recession, the biosciences added jobs, with wages 36 percent above the average for our state's private sector.

These are the kinds of jobs that make Arizona a better place to live: researchers, nurses, and doctors introducing cutting-edge cancer and Alzheimer's treatments for our citizens; farmers and small-business

owners taking next-generation biofuels to market; engineers and entrepreneurs building the most advanced health-data network in the world.

Arizona no longer competes only with neighbor states in the Southwest. We now compete globally, and we need industries like the biosciences with strong track records:

- Average annual wages: \$57,360 (2009, compared to \$42,090 for Arizona's private sector)
- Total jobs: 90,219 (2009, growth of 32% since 2002)
- Job growth during recession: +7% (2008-09, compared to -11% for Arizona's private sector)
- Total bioscience firms: 813 (2009, growth of 28% since 2002)
- State and local taxes generated annually: \$765 million (2007 Battelle economic-impact study)
- Direct economic impact generated annually: \$12.5 billion (2007).

The creation of the Arizona Commerce Authority and the passage of the Arizona Competitiveness Package will help ensure that an industry like the biosciences can build on its performance. Below are policy principles that could assist policymakers considering how to further support this economic engine for Arizona's future.

### DRAFT POLICY PRINCIPLES TO ADVANCE THE BIOSCIENCES

If Arizona leaders support the following policy principles and implement forward-thinking policies and strategies such as or similar to the examples listed below, our state *will* become a world leader in biosciences. However, achieving that outcome requires a comprehensive approach that includes investments, reforms to our educational system, and additional actions.

- Arizona should have a globally competitive business climate that enables emerging and established bioscience companies to thrive and motivates out-of-state bioscience firms to relocate to Arizona.
- Arizona should secure a reputation as a leader in deploying, assessing, and strengthening worldclass programs in science, technology, engineering, and math (STEM) education at the K-12 and post-secondary levels.
- 3. Arizona should implement practical, aggressive bioscience workforce-development programs to ensure that firms seeking skilled employees find a pool of qualified labor in Arizona.
- 4. Arizona should support competitive academic and private research programs capable of yielding new scientific advances and high-return commercial opportunities.
- 5. Arizona should develop a robust network of risk-capital funders with the expertise and interest to expand opportunities for start-up bioscience companies to secure seed funding.
- Arizona should establish creative mechanisms and tax policies to maximize opportunities for bioscience and other high-technology entrepreneurs to commercialize promising discoveries.

7. Arizona should develop and maintain leading-edge infrastructure, especially facilities for bioscience research and workforce training.

## EXAMPLES OF POSSIBLE POLICIES AND STRATEGIES THAT MIGHT BE CONSIDERED

#### **BUSINESS CLIMATE**

- Increase the number of years that a business can carry forward and claim a net operating
  loss from 5 to 20 so that Arizona policy is consistent with the federal carry-forward period and
  supportive of the development of new and innovative businesses.
- Implement an elective 100-percent sales factor for intangible services, including an option which allows either market-based or cost-of-performance sourcing for services.
- Expand military-reuse zones, so that former military bases and airports could be redeveloped for use by bioscience and other high-technology companies, not just aerospace companies, as is current policy.
- Apply the same formula for the state-level capital-gains tax that is used at the federal level in order to reduce overall capital gains taxes and stimulate investment.
- Allocate a portion of the deal closing funds for the recruitment of bioscience companies.
- Develop self-certification programs and other process improvements in Arizona's cities and towns in order to help to expedite the issuance of building permits for bioscience-related development.

#### STEM EDUCATION

- Develop a science endorsement for teachers, consistent with the Common Core science standards, that ensures that endorsed teachers understand and can convey the scientific process.
- Establish an alternative-route certification process for experts in science and technology, whether in industry or higher education, to become K-12 teachers.
- Strengthen STEM-education preparation for K-8 teachers in training, especially emphasizing how to demonstrate the scientific process in the classroom.
- Ensure that career and technical education (CTE) courses with STEM content convey K-12 math and science credit.
- Broaden interdisciplinary graduate research opportunities and graduate-level academic programs with clinical components.

• Expand programs offering recognition and awards to high-achieving graduate-student researchers.

#### **BIOSCIENCE WORKFORCE DEVELOPMENT**

- Allow job-training and workforce-development funds for internship positions with bioscience firms.
- Allow job-training and workforce development funds for STEM-related Career and Technical Education (CTE) programs.

#### SCIENTIFIC RESEARCH

- Dedicate funding to promising nonprofit and adademic research projects to increase success rate in applications for federal research grants and contracts.
- Offer matching funds to universities to help attract top-quality, research-intensive faculty.
- Support university development of laboratory space as investment to raise competitiveness of research programs.
- Provide public-sector match to private-sector funds for Science Foundation Arizona researchfunding awards.
- Support the advancement of precision medicine, including pursuit of a national biosignatures lab.
- Support the advancement of the UA College of Medicine-Phoenix.

#### **RISK CAPITAL**

- Form an information clearinghouse of experts and mentors to provide technical assistance and education to entrepreneurs applying for federal Small Business Innovation Research (SBIR) awards.
- Provide matching funds to entrepreneurs who apply for Phase I and Phase II SBIR awards.
- Expand Arizona's angel tax credit by providing tax credits to individuals investing in earlystage venture funds located in Arizona.
- Encourage the establishment of a Fund-of-Funds or similar program to provide seed-stage and early-stage investment capital for promising emerging biotechnology companies.

#### **COMMERCIALIZING DISCOVERIES**

- Create a New Ventures Center to quickly evaluate new technologies emerging from Arizona's public universities and offer "proof of concept funding" to those viable technologies that need support to advance toward commercialization.
- Expand training programs to encourage university student and faculty entrepreneurship.
- Facilitate more aggressive technology-transfer initiatives by reforming regulations related to intellectual property and the accrual of windfall gains.

#### **INFRASTRUCTURE**

- Provide incentives for construction of research facilities, especially wet labs.
- Provide incentives for construction of incubator space for start-up bioscience and hightechnology companies, especially redevelopment of unused facilities.
- Authorize university bonding to fund construction of facilities for training professionals in highpriority healthcare fields.
- Encourage relocation and expansion of bioscience firms by offering below-market property leases.