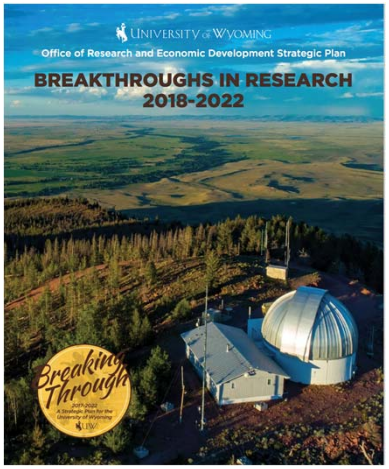

UW Research Goals: *Breakthroughs in Research*

ORED Goal 1: Breaking through in sponsored research - Increase research supported by external sponsors in all fields in areas of statewide, national and global interest. Raise institutional expectations and rewards regarding research intensity and external research sponsorship
- Aligned with UW *Breaking Through* Goals 1-4

ORED Goal 2: Breaking through to the marketplace - Facilitate intellectual property protection of ideas born from UW research, lead business development resources at the university, and work with the state and its initiatives to increase of the number and diversity of businesses launched
- Aligned with UW *Breaking Through* Goals 1-4

ORED Goal 3: Breaking through to new research horizons - Increase UW's capacity to respond to disruptive research developments that cannot be predicted, especially those that demand transdisciplinary responses and that are of national and global importance
- Aligned with UW *Breaking Through* Goals 1, 2, and 4

ORED Goal 4: Breaking through to new research talent - Increase research opportunities for UW campus and Wyoming community college students, enabled by a new Office of Undergraduate Research. Support increasing the number of underrepresented faculty who perform research and apply for grants that support growth in minority student representation.
- Aligned with UW *Breaking Through* Goals 1-4

ORED Goal 5: Breaking through with excellence in research administration - Implement an ORED organizational structure and practices to enables efficient and transparent research program administration and to engage a broad range of stakeholders
- Aligned with UW *Breaking Through* Goals 1-4

Office of Research and Economic Development Budget Proposal for 2021

Ed Synakowski
Vice President for Research and Economic Development

Amanda Larson
Director, Business Operations

May, 2020

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FY 2021 request features

- Centralize, augment, and serve: the resources requested are needed to enable ORED to serve campus and to fulfill obligations associated with Indirect Cost Recovery

- $9M is requested to fund ORED operations and meet UW obligations in FY 2021

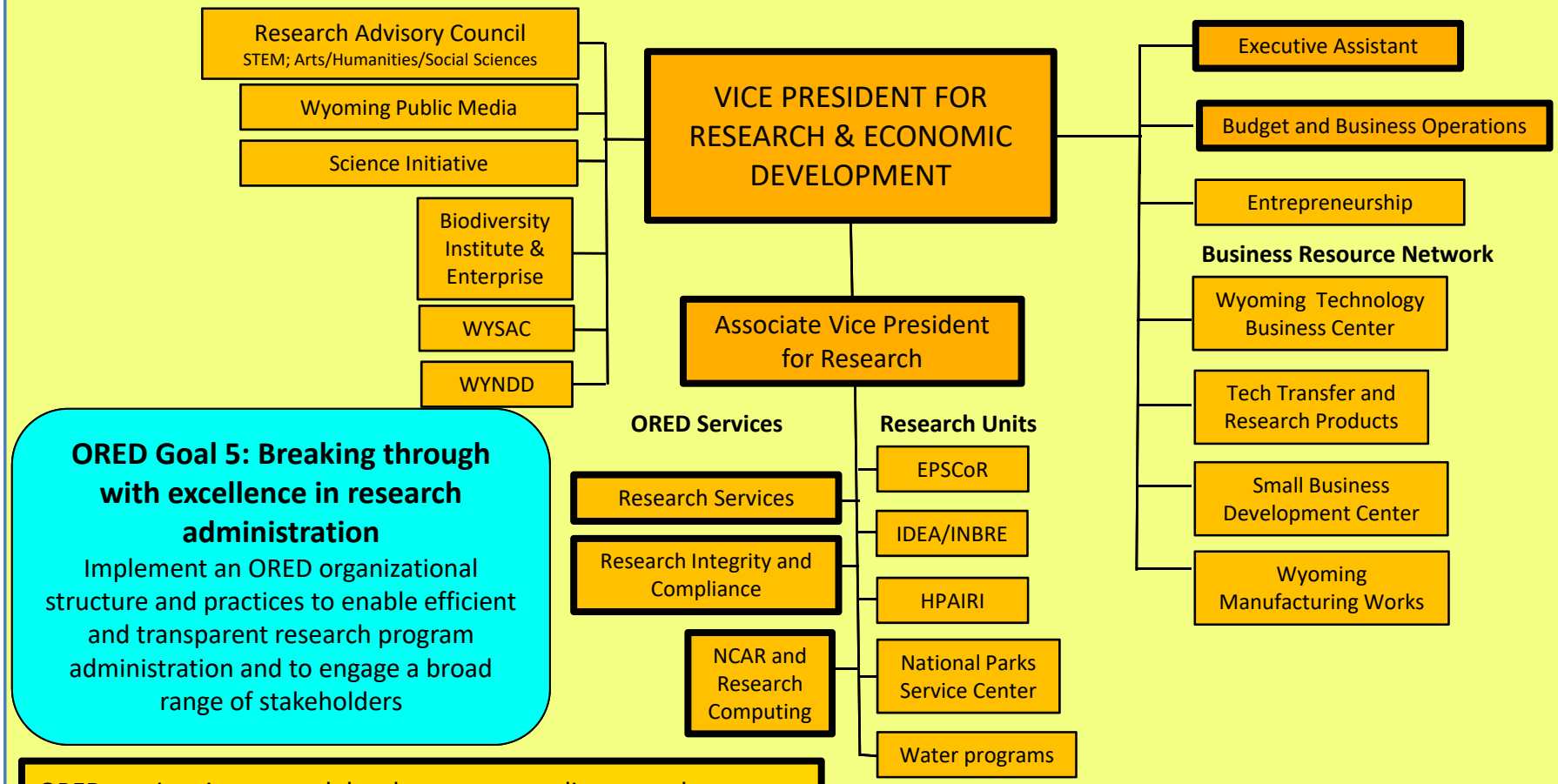
  - **$1.9M from the state block grant supports much of the administrative support functionality of ORED**

  - **$4.03M from indirect cost recovery funds annual operating costs of ORED and its units and to covers institutional obligations, esp. payroll**: AMK, ARCC, BI, CAES, COBRE, Faculty Grant and Aid, HPAIRI, NCAR, ORED, TTO, other). This amount is about the historical average of ICR returned to ORED

  - **$3.1M from indirect cost recovery returned to ORED, accrued from past distributions, is proposed for strategic investments for entities that aim to be fully or partially self-sustaining, or will stimulate sponsored research**: Grand Challenges, Center for Business and Economic Analytics, seed grants for Science Initiative and WIHR, King Air, WTBC additional investment, WyNDD, Water Center, Biodiversity Research Enterprise, faculty startup. These investments can be maintained for a couple of years, given indirect cost recovery from past years, but enduring solutions need to be found

- Requests are being developed for Special Projects Reserves to supplement these resources for to provide budget relief and for additional required investments not budgeted

This budget supports basic services essential to any research university, as well as research programs of institutional import



ORED Goal 5: Breaking through with excellence in research administration

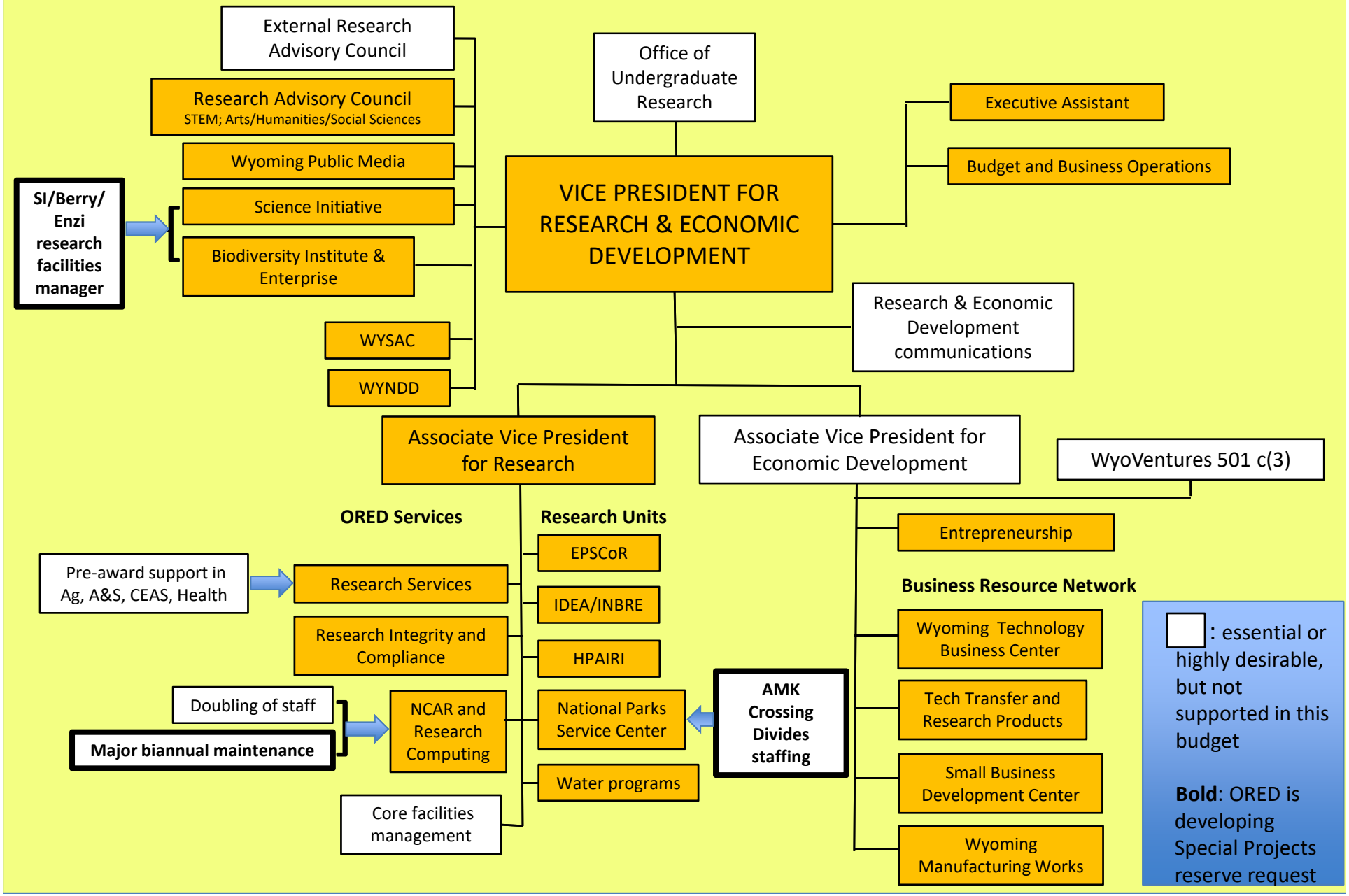
Implement an ORED organizational structure and practices to enable efficient and transparent research program administration and to engage a broad range of stakeholders

ORED services in proposal development, compliance, and budgeting:

- Research Services: 5 FTE
- Research Integrity and Compliance Office: 5 FTE
- Centralized budget ops: 4 FTE

Total ORED service staffing is up more than 100% since 2017, but is still well below the national norm for a university with UW's level of research intensity

Goal: To perform at the highest level and to bring ORED services to national norms, UW needs further research administration investment



ORED Goal 1: Breaking through in sponsored research

Increase research supported by external sponsors in areas of statewide, national, and global interest. Raise expectations and rewards regarding research intensity and external research sponsorship

ORED Goal 3: Breaking through to new research horizons

Increase UW's capacity to respond to disruptive research developments that cannot be predicted, especially those that demand transdisciplinary responses and that are of national and global importance

FY 2021: Investments and expenditures

- AMK Task Force: $40k for planning

  Special projects request for Program Director and Teton Scholars - $270k for 3 years
- Biodiversity Research Enterprise: $300k (indirects)
- Grand Challenge research planning & seed grants: $450k indirects budgeted

  Special Project Reserve additional request anticipated
- Research Computing: $560k state block/unrestricted, $800K indirects budgeted

  Special Projects Reserve request being developed Additional hardware investment needed in FY 2021 for $1.2M for biannual major maintenance
- Startup faculty support: $700k FY 2021 budgeted
  - *Special Projects Reserve request possible*
- Science Initiative program: appropriation from the legislature. Awarded FY2021: $1.15M regular non-block grant line item allocation

COVID research response: UW faculty and staff are serving at the leading edge

Potential transformation in COVID testing being prototyped

Professor Buerkle and colleagues are working to stand up a proof-of-principle laboratory method to hand off to the Department of Health to dramatically increase testing for SAR-CoV-2 in the state

- Based on techniques developed for the NSF EPSCoR program ($20M over five years. Ewers, PI) for massive DNA sequencing of Wyoming's microbiome

Modeling expertise advising, standing at the ready

A group of world-leading experts in epidemiology and "big data" is in place, providing advice to the state, including the Wyoming Department of Health regarding model forecasting of COVID trends, including commenting on strengths and limits of modeling used to guide policy.

CEAS producing 67% of all 3D printed PPE statewide, with WTCC

The EERB makerspace in CEAS has single-handedly produced 837 masks, 1,278 face shields, 697 laser cut visors, and 320 specialty parts and are still going at it 24/7, at no charge to 39 medical centers, facilities, Wyoming Homeland Security groups, & emergency responders. This represents fully 2/3 of the state's response to PPE needs

Alex Buerkle, Dept. of Botany and director, EPSCoR Data Science Center, leads these efforts

Tyler Kerr, MakerSpace coordinator

ORED Goal 2: Breaking through to the marketplace

Facilitate intellectual property protection of ideas born from UW research, lead business development resources at the university, and work with the state and its initiatives to increase the number and diversity of businesses launched

Activities include

- Strengthened relationship with Wyoming Business Council
- Investment to invigorate Casper and Sheridan WTBC made - $500k
- WTBC: Companies formed: 59 in 2019; 33 in 2018
- Tech Transfer Office Director hired
- New Manufacturing Works leadership team

FY 2021: Investments and expenditures

- Entrepreneurship (Center for Business and Economic Analytics; Law Practicum, Biosciences Hub): $121k from indirects
- Tech Transfer Office: (total 4 FTE Director, Technology Manager, Licensing Manager, Project Coord) $475k indirects for personnel; $500k for patent costs
- WTBC incubators: $1.1M from indirects as strategic investment. Includes continuing $500k investment in Casper and Sheridan

COVID responses:

Small Business Development Center

- Receiving $1.29M to provide technical assistance to existing Wyoming Businesses. Funds from SBA.
- Colleges of Law and Business are working with SBDC's to provide services in response to this opportunity
- Collaboration with WBC and WEDA & members
- Engagement with all other Business Resource Network units: MW; WTBC (internships); TTO (IP protection education)

Manufacturing Works

With Wyoming Technology Coronavirus Coalition

- Distillers ➔ hand sanitizer to counties statewide
- PPE: 3D printing of face shields at UW and across Wyo; production of soft facemasks
- N95 facemask production (Kennon Products, Sheridan)
- Networking in with SBDC to save business

ORED Goal 4: Breaking through to new research talent

Increase research opportunities for UW campus and Wyoming community college students, enabled by a new Office of Undergraduate Research. Support increasing the number of underrepresented faculty who perform research and apply for grants that support growth in minority student representation

FY 2021: Investments and expenditures

- Startup packages for new faculty: $700k
- Request from Special Project Reserves possible, as Academic Affairs contribution is reduced in FY 2021

Activities

Startup package process developed, with Academic Affairs, OSP, and Budget Office.

- Plan in place to expand NIH INBRE program into Science Initiative Building dedicated space (INBRE enables NIH UW/Community College partnership)
- Campus-wide, grass roots undergrad research programs are a huge asset for UW
    - *800 undergrads* perform research on campus
    - **Wyoming Undergraduate Research & Inquiry Across the Disciplines**, hosted by EPSCoR and ORED programs, hosted *493 presentations from UW* last year, and 37 from community colleges

ORED Goal 4: Breaking through to new research talent

For your reference : 3 examples of where the Science Initiative Building will be a platform where young talent thrives

Lauren Shoemaker studies how populations and ecological communities are impacted by spatial structure, landscape heterogeneity, and patterns of movement within and across groups. She uses mathematical modeling to describe and predict patterns, and she is ideally suited to integrate with faculty in the new Science Initiative building who also investigate the relationships between Earth systems and impacts on community ecology and conservation.

Christopher ("Topher") Weiss-Lehman uses mathematical and computational approaches to investigate how spatial structure affects the health and evolution of populations. By working with SI Building colleagues in biological and Earth Sciences, Topher will be part of a synergistic approach to understanding how spatial and temporal dynamics influence the success of species across our state and region.

Thomas Boothby's research is focused on aquatic ""microanimcals" and how they are able to adapt to extreme environments. Beyond understanding the fundamentals behind how certain organisms can survive freezing, intense heat, drying out, and radiation, his lab strives to apply this knowledge. Currently he is addressing how to stabilize life-saving vaccines without the need for refrigeration as well as how to develop therapies and countermeasures to safeguard astronauts during prolonged space-flight.

Additional investment needs and enduring costs

Investments: for a call on Special Projects Reserves		**Years needed**
ARCC biannual major maintenance	$600k/yr over 2 yrs	FY 2021 & 22
AMK Crossing Divides prog. Dir & scholars	$810K over 3 yrs	FY 2021 - 23
Grand Challenges planning - Anticipating heightened interest	TBD	FY 2021 - 23
Science Initiative/Enzi/Berry Center - Research facilities manager - Need before construction is complete Then fund with ICR from research in these buildings	1 FTE for 2 yrs	FY 2021, FY 2022
Faculty startup	$1M+	FY 2021 →

Additional enduring institutional costs, unaddressed in this budget

ARCC staff (external review recommends 2X present level)	$550K	FY 2021 →
Research services co-located in colleges (Best practice of R1 research universities)	~$350k	FY 2022 →
Science Initiative programs	$1M and growing	FY 2022 →
WyNDD	$245K	FY 2021 →

Thank you

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