

Table of Contents
University Of Minnesota

Agency Profile 1

Agency Expenditure Overview (REVISED) 5

Agency Financing by Fund (REVISED) 6

Agency Change Summary (REVISED) 8

Change Item(s) 10

Support the U of MN: Improving Lives Through Discovery and Innovation (REVISED) 10

Carp Management (NEW) 13

County Geologic Atlas (NEW) 14

Return on Investment Estimates (NEW) 16

Stormwater BMP Performance Evaluation (NEW) 18

AT A GLANCE

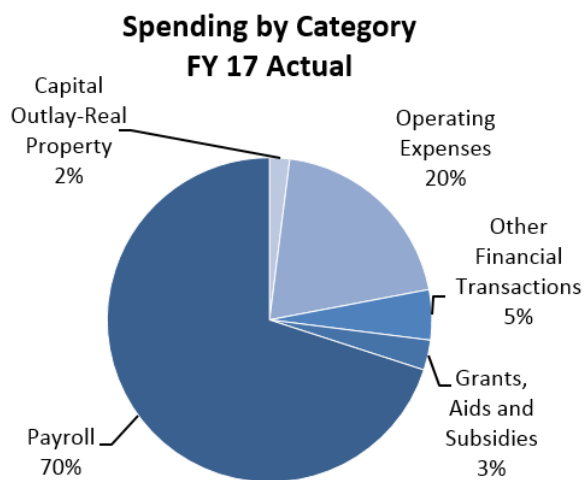
- Five Campuses (Crookston, Duluth, Morris, Rochester, Twin Cities)
- Seven Research and Outreach Centers throughout the state
- Budget: \$3.8 billion (FY18)
- 20,389 faculty & staff; 6,511 graduate student & professionals in training employees (as of 10/17)
- Enrollment: 67,949 (Fall 2017 Total)
 - 44,544 Undergraduate
 - 13,283 Graduate
 - 3,860 First Professional
 - 6,262 Non-Degree
- Degrees awarded: 15,985 (2017)
- Sponsored research awards: \$793 million (FY18)

PURPOSE

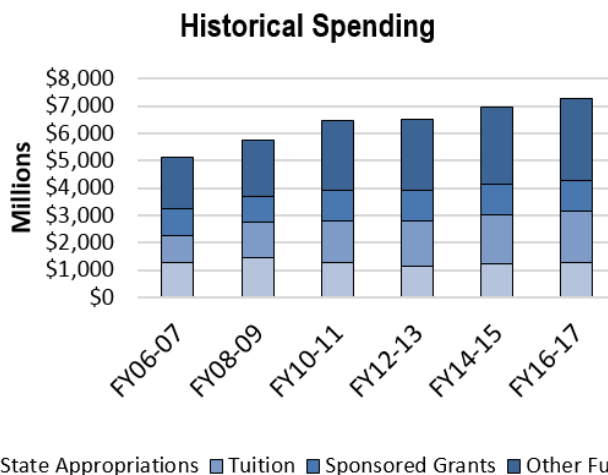
The University of Minnesota’s statutory mission is to offer undergraduate, graduate, and professional instruction through the doctoral degree and be the primary state supported academic agency for research and extension service (MN Statute 135A.052). The University’s mission is threefold: research and discovery, teaching and learning, and outreach and public service. The University of Minnesota is the state’s only land grant and research institution, and has a unique responsibility to better the lives of Minnesotans. As one of the nation’s top research institutions, the University is a venue where human talent, ideas and innovations, and discoveries and services converge to fuel Minnesota’s economy and improve our quality of life. In carrying out its mission on five campuses and research and outreach centers throughout the state, the University contributes to all eight of the state’s outcome areas through knowledge generation and by providing services, but advances most directly the following statewide outcomes:

- A thriving economy that encourages business growth and employment opportunities
- Minnesotans have the education and skills needed to achieve their goals;
- All Minnesotans have optimal health; and
- Sustainable options to safely move people, goods, services, and information.

BUDGET



Source: University of Minnesota, General Ledger



Source: University of Minnesota, General Ledger

The University's FY18 \$3.8 billion budget is based on revenue support from a variety of sources: tuition (26%), state appropriation (18%), sponsored research grants from federal government and other sources (15%), philanthropy and contracts (17%), miscellaneous income from sales, fees, etc. (14%) and auxiliary business operations (10%). The University's budget includes funding for the Crookston, Duluth, Morris, Rochester, and Twin Cities campuses as well as seven research and outreach centers, fifteen regional Extension offices, a multitude of research institutes, and MN Extension staff in every county in the state. The University uses its State appropriation for all aspects of the University system.

Although the University is dependent on its partnership with the State of Minnesota to continue to succeed, this partnership has changed significantly over the last two decades. In 1996, the State's portion of the University's total tuition plus state appropriation was 70%. In 2018, the State's portion of that same total was 43%. As a percent of total revenues (including gifts, sales, grants etc.), the State's portion has dropped from 32% to 18%. Although the University has continued to serve more students and improve student success, ongoing State operating support for the University has declined since its 2008 peak and as a result, the University has become more dependent on tuition and other revenue sources and has greatly enhanced its efficiency to achieve success.

STRATEGIES

In recent annual operating budgets, the President and the University of Minnesota Board of Regents have focused revenue and spending plans on achieving the goals of Access, Affordability, Academic and Operational Excellence, and Accountability. In fall 2016, the University began system wide strategic planning to better align its resources and leverage system strengths - a system including five unique campuses and an array of Extension and Outreach centers and services effecting people statewide. As examples, the University will capitalize on the following:

- **Crookston Campus:** Known for its focus on experiential learning for its campus-based students, the University of Minnesota Crookston is also one of the nation's pioneers in online and distance education.
- **Duluth Campus:** The University of Minnesota Duluth is a highly-ranked, regional research and liberal arts university with a global reputation for freshwater research. With over 160 majors and minors and eight pre-professional programs, UMD offers an expansive array of high-quality academic choices for students. In addition, UMD's Large Lakes Observatory is the only institute in the country dedicated to the study of large lakes throughout the world.
- **Morris Campus:** The University of Minnesota Morris is a nationally ranked, undergraduate-focused liberal arts campus with a deep commitment to environmental sustainability and diversity. The "Morris experience" emphasizes faculty-student collaborative research, study abroad opportunities, and service learning.
- **Rochester Campus:** The University of Minnesota Rochester prepares health science professionals and maintains unique collaborations with world-renowned medical organizations in the community. This includes high quality, more individualized instruction. To date, 100 percent of Rochester's Bachelor of Science in Health Professions graduates have passed the exams for their professions and are employed in their chosen fields.
- **Twin Cities Campus:** The University of Minnesota Twin Cities campus is the University's flagship campus and is one of only five campuses in the country with schools of engineering, medicine and veterinary medicine, law, and agriculture on a single campus. Because of the Twin Cities campus size and scope of programs, unique opportunities exist for interdisciplinary education, research, and outreach. The Twin Cities campus will continue its excellence in:

- Education: The Twin Cities campus attracts high caliber students from across the globe due to its world-renowned faculty and staff. As an example, 84.3 percent of freshman are admitted from the top 25 percent of their class and the average freshman ACT score is greater than 28.
 - Research: Twin Cities campus faculty led Forbes magazine to name Minneapolis one of the top 10 innovative cities. Examples of innovations include: the invention and patent of the “black box” flight recorder in the United States; the development of Ziagen, one of the world’s most effective AIDS drugs; medical firsts such as the first open-heart surgery and first pancreas and human bone marrow transplants, and nearly 30 new apple varieties including the beloved Honeycrisp.
 - Outreach: The Twin Cities campus continues its vast array of outreach efforts through initiatives and partnerships such as its mobile dental clinic and the Community-University Health Care Center partnership.
- **Minnesota Extension:** Extension researchers and educators engage individuals and organizations in asking the challenging questions to discover science-based answers that make a difference. As an example, Extension’s Regional Sustainable Development Partnerships serve Greater Minnesota with 145 active sustainable development projects across the state.

To capitalize on these strengths, President Kaler charged a System wide Strategic Planning Committee to develop a plan to benefit students and citizens across the state and to articulate the common values, processes, and expectations across campuses. Through this process, the Committee developed a System wide Strategic Framework. The Board of Regents adopted the Framework in June 2017. The Framework highlights ways to better connect, leverage, and align the system’s distinctive statewide resources. The Framework is available at https://president.umn.edu/sites/president.umn.edu/files/swsp_framework.pdf.

Later that fall, President Kaler subsequently charged the System wide Strategic Planning and Oversight Committee to lead the development of system priorities in focus areas that align with the University’s mission and System wide Strategic Framework. This work will yield an academic program investment strategy and a long-term financial framework with the following focus areas: Teaching and Learning; Research and Discovery; Outreach and Public Service; Medicine and Health; and Supporting the Mission.

Through these strategic planning efforts, the University will make decisions on investments that strengthen student success, enhance knowledge transfer between the University and Minnesota and communities and businesses, build upon research opportunities affecting Minnesotans, and align the University’s health sciences work with Minnesota’s health policy and workforce needs. The University is committed to providing high-value education and research to improve outcomes for all Minnesotans and to optimize communications with Minnesota communities to deliver useful, actionable information to stakeholders.

RESULTS

The University pursues excellence in education, research, and outreach to produce discovery and innovation that improves the lives of individuals and communities throughout our state and world. The University’s inspired and motivated community of faculty, staff, and students and its strong sense of purpose drives the focus on continual improvement. To help chart its progress on providing high-value education, research, and public engagement services, the University measures and tracks its progress on a variety of results-based performance measures. The Board of Regents adopted the measures in the spring of 2016, which are showcased on the University’s Progress Card. The Progress Card helps the Board of Regents focus oversight on a limited number of strategically measurable outcomes (Gold measures), which have quantifiable goals for 2021. These measures track the University’s progress on improving graduation rates (four-year by campus, six-year by campus, Pell-eligible students systemwide), average freshman ACT on the Twin Cities campus, institutional gift aid, R&D expenditures, Medical School ranking, faculty awards, participation in the employee engagement survey, and progress on the University’s operational excellence goal.

The University has made progress on many of these measures over the last several years, which helps to exemplify the University's commitment to providing high-value services:

- Graduation rates for a variety of different student groupings have increased over time, resulting in a financial gain for students through lower total spending on tuition/fees/housing/debt and earlier entry into the workforce;
- Twin Cities campus ACT scores have increased indicating the campus is attracting high quality students who have the best chance to succeed academically at the University of Minnesota;
- Institutional gift aid has increased showing an increase in support for students;
- R&D expenditures have increased indicating the University's continued role in producing high-value research for Minnesota and the world; and
- The University continues to meet its administrative cost reallocation goals, which highlights the University's commitment to administrative efficiency.

Each of these measures is an indication that the University is providing a greater and greater value to Minnesotans each year.

The Progress Card also provides insight into important trends (Maroon measures), that are a signal of institutional strength. These items are important to monitor, but the University alone cannot significantly influence them. They include measures such as the Twin Cities transfer student 3-year graduation rate, number of graduate and professional degrees awarded, median undergraduate debt at graduation, students of color with a favorable sense of belonging on campus, national research ranking, among others. The full set of measures can be found at: <https://oir.umn.edu/planning-metrics/progress-card>.

The University also publishes annually the "University Plan, Performance, and Accountability Report" (<https://conservancy.umn.edu/handle/11299/174174>), which reflects the institution's progress against its key strategic goals and identifies areas for improvement. This report is required under the University's charter, 1851 Territorial Laws, Chapter 3, Section 16, where it states that "[the regents shall] make a report annually, to the Legislature...exhibiting the state and progress of the University...and such other information as they may deem proper, or may from time to time be required of them."

Minnesota Statutes 137 (<https://www.revisor.mn.gov/statutes/cite/137>) provides the legal authority for the University of Minnesota.

(Dollars in Thousands)

	Actual FY16	Actual FY17	Actual FY18	Estimate FY19	Forecast Base		Governor's Recommendation	
					FY20	FY21	FY20	FY21
<u>Expenditures by Fund</u>								
1000 - General	625,549	629,049	661,186	648,636	648,636	648,636	665,501	682,804
2000 - Restrict Misc Special Revenue	22,366	22,360	22,367	22,384	22,370	22,370	22,370	22,370
2018 - Agriculture			250	250				
2050 - Environment & Natural Resources	13,506	19,636	23,376	17,739				
2302 - Clean Water			1,008	1,007			1,347	1,346
2360 - Health Care Access	2,157	2,157	2,157	2,157	2,157	2,157	2,157	2,157
6000 - Miscellaneous Agency	6,150	963	430	6,692	3,182	3,150	3,182	3,150
Total	669,728	674,165	710,774	698,865	676,345	676,313	694,557	711,827
Biennial Change				65,745		(56,981)		(3,255)
Biennial % Change				5		(4)		(0)
Governor's Change from Base								53,726
Governor's % Change from Base								4

Expenditures by Program

Permanent University Fund	6,150	963	430	6,692	3,182	3,150	3,182	3,150
Maintenance and Operations	559,111	560,011	590,248	580,198	580,198	580,198	597,063	614,366
Agriculture Special	42,922	42,922	42,922	42,922	42,922	42,922	42,922	42,922
Health Science Special	33,611	33,611	33,611	33,611	33,611	33,611	33,611	33,611
Technology Special	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140
System Specials	5,181	5,181	7,181	7,181	7,181	7,181	7,181	7,181
LCMR/MN Resources	13,506	19,636	24,634	18,996			1,347	1,346
Special Projects	116	2,710	2,617	134	120	120	120	120
U/Mayo Partnership	7,991	7,991	7,991	7,991	7,991	7,991	7,991	7,991
Total	669,728	674,165	710,774	698,865	676,345	676,313	694,557	711,827

Expenditures by Category

Operating Expenses	19,557	19,557	19,557	19,557	19,557	19,557	19,557	19,557
Grants, Aids and Subsidies	650,171	654,608	691,217	679,308	656,788	656,756	675,000	692,270
Total	669,728	674,165	710,774	698,865	676,345	676,313	694,557	711,827

(Dollars in Thousands)

	Actual FY16	Actual FY17	Actual FY18	Estimate FY19	Forecast Base FY20 FY21		Governor's Recommendation FY20 FY21	
1000 - General								
Direct Appropriation	625,549	626,449	658,686	648,636	648,636	648,636	665,501	682,804
Transfers In	17,400	20,000	19,900	17,400	17,400	17,400	17,400	17,400
Transfers Out	17,400	17,400	17,400	17,400	17,400	17,400	17,400	17,400
Expenditures	625,549	629,049	661,186	648,636	648,636	648,636	665,501	682,804
Biennial Change in Expenditures				55,224		(12,550)		38,483
Biennial % Change in Expenditures				4		(1)		3
Governor's Change from Base								51,033
Governor's % Change from Base								4

2000 - Restrict Misc Special Revenue

Balance Forward In			1	14				
Direct Appropriation	22,250	22,250	22,250	22,250	22,250	22,250	22,250	22,250
Transfers In	116	110	130	120	120	120	120	120
Balance Forward Out		1	14					
Expenditures	22,366	22,360	22,367	22,384	22,370	22,370	22,370	22,370
Biennial Change in Expenditures				25		(11)		(11)
Biennial % Change in Expenditures				0		(0)		(0)
Governor's Change from Base								0
Governor's % Change from Base								0

2018 - Agriculture

Transfers In			250	250				
Expenditures			250	250				
Biennial Change in Expenditures				500		(500)		(500)
Biennial % Change in Expenditures						(100)		(100)
Governor's Change from Base								0
Governor's % Change from Base								

2050 - Environment & Natural Resources

Balance Forward In			17,069	2,765				
Direct Appropriation	13,506	19,478	9,071	14,974	0	0	0	0
Transfers In		213						
Balance Forward Out		55	2,764					

(Dollars in Thousands)

	Actual	Actual	Actual	Estimate	Forecast Base		Governor's Recommendation	
	FY16	FY17	FY18	FY19	FY20	FY21	FY20	FY21
Expenditures	13,506	19,636	23,376	17,739				
Biennial Change in Expenditures				7,972		(41,115)		(41,115)
Biennial % Change in Expenditures				24		(100)		(100)
Governor's Change from Base								0
Governor's % Change from Base								

2302 - Clean Water

Direct Appropriation			1,008	1,007	0	0	1,097	1,096
Expenditures			1,008	1,007			1,347	1,346
Biennial Change in Expenditures				2,015		(2,015)		678
Biennial % Change in Expenditures						(100)		34
Governor's Change from Base								2,693
Governor's % Change from Base								

2360 - Health Care Access

Direct Appropriation	2,157	2,157	2,157	2,157	2,157	2,157	2,157	2,157
Expenditures	2,157	2,157	2,157	2,157	2,157	2,157	2,157	2,157
Biennial Change in Expenditures				0		0		0
Biennial % Change in Expenditures				0		0		0
Governor's Change from Base								0
Governor's % Change from Base								0

6000 - Miscellaneous Agency

Transfers In	6,150	963	430	6,692	3,182	3,150	3,182	3,150
Expenditures	6,150	963	430	6,692	3,182	3,150	3,182	3,150
Biennial Change in Expenditures				9		(790)		(790)
Biennial % Change in Expenditures				0		(11)		(11)
Governor's Change from Base								0
Governor's % Change from Base								0

(Dollars in Thousands)

	FY19	FY20	FY21	Biennium 2020-21
Direct				
Fund: 1000 - General				
FY2019 Appropriations	648,636	648,636	648,636	1,297,272
Forecast Base	648,636	648,636	648,636	1,297,272
Change Items				
Support the U of MN: Improving Lives Through Discovery and Innovation		16,865	34,168	51,033
Total Governor's Recommendations	648,636	665,501	682,804	1,348,305
Fund: 2000 - Restrict Misc Special Revenue				
FY2019 Appropriations	22,250	22,250	22,250	44,500
Forecast Base	22,250	22,250	22,250	44,500
Total Governor's Recommendations	22,250	22,250	22,250	44,500
Fund: 2050 - Environment & Natural Resources				
FY2019 Appropriations	14,974	14,974	14,974	29,948
Base Adjustments				
All Other One-Time Appropriations		(14,974)	(14,974)	(29,948)
Forecast Base	14,974	0	0	0
Total Governor's Recommendations	14,974	0	0	0
Fund: 2302 - Clean Water				
FY2019 Appropriations	1,007	1,007	1,007	2,014
Base Adjustments				
One-Time Legacy Fund Appropriations		(1,007)	(1,007)	(2,014)
Forecast Base	1,007	0	0	0
Change Items				
County Geologic Atlas		175	175	350
Return on Investment Estimates		172	171	343
Stormwater BMP Performance Evaluation		750	750	1,500
Total Governor's Recommendations	1,007	1,097	1,096	2,193
Fund: 2360 - Health Care Access				
FY2019 Appropriations	2,157	2,157	2,157	4,314
Forecast Base	2,157	2,157	2,157	4,314
Total Governor's Recommendations	2,157	2,157	2,157	4,314
Dedicated				
Fund: 2000 - Restrict Misc Special Revenue				
Planned Spending	134	120	120	240

(Dollars in Thousands)

	FY19	FY20	FY21	Biennium 2020-21
Forecast Base	134	120	120	240
Total Governor's Recommendations	134	120	120	240
Fund: 2302 - Clean Water				
Change Items				
Carp Management		250	250	500
Total Governor's Recommendations		250	250	500

Change Item Title: Support the U of MN: Improving Lives Through Discovery and Innovation

Fiscal Impact (\$000s)	FY 2020	FY 2021	FY 2022	FY 2023
General Fund				
Expenditures	16,865	34,168	34,168	34,168
Revenues	0	0	0	0
Other Funds				
Expenditures	0	0	0	0
Revenues	0	0	0	0
Net Fiscal Impact = (Expenditures – Revenues)	16,865	34,168	34,168	34,168
FTEs	0	0	0	0

Recommendation:

The Governor recommends an increase of \$51.034 million in FY 2020-2021 and \$68.336 million in FY2022-2023 to the University of Minnesota. This funding will support all five campuses and the University of Minnesota’s core missions of research and discovery, teaching and learning, and outreach and public service.

Rationale/Background:

In the FY2019 approved operating budget for the University of Minnesota, revenues are estimated to be \$3.8 billion. Within that total, individual sources of revenue differ as to how restricted they are (purpose and use dictated by external source), and in terms of opportunity for growth necessary to cover cost increases. Thirty-five percent of the University’s revenues are restricted by the source and cannot be used at the discretion of leadership to pay for general operations. Twenty-four percent is directly related to sales and miscellaneous revenue-generating activity, such as the bookstores, parking, sales of educational goods and services, course fees, etc. where the revenues pay for the direct costs of the associated goods and services. These sources are largely not available to cover general operations. The final forty-one percent of the University’s revenues are from the Operations and Maintenance (O&M) state appropriation and tuition: unrestricted and relied upon to support a wide range of the University’s general cost of operations across the teaching, research and public service missions. The only way these general operating revenues grow to cover cost increases is by a decision of the Board of Regents to increase tuition or a decision by the state of Minnesota to increase the University’s O&M appropriation.

Within this context, the University remains committed to minimizing tuition rate increases for resident undergraduate, graduate, and professional students. However, general operating costs (salaries, healthcare, facility and technology costs, library materials, equipment, etc.) continue to grow with inflation running at 2.7% (CPI-August) and 3.7% (Higher Education Price Index-2017). There is a level of internal reallocation that can be sustained every year with little impact to University priorities, but if tuition revenue is significantly constrained and the state O&M appropriation remains flat, the total reallocation necessary to address cost increases and needs can reach a level of magnitude that requires some very difficult choices on the part of the University:

1. Raise tuition on students at rates at or above inflation in order to maintain the current scope of quality programs;
2. Reduce the breadth and depth of the University’s impact but maintain quality; or
3. Maintain the current scope of the University’s work but sacrifice quality in some areas of the institution.

Key variables in evaluating those choices include the following:

- Excellence: Excellence in education, research, and outreach is the University's top priority. This drive to excellence is apparent in the University's progress on its metrics, which can be found at: <https://oir.umn.edu/planning-metrics/progress-card>. The key components to generating such high-level results are recruiting and retaining world class faculty and staff, and supporting equipment and facility needs for the instruction and research activities that take place on all five campuses. To simply maintain the current scope of activities, inflationary costs related to personnel (including health care benefits) and infrastructure must be addressed.
- Commitment to Controlling Costs: Over the last six years, the University reduced administrative costs by \$90 million in order to pay for inflationary cost increases University-wide. These reallocations were critical from an efficiency and effectiveness standpoint. Over 70% of implemented cost reductions involved the elimination or restructuring of employee positions. Of the remaining reductions, many involved deliberate decisions to get by with less: supplies, travel, development opportunities, equipment replacement and so forth. Across the University, units are "working smarter," such as in the example of transitioning from departmental-level desktop support functions to a model of centralized University-wide support for improved consistency and efficiency across the entire University system. Although reallocations will remain one of the University's key budget balancing tools, the University cannot rely on reallocations alone to balance its budget without impacts on quality or scope of operations.
- Infrastructure and Compliance Cost Pressures: The University has experienced annual cost increases in significant areas of general operations. For example, annual cost increases in the millions of dollars must be addressed for utility services, debt service, technology license and maintenance agreements, laboratory health and safety improvements, student and employee accommodations, and library collections and subscription prices.
- Increased Need for Student Support: Total undergraduate enrollment has increased at the University by roughly 4,000 or 10% over the last 10 years. To adequately serve the student body, specialized costs have increased dramatically: Disability Resource Center services (captioning, testing accommodations and so on), mental health services through Student Affairs and Boynton Health Services, tutoring and academic support.

Proposal:

This proposal would fund inflationary cost increases to the University of Minnesota's appropriation at 2.6% each year of the biennium. This percent increase is the five-year average of the Higher Education Price Index (HEPI).

In conjunction with continued internal reallocations, potential increases in some resident tuition rates, and planned increases in nonresident tuition rates, this O&M support will allow the University to maintain excellence within the current scope of programs, consistent with the priorities of the Board of Regents as elected by the Minnesota legislature. Specific allocation of dollars across the institution will be determined through the internal annual budget development process as directed by the President and academic leadership and approved by the Board of Regents. The most pressing priorities are in the areas of competitive compensation, classroom and equipment maintenance, compliance with federal and state regulations, research and technology infrastructure, maintenance of core facilities, and support for key activities throughout the state currently facing financial challenges.

Additional funding from the state will not eliminate difficult choices in balancing the University's budget, but it will relieve pressure for higher tuition increases for resident students, and it will help maintain quality University programs across the state.

Early estimates of cost increases for the next biennium (in activities funded by state appropriation and tuition only) are as follows:

	<i>FY 2020</i>	<i>FY 2021</i>	<i>Biennial Math (Yr 1x2) + Yr 2</i>
Budget Challenge (\$ in 000s)			
Compensation (including benefit costs)	\$40,000	\$40,000	\$120,000
Facilities (utilities, debt, operations)	3,000	3,000	9,000
Technology Maintenance	3,000	3,000	9,000
Unit Specific Needs/Investments	15,000	15,000	45,000
Statewide Initiatives	<u>6,000</u>	<u>6,000</u>	<u>18,000</u>
Estimated Total	67,000	67,000	201,000

Equity and Inclusion:

This request will maintain existing programs and support for under-represented faculty, staff and students; this remains a priority for the University. Although this proposal does not target a specific population group, students from low- and middle-income families will benefit the most from restraint on tuition increases. By continuing the University’s tradition of providing a high quality education at a reasonable cost, the University will continue to increase equity by helping to close opportunity gaps and prepare students to succeed in the workforce.

Results:

Funding this request will result in direct benefits to students, researchers, and communities statewide:

- Minimizing tuition increases
- Maximizing researchers’ talents and abilities to advance knowledge and commercialize technologies
- Retaining excellent instructional faculty and staff across all colleges and campuses
- Providing strong student services related to physical and mental health, career development, degree completion
- Ensuring safe indoor and outdoor environments for faculty, staff, students and visitors
- Maintaining facilities for the hundreds of thousands of people who work, study and visit the University annually

It will have a positive impact on helping the University to make progress on performance metrics previously approved by the Board of Regents, which can be found at: <https://oir.umn.edu/planning-metrics/progress-card>.

Change Item Title: CWF Carp Management

Fiscal Impact (\$000s)	FY 2020	FY 2021	FY 2022	FY 2023
Clean Water Fund				
Expenditures	250	250	0	0
Net Fiscal Impact = (Expenditures – Revenues)	250	250	0	0
FTEs	0	0	0	0

Recommendation

The Governor recommends \$500,000 in FY2020-2021 to fund a pilot project examining how a new method of carp management can be used as a nutrient reduction strategy.

Rationale/Background

Common carp are a powerful and direct driver of poor water quality and high nutrient levels in lakes of south-central Minnesota, including the Metro area. Yet, carp management is not included in nutrient reduction strategies (NRS) for Minnesota, which focus primarily on land-based management practices. This creates potential inefficiencies in NRS. This program aims to increase the efficacy and cost-effectiveness of nutrient reduction strategies by developing comprehensive carp management programs, documenting their effectiveness and developing a new roadmap for NRS in Minnesota.

Proposal

The University will field-test a new method of carp management in two lakes and document year-round changes in phosphorus and nitrogen levels both within the lakes as well as the downstream export of nutrients from the lakes. To do so, the research team will partner up with a University of Minnesota startup company that developed a new way of managing carp, University limnologists who will document changes in nutrient dynamics, and local watershed districts that will provide a logistic support. Using this data, the research team will show how carp management can be incorporated into more effective and affordable nutrient reduction strategies for Minnesota.

Results

This is the first time this project has been funded. Results of this work will be disseminated via University websites and peer-reviewed publications. They will be also included in the biennial Clean Water Fund Performance Report.

Change Item Title: CWF County Geologic Atlas

Fiscal Impact (\$000s)	FY 2020	FY 2021	FY 2022	FY 2023
Clean Water Fund				
Expenditures	175	175	0	0
Net Fiscal Impact = (Expenditures – Revenues)	175	175	0	0
FTEs	0	0	0	0

Recommendation

The Governor recommends \$350,000 in FY2020-2021 to accelerate the production of County Geologic Atlases. The Atlases provide stakeholders with accurate information to manage groundwater resources sustainably.

Rationale/Background

Geologic atlases provide maps and databases essential for improved management of ground and surface water. This is foundational data that supports management of drinking water, domestic and industrial supply, irrigation, and aquatic habitat. Understanding the distribution of geologic materials defines aquifer boundaries and the connection of aquifers to the land surface and to surface water resources to enable a comprehensive water management effort. These atlas products are often used in local watershed planning, water supply planning, and many water related permit decisions. Informed decisions often prevent expensive mistakes. County Geologic Atlases are specifically identified as essential data in the Statewide Conservation Plan, and in the efforts of the Environmental Quality Board, DNR Eco-Waters, and the Water Resources Center at the University of Minnesota to design a sustainable water management process. Many of these agencies have advocated that the pace of work on the county geological atlases by the MGS should be increased to allow statewide completion within a decade, followed by review and updating on a regular schedule. However, production of the Atlases, due to the level of funding made available to date, has fallen short of the recommended timeline.

Proposal

The Governor recommends that County Geologic Atlas (CGA) funding be increased to make up for recent reductions in funding from other sources due to increased number of projects in competition. MGS is staffed for the \$2.4 million per year effort to meet their commitment to statewide completion in a reasonable time frame. \$500,000 per year from CWF is needed to maintain current pace. The program utilizes funds from a contract with DNR, federal matching fund programs, Clean Water Funds, and the Environment and Natural Resource Trust Fund and strives to maintain an annual combined budget of \$2,400,000. The program seeks to provide atlases statewide, and funding at this rate should accomplish that goal in about a decade.

Equity and Inclusion

The objective of the MGS/DNR program is to ensure that every Minnesota County will have an Atlas as soon as reasonably possible, so that every Minnesota resident will enjoy a similar standard of drinking water protection, followed by ongoing maintenance of this information infrastructure.

Results

Atlases are complete for 41 counties and of these, 3 have been revised and 3 revisions are underway. There are 13 new atlases underway; 33 counties have not yet been started. With a completion rate of ~5 per year and ~40 are partially complete or not yet started, at the current pace, statewide coverage would be achieved in about a decade – enhanced funding will shorten this timeline.

A complete atlas consists of a Part A prepared by MGS that includes the water well database and 1:100,000 scale geologic maps showing properties and distribution of sediments and rocks in the subsurface, and a Part B constructed by DNR that includes maps of water levels in aquifers, direction of groundwater flow, water chemistry, and sensitivity to pollution. Atlases in most cases are initiated by a request from a county and an offer to provide in-kind service. A User's Guide to Geologic Atlases helps non-geologists understand the information products and their uses. Atlases are available in print, or in digital formats, including pdfs and GIS files.

Change Item Title: CWF Return on Investment Estimations

Fiscal Impact (\$000s)	FY 2020	FY 2021	FY 2022	FY 2023
Clean Water Fund				
Expenditures	172	171	0	0
Net Fiscal Impact = (Expenditures – Revenues)	172	171	0	0
FTEs	0	0	0	0

Recommendation

The Governor recommends \$343,000 in FY2020-2021 to continue fund a project measuring the return on the Clean Water Fund’s investments. The tools developed through this process will be used by future decision makers to strategically improve Minnesota’s water quality and human well-being.

Rationale/Background

The University of Minnesota is partnering with the Clean Water Council (CWC) to better account for the public benefits of investments in the Clean Water Fund (CWF) and equip the CWC with the tools to make smart, strategic investments. In the first phase of the partnership (ending June 2019), the project aims are:

- 1) A statewide survey of public values and preferences for clean water designed to understand what types of clean water benefits are the most highly valued by Minnesotans.
- 2) Development of spatially-explicit ecosystem service metrics that reflect the multiple co-benefits of investments in improved water quality.
- 3) Guidance for CWC on how to determine and report on the value of different programmatic activities (e.g. planning, technical assistance, monitoring, implementation).

Proposal

Continued funding of the project will provide guidance and tools in support of the CWC's efforts to measure progress, evaluate outcomes, and promote transparency in clean water fund investments. Research will assist the Council in communicating the public benefits of the fund and making more strategic decisions that protect and improve water quality and human well-being. In particular, funding will allow the UMN team to expand our support for the CWC and in two dimensions:

- 1) Public engagement and stakeholder collaboration at the watershed-level to integrate UMN findings with agency-led “One Watershed One Plan” processes and build capacity to maximize co-benefits of public investments in clean water, identify new cross-sector partnerships, and better communicate the benefits of the CWF.
- 2) Analysis of alternative scenarios for future CWF expenditures and assessment of key tradeoffs, including the equity and distributional impacts of changes in water quality.

Equity and Inclusion

The benefits of clean water are not equally distributed in our state. Communities of color, native communities, and rural populations are more likely to experience water shortages, contaminated drinking water, unsafe recreational opportunities, unsafe levels of fish consumption, and higher water prices. In phase I of the project, social and demographic data was included in their analysis of co-benefits to visualize the distribution of water benefits and costs statewide. The researchers will continue to prioritize communication and evaluation of the equity implications of water investments in their work, including engagement that seeks to elevate underrepresented voices in water decision-making statewide.

Results

For FY2018-19 funding, the following activities are complete as of February 2019:

- 1) A statewide survey of public values and preferences for clean water designed to understand what types of clean water benefits are the most highly valued by Minnesotans.
- 2) Development of spatially-explicit ecosystem service metrics that reflect the multiple co-benefits of investments in improved water quality

For FY2020-21 funding, the UMN team will produce two additional work products; a web platform that visualizes the benefits of CWF investments across multiple social, biophysical, and economic metrics, and a report on current and potential future public benefits of CWF investments in partnership with the CWC and key stakeholders.

Change Item Title: CWF Stormwater BMP Performance Evaluation and Technology Transfer

Fiscal Impact (\$000s)	FY 2020	FY 2021	FY 2022	FY 2023
Clean Water Fund				
Expenditures	750	750	0	0
Net Fiscal Impact = (Expenditures – Revenues)	750	750	0	0
FTEs	0	0	0	0

Recommendation

The Governor recommends \$1.5 million in FY2020-2021 to fund stormwater projects throughout the state. These stormwater efforts focus on research, University of Minnesota Extension education, and technology transfer to industry professionals and all levels of government to prevent, minimize, and mitigate the effects of runoff from the built environment.

Rationale/Background

Stormwater runoff from built environments have major impacts on water resources in Minnesota. Some 1.4 million Minnesotans rely on drinking water impacted by stormwater from upstream communities, and over half of all state residents live within one mile of a lake in developed landscapes. Starting in the 2016-17 biennium, an appropriation from the Clean Water Fund was targeted for research and technology transfer to help Minnesota communities address unmet and growing stormwater management needs. The Water Resources Center (WRC) at the University of Minnesota coordinated the portfolio of projects, with input from the Pollution Control Agency and the Minnesota Stormwater Research Council (MSRC). One of the first projects was to develop a Stormwater Research Roadmap, which used a structured approach to gather stakeholder input and identify priority research needs for the next decade. With the Clean Water Fund appropriation for FY2018-19, the WRC established an open, competitive application process to identify the most meritorious projects to meet identified priorities. In consultation with the MSRC, nine projects were selected that address a variety of stormwater issues in multiple locations around the state. A requirement of funded projects is to integrate research with technology transfer and outreach activities. The WRC supports these projects with pass-through funding, while also providing oversight, administrative support, and program-level technology transfer.

Proposal

The proposal is to continue funding for FY2020-21. With the competitive application and selection process in place, the WRC will implement the next set of research priorities. Guided by the Stormwater Research Roadmap and in consultation with the MSRC, the WRC will issue one or more competitive calls for research proposals open to all research organizations in Minnesota. Projects will be selected for pass-through funding with guidance from the MSRC board and with input from scientific peer reviewers. The WRC will continue to manage newly funded projects and will communicate results from completed projects to stakeholders.

Equity and Inclusion

Diversity, inclusion, and equity are central aspects of the prioritization, selection, and oversight of funded projects. The WRC follows the University of Minnesota’s diversity and inclusion practices to ensure equitable and inclusive selection of project teams. Further, reaching underrepresented groups is a pillar of research and technology transfer activities. A current funded project is examining the factors motivating community engagement in ethnically diverse neighborhoods.

Results

Clean Water Fund appropriations have supported twelve major projects addressing a variety of issues and emerging technologies. Projects are led by teams from many research organizations around the state including the University of Minnesota, St. Cloud State University, state agencies, local units of government, and private consultants. Additional projects and in-kind support come from leveraged funds contributed by a diverse group of entities comprising the MSRC. Information on current and completed projects, the MSRC, and the Minnesota Stormwater Research Roadmap are available at: www.wrc.umn.edu/projects/stormwater.

Initial work focused on the role of detention ponds in removing contaminants from stormwater before it reaches downstream waters. With more than 30,000 such ponds in the state, they collectively have a major impact on water quality throughout Minnesota. One study found that some ponds may actually increase phosphorous loading to downstream waters because of phosphorous releases from the accumulated sediments below. A second study sampled the sediments in ponds in multiple communities for polycyclic aromatic hydrocarbons (PAHs), a class of carcinogenic chemicals. PAHs exceeded the industrial soil reference value for 35% of sampled ponds. When contaminated ponds are dredged, the sediments must be transported for disposal in a secure landfill.