Center for
Technology & Training
Michigan Technological University

Annual Report to the Vice President of Research

for Calendar Year 2024

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Michigan Technological University
Civil, Environmental, and
Geospatial Engineering

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1.0 CENTER HIGHLIGHTS

2024 was a year of several firsts for the Center for Technology & Training (CTT):

- CTT had $3,281,866 of external spending which represents a 13.8% increase over 2023 and a new record high for the center.
- CTT staff submitted 20 proposals to 10 different sponsors or divisions (both record highs) for a total of $7,316,249 in funding requested (second highest in CTT history).
- Of the 20 proposals CTT submitted, 13 proposals were accepted with a total of $5,033,090 in funding awarded (record high), with 6 proposals pending for a total of $1,986,374 in funding still under consideration.
- CTT has $6,157,936 of projects under contract in 2024 (record high).
- CTT was awarded its first funding from a charitable foundation (Bentley Foundation).
- CTT supported its first non-staff-driven faculty proposal (Halvorsen) as a center.
- CTT associate director Chris Gilbertson was awarded a Center of Excellence from the Michigan Department of Transportation focusing on bridge structures.
- CTT had a record-high 7,113 attendees in its training program which delivered over 638 hours of training producing 32,684 student contact hours.
- CTT hired two software developers and one scientific programmer, positions that have historically been difficult to fill. CTT hired a senior research engineer to head up its growing project load in environmental infrastructure, and a business and support training support specialist to assist with the growing training delivery for the center. A search for a third software developer position and a structural engineer were unsuccessful in 2024 and will continue into 2025. This represents the highest number of concurrent job searches and hires CTT has had in a year.

2.0 MISSION STATEMENT

The mission of the Center for Technology & Training is:

> *To foster innovation in the civil and environmental infrastructure management field by providing access to a highly talented, multidisciplinary, technical team capable of providing expert advice, data, tools, and training to both private entities and state, local, and federal governmental units that own and manage infrastructure.*

The CTT serves as a resource to faculty, staff, and students by connecting them with the broader civil and environmental infrastructure community. The CTT provides these opportunities to connect with public and private infrastructure owners by maintaining a close working relationship with industry practitioners.

3.0 CENTER BACKGROUND

3.1 Center Overview

The Center for Technology & Training (CTT) started from a single soft-money-funded program (Michigan Local Technical Assistance Program, or LTAP) in 1986. The Michigan LTAP served as a gateway project that allowed the development and growth of soft-money-funded research staff working in the field of transportation. Since 1986, the center has grown in size and diversification, transitioning from a narrow focus on transportation to a broader civil and environmental infrastructure focus.

Since its inception, the CTT has operated as an "informal" university center and has been continuously managed as a soft-money, staff-based center. Operating as an informal center allowed the CTT to grow and change as necessary and to develop from a loosely run single project into a more formally managed, professional organization. During this transition, the CTT has experienced wider name recognition with clients, formalized business processes, and developed a management structure that allows the CTT to make a positive impact on accomplishing Michigan Technological University's mission.

In October 2017, the CTT petitioned the Vice President of Research at Michigan Tech to formally organize as a university center within the Civil, Environmental, and Geospatial Engineering Department. The request to organize was approved on November 6, 2017.

The CTT focuses on four action areas to create an impact in the infrastructure community: applied research; training and education; technical assistance; and the development of software tools. All projects within the center include one or more of these activities to support and advance the state of practice in public infrastructure.

3.2 Center Governance

The CTT is governed by a director, an associate director, and a senior project manager who make up the management team. The center has a transition plan in place for its management team and is constantly seeking to develop the next generation of center leaders. The transition plan has been instrumental in assisting the center with negotiating several retirements in its leadership structure over the last eight years.

3.3 Center Capacity Building

During 2024 CTT has focused on staff recruitment, onboarding, and training. The tight job market has increased competition for technical staff with competitors offering higher wages, broader benefit packages, and more flexible office working arrangements. Turnover in the center was relatively low with the loss of only one staff member (transfer to an academic position) and hiring in the center added four staff and the center is still actively seeking candidates for two other positions. Growth in 2024 yielded a net gain of two positions over 2023.

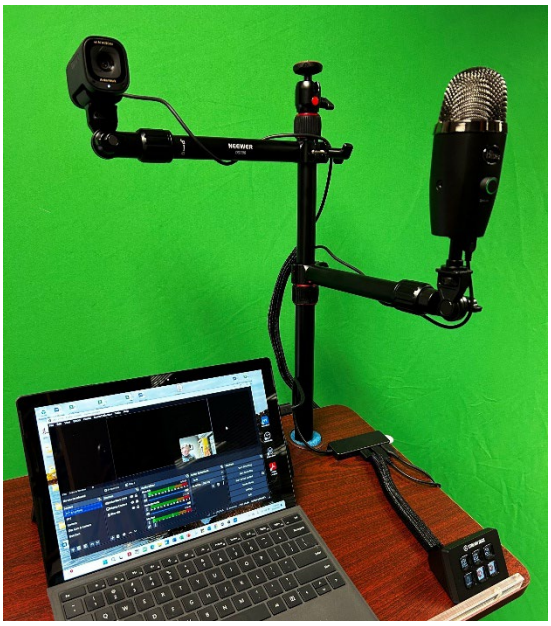
The CTT has focused significant effort on providing a better user experience for online learners through the development of a professional studio and the use of Open Broadcast Software (OBS) to add a higher production value to CTT's training events.

Figure 1: View of CTT's training studio

The studio (see Figure 1) includes high-quality robotic cameras, professional lighting and microphones, configurable user controls, and a green screen background. The studio's controls are easily manageable without the need for production assistants, so presenters familiar with the studio can control lighting and camera angles on the fly, by themselves, with very little additional workload.

The use of the studio combined with the functionality of the OBS software allows CTT presenters to interact with presentation materials in ways that are more like what students experience in-person in the classroom. The studio provides a different look and feel from standard web broadcast platforms such as Zoom and Teams further differentiating CTT training from other online training providers. Figure 2 illustrates an example of training materials produced by the studio.

Figure 2: CTT's studio allows presenters to interact with training materials in ways that are familiar to students in a classroom.



CTT staff developed a smaller, portable version of the studio that can be used for trainings broadcast from other spaces such as classrooms or conference facilities. The mobile studio provides access to the same production tools found in the studio and provides about 80% of the functionality (single camera view, ambient lighting, one reference monitor) in a smaller, less expensive footprint.

The mobile studio is anticipated to provide standardization and additional production value for all of CTT's training events regardless of where they are delivered.

Figure 3: CTT Mobile Studio

3.4 Center Education Activity

A major role of the CTT is to extend the University's reach beyond graduation to practicing engineers and other technical staff working with civil and environmental infrastructure. In an average year, the CTT typically provides around 120 training opportunities that include instructor-led traditional classroom events, web-based instructor-led training, and multi-day technical conferences. The CTT's education audience includes local, state, and federal infrastructure owners; engineering consultants; operations and maintenance workers; and elected officials. The CTT delivers almost 100% of its educational events off of Michigan Tech's campus to reach this audience efficiently. This high level of offsite educational activity broadens the profile and extends the reach of Michigan Tech in the national infrastructure engineering community.

The CTT has experienced continual growth in training event participation over the last 6 years growing by 32% over that time, and with 2024 being a historic high point. This growth is reflective of class offerings in new topic areas and the option for remote attendance at many of CTT's large in-person events.

In 2024 the CTT delivered 135 training events which was an increase from 118 events delivered in 2023 and significantly higher than the 89 events delivered in 2021. These events consisted of 638 hours of training delivered. Attendance for the year was at an all-time high of 7,113 participants (an increase of 427 participants from last year), with a total of 32,684 contact hours (an increase of 3,854). As a means of comparison, the CTT's contact hours are equivalent to about 30 average-size three-credit courses at Michigan Tech. Appendix A lists the attendance, hours of instruction, and contact hours for all the CTT training events completed in 2024.

3.5 Center Staff

The CTT staff consists of 31 professional staff positions, and five to eight student employees. Currently, the CTT has two open full-time positions.

The CTT staff are 100% funded by soft money external research projects and receive no general fund support. Currently, there are no tenure-track faculty in the CTT. However, two of the CTT staff, Dr. Tim Colling, and Dr. Chris Gilbertson, have adjunct faculty appointments with the Department of Civil, Environmental and Geospatial Engineering. The current CTT staff roster is as follows:

Management

Tim Colling, PhD, PE, Director
Chris Gilbertson, PhD, PE, Associate Director
Nick Koszykowski, Sr. Project Manager, Software Development and Information Systems

Research Engineers

John Sullivan, PE, Senior Research Engineer 1 (half-time)
Pete Torola, PE, Research Engineer II (80%-time)
Ingrid Sandberg, MS, PE, Research Engineer I
Daryl Gotham, PE - Senior Research Engineer I
Vacant - Research Engineer I

Software Engineers and Developers

Luke Peterson, Principal Programmer
Norman Clerman, MS, Scientific Programmer
Jacob Coulson, Software Developer
Christoforo Delreal, System Administrator
Scott Dohrman, Software Developer
Brett Halonen, Software Developer
Anupama Josyula, Software Developer
Ryan Koehler, Scientific Programmer
Justin Millman, Software Developer
Matt Miller, Software Developer
Daniel Morgan, Software Developer
Gary Schlaff, Scientific Programmer (part-time)
Vacant, Software Developer

Training

Greg Pearson, MBA, Water & Wastewater Trainer
Cynthia Elder, Senior Events Specialist
Noah Rule, Marketing Specialist

Support and Communications

Christine Codere, Sr. Business & Training Support Specialist (half-time)
Scott Bershing, Technical Specialist

Victoria Kaplewski, MS, Technical Writer (80%-time)
Alex Radke, Technical/IT Support Specialist
Amy Spahn, MS, Center Coordinator
Lindsey Wells, User Interface/User Experience Specialist
Lori Krings, MSW, Business and Training Support Specialist

Balancing staff resources to project funding is a major challenge for the center; since a staff level that exceeds externally funded support requires overhead funds to make payroll, and an overly conservative staff level risks non-delivery of project tasks. In the over 30 years that the CTT has been operating, there has never been a staff layoff. A track record of providing a stable, well-funded center is critical to attracting and retaining talented, efficient staff.

The CTT believes it is important to invest in developing employee talent and actively encourages continuing education among its employees. Historically, the CTT has had several employees who have furthered their formal education while working at the CTT. The center has ongoing continuing education of technical staff as a goal, ensuring that licensed staff meet their continuing education requirements.

Like many other university centers, institutes, and departments, the CTT is working hard to maintain staffing levels by offering a welcoming work environment, interesting work, and competitive salaries. There has been significant competition for employees in the civil infrastructure job market as federal, state, and local governments work to backfill open positions.

A significant component of the CTT's workforce are student employees drawn from civil and environmental engineering, construction management, mechanical engineering, business, computer science, and scientific and technical writing. Student employees act as a workforce multiplier for full-time professional staff. The CTT also depends on student employees as a talent pipeline for full-time positions that are often hard to fill, specifically in the software engineering field.

Student employees work directly with professionals in their field, as well as with students and professionals outside their field on common projects. The CTT student employee program is focused on providing real-world technical experience in the student's subject area. As students gain experience on projects they are encouraged to work more directly with the center's industry and government clients, providing project management and leadership skills. In cases where the CTT students cannot gain on-the-job experience in their field of study working for the CTT, the center works with other centers and institutes to provide opportunities for learning and on-the-job experience. The CTT has also extended temporary post-graduation employment to students while they explore their career options.

4.0 BUDGET OVERVIEW

The CTT is a 100% soft money funded center and does not receive any general fund monies for its operation. As a result, the CTT employees spend the vast majority of their time working on funded projects. Tasks that are required for administration of the center, or are general university business (mandatory training, meetings, engagement with administration), or tasks that exceed project contract values, are funded through Institutional Research and Development (IRAD) funds from the center. IRAD funds make it possible for the CTT to operate as a business unit.

4.1 Staff Utilization Rate

The CTT measures utilization rate, or the percentage of employee time spent working on funded projects respective to the total hours available for work after leave and vacation time are removed. Aggregate annual utilization rates for full-time employees have historically been in the mid to low 90% range. High utilization rates (above 85%) are positive from the perspective that they correspond with a lower use rate of IRAD funds for salary; however, high utilization rates also indicate that staff have little free time to pursue new proposals, learn new skills, and secure new projects. Lower utilization rates afford staff the time to write proposals and papers but come at the cost of higher IRAD expenditures.

The CTT tries to maintain utilization rates between 85% and 90% to provide a balance between economy and readily available staffing for growth. Over the last several years, the CTT has made a conscious attempt to lower its utilization rate from a high of 95% to a more sustainable level with a target to provide more time to PIs to write proposals, actively manage staff, and provide time for staff development. Over the last several years the utilization rate has climbed from its historic low of 87% up to 90% for 2024. This increase is especially significant given that the center has brought on many staff during this time which typically lowers utilization rates as time on search committees, administrative time, and time spent onboarding staff erode utilization rates. The historical utilization rate for the CTT is illustrated in Figure 4.

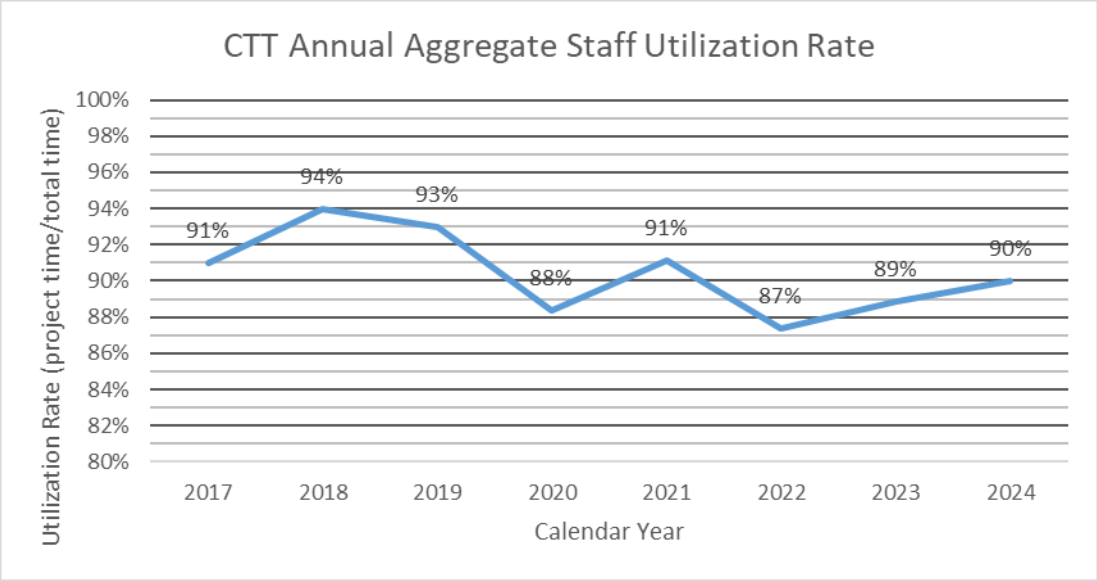


Figure 4: The CTT Staff utilization rate.

4.2 Proposal Activity and Awards

In 2024, the Center for Technology & Training submitted proposals with center staff as either the PI or Co-PI with the following metrics:

- 20 proposals submitted for a total of $7,316,249 in funding requested*
- 13 proposals accepted with a total of $5,033,090 in funding awarded
- 6 proposals pending with a total of $1,986,374 in funding under consideration
- 1 proposal was unsuccessful with a total of $288,428 in funding rejected
- 3 collaborative proposals with other centers*
- 10 different project sponsors or divisions

*CTT contributed as SMEs to develop a significant IDIQ proposal and a NCHRP proposal with Advanced Power Systems, which are both still pending but not recorded in CTT's metrics because CTT staff were not the project leads.

Figure 5 below illustrates the history of proposals that the CTT led as PI or Co-PI each calendar year. This figure illustrates the dollar values proposed and awarded to all units at Michigan Tech for these proposals, as well as dollar values awarded to the CTT. Figure 5 shows a strong and sustained growth in total proposal dollars, CTT awarded dollars, and total awarded dollars. CTT's total awarded dollars in 2024 were nearly 22% higher than the previous high water mark for this metric set in 2019.

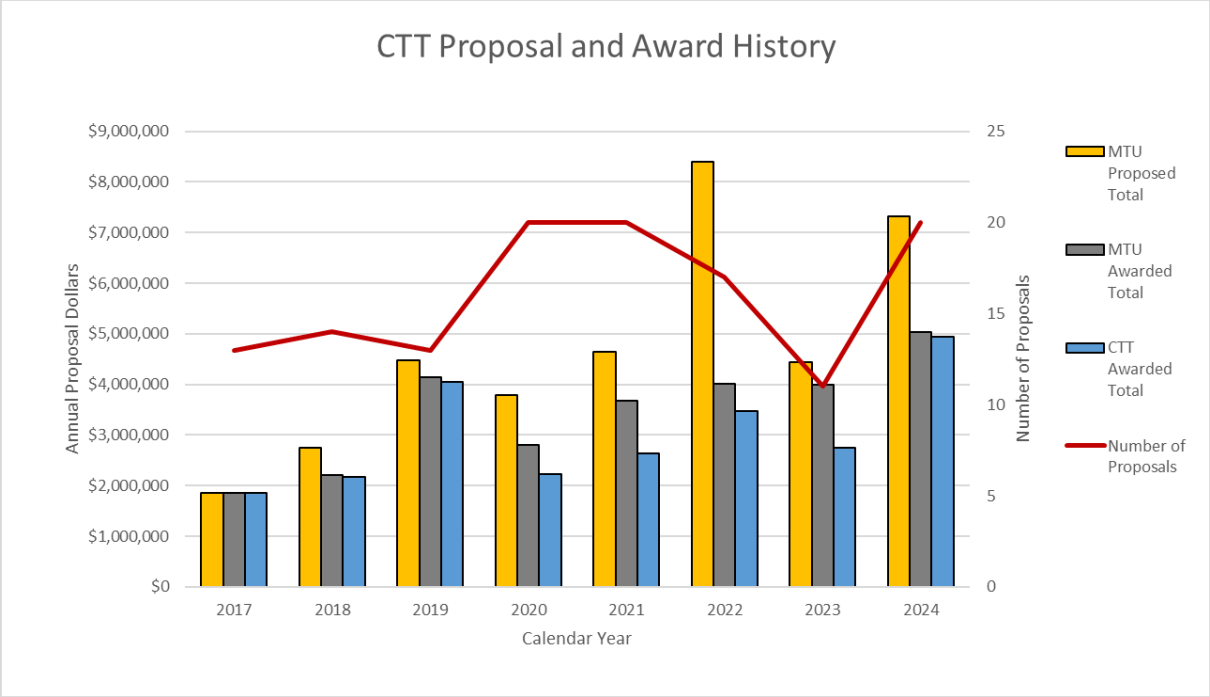


Figure 5: The CTT Calendar Year Proposal and Award Statistics

4.3 Secured External Funding and Spending

The CTT had $6,157,936 of projects under contract in 2024, which is the highest the center has ever experienced. Externally funded project awards and project expenditures both illustrate steady growth over the last eight years. Both spending and awards have continued growth in 2024 to their highest level ever for CTT. Figure 6 illustrates the historical growth of research awards under contract and expenditures over time. Note that Figure 6 contracted dollars and spending represent only the CTT's portion of the awards, so portions of the award that PIs or Co-PIs from outside the center have received are not included in this figure.

The net between spending and contracted dollars is primarily the result of multi-year contracts that will be spent in future years, which is a long-term goal of the center because of the stability it brings to the center's operations. Figure 6 illustrates the split in contracted dollars that are 1 year or less and awards that are multiple years.

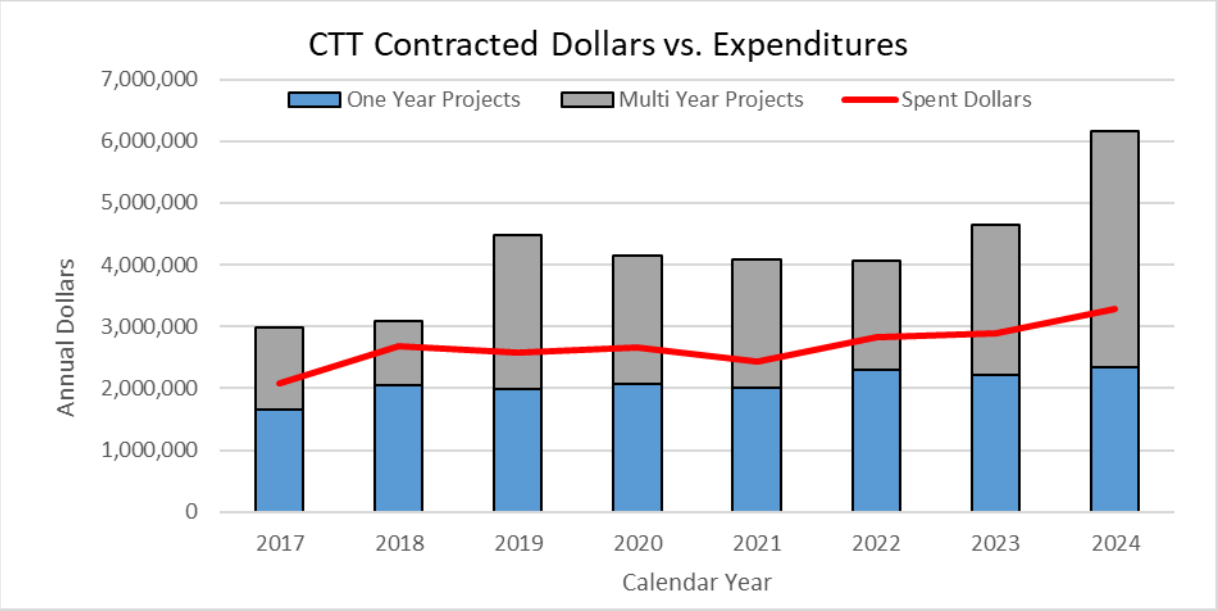


Figure 6: The CTT's annual soft money dollars under contract at the beginning of the calendar year vs. expenditures at the end of the calendar year.

4.4 Institutional Research and Development Funding (IRAD)

The CTT receives Institutional Research and Development (IRAD) returns for all of its externally funded research. IRAD returns follow standard distributions that match most other academic-based Centers and Institutes at Michigan Tech, which before October 2022 were: Principal Investigator (PI) 10%, Department 7.5%, College 7.5%, and Center 17%. As of October 2022, IRAD return rates were modified based on the IRAD Task Force recommendations to the Principal Investigator (PI) 10%, Department 9%, College 9%, and Center 18%. While this increase over the previous return rate is welcome, it still represents a decrease from historical levels before 2017 (Principal Investigator 10%, Department 10%, College 10%, and Center 20%).

IRAD is used by the CTT to meet three primary needs: funding staff administrative time to manage the center and write proposals, funding maintenance of the center facilities, and funding a reserve fund to provide security for soft money staff during periods of financial downturn or to leverage new staff.

In the last few years, CTT has struggled to maintain appropriate staffing due to losses from turnover and finding new staff to support center growth. This will require the CTT to continue to spend additional funds on training and recruiting staff to maintain its staffing level, which will put stress on IRAD reserves over the next few years.

Previous decreases in the IRAD return percentage in 2017 and 2021 had the impact of stagnating the CTT available IRAD balance even in the face of sharp increases in award activity. It is estimated that IRAD return reductions to CTT have removed approximately $250,000 from

CTT's potential IRAD balance since 2017. The restoration of a portion of those IRAD rate cuts in the fiscal year 2023 combined with strict IRAD spending control has allowed the CTT's IRAD balances to marginally resume making progress toward center goals. Figure 7 illustrates the historical IRAD revenue and expense volume for the CTT.

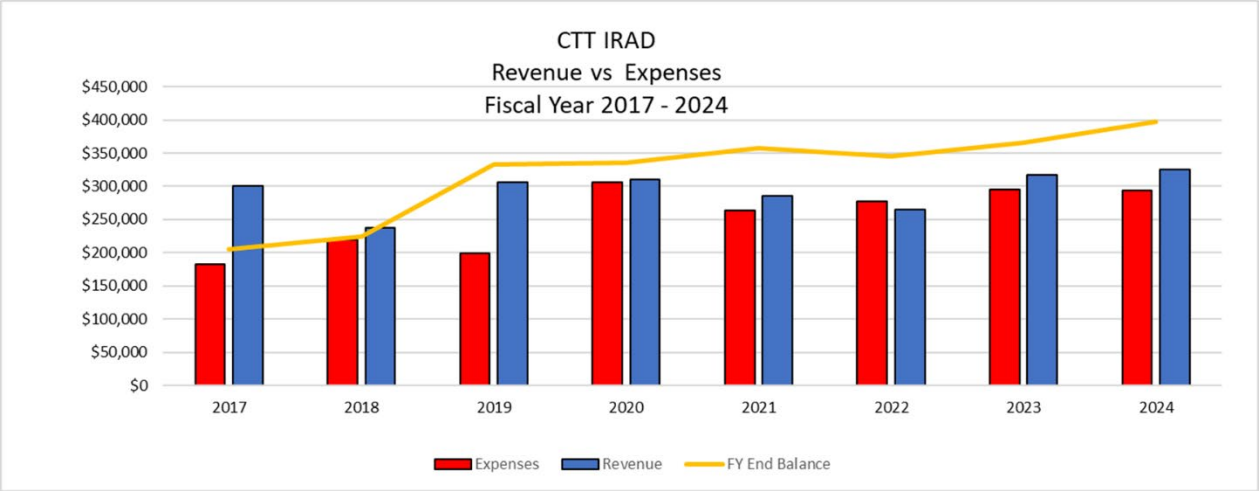


Figure 7: IRAD Expenses, revenue, and fiscal yearend balance. NOTE: IRAD return rates were reduced on July 1, 2017, and again on July 1, 2021. IRAD rates were increased in October 2022 which are reflected in fiscal year 2023 and 2024 returns.

Table illustrates the CTT's fiscal year-end IRAD balance and expense categories which includes PI and Center IRAD accounts. While the FY 2024 IRAD balance for CTT has increased by $31,508 over last year, the balance only provides the CTT staff with approximately 6.2 weeks of full salary and benefits in the event of a funding disruption, which is down from 7 weeks last year. Salary and benefits for full and part-time professional staff (excluding students) are approximately $64,600 a week, which is up from last year due to the growth of the center and wage adjustments. As CTT continues to add staff and wage inflation and merit increases add to the center's salary and benefit load, the CTT IRAD fund will need to increase savings to maintain pace.

The Center's long-term goal is to secure four to six months of salary and benefits as a reserve fund to maintain staff in the event of a financial downturn and to leverage hiring new staff to accommodate growth. Future expansion of office space or renovation to keep up with wear and tear is expected to have a significant financial impact on IRAD in upcoming years.

Table 1: IRAD Fiscal Year Balance and Spending Categories

ALL CTT IRAD Balances Including PI	FY 2017*	FY 2018	FY 2019	FY 2020	FY2021**	FY2022	FY2023	FY2024
Carryforward Budget	**$ 86,535**	**$ 206,678**	**$ 224,979**	**$ 332,430**	**$ 335,824**	**$ 357,311**	**$ 344,650**	**$ 366,114**
Transfers-In	$ 300,071	$ 237,396	$ 305,895	$ 309,604	$ 285,215	$ 265,042	$ 316,544	$ 325,494
Less Expenses:								
Salary & Wages	$ 100,913	$ 111,110	$ 99,522	$ 172,887	$ 159,153	$ 148,650	$ 170,701	$ 178,823
Fringe	$ 30,565	$ 34,601	$ 29,312	$ 57,035	$ 60,081	$ 57,445	$ 62,368	$ 62,103
Supplies & Service	$ 47,946	$ 40,178	$ 46,836	$ 59,180	$ 43,071	$ 47,699	$ 57,300	$ 48,372
Designated Fund Admin Fee	$ -	$ 8,393	$ 11,110	$ -	$ -	$ 161	$ -	$ -
Travel	$ 2,587	$ 12,082	$ 516	$ 3,312	$ 1,423	$ 1,894	$ 2,901	$ 4,688
Total Expenses	**$ 182,010**	**$ 206,364**	**$ 187,296**	**$ 292,414**	**$ 263,728**	**$ 255,849**	**$ 293,271**	**$ 293,986**
Encumbrances	$ -	$ -						
Transfers-Out	$ -	$ 12,732	$ 11,147	$ 13,796	$ -	$ 21,854	$ 1,808	$ -
Balance on June 30th	**$ 204,596**	**$ 224,979**	**$ 332,430**	**$ 335,824**	**$ 357,311**	**$ 344,650**	**$ 366,114**	**$ 397,622**
*IRAD return rates were reduced on July 1, 2017, which reduces CTT's IRA return share by 4%								
**IRAD return rates were reduced on July 1, 2021, which reduces CTT's IRA return share by an additional 4%								

Productivity of space is an important metric for institutions where space is at a premium. CTT tracks the annual expenditure and awards of externally generated funding per square foot of space that the center occupies. Expenditure and awards per square foot of spaces over the past eight years are shown in Figure 8, which illustrates a strong growth trend in both awards and expenditures per square foot. CTT's current expenditures of $566/square foot and awards of $1,061 / square foot likely make it some of the more productive space on campus based on these metrics.

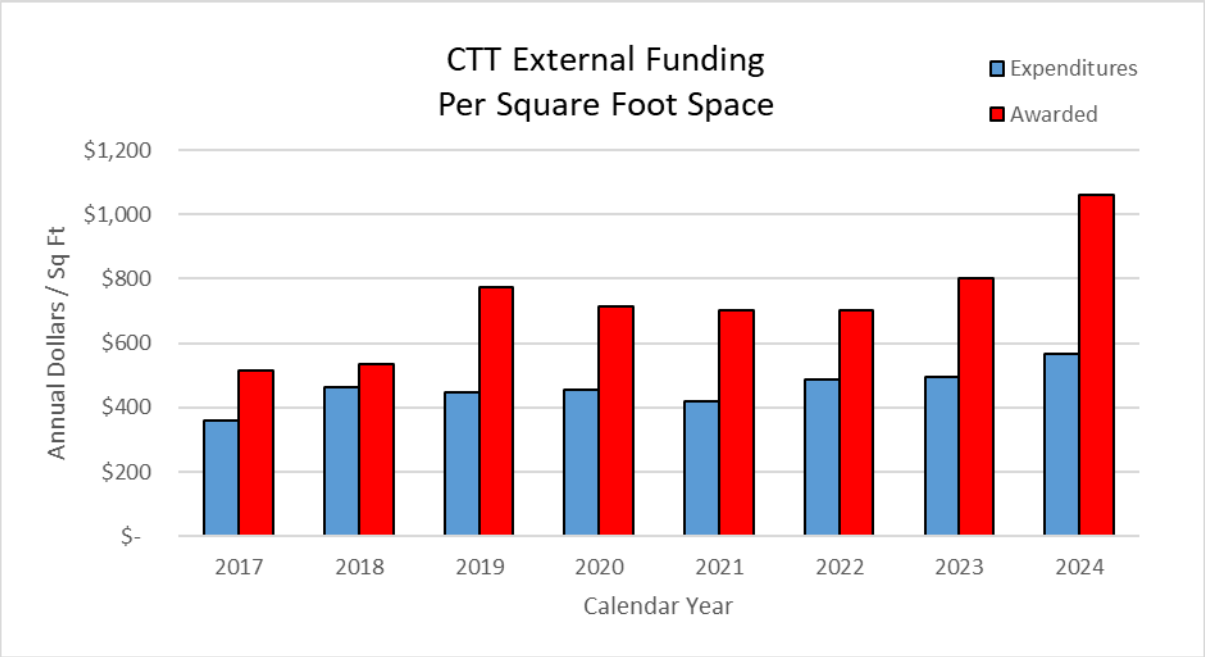


Figure 8: CTT Awards and expenditures as a function of square footage of space.

5.0 FUTURE PLANS AND GOALS

5.1 Goals for 2025

The CTT will seek to increase the production value of its web-delivered training events that maximize user attention and learning. CTT believes that increased use of web-delivered training has the potential to saturate the market with low-quality or poorly delivered content. Providing quality web-delivered training content that mirrors the high-quality on-site events that CTT produces will continue the center's growth and reach. Significant progress was made on this goal in 2024.

The CTT will continue to collaborate with other centers, institutes, and individual faculty to propose and land large, multi-year projects. Progress was made in this area in 2024.

The CTT will successfully maintain or increase its staffing levels and will onboard and train its newly hired staff members, bringing them up to speed on center operations and the state of practice in center research areas. Significant progress was made on this goal in 2024 and CTT expects to continue to seek out and hire new staff to maintain staffing levels and grow in 2025.

5.2 Goals for 2030

The CTT plans to continue to diversify the type and source of its project funding over the next few years to add stability to the center. Significant progress has been made on this goal in 2024.

The CTT will continue to secure an increased number of longer-term multiyear contracts, which provide a base to build new programs and capacities. Significant progress was made on this goal in 2024.

The CTT will continue to increase its fiscal stability by maintaining an unspent IRAD balance with a goal of securing a fund equal to a minimum of four months of staff wages and benefits with an ideal of six months. While IRAD balances grew in 2024, the number of weeks of salary actually lost ground due to growth in CTT's staffing levels.

6.0 CHALLENGES AND BARRIERS

Hiring and retaining talented people, specifically in software engineering and civil engineering has always been difficult, but the CTT is expecting that recruitment and onboarding of staff will remain a primary concern in what is expected to be a tight labor market going forward for several years.

Soft money units are constantly in a struggle to maintain a healthy IRAD balance to meet the basic needs of their employees. IRAD funds nearly every non-project-related expense for soft money staff, including training, hiring new staff, non-project travel, office space, IT equipment, administrative and management staff functions, accounting, writing proposals, project overruns, and maintaining staffing between funded projects.

Soft money units are extremely sensitive to small changes in IRAD return rates and to increases in administrative burden to their unit, which both have the same financial impact. Over the last several years CTT has seen an increase in its administrative expenses as CTT support staff are bearing more responsibilities for central services previously provided by other units.

APPENDIX A: 2024 TRAINING METRICS

Table 1: Training Events and Attendance In 2024

Event Name	Attended	Training Hours	Contact Hours
Using Thawcaster to Predict Seasonal Weight Restrictions	51	2	102
Materials Acceptance Process Virtual Seminar - Jan 11	29	6	174
2024 Michigan Municipal League - Intro To Asset Management	100	1.25	125
Asphalt Paving Inspection 2-Day Virtual Workshop - Jan	116	6	696
IBR System for Rating Unpaved Roads - Jan	85	1.5	127.5
Introduction to MERL Webinar – Jan 25	21	2	42
Introduction to MERL Webinar – Jan 30	8	2	16
Materials Acceptance Process Virtual Seminar - Jan 31	29	6	174
Cold Weather Work Webinar	18	2	36
Michigan County Engineers' Workshop - Manistee	254	14.25	3619.5
PASER Training - Class 1 Webinar (Feb)	189	3	567
PASER Training - Class 2 Webinar (Feb 14 & 15)	150	6	900
Intermediate MERL Training: Bid Utility Tool Webinar – Feb	17	1	17
MERL Training: Local Job Manager Webinar - Feb	16	1	16
Culvert Condition Assessment Webinar - Feb	96	3	288
Cold Weather Work Webinar - Feb 21	21	2	42
Materials Acceptance Process Virtual Seminar - Feb	29	6	174
Getting Started with the Roadsoft Mobile App	23	1.5	34.5
The Cast Characteristics of Snowplows	26	1	26
Getting Started with the Laptop Data Collector	19	1.5	28.5
Asphalt Paving Inspection Workshop - Grand Rapids	71	6	426
Skillful Sentences & Persuasive Paragraphs Workshop	6	6	36
Asphalt Paving Inspection Workshop - Livonia	68	6	408
PASER Training - Class 1 Webinar (Mar)	96	3	288
PASER Training - Class 2 Webinar (Mar 6 & 7)	83	6	498
Michigan Bridge Week - Day 1 (Conference)	299	7.25	2167.75
Michigan Bridge Week - Day 2 (Workshops)	233	6.5	1514.5
Materials Acceptance Process Virtual Seminar - Mar	32	6	192
Michigan Bridge Week - Day 3 (Bridge Maintenance)	193	3.75	723.75
Master the RS Data Collection Cycle for Planning Org.	32	2	64
PASER Training - Class 2 (Houghton)	5	4	20
Business Letters & Board Reports Workshop	4	3	12
PASER Training - Class 2 (Gaylord)	8	4	32
Presentations: How to Wow Your Audience	8	3	24

Event Name	Attended	Training Hours	Contact Hours
Meeting the TAMC Investment Reporting Requirements Mar	30	1.5	45
Patching the Cyber Potholes: Realistic Tips for Today's Risks	13	1	13
Roadsoft User Group Meeting – What's New (Apr)	56	3	168
Google Products – A Basic Presentation to Get you Started	47	1	47
PASER Training - Class 2 (Livonia)	11	4	44
PASER Training - Class 2 (Grand Rapids)	6	4	24
Bridge Load Rating Basics: From Plans to Rating (Apr)	16	2	32
IBR System for Rating Unpaved Roads - Apr	61	1.5	91.5
Bridge Load Rating: Theory & Policy (Apr)	13	2	26
Intro to Roadsoft: Just the Basics 2-Day Webinar - Apr	49	3	147
Bridge Asset Management Plan Webinar	7	2	14
Michigan Highway Maintenance Conference - Day 1	104	3.75	390
Michigan Highway Maintenance Conference - Day 2	102	6.5	663
Michigan Highway Maintenance Conference - Day 3	56	3.75	210
Bridge Asset Management Plan 4-Day Virtual Workshop	6	3	18
Pavement Asset Management Plan 3-Day Virtual Workshop	15	3	45
Asset Management Basics for Paved Roads - Romeo	9	2.5	22.5
Asset Management Basics for Paved Roads - Village of Brooklyn	8	3	24
Welding for Maintenance Workers - Escanaba	12	16	192
Back To Basics: Core Concepts of Asphalt Pavement Design	193	0.5	96.5
Bridge Load Rating Hybrid Workshop (May)	10	7	70
Asset Management Basics for Paved Roads - St. Clair Shores	3	3	9
Ask The Expert - How To Read An Asphalt Mix Design	161	0.5	80.5
Gravel Basics for Local Officials - Charlevoix CRC	12	3	36
Gravel Basics for Local Officials - Osceola CRC	4	3	12
Selecting The Right Asphalt Pavement Mix Design	165	0.5	82.5
PASER Training - Class 1 Webinar (June)	86	3	258
Advanced Topics in Bridge Load Rating: Part 1 (June)	15	2	30
PASER Training - Class 2 Webinar (June 5 & 6)	83	6	498
Ask The Expert - Asphalt Pavement Inspection Basics	138	0.5	69
Welding for Maintenance Workers - Grand Rapids	12	16	192
Updating a Bridge, Pavement, or Compliance Plan Webinar - June	11	2	22
IBR System for Rating Unpaved Roads - June	37	2	74
Advanced Topics in Bridge Load Rating: Part 2 (June)	18	2	36
Welding for Maintenance Workers - Grand Rapids (June 26-27)	11	16	176
PASER Training - Class 1 Webinar (July)	35	3	105

Event Name	Attended	Training Hours	Contact Hours
PASER Training - Class 2 Webinar (July 10 & 11)	33	6	198
Introduction to HEC-RAS 2D Modeling - Lansing	23	28	644
Operation and Maintenance of Wastewater Lagoons Webinar	85	4	340
Microsoft Word Workshop - July	24	2	48
Microsoft Excel Workshop - July	25	2	50
Microsoft PowerPoint Workshop - July	18	2	36
Updating a Bridge, Pavement, or Compliance Plan Webinar - Aug	5	2	10
Optimizing Small Wastewater Treatment Plants (AR)	53	7.5	397.5
Motor Grader Training - Wexford (Level 2-3)	9	32	288
Integrated Infrastructure Conference (TAMC) - Grand Rapids	217	9.75	2115.75
Engineering Ethics Webinar - Aug	280	2	560
Microsoft Word Workshop - Aug	22	2	44
Microsoft Excel Workshop - Aug	18	2	36
Microsoft PowerPoint Workshop - Aug	15	2	30
Culvert Condition Assessment Webinar - Aug	57	3	171
GIS for the Small Water Utility – Getting Started	96	2	192
Bridge Load Rating Basics: From Plans to Rating (Aug)	8	2	16
Roadsoft User Group Meeting (Sept)	45	2	90
Bridge Load Rating: Theory & Policy (Sept)	6	2	12
Motor Grader Training - Ionia (Level 2-3)	7	40	280
Specifications for the National Bridge Inventory (SNBI) Training	191	18	3438
Motor Grader Training - Hillsdale (Level 2)	8	16	128
The Basics of Traffic Counts	158	1	158
Motor Grader Training - Washtenaw (Level 2)	18	16	288
Bridge Load Rating Virtual Workshop (Sept)	5	6	30
Master the RS Data Collection Cycle for Planning Org. - Sept	19	2	38
Intro to Roadsoft: Just the Basics 2-Day Webinar - Oct	39	3	117
Advanced Topics in Bridge Load Rating: Part 1 (Oct)	4	2	8
Motor Grader Training - Mackinac (Level 3)	0	16	0
Operation and Maintenance of Wastewater Lagoons (OR)	76	4	304
Motor Grader Training - Schoolcraft (Level 3)	0	16	0
Motor Grader Training - Chippewa (Level 1)	10	32	320
Cold Weather Work Webinar (Oct)	7	2	14
Roadsoft Special Topics: Database Management	6	1.5	9
Advanced Topics in Bridge Load Rating: Part 2 (Oct)	2	2	4
Meeting the TAMC Investment Reporting Requirements - Oct	24	1.5	36
Michigan Winter Operations Conference - Bellaire	240	9.5	2280

Event Name		Attended	Training Hours	Contact Hours
Local Concrete Seminar - Livonia		35	3.5	122.5
Local Concrete Seminar - Okemos & Virtual		27	3.5	94.5
Roadsoft Pavement Management Topics 3-Part Mini-Series		21	4.5	94.5
Train the Trainer – Make the Most of Internal Training (Oct 29)		55	1	55
People Skills – Connecting and Communicating (Oct 30)		79	1	79
Road Conductor Preview		217	1.5	325.5
Introduction to MERL Webinar – Nov 5		34	2	68
Cold Weather Work Webinar (Nov)		3	2	6
Roadsoft Special Topics: Filter & Legend Builders		15	1.5	22.5
Materials Acceptance Process Virtual Seminar - Nov 7		20	6	120
Introduction to MERL Webinar – Nov 7		8	2	16
Cybersecurity Explained: Best Practices		10	1	10
Effective Meetings – Strategies for Productivity (Nov 13)		72	1	72
2024 Make the Most of Internal Training (Nov 19)		38	1	38
People Skills – Connecting and Communicating (Nov 20)		57	1	57
Materials Acceptance Process Virtual Seminar - Nov 21		19	6	114
Effective Meetings – Strategies for Productivity (Dec 3)		39	1	39
Cold Weather Work Webinar (Dec)		19	2	38
Train the Trainer – Make the Most of Internal Training (Dec 5)		26	1	26
Engineering Ethics Webinar - Dec		244	2	488
Roadsoft Special Topics: Tips & Tricks		21	1.5	31.5
Intermediate MERL Training: Bid Utility Tool Webinar – Dec		16	1	16
Updating a Bridge, Pavement, or Compliance Plan Webinar - Dec		18	2	36
Materials Acceptance Process Virtual Seminar - Dec 12		39	6	234
Intermediate MERL Training: Local Job Manager Webinar - Dec		19	1	19
People Skills – Connecting and Communicating (Dec 17)		34	1	34
Effective Meetings – Strategies for Productivity (Dec 18)		25	1	25
Total	**135 Events**	**7,113**	**638.75**	**32,684.75**