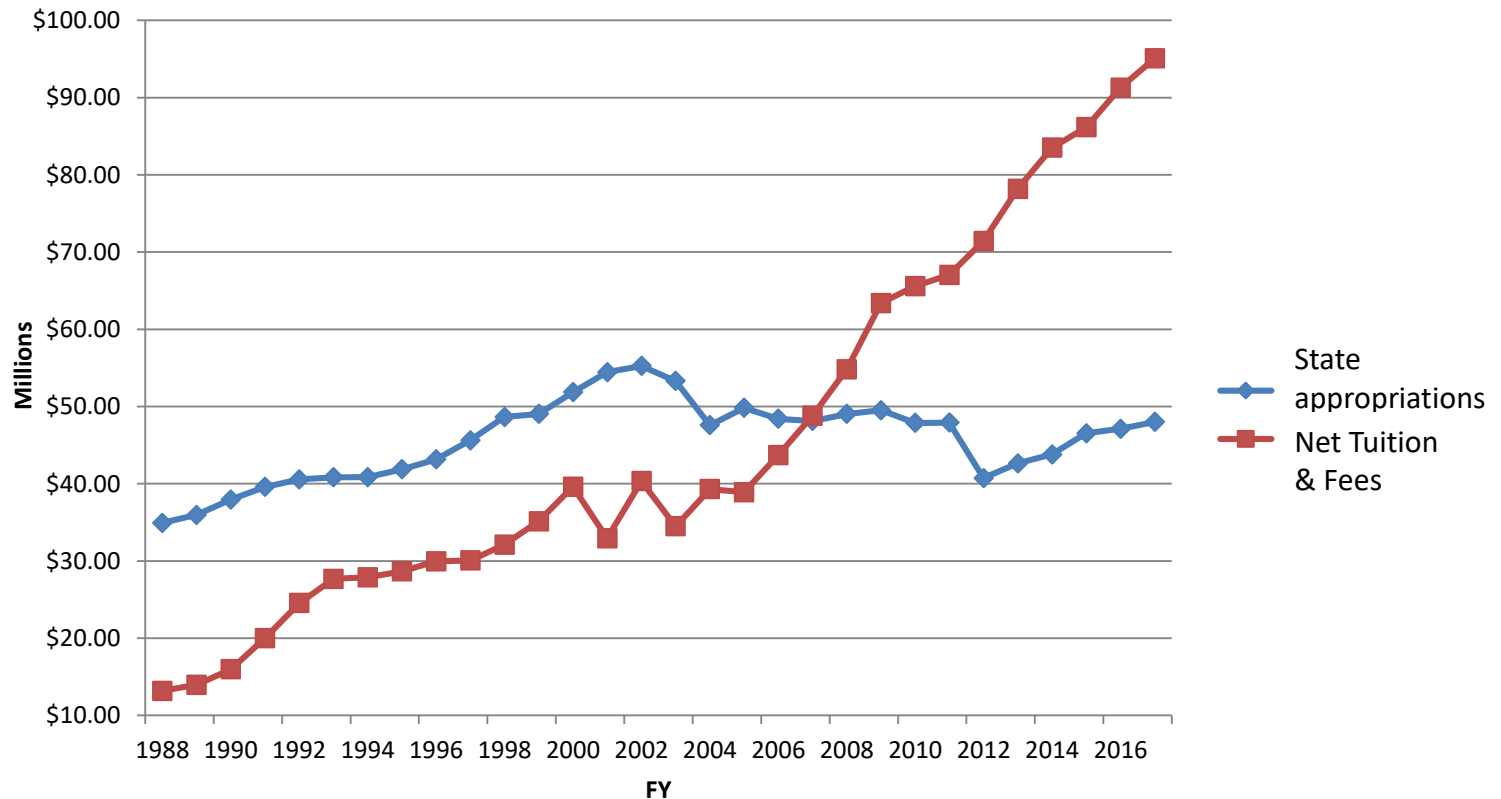


# Michigan Tech Financial Overview

December, 2018

## A review from the University Senate

In the face of declining state appropriations, tuition and fees have increased dramatically since 2003. This report critically examines some of the driving factors for this increase, including the historical trends in compensation and benefits, overall instructional costs, overhead support functions, building and long-term debt, and research expenditures. General suggestions for increasing revenues and reducing expenses are also included.



\*Net tuition and fee revenues were readjusted starting in FY2013 in the audited financial statements. (e.g. FY2012 adjusted from \$71M to \$77M with the difference in auxiliaries.)

# Undergraduate tuition history

## Full time in-state undergraduate tuition at Michigan Tech

2011-2012	\$12,615	(Fact book)
2012-2013	\$13,095	(Fact book)
2013-2014	\$13,470	(Fact book)
2014-2015	\$14,040	(Fact book)
2015-2016	\$14,286	(Fact book)
2016-2017	\$14,664	(Fact book)
2017-2018	\$15,074	(Fact book)

## Average annual net price to undergraduate students, 2016-2017\*

(Including financial aid, discounting, etc. – source: National Center for Education Statistics)

### *Midwestern Public Universities*

Michigan Tech	\$17,139
University of Michigan – Ann Arbor	\$16,408
Michigan State	\$16,684
Western Michigan	\$15,219
Northern Michigan	\$14,005
University of Wisconsin	\$15,910
University of Illinois –Urbana - Champaign	\$16,638
University of Minnesota – Twin Cities	\$16,808
University of Minnesota – Duluth	\$16,381

\* Full-time beginning undergraduate students who paid the in-state or in-district tuition rate and were awarded grant or scholarship aid from federal, state or local governments, or the institution.

## Our *non-resident* graduate tuition rates are among the *lowest* of all STEM schools

(source financial aid office)

Current Graduate tuition	\$20,574/2 semesters. (resident or non-resident)
Undergraduate in-state 2017-2018	\$15,074/2 semesters.
Undergraduate out-of-state 2017-2018	\$33,426/2 semesters.

Raising non-resident graduate tuition to peer average \$1400/credit yields approximately +\$2M/year.

Graduate School	Non-resident cost per credit* (AY18)	Graduate School	Non-resident cost per credit (2018)
<i>Michigan Tech</i>	\$1078	University of Wisconsin	\$1410
University of Michigan	\$2800	Georgia Tech	\$1440
Wayne State	\$1725	Virginia Tech	\$1490
Michigan State	\$2140	Minnesota -Duluth	\$1440
Western Michigan	\$1232	University of Minnesota – Twin Cities	\$2200
Texas A&M –College Station	\$1040	Purdue	\$1680
University of Illinois	\$2039	Louisiana Tech	\$650 ‡ per quarter basis

\* Masters in engineering where applicable.

# How much do employee/faculty costs drive tuition increases?

**Michigan Tech's retirement obligations** – MPERS (<10 percent of payroll) obligation is about 70-75% of TIAA-CREF. Even with more plan participants, there is about a 10% combined decrease since 2009. (audited financial statements)

2009 MPSER obligation	\$4.87 million	2009 TIAA-CREF/Fidelity	\$7.92 million
2010 MPSER obligation	\$4.67 million	2010 TIAA-CREF/Fidelity	\$7.17 million
2011 MPSER obligation	\$5.14 million	2011 TIAA-CREF/Fidelity	\$5.96 million
2012 MPSER obligation	\$5.76 million	2012 TIAA-CREF/Fidelity	\$6.15 million
2013 MPSER obligation	\$5.72 million	2013 TIAA-CREF/Fidelity	\$5.56 million
2014 MPSER obligation	\$5.34 million	2014 TIAA-CREF/Fidelity	\$5.74 million
2015 MPSER obligation	\$3.39 million*	2015 TIAA-CREF/Fidelity	\$6.00 million
2016 MPSER obligation	\$3.43 million	2016 TIAA-CREF/Fidelity	\$6.35 million
2017 MPSER obligation	\$4.87 million	2017 TIAA-CREF/Fidelity	\$6.63 million

\*On September 30, 2015, the University received \$11,784,204 from the Michigan State plan for a plan error requiring excess contributions. The refund reduced the plan's net position and will impact the University's net pension liability as of June 30, 2016.

## Medical benefit claims paid by Michigan Tech since 2008.

Since 2012 there has been an actual 5% decrease (15% decrease CPI adjusted) , even though the non-student employee headcount is up by 12% since 2008. All of the actual increase in healthcare costs have been paid by those covered. (FY basis - audited financial statements, net of employee premiums)

<u>FY</u>	<u>Actual</u>	<u>In 2008 \$</u>
2008	\$13,875,743	\$13,875,743
2009	\$13,980,633	\$14,339,530
2010	\$14,310,670	\$14,302,470
2011	\$14,748,919	\$14,503,570
2012	\$15,735,827	\$15,034,420
2013	\$14,377,991	\$13,521,240
2014	\$12,498,807	\$11,571,370
2015	\$14,475,538	\$13,413,780
2016	\$13,333,124	\$12,188,150
2017	\$14,691,242	\$13,101,000

## Total employee benefit costs to Michigan Tech have been flat for 10 years

The total is down 3% (CPI adjusted) since 2008, even though the non-student employee headcount is up by 12.5% over same period.

<u>FY</u>	<u>Payments for benefits</u>
2008	\$35,802,819
2009	\$35,859,251
2010	\$34,709,950
2011	\$35,124,359
2012	\$37,803,478
2013	\$36,133,364
2014	\$34,132,400
2015	\$36,256,688
2016	\$36,428,782
2017	\$38,852,584

## Average total compensation and benefits per instructor.

Increased 13% (actual dollars) since FY2006 (-10% CPI adjusted), due to small raises, benefit cuts, and lower cost structure (more junior faculty, lecturers, etc.) Current fund expenditures are up 72% (50% CPI adjusted) over the same period.  
 (sources: audited financial statements, controller's office & compendium)

<i>FY</i>	<i>Instructional Compensation &amp; Benefits</i>	General Fund Instructional Expenditures	Unrestricted current fund expenditures	Tenure/Tenure track faculty	Non-tenure track faculty
2006	\$38,559,398	\$44,317,174	\$140,827,244	312	11
2007	\$39,975,030	\$45,879,482	\$151,679,361	317	10
2008	\$43,292,487	\$49,316,020	\$166,313,946	310	48
2009	\$46,729,720	\$53,425,533	\$179,326,092	312	55
2010	\$47,987,133	\$54,767,561	\$187,242,616	329	57
2011	\$47,812,865	\$54,713,867	\$191,434,074	342	58
2012	\$47,866,389	\$55,128,119	\$198,550,847	354	56
2013	\$50,538,540	\$57,426,523	\$199,634,657	348	56
2014	\$52,005,389	\$58,577,540	\$208,232,321	336	57
2015	\$53,234,128	\$59,629,464	\$216,148,343	339	65
2016	\$52,619,134	\$59,030,724	\$223,413,537	341	68
2017	\$54,888,744	\$62,395,040	\$242,473,404	337	70

# Average Faculty Salaries – Michigan and Regional Universities

Oklahoma State Faculty Salary Survey and AAUP Faculty Salary Survey (2017-2018) in \$1000's

Institution	Professor	Assoc. Professor	Asst. Professor
Michigan Tech	119 (4 <sup>th</sup> )*	97.4 (3 <sup>rd</sup> )*	80.8 (3 <sup>rd</sup> )*
U. of Michigan	170.2	113	95.6
Michigan State	154.6	101.9	82.6
Wayne State	132.5	97.6	85.8
U. of Wisconsin	136.2	102.1	89.5
Ohio State	150	101.3	89.4
Colorado School of Mines	132	94	82
Missouri Univ. of S & T	125.8	83.1	76.6
U. of Minnesota	143.4	100.5	89.0
U. of Illinois	150.5	104.2	95.5
Purdue	142.4	101.2	89.7
National Engineering avg.	153	105	86
Midwest Engineering avg.	164	111	93

\* National quintile



# How about institutional costs?

## Bonded Debt

Total debt increased an order of magnitude under the last administration (Audited financial statements). This is a chiefly a result of bonded debt that has been issued since 2002. *Bond debt outstanding as of June 30, 2017 was \$101.9 M.* Last year MTU spent around \$7.5 M in bonded debt service; a portion of which may be associated with revenue lines (e.g. residence halls).

2002	\$ 11,396,000
2003	\$ 17,198,000
2004	\$ 51,023,286
2005	\$ 50,274,702
2006	\$ 49,517,956
2007	\$ 51,131,794
2008	\$ 50,904,532
2009	\$ 56,112,688
2010	\$ 73,113,673
2011	\$ 82,496,244
2012	\$ 84,516,392
2013	\$ 85,711,936
2014	\$ 81,818,215
2015	\$ 82,754,664
2016	\$105,056,919
2017	\$101,887,771*

\* Principal only - \$154M with interest included. Debt service over the above period is >\$60M for combined total debt outlays of >\$200M.

# Costs of expanding and maintaining our physical plant

## (If you build it they will come?)

Increase of nearly 1 million sq. ft. over last 3 decades (@\$7/sq ft per year maintenance).  
Approximately 100 sq. ft. added per every person (students, staff, faculty) on campus.

M&M	217,200
Dow	167,000
Rosza	80,000
Little Huskies	4,400
Forestry expansion	48,000
Lakeshore Center	50,000
Mineral Museum	9,000
Rehki building	51,000
Opie Library	54,000
Hillside Place	75,000
ATDC	27,500
Great Lakes Research Center	49,500
Blizzard building	55,000
Alternative energy center	4,000
KRC, Engineering design center	11,000
Miscellaneous (Chemistry, etc.)	17,600
<b>Total additional space</b>	<b>&gt;910,000 square feet</b>

# Controlling Support Costs

## Academic support\*

*Academic support has grown from \$10.7M in FY2006 to \$23.1 M in FY2017. It includes: (1) Library operations, (2) Academic IT, (3) CTLF, (4) marketing and communications, (5) corporate relations and intellectual property, (6) research services, (7) the graduate school, (8) learning centers.*

## Institutional support \*

*Institutional support includes (1) executive-level activities for management and long-range planning of the entire institution, i.e. governing board, planning and programming, and legal services; (2) fiscal operations, including the investment office; (3) administrative data processing; (4) space management; (5) employee personnel and records; (6) logistical activities that provide procurement, storerooms, safety, security, printing, and transportation services to the institution; (7) support services to faculty and staff that are not operated as auxiliary enterprises; and (8) activities concerned with community and alumni relations, including development and fund raising.*

FY	Institutional Support
2007	\$20,858,727
2008	\$24,364,292
2009	\$28,393,021
2010	\$27,429,468
2011	\$29,045,690
2012	\$32,570,634
2013	\$16,022,546
2014	\$17,450,450
2015	\$19,350,779
2016	\$20,377,479
2017	\$25,583,897**

\*In FY2013 there was a re-categorizing of overhead expenditures (e.g.- as *academic support, student services, or operations instead of institutional support*). Some support functions (e.g. library, IT) are more closely aligned with MTU's core academic mission than others.

\*\*Academic + Institutional support + Operations were up over \$8.3M from FY16 to FY17.

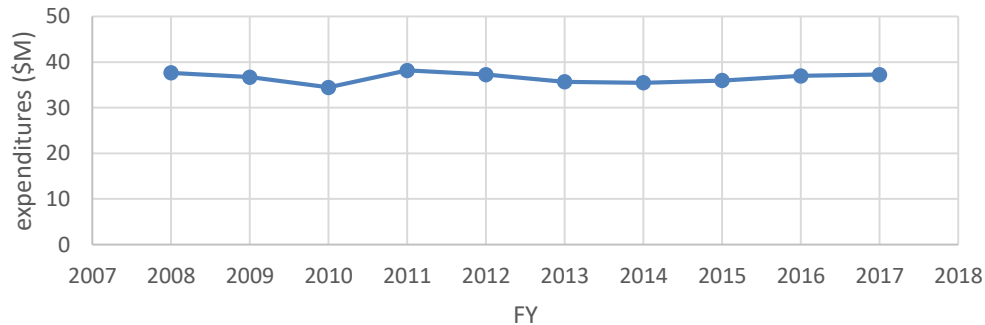
# Can Research Dollars Help MTU's Finances?

CPI adjusted *external research* expenditures are essentially flat since 2008

Table of internal and external research expenditures per FY (source: compendium & NSF)

FY (NSF reported)	University (total) M\$	University (internal) M\$	University (external) M\$	University external \$M (CPI adjusted- 2008\$)
2008	60.35	22.7	37.65	37.65
2009	60.39	24.6	35.79	36.71
2010	63.47	29	34.47	34.45
2011	70.02	31.2	38.82	38.18
2012	71.99	33	38.99	37.25
2013	70.69	32.75	37.94	35.68
2014	68.53	30.22	38.31	35.47
2015	69.61	30.8	38.81	35.96
2016	72.54	32.08	40.46	36.99
2017			41.8	37.28

MTU external research expenditures (2008\$)



***Internal research expenditures are up 450% since 2002, now 45% of total.***

*Internal research expenditures include: REF, IRAD, general fund salaries charged to research, start-up funds, cost share, Graduate Assistant Cost Share (GACS), Indirect costs (Facilities & Administrative F&A) on cost share and waivers of indirects (F&A) on sponsor funds, research related gifts, use charges & SURF Fellowships.*

## Increasing Endowment to the level of our peers

This table shows the list of universities that Carnegie has picked as our peer institutions. This list ranks us third from the bottom in total endowment (\*\*). If one divides Endowment by Enrollment, only fourteen of 38 (37%) have lower endowment/student values (\*). There is obviously substantial room for growth (improvement) in Institutional Endowment

Institution	Enrollment	Endowment	Endowment/student
<b>Michigan Tech</b>	<b>7,268</b>	<b>\$96M</b>	<b>\$13,209</b>
Auburn University	23,964	\$729M	\$30,421
Baylor University	14,316	\$1.31B	\$91,506
Brigham Young University	31,233	\$1.47B	\$47,065
Catholic Univ. of America	3,314	\$337M	\$10,169*
Clark University	3,153	\$408M	\$129,400
Clarkson University	3,090	\$191M	\$61,812
Clemson University	19,402	\$621M	\$32,007
Colorado School of Mines	6,117	\$286M	\$46,755
George Mason University	24,987	\$85.4M**	\$3,401*
Indiana/Purdue-Indianapolis	30,105	\$852M	\$28,301
Loyola University Chicago	11,420	\$750M	\$65,674
New Jersey Institute Tech.	8,483	\$111.4M	\$13,132*
Old Dominion University	25,000	\$250M	\$10,000*
Polytechnic Univ., Brooklyn	4,432	\$173M	\$39,034
Saint Louis University	7,411	\$1.02B	\$137,633
South Dakota State Univ.	10,896	\$113M	\$10,371*
Syracuse University	15,252	\$1.2B	\$78,678
University of Alabama	38,563	\$683M	\$17,711
University of Montana	6,182	\$180M	\$29,117
Univ. Texas at Arlington	41,933	\$155M	\$3,696*
Univ. Texas at Dallas	27,642	\$531M	\$19,210
Univ. Texas at El Paso	21,341	\$242M	\$11,340*
University of Arkansas	27,778	\$1.0B	\$36,000
University of Denver	11,614	\$711M	\$61,219
University of Memphis	21,521	\$209M	\$9,711*
University of Mississippi	24,250	\$715M	\$29,485
Univ. of Missouri-Kansas City	16,944	\$1.12B	\$66,100
Univ. of Missouri-Rolla	8,884	\$176M	\$19,810
Univ. Nevada-Las Vegas	30,471	\$230.8M	\$7,574*
University of Oregon	22,980	\$905M	\$39,382
Univ. Puerto Rico-Rio Piedras	18,653	\$110M	\$5,897*
Univ. Southern Mississippi	11,815	\$116.8M	\$9,886*
University of Toledo	16,194	\$416M	\$25,689
Univ. of Wisconsin-Milwaukee	26,037	\$201M	\$7,720*
Utah State University	27,932	\$360M	\$12,888*
Virginia Commonwealth Univ.	31,036	\$1.84B	\$59,286
Western Michigan University	17,936	\$387M	\$21,577
Wright State University	14,038	\$85M**	\$6,054*

## HLC composite financial index (CFI)

The Higher Learning Commission (HLC) accredits degree granting colleges and universities. A CFI of 1.1 or higher = adequate financial health and no HLC review. A CFI below 1.1 = possible HLC review.

Accreditation criteria include whether “resources are sufficient to fulfill its mission, and respond to future challenges and opportunities”. An annual Composite Financial Index (CFI) is calculated annually to evaluate the sufficiency of institutional resources.

Combination of 4 financial ratios, each weighted as follows:

- Primary Reserve Ratio (35%) – Net assets/operating and non-operating expenses.
- Viability Ratio (35%) – Net assets/Long term debt.
- Return on Net Assets Ratio (20%) – Change in net assets/total assets.
- Net Operating Revenues Ratio (10%) – Net operating income (loss)/total revenues.

## Higher Learning Commission – MTU Composite Financial Index

	FY17	FY2016	FY2015	FY2014
Primary reserve ratio	0.43	0.38	0.38	0.40
Viability ratio	1.1	0.91	0.87	1.11
Return on Net assets ratio	1.63%	1.34%	0.38%	2.41%
Net operating revenues ratio	0.24%	-1.39%	-4.22%	1.03%
Composite financial index	2.2	1.8	1.4	2.3

## Conclusions

*The aim of this analysis is to identify factors driving undergraduate tuition increases over the past 13 years based on an objective analysis of revenues and expenditures. To avoid more future rapid tuition increases, the net operating revenue ratio must be improved by control of spending and increased non-tuition revenues. Net operating revenue ratios were negative for FY15 & FY16 (>-4% in FY 2015).*

The numbers in this analysis aren't going to improve because we are uncomfortable with them, but only if effective action is taken. This makes hiring a new CFO, who can take a clear-eyed view of the financials and firmly connect the budget to the strategic plan to create a viable "business plan" for Michigan Tech tremendously important. Of course, a university is not a traditional business, and an in-depth analysis of less tangible, non-economic factors aligned with Michigan Tech's mission should be an equally important part in the development of a new business.

Numerous suggestions for decreasing expenses and increasing revenues have been solicited from the University Senate, and many those recommendations are summarized in the following slides as part of the conclusions for this study.



## Ways to decrease expenditures?

1. *Compensation and benefits:* These have been frequently and vociferously cited as a principal cause for increasing tuition; however, this is clearly not the case. Benefits for both faculty and staff have been cut disproportionately to other parts of the budget, a regressive tactic with the lower paid employees being hit hardest. Competitive faculty compensation is consistent with our strategic plan, but faculty salaries across the ranks are in the 3rd or 4th national quintile. We are close to average salaries for junior faculty but fall behind in senior faculty ranks. Similar benchmarks for professional staff salaries were not readily available for comparison.
2. *Long-term debt:* We all like new buildings, but they come at a *big* cost. MTU's cost is over \$200M in the last 16 years, plus \$7/sq. ft.- year for operation *in perpetuity*. Long-term debt has increased from \$11 M in 2002 to over \$100m today (\$154M with interest). The "if you build it they will come" approach is an incomplete solution. Board actions have repackaged many bond issues, but added costs for upgrades and deferred maintenance, plus payback periods are extended well into the future. Off-setting long-term debt for future buildings with effective fund-raising is crucial.
3. *Overhead spending:* The support budgets (academic, instructional, and operations) have seen the largest increases (>\$8M from FY16 to FY17 alone). The trend of increasing spending on overhead functions rather than revenue generation functions (e.g. teaching & research) is a questionable financial practice. The advancement units should strive to be completely self-supporting with a percentage return comparable to our peers.
4. *Truly strategic investments:* Commit to invest *only* in valued and innovative educational initiatives, not just new courses, minors, or degrees. Seriously evaluate financials for new programs and reassess finances of programs added over the past 10 years. Adding degrees for less than 10 new students doesn't help the big picture.

# Ways to increase Revenues?

1. *Tuition revenues*: The vast majority of revenue increases over the past 10 years have come from students in the form of tuition, fees, room & board, etc. Most of this is borne by the undergraduates. Although, increasing revenues from tuition hikes is not the most desirable solution, increasing student enrollment is important. Some additional considerations include:

- Market price elasticity by program is uncertain & non-STEM degrees are under pressure.
  - Create separate upper and lower division tuition.
  - Set tuition by program & demand.
  - Downsides include state restrictions on tuition increases and decreased good will.
- Student debt crisis – the average MTU student graduates with >\$35K in debt.
- Increase student numbers (setting hard enrollment targets and meeting them).
  - Student recruitment (add sought-after programs, effective branding/marketing)
  - Improved retention.
  - Enhance partnerships, 2+2 programs, work-for-credit, industry-driven programs
  - Put an emphasis on recruiting in the Fox valley area of Wisconsin, which has few engineering programs, but large numbers of prospective students.
  - Use summer semester more effectively and reward departments that participate.
- Discounting is currently high, consider adjusting discounting to peer and regional levels.
- Invest in on-line teaching resources and marketing, determine appropriate price points, and create a reward structure for faculty willing to make the extra effort.
- Significant Increases in room & board prices could suppress growth.

## Ways to increase Revenues?

2. *Charge market prices for graduate education:* The current non-resident graduate tuition structure is based upon a model from nearly 20 years ago, and a better price-point model is needed. We have one of the lowest non-resident graduate STEM tuition rates in the nation, below MTU's non-resident undergraduate rate. Increasing graduate tuition to an average market price could net an additional \$1-2M/year. Currently up to 2 non-resident grad students are required to generate the tuition of 1 full-time non-resident undergrad. Moderate tuition increases wouldn't affect our competitiveness in grants.
3. *Increase external research dollars:* Over the past 10 years *external* research expenditures are flat (CPI adjusted). Most of the increase in total research expenditures is due to changes in the accounting system to find more “internal” research expenditures. The number of research active tenure/tenure track faculty is flat over that period, and several top researchers have left or moved into administrative roles. Efforts to improve acquisition of external research dollars must include:
  - a. Hiring more research-active faculty (not just instructors) with sufficient resources to acquire larger grants, develop centers, and increase external research dollars.
  - b. Further enhance the center approach to research, especially via regional partnerships and solicitation of development funds from the state.
  - c. Break down academic silos and encourage collaborative Ph.D. programs initiatives similar to the Physical Therapy Ph.D.

## Ways to increase Revenues?

4. *Growing the endowment:* The earlier comparison table shows we lag significantly behind our peers in endowment, a resource all universities are increasingly dependent upon. Initiation of a major fundraising campaign in the near future is critically important, especially for funding new capital projects and enhancing both undergraduate and graduate scholarships. Increasing the involvement of the academic departments in fundraising could enhance the reach of the advancement team and help in the discovery of new prospects.
  
5. *State appropriations:* These are just now approaching the state appropriation levels of 20 years ago. An appeal to our legislature for a "one-time" bump in its investment in STEM education might be considered a long-shot, but is worth a try with new administrations both in Lansing and at MTU. This might not only be in the form of capital requests, but also or research center development or matching funds for research and equipment. MSU and U. of M. have been very successful at this game. Further enhancing Michigan Tech's visibility/presence in Lansing and Washington is more important than ever with the state's economy in recovery.