

FY20 Sustainability Report

Administration & Finance Committee

December 9, 2020



University of Massachusetts

Amherst • Boston • Dartmouth • Lowell • Medical School • UMassOnline

Sustainability Policy Reporting

- ❑ Fourth year of reporting under the Board adopted Sustainability Policy
- ❑ Established key metrics for annual reporting and continuing to refine the methodologies utilized and appropriate data sources
- ❑ Efficiencies in reporting requirements- consistent metrics with Commonwealth reporting requirements has streamlined and eased the campuses reporting through the Leading By Example program
- ❑ Improvements to our metric reporting and time spent refining these methodology has a direct effect on our reputation as a University. Numerous organizations such as the Sierra Club, Princeton Review, and AASHE's STARS reporting rely on these metrics to determine their annual rankings on sustainability.
- ❑ Amherst, Boston, Lowell and Dartmouth were ranked as Princeton Review's 416 Green Campuses of 2021. Amherst & Lowell campuses ranked 15th & 16th in Sierra Club ranking for 2020.

Sustainability Metrics

Sustainability Strategic Planning

Best Practices Achieved

- ❑ Sustainability elements integrated across the campuses into the Strategic and Capital Planning processes
- ❑ Original signatories to Second Nature Commitments
- ❑ UMass system approach to sustainability resulting in more streamlined and strategic approach for future planning

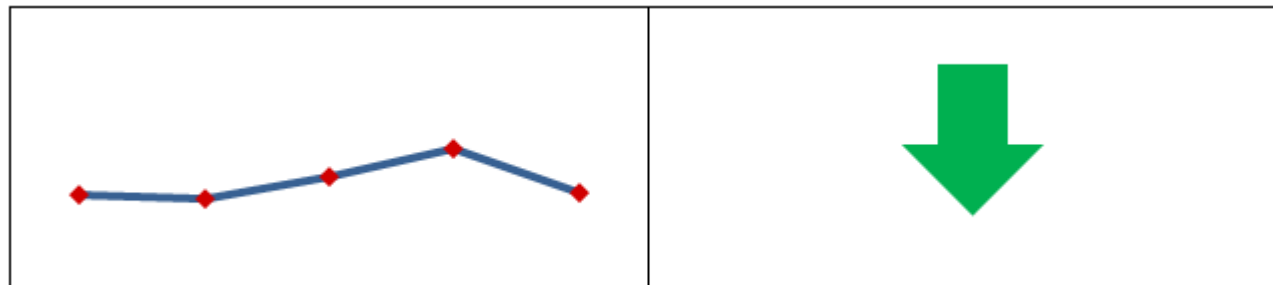
Planning Ahead

- ❑ All campuses in various stages of developing Renewable Energy/Carbon Mitigation Plans & Resilience Planning.
- ❑ External funding secured to develop plans. Working with state agencies (DCAMM/DOER) with focus on implementation to meet Commonwealth sustainability goals and GHG reductions.
- ❑ Annual reporting through the STARS program key to tracking progress.

Greenhouse Gas Emissions – Emissions Per Campus User

Metric Tons of GHG Emissions/Campus User	FY16	FY17	FY18	FY19	FY20
Amherst	4.3	4.1	4.2	4.2	3.9
Boston	2.2	2.2	2.8	2.8	1.9
Dartmouth	3.6	3.3	3.7	4.1	4.0
Lowell	1.8	1.8	2.2	2.7	1.9
Medical School	11.6	11.7	11.3	13.4	11.8
University	4.1	4.0	4.4	4.7	4.1

- Significant GHG reductions as a result of energy efficiency work and adoption of renewable energy. UMass System the largest public "off-taker" of renewable energy in the Commonwealth.
- Each campus has seen a drop in net emissions this year as a result of COVID.
- Increased ventilation costs for indoor air quality/safety could see an uptick in emissions but each campus planning to mitigate.



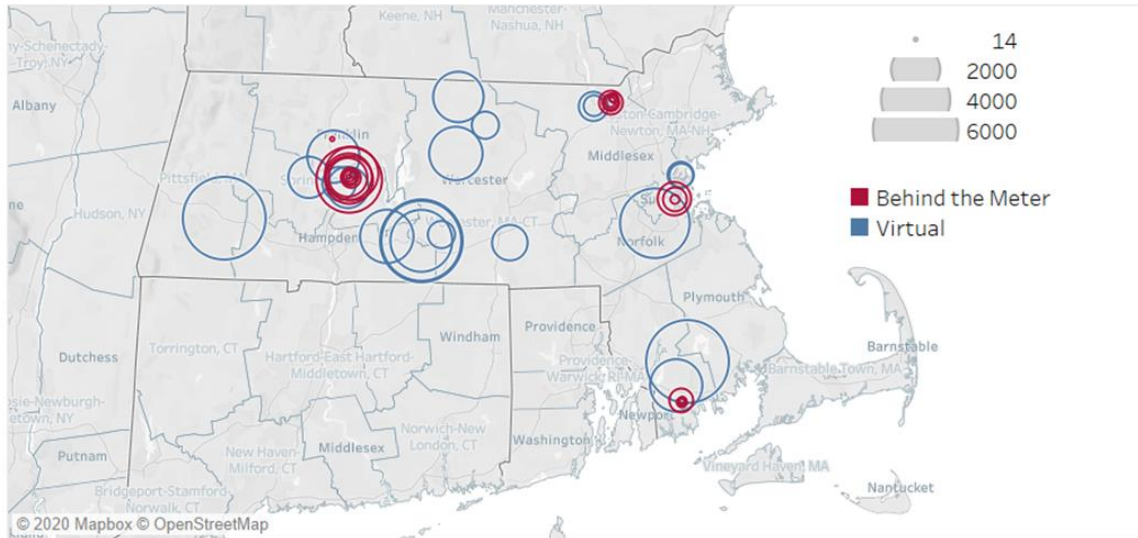
Carbon Reduction Efforts

All Units in kW-DC

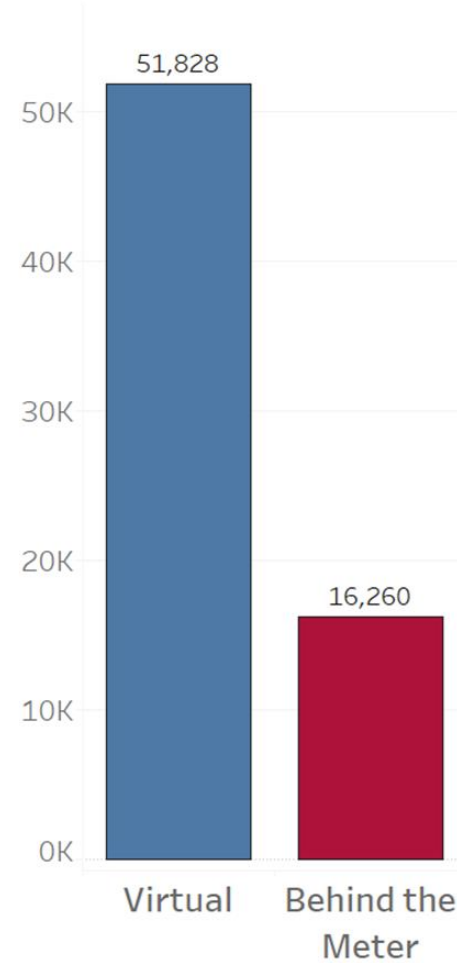
UMass System Renewable Energy Projects

Technology	Project Type	Project Status	Campus				
			UMA	UMB	UMD	UML	UMMS
Solar	Behind the Meter	Operational	5,686	74	268	446	
		Negotiations	3,778			469	
		Design & Construction		968			
	Virtual	Operational	10,880	5,344	8,400	17,234	9,970
Storage	Behind the Meter	Operational	1,320		500		
		Negotiations	2,000			250	
		Design & Construction		500			

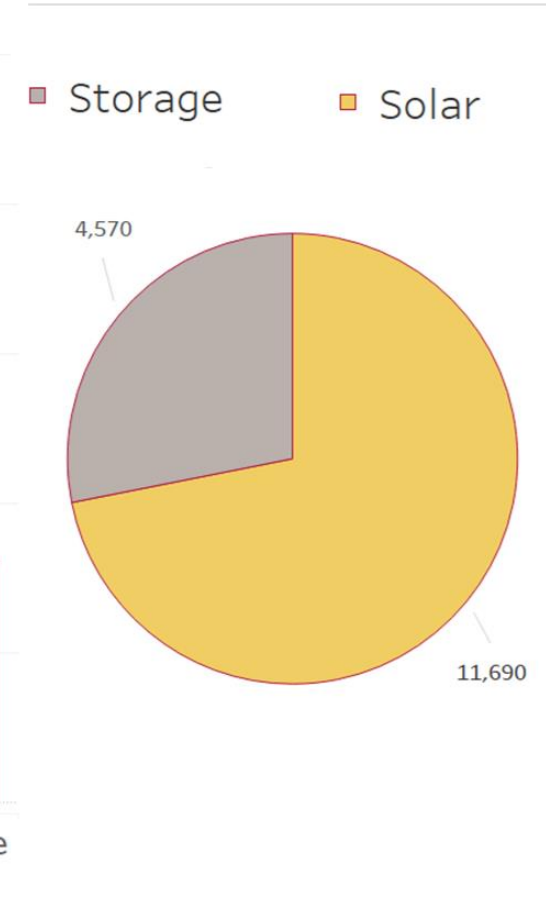
UMass System- Cumulative Installed Renewable Capacity



Project Type



Behind the Meter Technology



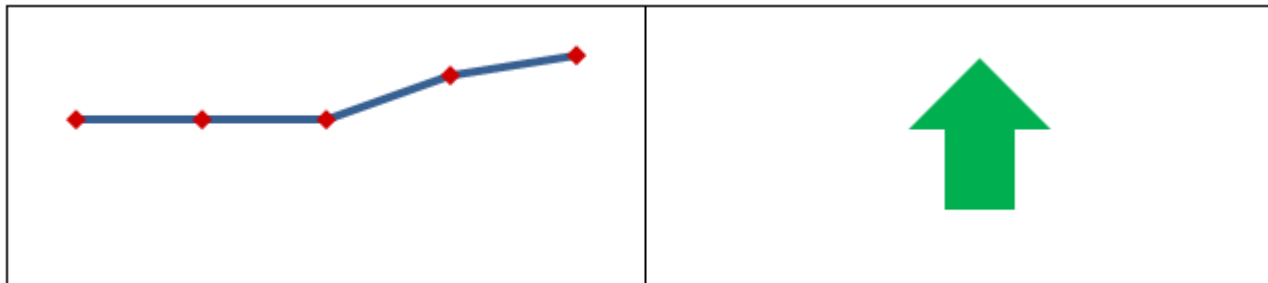
Building Operations – Percentage of LEED Certified Building Space Square Footage

%	FY16	FY17	FY18	FY19	FY20
Amherst	9.0	9.0	9.0	10.4	11.0
Boston	8.0	14.0	14.0	18.0	18.3
Dartmouth	0.0	0.0	1.0	3.0	3.0
Lowell	14.0	13.0	14.0	13.6	16.4
Medical School	24.0	24.0	24.0	23.7	23.7
University	11.0	11.0	11.0	12.7	13.5

- **Amherst:** Isenberg School of Management LEED Gold



- **Lowell:** Perry Hall Renovation LEED Gold



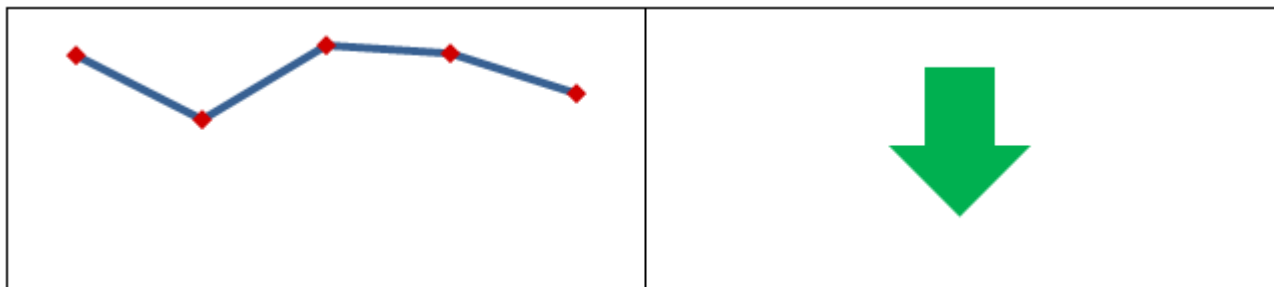
In 2020, 33% of the total LEED certified state buildings in the Commonwealth are UMass buildings

Energy Consumption - Energy Use Intensity

Kbtu/GSF	FY16	FY17	FY18	FY19	FY20
Amherst	163.9	160.9	169.9	162.3	153.2
Boston	118.0	116.7	127.0	107.9	92.4
Dartmouth	138.7	143.8	154.0	156.5	147.8
Lowell	93.8	95.4	93.2	92.9	80.6
Medical School	498.9	516.5	505.6	549.6	496.5
University	186.0	161.2	189.8	187.0	171.4

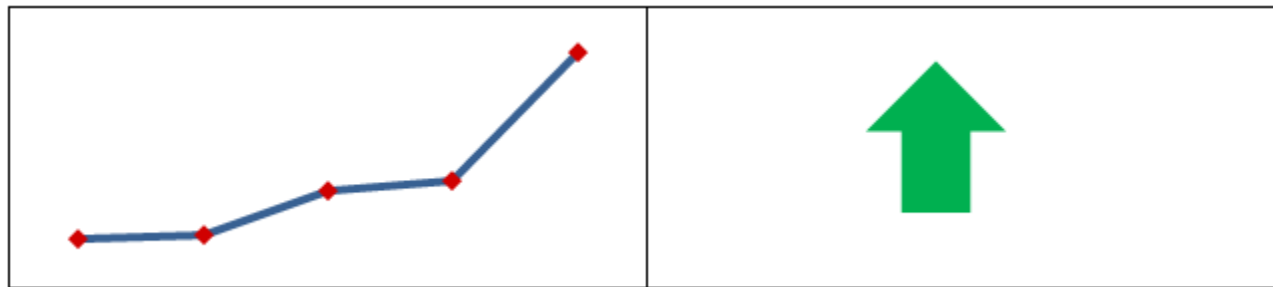
Lowell's EUI has fallen 11 out of past 12 years. 35% drop since FY04. Largest completed Accelerated Energy Program in Commonwealth.

Medical School completed a jacket insulation project, focusing on insulating the on valves and fittings in mechanical spaces across campus. The project is anticipated to save over \$40,000 and 4 million kBTUs a year. The project was funded with the support of over \$100,000 in utility incentives.



Sustainable Transportation – Alternative Energy Fleet Vehicles

%	FY16	FY17	FY18	FY19	FY20
Amherst	0.0	4.2	6.3	6.5	12.6
Boston (1)	0.0	0.0	0.0	0.0	0.0
Dartmouth	1.1	2.2	1.4	1.4	1.4
Lowell	3.6	5.3	7.2	9.7	15.5
Medical School	0.0	0.0	0.0	0.0	0.0
University	3.4	3.6	5.3	5.7	10.7



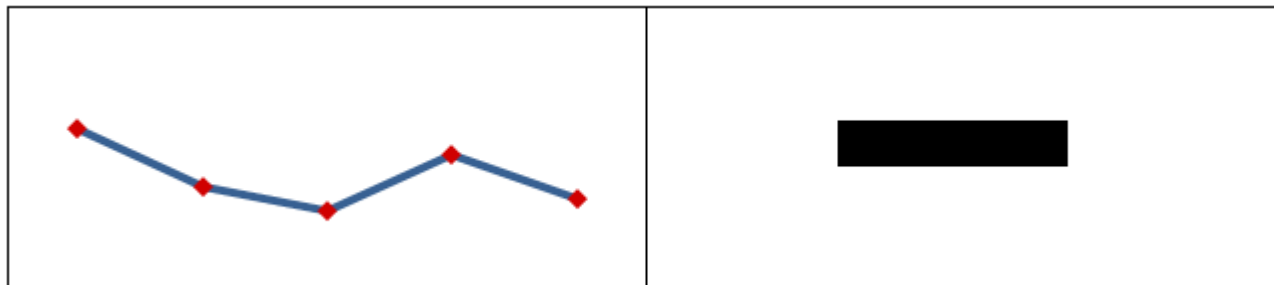
Lowell has been very successful in pursuing external grant funds to green its fleet. Over \$300K in external funding since FY16 targeted on fleet electrification and EV charging infrastructure to support.



Boston first ever combined solar-plus-storage system will use Enel X's JuiceBox 11 smart charging stations and leverage renewable power and optimize timing to minimize the costs and impact of EV charging on campus.

Waste Reduction – Disposal Diversion

%	FY16	FY17	FY18	FY19	FY20
Amherst	57.4	57.4	58.9	56.0	54.9
Boston	63.8	62.9	51.3	63.6	51.5
Dartmouth	NA	31.5	14.8	24.5	21.4
Lowell	42.1	40.8	48.0	50.6	64.1
Medical School	26.2	27.1	26.4	30.9	28.4
University	48.5	45.1	43.7	47.0	44.5



Student waste-sort at Southwest Residential Area at Amherst

- Waste & recycling operations impacted system wide. Pause on residential and dining operations has impacted diversion rates. Inability to hold long-standing programs such as year-end Move-Out and other large scale recycling events.

Environmental Procurement – Partnership with UPST

- The Sustainability Council and UPST team members have collaborated to improve vendor relationships with the University specifically related to sustainability efforts
 - Engage vendors to provide data on consistent basis for sustainability metrics to improve the data available to the University
 - Consult with sustainability council to build sustainability reporting standards in contract for key products/services related to sustainability measures
 - Advocate for vendors to provide University purchasers with information on sustainability products through their catalog systems
- Providing the University with better data to measure success in procuring more environmentally responsible supplies and resources across the campuses
- Addressing procurement data needs based on STARS standards for consistency across campuses and peer institutions.

Sustainable Food Services

Sustainable/Ethically Produced Products

%	FY20
Amherst	16
Boston	NA
Dartmouth	NA
Lowell	5
Medical School	5
University	9

Plant-based Foods

%	FY20
Amherst	41
Boston	NA
Dartmouth	NA
Lowell	24
Medical School	32
University	32

- To remain consistent with STARS reporting standards, the University will report on these food service metrics going forward. The new metrics align with STARS criteria to better evaluate progress and easier to source food data

Amherst – UMass Dining surpasses the 7-year Real Food Challenge Campus Agreement of 20% by **(29%)** in 2020.

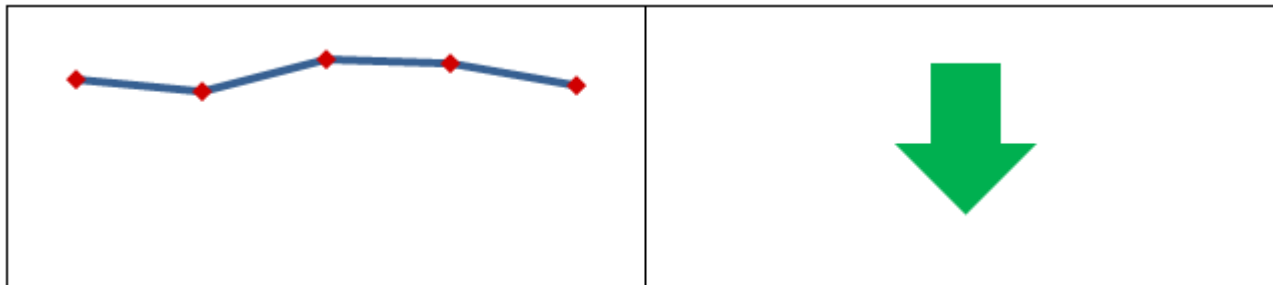


Dartmouth – Received a Kendall Foundation grant to create recipes to use abundantly available seafood and bycatch to introduce new seafood to students

Water Systems – Water Consumption Per Campus User

Hundreds of Cubic Feet (CCF)/Campus User	FY16	FY17	FY18	FY19	FY20
Amherst	12.9	12.1	13.9	12.9	9.7
Boston	3.9	2.0	4.4	4.4	3.9
Dartmouth	3.3	6.0	6.4	4.7	4.7
Lowell	5.9	4.3	7.0	6.8	8.3
Medical School	36.8	36.2	33.4	38.2	36.7
University	11.4	10.7	12.6	12.3	11.0


Medical School replaced 16 glass washing machines and 17 autoclaves in the Lazare Research Building. The new equipment will save approximately 3.3 million gallons a year through more efficient water use and by avoiding once-through cooling with Potable water.



Sustainability – Community Engagement

- Medical School led a system-wide effort for a virtual celebration of the 50th Anniversary of Earth Day
- Lowell & The City of Lowell established the Lowell Green Community Partnership with a focus on energy, transportation, community engagement/experiential learning




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EARTH WEEK 50 YEARS

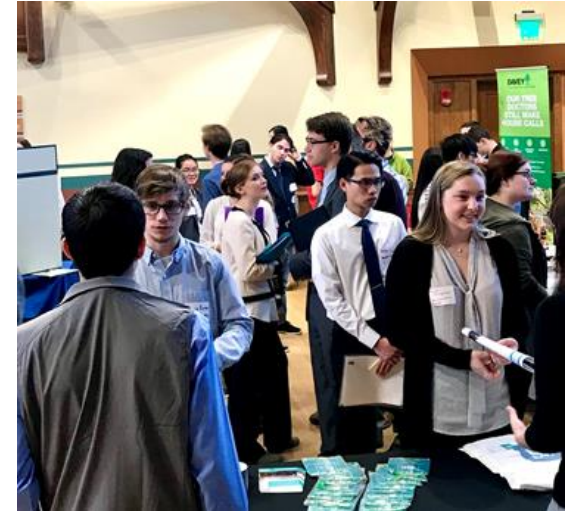
A socially distant celebration of 50 years of Earth Day

Monday April 20, 2020	Tuesday April 21, 2020	Wednesday April 22, 2020	Thursday April 23, 2020	Friday April 24, 2020
Biodiversity	Materials & Resources	Energy & Climate Action	Transportation	Health & Wellbeing
<p>All Day Family Nature Scavenger Hunt</p> <p>Explore your yard or your home. When you find an item listed on the card, post a picture of it on social media with the hash tag: #UMassNatureHunt (Make it a selfie, if you want!)</p>	<p>12 noon Don't Trash It</p> <p>Got questions about home recycling or composting? Join this interactive lunch and learn. You'll be surprised what you can do with all that stuff.</p>	<p>9 a.m. Earth Day Symposium</p> <p>Join Steve Curwood, host of <i>Living on Earth</i>, for his opening remarks at this virtual symposium.</p> <p>7:30 p.m. Virtual Happy Hour and Lecture</p> <p>Raise a glass and your climate consciousness. Join a talk by UML 2020 Greeley Scholar for Peace Studies Dr. Amber Fletcher. Moderated by UML Professor Emeritus and Senior Research Fellow John Wooding.</p>	<p>12 noon Electric Vehicles</p> <p>Roll up to this virtual lunch and learn with all your questions about what it's like to own and drive an electric vehicle. Several UMass EV drivers will share their experiences.</p>	<p>12:30 p.m. Climate & Health</p> <p>A one-hour interactive webinar led by students across the UMass system will explore the interconnectedness of climate change and public health. Share your ideas. Ask your questions.</p>

Find more information here: www.umassmed.edu/growinggreen/earthweek













Sustainability – Academic & Student Engagement

- Amherst awarded \$6.3 million for new transdisciplinary graduate program (ELEVATE) focused on equitable energy transition in the face of climate change.
- Amherst held 1st annual Sustainability Career Fair and created green workforce database.
- Boston PACE Apprenticeships made possible by a \$2.25 million philanthropic gift from Ralph and Janice James are helping UMB students with hands-on experience, develop project management skills in paid, high-quality campus apprenticeships, (e.g. IT, Campus Center. Sustainability and more)
- Boston Chancellor's Sustainability Committee created its first ever Green Courses Database in 2019-2020 while UMB Sustainable Solutions Lab launched a new Seed Grant Program for faculty research projects focused on issues of climate change and social equity.
- Dartmouth student Sunrise Movement held a rally, gathered signatures and advocated for the Chancellor to cut GHG emissions to zero by 2030
- Lowell established the Rist Institute for Sustainability and Energy (RISE) with a \$1 million gift from alumnus Brian Rist. Merges expertise in sustainability operations, teaching, and research.
- Lowell emerging as sustainability leader in American East conference. Anchor institute for Green Sports Network. Recent \$7.4M joint award on energy resiliency with Stony Brook.



Key Sustainability metrics all on watch

Consistent with Board policy and best practices metrics are used to evaluate progress in a wide range of areas

<h3>Emissions Per Campus User</h3>	<h3>Energy Use Intensity</h3>	<h3>Waste Disposal Diversion</h3>	
			
			
FY20: 4.1 metric tons	FY20: 171.4 Kbtu/GSF	FY20: 44.5%	
<h3>LEED Certified Building Space</h3>	<h3>Alternative Fleet Vehicles</h3>	<h3>Water Use Per Campus User</h3>	
			
			
FY20: 13.5%	FY20: 10.7%	FY20: 11.0 CCF	