

Metropolitan Government
of Nashville and Davidson County

John Cooper, Mayor
Velvet Hunter, Interim Director



Department of General Services

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June 23, 2023

Metropolitan Government Clerk's Office
Metropolitan Courthouse
1 Public Square, Suite 205
Nashville, TN 37201

Dear Honorable Members of the Metropolitan Government of Nashville & Davidson County Council:

In accordance with Section 16.60.110 of the Metropolitan Code, the Department of General Services is herewith providing an annual report for calendar year 2022 describing the environmental performance and operation of the 23 LEED® (i.e., "high performance") buildings that the department manages.

The annual report requirements for LEED® buildings include:

1. The LEED® building's energy and water use compared to a non-LEED® building of similar size and use within the area of the metropolitan government;
2. The LEED® building's estimated energy and water cost savings compared to a non-LEED® building of similar size and use within the area of the metropolitan government.

The high-performance buildings that are presented in this annual report are those for which a minimum of one year of energy data is available and include the following:

High Performance Building	Opening Date	LEED® level
Fire - Station #3	October 2012	LEED® Gold
Fire - Station #11	January 2014	LEED® Gold
Fire - Station #19	December 2015	LEED® Platinum
Fire - Station #20	October 2015	LEED® Silver
Fire - Station #21	November 2013	LEED® Silver
Fire - Station #30	June 2013	LEED® Silver
Fire - Station #31	September 2012	LEED® Gold
Fire - Station #32	December 2020	LEED® Gold
Fire - Station #33	April 2013	LEED® Silver
Fire - Station #35	September 2011	LEED® Silver
Fire - Station #37	August 2020	LEED® Gold
Police - Midtown Hills Precinct	August 2014	LEED® Gold
Police - West Precinct	December 2011	LEED® Gold
Howard Office Building	December 2010	LEED® Silver
Lindsley Hall	April 2010	LEED® Silver
MAC - Douglass Head Start	February 2014	LEED® Silver

Highland Heights - KIPP Academy	August 2014	LEED® Silver
Library - Bellevue Branch	January 2015	LEED® Gold
Southeast Davidson Library & Community Center	October 2014	LEED® Gold
Lentz Public Health Center	July 2014	LEED® Silver
Police - Madison Precinct & Crime Lab	January 2014	LEED® Silver
Police - Headquarters & Family Safety Center	January 2019	LEED® Gold
Bellevue Community Center	September 2020	LEED® Silver

The Energy Use Intensity (EUI) of each LEED® building was calculated and compared to non-LEED® buildings of similar size and use, as well as regional benchmarks. The EUI is energy consumed in one year (measured in thousands of British thermal units or kBtu) divided by the total square footage of the conditioned spaces of the building. A building’s EUI varies due to factors such as age, use, controls, envelope efficiency, climate, etc. Generally, a low EUI signifies good energy performance, but certain facility types will always have a higher EUI than others. For example, police precincts that operate 24/7 will have a higher EUI than office buildings that are in use only during business hours.

The EUI of each General Services-managed LEED® building was also compared to a regional benchmark for buildings of similar use type. Benchmark EUI data was obtained from the U.S. Department of Energy’s 2018 Commercial Building Energy Consumption Survey (CBECS). CBECS is a national sample survey of U.S. commercial buildings’ energy usage. The U.S. Southern EUI benchmarks for each building type were used as the regional benchmarks in this report. The 2018 benchmarks were released in August 2022 and represent the most recent national and regional benchmarks for energy efficiency.

In summary, for the 23 high performance buildings reviewed in this report, Metro General Services in 2022 saved a total of more than 13,000,000 kBtu of energy and avoided energy costs of more than \$314,000 compared to the non-LEED® comparable buildings.

Of the 21 facilities where non-LEED® comparable buildings with water consumption readings were available, the high-performance buildings saved a total of more than 7,800,000 gallons of water, avoiding more than \$608,000 in water costs.

Also of note, energy benchmarking across Metro Government departments is in its second year. In 2022, 11 Metro departments collected and reported calendar year 2021 energy use data for 335 facilities, representing 20.3 million square feet and totaling nearly 1.3 billion kBtus. [Read more about this successful effort on our website.](#)

Please feel free to contact me with any questions.

Sincerely,

Velvet Hunter

Velvet Hunter

Interim Director, Department of General Services

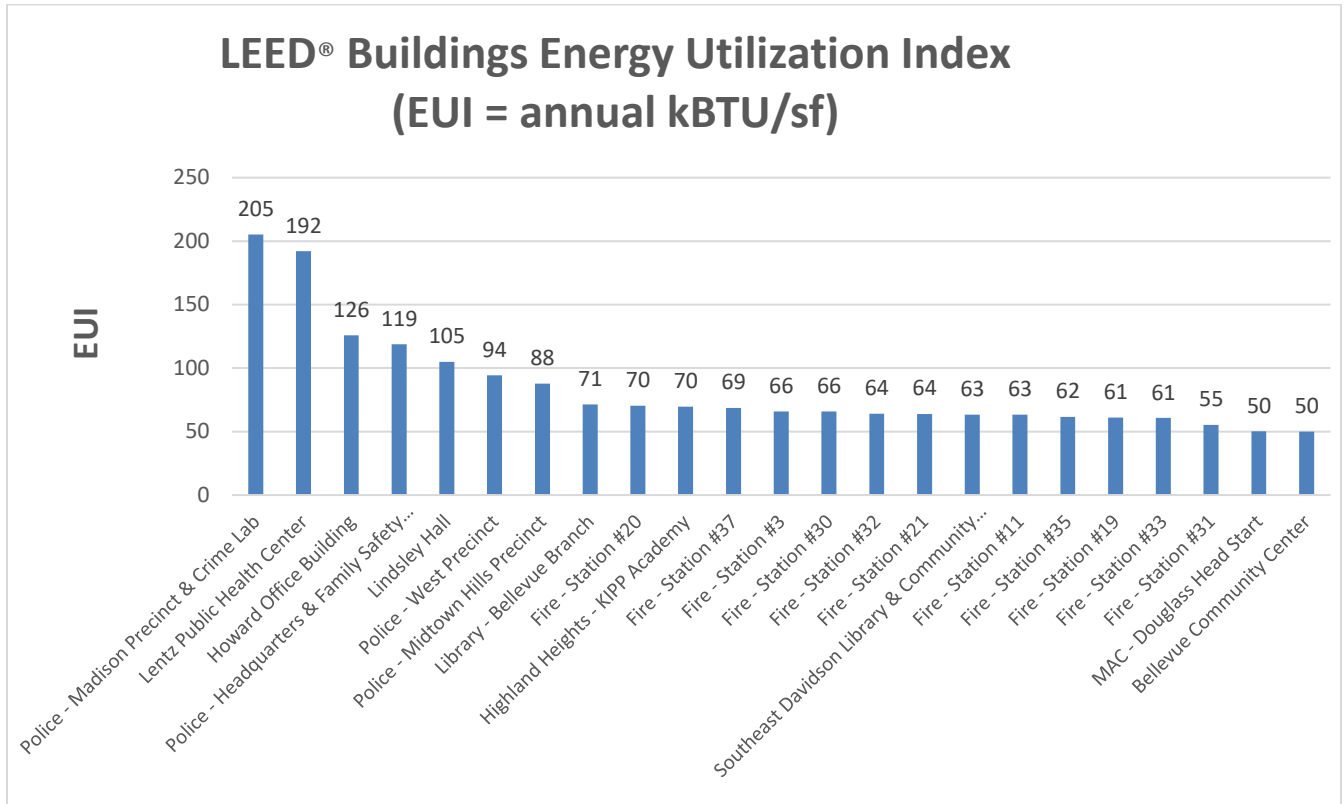
Metro Department of General Services' Summary Report

In 2022, General Services spent a total of \$1,979,795 on energy (\$1,523,780 for electricity, \$456,015 for natural gas) and \$431,547 on water for its LEED® certified buildings, representing a total area of 1,037,158 square feet. The utility consumption and cost per building are as follows:

High Performance Building	Building Sq. Ft.	Electricity (kWh)	Electricity cost	Gas (therms)	Gas cost	Water (gallons)	Water cost
Fire - Station #3	17,469	246,624	\$25,307.96	3,095	\$4,446.17	271,543	\$8,286.70
Fire - Station #11	15,587	225,230	\$23,462.42	2,175	\$3371.13	209,455	\$7,361.82
Fire - Station #19	20,142	251,700	\$23,188.65	3,693	\$5,502.15	215,439	\$8,363.84
Fire - Station #20	13,573	211,445	\$24,794.25	2,343	\$3,618.58	100,987	\$6,720.90
Fire - Station #21	19,116	252,111	\$26,150.28	3,606	\$5,370.45	231,896	\$7,807.34
Fire - Station #30	14,435	217,116	\$21,917.24	2,086	\$3,239.58	192,997	\$7,966.99
Fire - Station #31	17,311	203,140	\$22,693.66	2,623	\$3,931.66	139,138	\$1,512.74
Fire - Station #32	17,693	260,724	\$22,828.78	2,449	\$3,784.20	119,688	\$5,626.23
Fire - Station #33	15,533	193,605	\$21,594.32	2,824	\$4,301.37	63,584	\$4,831.26
Fire - Station #35	11,586	119,006	\$13,685.53	3,062	\$4,540.89	558,047	\$12,519.10
Fire - Station #37	19,305	262,310	\$22,669.14	4,315	\$6,110.83	173,100	\$5,273.24
Police - Midtown Hills Precinct	21,846	548,440	\$46,353.90	468	\$1,227.11	130,909	\$13,955.64
Police - West Precinct	25,698	699,686	\$55,386.09	325	\$1,029.54	\$17,953	\$7,649.93
Howard Office Building	139,027	2,225,461	\$178,356.93	98,906	\$37,293.29	7,043,834	\$108,688.48
Lindsley Hall	34,198	337,885	\$37,094.71	24,329	\$9,173.44	1,732,649	\$26,735.30
MAC - Douglass Head Start	26,625	337,077	\$36,415.31	1,865	\$2,980.73	4,602,016	\$66,991.35
Highland Heights - KIPP Academy	92,459	1,743,835	\$124,969.53	4,943	\$7,148.26	571,512	\$21,219.44
Library - Bellevue Branch	24,912	505,527	\$43,473.27	518	\$1,241.63	80,400	\$2,845.91
Southeast Davidson Library & Community Center	80,600	1,312,843	\$96,889.45	6,297	\$8,949.76	1,652,848	\$24,262.58
Lentz Public Health Center	107,474	2,943,094	\$203,021.72	106,220	\$134,780.17	2,522,431	\$41,446.88
Police - Madison Precinct & Crime Lab	84,420	3,450,112	\$234,367.61	55,482	\$72,054.68	582,733	\$15,466.23
Police – Headquarters & Family Safety Center	170,281	3,022,312	\$182,403.26	99,107	\$126,235.91	454,816	\$26,015.44
Bellevue Community Center*	47,868	583,914	\$36,755.52	3,957	\$5,683.57	1,349,115	\$17,104.80

*The LEED® building is named Bellevue Ice & Community Center. General Services only manages the Community Center part of the facility and does not manage the Ice Center; therefore, only the Community Center part of the facility is included in this report.

The following chart shows the energy performance of the LEED® buildings.



This report will compare the EUI of these LEED® buildings to local and regional benchmarks for calendar year 2022. Local comparison buildings were chosen according to the following requirements:

- Of similar size as the comparable LEED® building,
- Serve a similar function as the comparable LEED® building,
- Geographically located within Davidson County, and
- Cannot be a LEED® or high-performance building.

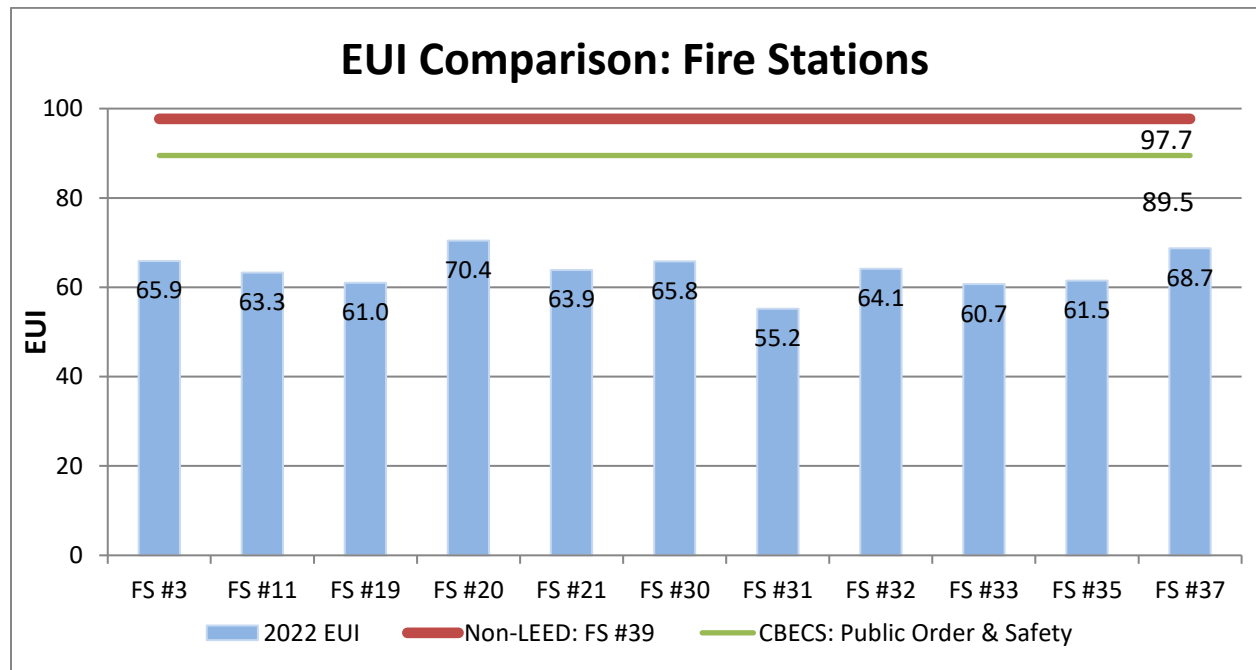
The following comments pertain to the energy cost comparisons performed for each group of buildings:

- Commercial electricity bills include both electricity usage charges and electricity demand charges. Best practice is to calculate *energy cost per square foot* by excluding the electricity demand charges. Energy costs for this calculation consist of the sum of electricity usage charges and natural gas charges.
- For the CBECS benchmark, the mean square footage per building type is shown as a comparison. The energy cost for the CBECS benchmark is derived from the sum of the major fuel expenditures in millions of dollars, divided by the total floor space in millions of square feet for the sample group of buildings. This is not meant to be an accurate reflection of energy cost but a reference point.
- The annual savings were calculated by comparing the BTUs for the LEED® building and the comparison building (for the same square footage) and multiplying the difference by the average cost per BTU. The annual savings are thus dependent on the EUI of the buildings and do not necessarily correlate to the energy cost per square foot.

Fire Stations

Energy Consumption

Energy consumption for the 11 LEED® fire stations is compared in the graph below to the non-LEED® Fire Station #39, as well as to the 2018 Southern regional CBECS benchmark of a similar type building (Public Order & Safety). As the graph shows, General Services’ LEED® fire stations performed better than both the comparable non-LEED® building and the regional benchmark. The 2018 CBECS benchmark accounts for recent improvements in energy efficiency and building design.



Energy costs for the 11 LEED® fire stations are compared in the following table to the non-LEED® Fire Station #39, as well as to the Southern regional CBECS benchmark of a similar type building (Public Order & Safety). The LEED® fire stations were able to achieve lower energy costs in comparison to the non-LEED® comparable fire station, resulting in energy cost savings for all LEED® fire stations.

	Building sf	Energy Cost/sf	EUI	Annual savings compared to non-LEED® FS #39	Annual savings compared to regional benchmark
Fire - Station #3	17,469	\$1.69	65.9	\$14,244.86	\$10,559.44
Fire - Station #11	15,587	\$1.81	63.3	\$15,390.22	\$11,712.17
Fire - Station #19	20,142	\$1.49	61.0	\$18,136.54	\$14,071.56
Fire - Station #20	13,573	\$1.89	70.4	\$9,927.94	\$6,933.41
Fire - Station #21	19,116	\$1.62	63.9	\$16,432.97	\$12,435.67
Fire - Station #30	14,435	\$1.75	65.8	\$12,290.20	\$9,121.99
Fire - Station #31	17,311	\$1.50	55.2	\$20,046.46	\$16,163.65
Fire - Station #32	17,693	\$1.42	64.1	\$13,150.30	\$9,926.72
Fire - Station #33	15,533	\$1.58	60.7	\$14,973.81	\$11,641.20
Fire - Station #35	11,586	\$1.46	61.5	\$9,954.88	\$7,692.59
Fire - Station #37	19,305	\$1.46	68.7	\$11,916.41	\$8,533.49
Non-LEED®: FS #39	9,595	\$2.06	97.7		
CBECS: Public Order & Safety	14,800	\$1.53	89.5		
Total				\$156,464.60	\$118,791.90

Water Consumption

Water consumption and comparisons to the non-LEED® Fire Station #39 are shown in the table below. The water intensity (gallons used/square feet) is compared, as well as the water usage after accounting for the different sizes in buildings. For instance, if Fire Station #39 was the same size as Fire Station #31, Fire Station #31 would use 252,617 gallons less water than Fire Station #39 during calendar year 2021. As a whole, the LEED® fire stations saved over 7 million gallons of water in comparison to the non-LEED® Fire Station #39. It should be mentioned that Fire Station #39 experienced significantly higher water usage in comparison to previous years. Because General Services does not manage Station #39, we are not certain the reason for this increase.

While most of the LEED® fire stations had typical water usage trends in comparison to previous years, Fire Station #35 saw a sharp increase in consumption. The HVAC and mechanical system issue that led to the increase has been resolved. Upon resolution, water use trends at FS #35 have returned to normal levels, which should be reflected in next year's reporting.

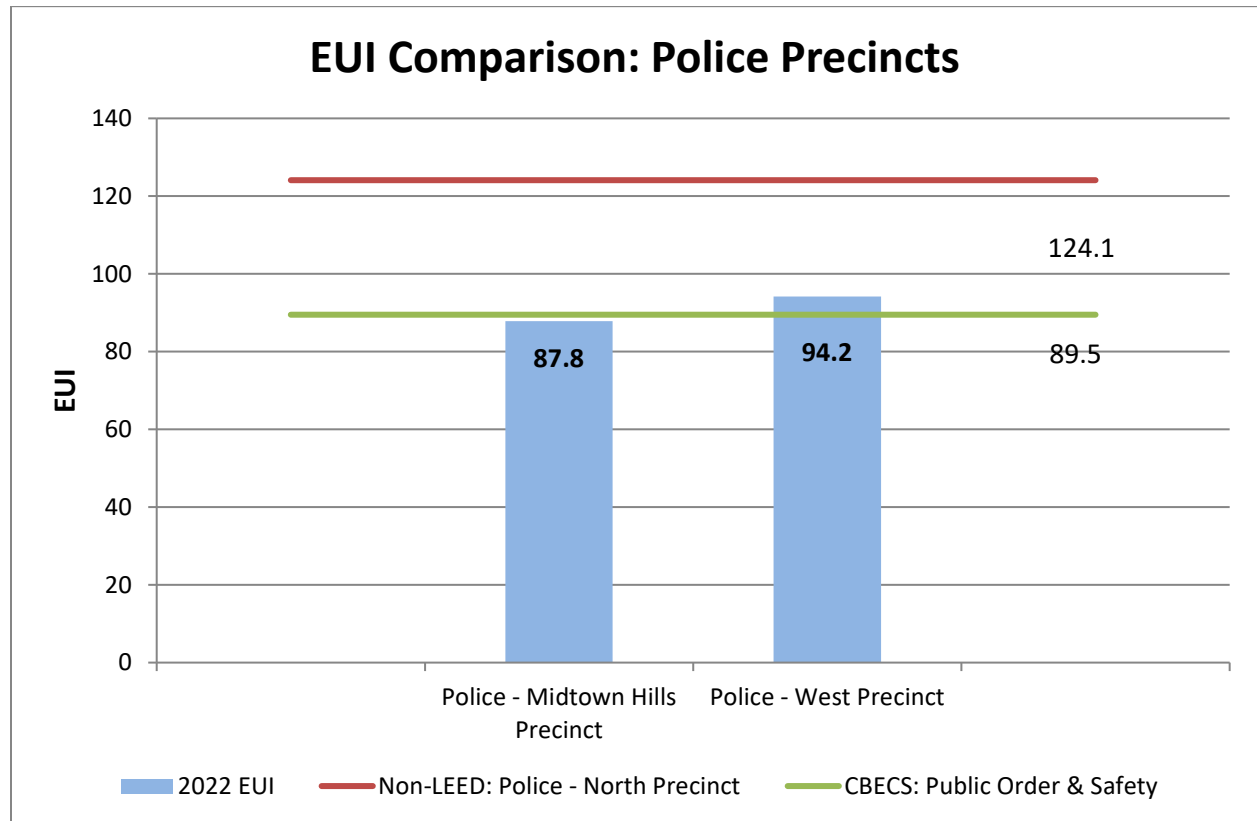
	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to FS #39 (gallons)
Fire - Station #3	17,469	271,543	15.5	624,545
Fire - Station #11	15,587	209,455	13.4	590,094
Fire - Station #19	20,142	215,439	10.7	817,763
Fire - Station #20	13,573	100,987	7.4	595,252
Fire - Station #21	19,116	231,896	12.1	748,676
Fire - Station #30	14,435	192,997	13.4	547,459
Fire - Station #31	17,311	139,138	8.0	748,845
Fire - Station #32	17,693	119,688	6.8	787,890
Fire - Station #33	15,533	63,584	4.1	733,195
Fire - Station #35	11,586	558,047	48.2	36,267
Fire - Station #37	19,305	173,100	9.0	817,167
Non-LEED® comparable: FS #39	9,595	492,184	51.3	
Total				7,047,153

Police Precincts

Energy Consumption

Energy consumption for the two police precincts is compared in the graph below to the non-LEED® North Police Precinct, as well as to the 2018 Southern regional CBECS benchmark of a similar type building (Public Order and Safety). Madison Police Precinct & Crime Lab is reviewed later in this report due to the unique operations of the crime lab.

The EUI of both police precincts improved noticeably in comparison to last year’s figures. Midtown Hills Precinct EUI decreased from 107.8 to 87.8, and West Police Precinct dropped from 98.0 to 94.2. The reduction places both precincts well below the non-LEED® North Police Precinct, and on par with the Southern regional benchmark for Public Order and Safety facilities.



Energy costs for the two police precincts are compared in the table below to the non-LEED® North Police Precinct, as well as to the Southern regional CBECS benchmark for a similar type building (Public Order & Safety). Both precincts experienced energy savings against North Police Precinct. Savings were eliminated when comparing the LEED® police precincts against the regional benchmark, due to having similar EUIs.

	Building sf	Energy Cost/sf	EUI	Annual savings compared to non-LEED® North PP	Annual savings compared to regional benchmark
Police – Midtown Hills Precinct	21,846	\$2.18	87.8	\$19,646.17	\$920.84
Police – West Precinct	25,698	\$2.20	94.2	\$17,906.16	-\$2,795.30
Non-LEED®: North PP	21,378	\$2.66	124.1		
CBECS: Public Order & Safety	14,800	\$1.56	89.5		
Total				\$37,552.33	-\$1,874.47

- For West Police Precinct, the square footage for the parking garage was not included in the building square footage, because the garage is not a conditioned space. However, the electricity consumption for the lighting in the parking garage is included in the energy metrics since it is not separately metered. Removing the garage’s lighting consumption would have resulted in a lower EUI for the facility.

Water Consumption

Water consumption comparisons to the non-LEED® North Police Precinct are shown in the table below.

	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to North PP (gallons)
Police – Midtown Hills Precinct	21,846	130,909	6.0	28,856
Police – West Precinct	25,698	17,953	0.7	169,983
Non-LEED®: North PP	21,378	156,343	7.3	
Total				198,839

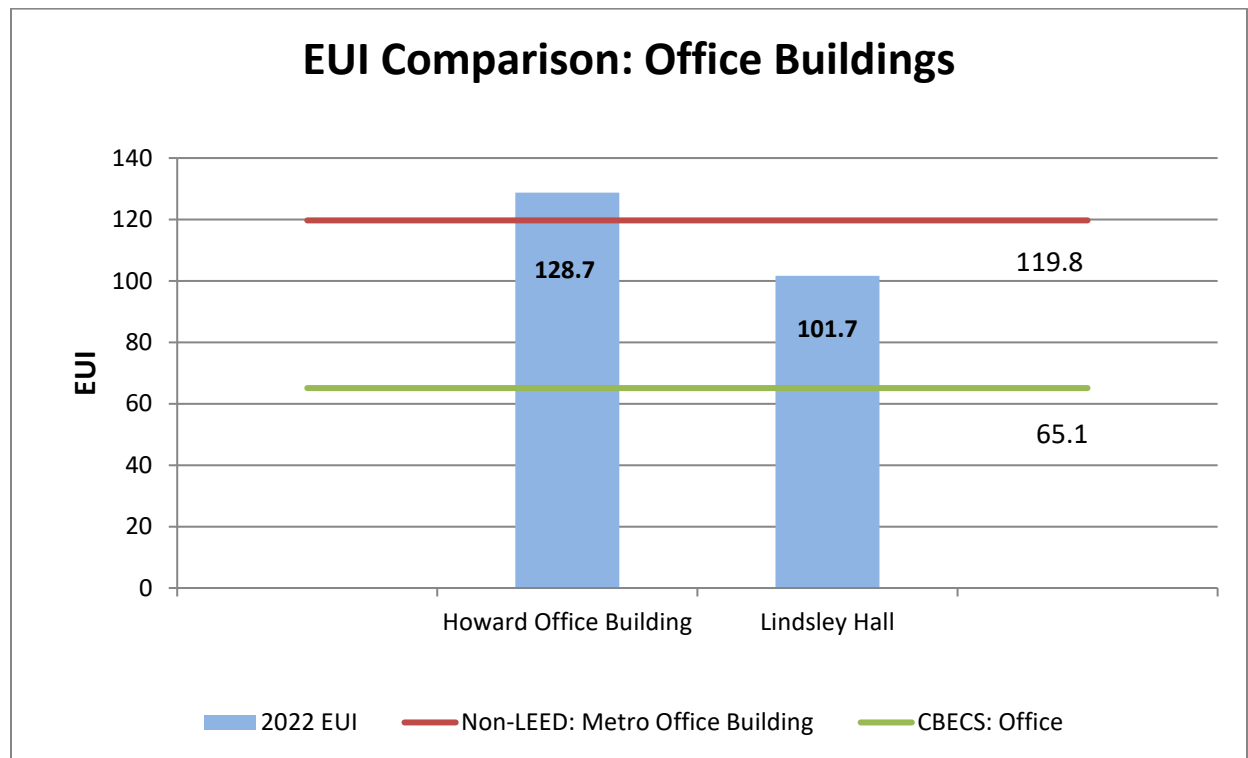
- The water used by the Edgehill Community Garden is separately metered and was not included in the Midtown Hills water usage.

West and Midtown Hills Precincts both achieved water savings in 2022. West Precinct saw a noticeable decrease in water usage in 2022, leading to more pronounced savings.

Office Buildings

Energy Consumption

Energy consumption for the two office buildings is compared in the graph below to the non-LEED® Metro Office Building, as well as to the Southern regional CBECS benchmark for a similar type building.



- Electricity usage of the data centers at Howard Office Building was not included in the calculations.
- The cooling tower is part of the Fulton Campus infrastructure and contributes to meeting Howard Office Building, Lindsley Hall, and Metro Office Building cooling loads. An appropriate percentage of the total energy from the cooling tower was allocated by square footage for each building.

In large part due to the Fulton Campus central plant energy consumption, the energy use for Howard Office Building and Lindsley Hall are considerably higher than the Southern regional benchmark of 65.1. In comparison to Metro Office Building, Howard Office Building has a higher EUI. However, it is difficult to separate energy usage from some components of the campus' Central Plant, as the plant is tied into Howard Office Building's energy meters. The EUI for Lindsley Hall, while still high, performed significantly better in comparison to Metro Office Building.

Energy costs for the two office buildings are compared in the following table to the non-LEED® Metro Office Building as well as to the Southern regional CBECS benchmark for a similar type building (Office).

	Building sf	Energy Cost/sf	EUI	Annual savings compared to non-LEED® Metro Office Building	Annual savings compared to regional benchmark
Howard Office Building	139,027	\$1.53	122.5	-\$4,601.94	-\$99,806.74
Lindsley Hall	34,198	\$1.42	117.1	\$1,138.97	-\$21,614.99
Non-LEED®: Metro Office Building	68,383	\$1.50	119.8		
CBECS: Office	14,100	\$1.53	65.1		
Total				-\$3,462.97	-\$121,421.72

Water Consumption

Water consumption at the two office buildings and comparisons to the non-LEED® Metro Office Building are shown in the table below.

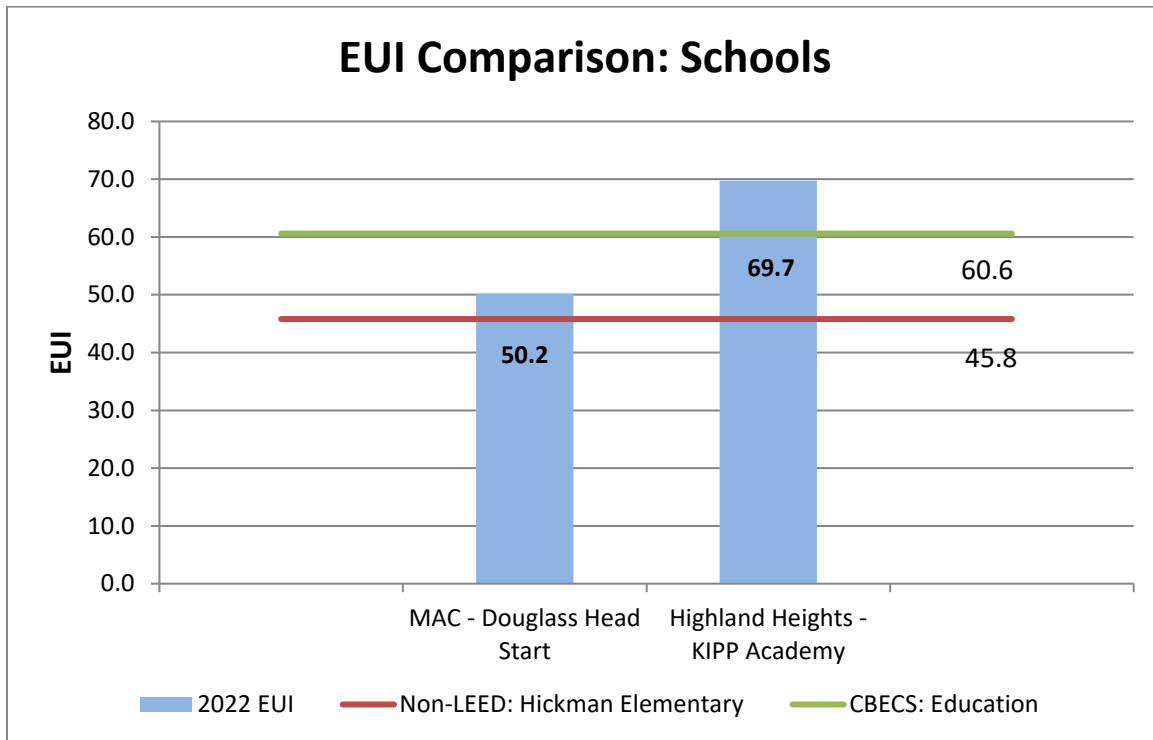
	Building sf	Water Consumption (gallons)
Howard Office Building	139,027	7,043,834
Lindsley Hall	34,198	1,732,649
Non-LEED®: Metro Office Building	68,383	3,488,499

The water meters on the Richard H. Fulton Campus service multiple buildings; therefore, for this analysis, water usage is appropriated to each building solely according to square footage. This report does not compare the water usage for Lindsley and Howard with the water usage for Metro Office Building.

Schools

Energy Consumption

Energy consumption for the two schools is compared in the graph below to the non-LEED® Hickman Elementary as well as to the Southern regional CBECS benchmark for a similar type building.



MAC – Douglass Head Start has performed significantly better than the 2018 Southern regional benchmark for Education facilities. Meanwhile, Highland Heights is nearly 10 EUI points higher than the benchmark. Both facilities are higher than Hickman Elementary, which has seen significant improvements in energy performance over the last few years.

Energy costs for the two schools are compared in the following table to the non-LEED® Hickman Elementary, as well as to the Southern regional CBECS benchmark for a similar type building (Education).

	Building sf	Energy Cost /sf	EUI	Annual savings compared to non-LEED® Hickman Elementary	Annual savings compared to regional benchmark
MAC - Douglass Head Start	26,625	\$1.48	50.2	-\$3,460.19	\$8,159.94
Highland Heights – KIPP Academy	92,459	\$1.43	69.7	-\$45,315.73	-\$17,247.61
Non-LEED®: Hickman Elementary	71,466	\$0.92	45.8		
CBECs: Education	32,500	\$1.20	60.6		
Total				-\$48,775.93	-\$9,087.67

Water Consumption

Water consumption at the two schools and comparisons to the non-LEED® Hickman Elementary building are shown in the table below.

	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to Hickman (gallons)
MAC - Douglass Head Start	26,625	4,602,016	184.7	-4,329,131
Highland Heights – KIPP Academy	92,459	571,512	6.2	441,281
Non-LEED®: Hickman Elementary	71,466	782,836	11.0	
Total				-3,887,849

In 2022, a water leak occurred at Douglass Head Start that led to very high water consumption at the facility. As a result, the building features an abnormal 184.7 WUI (gallons/sq ft) – more than seven times its WUI in 2021. The issue was identified and corrected by General Services. Highland Heights experienced typical water usage and achieved water use savings against Hickman Elementary.

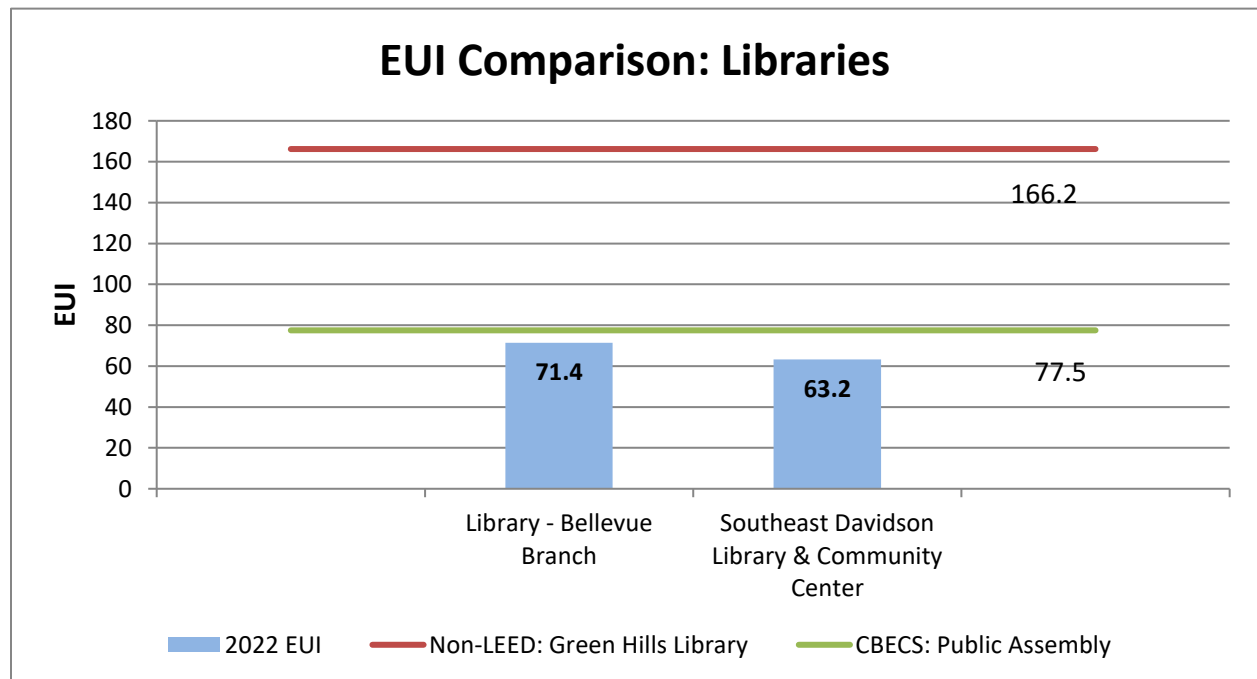
Libraries

Energy Consumption

Energy consumption for the two libraries is compared in the graph below to the non-LEED® Green Hills Library as well as to the Southern regional CBECS benchmark for a similar type building.

The Southeast Davidson Regional Community Center houses a community center as well as a library. For this report, the building is compared to a non-LEED® library.

Bellevue Library and Southeast Davidson both performed well against the non-LEED® Green Hills Library and the Southern regional benchmark for Public Assembly facilities. The 2018 CBECS regional benchmark dropped by 10.5 points from the 2012 edition. Even with the significant reduction in energy usage, the LEED® buildings were able to achieve energy savings in comparison to the regional benchmark.



Energy costs for the two libraries are compared in the table below to the non-LEED® Green Hills Library as well as to the Southern regional CBECS benchmark for a similar type building (Public Assembly).

As a result of the energy savings, both libraries achieved energy cost savings against the non-LEED® and regional benchmark comparisons.

	Building sf	Energy Cost /sf	EUI	Annual savings compared to non-LEED® Green Hills Library	Annual savings compared to regional benchmark
Library - Bellevue Branch	24,912	\$1.79	71.3	\$59,479.31	\$3,876.30
Southeast Davidson Library & Community Center	80,600	\$1.31	63.4	\$171,633.21	\$23,560.66
Non-LEED®: Green Hills Library	25,540	\$3.15	166.2		
CBECS: Public Assembly	18,200	\$1.49	77.5		
Total				\$231,112.52	\$27,436.96

Water Consumption

Water consumption at the two library buildings and comparisons to the non-LEED® Green Hills library is shown in the table below.

	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to Green Hills (gallons)
Library - Bellevue Branch	24,912	80,400	3.2	736,031
Southeast Davidson Library & Community Center	80,600	1,655,020	20.5	986,451
Non-LEED®: Green Hills Library	25,540	837,012	32.8	
Total				1,722,481

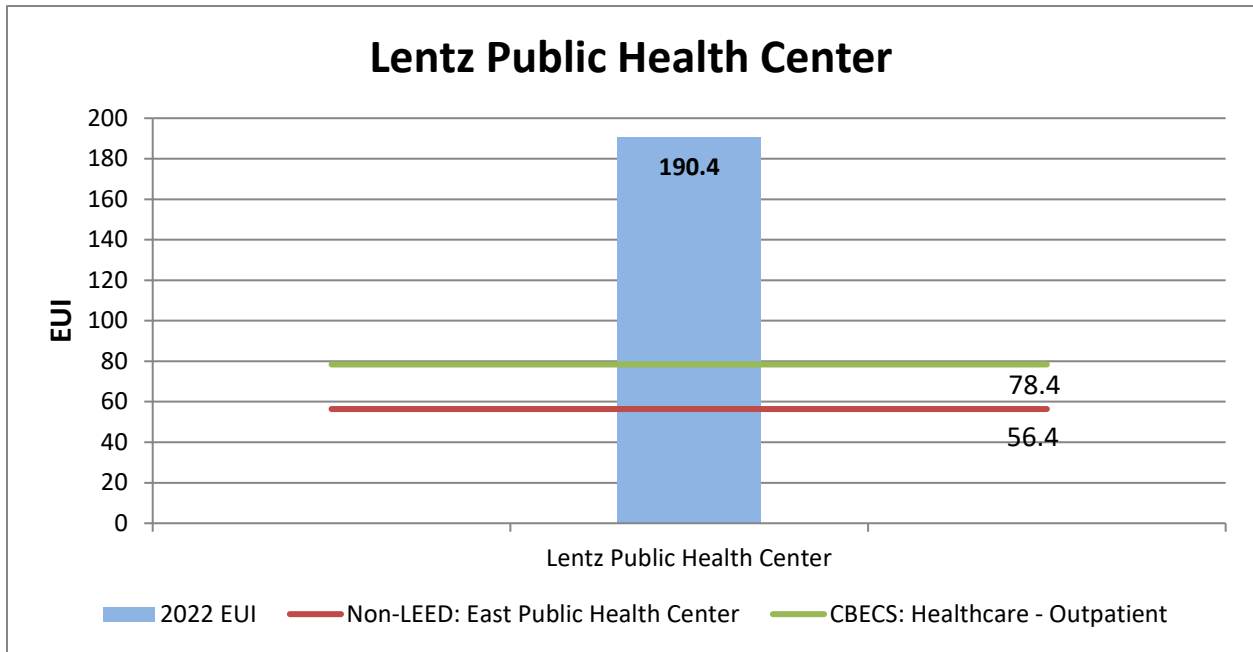
- The water meter at Southeast Davidson Library and Community Center is shared with Ford Ice Center Antioch. Because the water usage is not sub-metered, the chart above splits these two facilities according to square footage. Please note that since this estimate does not equate as an exact division of water consumption, it is difficult to draw an accurate picture of water consumption between the buildings without sub-metering.

In addition to energy savings, Bellevue and Southeast Davidson generated water savings in comparison to Green Hills Branch Library. The water leak issues that hindered performance in 2021 at Bellevue Library were corrected, allowing the facility to see significant water reduction from a WUI of 31.1 (in 2021) to 3.2. Southeast Davidson's water performance is on par with its historical usage. It should be noted that Green Hills Library experienced an increase in water usage from previous years, which does affect the amount of savings for LEED® buildings comparisons.

Lentz Public Health Center

Energy Consumption

Energy consumption for Lentz is compared in the graph below to the non-LEED® East Public Health as well as to the Southern regional CBECS benchmark for a similar type building.



Lentz has a high energy usage for operations since there are multiple clinics within the building, special coolers to maintain and store medicine and vaccines, and specialized air handling equipment to accommodate tuberculosis areas. It is difficult to find a comparable public service building in Davidson County of similar size.

The 2018 Southern regional EUI benchmark for Outpatient Healthcare Facilities decreased from 85.0 to 78.4, further emphasizing the high energy usage at Lentz.

The energy cost for Lentz is compared in the table below to the non-LEED® East Public Health as well as to the Southern regional CBECS benchmark for a similar type building (Healthcare Outpatient).

	Building sf	Energy Cost /sf	EUI	Annual savings compared to non-LEED® East Public Health	Annual savings compared to regional benchmark
Lentz Public Health Center	107,474	\$3.14	192.0	-\$238,619.31	-\$199,853.83
Non-LEED®: East Public Health	13,800	\$1.43	56.4		
CBECS: Healthcare Outpatient	11,000	\$1.82	78.4		
Total				-\$238,619.31	-\$199,853.83

Water Consumption

Water consumption at Lentz and a comparison to the non-LEED® East Public Health water usage are shown in the table below.

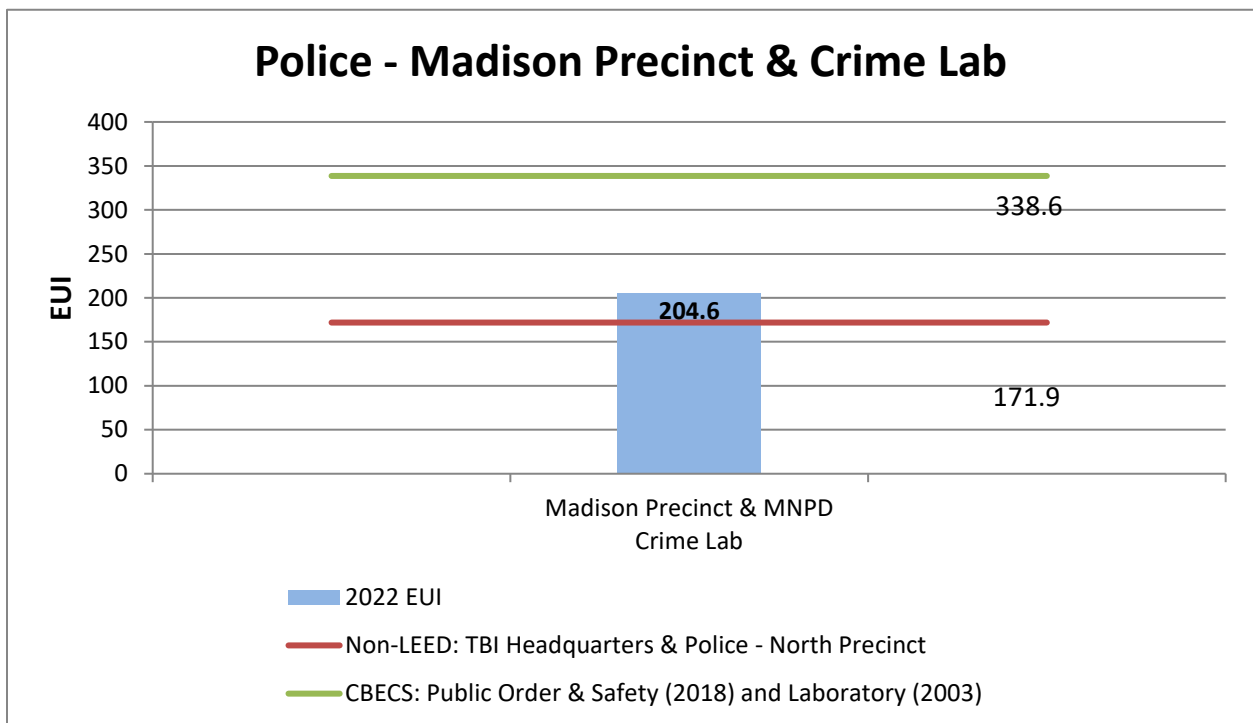
	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to East Public Health (gallons)
Lentz Public Health Center	107,474	2,522,431	23.5	-2,056,399
Non-LEED®: East Public Health	13,800	59,840	4.3	
Total				-2,056,399

Water consumption for Lentz Public Health Center and the non-LEED® East Public Health Center are both comparable to past water use trends for each facility.

Police - Madison Precinct & Crime Lab

Energy Consumption

Energy consumption for Madison Precinct & Crime Lab is compared in the graph below to the non-LEED® TBI Headquarters & North Police Precinct as well as to the regional CBECS benchmark for a similar type building. The Madison building consists of a police station (first floor) and a crime lab (second floor). For the non-LEED® comparison, the data from North Police Precinct was combined with the data from the TBI Headquarters in Nashville. The composite regional benchmark was calculated by combining the EUI for the Public Order & Safety in the South region with the national EUI for a laboratory space.



The energy cost for Madison Precinct & Crime Lab is compared in the following table to the non-LEED® TBI Headquarters in Nashville & North Police Precinct composite building as well as to the regional CBECS benchmark for a similar type building (Laboratory combined with Public Order & Safety).

The EUIs for Madison Precinct & MNPD Crime Lab, along with the non-LEED® TBI Headquarters and the composite CBECS benchmark remained relatively static in comparison to previous years.

	Building sf	Energy Cost /sf	EUI	Annual savings compared to non-LEED® North PP & TBI Headquarters	Annual savings compared to regional benchmark
Madison Precinct & Crime Lab	84,420	\$3.62	204.6	-\$49,635.85	\$199,259.72
Non-LEED®: TBI Headquarters in Nashville & North PP	164,000&21,378	\$2.77	171.9		
CBECS: Laboratory & Public Order & Safety			338.6		
Total				-\$49,635.85	\$199,259.72

- The CBECS tables do not contain the mean square footage or energy cost data for a Laboratory, thus no average building square footage or energy cost per square foot can be provided in the table for a regional benchmark building but the projected cost savings are based on the EUI in the table.

Water Consumption

Water consumption at the Madison Precinct & Crime Lab was compared to a composite building consisting of the non-LEED® TBI Headquarters in Nashville and North Police Precinct in the table below. The water usage of North Police Precinct was adjusted to be of the same square footage as the first floor of Madison, and the water usage of the TBI Headquarters was adjusted to be of the same square footage as the second floor of Madison.

	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to TBI Headquarters in Nashville & North PP (gallons)
Madison Precinct & Crime Lab	84,420	1,165,465	6.9	665,454
Non-LEED®: TBI Headquarters in Nashville	164,000	3,713,568	22.6	
Non-LEED®: North PP	21,378	156,343	7.3	
Total				665,454

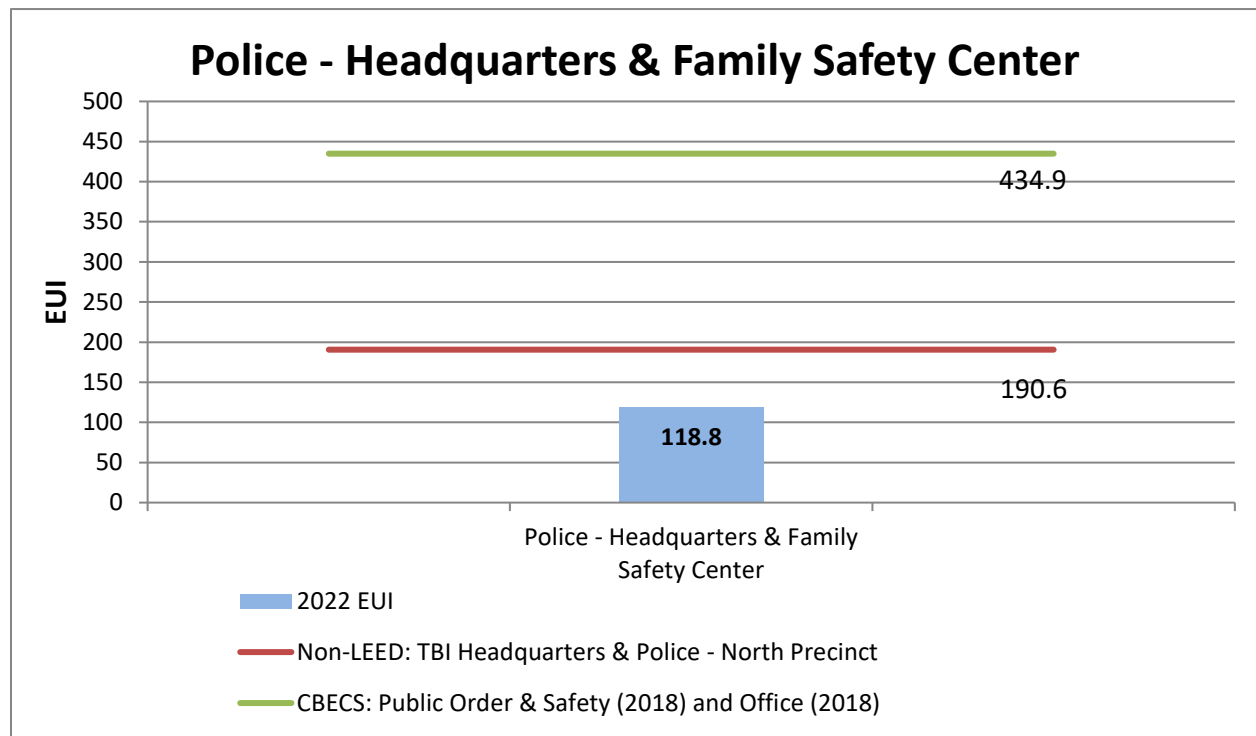
The water usage at Madison Precinct remained relatively the same compared to last year. The water use at the non-LEED® TBI Headquarters and North Precinct increased slightly. This resulted in slightly higher water savings for Madison Precinct compared to last year.

Police – Headquarters & Family Safety Center

Energy Consumption

Energy consumption for the Police Headquarters and Family Safety Center is compared in the graph below to the non-LEED® TBI Headquarters & Metro Office Building as well as to the Southern regional CBECS benchmark of a similar type building. The Metro building consists of a police station (that functions similarly to the TBI Headquarters with a high volume of servers, equipment, and large mechanical systems) and a Family Safety Center that functions like an office building. For the non-LEED® comparison, the data from TBI Headquarters in Nashville was combined with the data from Metro Office Building. The regional benchmark was calculated by combining the EUI for a laboratory space (national) with the Southern regional Office EUI.

The previously unoccupied shell space in MNPd HQ was occupied starting in October 2020 and therefore the space began being conditioned at this time. The square foot value of this area was added to the building total for 2021 and subsequent years.



The EUIs for MNPd Headquarters & Family Safety Center, in addition to the composite 2018 CBECS regional benchmark and the non-LEED® composite remained relatively at the same levels compared to last year’s report.

The energy cost for the Police Headquarters & Family Safety Center is compared in the following table to the non-LEED® TBI Headquarters in Nashville & Metro Office Building composite building as well as to the regional CBECS benchmark for a similar type building (Laboratory combined with Office).

MNPD HQ & FSC achieved significant energy cost savings in comparison the non-LEED® and CBECS benchmarks.

	Building sf	Energy Cost /sf	EUI	Annual savings compared to non-LEED® North PP & TBI Headquarters	Annual savings compared to regional benchmark
Police – Headquarters & Family Safety Center	170,281	\$1.81	118.8	\$186,801.24	\$821,608.07
Non-LEED®: TBI Headquarters in Nashville & Metro Office Building	164,000&68,383	\$3.44	190.6		
CBECS: Laboratory & Office			434.9		
Total				\$186,801.24	\$821,608.07

- The CBECS tables do not contain the mean square footage or energy cost data for a Laboratory, thus no average building square footage or energy cost per square foot can be provided in the table for a regional benchmark building but the projected cost savings are based on the EUI in the table.

Water Consumption

Water consumption at the Metro Police HQ and Family Safety Center was compared to the combination building of the non-LEED® TBI Headquarters in Nashville and Metro Office Building in the table below. The water usage of the TBI Headquarters was adjusted to be of the same square footage as the Metro Police HQ building, and the water usage of Metro Office Building was adjusted to be of the same square footage as the Family Safety Center.

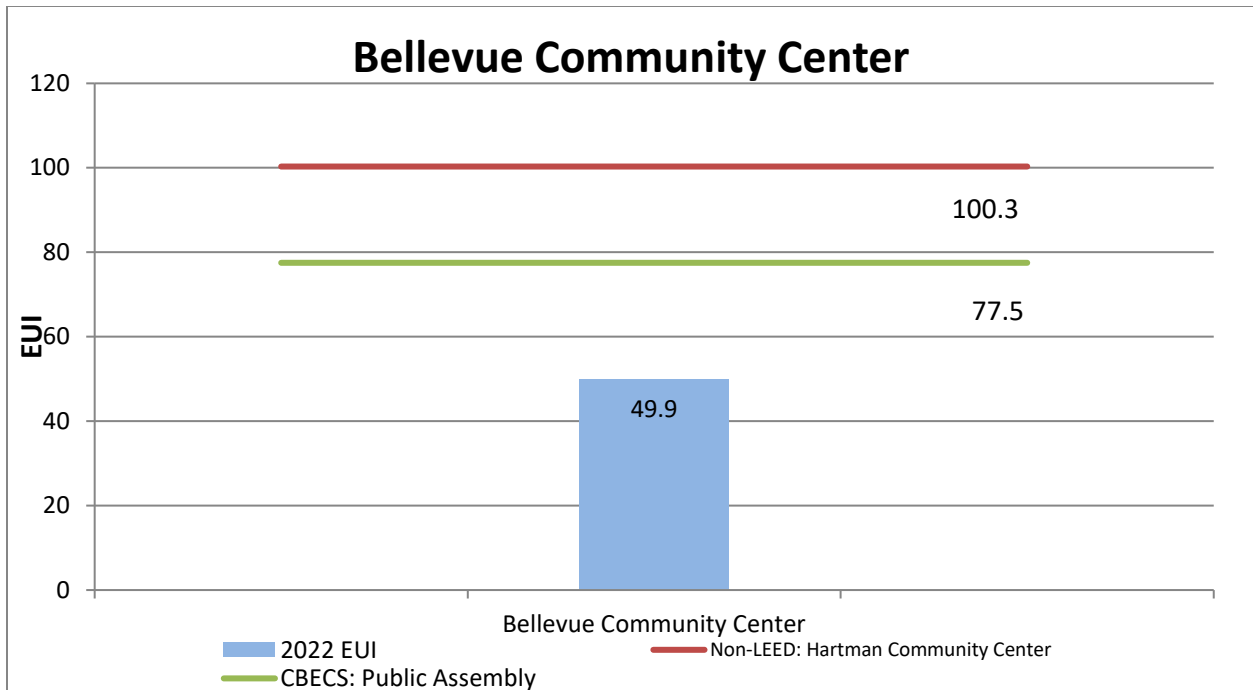
	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to TBI Headquarters in Nashville & North PP (gallons)
Police - Headquarters & Family Safety Center	170,281	454,816	2.7	4,889,650
Non-LEED®: TBI Headquarters in Nashville	164,000	3,713,568	22.6	
Non-LEED®: Metro Office Building	68,383	3,488,499	51.0	
Total				4,889,650

The water leak that occurred in 2021 at MNPD HQ and Family Safety Center was rectified, and consumption returned to normal levels. WUI is very low at this facility in part because of the significant space allocations to garages, equipment, and IT space with minimal water needs. As a result, water savings were just shy of 5 million gallons in comparison to the non-LEED® composite building.

Bellevue Community Center

Energy Consumption

Energy consumption for the Bellevue Community Center is compared in the graph below to the non-LEED® Hartman Community Center as well as to the Southern regional CBECS benchmark for a Public Assembly type building.



The EUI for Bellevue Community Center increased from last year's EUI of 45.1 to 49.9 in 2022. This is likely due in part to the full return to normal business operations post-COVID. However, Bellevue's EUI is considerably lower than the 2018 CBECS benchmark for Public Assembly facilities and the non-LEED® Hartman Community Center.

The energy cost for Bellevue Community Center is compared in the following table to the non-LEED® Hartman Community Center in Nashville as well as to the regional CBECS benchmark for a similar type building.

The difference in energy efficiency between Bellevue Community Center and the CBECS and non-LEED® comparisons is highlighted further in energy cost savings.

	Building sf	Energy Cost /sf	EUI	Annual savings compared to non-LEED® Hartman Community Center	Annual savings compared to regional benchmark
Bellevue Community Center	47,868	\$0.89	49.9	\$42,923.56	\$23,490.82
Non-LEED®: Hartman Community Center	34,435	\$1.84	100.3		
CBECS: Public Assembly	18,200	\$1.49	77.5		
Total				\$42,923.56	\$23,490.82

Water Consumption

Water consumption at Bellevue Community Center was compared to the non-LEED® Hartman Community Center in Nashville in the table below.

	Building sf	Water Consumption (gallons)	Water usage/sf	Water savings compared to Hartman Community Center (gallons)
Bellevue Community Center	47,868	1,349,115	28.2	-775,109
Non-LEED®: Hartman Community Center	34,435	412,925	12.0	
Total				-775,109

Bellevue Community Center's water consumption includes domestic water use for only the Community Center and also includes irrigation for the entire facility for both the Community Center and Ice Center. Irrigation is needed to ensure the health of the new landscape plants and trees through the first years of being planted. In contrast, the comparison facility, Hartman Community Center, does not have irrigation.

Water consumption at Bellevue Community Center is considerably higher than Hartman Community Center. As a result, Bellevue's water comparison to Hartman results in significant negative water savings.

Solar Production

The rooftop solar panels on twelve Department of General Services' buildings produced 912,726 kWh during 2022, resulting in a combination of cost savings and rebates of \$121,720. Fire Stations #19, #32, #37, the Police Headquarters & Family Safety Center, and Bellevue Community Center use the solar energy behind the meter, thus the generated electricity is used on site resulting in lower electricity bills. The percentage of solar generation consumed to offset total electricity consumption for these facilities are as follows: 18.0% of the electricity consumed by Fire Station #19, 26.8% of the electricity consumed by Fire Station #32, 28.1% of the electricity consumed by Fire Station #37, 13.5% of the electricity consumed by the Police Headquarters & Family Safety Center, and 35.4% of the electricity consumed by Bellevue Community Center. The value of this electricity, estimated for the facilities with behind-the-meter solar, is shown in the following table:

Rooftop solar facility	Size of Array (kW)	2022 Production (kWh)	Solar Generation Revenue
Howard Office Building	29.89	33,202	\$3,801.24
Fire - Station #3	8.64	11,660	\$2,707.02
Fire - Station #11	10.50	14,095	\$2,906.10
Fire - Station #19	33.80	45,330	\$5,694.16
Fire - Station #21	7.92	5,921	\$1,210.64
Fire - Station #30	18.00	23,960	\$4,881.17
Fire - Station #31	8.64	8,699	\$2,072.48
Fire - Station #32	50.40	69,839	\$9,594.79
Fire - Station #33	7.92	11,064	\$2,591.34
Fire - Station #37	50.40	73,685	\$10,028.40
Police Headquarters & Family Safety Center	302.40	408,815	\$44,051.83
Bellevue Community Center	150.28	206,456	\$32,180.70
Total	678.79	912,726	\$121,719.87

Appendix 1: Square Footage of Buildings

This list includes the Department of General Services LEED® facilities and their non-LEED® comparisons:

High Performance Building	Square Footage
Fire Stations	
Fire - Station #3	17,469
Fire - Station #11	15,587
Fire - Station #19	20,142
Fire - Station #20	13,573
Fire - Station #21	19,116
Fire - Station #30	14,435
Fire - Station #31	17,311
Fire - Station #32	17,693
Fire - Station #33	15,533
Fire - Station #35	11,586
Fire - Station #37	19,305
Non-LEED®: Fire - Station #39	9,595
Police Precincts	
Police - Midtown Hills Precinct	21,846
Police - West Precinct	25,698
Non-LEED®: North Police Precinct	21,378
Office Buildings	
Lindsley Hall	34,198
Howard Office Building	139,027
Non-LEED®: Metro Office Building	68,383
Schools	
MAC - Douglass Head Start	26,625
Highland Heights – KIPP Academy	92,459
Non-LEED®: Hickman Elementary	71,466
Libraries	
Library - Bellevue Branch	24,912
Southeast Davidson Library & Community Center	80,600
Non-LEED®: Green Hills Library	25,540
Lentz Public Health Center	
Lentz Public Health Center	107,474
Non-LEED®: East Public Health	13,800
Police - Madison Precinct & Crime Lab	
Police - Madison Precinct & Crime Lab	84,420
Non-LEED®: TBI Headquarters/North Police Precinct	164,000/21,378

Police Headquarters & Family Safety Center	
Police Headquarters & Family Safety Center	170,281
Non-LEED®: TBI Headquarters/Metro Office Building	164,000/68,383
Bellevue Community Center	
Bellevue Community Center	47,868
Non-LEED®: Hartman Community Center	34,435