



# Rice University: Fondren Library Sustainability Plan

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## Executive Summary<sup>2</sup>

As awareness of climate change and other environmental and social problems grow, many libraries and librarians are dedicating themselves to sustainability, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>3</sup> We call upon Fondren Library to practice and promote sustainability through its wise building practices, reductions in resource consumption, support for research and teaching, targeted collection development, and outreach activities. These recommendations were formulated in support of the global community’s response to climate change, the American Library Association’s embrace of sustainability as a core value of librarianship, and Rice University’s pledge to reduce its carbon footprint through the American College and University Presidents Climate Commitment. By implementing sustainability strategies and collaborating with other on-campus sustainability initiatives, Fondren Library can reduce environmental pollution and contribute to learning and knowledge on Rice University’s campus and beyond. To implement the proposed changes, we recommend developing an action plan, creating a library-based group focused on sustainability, appointing a sustainability liaison, and hiring a student “eco-rep” for Fondren.

## Defining sustainability: Triple Bottom Line

Sustainable practices enable the vitality and thriving of contemporary and future environments and their inhabitants. In our present society of rapid technological advancement and increasing resource consumption, sustainable development must address the overlapping demands of natural, economic, and social systems. The impact of climate change is systemic, so it is imperative to implement solutions that are economically feasible (“Profit”), socially equitable (“People”), and environmentally sound (“Planet”)-- solutions that meet “the triple bottom line.”

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<sup>2</sup> We wish to thank those who supported this project, including the Fondren Fellows program, our interviewees, data providers, and people who gave feedback on this plan.

<sup>3</sup> <http://www.un-documents.net/our-common-future.pdf>



Figure 1. Triple Bottom Line. <https://www.maricopa.edu/about/sustainability>

## Call to Action: Why should Fondren Library adopt the value of sustainability?

2018 produced two notable testimonies that call attention to the immediacy of climate change: (1) the report of the Intergovernmental Panel on Climate Change<sup>4</sup>, which details the severe consequences of climate change that surpass prior predictions; and (2) the Fourth National Climate Assessment, which stated that current remediation efforts are insufficient and that we will face “substantial damages to the economy, environment, and human health over the coming decades.”<sup>5</sup> Patricia Espinosa, Executive Secretary of the United Nations Framework Convention on Climate Change, opens the 2019 UN report “Climate Action and Support Trend” by stating that climate change is no longer a debate; it is instead “an existential threat and the greatest challenge facing this generation.”<sup>6</sup>

To address climate change appropriately, it is crucial to implement changes at the systemic, institutional, and individual levels, adjusting socio-economic and behavioral patterns, as well as our ways of thinking. Hence, private and public organizations around the world have adopted systemic climate action plans that aim at improving their organization’s path to sustainability. These changes must expand beyond operations and infrastructural adjustments and into the realm of cultural and social change. Libraries, due to their role as information and literacy centers, are uniquely positioned to contribute to sustainability efforts.

<sup>4</sup> <https://www.ipcc.ch/sr15/>

<sup>5</sup> <https://www.globalchange.gov/nca4>

<sup>6</sup> [https://unfccc.int/sites/default/files/resource/Climate\\_Action\\_Support\\_Trends\\_2019.pdf](https://unfccc.int/sites/default/files/resource/Climate_Action_Support_Trends_2019.pdf)

The American Library Association (ALA) affirmed the potential for libraries to adopt a role in sustainability efforts in their Resolution on the Importance of Sustainable Libraries<sup>7</sup>, passed in 2015. Building off of this resolution, it adopted sustainability as a value of librarianship in 2019.<sup>8</sup> Through serving as literacy centers for their communities, libraries provide critical information, spaces for collaboration, and technologies to support further research and action on sustainability. Additionally, libraries can lead by example and model sustainable practices through their operations.

Fondren Library, as an organization that supports research and teaching across Rice University, has a responsibility to contribute to the development of sustainability in higher education. Specifically, Fondren Library is equipped to offer educational resources and tools to assist the Rice community in their journey toward improved sustainability and carbon neutrality in 2038.<sup>9</sup> By embracing sustainability, not only will Fondren help avert the serious impacts of climate change, it will also reduce waste, create more usable and healthy spaces, save money on energy and other resources, and enable the library to become more deeply engaged with critical research and teaching initiatives.

## **Background: Local Context**

In 2016 Texas produced the largest amount of greenhouse gas (GHG) emissions in the country (657 million metric tons of CO<sub>2</sub>e), which amounted to 12.66% of total national GHG emissions. According to data provided by the International Energy Agency, in 2016, Texas was the seventh largest polluter in the world -- only China, the U.S., India, Russia, Japan and Germany emitted more in that year. Data from the C40 Cities<sup>10</sup> shows that Houston's biggest climate risks -- extreme temperature, water scarcity, flooding, and storms -- are all associated with and exacerbated by the increasing GHG emissions. To reduce Houston's carbon footprint, improve quality of life, and save money, the City of Houston drafted its first Climate Action Plan in 2019.<sup>11</sup>

## **Methods: Research strategies & Using triple bottom line**

This report is based on research carried out in June-August 2019. Over the course of three months, we conducted semi-structured interviews with experts from the inside and outside of Rice University. We assessed multiple aspects of Fondren Library including: (1) Fondren

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<sup>7</sup><http://sustainablelibraries.org/2015/07/ala-council-overwhelmingly-passes-resolution-on-the-importance-of-sustainable-libraries/>

<sup>8</sup> <http://www.ala.org/news/press-releases/2019/05/ala-adding-sustainability-core-value-librarianship>

<sup>9</sup> <https://news.rice.edu/2014/10/20/rice-sets-plan-to-be-climate-neutral-by-2038/>

<sup>10</sup> <https://www.c40.org/cities/houston#city-climate-risks>

<sup>11</sup> <http://greenhoustontx.gov/climateactionplan/2019-DRAFT-CAP.pdf>

Library's departments and spaces; (2) waste and recycling; (3) temperature; (4) equipment; and (5) circulation paths of recently acquired physical materials.

In addition to collecting new data, we also relied on existing material that was publicly available or privately solicited for this research project. The data collection was supplemented by the review of pertinent literature and research of successful sustainability practices from other libraries and organizations in the nation. The analysis of the accumulated data informs our recommendations.

## Recommendations and Goals

We recommend that Fondren take a comprehensive approach to sustainability, recognizing the library's unique role as an interdisciplinary crossroads of the campus. These recommendations align with Fondren's strategic objectives, since they will enable the library to offer more user-friendly spaces, serve as responsible custodians of the university's resources, deepen support for research and teaching, curate collections that reflect Rice's priorities, and engage with the community. We have divided the recommendations into **short-term** goals that can be accomplished within six months with minimal additional resources, **mid-term** goals that require up to two years of effort and potentially more significant resources; and **long-term** goals that will likely have the deepest impact but typically demand the largest investments.

### Focus 1: SPACES

By optimizing the use of Fondren's building, expanding space functionality, and improving the quality of indoor and outdoor spaces at Fondren, the library can save resources and create environments that help their users develop environmentally friendly habits and improve their work experience. As Fondren prepares for a planned renovation, we recommend making sustainability a priority. Even without a major renovation, Fondren can make changes that will save water and energy, create healthier and more productive work and study spaces, and increase campus awareness of sustainability.

#### **Short-term Goals:**

- 1) *Establish baseline measures of Fondren's environmental performance by collecting data about the building's energy consumption. After comparing these figures with benchmarks from comparable facilities, set reduction targets.*
- 2) *Working with Facilities and Administration, perform a sustainability audit to determine practical ways that the building can operate more efficiently. Potential areas of analysis include energy and water consumption.*

- 3) *Request that Fondren Library be prioritized in Facilities Engineering and Planning's engagement with CenterPoint Energy to identify and implement fast-payback energy projects in campus buildings.*
- 4) *Create a user-friendly and accessible online system for users and staff to report building problems and inefficiencies detected in the library (for example, low temperature, trash, issues with study rooms, etc.).*
- 5) *Investigate the possibility of re-weathering windows and doors to reduce leaking of heat into or out of the building.*
- 6) *Install a water meter at Fondren Library to monitor water usage over time and compare usage to other buildings.*

**Mid-term Goals:**

- 1) *Encourage the university to establish a fund for making changes to improve the university's sustainability, prioritizing the library as a frequently-used, common space.*
- 2) *Prioritize the selection of furniture, building products, indoor plants, and operational processes that contribute to healthy indoor air quality, a goal of sustainable design<sup>12</sup>.*
- 3) *Analyze how Fondren's abundant flat roof spaces can be used to support sustainability, such as by installing solar panels.<sup>13</sup>*
- 4) *Install water saving appliances, such as toilets and faucets. Address the existing issues with water pressure in the library.*
- 5) *In partnership with Facilities Engineering and Planning, make sustainability a priority in managing the building's core operations, consulting with staff on ways to improve sustainability.*

**Long-term Goals:**

- 1) *Emphasize the importance of sustainability as part of Fondren's planned renovation. Include in the scope of work for the Fondren renovation a review of the building's mechanical and controls systems and the building envelope with respect to energy performance. Make deep energy retrofit projects a priority in the renovation.*
- 2) *Optimize usage of building spaces through relocation of seldom used materials to the Library Service Center once its expansion is completed. This follows sustainable design practices by preventing the creation and maintenance of multiple sites serving the same purpose. Further, this relocation of materials will free up spaces in Fondren for*

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<sup>12</sup> <https://www.wbdg.org/design-objectives/sustainable>

<sup>13</sup> Austin Central Library and Brandeis University Library have solar panels

*the creation of student work spaces, maximizing space usage and preparing for growing student populations.*<sup>14</sup>

- 3) *Install motion sensors to reduce unnecessary usage of lighting.*
- 4) *Using the “building enclosure/envelope process,”<sup>15</sup> assess the building enclosure for leakages of water, heat, etc. Upgrade building enclosure structures to prevent inefficiencies.*
- 5) *Upgrade the HVAC system to utilize new energy efficiency technology.*
- 6) *Study the possibility of installing a green wall<sup>16</sup> in Fondren, which can purify the air, dampen sound, and stimulate feelings of well-being.*

## **Focus 2: RESOURCE CONSUMPTION**

Fundamentally libraries facilitate the sharing of resources, thus reducing waste. However, the library consumes a number of resources, whether fuel for staff travel, packaging materials for new publications, or paper for printers. The recommendations outlined below seek to reduce waste, implement green purchasing practices, and reduce carbon emissions from transportation.

### **Short-term:**

- 1) *Develop and disseminate clear and simple guides to sustainable practices, educating staff and users on issues such as green purchasing, waste reduction, events, printing, etc.*<sup>17</sup>
- 2) *In partnership with the Sustainability Office, adopt university signage to direct proper sorting of waste materials.*<sup>18</sup>
- 3) *In partnership with Rice's transportation demand manager, reduce transportation related carbon emissions by encouraging and facilitating carpooling to and from Rice University and Fondren Library. Programs and apps such as “Waze Carpool” can be used to implement this goal.*<sup>19</sup>

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<sup>14</sup> <https://www.wbdg.org/design-objectives/sustainable>

<sup>15</sup> [https://www.wbdg.org/FFC/NIBS/nibs\\_gl3.pdf](https://www.wbdg.org/FFC/NIBS/nibs_gl3.pdf)

<sup>16</sup> McKeldin Library at the University of Maryland recently installed a living wall.

<sup>17</sup> See, for example, these guides from the University of Pennsylvania (<https://www.sustainability.upenn.edu/participate/staff-and-faculty/green-office-program>) and the University of Washington (<https://green.uw.edu/engage/green-office/resources>).

<sup>18</sup> <https://facilities.rice.edu/recycling/single-stream>

<sup>19</sup> <https://www.waze.com/carpool>



**Mid-term:**

- 1) *Create a waste audit of Fondren to establish a baseline for understanding how much waste is going to landfill vs. recycling, where contamination is occurring, and how to potentially increase diversion rates.*
- 2) *Consider reusing or refurbishing furniture or other materials at Fondren before they are disposed of or replaced. This would reduce large-item trash, which is more expensive to dispose of.*
- 3) *Prioritize the procurement of materials and products with strong environmental attributes (for example, products from the Energy Star certification program should have that certification).*
- 4) *Assess the recyclability of packaging materials and recycle where possible.*
- 5) *Participate in the university-wide effort to transition to a centralized waste system, replacing small and abundant bins with larger waste receptacles at central locations. By having students and staff dispose of waste in central locations, Rice can reduce custodial labor, cut consumption of plastic waste bin liners, and increase awareness of how much waste each person produces.*
- 6) *Reduce transportation related carbon emissions and provide greater flexibility for staff by developing opportunities for remote work, which is becoming an increasingly common practice.*

**Long-term:**

- 1) *In partnership with Rice's transportation demand manager, advocate for the university to provide free/reduced cost Metro passes to faculty and staff in addition to students who already receive this service.*
- 2) *Explore offsetting carbon emissions from Fondren travel, including travel between Fondren and the Library Service Center and travel for conferences. Offsets may take the form of purchasing carbon credits or investing in carbon sequestration. In addition, work with Rice's transportation demand manager to explore low emissions vehicle options for transporting materials when the time comes to replace the existing vehicle fleet.*
- 3) *Examine the feasibility and desirability of Fondren becoming a drop-off location for items that can be recycled or re-used, such as batteries, ink cartridges, and books. Publicize the reasons that these items should not be landfilled; for example, batteries can leach harmful chemicals in a landfill.*

### Focus 3: EDUCATION & RESEARCH

In the past year, faculty and staff across the university have come together to form the enviro-fac group, a coalition of over 100 researchers whose work deals with the environment. Meanwhile, both the environmental science major<sup>20</sup> and the environmental studies minor<sup>21</sup> are growing, and Rice boasts at least a dozen student organizations focused in some way on sustainability.<sup>22</sup> In recognition of the importance of sustainability to Rice's research and educational initiatives, Fondren should deepen its support for sustainability, building off existing library services.

#### **Short-term:**

- 1) *Appoint a Fondren staff member to serve as a sustainability liaison, working with the Envirofac leadership group and associated task forces to understand major ways that Fondren can advance environmental teaching and research at Rice. The liaison will also collaborate with the steering committees for Environmental Science and Environmental Studies, along with other disciplines. Potential areas of responsibility include collection development, research support, and outreach.*
- 2) *Regularly update and publicize the Sustainability Research Guide.<sup>23</sup> Include sections focused on local environmental issues and on Rice sustainability research.*
- 3) *Provide continued opportunities for students to work on library-focused sustainability and resilience projects through the Fondren Fellows program.*

#### **Mid-term:**

- 1) *Offer Fondren as a space for applied research into sustainability ("a learning lab"), so that student researchers can study opportunities to improve the library's environmental performance and test different solutions.*
- 2) *Provide opportunities for students and researchers focused on sustainability to receive specialized instruction and support from Fondren experts in GIS, data management and analysis, publishing, and digital media.*
- 3) *Promote and display research that focuses on climate change, environment, and sustainability through online and analog exhibits.*

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<sup>20</sup> <https://ga.rice.edu/programs-study/departments-programs/natural-sciences/environmental-science/>

<sup>21</sup> <https://ga.rice.edu/programs-study/departments-programs/natural-sciences/environmental-studies/>

<sup>22</sup> <https://sustainability.rice.edu/student-organizations>

<sup>23</sup> <https://libguides.rice.edu/sustainability>

**Long-term:**

- 1) *Support the development of open educational resources focused on sustainability to provide low-cost access to educational materials that are up-to-date and easy to customize.*

## **Focus 4: COLLECTIONS/ARCHIVES**

Fondren Library's strategic plan aims to deepen the impact and visibility of Rice research and enable researchers to find, access, use, and share rich collections of research materials. Given Fondren's mission, infrastructure, and expertise, it has the unique capacity to collect and preserve environmentally-focused information and materials, especially those produced by Rice faculty and students. These recommendations provide insight on ways to build collections of environmentally-focused research materials and ensure long-term access.

**Short-term:**

- 1) *Create and maintain collections in the Rice Digital Scholarship Archive focused on environmental research conducted by Rice faculty, students, and staff.*

**Mid-term:**

- 1) *Participate in national efforts to collect and preserve data on the environment, sustainability and climate change.*
- 2) *Identify and acquire educational and research materials needed for the environmental science major, environmental studies minor, and the interdisciplinary work of researchers studying the environment.*

**Long-term:**

- 1) *Create archival collections in the Woodson Research Center focused on environmental issues, especially those with local relevance. Examples include environmental justice, peak oil, air quality, and events such as the BP Horizon oil spill.*

## **Focus 5: ENGAGEMENT**

So that Fondren's sustainability efforts have a deeper impact and consider the needs of users, it must engage its stakeholders, raise awareness of both the importance of sustainability and concrete ways to advance it, and foster a culture of sustainability.

**Short-term:**

- 1) *Enable staff from across Fondren to learn about sustainability, contribute their own ideas, and participate in sustainability programs.*
- 2) *Provide a guide on how to get to Fondren Library using sustainable methods of transportation, including public transit, biking, walking, and carpooling on the library website.*
- 3) *Highlight Fondren's sustainability efforts through its website, newsletter, events, and signage.*
- 4) *Promote sustainability during Fondren events by using reusable or eco-friendly foodwares, encouraging attendees to bring their own cups, and offering vegetarian or vegan foods.*

**Mid-term:**

- 1) *Include sustainability in Fondren's ongoing assessment and user experience efforts, and ensure that feedback informs the development of sustainability initiatives.*
- 2) *Partner with campus groups, such as the Baker Institute or student clubs, to support events on topics such as sustainability, environmental justice, and climate change.*
- 3) *Partner with local libraries to share information and collaborate on sustainability projects.*
- 4) *Actively disseminate information about Fondren's sustainability program, including to new students, faculty, and staff. This will help improve the visibility of sustainability-focused efforts and help cultivate the understanding of the significance of sustainability on the Rice campus.*

## Implementation

We can build upon successful models at Rice and at other academic libraries to create more environmentally friendly spaces, reduce our resource consumption, and support research and teaching involving sustainability. Before implementation, the person(s) responsible would assess the feasibility of each recommendation. To implement the recommendations of this sustainability plan, we propose that Fondren Library adopt the following methods:

- 1) **Action plan:** *Once this sustainability strategic plan has been discussed, revised, and adopted, draft an action plan that assigns responsibilities to individuals or groups,*

along with timelines to work on those items, at least for the short- and medium-term items.

- 2) **Green Team.** Create a “Fondren Green Team,” which would be charged with developing and overseeing the action plan; studying, prioritizing, coordinating, communicating, and assessing improvements to sustainability at Fondren; educating the library community on best practices in sustainability; and fostering a culture of environmental responsibility across the library. Further, the committee should advocate for sustainable design practices in the renovation of Fondren Library. The committee may consist of library staff, faculty, and students. Peer libraries such as UC San Diego<sup>24</sup>, Michigan State<sup>25</sup>, and the University of Utah<sup>26</sup> have advanced sustainability through their green committees.
- 3) **Library Liaison.** Appoint a liaison for environmental studies and sustainability. This librarian would become an expert on Fondren’s resources and would be able to serve as a liaison between the library and environmental programs and initiatives on campus. He or she would serve on the Green Team.
- 4) **Eco-rep Partnership.** Partner with Rice University’s existing Eco-rep program to appoint a library eco-rep. Through this program, Rice enables undergraduate students to “lead a series of college-focused sustainability initiatives, including utility conservation, recycling and environmental education.”<sup>27</sup> For example, the eco-rep could train staff on best practices in sustainability, conduct a waste audit, identify and act on opportunities to conserve resources, collect assessment data, perform outreach, and more. This program would allow students to gain useful experience as sustainability professionals, enable Fondren to improve its sustainability at a manageable cost, and demonstrate the library’s commitment to sustainability.

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<sup>24</sup> <https://sustainucsd.org/2018/02/20/the-library-sustainability-committee/>

<sup>25</sup> <https://lib.msu.edu/lec/>

<sup>26</sup> <https://lib.utah.edu/info/green/>

<sup>27</sup> “EcoReps,” Administrative Center for Sustainability and Energy Management (ACSEM), <https://sustainability.rice.edu/ecoreps>