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Greetings!

First of all, I want to thank everyone within FE&P for the role that they played during Hurricane Harvey and the recovery. Virtually every member of FE&P is considered essential personnel and as such, are expected to be on campus before, during and after major weather events in order to prepare, sustain and recover the campus. FE&P excelled during this horrific event.

You may recall that in FY17, FE&P focused on the utilization of data to help transform our business. In FY18, we continued with the data focus in order to help us be more efficient in the delivery of our services. Our department, along with other administrative departments on campus, have been challenged by the senior administration of the university to work smarter and more efficiently in order to maximize the amount of university resources that can be channeled to mission-driven programs. FE&P is up to the challenge.

How do you do more with less? FE&P has been a leader in this department for several years. Since 2008, the campus has grown by 2 million square feet which equates to a 50 percent increase while the maintenance staff, including controls technicians, has only grown by 1.5 percent. As we enter the V2C2 era, more square footage, approximately one-half million, will be added to the campus and FE&P will be responsible for the increase without additional maintenance personnel. In order to do this, FE&P will rely on data, technology, creative problem-solving, communications, teamwork and intense planning to get the job done.

The stories contained within this year’s annual report provide a glimpse of ways that we have tried to improve our efficiency in order to support the mission of the university with a focus on customer service. We are working better as a team within FE&P and across campus, as exemplified by the cross-divisional cooperation contained within the stories highlighted in the annual report.

FE&P looks forward to an even better FY19.
Mission
To support the university’s mission of teaching and research through effective and innovative stewardship of the campus by pursuing excellence, diversity, sustainability and world-class service.

Vision
- Five-star customer service that exceeds all expectations
- Utilizing technology to maximize efficiency and sustainability
- Inspiring trust, culture of stewardship and fiscal responsibility
- Responsiveness, on-time delivery and clear communication
- Innovative strategies for adaptability and future leadership

Values
Take Responsibility - Demonstrate Integrity - Embrace Community - Achieve Excellence

Connect with us!
www.facilities.rice.edu
Facebook: @FEPatRice
Twitter: @FEPatRice
Email: fsc@rice.edu

www.sustainability.rice.edu
Facebook: @SustainabilityatRice
Twitter: @SustainableRice
Instagram: @SustainableRice
Responding to Hurricane Harvey

Good planning allows for efficient deployment of resources for quick recovery

When Hurricane Harvey hit Houston on the evening of Aug 26, FE&P had a plan in place that enabled the university to prepare, ride out and recover from the storm. With only very minor damage, FE&P had Rice ready to open before it actually did.

The Inclement Weather Planning and Response Plan, updated annually and last updated June 1, 2017, was developed to centralize the institutional knowledge of storm preparation within FE&P. The plan, which covers everything from a designated ride-out staff to contact information, was reviewed by the director for Institutional Crisis Management, Housing and Dining, and Environmental Health and Safety.

“We were very well prepared and followed the plan,” Kathy Jones, FE&P associate vice president, said. “Our guys are so good at following the emergency response because they’ve been here for a really long time. They know what to do.”

The plan detailed preparation steps to brace for the approaching storm. All roof, campus entrance and inner road drains were cleared, and potentially vulnerable buildings such as North and South Serveries and Sid Richardson college were boarded up.

“The good thing about hurricanes, if there is a good thing, is that you have some advance notice,” Bart Salmon, FE&P assistant vice president for facilities, said. FE&P also tops off emergency generators; checks inventory of sandbags, hoses, and pumps; and secures outdoor tables and chairs around campus. Additionally, FE&P involved the crisis management team from the beginning by including Jerusha Kasch, director of Institutional Crisis Management, in its roundtable discussions.

“It’s really just putting together the team’s mindset that, number one, we mitigate everything we can up-front through preparation,” Salmon said. “Then as you go through the process of the event itself, react immediately to whatever the issue is so you don’t let a problem exacerbate.”

Immediate reactions were made possible by the ride-out team. The team, including custodians, groundskeepers, shop representatives and operations personnel, stayed on campus for an unusually lengthy five nights and six days, sleeping on cots. Salmon also hunkered down on campus with the team.

“If they can stop a leak right away or put buckets out to prevent damage later on, we try to do that as long as it’s safe,” Jones said.

The team also addressed fallen trees and cleared drains daily.

“At some point, just because of the sheer magnitude and volume of water we saw, we had to wait for water to recede before we could actually gain access to various places around campus,” Salmon said. “But, beyond that we were able to react very quickly.”

With this fast reaction, the transition from crisis mode to storm recovery was swift. When the storm passed, the project management and maintenance staff surveyed the campus to do a damage assessment, document issues for FEMA requirements and deploy contractors to address any issues. The team of 12 project managers was looking specifically for water infiltration and related damage. Within two days, they surveyed every room of the 80-plus on-campus buildings.

Though administration chose to reopen campus on Tuesday, Sept. 5, from a building standpoint, the campus was ready to open Wednesday, Aug. 30.

“We could have opened the campus a whole lot earlier than it actually opened,” Jones said. “But some people still couldn’t get here; their homes were damaged or their kids’ schools were closed.”

“The campus, as a whole, survived the storm extraordinarily well,” Ana Ramirez, director for project planning, said.

“Rice has been through this before, so these kinds of things are not surprises,” Salmon said. “So, when they happen, we feel very comfortable about the approach we take. I wouldn’t change anything.”
Since formal space standards were established in 2013, administrative space at Rice has undergone a variety of changes. These new standards included office sizes based on job titles and initiation of a process incentivizing departments to reconfigure their space to be more efficient. These initiatives have led to more efficient space programs for new projects as well as opportunities to recapture existing space not fully utilized. On average, for departments participating in the office space renovation initiative, the assignable square footage (ASF) per person has been reduced by 121.

The administration has since explored ways to be even more efficient in how it plans, allocates and uses administrative space. Beginning with the new Cambridge Office Building, the project team consisting of the departments programmed for occupancy in the building, along with designers, architects, engineers, contractors and organizational psychologists, studied and implemented a concept employing “new ways of working.” A new concept in workplace environment was created using two distinct purposes: “me space” and “we space.” Efficiency of square footage devoted to actual workstations was maximized and configured around a 60 square foot (6 feet by 10 feet) planning module. Each department had a “space budget” of these modules based on the number of staff in their department. The department then had the flexibility to allocate “me space” (individual workspaces) and “we space” (huddle rooms, phone rooms, larger conference rooms and more) within their space budget. The result is a significantly more attractive, comfortable and functional work environment for staff with the added benefit of more efficient use of Rice’s space resources.

Last October, FE&P ventured into the new ways of orienting a working environment. The department had to devise a creative way to bring the staff of FE&P’s Administrative Center for Sustainability and Energy Management (ACSEM), previously located in Abercrombie Laboratory, back to the FE&P Building. There were no offices in the FE&P Building to accommodate them. Expanding the footprint of the building was out of the question, so the only solution was to use the space in the building more efficiently.

A group of eight staff members in the department, including Kathy Jones, the associate vice president for Facilities Engineering & Planning, volunteered to participate in the implementation of a “new ways of working” environment in the department. Since all were volunteers, the participants were offered the option to return to a traditional office after trying the new space for six months. The project reconfigured and relocated a total of 11 different offices and workstations. Initially these spaces occupied 1,660 ASF. At the project’s end, the same 11 staff were located in 1,200 assignable square feet. In other words, the assignable square footage per person went from 151 to 109.

By implementing an open office plan in 800 square feet of the FE&P Building, FE&P was able to return 638 ASF of space in Abercrombie to the School of Engineering for graduate student space. It would have cost $400,000 to build that much new space, given the cost of building new space, which currently stands at about $500/SF. This project yielded a 28 percent improvement in efficiency and only cost $90,000 total, or $75/ASF. Ultimately, the renovation equals a net savings of $310,000, redirecting resources back to the mission of the university.

The eight staff members participating in this project hold monthly group meetings to discuss how working in this new environment impacts their workflow, productivity and overall well-being. Through this open collaboration, the group works through any issues that may arise that have an impact on the group’s ability to work effectively. No question, working in an “open” work environment is a significant cultural shift from the enclosed, and in most cases private office environment the majority of Rice staff are accustomed to working in. The move by the eight volunteers to an open office work environment has had many unexpected benefits, including optimized flow of information and decision-making among the group. Despite having a “safety net” of opting out after six months, the staff is now well past month six, and all eight of the original volunteers are still actively engaged in the environment and are every bit as productive as before, if not more so.
Replacing the Static Campus Plan

New dynamic planning tool efficiently addresses complex questions about campus future, campus present

Campus planning is a dynamic endeavor. A single, perfect, static campus plan does not exist. Every future scenario represented in a campus plan is founded upon an underlying set of values, assumptions, forecasts and goals, and each presents a different set of resource needs and trade-offs. Yet, while values hold steady over time, the reality is that internal and external forces create change. So, how does a university approach campus planning in the face of such uncertainty?

Rice treats the general plan created in 1910 by Ralph Adams Cram — the architect of Lovett and Herzstein Halls and the Mechanical Lab — as its fundamental and enduring planning framework. The Cram plan organized campus spaces and facilities along a primary east-west axis and secondary cross-axes. During Rice’s rapid expansion period of the 2000s, the university supplemented Cram’s plan with several planning studies produced by architect Michael Graves. Recently, however, Rice has transitioned to a flexible, virtual modeling tool that enables campus leaders to explore and compare multiple campus development scenarios.

The new dynamic campus planning tool, called the Integrated Campus Plan (ICP), was developed in consultation with the design firm Kieran Timberlake and is overseen by university architect David Rodd and his FE&P staff. This approach to campus planning lets Rice evaluate any number of “what if?” scenarios and to move beyond the traditional static campus master plan as its primary planning tool.

The ICP is grounded in a set of framing principles and assumptions on the subjects of built space, open space, energy infrastructure, circulation and parking, and storm water management. These ICP framing principles were drafted by an ICP steering committee as a transparent, flexible constitution that are adaptable to evolving conditions. The ICP framing principles are then supported by a “tool set” composed of two components (see insert): the ICP Model and the ICP Campus Planning Query (CPQ).

This feature can provide answers to a multitude of “what if” campus planning scenarios, whether they be small or campuswide in scale, through topics such as potential gross square footage of new building space, projected energy use, necessary parking spaces, required storm water detention capacity, capital cost of infrastructure and more.

The ICP is a powerful tool for campus planners and university leaders attempting to evaluate the impacts of various factors on alternatives involving the allocation of land, space, financial and natural resources, and infrastructure investments. Through the ICP dynamic campus planning now is a reality at Rice.

ICP Model — 3-D display of existing campus conditions on topography, infrastructure, tree information, road networks, building information, possible building sites

ICP CPQ — Graphic displays of variable campus population, facility program, vehicular parking, storm water management capacity, capital development cost, energy usage
Prior to the arrival of FE&P Assistant Vice President for Facilities Bart Salmon in spring 2016, the maintenance department in FE&P had a reputation for responding well to major emergencies like hurricanes, but was otherwise slow and noncommunicative in completing work orders submitted by campus customers.

This sluggish performance was clear in the data. In the time period July 1, 2015, to June 30, 2016 (FY16), emergency work orders took an average of nine days to complete, when the goal was one day. Urgent work orders, with a target completion time of seven days, took nearly 17 to complete. Routine work orders took 27 to complete, nearly a week longer than the goal of 21 days.

At times, the work was completed sooner than the data indicated; however, the maintenance crews were not completing the documentation to close the work order, indicative of another problem: they were not communicating adequately with customers as the work was being done.

Salmon knew he needed to make a change. Starting in summer 2016, FE&P’s maintenance team, in partnership with its facilities service center staff and data experts, deployed mobile technology for maintenance technicians in the field, developed dashboards and metrics to track performance data, and established clear performance goals for the maintenance team based on those metrics. Further, he and Loranda Iverson-Williams, director of business process, worked with the maintenance crews to improve communication and documentation throughout the process of completing a work order. Part of the challenge was technical: they needed training on how to better use the work order system, FAMIS.

“It was a process change to teach the crews to use FAMIS to enter timely updates with meaningful comments and to properly close work orders,” Iverson-Williams said, “but they overcame that challenge.”

By summer 2017, the time to complete emergency work orders dropped from nine days to under three, urgent work orders dropped from over 16 to a little more than six, and routine work orders from 27 to 16. A data loss resulting from a change in the work order system prevented the reporting of accurate metrics for FY18. However, despite this error, positive results were still evident. Not only is the work being done more quickly, the customers now know more about what is happening along the way.

“The customers are now better informed,” Iverson-Williams said. “They receive regular email updates for their work orders, and they love the communication.”

For Iverson-Williams, the importance of improved communications in the transformation of the maintenance department cannot be overstated.

“One thing our customers really wanted was better communication,” she said. “All this work of improving processes and systems ultimately helped us to communicate better with our customers. Now, even if we make a mistake, our customers are informed right away, and because they know about it, they thank us for the good customer service because we communicated well.”

“Customers wanted things fixed in a timely manner,” Salmon said of the past reputation. “Day-to-day, there was little credibility that maintenance would get the job done to the satisfaction of the customer. That’s changed, and the data shows it. We’re meeting and even exceeding customer expectations. That’s the transformation that both we and our customers were seeking.”

Data management credited with major improvement in efficiency

### Maintenance Metrics

<table>
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<th>7/1/2015 - 6/30/16</th>
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<tbody>
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<tr>
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<td>Urgent</td>
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</tr>
<tr>
<td>Routine</td>
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<td>16.00</td>
</tr>
</tbody>
</table>

### Average days to complete work order by type

- **Emergency**
- **Urgent**
- **Routine**
One of the biggest challenges that energy managers face is how to identify opportunities for energy efficiency projects with an economically attractive payback. This is especially true for those who oversee multiple buildings or a complicated campus setting like Rice. With so many buildings of differing ages and such a variety of installed equipment and systems, how does one even begin to decide how to invest energy conservation dollars?

In 2017, members of FE&P’s Administrative Center for Sustainability and Energy Management (ACSEM), operations team and project management group partnered with CenterPoint Energy to help answer this question. CenterPoint, through an initiative called the Commercial Retro-Commissioning Program, offers free systematic evaluations of the energy performance of commercial buildings of over 50,000 square feet in size. These studies are conducted by engineering firms pre-selected by CenterPoint, and the results include a menu of projects with a payback of 1.5 years or less (meaning the cost of the investment in the recommended energy efficiency measure can be recovered in energy savings within a year and a half or less). In exchange for this free service, customers agree to commit at least $0.03 per square foot to implement recommended projects. For a 50,000-square-foot building, this is $1,500.

The FE&P team selected three buildings to test the program: Ryon Engineering Laboratory, Duncan Hall, and Tudor Fieldhouse and Youngkin Center complex. FE&P energy manager Eric Valentine leads Rice’s participation in the program. Working with FE&P maintenance personnel and project engineers, as well as key building representatives and contacts, he coordinates visits by CenterPoint’s consulting engineering teams, the review of the engineers’ reports and the implementation of recommended projects.

The initial report revealed several attractive energy conservation measures in Ryon. For example, one measure highlighted the opportunity to save nearly $5,000 per year in steam by simply lowering a set point for hot water heating in the building, which was easily enacted by FE&P energy/controls technician John Windham. In total, measures expected to save approximately $17,000 per year with a payback of one year were implemented by spring 2018. Further, the study revealed additional savings opportunities with a payback beyond 1.5 years but less than five years, including installing LED lights in the interior high bays in the center of the building. These projects will be completed in FY19.

The second report, covering Duncan Hall, was received in spring 2018. The analysis revealed nearly $11,000 worth of projects with a collective payback of just under one year, plus several additional opportunities with paybacks of under five years. Implementation of the Duncan Hall energy conservation projects will occur during FY19. The final report for Tudor Fieldhouse and Youngkin Center complex is expected in early FY19.

“The CenterPoint Retro-Commissioning program is an important component in our energy conservation toolbox,” Richard Johnson, ACSEM director, said. “It allows us to select participating buildings strategically, study them holistically and invest in them in a focused way. The program provides incredible value to Rice, and it’s a great way for us to get to know more of the engineering and building retro-commissioning firms in the region. We plan to enlist more buildings in the program in FY19.”
The Rice community and its visitors now have a new way to get to and travel around the Rice campus, thanks to a project led in part by members of FE&P. The innovative project applied principles of the “sharing” economy to transportation — ready-to-rent bicycles — and links Rice within the broader, growing network of shared bicycle infrastructure in Houston known as Houston BCycle.

The Houston BCycle expansion to Rice’s campus was made possible when Rice partnered with the Texas Medical Center and others in fall 2015 on a grant through the Houston-Galveston Area Council that provided substantial funding through the Transportation Improvement Program. A committee of Rice faculty, staff, undergraduate, and graduate students working alongside Houston BCycle determined Rice BCycle station locations. The BCycle stations were first installed at the Gibbs Recreation Center, Greenbriar Parking Lot and West Lot in October 2017. In February 2018, BCycle stations were added at the Cambridge Office Building, South Servery and Rice Village Apartments. Another BCycle location was added between Duncan Hall and McMurtry College in April 2018, with a final station at the BRC installed in August 2018. Facilities project manager Hannes Hofer, an avid cyclist, oversaw installation of the BCycle stations.

The BCycle program offers a variety of membership plans, as well as timed rentals for guests and special discounts for members of the Rice community. Bicycles rented at a BCycle station can be returned to any of the over 60 BCycle stations in the network around Houston.

The addition of a bicycle-sharing program at Rice helped contribute to the campus earning a certification as a Bicycle-Friendly University by the League of American Bicyclists.

With delivery of the Houston BCycle stations at Rice, FE&P is helping to increase the availability of alternative forms of transportation at Rice, while also reducing the need for students to physically own and store a bike at Rice. This creates efficiencies in campus bicycle rack utilization as well as economic benefits, in particular for students. Further, a robust bicycle-sharing system at Rice and in adjacent areas could contribute to lessening the need for increased parking for cars.

“Our vision is that Rice is able to offer its students access to enough high-quality mobility services that they will not need nor want to own a car when they come to Rice,” said Richard Johnson, ACSEM director, who led the committee to select BCycle station locations.
Special Recognitions

Anniversaries

5-Year Honorees
Andrea Gil
Arcadio Gonzales
Robert Martin
Elmer Whitehead
Frank Roe
Guadalupe Gutierrez
Jason Hochstein
Lizette Villafuerte
Mac Garza
Maria Rojas
Maryanne Young
Obdulia Garcia
Olivia Paniagua
Rhonda Hogan
Sherry Durand

10-Year Honorees
Adan Hernandez
Araceli Guzman
Beatriz Santana
Cresencio Solis
David Garcia
Fererico Villamayor
Israel Ramirez
Javier Contreras
Jose Solis
Joseph Suarez
Karina Gonzalez
Maria D. Mendez
Maria L. Rodriguez
Maria D. Vasquez
Michael Tomongha
Mirella Cuevas
Nathan Zuege

15-Year Honorees
Araceli Cantu-Zuniga
David Hoffman
Dominador Camba
Dora Pedraza
Francis Aguilar
Guillermina DeLaGarza
Maria M. Mendez
Marta Garcia
Mindy Bailey
Ricardo Palma
Rosa Zuniga

20-Year Honorees
Alfonso Perez
Bassoodeo Goberdhan
Dora Vides
Joan Stuthieit
Olga Castaneda
Ricardo Calzada
Roger Rodriguez

25-Year Honorees
Eleazar Alejandro
Glenn Moore
Guadalupe Mayer
Harvey Willis
Hugh Ton-That
Ronilio Abacan
Ruben Davila

30-Year Honorees
Ernest Porter
Fidel Gonzalez
John Whiting
Norma Elam
Paul Wiley

40-Year Honorees
Ronnie Featherston

Promotions

Bernadette Jackson
Calvin Rawls
Calvin Yancy
Dutchelle Jones-Felix
Frank Roe

Gerald Contreras
Gigi Bryant
Israel Ramirez
Juan Arriaga
Kenneth Lavelle
Lazara Arevalo
Marcelo Escalante
Maria Findlay
Maria Flores
Miguel Serrato
Sylvestre Cantu
Tyler Barlow
Warren Reine

Retirements

Alicia Cuadros
Brad Dean
Bruce Cooper

Estela Reyna
Federico Villamayor
Luegean Robertson
Maria Garces
Phung Lam
Roy Perez

Barbara Bryson Secret Weapon Award
Awarded to Arazely Garza, LouAnn Holmes and Roy Perez

Thank you to the Hurricane Harvey ride-out team.