

WHAT'S NEWS @ HFSC

HOUSTON FORENSIC SCIENCE CENTER • FEBRUARY 2020

New research finds 16 percent of Houston's drug impaired drivers high on PCP

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Research published earlier this month in the *Journal of Analytical Toxicology* revealed terrifying data: about 16 percent of impaired drivers in Houston that were pulled over by police were high on PCP or angel dust.

The research, conducted by HFSC CEO Dr. Peter Stout and Dr. Dayong Lee, HFSC's toxicology section manager, reviewed data from 2013 to 2018 and found PCP to be the No. 2 drug after marijuana.

"This is terrifying. To think that people high on a drug that completely separates the user from reality is driving alongside our loved ones is scary," Dr. Stout said.

PCP or phencyclidine often comes as a solution for users to dip cigarettes or joints. It gives them an almost out-of-body experience where they become detached from their environment.

The research reviewed the data from blood samples analyzed from arrests and found that 85 percent of those that tested positive for PCP were black and

77 percent were men. The average age was 37.

"This is not only scary because these folks are on our roads endangering the community, but also because HFSC's toxicology section is struggling to keep up with a rapidly increasing caseload that is also becoming more complex," Dr. Stout said. "Delays in the lab can bottleneck the entire justice system."

Requests for toxicology testing have more than doubled since 2014 from about 2,400 to about 6,000 last year. In addition, more tests are being sent from alcohol analysis onto far more complex and resource-intensive drug analysis. HFSC currently does not have the staff or the instruments to keep up with the sudden increase in caseload.

"The Houston Police Department is doing exactly what it has to do to improve public safety: they are increasing enforcement of impaired driving," Dr. Stout said.

"But if HFSC can't keep up with the testing we have only done half the job. Houston deserves better."



A Few Words From Our PRESIDENT

HOUSTON FORENSIC SCIENCE CENTER

Peter Stout, Ph.D.

CEO/President

Dr. Peter Stout, HFSC's CEO and president, initially joined the agency in 2015 as its chief operating officer and vice president. He has more than 15 years of experience in forensic science and forensic toxicology. Prior to joining HFSC, Dr. Stout worked as a senior research forensic scientist and director of operations in the Center for Forensic Sciences at RTI International. Dr. Stout also has served as president of the Society of Forensic Toxicologists (SOFT). He represented SOFT in the Consortium of Forensic Science Organizations and has participated in national policy debates on the future of forensic sciences in the United States. Dr. Stout has a doctorate in toxicology from the University of Colorado Health Sciences Center in Denver. Dr. Stout also served as an officer in the U.S. Navy Medical Service Corps.

Budgeting season again. The time of year when we are confronted with harsh realities and difficult decisions between what can be, what should be, what could be and, ultimately, what will be.

This is a struggle every city and government department, agency and entity faces and the decision always comes down to having to invest immediately in the area that presents the most risk and no choice but to delay rather than spending in a manner that would truly serve the public and the community.

It is a painful reality.

At HFSC we know we have made enormous strides in improving not simply quality and throughput, but cost efficiency as well. Numerous and ongoing lean six sigma projects have been difficult but have demonstrably made us far better and more cost effective, which is extraordinarily important in making HFSC what Houstonians expect and deserve.

We also know healthcare costs have increased. Labor costs go up. Materials costs rise. For the past three years we have been able to compensate for those by increasing efficiency.

Logically, that only goes so far. At some point, the issue is simply a lack of resources.

For months we have worked to educate and provide explanations for needs we believe to be necessary to keep up with the changing demands for forensic testing. Crucial increases in enforcement of impaired driving have led to a significant increase in requests for toxicology testing and we have serious concerns about keeping up with the complexities of DRUGGED driving along with DRUNK driving.

We made ground breaking changes in latent print handling that had us on course to reduce a long-standing backlog. We then accomplished revamping crime scene handling and CSU began producing far more and better quality latent prints for examination. The result is more and better leads for investigators. But latent prints can't keep up.

CSU only has 27 CSIs for Houston's 600-plus square miles. This is in comparison to Chicago's 200-plus CSIs. The mixture of crime is different, but 27 cannot even begin to address Houston's needs.

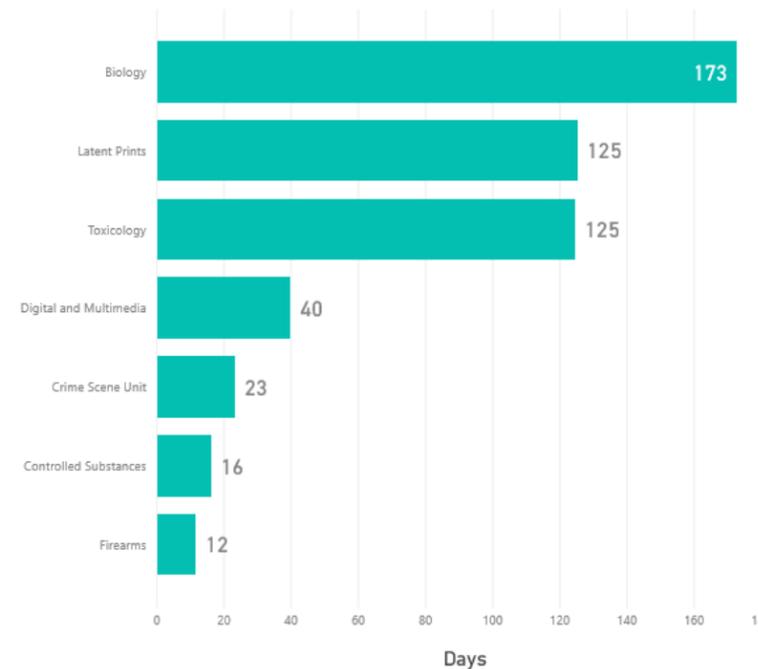
It is our responsibility to be as efficient as possible and demonstrate we are doing so. No one should assume we are as effective as we should be. We must show that routinely. We will produce a budget that we can demonstrate is essential. We also have a responsibility to articulate as effectively as we can where we can no longer do a responsible job of the testing.

In the end, though, our budget _ like most others _ will almost certainly reflect what "will" be and not what "could" or "should" be.

Peter Stout, Ph.D.-
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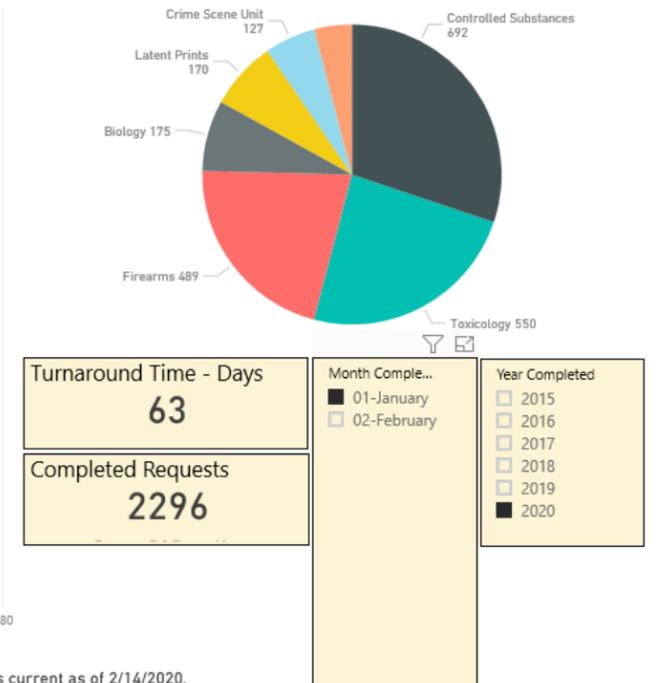
HFSC At A Glance

Average Turnaround Time for January 2020



This data is current as of 2/14/2020.

Requests Completed by Section



Turnaround Time - Days	63
Completed Requests	2296

Month Completed	Year Completed
01-January	2015
02-February	2016
	2017
	2018
	2019
	2020

Nearly all disciplines at the Houston Forensic Science Center are working to eliminate backlogs that built up when operations shutdown during the move to a new downtown facility. HFSC had communicated to stakeholders that turnaround times would increase and backlogs would grow in the move's immediate aftermath, and that showed up in January's numbers.

Overall, HFSC expects most disciplines to return to near-normal operations and average turnaround times of under 30 days or less by mid-2020. However, that depends on other factors, including caseload remaining steady. Any sudden spikes in requests will set disciplines back further.

For more information, please visit www.houstonforensicscience.org

LSS HFSC focuses on quality

Two Houston Forensic Science Center multidisciplinary teams are working on process improvement, or lean six sigma, projects that are focused on quality with the goal of balancing production and quality metrics. The task is challenging, but the teams are nearing solutions.

Review project team

One team is focused on improving the review processes that are conducted before a case report or finding is released. In each section, all cases undergo both an administrative and a technical review before it is released to the stakeholder. The

goal is to catch errors before the report goes out the door. The team asked a few questions, including: how well does the process work, how often are mistakes missed and how can it be improved?

The third phase of the project has been extensive, and the team has reviewed data from several different sources, three of which are described here.

The lean six sigma team analyzed data gathered in “voice of the customer” sessions and is using that information to minimize the risks to any improvements made to the process.

Meanwhile, a dashboard with real-time analytical data about technical reviews and a separate dynamic user interface allows users to record and track defects identified during the

review process. HFSC’s technical disciplines have largely adopted the user interface allowing the team to gather better and more data.

The team has also conducted an extensive statistical based audit of cases reviewed during August and September 2019. A team of staff audited 772 requests and is trying to understand how much risk exists in the present process and the differences between auditors. The data gathered will allow the team to implement improvements that minimize risks across sections.

Creating a quality score

This project team _ asked to design an actionable quality metric for HFSC and for each technical section _ is currently designing a dashboard that will focus on measuring topics staff identified as important:



By Aimee Grimaldi
and Paula Evans

professional development, quality standards, and preventative initiatives.

These metrics will put greater visibility on quality and allow sections to better understand weaknesses and provide trending data that will be used to create a proactive and preventative quality culture.

But wait, what IS quality?! Before the project team could put together the prototype for the score, they first brainstormed the definition of quality. The team determined that quality

is the right answer, it’s having pride for the work that you do, it’s an investment in the final work product. Quality is about being dedicated in fixing a problem should one occur. It’s being innovative. It’s being at the forefront of the forensic community and it’s a desire to continuously improve.

It becomes clear that what we are describing is actually a combination of quality and excellence. While quality is



a measure of compliance to external standards, excellence is an attitude, a drive from within the organization for our own satisfaction. HFSC does not settle on meeting minimum requirements. Rather we push ourselves to exceed the requirements and continuously improve.

The team defined quality and excellence as: A passion for accurate scientific work with a desire to continuously improve processes and performance. We strive for excellence and exceed industry norms through accountability, transparency and innovation.

The Houston Forensic Science Center currently has two multidisciplinary teams focusing on further improving the quality of the work. The teams are using lean six sigma process improvement methods to create dashboards and other tools that will allow staff to track the quality of their product in real-time while also creating a proactive and preventative quality culture. Quality and excellence have been defined as: A passion for accurate scientific work with a desire to continuously improve processes and performance. We strive for excellence and exceed industry norms through accountability, transparency and innovation.



HFSC FORENSIC EXPLORERS

BY ADAM WHITMAN AND LAURISSA PILKINGTON



The Houston Forensic Science Center's forensic Explorer Program, part of the larger Boy Scouts Explorer Program, is entering its third year and will officially begin with a new class of students in August.

The program, which has impacted more than two dozen teenagers, has been overseen by Adam Whitman and Laurissa Pilkington from the latent prints section and is a rewarding learning experience as each class is improved slightly from lessons learned.

Several of the students who participated in the 2018-2019 program have gone on to pursue a degree in forensic science or criminal justice and have shared that the HFSC Explorer Program was instrumental in helping them decide to pursue a career in forensic science.

HFSC has continued to be a resource for these students as they pursue internships, scholarships or have questions about the field as they go through college.

The program took off

in 2018 after the Boy Scouts approached HFSC about starting a new Explorer Post that would teach forensic science to interested high school students. The goal would be to create the first-of-its-kind forensic experience for juniors and seniors in the Houston area.

The Explorers' programs are designed to teach youth about different careers and provide learning opportunities to help them decide what path they want to take as they consider their options. They also offer a unique opportunity for employees to be involved in their community and to prepare today's youth for future college and employment opportunities.

An HFSC volunteer committee have spent several Saturdays each year providing these experience to young Houstonians curious about forensics.

Interested teenagers complete an application, write an essay explaining their interest in forensic science and the program

and participate in an interview before being selected. The essay and interview are designed to give students experience with processes they will encounter as they start looking for jobs. The committee also uses the essays and interviews to determine the best candidates for the program. The program targets high school juniors and seniors, though younger students are accepted.

HFSC's program teaches the good and the bad about forensic science and if, at the end of the program, they are still



interested in this as a college major, great! If they complete the program realizing forensic science isn't the career for them, that is also good.

The 8-month long program meets once a month at the Crime Scene House. Each HFSC discipline has volunteers that spend one class period providing the students information about daily duties, section operations and educational requirements for their area of expertise. Then the students participate in a hands-on activity that demonstrates what the analysts do in the lab.

The last activity is a mock crime scene where the students document and sketch the scene, collect evidence and analyze what they've found using the techniques they learned throughout the program.

HFSC is currently accepting applications for the next round of programing.

Please email info@houstonforensicscience.org for additional details and to apply for the program.

TESTIMONY: CRUCIAL IN FORENSICS

BY ERIKA ZIEMAK

One of the most important parts of being a forensic analyst is testifying in a court of law and explaining the work to a jury. The Houston Forensic Science Center, like most other forensic agencies, spends time and resources training analysts to fulfill this critical function.

The reality, though, is that no more than 5 percent of cases make it to trial, so analysts testify in very few of the cases they analyze each year.

The impact their testimony can have, however, is enormous, and so HFSC's accreditation to ISO 17025:2017 requires each analyst that testifies be monitored by a technical expert at least once a year. For example, if a forensic biology/DNA analyst is testifying, one of their colleagues will accompany the analyst to court and watch their testimony, looking for everything from how they appear on the stand, their body language and the words they use to explain their findings to the jury. This monitoring is documented and retained by HFSC.

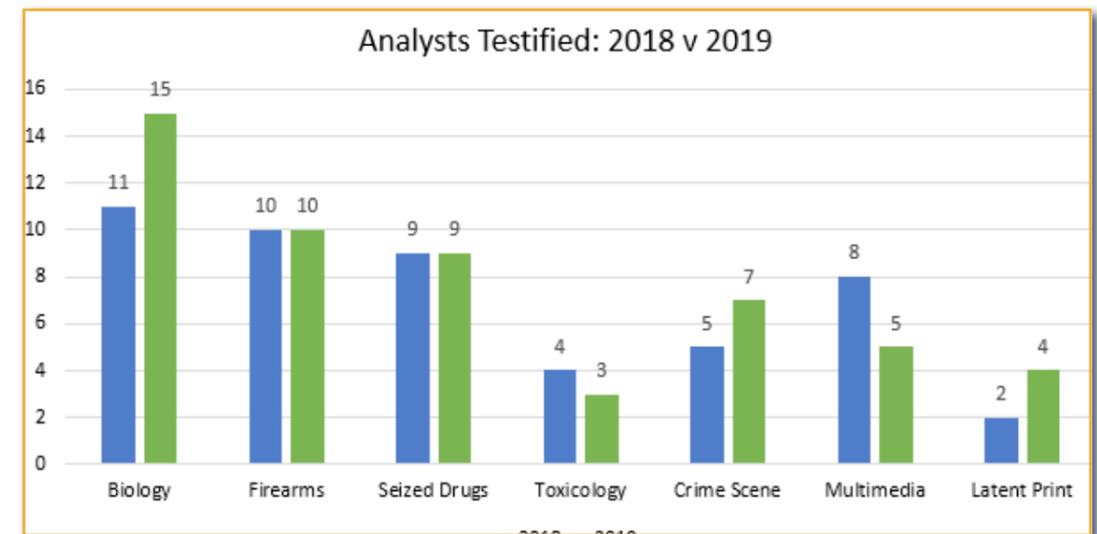
However, HFSC always strives to go beyond minimum

accreditation requirements and so, for testimony, has created a program in which trial transcripts are reviewed after the fact by a committee of three people. Each committee consists of a technical expert, a lay person and a quality division staff member. The committees read the transcripts, evaluate the content and then meet to discuss and provide documented feedback to the testifying analyst. The goal from these two programs is to ensure not only that analysts are providing proper testimony and educating the jury, but also to constantly improve their skills.

At the end of 2019, the quality division compared the number of times analysts have testified in 2019 to the 2018 data. The data was gathered to find any discernable trends or to see whether testimony had increased or decreased for the year. While there was a small increase for 2019, it was statistically insignificant, though the increase in testimony for forensic biology/DNA analysts was more notable and will be tracked more closely going forward.

This data, however, doesn't tell the full story because while it highlights the overall number of times an analyst from one of HFSC's seven disciplines has testified, it doesn't indicate how many analysts are testifying.

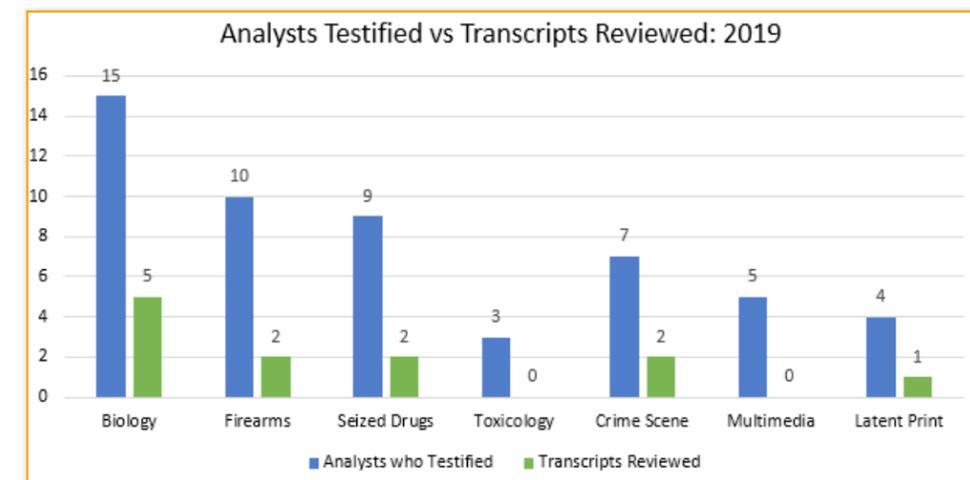
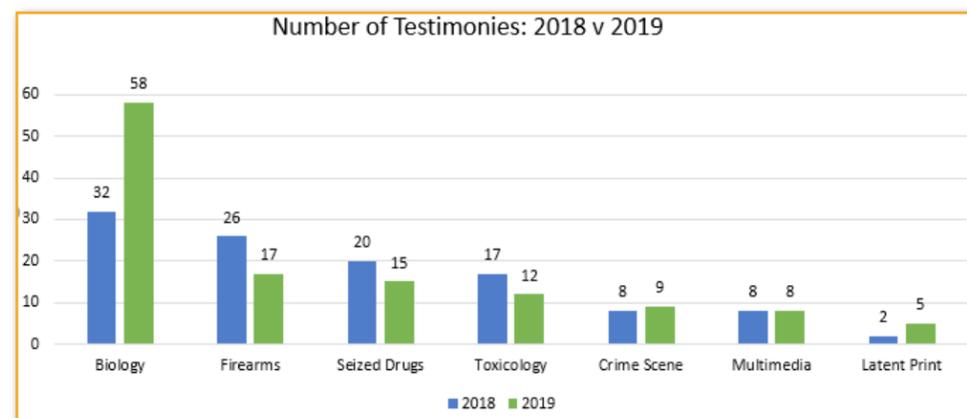
So, the quality division looked more closely and broke the data down to add more context, looking at the number of analysts that testified from each section. The data revealed that in most cases the testimony given is concentrated to a few analysts. For example, the toxicology section testified 12 times in 2019, but only three analysts took the stand that year. HFSC will continue to monitor this data.



Meanwhile, the transcript review project's goal is to review one transcript per analyst who has testified within a given year. But at this time, HFSC has not been able to achieve that goal, in part because it is relying on transcripts from cases on appeal to use in the project.

As a result, HFSC did not review any transcripts for testimony from the toxicology or multimedia sections. And in the forensic biology/DNA section, while five transcripts have been reviewed, it is still 10 short of the ultimate goal.

HFSC may expand the program in the future to review transcripts from trials that are not yet in the appeal process to allow for broader review of testimony.



Firearms STRUGGLES TO HIT THE RIGHT TIME



The Houston Forensic Science Center's firearms section is working to overcome a backlog that built when the section shutdown operations to complete a move to a new downtown facility.

The move and resulting shutdown rocked a delicate balance and highlighted that, similar to other forensic disciplines and agencies, HFSC's firearms section operates on the ragged edge of a significant resource challenge that can be easily upended by even the slightest change in workflow or caseload.

To truly have an efficient operation that could not only meet current demand with a 30-day or less turnaround time, but also contend with unexpected surprises and increases in case work would require an additional, experienced examiner.

However, other sections, such as toxicology, have more immediate needs. And the city's fiscal reality means HFSC will invest in the areas with the highest risk.

Firearms will continue to operate with its current resources for some time.

Casework for the section paused mid-October as staff and labs moved. During that time about a month's worth of work piled up until operations resumed in November. With about 30 backlogged cases and 34 new cases received in January, the section has struggled to catch up.

Prior to the move, the section maintained a turnaround time of under 30 days for comparison work. Results for the National Integrated Ballistics Information Network

Nearly all forensic disciplines and agencies run on the ragged edge of resources if not at a total lack of capacity. Little to no cushion is built in to the budget or the staffing levels, so when the unexpected or unusual occur it sets them back for months and sometimes years.

By Jordan Benton

(NIBIN) must be completed within 10 days of the receipt of a firearm. HFSC's firearms section receives an average of 34 cases a month. It has a staff of 15: four NIBIN technicians, nine firearms examiners, one supervisor and one manager.

"People get sick, they take vacations and attend trainings. Every person in the section must make up for someone being out, because we don't have the capacity that one more person could add to our team," Donna Eudaley, manager of HFSC's firearms section, said.

On average, each NIBIN technician completes 100 guns each month to keep up with the 300 or so guns submitted to the section monthly. Those 300 guns create 300 correlations, administrative and technical reviews that are completed by the firearms examiners.

In addition to that work, firearms examiners must also complete about six cases a month. And not all cases are created equal.

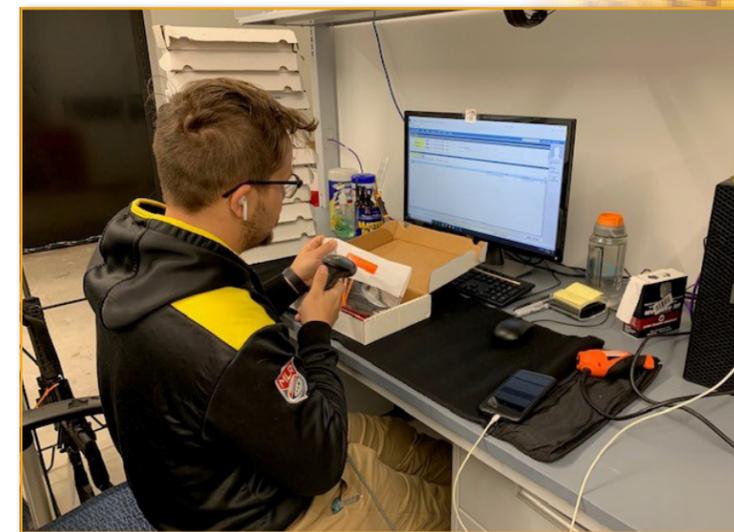
"One case could have as many as 100 cartridge cases, and that could equal thousands of comparisons. That is months' worth of difficult casework," Ms. Eudaley said. "We have just enough people to get the work done, but if someone is out, we feel it."

If there is even a slight increase in requests over time the section will be in a tight spot. And if HFSC decided to hire another firearms examiner, recruitment and training would take time. Training a firearms examiner takes between six

months and two years depending on their experience level.

"One more experienced examiner would offer a cushion for the section and open up an opportunity for us to bring in more work and get results out even faster," Ms. Eudaley said.

Major assaults were the



number one offense type for requests received in the firearms section between January 2019 and January 2020. Following closely behind were firearms used in homicides, narcotics, robberies and burglary and theft. For NIBIN, burglary and theft, homicide, assaults and major offenders _ or organized crime _ topped the list.

"Our staff is dedicated.

It's the reason we're able to have a delicate balance and keep up with incoming casework. We owe it to the City of Houston to continue doing so until more help is in our cards," Ms. Eudaley said.

FIXING THE VEHICLE EXAMINATION BUILDING

By Charles Evans

Now that all HFSC staff and laboratories have fully settled into a new downtown facility, focus has shifted to renovating the vehicle examination building used by the crime scene unit to process cars.

HFSC has received a federal grant of \$114,000 for this project, which also requires HFSC to make a \$38,000 match and complete construction this year.

The VEB is used by the crime scene unit for forensic processing of vehicles, including evidence capture and preservation. Work conducted at the VEB includes examination, photography, trace collection, documentation of bullet path and trajectories, fingerprints and DNA collection.

HFSC decided when it chose to move to 500 Jefferson St. to keep the VEB at its current location. However, renovations are necessary to better prevent contamination of evidence and allow CSU to improve its services.

The VEB is conveniently located 1.5 miles, or about five minutes, from 500 Jefferson. CSU processes an average of 46 vehicles per month at the VEB, and the number continues to rise. The VEB will have to remain operational during the renovation. It currently has four

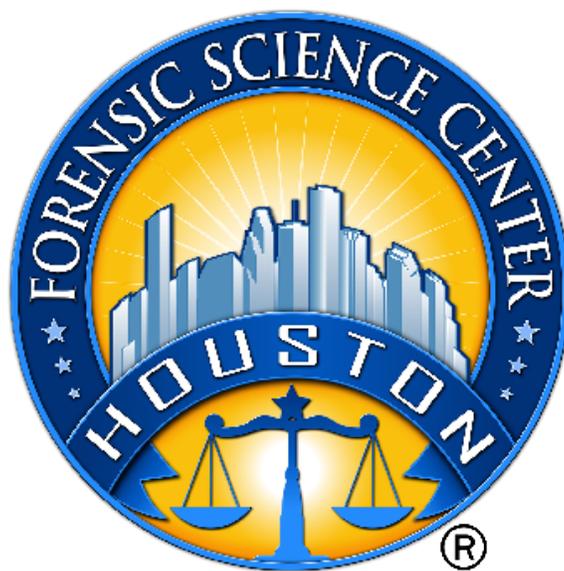
enclosed vehicle bays and four open bays.

The project scope is as follows, though this is subject to change depending on contractor bids, affordability and prioritization:

- Validate building condition, complete repairs as required
 - Enclose four open bays, install garage doors
 - Enhance bays' environment: air conditioning, insulation, etc.
 - For all eight bays:
 - o sealed concrete floor;
 - o air conditioning, electrical and plumbing validation, repair and replacement
 - o improve lighting
 - o add vehicle lift
 - o enhance photography collection
 - o painting
 - For office area:
 - o sealed concrete floor
 - o air conditioning
 - o new bathroom
 - o kitchen appliances
 - o workstations
 - o electrical
 - o painting
 - Improve security and IT infrastructure
- HFSC is working with the City of Houston on this project and is currently focused on getting the necessary contracts in place to allow for a more seamless bidding process.



The Houston Forensic Science Center is focused on renovating the vehicle examination building, which is used by the crime scene unit to preserve, document and retain evidence found on and in vehicles. The work will largely be funded by a \$114,000 federal grant and will focus on improving the work environment to prevent contamination of evidence. HFSC is required to make a \$38,000 match and complete construction this year to be eligible for the grant. The work at the VEB follows a whirlwind year in which HFSC built a new laboratory at a downtown location and moved all staff and equipment to the new facility.



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