



HARRIS COUNTY FLOOD CONTROL DISTRICT INFRASTRUCTURE DIVISION UPDATE

April-May-June 2006

News of Note:

- Please welcome our new employees: Joan Blomquist (*Property Rights*), Michael Key (*Outfield Data Collector*), Veronica Thomas (*Facilities Maintenance*), and Donna Hill (*DCIS*).

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Introduction

Thank you for your interest in activities of the Infrastructure Division at the Harris County Flood Control District. This newsletter, sent to interested parties each quarter, describes the activities of the Infrastructure Division. Each quarter, one of the Division's four departments is examined in depth. This quarter highlights the Maintenance Engineering Department. Please do not hesitate to offer comments or ask questions. You can reach us at 713-316-4815 or by e-mail (rachel.powers@hcfcd.org).

Maintenance Engineering Department

The Maintenance Engineering (ME) Department is responsible for maintenance repairs on the District's vast open channel and detention facility infrastructure. ME consists of three sections: Project Design, Construction Coordination, and Geographic Information Systems (GIS).

ME is responsible for repair projects that range from small outfall repairs to major channel rehabilitations. Responsibilities also include maintenance of mechanical and electrical facilities, such as cathodic protection systems, storm water flap gates, and pumps, owned by the District. ME also prepares construction bid packages and manages engineering contracts for maintenance related (non-Capital Improvement Project) repairs.

System repairs address deficiencies such as erosion, failed outfall pipes, re-grading of swales, and sediment removal from channel bottoms. This year, ME was provided a budget of \$8 million for system repairs. It has already bid 25 system repair projects

totaling \$6.3 million. Projects have been bid in all four Precincts.

Upcoming system repair projects include slope repair in east Harris County, sediment removal on several channels in the Sims Bayou watershed, general repairs in west Harris County, and slope repairs in north Harris County.

The District is the local sponsor for maintenance of the five channels constructed by the Corps of Engineers in Harris County and the Gated Structure at Clear Creek. ME recently designed and bid a repair project on Brays Bayou, one of the five federal channels. This project, estimated to cost \$877,810 will repair two areas where the concrete lining has failed at Harris Gully and at the Fannin Street Bridge. The project has been awarded and construction is expected to start in early September 2006.

Project Design: Currently, the Maintenance Engineering Department

Continued on next page

Maintenance Engineering (continued)

ment has six large projects under design on the following HCFCD units:

- U101-00-00-X005 and U101-00-00-X008: Two segments of S. Mayde Creek are under design. The reaches are from Greenhouse Road to Raintree Village Drive, and from Raintree Village Drive to Clay Road. This project will address erosion repairs and failed pipe repairs.
- U101-07-00-X003: The existing eroded channel, a tributary of S. Mayde Creek, will be rehabilitated and its stormwater carrying capacity will be improved by a proposed box storm sewer from Mason Road to South Mayde Creek.
- W140-00-00-X005: The bottom of the deep natural channel, a portion of Spring Branch, will be repaired just upstream of Memorial Drive for about 500 feet.
- C118-03-00-X001: An engineering company is designing a channel enclosure for this tributary of Sims Bayou from Scott Street to Cullen Boulevard. This project will eliminate the existing open channel and will reduce the District's maintenance costs along this reach.
- P107-03-00-X001: The existing channel, a tributary of Big Gulch, is severely eroded and is threatening adjacent property. The design consultant is using natural channel design techniques to develop the repair method.
- P118-12-00-X003: The existing channel, a tributary of Halls Bayou, from Peachtree to Allwood is severely eroded and is threatening adjacent property. The channel design is nearly complete.

The **Mechanical-Electrical (M/E)** section monitors and maintains the mechanical and electrical systems of the District. M/E managed a major rehabilitation of the A200-00-00 Second Outlook Gated Structure in June of this quarter. The structure's upper galvanized steel stem covers were dismantled and replaced with expandable covers to make

future maintenance projects more efficient and less costly. Twelve bevel gears were dismantled and freshly machined stem nuts were installed. The structure's stems were degreased and inspected for damage. Once inspected, the stems were re-greased and new neoprene boot covers were installed. All six actuators and motors were inspected, oiled, and repacked with grease. The entire rehabilitation project was successfully completed on June 26, 2006. The structure is in excellent shape for the hurricane season.

Another M/E project to repair severed cathodic protection power cables to rectifier number five on HCFCD Unit W100-00-00 (Buffalo Bayou) was carried out this past quarter as well. The severed cables were located and all necessary repairs were successfully made. The project was completed on April 25, 2006.

The final M/E project of importance during this past quarter was a project to restore continuity bonding to the cathodic protection of the east sheet pile wall on HCFCD Unit W100-00-00 (Buffalo Bayou). Contractors installed rebar along the wall in an effort to create a continuous bond so the entire wall would be protected by the cathodic protection system. The installation of the rebar was completed on June 19, 2006. The District is currently waiting for the system to charge so new voltage potential readings can be taken.



Gated Structure in Clear Lake City
HCFCD Unit A200-00-00

Maintenance Engineering (continued)

Construction Coordination:

The **Maintenance Construction Group (MCG)** handles small repairs. MCG completed the annual Buffalo Bayou de-snag in April 2006. This year's de-snag was significant because a new, year-round water crew came along with the MCG for training. This year's de-snag was safely completed with no accidents. Operations were successfully handed over to the new water-based maintenance crew, which is part of the Facilities Maintenance Department, as of May 25, 2006.



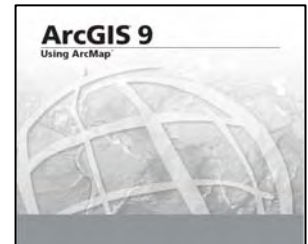
Buffalo Bayou HCFCD Unit W100-00-00
(Fallen Tree Removal Upstream of San Felipe)

Project I.D.	Channel Name	Activity/Repair
Apr-06		
G103-24-03-X005	Rogers Gully	New Interceptor and Pipe Placement
G103-38-00-X009	Tributary of San Jacinto River	Interceptor Repair
J109-01-00-X006	Tributary of Spring Creek	Interceptor Repair
Z100-00-00-X108	North Service Center	Sidewalk Installation
May-06		
D129-00-00-X008	Tributary of Brays Bayou	Encroachment Removal
E100-00-00-X058	White Oak Bayou	Encroachment Removal
E122-00-00-X006	Tributary of White Oak Bayou	Encroachment Removal
K100-00-00-X029	Cypress Creek	Encroachment Removal
M108-00-00-X002	Hughes Gully	Interceptor & Erosion Repair
P100-00-00-X055	Greens Bayou	Void Repair
P118-00-00-X036	Halls Bayou	Sediment Removal
P151-00-00-X007	Tributary of Greens Bayou	Sinkhole Repair
R102-03-00-X006	Gum Gully	Erosion Repair
W100-00-00-X020	Buffalo Bayou	De-snag
Z100-00-00-X111	North Service Center	Dirt Work
Jun-06		
N101-00-00-X003	Tributary of Carpenters Bayou	Sediment Removal
O105-00-00-X010	Tributary of Goose Creek	CMP Replacement
O111-02-00-X001	Tributary of Goose Creek	Sediment Removal
P105-00-00-X005	Jordons Gully	Interceptor Replacement and Void Repair
P118-07-00-X002	Halls Bayou	Erosion Repair
P126-00-00-X006	Tributary of Greens Bayou	Sediment Removal
P130-07-00-X004	Tributary of Greens Bayou	Sinkhole Repair
P148-02-00-X003	Tributary of Greens Bayou	Sediment Removal
Q104-00-00-X001	Adams Street Ditch	Void Repair
R100-00-00-X005	Jackson Bayou	Interceptor Replacement
R102-03-00-X007	Tributary of Gum Gully	Encroachment Removal
T101-00-00-X029	Mason Creek	Interceptor Replacement
T103-01-01-X003	Tributary of Buffalo Bayou	Erosion Repair

Geographic Information Systems (GIS):

Infrastructure GIS is a computer-based system that combines layers of information about geographic locations in order to provide a better understanding of those locations. The GIS Infrastructure staff provide accurate and reliable spatial information that is easily displayed in a user friendly environment. GIS currently has three major projects under development: Self-paced ArcMap Training, Phase II Outfield Field Data Collection, and a new Vegetation Management Data Layer.

Self-paced ArcMap Training: GIS is introducing a self-paced, browser-based, ArcMap training program for Infrastructure employees. The training is completed through interactive training videos. The first training video will be available in late July. The GIS group employed a new software to develop the interactive training video which will assist GIS users in customizing ArcMap tools for their own projects.



The interactive training method allows the viewer to interact with the video. By starting, stopping, backing up, or skipping sections of the video, the viewer can learn at his or her own pace. At the end of each module, the viewer is invited to test him or herself for retention.

The training is broken up into several components called modules. Module One is the beginning level with lessons introducing the user to the ArcMap software and some of its tools. Each consecutive module becomes more advanced, building upon the skills learned in the previous module.

GIS plans on releasing Modules One, Two and Three this year. Additional modules will be released as user skills improve and demand for advanced training increases.

Phase II Outfield Field Data Collection: GIS recently received the new hardware and software for Phase II of Outfield Field Data Collection. The new Outfield project will incorporate existing information collected during Phase I in the Spring of 2003.

Based upon the new and improved 2006 version of the mobile Geographic Positioning System (GPS) computer, the new Laser/Rangefinder and GPS digital cameras are all equipped with Bluetooth technology which enables the equipment to share information wirelessly with each other. With improved GPS functionality, data collectors will be more efficient collecting new data and improving existing data.



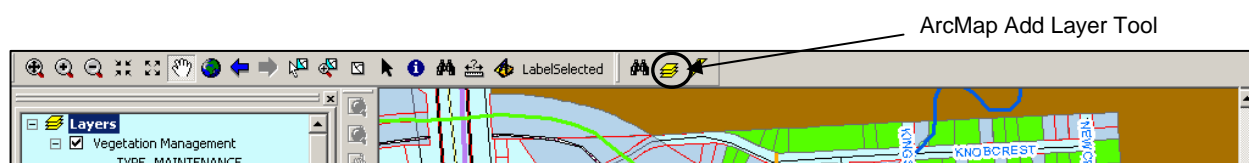
Mobile GPS
Computer

The new post-processing software, called GPS Analyst and GPS Photo Link, will incorporate the new data with the existing data. The software will also provide new tools for the user to review the status and history of a channel's infrastructure. The new communications feature of this equipment allows all information to be transferred to or from the network without being physically connected to any other device.



Wireless Laser

Vegetation Management Data Layer: The GIS section has a new data layer available in the Add Layer Tool of ArcMap for Vegetation Management. The Vegetation Management layer is used to identify maintenance locations and record vegetation maintenance plans, work schedules, and work completions on desired locations. This new layer is also available in the District Mapping Application on the District's intranet.



ArcMap Add Layer Tool

Facilities Maintenance

The Facilities Maintenance Department is responsible for vegetation management and debris removal operations on about 28,000 acres of District right-of-way. The Department accomplishes these tasks through contract and in-house labor located at the District's two satellite service centers. Vegetation management includes activities such as turf and wildflower establishment, mowing, herbicide application, and tree planting.

Herbicide Program: Licensed herbicide staff completed chemical ragweed applications for HCFCD Units K100-00-00 (Cypress Creek), L100-00-00 (Little Cypress Creek), and M100-00-00 (Willow Creek). Also, Johnson grass applications were completed on HCFCD Units A100-00-00 (Clear Lake), E100-00-00 (White Oak Bayou) from the upstream end to Tidwell Street, and I100-00-00 (Vince Bayou).

Turf Establishment Program: In the second quarter of 2006, the Turf Establishment Program completed approximately 1,071 acres of seeding projects. See table to the right for acreage breakdown.

Project Type	Acres
Capital Improvement Projects	552
Maintenance Projects	467
M.C.G. Projects	23
Federal Projects	29

Forestry Program: Tree maintenance is currently in progress for 33 sites countywide. Tree maintenance includes mulching, mowing, watering, and staking on an as-needed basis. District crews are maintaining approximately 3,600 trees on 22 sites and the tree maintenance contractor is maintaining approximately 26,700 trees on 11 sites. Trees in their first and second year after planting are watered on a weekly basis if sufficient rain has not fallen. District crews are watering approximately 1,381 trees and the tree maintenance contractor is watering approximately 20,115 trees. An irrigation system provides water to the 6,565 trees at HCFCD Units T500-01-00 and T101-00-00.

Selective Clearing Program: Recently completed selective clearing projects include:

A104-12-00	Tributary of Taylor's Bayou	From Powell Rd to A104-12-01
B100-00-00	Armand Bayou	From Fairmont Pkwy to Genoa-Red Bluff
B113-01-00	Tributary of Armand Bayou	From Genoa-Red Bluff to B113-00-00
C106-03-00	Tributary of Berry Bayou	From Forest Oaks Dr. to C106-00-00
G103-25-00	Dunks Ditch	From Antelope Dr. to Big Deer Rd.
K111-03-01	Tributary of Cypress Creek	From Aldine Westfield to Richey Rd.
K112-00-00	Wild Cow Gulch	From Treaschwig Rd. to K100-00-00
K112-01-00	Tributary of Wild Cow Gulch	From Treaschwig Rd. to K112-00-00
K112-01-01	Tributary of Wild Cow Gulch	From the upstream end to K112-01-00
K124-00-00	Seals Gully	From Spring Cypress downstream to
K211-00-00	Tributary of Cypress Creek	From Hardy Toll Rd. to Thorne Rd.
P118-31-01	Tributary of Halls Bayou	From upstream end to P118-31-00
P240-00-00	Tributary of Hoods Bayou	From P140-00-00 to Green Rock

Currently, selective clearing is occurring on the following HCFCD units:

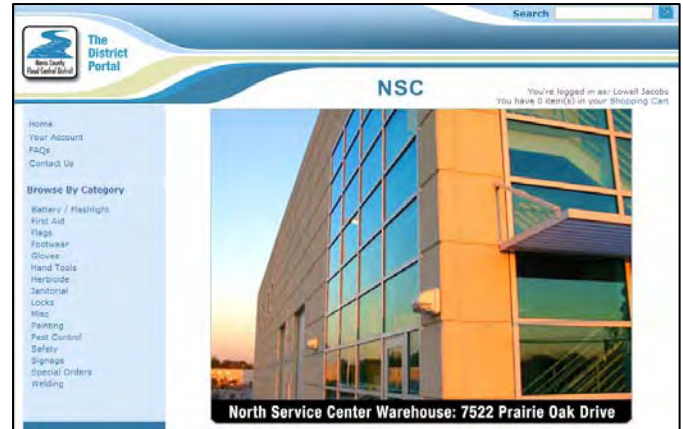
P146-00-00	Tributary of Greens Bayou	From Hugh St. to P100-00-00
Q114-00-00	Magee Gully	From Needlepoint Rd. to the railroad tracks

Fleet Management

In recent months, the Distribution Center has unveiled its online ordering program for District employees. The program is used to order consumable items from the Distribution Center. Some examples of consumable supplies are first aid, safety, and janitorial supplies. An employee need not complete any paperwork to secure an order. The requests, approvals, and fulfillment notifications are sent via e-mail. The program is working well.

The Fleet Department is currently in the process of purchasing approximately 15 on-road vehicles to replace existing older and high-mileage vehicles.

North Service Center HCFCD Storefront



Property Management

The Property Management Department of the Infrastructure Division consists of 18 employees and has an annual budget of \$2.4 million. The Department has three sections: Facilities Management Section (FMS), Development Coordination and Inspection Section (DCIS), and the Community Services Section (CSS).

Facilities Management Section (FMS) is primarily responsible for managing all the District's real property, rights-of-way, and buildings. It operates four programs: Property Managers, Outfield Data Collection, the Citizen Service Center, and Building Maintenance.

Property Managers identified and evaluated maintenance projects for FY 2009, forwarding the projects to Maintenance Engineering for implementation. Property Managers have identified potential maintenance repair projects, developing a rolling 5-year system repair program that currently takes repairs to FY 2013. Property Managers are finalizing a Selective Clearing Program, anticipated to be implemented by the

Facilities Maintenance Department in the very near future.

In the last quarter, the **Outfield Data Collection** team has collected data from Sims Bayou, Spring Creek, and Cypress Creek watersheds. The second round of data collection in limited access areas for Sims Bayou and Spring Creek is complete. The Outfield team collected data on a total of 690 trees (284 trees for the tree survey with the City of Houston and 406 trees for the TIMAP project).

The **Citizen Service Center** handles calls related to Infrastructure and Property Management. For the second quarter, the center received 1,711 calls and an additional 301 contacts from emails, mail and public contact. As a result, 945 Service Requests were issued. Of those requests, 910 have been closed.

Building Maintenance has been obtaining quotes for mechanical equipment replacement, blind replacement, wall coverings, carpet, and painting. A new lawn maintenance contract has been approved by Commissioners Court.

A new Janitorial Contract, which will encompass all District locations, is currently out for bid.

Development Coordination and Inspection Section (DCIS) tracks, monitors, inspects, and documents outside construction activity in District rights-of-way. This section also identifies potential impacts to the property by land development activities and ensures that new property accepted into District inventory meets property management and maintenance guidelines. DCIS also reviews developer and public agency projects that are proposed in District rights-of-way for maintenance and access issues. Currently, DCIS is actively monitoring 370 projects.

Community Services Section (CSS) partners with neighborhood associations and other government agencies to develop multi-use opportunities for District property. As of June 30, 2006, the Property Management Department had a total of 296 active agreements, an increase of 42 from the same time last year.