

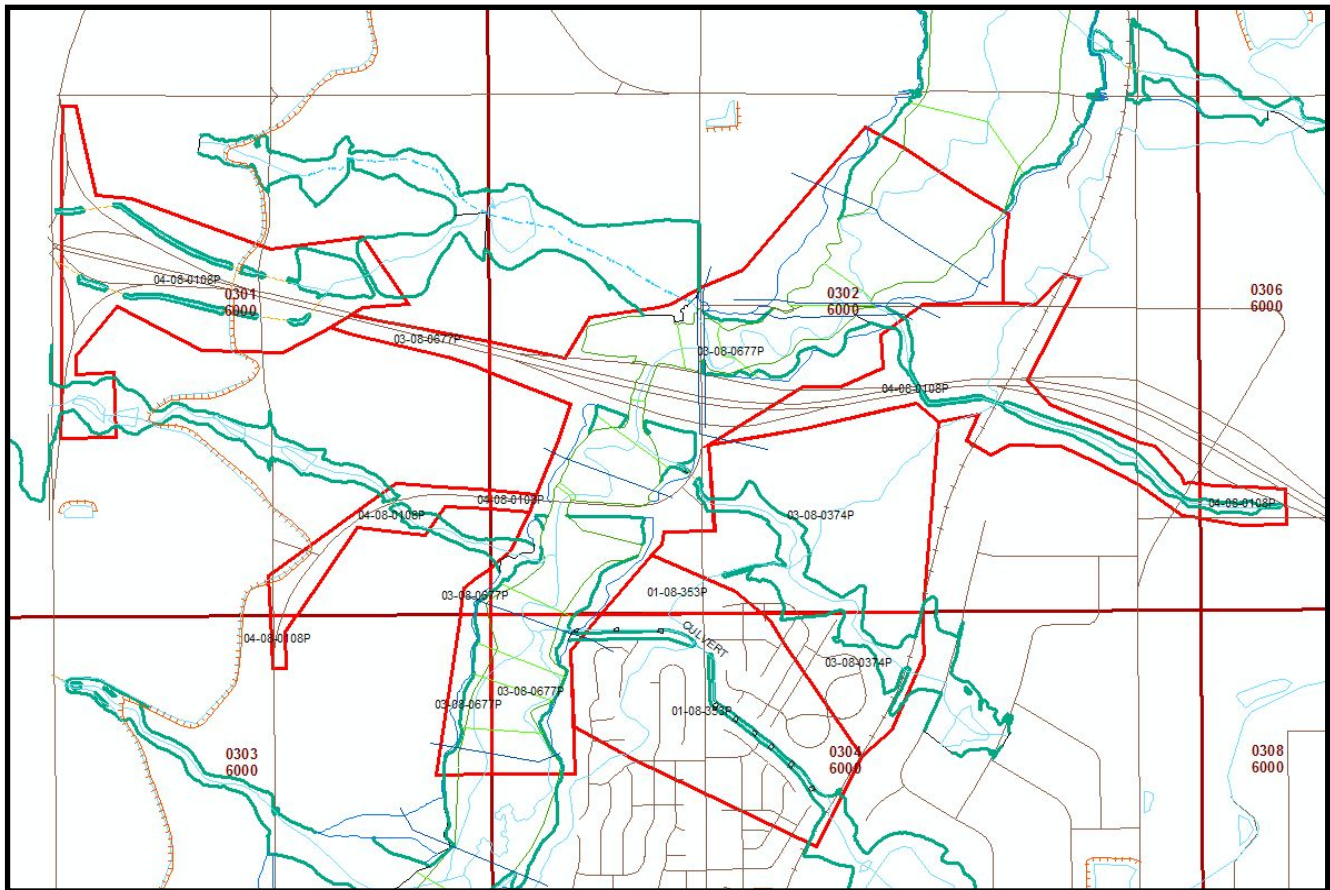


URBAN DRAINAGE & FLOOD CONTROL DISTRICT

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Local Evaluation of Requests for Letters of Map Change – Year Five



**Final Report
FEMA Grant No. EMD-2005-GR-0584
December, 2006**

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FEMA Grant No. EMD-2005-GR-0584

**Local Evaluation of Requests for Letters
of Map Change – Year Five**

**By
Bill DeGroot, PE,
Manager, Floodplain Management Program
Urban Drainage and Flood Control District**

December, 2006

Introduction

The Urban Drainage and Flood Control District (District) is a regional agency established by the Colorado General Assembly to assist local governments in the Denver Metropolitan Area with multi-jurisdictional drainage and flood control problems. The District includes 1608 square miles, and all or parts of 40 cities and counties.

In early 2001, the Federal Emergency Management Agency (FEMA) and the District entered into an agreement to conduct a pilot project under FEMA's Cooperating Technical Partners (CTP) Program. The agreement called for the District to review requests for Letters of Map Change (LOMC), specifically Conditional Letters of Map Revision (CLOMR) and Letters of Map Revision (LOMR) for the 33 communities within the District that are participating in the National Flood Insurance Program (NFIP). The project was funded by a \$100,000 grant administered through FEMA Region 8. A report on the results of the first year of the pilot project ("Final Report, FEMA Grant No. EMD-2001-GR-0181, Local Evaluation of Requests for Letters of Map Change") was provided to FEMA in February, 2003.

FEMA has subsequently funded second, third, fourth and fifth years of this pilot project at \$180,000 for each year. A report on the second year ("Local Evaluation of Requests for Letters of Map Change – Year Two") was provided to FEMA in December, 2003. A report on the third year ("Local Evaluation of Requests for Letters of Map Change – Year Three") was provided to FEMA in March, 2005. Also completed as a product of the third year grant was a pilot project on map maintenance. A report, "DFIRM Map Maintenance Pilot, City and County of Broomfield, CO" was completed in January, 2005. A report on the fourth year ("Local Evaluation of Requests for Letters of Map Change – Year Four") was provided to FEMA in March, 2006. Also completed was a second pilot project on DFIRM maintenance. All of the reports are available at www.udfcd.org.

This report builds on the findings of the previous work, and details additional findings. The reader is encouraged to read this report in conjunction with the previous reports to obtain a complete understanding of this effort.

Overview of the Process

The District has a small staff, and relies heavily on the private sector to provide services as needed. In this case, the District retained ICON Engineering, Inc. (ICON) to provide technical review and drafting support for the CLOMR and LOMR requests. The District managed the contract with ICON, coordinated all aspects of the review process, and kept track of budget and time line issues.

In previous years, LOMC's were tracked in FEMA's Management Information System (MIS). FEMA's National Service Provider (NSP), Michael Baker Jr., Inc., kept the MIS current. The NSP also prepared the final LOMR enclosures, completed all final mailings of letters and public notices, and otherwise provided support to FEMA staff.

On October 1, 2005 FEMA changed to the Mapping Information Platform (MIP) Workflow database. For this pilot, Baker populated the initial database upon receipt of a LOMC request, and the District and/or ICON was responsible for all subsequent entries.

The process requires each applicant to submit duplicate copies of the request to FEMA and the District, and to submit the appropriate fee to FEMA. When the District receives a case it immediately notifies the NSP and FEMA of the request by e-mail; including the name and address of the requestor, communities affected, FIRM panels affected, affected drainageway and identifying name. The NSP enters the information into the MIP and assigns a case number by return e-mail. The District transmits the request to ICON, usually by courier. When the fee is received the NSP notifies the District and ICON, also by e-mail.

ICON completes an initial review of each request for adequacy, and prepares the appropriate response letter from form letters provided by FEMA. The letter, which either states that sufficient information was included to begin a detailed review, or that additional information (and possibly the fee) is required, is e-mailed to the District for review, signature and mailing to the requestor. When ICON determines that sufficient information has been submitted to support the request a detailed technical review is performed. At the conclusion of the review ICON prepares the appropriate documentation from templates on the MIP. If more information is required the letter requesting the information is e-mailed to the District for review, signature and mailing. The letterhead for the above letters was designed by FEMA, and includes the names and logos of both organizations and the address and phone numbers for the District.

If ICON concludes that the requested CLOMR or LOMR is justified, it prepares drafts of the CLOMR or LOMR documents, exhibits such as annotated FIRMs and revised profiles and Floodway Data Tables, and a monitoring checklist that summarizes the case, and e-mails them to the District, and sends the case file to the District by courier. The District reviews the draft documents and the case file, makes any adjustments to the documents that are deemed appropriate, and forwards the documents by e-mail to FEMA and the NSP, and the case file to the NSP. FEMA and the NSP process the case from that

point on until the final letters are signed and mailed. All CLOMRs and LOMRs are on FEMA letterhead and are signed by a FEMA representative.

Near the end of the grant period the NSP requested that the District prepare the actual annotated map enclosures, which had always been completed by them. That requirement added some time and cost to each case. In addition, we had some extremely difficult cases to work with that increased the average time and cost results.

FEMA Region 8 provided periodic partial advances over the course of the project. The amount and frequency of each advance was dictated by the number and complexity of requests received.

Judging Performance of the LOMC Pilot Project

The District received 31 requests for LOMCs during the period of the grant and transferred nine cases from the previous grant. Because of the finite time frame allowed by the grant, and the fact that performance is somewhat controlled by the applicants, due to the timeliness of their responses to requests for additional information, it has not been possible to complete reviews of all of the requests received within the grant period. Nine cases were transferred from the year four grant to the year five grant, for a total of 40 cases considered. At the end of this grant period one case had been suspended and four were transferred to the year six grant, leaving 35 cases completed under this grant.

Quantifiable items, specifically times of performance and expenditures, have been compiled and are compared to performance standards specified in the agreement. Summaries of the performance during the fifth year pilot are provided below.

Evaluation of Timeline Performance

One of the goals in the agreement that can be measured is timelines. The two time requirements are a five-working day response from when either an initial request is received or additional data is received; and a 60-calendar day response from when all data has been received to providing a recommendation to FEMA. The District generally met the five-day response requirement. A few isolated instances continued to occur, generally as a result of staffing problems associated with vacations or three day weekends

As noted above 35 cases were completed, and were judged against the 60-day goal for making a final recommendation to FEMA after receipt of all data. In 34 cases the goal was met. One extremely difficult and lengthy case (06-08-B289P, Fourmile/Wonderland) took 97 days. The shortest review periods from receipt of all data were two, six, eight and nine days. The longest were 58 days and 57 days (twice). The average time was 42 calendar days. This compares to an average of 22 calendar days in the first year, 29 in the second year, 39 in the third year and 36 in the fourth year.

The NSP and FEMA took an average of 36 days to complete their portion of the process and mail the final executed letter and any attachments. The NSP continued a reduced level of review of our work product. The accompanying Table 1 - Timeline Performance, provides the times of performance for each case. The average time from receipt of all data to a signed LOMC was 78 days, still well below the 90-day target.

A memorandum prepared by ICON, contained in the appendix, outlines some of the problems encountered with regard to the timelines.

Evaluation of Financial Performance

The other quantifiable item is the financial performance. Table 2 - Financial Summary, presents an overview of the financial performance for this grant. This financial evaluation includes the 31 cases started during the grant period, and the nine transferred cases from the previous grant. For the 31 cases started in the grant period, FEMA received fees totaling \$121,800. One case was fee exempt

ICON provided the technical review for all but three cases, which were reviewed by District staff. For the cases ICON reviewed, the District initially authorized ICON an expenditure equal to the fee charged by FEMA for that type of request. For the other three Icon assisted the District with draft letters and attachments at cost. Of the 35 cases completed during the grant period 22 cases cost more to complete than the FEMA fee, totaling \$42,288.58; 12 cost less than the FEMA fee, totaling \$6363.52, and one cost the same as the fee. For the 40 cases, Icon was paid \$164,800. These figures include the amounts authorized and expended during the grant period for the cases which were transferred to this grant and from this grant. Table 3 Financial Analysis presents a summary of each case. In addition, ICON was paid \$15,200 for non-case specific projects, primarily a DFIRM maintenance pilot.

This was the first year that the costs of completing the work exceeded the fees collected by FEMA. The ICON memorandum discusses some of the more challenging financial aspects of some of the cases.

Benefits of Local Reviews

In addition to the quantifiable measures discussed above, over the first four years District and ICON staff identified 12 non-quantifiable benefits of doing the reviews locally. A listing of those benefits, with definitions, is repeated below.

Meeting(s) with applicant before request submitted. Meet with the applicant and the local jurisdiction to resolve questions prior to submittal of the request.

Meeting(s) with applicant during review of request. Meet with the applicant and the local jurisdiction to resolve issues identified during the review of a request.

Local knowledge. Includes reviews of the project during the local approval process, such as zoning and platting; knowledge of adjoining properties and their potential effect on the request; and District capital or maintenance projects.

District studies. Includes completed or in-progress master plans (MP) and flood hazard area delineation studies (FHAD). In several cases the FIRMs have Zone A areas, which have been taken from FHADs based on future hydrology. We are able to provide the hydraulic models and the hydrology to assist the applicant in preparing an application.

District Maintenance Eligibility Program (MEP). Participation in the District's maintenance eligibility program means the District has approved the construction drawings for conformance to our criteria, and assures the local jurisdiction that the finished facilities can receive District maintenance assistance. The District visits every site to confirm construction. The District has an informal network of local government inspectors as well.

Time extensions. Warnings given to applicants when their time to respond to requests for additional data is near expiration.

Site visits. Visit the site as necessary to evaluate special situations, or to confirm construction conformance to approved plans.

Local exchange of data. On occasion a request will be lacking an item, such as a disc with hydraulic models or a signed Form 1. A phone call can elicit an immediate response and the review can continue uninterrupted. This often avoids an official letter, and occurs without stopping the "review clock."

LOMRs based on CLOMRs. One additional benefit that became increasingly valuable during the second year was that of reviewing requests for LOMRs that were based on CLOMRs we had prepared. The advantages were that we had the institutional knowledge and continuity between the CLOMR and the LOMR requests; and we had the entire case file on site, which facilitated a quicker start on the review than when we had to request the file from the NSP.

Effective models. A related development has been a number of requests received from potential LOMC applicants for effective hydraulic models from LOMRs completed by us. After consultation with Kevin Long, FEMA Washington, we agreed that the District could provide the models and charge a reasonable cost for them; and, alternatively, the model(s) could be requested from the NSP according to current practice.

Coordination between active LOMCs and communities. During the third year we had three active LOMRs adjacent to each other on City Park Channel in Westminster and Broomfield. Each request was a stand alone submittal. We were able to coordinate the three developers and two local governments so that the three LOMRs fit together.

DFIRM maintenance. There are cost and time savings to be had in doing LOMR reviews and DFIRM maintenance at the same time. The DFIRM files are completed and ready for the next update, and the LOMR annotated map comes from the DFIRM.

DFIRM Maintenance Pilot, Phase 2

The Task Agreement for this grant was amended part way through the year to allow for a DFIRM maintenance pilot project. We had previously completed a maintenance pilot in the year three grant that looked primarily at the digital maintenance aspects. This time we looked at the possibility of performing maintenance in such a way that paper products would still be readily available for those who prefer them to the digital products.

The definition of maintenance is important since it means different levels of effort to different people. In our case it means updating the DFIRM to include new or revised information which has been developed and paid for by other interests, which means the cost to FEMA to do periodic routine maintenance will be low. Examples of information we are talking about include Letters of Map Revision, new studies by credible entities, such as our Flood Hazard Area Delineation studies or a Corps of Engineers' study, and transportation layers and corporate limit changes prepared by local governments.

The final report on this pilot by ICON accompanies this report.

Other Fifth Year Experiences

General observations

FEMA's policy on time extensions for LOMC requests was changed last year, following Hurricane Katrina, and that policy continued this year. Time extensions were not granted due to issues associated with the hurricane season. This policy continued to plague some applicants who made additional data submittals on the 90th day only because we had ICON reminding them to do so. Even then, we had one case that was dropped.

LOMC's were coordinated with on-going DFIRM conversion projects for Adams County, Arapahoe County Boulder County and Jefferson County. We had to make sure that the LOMRs would fit into the effective FIRM information, but will also easily transfer to the DFIRMs when they become effective. That meant that we had to prepare every exhibit in both NGVD 29 and NAVD 88 datum's, and the flood outlines had to match both effective and DFIRM outlines. Once the conversions are all complete this work load will go down.

When we started using the work flow management software on the MIP we encountered numerous problems, from cases that could not be found on the correct work bench to fee collections that could not be substantiated. These problems added to the time and cost of completing some of the cases, although the situation has been improving over time.

Project Specific Issues:

For project specific issues, please see the ICON memorandum in the appendix.

Observations and Recommendations

We have repeated below the recommendations and observations taken from the first, second, third and year fourth reports, followed by additional observations and recommendations from the fifth year.

First Year

A number of factors were identified that should be considered by FEMA prior to any final decision. These are in addition to the timeline, budget and local review benefits discussed earlier. In no particular order they are presented below.

Training. The individual at Icon who was their lead engineer had previous experience working for the MCC, and was ready to hit the ground running on day one. That will probably not be the case very often, and FEMA will probably have to establish a training program for CTPs.

Some level of funding commitment. The District elected to not charge any District staff time or incidental expenses to the project, which turns out to be a significant financial contribution. It may be reasonable for FEMA to require a certain level of financial commitment (at least in-kind) in order to become a reviewer CTP.

Fee collection. At some point FEMA will have to either allow fee collection by the CTPs or get involved in a new area of funding disbursement (such as advances to, or monthly invoices from, CTPs). FEMA's grant process is tailored to a different type of project, and is not conducive to an on-going process like this one.

NSP costs. There will probably continue to be some costs incurred by the NSP for administrative tasks. How those are funded will have to be addressed.

Staffing. Should CTPs be allowed to use their own staff, or should there still be a private sector component?

Software incompatibility. Icon identified software compatibility problems during this pilot, which will probably show up elsewhere as well. These will have to be resolved.

Second Year Observations and Comments

A conflict of interest resolution process. FEMA should have a conflict of interest procedure in place if the CTP review of LOMC requests is pursued.

Fee overrun protection. If CTPs are funding LOMC reviews based on fees alone there should be some protection from severe cost overruns resulting from either complex projects or poor quality technical work.

Time spent by the NSP. After a probation period wherein the CTP demonstrates the necessary competence, FEMA should move to a random audit process for determining continued competence.

Third Year Observations and Comments

CLOMRs for Zone A's. FEMA could require CLOMRs in these situations as a way of identifying and avoiding potential problems.

Local NSP presence. The opening of a local office of the NSP holds promise for enhanced coordination and customer service.

Fourth Year Observations and Comments

Local NSP presence. As we speculated above, the opening of the local Baker office has been very helpful to us, not only for this project but also for Digital Flood Insurance Rate Map (DFIRM) conversion projects, and MIP training.

DFIRM Maintenance. As we increasingly use the DFIRM data bases to prepare the LOMR attachments, it becomes more and more apparent that adding DFIRM maintenance to our scope of work would be a cost efficient and timely addition.

Fifth Year Observations and comments

DFIRM Maintenance. The DFIRM maintenance pilot reaffirmed to us that DFIRM maintenance at the local level is not only possible but desirable.

Additional requirements add time and cost to each case. In addition to populating the MIP work flow program, the NSP has begun requiring that we provide a case tracking document, monitoring checklist and transmittal checklist with each case. The sum total of all of these additional requirements make it increasingly unlikely that we will be able to review cases for less than the fee FEMA is charging.

Conclusions

The District would certainly like to continue to review requests for LOMCs following the conclusion of the pilot project. We also hope that FEMA will be convinced by the experience of this pilot project to offer the same opportunity to other qualified local and state CTPs. We know that two additional CTP's were added in 2006. We encourage FEMA to allow other CTPs to review requests for LOMCs within their jurisdictions, and to begin the process of amending existing regulations to allow that to happen.

Our experience in working with DFIRM data bases further confirms to us the value doing LOMC review and DFIRM maintenance under one roof because it streamlines the process and enhances the quality of both. For the DFIRMs we have we are able to modify the DFIRM flood data first and then create the LOMR attachments from the modified DFIRM. The District would like very much to pursue that opportunity.

Acknowledgements

The author would like to thank Dan Carlson, FEMA Region 8; and Jennifer Winters and Paul Anderson, Michael Baker Jr., for keeping things running smoothly on their end.

Thanks to Craig Jacobson, Troy Carmann, Doug Williams and Penn Gildersleeve, Icon Engineering Inc., for a thoroughly professional job of reviewing these cases

Finally, thanks to Dave Lloyd, District Executive Director, for his strong support of this effort; and to David Mallory, who has assisted me throughout this effort.

Table 1 - Timeline Performance

Case No.	Identifier	December 31, 2006 All Data Received (Date)	Draft 102 or 104 Letter to FEMA (Date)	Elapsed time from receipt of all data (Days)	Letter signed by FEMA (Date)	Elapsed time from receipt of draft letter to signed letter (Days)	Elapsed time from receipt of all data to signed letter (Days)	Comments	
X	06-08-A640R	South Lakewood Gulch	12/14/2005	1/24/2006	41	2/13/2006	20	61	
X	06-08-A676P	Canyon View Filing No. 3	1/18/2006	2/1/2006	14	3/31/2006	58	72	
X	06-08-B010P	Rio Grande Ave. Bridge	1/18/2006	3/16/2006	57	4/10/2006	25	82	
X	06-08-B014P	Reata North Filing #1	11/30/2005	1/19/2006	50	3/8/2006	48	98	
X	06-08-B025R	ECCV W&S Detention	1/13/2006	3/8/2006	54	3/27/2006	19	73	
X	06-08-B030R	Cherry Creek/Cottonwood	1/4/2006	2/22/2006	49	3/21/2006	27	76	
X	06-08-B034P	Holly Street Extension	2/21/2006	4/7/2006	45	5/11/2006	34	79	
X	06-08-B040P	Second Creek Farm	3/15/2006	3/23/2006	8	4/26/2006	34	42	
X	06-08-B041R	Parkview	4/18/2006	5/22/2006	34	6/7/2006	16	50	
X	06-08-B047P	Larkridge	3/27/2006	5/22/2006	56	6/13/2006	22	78	
X	06-08-B048P	Prologis Park 70	1/6/2006	3/1/2006	54	3/31/2006	30	84	
X	06-08-B049R	Sorrel Ranch	12/21/2005	2/6/2006	47	2/28/2006	22	69	
X	06-08-B050P	9 Random Road	1/6/2006	2/1/2006	26	3/7/2006	34	60	
X	06-08-B058R	Orchard Town Center	2/14/2006	3/20/2006	34	4/17/2006	28	62	
X	06-08-B141R	Whispering Pines	6/28/2006	6/30/2006	2	7/14/2006	14	16	
X	06-08-B144P	McKay Lake/Huntington	7/12/2006	7/18/2006	6	9/26/2006	70	76	
X	06-08-B187R	Lambertson	3/3/2006	4/17/2006	45	5/30/2006	43	88	
X	06-08-B248R	Westerly Creek @ Lowry	6/7/2006	7/31/2006	54	8/25/2006	25	79	
X	06-08-B249R	Centennial Square	5/17/2006	6/13/2006	27	6/28/2006	15	42	
X	06-08-B289P	Fourmile/Wonderland	5/18/2006	8/23/2006	97	11/30/2006	99	196	
X	06-08-B291P	Hess Road at Oak Gulch	5/1/2006	6/16/2006	46	7/12/2006	26	72	
X	06-08-B309R	Parkview at Golden North	5/1/2006	5/22/2006	21	6/16/2006	25	46	
X	06-08-B318P	800 Kendall	7/3/2006	8/24/2006	52	10/23/2006	60	112	
X	06-08-B338P	Burt's Parker Auto Plaza	5/4/2006	6/16/2006	43	7/26/2006	40	83	
X	06-08-B375P	16 Random Road	6/1/2006	7/27/2006	56	9/19/2006	54	110	Problem confirming fee paid
X	06-08-B387P	Coyote Ranch	8/24/2006	10/19/2006	56	12/18/2006	60	116	
T	06-08-B392P	Big Dry Creek							Levee issues
X	06-08-B400P	Piney Creek	7/27/2006	9/22/2006	57	12/8/2006	77	134	
X	06-08-B403P	Mapleleaf Filing No. 1	6/29/2006	8/21/2006	53	9/22/2006	32	85	
T	06-08-B414R	Cornerstar							Controversial
X	06-08-B417P	Arista	6/20/2006	6/29/2006	9	9/11/2006	74	83	
X	06-08-B422P	7910 Meadow Drive	6/16/2006	8/7/2006	52	8/29/2006	22	74	
X	06-08-B443P	Lincoln Ave.	6/19/2006	8/16/2006	58	9/22/2006	37	95	
X	06-08-B487R	144th Ave. Widening	10/24/2006	11/27/2006	34	12/21/2006	24	58	
D	06-08-B488P	Dancing Willows							Suspended
X	06-08-B491R	Wadley North Creek	10/11/2006	11/3/2006	23	11/15/2006	12	35	
X	06-08-B494R	Miller Dam and Reservoir	8/14/2006	10/5/2006	52	10/31/2006	26	78	Problem with fee return letter
T	06-08-B537P	Quail Creek							
X	06-08-B538R	River Point	8/30/2006	10/17/2006	48	10/31/2006	14	62	
T	06-08-B552P	Lena Gulch							
				Average Time	41.7	36.2	77.9		

X = Completed
T = Transferred to next grant
D = Dropped

Table 2 – Financial Summary

Grant:	Total Grant	\$180,000.00
	Total Received	180,000.00
	Remainder	0

		Case Specific	Non-specific	Totals
Encumbrances:	Total Encumbered	\$133,342.50	\$15,800.00	\$149,142.50
	Overs	(42,288.58)		(42,288.58)
	Unders	6363.52	600.00	6963.52
	Revised Encumbered	169,267.56	15,200	184,467.56
	Remaining	\$10,732.44		(4467,56)

Notes:

1. The \$15,800 in non-specific costs was for the DFIRM maintenance pilot and miscellaneous activities..
2. These figures are for all cases worked on during the grant period. They will differ from figures which account for only cases started and finished within the grant period.
3. Expenses in excess of \$180,000 have been transferred to the year six grant.

Table 3 - Financial Analysis

Updated: December 31, 2006

Case No.	Descriptor	FEMA Fee	Fee		ICON		ICON Invoices		Unders
			Received	Authorized	Total	Overs			
X 06-08-A640R	South Lakewood Gulch		\$ 30.00	\$ -	\$ -	\$ -	\$ -	\$ 30.00	
X 06-08-A676P	Canyon View Filing No. 3		\$ 1,967.50	\$ 5,264.00	\$ (3,296.50)				
X 06-08-B010P	Rio Grande Ave. Bridge		\$ 2,870.00	\$ 2,983.50	\$ (113.50)				
X 06-08-B014P	Reata North Filing #1		\$ 575.00	\$ 635.75	\$ (60.75)				
X 06-08-B025R	ECCV W&S Detention		\$ 2,612.50	\$ 2,701.50	\$ (89.00)				
X 06-08-B030R	Cherry Creek/Cottonwood		\$ 2,972.50	\$ 2,841.50			\$ 131.00		
X 06-08-B034P	Holly Street Extension		\$ 3,455.00	\$ 3,681.50	\$ (226.50)				
X 06-08-B040P	Second Creek Farm		\$ 1,330.00	\$ 1,406.00	\$ (76.00)				
X 06-08-B041R	Parkview		\$ 3,400.00	\$ 3,086.00			\$ 314.00		
			\$ 19,212.50	\$ 22,599.75	\$ (3,862.25)		\$ 475.00		
Non-specific Costs*				\$ 15,800.00	\$ 15,200.00		\$ 600.00		
X 06-08-B047P	Larkridge	\$ 4,400.00	\$ 4,000.00	\$ 4,400.00	\$ 3,803.50		\$ 596.50		
X 06-08-B048P	Prologis Park 70	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,096.50	\$ (96.50)			
X 06-08-B049R	Sorrel Ranch	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00		\$ -		
X 06-08-B050P	9 Ransom Road	\$ -	\$ -	\$ 2,000.00	\$ 2,343.50	\$ (343.50)			
X 06-08-B058R	Orchard Town Center	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 3,181.50		\$ 818.50		
X 06-08-B141R	Whispering Pines	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,375.00	\$ (375.00)			
X 06-08-B144P	McKay Lake/Huntington	\$ 4,400.00	\$ 4,400.00	\$ 4,400.00	\$ 7,310.00	\$ (2,910.00)			
X 06-08-B187R	Lambertson	\$ 4,000.00	\$ 4,000.00	\$ 830.00	\$ 846.50	\$ (16.50)			
X 06-08-B248R	Westerly Creek @ Lowry	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 3,898.75		\$ 101.25		
X 06-08-B249R	Centennial Square	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 3,865.50		\$ 134.50		
X 06-08-B289P	Fourmile/Wonderland	\$ 4,400.00	\$ 4,400.00	\$ 4,400.00	\$ 33,391.19	\$ (28,991.19)			
X 06-08-B291P	Hess Road at Oak Gulch	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 3,613.50		\$ 386.50		
X 06-08-B309R	Parkview at Golden North	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 3,277.50		\$ 722.50		
X 06-08-B318P	800 Kendall	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,802.50	\$ (802.50)			
X 06-08-B338P	Burt's Parker Auto Plaza	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,343.00	\$ (343.00)			
X 06-08-B375P	16 Ransom Road	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,195.00	\$ (195.00)			
X 06-08-B387P	Coyote Ranch	\$ 4,400.00	\$ 4,400.00	\$ 4,400.00	\$ 5,751.13	\$ (1,351.13)			
T 06-08-B392P	Big Dry Creek	\$ 6,000.00	\$ 6,000.00	\$ 6,000.00	\$ 3,843.94				
X 06-08-B400P	Piney Creek	\$ 4,000.00	\$ 4,000.00	\$ -	\$ -				
X 06-08-B403P	Mapleleaf Filing No. 1	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,183.50	\$ (183.50)			
T 06-08-B414R	Cornerstar	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 5,728.91	\$ (1,728.91)			
X 06-08-B417P	Arista	\$ 4,400.00	\$ 4,000.00	\$ 4,400.00	\$ 4,287.50		\$ 112.50		
X 06-08-B422P	7910 Meadow Drive	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,106.50	\$ (106.50)			
X 06-08-B443P	Lincoln Ave.	\$ 4,400.00	\$ 4,400.00	\$ 1,900.00	\$ 2,287.50	\$ (387.50)			
X 06-08-B487R	144th Ave. Widening	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,153.60	\$ (153.60)			
D 06-08-B488P	Dancing Willows	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 1,947.50		\$ 2,052.50		
X 06-08-B491R	Wadley North Creek	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 4,442.00	\$ (442.00)			
X 06-08-B494R	Miller Dam and Reservoir	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ 4,036.23		\$ 963.77		
T 06-08-B537P	Quail Creek		\$ -	\$ -	\$ -				
X 06-08-B538R	River Point	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	\$ 3,997.50				
T 06-08-B552P	Lena Gulch	\$ 4,400.00	\$ 4,400.00	\$ 4,400.00	\$ 2,091.00				
TOTALS		\$ 121,800.00	\$ 121,000.00	\$ 149,142.50	\$ 180,000.00	\$ (42,288.58)	\$ 6,963.52		

* Convert DFIRM files for easier preparation of LOMR attachments \$ 1,200.00
 DFIRM maintenance pilot \$ 14,600.00

T Transferred to next grant.
 D Dropped due to non-responsive applicant

Memorandum

TO: Bill DeGroot
FROM: Craig Jacobson & Troy Carmann
DATE: December 1, 2006
RE: LOMC Report

1. Increased costs due to increased MIP entry requirements.

- a. This is the 1st year complete that we have been using MIP processing on all cases. The first step for the MIP is entering the initial case input. Early on this would take us between 1 ½ and 2 hours per case to complete. Now that we are more experienced with the procedures, the initial input takes between 30 minutes to 1 hour depending on the number of communities involved in the case. The MIP is updated periodically throughout the review process for fees, data letters, and acknowledgement letters.
- b. This year we have been using the MIP to assist in generating determination documents for LOMRs. Early on, getting the data input correct was cumbersome and more labor intensive than filling out the documents in word processing formats. However, currently, updates for MIP have corrected errors and items that were not user friendly, and the MIP is an improved tool for generating the documents.
- c. After each case is submitted to UDFCD, we are required to scan and upload the Determination Documents, 104 letters, 105b letters, and attachments.
- d. After the final Determination Documents and 104 letters are issued by FEMA, we use the MIP to upload models, correspondence letters (316 letters), final determination documents, and abstracts. It should be noted that this is a new process for us. We were not uploading files earlier in the year. (I assume this was being done by Baker) We have now established a process to scan the correspondence letters, document and organize the models, and develop abstracts immediately after a case is completed to ease the upload process after FEMA issues the final letters. However for many of our cases this year we had to go back and find and document all of this information after the fact. It was difficult to correctly develop abstracts and document the models months after reviewing them and without the full case files.
- e. We are also now required to monitor BFE publication affidavits and appeal periods and update the MIP, as required, to keep the cases moving forward in the workflow.
- f. All of the items mentioned above have contributed to our “management” costs for each case associated with the MIP. I could easily estimate that between 8 to 12 hours (\$800 to \$1,200) depending on the complexity of the case.

2. Increased costs due to Case File Requirements

- a. Prior to this year, the only new request for the case file documentation was to include a Monitoring Checklist. Currently, it has been requested to provide Monitoring Checklists, Transmittal Checklists, and Case Tracking Reports. It has also been requested that we develop abstracts describing the project for each case.
- b. Additionally, it has been requested that we duplicate copies of the forms, annotated FIRMS, and pertinent 65.12 information, regardless of whether or not this information is included in the documentation report submitted by the consultant.
- c. Baker has also been requiring letters from the applicant “certifying” that all notifications have been made for any increased BFEs, adverse shifting of the SFHA, and no impacts to insurable structures. This has been requested regardless of whether 65.12 applies or not and is not part of the CFR at this time. We are beginning to request this certification early on in our initial 316-AD letters, however, for many of the earlier cases this year, this did not become a request until later in the process. It did slow down the processing in the end and resulted in extra work on our end to coordinate the effort in obtaining the certifications.

3. Increased costs due to LOMR attachment preparation.

- a. One large contributing factor to these increased costs is the availability of the DFIRM datasets, particularly for the annotation of the map panels. When this data is not available it has to be recreated for the extent of the LOMR attachment. In the UDFCD, there are three counties (Arapahoe, Adams, and Boulder) where DFIRM information is preliminary and the effective information reflects older FIRMS. GIS datasets and annotation for the effective information is limited and requires a significant amount of effort to recreate. In a best case, this can include annotation of several square miles of county roads. In a worst case, this can include annotations of several city blocks of streets and neighborhoods. It can be expected that as new DFIRMS are published and available via Citrix, these costs will stabilize. We did find that in some isolated cases we were manually annotating areas that Baker had separate annotation files for. Once we received this data from them, the annotation process was faster.
- b. The learning curve for the local preparation of the exhibits contributed to the increased costs for the first two cases. Adapting to new software, cartographic rules-of-thumb, reviewer’s comments, and reviewer’s preferences resulted in several iterations of the exhibit preparation. Local preparation of the LOMR Annotated FIRM exhibits has been generated for 4 cases at this time.

4. Increased costs due to LOMR attachments in both vertical datums.

- a. Preliminary DFIRM exhibits were completed for 7 LOMR cases this year in addition to the effective Annotated FIRM exhibits. Without question, doing the attachments twice is an increased cost. And, since the NGVD29 DFIRM has a different base map than its NAVD88 counterpart, very little can just be copied between the two exhibits. i.e. it’s more than just changing the BFE. For our cases, different exhibits were produced for both the effective FIRM maps and preliminary DFIRMS to display the changes to the SFHA for both datums.
- b. For Case 06-08-B289P, Fourmile Canyon Creek and Wonderland Creek Restudy, not only were the Annotated FIRM exhibits completed for both the effective information and the Preliminary DFIRM, but Baker requested that all of the associated Profiles and FWDTs be

completed for both the effective information and preliminary DFIRM, as well. This case involved revisions to over 12 miles of detailed study streams, 24 Profile Panels, FWDTs, and 3 Annotated FIRM panels. Producing this information on both datums was a considerable undertaking and resulted in a significant cost.

5. Exorbitant costs for individual cases.

- a. In general, we have had some very large and technically challenging cases this year. Five cases come to mind with respect to the overall length of the revisions and the different components involved:
 - i. Case # 06-08-B289P, Fourmile Canyon Creek and Wonderland Creek Restudy: As discussed above this case covered over 12 miles of detailed study within in highly developed areas of the City of Boulder and Boulder County. 24 Profile Panels were revised, along with FWDTs, and 3 Annotated FIRM panels. As previously mentioned, it was requested that the revisions for this case be shown in both the effective FIS and FIRM, as well as on the preliminary DFIRM. Three large binders were submitted with technical information for both hydraulic and hydrologic changes. Several split flows, including split flow floodways were identified. The hydraulic profiles from HEC-RAS needed to be adjusted in many areas to better reflect the true ground conditions at culverts and other hydraulic features. Additionally, there was a significant coordination effort between ICON, UDFCD, and Baker to get this one done. ICON costs for processing this LOMR have exceeded \$32,000 to date.
 - ii. Case #06-08-B025R, ECCVWSD Detention Ponds: This case involved over 2.5 miles of drainageway over two streams.
 - iii. Case #06-08-B392P, Big Dry Creek: This case has not experienced budget over-runs at this time. But extensive processing effort is anticipated as it incorporates 6 different construction projects over a 1-mile channel length. The applicant has requested a floodwall be certified as a levee and we have been coordinating with Baker regarding the review for the levee certification.
 - iv. Case #06-08-B537P, Quail Creek: This revision is over 3 miles long and affects 4 different communities. Six annotated FIRM panels were modified with this study. Final annotated FIRM exhibits were completed by ICON. Costs to develop the final annotated FIRMs, determination documents, FWDTs, and profiles for this case exceeded \$9,000.
 - v. Case #06-08-B552P, C-470, Mountainside Channel, and West 10th Ave. to Orion Street: This case has not experienced budget over-runs at this time. But extensive processing is anticipated with this case, as it incorporates three projects over a 1.5-mile channel length. A significant split flow has also been identified in one area of the project. This project also involves multiple FIRM zones, including Zone AE, Zone AH, Zone X, Floodway, and BFEs.
- b. We would consider 10 cases this year to be technically challenging and/or the submittals have been poor and difficult to process. Most of these cases involved four to five revisions to the submitted data.
 - i. Case #06-08-B041R, Parkview at Golden Phase 2: This case involved a difficult split flow and sheet flow condition. The effective information did not represent the

existing conditions well and the consultant went through a considerable effort in modeling this condition.

- ii. Case #06-08-141R, Whispering Pines: This case involved both hydrologic and hydraulic revisions to Sampson Gulch through multiple communities. The consultant had some technical issues to resolve, as well as difficulty obtaining acknowledgement from one of the communities involved. This CLOMR was actually processed without formal community acknowledgement from one community. However, an email acknowledgement was provided and the community was aware of the processing.
- iii. Case #06-08-B144P, McKay Lake Huntington Trails: A different consultant submitted the LOMR for this case than the CLOMR. Three communities were impacted with this submittal and many technical issues were discovered in the initial review. The project involved coordination between all communities as well as between UDFCD and Baker regarding the proposed changes to a jurisdictional dam.
- iv. Case #06-08-B318P, 800 Kendall Filing No.2: This was a technically challenging case at the confluence of Lakewood Gulch and South Lakewood Gulch in the City of Lakewood. The effective data in this area was not representative of the actual floodplain conditions and tie-ins to the effective data were difficult. ICON needed to rectify and digitize UDFCD FHAD information to correct the effective boundaries and make the consultant's data workable. Public notifications were completed for the changes to the SFHA. However, at the request of FEMA/Baker, ICON coordinated individual notifications with the consultant prior to FEMA issuing the final LOMR letter.
- v. Case #06-08-B414R, Cornerstar: Cornerstar has undergone over 5 different submittals. It has been a difficult case that is currently not completed. The project involves the proposed construction of a development within the regulatory floodway for Cherry Creek. The effective information involves a split flow floodplain and floodway that will be impacted by the project. Additionally, an insurable structure is located just west of the project site and has the potential to be impacted by the development. It has been difficult for the consultant to show that the project is feasible without a rise on the insurable structure, therefore, not meeting 65.12. As a result they have undergone a significant effort in modifications to the hydraulic models. UDFCD has met with the consultant on several occasions. ICON and UDFCD have also had meetings to discuss the project.
- vi. Case #06-08B487R, 144th Widening & Case #06-08-B491R, Wadley North Creek Channelization: Both of these cases involved over five 316-ACK and 316-AD letters each. Wadley north was a complex analysis of a combination inlet and storm sewer system replacing an open drainageway. Several technical issues were identified for the 144th Avenue widening case. Additionally, the scale of the consultant's workmaps complicated the review of this case.

6. Lessons learned.

- a. We have begun completing partial detailed reviews as part of the initial review to avoid additional data requests down the road. We are finding that this is necessary since the budgets are becoming increasingly difficult to meet given the administrative and MIP requirement for each case, and eliminating AD-letters later on helps streamline the process and saves time spent on each case.
- b. We have been organizing the backup files (models and ACK letters) at the end of each case so that the upload process, after the FEMA letters are issued, is easier. It is very time consuming and difficult to develop abstracts and figure out documentation for each model after the fact.
- c. There was a steep learning curve for preparing annotated FIRM LOMC attachments. Information sharing between ICON and Baker was critical in bringing us up to speed. There was a little confusion in the proper files to use for various applications. We found that the information sharing between ICON and Baker was critical to get an identical product to what Baker and FEMA was used to.
- d. There are a lot of opinions as to how the final LOMR attachment should appear, and the exhibit goes through several review processes, including staff from ICON, UDFCD, Baker, and FEMA. This time needs to be accounted for in the processing in order to avoid 316-INT letters.
- e. The DFIRM database will require additional work upon incorporation of these LOMCs. The “red LOMR box” and the essential flood hazard features are updated with the revised elevation attributes and source citations referencing the source of the change. However, new roads, structures, tributaries, etc. are not being attributed. Likewise, the topology of the countywide spatial database is not being updated with every case. i.e. the relationship between lines and polygons changes with every LOMC and must be re-run on the entire database. This could be viewed as changing out one tire on a car and not rotating and balancing the remaining tires. In short, there is a larger maintenance requirement for the countywide database for every smaller change to the flood hazard mapping.
- f. Storage and versioning of a master DFIRM database is paramount to the success of ongoing LOMC and maintenance activities. Currently, ICON is housing the current master DFIRM (and effective FIRM for non-DFIRM counties) databases. It is imperative that ICON provide Baker with an updated database once a LOMR is completed. Likewise, if Baker processes a LOMR outside of the UDFCD, but within a UDFCD county, the LOMR data should be provided to ICON to include in the master databases. Coordination is needed between ICON and Baker for these activities.

7. Advantages of local LOMC reviews

- a. In addition to the previous advantages, I would add that it is becoming known that UDFCD and ICON are processing the LOMCs for FEMA. Consultants are frequently calling ICON and meeting with UDFCD, to discuss questions regarding the reviews and processing of their cases prior to submitting. This helps avoid common problems with the submittals.

8. Disadvantages of local LOMC reviews.

- a. It is becoming increasingly difficult to meet budgets based on the FEMA review fee amounts alone. Administrative costs have increased to accommodate the MIP and case

tracking after the final letters is issued by FEMA. Additionally, billing rates change more frequently than review fees and it is more difficult to train new staff since the engineers will need to be both “technically” trained and “MIP” trained.

9. Other thoughts.

- a. The Citrix DFIRM tools will be useful to answering the storage, versioning, and production questions. This will require all of the UDFCD DFIRMs to be loaded onto the system.
- b. It is foreseeable that Baker and ICON would be making changes to a countywide DFIRM database at the same time. This would happen when there is a LOMC within the District boundaries and a LOMC outside of the District boundaries. For instance, a LOMC in Thornton near I-25 and a LOMC along Commanche Creek in eastern Adams County. Does the ICON/UDFCD take on extra-jurisdictional maintenance and review responsibilities? Or, do we utilize the Citrix DFIRM Tools to ensure proper storage and versioning of a master database that shows both changes nearly simultaneously?