Iowa Conservation Reserve Enhancement Program (CREP)
2012 Annual Performance Report

Preface

The Iowa Conservation Reserve Enhancement Program (CREP) is a highly targeted, performance-based water quality program focusing on the reduction of nitrate loads to surface waters through the restoration of strategically designed and located wetlands that intercept tile drains from upper-lying cropped lands.

The following narrative and illustrated report details annual and cumulative performance accomplishments including a brief background, executive summary, accomplishments, and monitoring data. Table 1 and Table 2 summarize financial and active site data. Table 3 is a cumulative program summary.

Background:

Approved on August 17, 2001, the Iowa CREP is available in thirty-seven counties in the tile-drained region of North-Central Iowa. Wetland restoration is one of the most promising strategies for reducing nitrate transport to water resources from row-cropped lands, and research conducted at Iowa State University has demonstrated that strategically located and properly sized wetlands remove 40-90% of the nitrate in tile drainage from upper-lying croplands. The effect of wetlands on watershed scale nitrate reduction is largely determined by the watershed's total nitrate load that the wetlands intercept.

The Iowa CREP is available in thirty-seven counties in the tile-drained region of North-Central Iowa (Figure 1).

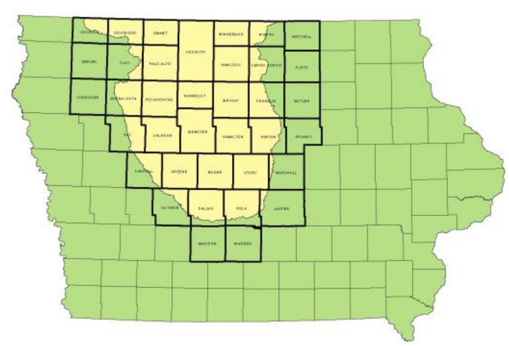

Figure 1. Counties eligible for the Iowa CREP

Practices eligible are wetland restoration (CP-23) and erosion control structures (CP-7), when needed as part of the wetland establishment.

Federal incentives include:

- 15 annual rental payments of 150% of the weighted average soil rental rate
- 50% cost-share for eligible costs of establishing conservation practices
- Practice Incentive Payment (PIP) of 40% of the total eligible cost of practice installation.

State incentives include:

- Market based incentive payment for a 30-year or permanent easement (one time payment)
- 10% cost-share for restoration costs
- Survey, engineering, design, permitting, oversight, public bidding, title services

2012 Executive Summary:

The current method of valuing State easement payments to producers continues to be an effective means of providing market rate compensation to landowners enrolling in CREP. Without the market rate approach CREP enrollment would be markedly lower. The current costs of the State easements continue to increase rapidly as have land values which the easement rates are indexed to. The nominal 4:1 federal to state ratio of costs for the Iowa CREP has yet to be achieved as the large increases in State costs have outpaced small increases in CRP payments due to the high land values currently being experienced across Iowa. Potential options to achieve a ratio closer to 4:1 by increasing the SRR multiplier for CRP payments have been proposed by IDALS; unfortunately FSA has advised that changes to the SRR multiplier cannot be made. However, FSA has initiated discussion on potential performance incentives based on nutrient removal in the wetlands to help offset high State costs. Discussions on this incentive are preliminary at this point and FSA has offered to provide more information as the concept develops.

No changes were made to FSA soil rental rates in 2012. The current soil rental rates were adopted March 5, 2011.

The current field support staff level is at six part time positions through an existing service contract with the Iowa Drainage District Association. These field personnel have proven instrumental in helping to carry out the processes involved with CREP.

CRP Payment Limitations:

In the fall of 2012, Iowa FSA advised IDALS that there were potential changes underway with how CRP payment limitations are being applied and that they may be moving away from a fiscal year basis to a calendar year basis. Since inception of the CREP program, payment limitations that apply to the PIP and annual CRP payments administered by FSA have been applied on a federal fiscal year basis. IDALS has actively managed CREP projects to avoid having the PIP payment fall in the same federal fiscal year as the first CRP annual payment to landowners enrolling in CREP. Since the PIP payment alone (which is 40% of construction costs) often meets or exceeds the $50,000 payment limitation, it is imperative that projects are managed to avoid the overlap of PIP and CRP payments in the same federal fiscal year in order to avoid landowners having their first CRP payment significantly reduced or entirely eliminated.

The potential change underway within FSA is to start applying payment limitations on a calendar year basis, which would cause IDALS to manage CREP projects very differently than they are today. This would eliminate the ability to have projects start construction in the fall since the PIP and CRP payments would always fall in the same calendar year. This would leave only the summer for construction and force IDALS to add new construction timeline penalties into our construction contracts to ensure the PIP payments are made in the same calendar year as when construction started and in advance of the following calendar year when the first CRP payment is made. These new contract stipulations would have the potential to increase construction costs (90% paid by FSA) due to contractors factoring in additional costs to cover the risk of not completing work on time, which is heavily weather dependent beyond the contractors' control.

IDALS has been seeking resolution on this topic from FSA since October of 2012. The most recent correspondence with Iowa FSA staff indicates they have not received any resolution on this topic from national FSA staff and that IDALS should communicate directly with the national

FSA staff to seek guidance. In the absence of information crucial to the landowner decision process regarding the benefits they receive, IDALS cannot continue to seek new landowner enrollments in CREP until this issue has been clearly resolved by FSA.

Beyond future CREP enrollments, a critical concern with this potential change is that in calendar year 2012, there were 12 CREP projects enrolled with CRP contract start dates of October 1, 2012 which are scheduled to receive their first CRP annual payments at the start of federal fiscal year 2014. All of these projects will have their PIP payments made in calendar year 2013, but in advance of federal fiscal year 2014 when their first CRP payments kick in. These CRP contracts were executed by FSA prior to any knowledge of potential changes in the way payment limitations under CRP would be applied, so IDALS is also asking for confirmation on these projects that the CRP annual payment limitations will be applied on a fiscal year basis as opposed to a calendar year basis.

IDALS requests that national FSA staff provide any guidance they can on this topic as soon as possible and we look forward to resolving this issue so that new CREP enrollments can continue to be sought out.

Program Cost Justification:

According to the 2012 Farmland Value Survey conducted by Iowa State University, the state average for all grades of land was estimated to be $8,296 per acre, an increase of 23.7% from 2011. Some counties in the CREP area experienced increases as high as 36.8%. For medium to high grade land typical in the Des Moines Lobe, the range was $8,466 to $12,890 per acre. Since inception of the CREP program in 2001, the statewide average land value has risen from $1,926/acre to $8,296/acre, representing an increase of 4.3 times the value in 2001. For the first time ever several counties average land values were over $10,000 per acre, which occurred in twenty four counties this year, some with averages above $12,000/acre. (Duffy et al., 2012).

Since inception of the new State incentive payments developed with the help of Iowa State University, interest in CREP has remained strong. To date, all of the State funds that have been appropriated for CREP are currently obligated and there is a waiting list of applicants for enrollment as soon as new State funds are available. There has also been a dramatic increase in the number of sites pursuing permanent easements.

Accomplishments:

2012 Wetland Restorations:

The Iowa CREP restored 12 wetlands during calendar year 2012. These wetlands have a combined total of 136 acres of wetland pool and 359 acres of buffer plantings and will protect 19,853 acres of watersheds by removing an estimated 14,546 tons of nitrogen over their lifetimes.

Wetland Seeding and Enhanced Design Plans:

Over the past ten years we have seen varied success rates for wetland vegetation establishment by the passive means that has been utilized to date. Programmatic limitations that do not authorize wetland seeding as a restoration expense under the FSA CP-23 wetland restoration practice have been the driving factor for utilizing a passive approach, but since the success with that approach has been hit and miss IDALS started an effort during 2012 to actively seed all past and present wetlands that have yet to develop emergent wetland vegetation to the extent we would like to see in all CREP sites. This will help to enhance their water quality performance as well as their habitat value, and also help to address the misperceptions of some groups that the Iowa CREP is building "ponds", which is derived from some sites that have yet to establish emergent wetland vegetation throughout their shallow water areas and are mostly open water areas with submergent vegetation.

The State also moved forward with new design concepts that will help to provide temporary flood storage benefits while maintaining the high level of water quality performance already in place. IDALS has engaged in a collaborative process with the engineering consultants that design CREP sites and scientists at Iowa State University to further enhance the water quality performance of all CREP sites by identifying and incorporating design features that improve hydraulic efficiency, maximize wetland area, and increase the overall habitat value.

Iowa Nutrient Reduction Strategy:

On November 19, 2012 the draft Iowa Nutrient Reduction Strategy was released for public comments. The Iowa Nutrient Reduction Strategy is a science and technology-based framework to assess and reduce nutrients delivered to Iowa waters and the Gulf of Mexico. It is designed to direct efforts to reduce nutrients in surface water from both point and nonpoint sources in a scientifically supported, reasonable and cost effective manner. The Iowa strategy follows the recommended framework provided by EPA in 2011 and Iowa is only the second state to complete a statewide nutrient reduction strategy.

The Iowa strategy outlines a pragmatic approach for reducing nutrient loads discharged from the state's largest wastewater treatment plants, in combination with targeted practices designed to reduce loads from nonpoint sources such as farm fields. The resulting strategy is the first time such a comprehensive and integrated approach addressing both point and nonpoint sources of nutrients has been completed.

In this document, steps are outlined to prioritize watersheds and limited resources, improve the effectiveness of current state programs, and increase voluntary efforts to reduce nutrient loading from nonpoint sources.

To address nutrient transport from nonpoint sources the strategy uses a comprehensive, first of its kind scientific assessment by 23 scientists working over a 2 year period of conservation practices and associated costs to reduce loading of nutrients to Iowa surface waters.

The scientific assessment includes CREP wetlands as an important practice needed to achieve the nutrient reduction goals outlined in the strategy. Several combined practice scenarios are included as examples of what practices it would take to achieve 45% reductions in N and P exports on a statewide basis. The example scenarios for N include CREP wetlands on a scale ranging from 4,000-12,000 wetlands in conjunction with other practices, outlining the importance of this practice as well as the need to continue to explore implementation frameworks to support that level of adoption.

The draft strategy report and science assessment can be viewed at http://www.nutrientstrategy.iastate.edu/.

Program Evaluation

Tables 1 through 3 highlight site data, costs, and projected nitrate reductions. Cost per pound for N removed remains below the current cost per pound of fertilizer application to cropland, and considerably below reported cost/pound of N removal by municipal treatment plants. Data from the sites indicate Iowa CREP wetlands are a highly cost effective method for removing nitrate from tile-drained landscapes thus improving water quality in local streams, drinking water supplies, and the Gulf of Mexico.

References:

Duffy, Michael D., Smith, Darnell (December 2012). *2012 Iowa Farmland Value Survey*, Iowa State University Extension.

Presentations/Publications/Outreach:

- Iowa LICA Annual Convention (January 8-10, 2012) – Presented CREP information to group covering program details.

- CREP/Drainage Engineers Meeting (January 26, 2012) – Meeting held to cover design aspects of CREP sites and drainage topics.

- Conservation Partnership Day at Capitol (January 24, 2012) – Featured an Iowa CREP display.

- Iowa LICA Agency Meeting (February 28, 2012) – Presented CREP information to Iowa LICA Board.

- Iowa Water Conference (March 6-7, 2012) – Gave presentation on the science of nutrient removal in CREP wetlands.

- Floyd County Soil & Water Conservation District Award Banquet (March 20, 2012) – Gave presentation on CREP to Commissioners and landowners in Floyd Co.

- CREP Field Specialists Annual Meeting (March 28, 2012) – Meeting and training covering CREP materials for field specialists.

- Story Co. CREP Presentation & Tour (July 10, 2012) - Gave CREP presentation and tour organized for Iowa Learning Farms field day.

- Dickinson Co. CREP Presentation & Tour (July 12, 2012) - Gave CREP presentation and tour organized for Iowa Learning Farms field day.

- Madison Co. CREP Presentation & Tour (July 14, 2012) - Gave CREP presentation followed by a tour of CREP site in Badger Creek watershed.

- Emmet Co. CREP Presentation & Tour (July 24, 2012) - Gave CREP presentation and tour organized for Iowa Learning Farms field day.

- CREP Display (August 28-30, 2012) – Farm Progress Show.

- CREP Display (September 5-6, 2012) – CDI Annual Conference

- CREP Display (September 11-13, 2012) – Hypoxia Task Force Fall Meeting

- CREP Newsletter (December 12, 2012) – Newsletter to CREP stakeholders covering current status and updates of program.

Monitoring and Evaluation

A unique aspect of the Iowa CREP is that nitrate reduction is not simply assumed based on wetland acres enrolled, but is calculated based on the measured performance of CREP wetlands. As an integral part of the Iowa CREP, a representative subset of wetlands is monitored and mass balance analyses performed to document nitrate reduction. By design, the wetlands selected for monitoring span the 0.5% to 2.0% wetland/watershed area ratio range approved for Iowa CREP wetlands. The wetlands also span a 2 to 3 fold range in average nitrate concentration. The wetlands thus provide a broad spectrum of those factors most affecting wetland performance: hydraulic loading rate, residence time, nitrate concentration, and nitrate loading rate. In addition to documenting wetland performance, this will allow continued refinement of modeling and analytical tools used in site selection, design, and management of CREP wetlands.

Summary of 2012 Monitoring

Seven wetlands were monitored for the Iowa CREP during 2012 (Figure 1). These include AA, AL, DD65, JM, KS, LICA, and SS wetlands. Wetland monitoring included wetland inflow and outflow measurements, wetland pool elevation and water temperature measurements, and collection of weekly grab samples and automated daily samples. Automated samplers were programmed to collect daily composite water samples composed of four six-hour subsamples collected at wetland inflows and outflows. At the AA, AL, JM and KS sites, which had been monitored previously, daily sample collection was initiated between the last week of March and the first week of April. Daily sampling at the DD65, LICA and SS sites, which had not been historically monitored for daily samples, was initiated during May and early June. With the exception of DD65, grab samples were collected throughout the year during approximately weekly site visits at inflow and outflow locations. Grab samples collection at DD65 was initiated in late March, 2012. Inflow and outflow ceased during July at each wetland. All water samples were assayed for nitrate-N concentration.

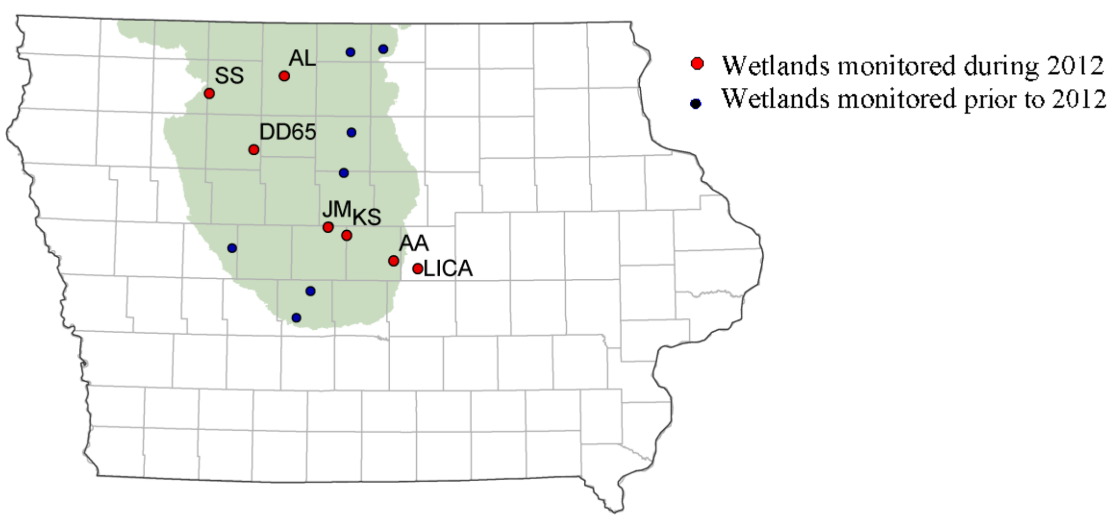

Figure 1. Wetlands monitored during 2012 and wetlands monitored during prior years and utilized for performance evaluation (see Figure 3).

Wetland inflow and/or outflow stations were instrumented with submerged area velocity (SAV) Doppler flow meters for continuous measurement of flow velocity. The SAV measurements were combined with cross-sectional channel profiles and stream depth to calculate discharge as the product of velocity and wetted cross-sectional area. Wetland water levels were monitored continuously using stage recorders in order to calculate pool volume, wetland area, and discharge at outflow structures. The pool discharge equations and SAV based discharge measurements were calibrated using manual velocity-area based discharge measurements collected during weekly site visits during prior monitoring years. Manual velocity-area discharge measurements were determined using the mid-section method whereby the stream depth is determined at 10 cm intervals across the stream and the water velocity is measured at the midpoint of each interval. Velocity was measured with a hand held Sontek Doppler water velocity probe using the 0.6 depth method where the velocity at 0.6 of the depth from the surface is taken as the mean velocity for the interval. The product of the interval velocity and area is summed over intervals to give the discharge.

Wetland bathymetry data were used to characterize wetland volume and area as functions of wetland depth. Because bathymetry data have not been obtained for the DD65, LICA, or SS wetlands, volume and area versus depth relationships generalized from those wetlands having bathymetry data were used for modeling purposes. These bathymetric relationships were used in numeric modeling of water budgets and nitrate mass balances to estimate nitrate loss, hydraulic loading, and residence times. Wetland water temperatures were recorded continuously for numerical modeling of nitrate loss.

Despite significant variation with respect to nitrate concentration and loading rates, the wetlands display similar seasonal patterns. Nitrate concentrations are generally low to moderate during the winter, but flow is generally low so that mass loading is typically low during the winter. The 2011-2012 winter was relatively dry and no winter flow was observed at the AL, JM, and SS wetlands while winter flow was very low at the other wetlands (Figure 2). The spring melt often results in increased flow during late February or March but nitrate concentrations in the melt water and associated surface runoff are typically low to moderate. During 2012, nitrate concentrations increase to their highest levels during increased flow periods in spring and early summer, and generally declined with declining flow in June to July. No flow into or out of any of the wetlands monitored was observed between mid-July and the end of October 2012 (the time of the writing of this report). A nitrate concentration decline is sometimes observed during very high summer flow events and is thought to be associated with surface runoff having low nitrate concentration. In contrast, the spring and summer of 2012 were generally dry, and an increase in concentration was occasionally observed in conjunction with an increase in flow – this is thought to be associated with a flushing of nitrate stored in the soil as water moves through the subsurface to the tile system. These nitrate concentration and flow patterns are consistent with those of CREP wetlands monitored in prior years and represent the likely patterns for future wetlands restored as part of the Iowa CREP.

Nitrate Loss from Wetlands

Mass balance analysis and modeling were used to calculate observed and predicted nitrate removal for each wetland. Inflow and outflow nitrate concentrations for the wetlands are illustrated in Figure 2. In addition, Figure 2 shows the range of outflow concentrations predicted for these wetlands by mass balance modeling using 2012 water budget, wetland water temperature, and nitrate concentration as model inputs.

The monitored wetlands generally performed as expected with respect to nitrate removal efficiency (percent removal) and mass nitrate removal (expressed as kg N ha^{-1} $year^{-1}$). Wetland performance is a function of hydraulic loading rate, hydraulic efficiency, nitrate concentration, temperature, and wetland condition. Of these, hydraulic loading rate and nitrate concentration are especially important for CREP wetlands. The range in hydraulic loading rates expected for CREP wetlands is significantly greater than would be expected based on just the four fold range in wetland/watershed area ratio approved for the Iowa CREP. In addition to spatial variation in precipitation (average precipitation declines from southeast to northwest across Iowa), there is tremendous annual variation in precipitation. The combined effect of these factors means that annual loading rates to CREP wetlands can be expected to vary by more than an order of magnitude, and will to a large extent determine nitrate loss rates for individual wetlands.

Mass balance modeling was used to estimate the variability in performance of CREP wetlands that would be expected due to spatial and temporal variability in temperature and precipitation patterns. The percent nitrate removal expected for CREP wetlands was estimated based on hindcast modeling over the 1980 through 2005 period (Figure 3). For comparison, percent nitrate removal measured for wetlands monitored during 2004 to 2012 illustrates reasonably good correspondence between observed and modeled performance. In Figure 3, the average hydraulic loading rate for observed wetlands was calculated to include only those days having inflow and hence, nitrate loading, to the wetland.

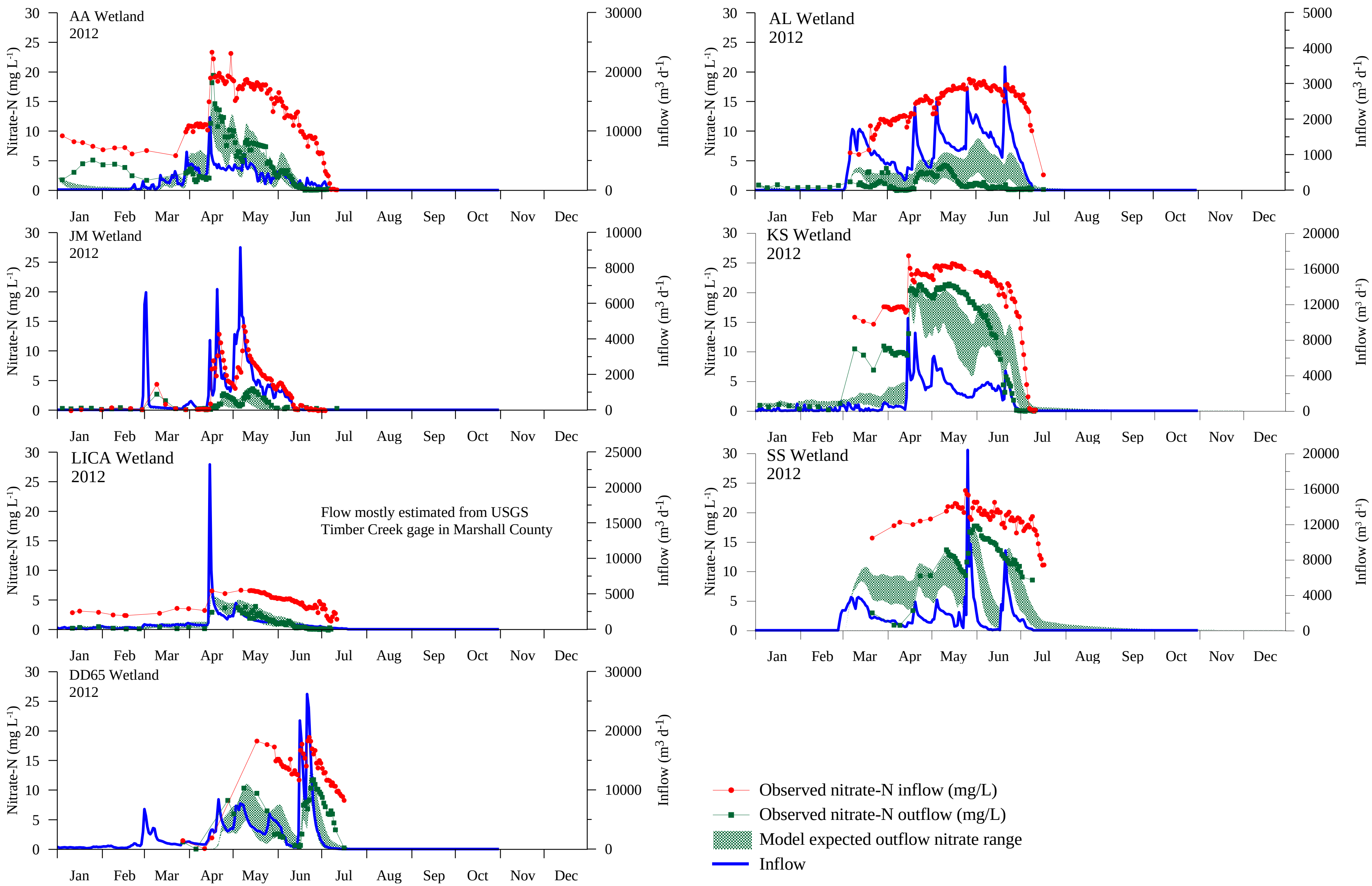

Figure 2. Measured and modeled nitrate concentrations and flows for wetlands monitored during 2012.

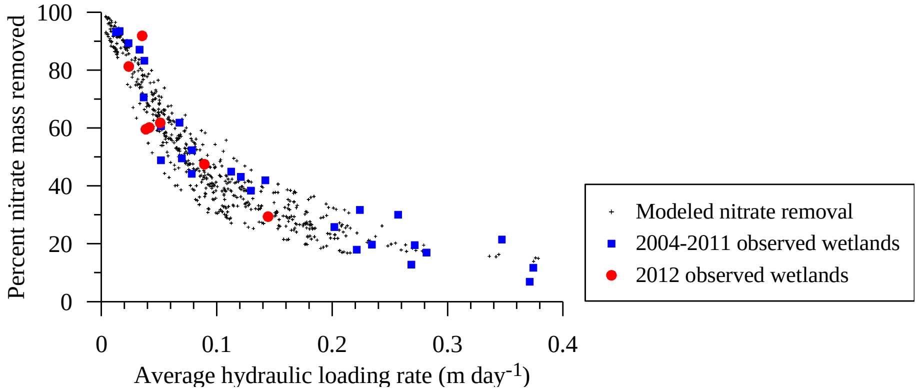

Figure 3. Modeled nitrate removal efficiencies for CREP wetlands based on 1980 to 2005 input conditions and measured nitrate removal efficiencies for CREP wetlands during 2004 to 2012.

Mass nitrate removal rates can vary considerably more than percent nitrate removal among wetlands receiving similar hydraulic loading rates. However, mass removal rates are predictable using models that integrate the effects of hydraulic loading rates, nitrate concentration, temperature, and wetland condition. Crumpton et al. (2006) developed and applied a model that explicitly incorporates hydraulic loading rate, nitrate concentration, and temperature to predict performance of US Corn Belt wetlands receiving nonpoint source nitrate loads. This analysis included comparisons for 38 "wetland years" of available data (12 wetlands with 1-9 years of data each) for sites in Ohio, Illinois, and Iowa, including four IA CREP wetlands (2 low load and 2 high load sites). The analysis demonstrated that the performance of wetlands representing a broad range of loading and loss rates can be reconciled by models explicitly incorporating hydraulic loading rates and nitrate concentrations (Crumpton et al. 2006, 2008). This model will be updated to include the 2004 to 2012 Iowa CREP wetlands and exclude wetlands smaller than the 2.5 acre minimum size required by Iowa CREP criteria.

References

Crumpton, W.G., G.A Stenback, B.A. Miller, and M.J. Helmers. 2006. Potential benefits of wetland filters for tile drainage systems: Impact on nitrate loads to Mississippi River subbasins. US Department of Agriculture, CSREES project completion report. Washington, D.C. USDA CSREES.

Crumpton, W.G., Kovacic, D., Hey, D., and Kostel, J., 2008. Potential of wetlands to reduce agricultural nutrient export to water resources in the Corn Belt. pp. 29-42 in Gulf Hypoxia and Local Water Quality Concerns Workshop, ASABE Pub #913C0308.

Table 1. Program accomplishments and financial contributions

2012 Federal Financial Contribution

County	Project ID	Practice	Contracts	Wetland Acres	Watershed Acres	CRP-1 Acres	CCC Average Rental Rate	CCC Per Contract Cost-Share	CCC Per Contract PIP
Clay	Cla963720D	CP-23	1	12.60	2337	57.60	$300.00	N/A [1]	N/A [1]
Story	Sto842303B	CP-23	2	7.54	1425	35.70	$298.68	N/A [1]	N/A [1]
Pocahontas	Poc923113B	CP-23	1	7.38	975	35.80	$292.08	N/A [1]	N/A [1]
Boone	Boo842518D	CP-23	2	13.37	1120	36.50	$284.68	N/A [1]	N/A [1]
Webster	Web883022B	CP-23	1	3.02	570	12.10	$313.05	N/A [1]	N/A [1]
Floyd	Flo971621B	CP-23	1	24.58	3895	55.40	$285.56	N/A [1]	N/A [1]
Clay	Cla943506C	CP-23	1	7.80	1228	31.50	$266.61	N/A [1]	N/A [1]
Pocahontas	Poc903105B	CP-23	2	10.70	1969	48.20	$296.99	N/A [1]	N/A [1]
Floyd	Flo971527D	CP-23	2	5.54	640	22.80	$287.89	N/A [1]	N/A [1]
Floyd	Flo971736C	CP-23	2	11.01	966	48.00	$283.46	N/A [1]	N/A [1]
Hancock	Han972326A	CP-23	1	6.40	758	35.40	$252.00	N/A [1]	N/A [1]
Palo Alto	Pal973236A	CP-23	1	25.69	3970	55.00	$289.68	N/A [1]	N/A [1]
Totals			**17**	**135.63**	**2641**	**474**	**$287.56**	**N/A [1]**	**N/A [1]**
							Average		

2012 State Financial Contribution

County	Project ID	Practice	Easements	Wetland Acres	Watershed Acres	Easement Acres	Number of Easement Payments	Total Easement Payment	Outsourced Technical Assistance [2]
Clay	Cla963720D	CP-23	1	12.60	2337	57.60	1	$457,286.98	$25,192.05
Story	Sto842303B	CP-23	2	7.54	1425	35.67	2	$270,565.11	$36,021.60
Pocahontas	Poc923113B	CP-23	1	7.38	975	35.81	1	$287,394.59	$50,252.43
Boone	Boo842518D	CP-23	3	13.37	1120	36.48	3	$282,284.52	$33,993.10
Webster	Web883022B	CP-23	1	3.02	570	12.06	1	$89,580.47	$28,081.69
Floyd	Flo971621B	CP-23	1	24.58	3895	76.89	1	$380,723.87	$46,120.39
Clay	Cla943506C	CP-23	1	7.80	1228	31.53	1	$261,820.08	$27,256.34
Pocahontas	Poc903105B	CP-23	2	10.70	1969	48.13	2	$383,682.25	$24,568.78
Floyd	Flo971527D	CP-23	2	5.54	640	22.78	2	$156,118.12	$27,422.85
Floyd	Flo971736C	CP-23	2	11.01	966	48.07	2	$331,751.33	$30,425.33
Hancock	Han972326A	CP-23	1	6.40	758	35.39	1	$178,732.95	$21,594.77
Palo Alto	Pal973236A	CP-23	1	25.69	3970	54.95	1	$442,444.76	$31,416.54
Multiple	Projects with engineering started - not finished								$58,936.00
Totals			**18**	**135.63**	**19853**	**495.36**	**18**	**$3,522,385**	**$441,282**

State Technical Assistance

Staff		FY 2012 % FTE	FY 2012 Cost	Cumulative Cost
	Administration	0.25	$28,029	$458,842
	Coordination	0.75	$62,047	$804,241
	GIS	0.25	$23,959	$451,842
	Engineering	0.50	$53,368	$400,109
	Support	0.00	$0	$114,823
	Field Specialists	3.00	$115,515	$603,207
	Totals	**4.75**	**$282,918**	**$2,833,064**
NRCS Engineering/Service Contract			$0	$223,425
Outsourced Technical Assistance [2]			$441,282	$2,746,310
Monitoring and Evaluation [3]			$306,661	$2,201,895
Total State Technical Assistance			**$1,030,861**	**$8,004,694**

[1] N/A - Figures not available at the time this report was prepared
[2] Includes engineering, survey, design, title search, public bidding announcement, recording fees
[3] Monitoring, evaluation and research support provided under contract with Iowa State University

Table 2 : Sites under survey/engineering design phase (not completed)

Project ID	IP-1 CREP	Wetland (ac)	Estimated Easement (ac)	Watershed (ac)
Mit981510B	10/26/2011	5.8	25.8	702
Emm983334D	5/21/2009	5.2	38.6	507
Sac863622D	4/23/2012	3.5	16.4	566
Har892036A	9/20/2012	4.0	15.0	519
Flo961527B	9/20/2012	11.1	38.5	520
Dal802627D	10/26/2011	29.2	99.7	2641
Gru871703B	11/5/2010	4.3	20.5	714
Totals		**63.1**	**254.5**	**6169**

Table 3: Cumulative Program Summary (Estimated Costs in Red)

Project ID	Wetland Area (acres)	Basin %	Easement Area (acres)	CRP-1 Contract Area (Acres)	Drainage Area (acres)	Soil Rental Rate ($/acre)	SCI Payment ($)	State Easement Payment ($/acre)	CRP Contract Payment ($/acre/yr)	CRP Yearly Payment ($/yr)	Total Design Cost	Total Easement Cost	Total Construction Cost	Total CRP Payments Over 15 Years	Total Project Cost	Cost/acre treated ($/acre)	Cost/acre treated lifetime ($/acre/150 yrs)	Cost/lb N removed lifetime ($/lb/150 yrs)	N Tons Removed Lifetime (150 yrs)
Dal812619C	15.00	0.76	57.60	57.50	1974	$164	None	$650	$225	$12,936	$4,502	$37,440	$88,363	$194,045	$324,350	$164	$1.10	$0.10	1609
Cal873427D	3.41	0.66	20.00	20.00	514	$154	None	$325	$222	$4,439	$5,163	$6,500	$37,785	$66,588	$116,036	$226	$1.51	$0.16	366
Kos962903D	6.00	1.11	26.89	26.89	539	$157	None	$325	$215	$5,772	$5,338	$8,739	$49,353	$86,587	$150,017	$278	$1.86	$0.12	644
Boo852602B	7.30	0.68	34.48	34.48	1081	$144	None	$650	$198	$6,817	$3,864	$22,412	$52,816	$102,261	$181,353	$168	$1.12	$0.12	783
Sto852430B	3.70	0.58	19.05	19.05	634	$164	None	$325	$238	$4,534	$3,561	$6,191	$45,692	$68,003	$123,447	$195	$1.30	$0.16	397
Mad752802B	7.00	1.23	32.09	32.09	569	$163	None	$325	$161	$5,151	$3,887	$10,429	$75,731	$77,261	$167,308	$294	$1.96	$0.11	751
Dal792828C	4.36	0.60	19.27	19.27	727	$146	None	$650	$193	$3,711	$25,388	$12,526	$71,356	$55,668	$164,937	$227	$1.51	$0.18	468
Dal812728C	8.00	0.56	42.66	42.66	1430	$166	None	$650	$230	$9,805	$25,236	$27,729	$69,973	$147,081	$270,019	$189	$1.26	$0.16	858
Emm983322C	9.10	0.69	50.10	50.10	1328	$125	None	$325	$157	$7,865	$39,183	$16,283	$77,456	$117,970	$250,892	$189	$1.26	$0.13	976
Win982409D	3.50	0.59	16.01	16.01	590	$152	None	$325	$215	$3,438	$24,479	$5,203	$84,155	$51,563	$165,400	$280	$1.87	$0.22	375
Boo822729D	9.23	0.60	61.60	61.60	1530	$164	None	$325	$224	$13,819	$22,131	$20,020	$128,743	$207,290	$378,184	$247	$1.65	$0.19	990
Ham892406C	15.13	0.52	55.95	55.95	2904	$158	None	$325	$214	$11,997	$26,911	$18,184	$125,993	$179,960	$351,049	$121	$0.81	$0.11	1623
Emm983229C	11.70	0.51	56.75	56.80	2300	$147	$6,645	$325	$209	$11,844	$54,034	$18,444	$233,855	$177,659	$490,637	$213	$1.42	$0.20	1255
Emm983327B	8.78	0.82	44.40	44.40	1070	$129	$5,531	$325	$192	$8,519	$30,790	$14,430	$136,126	$127,785	$314,663	$294	$1.96	$0.17	942
Dic983729C	18.25	0.67	66.21	66.21	2739	$148	$8,610	$650	$200	$13,246	$31,172	$43,037	$176,003	$198,690	$457,511	$167	$1.11	$0.12	1957
Cal873421C	8.30	0.61	37.27	37.27	1362	$152	None	$325	$217	$8,105	$56,157	$12,113	$138,864	$121,577	$328,710	$241	$1.61	$0.18	890
Boo852603D	13.90	1.41	66.05	66.05	989	$153	$9,509	$325	$221	$14,594	$17,861	$21,466	$46,805	$218,906	$314,548	$318	$2.12	$0.11	1491
Boo832824B	18.44	0.50	70.30	70.30	3653	$165	$10,902	$325	$238	$16,702	$22,174	$22,851	$191,767	$250,528	$498,221	$136	$0.91	$0.13	1978
Mit981528A	12.68	1.61	69.18	69.18	787	$140	$8,686	$325	$193	$13,375	$33,385	$22,484	$128,851	$200,619	$394,024	$501	$3.34	$0.14	1360
Cer971931C	3.75	0.51	18.40	18.40	736	$174	$2,722	$325	$227	$4,175	$25,801	$5,980	$140,084	$62,619	$237,206	$322	$2.15	$0.29	402
Wor1002115C	20.70	0.87	90.00	90.00	2386	$139	None	$650	$212	$19,093	$28,623	$60,078	$139,945	$286,395	$515,042	$216	$1.44	$0.12	2220
Poc933406C	12.58	0.52	61.39	61.39	2431	$152	$2,350	$325	$230	$14,098	$26,915	$19,952	$165,650	$211,473	$426,339	$175	$1.17	$0.16	1349
Gre853026B	3.40	0.55	22.10	22.10	617	$158	$404	$325	$220	$4,852	$22,534	$7,183	$80,184	$72,778	$183,082	$297	$1.98	$0.25	365
Sto832121A	10.45	0.96	45.40	45.40	1085	$163	$7,395	$325	$249	$11,289	$44,194	$14,736	$139,800	$169,331	$375,456	$346	$2.31	$0.17	1121
Boo852603C	4.34	0.52	34.40	34.40	842	$138	$4,573	$650	$204	$7,005	$21,993	$22,334	$78,258	$105,073	$232,230	$276	$1.84	$0.25	465
Flo961502D	5.66	1.03	33.40	33.40	548	$143	$4,309	$650	$197	$6,592	$25,757	$21,723	$68,772	$98,887	$219,448	$400	$2.67	$0.18	607
Cer962220C	14.80	2.09	34.80	34.80	708	$149	$5,295	$325	$232	$8,086	$33,200	$11,304	$122,492	$121,297	$293,588	$415	$2.76	$0.09	1587
Kos962802C	6.51	0.79	32.26	32.30	828	$143	$4,618	$2,742	$219	$7,064	$30,002	$88,443	$107,648	$105,965	$336,675	$407	$2.71	$0.24	698
Kos953011B	6.49	0.62	22.29	22.30	1043	$159	$3,543	$2,792	$230	$5,126	$28,221	$62,238	$179,235	$76,888	$350,124	$336	$2.24	$0.25	696
Gru871718B	5.60	0.68	30.36	30.50	821	$174	$5,781	$1,221	$264	$8,042	$35,176	$37,060	$102,033	$120,624	$300,674	$366	$2.44	$0.25	601
Flo961502B	6.78	1.05	29.82	29.80	649	$146	$4,592	$2,906	$221	$6,586	$28,652	$86,643	$91,691	$98,787	$310,365	$479	$3.19	$0.21	727
Flo941526D	5.58	0.83	25.84	25.80	672	$144	$3,927	$2,935	$218	$5,631	$30,752	$75,839	$124,808	$84,470	$319,797	$476	$3.17	$0.27	598
Gut813028D	4.60	0.83	22.18	22.20	551	$194	$4,296	$2,892	$266	$5,903	$41,556	$64,138	$202,664	$88,545	$401,199	$728	$4.85	$0.41	493
Wor1002215C	6.05	0.85	30.25	30.30	709	$142	$543	$2,979	$215	$6,521	$27,609	$90,118	$126,799	$97,815	$342,885	$484	$3.22	$0.26	649
Wri922423A	3.35	0.60	15.00	15.00	559	$160	$302	$2,714	$242	$3,627	$31,456	$40,709	$131,299	$54,405	$258,172	$462	$3.08	$0.36	359
Mar821905C	4.27	0.50	19.92	19.90	847	$166	$4,954	$963	$251	$4,989	$44,606	$19,161	$128,237	$74,835	$271,793	$321	$2.14	$0.30	458
Flo971521B	14.63	0.54	67.25	67.20	2692	$152	$15,322	$2,323	$230	$15,445	$30,620	$156,204	$134,774	$231,669	$568,589	$211	$1.41	$0.18	1569
Cla973604DB	5.37	0.55	30.33	30.30	982	$171	$7,791	$2,638	$259	$7,844	$32,897	$80,011	$174,233	$117,660	$412,592	$420	$2.80	$0.36	576
Gre833136B	8.00	0.51	52.51	52.51	1559	$171	$13,464	$3,243	$258	$13,569	$24,286	$170,285	$163,957	$203,537	$575,528	$369	$2.46	$0.34	858
Dic983735CD	3.03	0.50	17.61	17.60	605	$127	$3,345	$1,635	$192	$3,378	$25,052	$28,792	$122,324	$50,675	$230,187	$380	$2.54	$0.35	325
Web893018B	4.00	0.58	27.47	27.50	690	$181	$7,473	$1,215	$274	$7,537	$24,385	$33,368	$87,131	$113,055	$265,412	$385	$2.56	$0.31	429
Kos952829C	3.28	0.51	28.38	28.40	648	$149	$6,363	$2,460	$226	$6,424	$53,267	$69,808	$213,344	$96,360	$439,142	$678	$4.52	$0.62	352
BV933512D	6.35	1.27	28.32	28.30	500	$171	$7,273	$3,642	$259	$7,325	$43,354	$103,145	$134,859	$109,875	$398,507	$797	$5.31	$0.29	681
Pal973205A	5.57	1.02	24.44	24.40	548	$190	$7,536	$3,280	$285	$6,946	$22,885	$80,153	$171,149	$104,190	$385,913	$704	$4.69	$0.32	597
Pal953418D	5.45	1.08	26.20	26.20	505	$182	$7,165	$3,386	$275	$7,218	$24,469	$88,714	$130,559	$108,270	$359,178	$711	$4.74	$0.31	585
Dal812703C	2.74	0.52	15.56	15.50	528	$155	None	$3,864	$232	$3,603	$41,481	$60,125	$107,202	$54,045	$262,853	$498	$3.32	$0.45	294
Poc913121A	15.71	0.64	76.16	76.20	2472	$162	None	$3,728	$243	$18,491	$43,167	$283,891	$174,717	$277,360	$779,135	$315	$2.10	$0.23	1685
BV923734D	17.75	0.54	83.52	83.50	3314	$180	$22,559	$985	$270	$22,553	$38,588	$82,307	$197,144	$338,300	$678,899	$205	$1.37	$0.18	1904
Car853415B	3.50	0.50	18.83	18.80	707	$193	$5,456	$2,386	$290	$5,448	$38,727	$44,925	$248,638	$81,720	$419,466	$593	$3.96	$0.56	375
Sac873729B	9.40	0.70	47.64	47.60	1340	$218	None	$1,975	$327	$15,581	$32,285	$94,109	$128,671	$233,715	$488,781	$365	$2.43	$0.24	1008
Mad772718B	5.20	0.70	17.44	17.40	745	$211	None	$0	$317	$5,511	$42,025	$1	$154,790	$82,665	$279,481	$375	$2.50	$0.25	558
Fra931907C	13.49	0.70	79.53	79.50	1941	$180	$21,445	$2,778	$270	$21,436	$41,081	$220,912	$251,038	$321,539	$856,015	$441	$2.94	$0.30	1447
Cer972025CD	8.81	0.51	47.44	47.40	1734	$185	$13,171	$1,084	$278	$13,160	$45,271	$51,410	$200,035	$197,404	$507,291	$293	$1.95	$0.27	945
Dal802632C	6.00	0.50	25.73	25.70	1205	$183	$7,067	$4,587	$275	$7,059	$39,967	$118,022	$167,262	$105,885	$438,203	$364	$2.42	$0.34	644
Cla963720D	12.60	0.54	57.60	57.60	2337	$200	$17,280	$7,939	$300	$17,280	$45,000	$457,287	$153,152	$259,200	$931,919	$399	$2.66	$0.34	1351
Sto842303B	7.54	0.53	35.67	35.70	1425	$199	$10,653	$7,585	$299	$10,663	$45,000	$270,565	$218,500	$159,945	$704,663	$495	$3.30	$0.44	809
Poc923113B	7.38	0.76	35.81	35.80	975	$195	$10,459	$8,026	$292	$10,456	$45,000	$287,395	$144,735	$156,840	$644,429	$661	$4.41	$0.41	792
Boo842518D	13.37	1.19	36.48	36.50	1120	$190	$10,385	$7,738	$285	$10,391	$45,000	$282,285	$205,000	$155,865	$698,534	$624	$4.16	$0.24	1434
Web883022B	3.02	0.53	12.06	12.10	570	$209	$3,775	$7,428	$313	$3,788	$45,000	$89,580	$104,725	$56,820	$299,901	$526	$3.51	$0.46	324
Flo971621B	24.58	0.63	76.89	55.40	3895	$190	$15,806	$4,952	$286	$15,820	$45,000	$380,724	$204,530	$237,300	$883,360	$227	$1.51	$0.17	2636
Cla943506C	7.80	0.64	31.53	31.50	1228	$178	$8,406	$8,304	$267	$8,398	$45,000	$261,820	$241,152	$125,970	$682,349	$556	$3.70	$0.41	837
Poc903105B	10.70	0.54	48.13	48.20	1969	$198	$14,295	$7,972	$297	$14,315	$45,000	$383,682	$241,472	$214,725	$899,174	$457	$3.04	$0.39	1148
Flo971527D	5.54	0.87	22.78	22.80	640	$192	None	$6,853	$288	$6,564	$45,000	$156,118	$123,782	$98,460	$423,361	$662	$4.41	$0.36	594
Flo971736C	11.01	1.14	48.07	48.00	966	$189	None	$6,901	$283	$13,606	$45,000	$331,751	$107,549	$204,090	$688,390	$713	$4.75	$0.29	1181
Han972326A	6.40	0.84	35.39	35.40	758	$168	None	$5,050	$252	$8,921	$45,000	$178,733	$122,160	$133,812	$479,705	$633	$4.22	$0.35	686
Pal973236A	25.69	0.65	54.95	55.00	3970	$193	None	$8,052	$290	$15,932	$45,000	$442,445	$264,950	$238,980	$991,375	$250	$1.66	$0.18	2755
Total	**582.60**		**2623.39**	**2601.81**	**85320**		**$345,976**				**$2,146,071**	**$6,362,686**	**$9,182,819**	**$9,450,160**	**$27,487,712**				**62484**
Average	**8.83**	**0.75**	**39.75**	**39.42**	**1293**	**$167**	**$7,863**	**$2,508**	**$243**	**$9,546**	**$32,516**	**$96,404**	**$139,134**	**$143,184**	**$416,480**	**$383**	**$2.55**	**$0.25**	**947**