

October 4, 2002

Planning, Programs, and
Project Management Division

TO UPPER MISSISSIPPI RIVER COMPREHENSIVE PLAN STUDY COLLABORATION TEAM

Dear Collaboration Team Member:

The enclosed documents are provided in preparation of the 2nd meeting of the Upper Mississippi River Comprehensive Plan Study Collaboration Team on Friday, October 11, 2002, from 8 a.m. to 3:30 p.m. at the Hilton St. Louis Airport Hotel, St. Louis, Missouri. Any additional information or revisions to the accompanying documents will be distributed electronically via Internet or facsimile (if specifically requested).

Digital copies of these documents are being posted to the Study web site address: (<http://www.mvr.usace.army.mil/UMRCP/default.asp>).

Should you have any questions regarding this distribution, specific to any of the enclosed documents, or about the subject meeting, please contact Mr. Jerry Skalak, Regional Project Manager, by telephone at 309/794-5605 or by email at jerry.a.skalak@usace.army.mil.

Sincerely,

Teresa A. Kincaid, P.E.
Assistant Chief, Planning, Programs,
and Project Management Division

Enclosures

Copies Furnished:

Mr. Ken Hinterlong
Federal Emergency Management Agency
Region V
536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521 (with enclosures)

Mr. Al Schulz
Federal Emergency Management Agency
Region VII
2323 Grand Boulevard, Suite 900
Kansas City, Kansas 64108-2670 (with enclosures)

Upper Mississippi River Comprehensive Plan (UMRCP) Study

Collaboration Team (CT) Meeting #2

**Friday, October 11, 2002 - 8 a.m. to 3:30 p.m.
Hilton St. Louis Airport Hotel, St. Louis, Missouri**

**Read-ahead Packet
(as of October 7, 2002)**

Contents:

- 1. Copy of Preliminary CT Meeting #2 Notice (as distributed September 6, 2002)**
- 2. CT Meeting #1 Minutes (as prepared and reviewed by Corps of Engineers Project Delivery Team)**
- 3. Public Comments Analysis Categories and Summary**
- 4. Handouts from Public Open Houses**
 - a. Handout 1 (UMRCP Resource Problems)**
 - b. Handout 2 (Description of Potential Measures)**
- 5. Revised Agenda for CT Meeting #2**
- 6. Purpose and Function of Collaboration Team and Regional Focus Groups (RFGs)**
- 7. Proposed RFG 3 (Thebes to Alton) Participants List**
- 8. Proposed Model for RFG 1 (Dubuque, IA, to Anoka, MN)**
- 9. Current CT Participants List (with contact information) and Proposed Future Meetings Schedule**

AGENDA

(as of October 4, 2002)

Upper Mississippi River Comprehensive Plan (UMRCP) Study

Collaboration Team Meeting #2

Friday, October 11, 2002 - 8 a.m. to 3:30 p.m.

Hilton St. Louis Airport Hotel, St. Louis, Missouri

<u>Time</u>	<u>Topic</u>	<u>Lead/Facilitator</u>	<u>Associated Read Ahead(s)</u>
8:00 – 8:05	Opening Remarks	Jerry Skalak, CEMVR	#6
8:05 – 8:20	Participant Introductions & Expectations	Dave Leake, CEMVS	
8:20 – 8:35	Ground Rules & Meeting Processes	Dave Leake, CEMVS	
8:35 – 8:45	Review of Today's Agenda	Dave Leake, CEMVS	#5
8:45 – 9:00	Meeting #1 Minutes	Jerry Skalak, CEMVR	#2
9:00 – 9:15	Public Input	Jerry Skalak, CEMVR	#3
9:15 – 10:15	Problems, Needs, and Opportunities (Review/Concurrence)	Dave Leake, CEMVS	#4.a.
10:15– 10:30	Break		
10:30 – 11:15	Refinement of Study Objectives	Dave Leake, CEMVS	
11:15 – 11:45	Potential Measures	Dave Leake, CEMVS	#4.b.
11:45 – 12:30	Lunch		
12:30– 1:30	Potential Measures (continued)	Dave Leake, CEMVS	
1:30 – 2:15	Screening Criteria	Dave Leake, CEMVS	
2:15 – 2:30	Break		
2:30 – 3:00	Regional Focus Groups	Dave Leake, CEMVS	#7, #8
3:00 – 3:10	Closing Comments/Observations	Jerry Skalak, CEMVR	
3:10 – 3:30	Summary, Due Outs, Next Meeting(s)	Jerry Skalak, CEMVR	

Adjourn

Note:

Corps Project Development Team will prepare meeting minutes.

Upper Mississippi River Comprehensive Plan

Collaboration Team Meeting #2

Preliminary Meeting Notice

Date: October 11th

Timeframe: 8:00 A.M. to 3:00 P.M.

**Location: Posh's Board Room, Hilton St. Louis Airport Hotel,
St. Louis, MO**

Hotel address: 10330 Natural Bridge Road, across I-70 from Lambert St. Louis International Airport

A block of 20 rooms have been reserved for the evening of October 10th at the U.S. government per diem rate of \$90 + tax. Cut off date for reservations is September 24th. The local hotel reservation phone number is (314) 426-5500 or toll free at (800) 345-5500. The block of rooms is listed under US Army Corps of Engineers. The hotel will accept tax exempt forms.

Note: This is the same hotel where the Flow Frequency Study task force and public involvement meetings will be held on 9-10 October

Airport to Hotel

For attendees arriving by air, there is a free 24-hour shuttle between the main terminal, the east terminal (primarily for Southwest Air), and the hotel. After claiming your luggage, go to the west end of the main terminal (to your right as you exit the terminal). All hotel shuttles pick up and drop off passengers at the far west end of the main terminal. If your flight arrives at the east terminal, proceed to the exit to the parking lot. A hotel shuttle stops every few minutes.

Driving information

For attendees driving from the west to the meeting, leave eastbound I-70 at the main airport exit (236). After exiting eastbound I-70, turn left onto Natural Bridge Road and head east. For attendees driving from the east, leave westbound I-70 at exit 236, turn left at the bottom of the exit ramp, pass under the interstate, and turn left again onto Natural Bridge Road, heading east. The Hilton is on the south side of I-70, about ¼ mile past the junction of Natural Bridge and the airport entrance. The hotel can be easily seen from I-70.

PRELIMINARY Agenda

- **Previous meeting minutes and status of action items/due outs**
- **Review and assessment of public input received to date (September public open houses, comment sheets, etc.)**
- **Regional Focus Groups (composition, role, schedule, etc.)**
- **Discipline-specific Progress Reports**
 - **Economics**
 - **H&H**
 - **Environmental**
 - **Others (GIS/Mapping, Recreation, Unit Costs and Quantities, Real Estate)**
- **Plan formulation and development of alternatives (refinement of measures list, etc.)**
- **Floodplain policies/regulations (identification, effects, etc.)**
- **Meeting summary and verification of action items/due outs**
- **Next meeting (logistics, schedule, agenda, read-aheads, etc.)**

UMRCP Collaboration Team (as of: October 4, 2002)

11 Oct 02 meeting (as of: 10/7/02)	Name	Agency/ Organization	Address	Phone	FAX	email
Yes No	Holly Stoerker Alt: Barb Naramore	Upper Mississippi River Basin Association	415 Hamm Bldg., 408 St. Peter Street, St. Paul, MN 55102	651-224-2880	651-223-5815	hstoerker@umrba.org
Yes	Bill Franz Alt: Larry Shepard	USEPA Region 5 Region 7	77 West Jackson Blvd, Chicago, IL 60604-3507 901 North Fifth Street Kansas City, KS 66101	312-886-7500		franz.william@epa.gov Shepard.larry@epa.gov
Yes	Gary Clark	IL DNR	Dept of Water Resources, One Natural Resources Way, FL 001, Springfield, IL 62702	217-785-3334		gclark@dnrmail.state.il.us
Yes	Bob Goodwin	Maritime Administration	Department of Transportation, 1222 Spruce Street, Room 10200, St. Louis, MO 63103-2831	314-539-6783	314-539-6787	Robert.goodwyn@marad.dot.gov
? Yes ?	Heather Hampton-Knodle Alt: Mike Klingner Alt: Dave McMurrey	UMIMRA	201 West Fairground Ave, Hillsboro, IL 62049	217-532-5458	217-532-5468	ink@cillnet.com
No Yes	Bob Clevenstine Alternate (TBD)	USFWS	Rock Island Ecological Services Field Ofc, 4469 - 48 th Ave Court, Rock Island, IL 61201	309-793-5800	309-793-5804	Robert_clevenstine@fws.gov
Yes	Mark Beorkrem	MRBA	P.O. Box 370, 204 North Wyandotte Street, Morrisonville, IL 62546	314-882-8425 (cell) 217-526-4480 (office/home)	603-590-0810	markbeorkrem@mrba.org or www.mrba.org
Yes	Owen Dutt	American Heritage Rivers	U.S. Army Corps of Engr Dist, 1222 Spruce Street, St. Louis, MO 63103-2833	314-331-8450	314-331-874	owen.dutt@mvs.usace.army.mil
No Yes	John Barko, Ph.D Alt: Jean O'Neil, Ph.D	Waterways Experiment Station	CEERD-EV-E 3909 Halls Ferry Rd Vicksburg, MS 39180-6199	601-634-3654	601-634-2430	john.w.barko@wes.army.mil
?	TBD	FEMA, Region V	536 S. Clark Street, 6 th Floor, Chicago, IL 60605-1521	312-408-5529	312-408-5551	ken.hinterlong@fema.gov
?	TBD	FEMA Region VII	2323 Grand Blvd, Suite 900 Kansas City, KS 64108-2670			
?	Jack Riessen	IA DNR	502 E. 9 th Street, Wallace State Office Bldg., Des Moines, IA 50319-0034	515-281-5029		jack.riessen@dnr.state.ia.us
No	Bill Cappuccio	IA DNR	502 E. 9 th Street, Wallace State Office Bldg., Des Moines, IA 50319-0034	515-281-8942		bill.cappuccio@dnr.state.ia.us

?	Bob Watson	WI DNR	101 S. Webster Street, Madison, WI 53703	608-266-8037	608-261-4380	watsor@dnr.state.wi.us
?	Ogbazghi (Obi) Sium	MN DNR	500 Lafayette Road, Box 32, St. Paul, MN 55155-4032	651-296-0444	651-296-0445	Ogbazghi.Sium@dnr.state.mn.us
?	Alt: Suzanne Jiwani					
?	Marty Stralow	IL DNR	Dept of Water Resources, One Natural Resources Way, FL 001, Springfield, IL 62702	217-785-4796		
Yes	George Riedel	MO SEMA	P.O. Box 116, 2402 Militia Street, Jefferson City, MO 65101	563-526-9141		griedel@sema.state.mo.us
?	Charlie DuCharme	MO DNR	P.O. Box 176 Jefferson City, MO 65102			nrduhc@mail.dnr.state.mo.us
?	Jennifer Frazier	American Land Conservancy	Rte 1, Box 600C Marble Hill, MO 63764	573-866-9989 573-270-4717 (cell)		jenny@alcnet.org

Primary Corps CT representatives:

Yes	Teresa Kincaid,	CEMVR-PM, UMIMRA Liaison			
Yes	Jerry Skalak	CEMVR-PM-M, Regional Project Manager			
No	Rich Worthington	HQUSACE vertical team member			
No	Greg Ruff	CEMVD vertical team member			
Yes	Dave Leake	CEMVS, CT meetings facilitator			
Yes	R. Astrack	CEMVS Study Manager, plan formulation team leader			
Yes	Jeff. DeZellar	CEMVP Study Manager, plan formulation team			

Additional Corps Product Delivery Team members:

Yes	Richard Andersen	CEMVS, Economics Team member			
?	Dennis Stephens	CEMVS, H&H Team leader			
Yes	Dave Gates	CEMVS, Environmental Team Leader			
Yes	Kevin Landwehr	CEMVR, H&H team member			

Proposed others...

Gerald Galloway, Jr, P.E., Ph.D	International Joint Commission	1250 23 rd St, NW Suite 100 Washington, D.C. 20440	202-736-9000/9008	202-736-9015	gallowayg@washington.ijc.org
Michael Reuter	The Nature Conservancy		309-336-3300		mreuter@tnc.org
Paul Osman	IL State Floodplain Management Director				
Jon Kauffeld	USFWS Region 3	USFWS Region 3 Federal Building, 1 Federal Drive Fort Snelling, MN 55111-4056	612-713-5327	612-713-5286	Jon_Kauffeld@fws.gov
Kevin Szcodronski	IA DNR		515-281-8674		Kevin.szcodronski@dnr.state.ia.us
NRCS					
USDA					
USGS (UMESC)					

CT meetings schedule

Meeting #	Meeting Date (s)	Meeting Format	Meeting Location	Duration	Participation	Additional Notes
1	August 28, 2002	Conference Call	N/A	9:00 A.M.-11:00 A.M.	13 Corps, 9 non-Corps	Draft meeting minutes prepared
2	October 11, 2002	Face-to-Face	St. Louis, MO	8:00 A.M. - 3:00 P.M.		
3	November 26, 2002	TBD	TBD	TBD		
4	January, 2003	TBD	TBD	TBD		
5	May, 2003	TBD	TBD	TBD		
6	July, 2003	TBD	TBD	TBD		
7	November, 2003	TBD	TBD	TBD		

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ATTN: CEMVP-PM-A (JEFF DEZELLAR)
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ST. PAUL, MN 55101-1638

Upper Mississippi River Comprehensive Plan Collaboration Team
Conference Call

August 28, 2002

Participants:

Mike Klingner	UMIMRA
Heather Hampton-Knodle	UMIMRA
Bob Clevensine	USFWS
Mark Beorkrem	MRBA
Holly Stoerker	UMRBA
Bob Goodwin	Maritime Admin
Bill Cappuccio	IA DNR
Suzanne Jiwani	MN DNR
Charlie DuCharme	MO DNR

Rich Worthington	HQUSACE
John Barko	ERDC
Greg Ruff	CEMVD
Dave Raasch	CEMVP
Teresa Kincaid	CEMVR
Ken Barr	CEMVR
Laura Abney	CEMVR
Jerry Skalak	CEMVR
Jack Carr	CEMVR
Rich Astrack	CEMVS
Dave Leake	CEMVS
Dave Gates	CEMVS
Dennis Stephens	CEMVS

1. J. Skalak opened the meeting with a request for participant introductions and input regarding team membership. H. Stoerker suggested that it would be useful to first discuss the Corps' expectations as to team roles and responsibilities. M. Klingner noted that the team needs to think at the system-level and should be considering the big picture. J. Skalak and D. Leake stated that they expect the team to be actively engaged in all aspects of the plan formulation process, providing intensive, high level input, review and reaction to study products throughout their development and that the team is expected to be the primary vehicle for external study coordination. J. Skalak added that the team should be composed of a balanced mix of technical and policy expertise. The following additional comments were offered:

- M. Beorkrem recommended that Mr. Paul Osmond, IL DNR and a representative (TBD) from USGS (UMESC) be added to the team.
- J. Skalak acknowledged that he had discussed with B. Clevensine the potential for engaging General G. Galloway. B. Clevensine will explore this further with him.
- K. Barr suggested that Department of Agriculture representation be pursued.
- J. Barko also promoted the addition of representation from UMESC but was uncertain as to who might be available/appropriate in light of recent staff departures, etc.
- J. Skalak noted that FEMA (K. Hinterlong) asked that the Corps formally request FEMA to designate team representation. J. Skalak acknowledged that such a request had not yet been processed. K. Hinterlong had agreed during a phone conversation to participate until such time.

2. M. Beorkrem noted that the study/plan will need to build upon previously completed work such as the Delft and Galloway reports and the FPMA (Floodplain Management Assessment). J. Skalak and others concurred.
3. M. Klingner emphasized that thorough quantification of flooding impacts on the transportation network will be very important. J. Carr responded that certain economic evaluation work is already underway using existing data and that the study's economic analysis will include quantification of flood impacts on transportation, public utilities, and critical infrastructure. The evaluation of the economic impacts of sedimentation induced flooding will also be given consideration.
5. B. Franz acknowledged that EPA comments on the draft PMP are forthcoming. EPA wants water quality, local and downstream, and habitat benefits to be considered as part of the economic evaluation of alternatives. This is needed to assure a balanced look at all potential benefits.
6. B. Clevenstine raised a question regarding how the Corps system of accounts will be used and trade-off analysis processes will be applied during alternative evaluation.
7. D. Gates stated that an array of plans, to include one that maximizes flood damage reduction using environmental measures, will be evaluated. The environmental plan should be useful in ultimately configuring a recommended project plan that might well incorporate both NED and NER components.
8. J. Skalak reemphasized that flood damage reduction is the study driver.
 9. G. Ruff acknowledged that the Corps has struggled with how best to meet the intent of the legislation. He went on to say that clearly the primary study product is to be a systemic flood damage reduction plan. However that plan should reflect consideration of both structural and non-structural alternative measures and that ecosystem restoration opportunities consistent with system sustainability goals and having flood damage reduction benefits will need to be identified and evaluated.
 10. J. Skalak suggested that the plan could potentially be neutral with respect to environmental restoration outputs.
 10. D. Gates added that the outputs of the UMRCP alternative plans will be compared against a predetermined quantitative backdrop for systemic environmental sustainability needs. The UMR-IWW navigation study will have the lead on quantifying the sustainability needs reference points for the UMRS. The UMRCP will determine the net quantitative outputs for each of the alternative UMRCP project plans. Any recommended plan will, at a minimum, neutralize any adverse project impacts (i.e. mitigate the impacts). FDR compatible environmental restoration opportunities might also be identified during the conduct of the planning effort..
 11. M. Klingner stated that systemic hydraulic modeling-driven opportunities for flood damage reduction need to be explored first and that regional economic benefits need to be calculated.
 12. J. Skalak confirmed that the Flow Frequency Study is progressing well and that the new profiles should be available for use by this fall. He noted that the results of the economic evaluation work currently being done using '79 profiles will be used to focus evaluation work using the new profiles.
 13. M. Klingner emphasized the need to identify and evaluate flood conveyance alternatives.
 14. D. Leake noted that a thorough list of flood damage reduction-related problems, needs, and opportunities and potential measures must first be developed. That list will be refined and prioritized as the study process progresses.
 15. In response to H, Hampton-Knodle's inquiry regarding PMP completion J. Skalak acknowledged the previous day's Corps conference call the purpose of which was to discuss UMIMRA's concerns with the draft PMP. He provided the following summary of the results of that call:
 - a. Corps will coordinate a meeting with UMIMRA representatives and appropriate others to review economic evaluation work described in the draft PMP and discuss possible additional work that may be desired/beneficial.
 - b. Corps will further investigate potential for defining the 1000-yr flood event for alternative evaluation use.
 - c. Corps will add task items to PMP that focus upon the policy aspects of flood damage reduction comprehensive planning.

- d. The “enhanced reconnaissance” descriptor will be dropped.
 - D. Leake reminded the call participants that the PMP is a dynamic document and suggested that it may not be finalized until early next year. J. Skalak and G. Ruff thought that an approvable document would need to be completed as soon as possible. J. Skalak stated that the draft document will be revised, taking into consideration all comments received, prior to routing for final approval.
16. H. Hampton-Knodle reiterated that development of a flood routing plan is a primary study product. In response to this D. Leake asked for clearer definition of “routing” and does this concept apply to both the existing system or a significantly revised system. J. Skalak suggested that all of the alternatives to be considered essentially represent “flood routing” plans.
 17. S. Jiwani inquired about the differences between the proposed geographic extents of the regional focus groups and the locations of the proposed public meetings. In response J. Skalak stated that although there were some relationships between the two, the selection of locations for the first round of public open houses was not directly driven by this relationship.
 18. H. Hampton-Knodle expressed her concerns with the questionnaire that was distributed with the initial study newsletter. She considered it to be biased toward environmental concerns and non-structural flood damage reduction alternatives. She also stated that it failed to solicit public input regarding economic expectations and that the Corps should consider employing professional market research assistance in the development of such questions. M. Klingner supported this comment. H. Stoerker provided the following additional comments:
 - should consider developing new “questionnaire” for 2nd series of public meetings
 - use public meetings to refine future outreach tools
 - the questionnaire is not a scientific survey

D. Leake stated that the Corps will take the CT comments into consideration. A revised comment sheet will be developed and coordinated with the CT.

19. M. Beorkrem supported the need to gather economic data. Although large urban areas may have good economic data that meets their specific needs, smaller urban areas and un-urbanized areas may not. He also supported the need to develop regional economic data.
20. J. Skalak noted that the proposed regional focus groups will be valuable to our efforts to mine (identify, assess, and utilize) local/regional data.
21. H. Hampton-Knodle commented the Corps on the website that has been set up for the study.
22. In response to an inquiry by J. Skalak regarding other agency and NGO participation in the upcoming study open houses H. Stoerker responded that the Corps should lead the study open houses.
23. J. Skalak acknowledged that there is a study budget disconnect that will need to be addressed. He went on to clarify that this problem has to do with the fact that the currently expected FY03 appropriation reflects a request that was based upon a study cost estimate of approximately \$3 million. Now that the proposed study cost estimate is near \$5 million, a higher level of funding in FY03 will be needed to complete proposed work within the authorized study time frame. He acknowledged that the draft PMP lays out a budget based upon study duration and current cost estimate. G. Ruff stated that the Corps is working this issue internally.
24. J. Skalak asked D. Leake to lead a discussion of the proposed regional focus groups. D. Leake proposed that these groups should plan on meeting 2-3 times during the duration of the study and that the participants need to be representative of a cross section of floodplain interests (economic and commercial, ecosystem/environmental, agricultural, etc.). D. Leake went on to list proposed members for one of the RFGs.
 - 2 levee and drainage district reps
 - 1 urban levee and drainage district rep

- metro St. Louis
- mayors
- regional planning
- railroad interests
- NRCS (Dept of Agriculture)
- Refuge manager
- MO and IL DNRs (DOCs)
- TNC/American Land Conservancy
- Audubon

Comments on this proposed list included the following:

- B. Goodwin noted that the ports and marinas need to be represented.
- J. Skalak commented that the recreation interests need to be properly represented.
- B. Clevenstine suggested that someone from the Riverlands project office or Mike Wally (sp?) might be good additions.
- M. Klingner proposed Sam Baner or perhaps someone else from the Mid America Port Authority
- B. Clevenstine asked about possible representation from TNC or ALC.
- B. Franz noted that TNC now has an IL/Mississippi River Campaign.
- J. Barko noted that there will be lower river considerations and perhaps someone from one of the lower river Corps Districts should be involved.
- B. Clevenstine suggested that someone from TNC might ultimately be the more appropriate member. M. Beorkrem concurred.
- B. Franz added that the water utilities and sanitary districts should be engaged.
- M. Klingner proposed that the geographic limits for the RFGs should be:
 1. St. Louis – Quad Cities
 2. Thebes, IL to St. Louis
 3. Quad Cities – Anoka
 4. IL
- There was general consensus that the number of RFGs should neither be increased nor reduced. The Corps will continue to pursue identification of RFG members. CT members were asked to provide suggestions for RFG participants.

25. D. Leake recommended that the next meeting of the CT be a face-to-face one and that that meeting will need to be held as soon as possible after the public open houses. There was general agreement that this meeting should be scheduled for the day after (October 11th: St. Louis, MO) the upcoming Flow Frequency Study Task Force meeting.

_____/s//_____
Jerry Skalak, UMRCP Regional Project Manager

Cf:
CEMVR-PM-M (Dist File)
Collaboration Team Members
Corps Product Development Team members
D. Carattini, CEMVR-PM-M

	CODE	ISSUE			
	01	Erosion:			
	02	Siltation:			
	03	Sedimentation:			
	04	Ecology & Natural Resources: wildlife & aquatic habitat, wetlands, backwater restoration, bottomland forests			
	05	Water Quality: pollution			
	06	River Issues: dredging, channelization			
	07	Structural Measures: levees, floodwalls, locks & dams, wing dams, reservoirs, upland ponds, containment areas (add or eliminate)			
	08	Non-structural Measures: buyouts, easements, farming & conservation practices, crop programs, mitigation, upland treatments, buffer strips			
	09	Development: restrict, relocate, remove structures in floodplain			
	10	Water Control: backwater storage, runoff in watershed, water level management			
	11	Other Issues: general opinions & study issues			

Nwsltr Ques# (Code)	Mtg Ques# (Code)	UMIMRA Ques#	Question	Total Cmts Received		
				Nwsltr	Mtg	UMIMRA
		1	What methods for preventing flood damages within the floodplain area (between riverbank & bluff) do you think should be investigated as part of this comprehensive plan?			30
	1		What do you see as problems and opportunities needing to be addressed by the Upper Mississippi River Comprehensive Plan systemic flood damage reduction study?			
	M-01		Erosion:		1	
	M-02		Siltation:		2	
	M-03		Sedimentation:		0	
	M-04		Ecology & Natural Resources: wildlife & aquatic habitat, wetlands, backwater restoration, bottomland forests		10	
	M-05		Water Quality: pollution		2	
	M-06		River Issues: dredging, channelization		4	
	M-07		Structural Measures: levees, floodwalls, locks & dams, wing dams, reservoirs, upland ponds, containment areas (add or eliminate)		11	
	M-08		Non-structural Measures: buyouts, easements, farming & conservation practices, crop programs, mitigation, upland treatments, buffer strips		6	
	M-09		Development: restrict, relocate, remove structures in floodplain		4	
	M-10		Water Control: backwater storage, runoff in watershed, water level management		7	
	M-11		Other Issues: general opinions & study issues		20	
1	2	2	What methods for reducing flood damages within the floodplain area (between riverbank and bluff) do you think should be investigated as part of this comprehensive study?			21
N-01	M-01		Erosion:	3	2	
N-02	M-02		Siltation:	2	0	
N-03	M-03		Sedimentation:	2	0	
N-04	M-04		Ecology & Natural Resources: wildlife & aquatic habitat, wetlands, backwater restoration, bottomland forests	9	7	
N-05	M-05		Water Quality: pollution	0	0	
N-06	M-06		River Issues: dredging, channelization	4	4	
N-07	M-07		Structural Measures: levees, floodwalls, locks & dams, wing dams, reservoirs, upland ponds, containment areas (add or eliminate)	29	30	
N-08	M-08		Non-structural Measures: buyouts, easements, farming & conservation practices, crop programs, mitigation, upland treatments, buffer strips	22	16	
N-09	M-09		Development: restrict, relocate, remove structures in floodplain	23	4	
N-10	M-10		Water Control: backwater storage, runoff in watershed, water level management	16	8	
N-11	M-11		Other Issues: general opinions & study issues	18	3	
		3	What are the major economic concerns in the Upper Mississippi and Illinois Rivers floodplain areas?			29

				Total Cmts Received		
Nwsltr	Mtg	UMIMRA	Question	Nwsltr	Mtg	UMIMRA
2	3	4	What do you feel are the major environmental concerns in the Upper Mississippi and Illinois Rivers floodplain areas?			19
N-01	M-01		Erosion:	6	5	
N-02	M-02		Siltation:	1	14	
N-03	M-03		Sedimentation:	7	9	
N-04	M-04		Ecology & Natural Resources: wildlife & aquatic habitat, wetlands, backwater restoration, bottomland forests	13	27	
N-05	M-05		Water Quality: pollution	16	11	
N-06	M-06		River Issues: dredging, channelization	2	3	
N-07	M-07		Structural Measures: levees, floodwalls, locks & dams, wing dams, reservoirs, upland ponds, containment areas (add or eliminate)	7	4	
N-08	M-08		Non-structural Measures: buyouts, easements, farming & conservation practices, crop programs, mitigation, upland treatments, buffer strips	3	1	
N-09	M-09		Development: restrict, relocate, remove structures in floodplain	6	3	
N-10	M-10		Water Control: backwater storage, runoff in watershed, water level management	2	3	
N-11	M-11		Other Issues: general opinions & study issues	13	6	
		5	Are there any flood damage reduction or flood protection measures you think would be beneficial to the ecosystem of the Upper Mississippi and Illinois Rivers?			18
3	4	6	Are there any flood damage reduction measures you feel would be detrimental to the ecosystem of the Upper Mississippi and Illinois Rivers?			9
N-01	M-01		Erosion:	2	1	
N-02	M-02		Siltation:	1	1	
N-03	M-03		Sedimentation:	1	0	
N-04	M-04		Ecology & Natural Resources: wildlife & aquatic habitat, wetlands, backwater restoration, bottomland forests	3	7	
N-05	M-05		Water Quality: pollution	0	0	
N-06	M-06		River Issues: dredging, channelization	10	3	
N-07	M-07		Structural Measures: levees, floodwalls, locks & dams, wing dams, reservoirs, upland ponds, containment areas (add or eliminate)	16	16	
N-08	M-08		Non-structural Measures: buyouts, easements, farming & conservation practices, crop programs, mitigation, upland treatments, buffer strips	0	12	
N-09	M-09		Development: restrict, relocate, remove structures in floodplain	3	3	
N-10	M-10		Water Control: backwater storage, runoff in watershed, water level management	3	4	
N-11	M-11		Other Issues: general opinions & study issues	4	5	
				Total Cmts Received		
Nwsltr	Mtg	UMIMRA	Question	Nwsltr	Mtg	UMIMRA

	5		Please provide any additional comments, concerns or suggestions you have regarding this study.			
	M-01		Erosion:			0
	M-02		Siltation:			0
	M-03		Sedimentation:			0
	M-04		Ecology & Natural Resources: wildlife & aquatic habitat, wetlands, backwater restoration, bottomland forests			1
	M-05		Water Quality: pollution			1
	M-06		River Issues: dredging, channelization			0
	M-07		Structural Measures: levees, floodwalls, locks & dams, wing dams, reservoirs, upland ponds, containment areas (add or eliminate)			2
	M-08		Non-structural Measures: buyouts, easements, farming & conservation practices, crop programs, mitigation, upland treatments, buffer strips			4
	M-09		Development: restrict, relocate, remove structures in floodplain			3
	M-10		Water Control: backwater storage, runoff in watershed, water level management			2
	M-11		Other Issues: general opinions & study issues			19

UMRCP RESOURCE PROBLEMS

Problem	Problem Description	Opportunities
<p>Agricultural Damages</p>	<p>Agricultural damages from flood events result from two primary causes: excessive precipitation that prevents planting and decreases crop yield, and actual flooding of normally productive floodplain croplands. The 1993 flood resulted in \$2.5 billion in agricultural damages, and \$0.1 billion in damages to farm facilities and soils fertility.</p> <p>The types of damages from a given flood event can vary. For example, in 1993 the damages in Missouri were related more to floodplain flooding, while in Minnesota they were related more to wet conditions than river flooding.</p> <p>During floods drainage ditches can fill with sediments and sand deposition can reduce soil fertility. Significant costs can be incurred to remove sediment and debris from ditches, and to remove surface sands for the croplands.</p> <p>The effect of agricultural losses to the local economy varies proportional to a community's dependence on the agricultural sector. Negative economic effects include the loss of sales (on crops and supplies), unemployment, reduced property values, and reduced tax revenues.</p> <p>References: Galloway, 1994</p>	<p>The relocation of farm buildings, flood insurance, and the acquisition and conversion of marginal farmlands to other usages (such as refuges and wildlife management areas) are proven non-structural strategies for reducing the risk of agricultural flood damages.</p> <p>Flood-control reservoirs help to reduce peak discharges by storing floodwaters. Levees further protect farm areas from peak flood flows.</p> <p>The UMRCP provides an opportunity to further explore these and other options for reducing the risk of flood damage impacts to agricultural areas.</p>
<p>Residential and Business Damages</p>	<p>Flooding impacts to residences and businesses can result from elevated water levels above and below ground. In 1993, as many people were impacted by below ground impacts (flooded basements, overloaded storm sewers, and sewer backup) as was impacted by above ground flooding. Many of the residences with basement flooding were not behind overtopped or failed levees.</p> <p>Impacts to businesses stem from overtopped levees and floodwalls that cause physical damage to buildings and their contents, and from lost profits and wages. Over 5,000 individual businesses were damaged during the 1993 flood, with over \$428 million being paid out in SBA loans for physical damage and economic injury (\$334 million) and NFIP flood insurance payments (\$94 million).</p> <p>References: Galloway, 1994</p>	<p>The relocation of floodprone buildings, land use changes, and the flood insurance program are proven non-structural strategies for reducing the risk of damages in urban areas. Conversions of flood prone areas to parks and greenways are examples of a ways to reduce flood damages by decreasing the number of structures at risk.</p> <p>Reservoirs help to reduce peak discharges by storing floodwaters. Levees and floodwalls further protect urban areas from the risk of damages during peak flows.</p> <p>The UMRCP provides an opportunity to further explore these and other options for reducing the risk of flood damage impacts to urban areas.</p>
<p>Critical Infrastructure Damages</p>	<p>Critical facilities (i.e. those that must be placed in the floodplain, but which have catastrophic impacts if flooded) are of four types: hazardous material sites, essential utilities, essential services, and emergency services.</p> <p>Severe floods can release dangerous materials into the environment from superfund, landfill, waste, chemical storage and major pipelines sites.</p> <p>Flooding can cause damages to utilities (i.e. NPDES sites, water treatment plants, water supply intakes, water well fields, sewage treatment plants, power plants, power utility substation, and communications facilities) that provide major service and aid to the essential welfare of the community. For example, to take advantage gravity flow, wastewater plants are typically built in the low-lying floodplain areas. Effluent from the plants is discharged into the adjacent waterway. The discharge of raw sewage to the waterway, and direct physical impacts to facilities are potential impacts of flooding. During the 1993 flood 388 wastewater facilities were impacted. Flooding can take plants out of operation, contaminate drinking water, and cause structural damages to the plant. The 1993 flood impacted 200 city water systems to varying degrees. The economic impacts of the shutdown may have been greater than the \$85 million required for repairing its facilities damage.</p> <p>Human care, transportation and safety are threatened by flooding impacts to essential services (i.e. hospitals, homes for the mobility impaired, schools, airports, post offices, bridges, and prisons).</p> <p>Flooding can disrupt the use of emergency services (i.e. fire departments, police stations, military bases, and computer centers).</p> <p>Damages to water facilities, public buildings, parks and recreation areas totaled about \$69 million during the 1993 flood.</p> <p>References: Galloway, 1994</p>	<p>The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) has made significant progress in the treatment of hazardous materials sites. Structural modifications (e.g. levees and floodwalls) have been used effectively in the past to provide flood protection to essential utilities, and essential and emergency services.</p> <p>The UMRCP provides an opportunity to further explore these and other options for reducing the risk of flood damage impacts to critical infrastructure.</p>

Problem	Problem Description	Opportunities
Transportation System Damages and Flood Related Costs	<p>UMRS floods can cause major damages to railroads, highways and other roads that follow or cross the Mississippi and Illinois River valleys. In addition to these direct damages, indirect costs result from traffic being stopped or rerouted. Roads and bridges are frequently impacted in floods, with damages consisting of culvert, highway, road and bridge washouts. The FEMA public assistance program or the DOT generally cost-shares the repair of flood-damaged roads and bridges. During major floods traffic may at times make detours of up to a 100 miles to travel between communities that had been joined by a bridge. Even when direct bridge damages may be low, the economic impacts from traffic obstruction may be enormous. During the 1993 flood, bridge traffic obstruction resulted in a loss of about \$92 million (this includes \$62 million in people left temporarily unemployed).</p> <p>Rail tracks are subject to flooding. In 1993, 800 miles of track were flooded with railroad damages totaling \$182 million. This included \$131 million in physical damages (tracks, bridges, signals, communication lines, switches, locomotive, rolling stock, and buildings), and \$51 million from detouring trains.</p> <p>Disruption of port related facilities during floods can cause regional impacts on jobs. The estimated loss of revenue to the navigation industry during the 1993 flood was \$300 million per month.</p> <p>Because of its flat terrain and proximity to cities, airports are often located in floodplains. In 1993, 33 airports were identified by the FAA as having varying degrees of damage with estimated repair costs at \$5.4 million.</p> <p>References: Galloway, 1994</p>	<p>In the past, structural measures have been applied that elevate, surround or otherwise protect floodprone portions or railroads, highways, bridges, airports, port facilities.</p> <p>The UMRCP provides an opportunity to further explore these and other options for reducing the risk of flood damage impacts to transportation system infrastructure.</p>
Bank Caving and Erosion	<p>Bank erosion and caving is a significant problem along certain reaches of the river system. Major contributions to this problem include: river currents, underground water seepage, frost and ice action, surface water runoff, and erosion related to wind and navigation generated wave action. The intensity of the damage varies with the magnitude of waves, precipitation, temperature, bank erodibility, and bank exposure.</p> <p>References: (GLBFS, 1975)</p>	<p>In the past, stone revetment, seepage berms, and levee realignments have been among the structural tools successfully applied to control this problem. The UMRCP provides an opportunity to further address this problem.</p>
Watershed Nutrients	<p>Scientific studies indicate that a region of seasonally low oxygen levels (<2mg/l) is located along the Gulf of Mexico's Texas-Louisiana Shelf. During the years 1993 to 1999, this midsummer hypoxia zone was estimated to cove an area of over 5,000 square miles. The condition is the product of interactions involving excessive nutrients from rivers, channelization, wetlands loss, and fresh/salt water stratification. Excessive dissolved nutrients can trigger excessive algal growth (or eutrophication), which lowers the dissolved oxygen in bottom water. Fish, shrimp, crabs, zooplankton, and other fish prey become much reduced in areas influenced by hypoxia. Much of the nutrients released to the Gulf come from sewage and water treatment plants and stormwater runoff from cities and farms. Ninety percent of the nitrate load to the Gulf is from nonpoint sources (56% from Mississippi River above Cairo, Illinois and 34% from the Ohio River Basin).</p> <p>References: (MR/GMWNTF, 2001)</p>	<p>It has been estimated that a 40% reduction in nitrogen input to the Gulf would be needed to return to 1955-1970 load levels. Any oxygen increases above the 2 mg/l threshold is regarded as a significant positive effect for marine life. Approaches to the Gulf hypoxia problem include: 1) reduce nitrogen loads from rivers in the basin; (2) improve denitrification and nitrogen retention within the Basin and on the Louisiana coastal plain.</p> <p>The UMRCP provides an opportunity to propose site-specific measures for reducing flood induced nutrient loads to the river and Gulf ecosystems.</p> <p>(WNTF, 2001).</p>

Problem	Problem Description	Opportunities
Sedimentation	<p>The UMRS has a total drainage area of 188,000 square miles. Average annual sediment yields are generally many times greater for the southern portion of the basin than the northern portion. Small bluff drainage areas in the southern area can have sediment yields several times greater than the regional average. The major source of sediments is sheet erosion with streambed and bank erosion contributing minor amounts. As a result, fluvial sediment is predominantly composed of silts and clays with only small amounts of sands. NRCS has data available to reflect the extent of the problem in each planning area, and has long-term data to reflect the effectiveness of remedial planning measures. Sediment related damages include: infertile overwash, swamping and increased inundation, and physical impacts to facilities themselves.</p> <p>Infertile overwash is the deposition of sand or other unproductive material on the floodplains during floods, thereby decreasing bottomlands productivity.</p> <p>Swamping damage is the result of sediment deposits impairing drainage in such a way as to raise the water table; thereby reducing crop yields in the adjacent lands. Increased inundation can result from a decrease in channel or floodway capacity by sediment deposits.</p> <p>The sedimentation of drainage improvements is the damage to the facilities themselves and is the cost of sediment removal. The cost of sediment removal from municipal and industrial water supplies is damage. Damage to reservoirs is the loss of storage capacity caused by sediment accumulation. Sediment deposits in highway and road ditches, culverts and bridges increase the cost of maintaining these facilities. Damage to navigable streams is reflected in the cost of channel maintenance dredging. Sediment deposition in buildings during floods causes additional damage to the flooded structure.</p> <p>The 1981 UMRS Master Plan identified sedimentation as the single most significant conservation concern in the basin. Sediment deposition results in a direct loss of fish and waterfowl habitat acreage over time. It also results in decreased water depth, leaving fish susceptible to temperature extremes during the summer and winter periods and to the effects of lake freeze over during the winter. Sediment also contributes to a soft bottom substrate in backwater areas, not conducive to plant anchorage, and contributes to high turbidity levels when agitated by wind generated waves. This increased turbidity results in reduced light penetration into the water column, causing reduced photosynthetic activity, and reduced plant production. Lost plant production results in food supply impacts to both waterfowl and fish.</p> <p>References: UMRCBS, 1969; UMRBC, 1981</p>	<p>The 1993 flood showed the value of installing flood-prevention measures and land-treatment practices on watershed agricultural lands. NRCS projects prevented \$400 million in damages during this flood event. Crop losses were less in areas with upland watershed treatment.</p> <p>The UMRCP provides an opportunity to identify ways of reducing sediment yields, especially in the southern portion of the basin near the bluff. Land treatment measures would help reduce flood damages, would help reduce systemic habitat related impacts, and might also provide uplands habitat management benefits as well.</p> <p>References: Galloway, 1994</p>
Environmental Sustainability	<p>Technology (including flood protection systems) has added to our quality of life; however, those capabilities have also created environmental impacts. Because our survival is dependent upon sustained and balanced ecosystems, environmental concerns are becoming an increasingly important part of all Corps of Engineer's missions, decision-making, programs, and projects.</p> <p>In 2002, USACE published a doctrine referred to as the <i>Environmental Operating Principles and Implementation Guidance</i> (EOP). EOP describes ways in which the Corps' missions must be integrated with natural laws, values, and sound environmental practices. This doctrine of 7 principles is intended to result in an organizational culture change over time.</p> <p>The 7 principles are summarized as follows: 1) strive to achieve environmental sustainability, 2) consider the ecosystem impacts of programs, 3) seek a balance/synergy between development and the ecosystem, 4) accept corporate responsibility/accountability for environmental actions, 5) mitigate cumulative impacts and conduct systemic studies, 6) utilize a comprehensive approach, and 7) prepare actions in a collaborative fashion.</p> <p>References: (EOP, 2002).</p>	<p>The Corps defines environmental sustainability (EOP #1) as “a synergistic process whereby environmental and economic considerations are effectively balanced through the life cycle of project planning, design, construction, operation and maintenance to improve the quality of life for present and future generations.”</p> <p>The current planning process provides the Corps with an opportunity to: 1) work collaboratively with other agencies/organizations, and 2) use best available scientific information and methods, to identify and evaluate innovative alternatives as environmentally sustainable solutions associated with flood damage reduction.</p>

Problem	Problem Description	Opportunities
River/Floodplain Connectivity	<p>Floodplain connectivity to the river is important to the functioning of a healthy river ecosystem. For example, many fish species are dependent on seasonally flooded areas for successful reproduction, and many require unobstructed routes to sheltered deep-water areas for over wintering.</p> <p>The sequestering of the floodplain with extensive levee protected areas (in both urban and farm areas) has contributed to a less natural floodplain hydrology and as a physical barrier fish movement. For example, many species of fish utilize inundated floodplain areas with connections to the river as spawning areas. Likewise, the quantity and quality of seasonally flooded areas critical to migratory waterfowl and other wetlands associated wildlife species became much reduced.</p> <p>References: HNA, 2000)</p>	<p>The UMRCP Study provides an opportunity to seek alternatives that simultaneously address FDR needs, while at the same time provides potential mechanisms for increasing connectivity between the river and certain portions of the floodplain (by removing barriers that prevent a seasonally more natural hydrological connection with the river or that physically prevent organisms from moving between the river and floodplain areas.</p>
Habitat Fragmentation	<p>Natural habitats are highly connected south of Minneapolis to Clinton, Iowa, because there is abundant public land. However, discontinuity in the distribution of public lands and levees has resulted in significant habitat fragmentation along the Mississippi River south of Rock Island and along the lower Illinois River. For the most part, this discontinuity resulted from the installation of an extensive flood protection system that resulted in a large-scale conversion of natural habitat to farmland and urban uses. The riparian forest remains fairly contiguous in a narrow band along the longitudinal gradient of the rivers, but large tracts of other native floodplain terrestrial communities only remain as remnants in the national wildlife and fish refuges and state conservation areas.</p> <p>References: HNA, 2000</p>	<p>The UMRCP Study provides an opportunity to develop alternative measures that simultaneously address FDR needs, while also reducing floodplain forest fragmentation.</p>
Habitat Diversity Loss	<p>Habitat diversity is a measure of the different types of habitats, their size, and their relative abundance in a defined area. Habitat diversity can be calculated for both land cover and geomorphic areas. Like habitat fragmentation, habitat diversity has been greatly diminished by the flood protection system. The existing land cover diversity is highest along Minnesota, Wisconsin, and the northern parts of Illinois and Iowa. Pools 1 to 4, 14 to 19, and the Illinois River have moderate diversity. Pools 1 and 15 are highly urbanized; Pool 18 and Alton Pool are highly agricultural and have incomplete data. Pool 20 and southward have the lowest diversity scores. These lower reaches are highly developed for agriculture. Geomorphic area diversity follows a pattern very similar to land cover diversity.</p> <p>References: HNA, 2000</p>	<p>The UMRCP Study provides an opportunity to develop alternative measures that simultaneously address FDR needs, while also addressing the need for increased floodplain habitat diversity.</p>
Grasslands Habitat Loss	<p>The review of historic ecological change clearly demonstrates the loss of grassland cover from Iowa to southern Illinois. The extent of grassland fragmentation and conversion are the most extreme changes in many parts of the UMRS. Grassland patch connectivity has been highly reduced, and connectivity to other natural habitats has been reduced where agriculture or development are adjacent to grassland patches.</p> <p>Croplands currently occupy about one-half of the total UMRS floodplain area, and agriculture is the dominant land cover class. Cropland distribution is skewed toward southern river reaches where levees protect the wide fertile floodplains. Agriculture is the largest continuous land cover class in the lower 500 miles of the Upper Mississippi River and the lower 200 miles of the Illinois River. Grasslands once occupied most of the current agricultural land, but forested areas were also converted to crops.</p> <p>References: HNA, 2000</p>	<p>The UMRCP Study provides an opportunity to develop alternative measures that simultaneously address FDR needs, while also addressing the floodplain grasslands habitat loss problem.</p>

Problem	Problem Description	Opportunities
Marsh Habitat Loss	<p>Marsh fragmentation is difficult to assess because river marshes were not well mapped in early periods and they are inherently fragmented along backwater margins, wet meadows, and riverbanks. Generally contemporary marsh communities are more abundant in northern river reaches than in southern reaches, where there are few backwaters, river water is turbid, and sediment quality is poor.</p> <p>Marsh patches are so small and widely separated in southern river reaches that they can barely even be seen on reach scale mapping.</p> <p>There is greater absolute acreage of marsh habitat in northern-pooled reaches, and the proportion of total floodplain area is very much greater, because the northern reaches have less total area than southern reaches. In other words, marsh habitats are more abundant, widely distributed, and common in northern river reaches.</p> <p>References: HNA, 2000</p>	<p>The UMRCP Study provides an opportunity to develop alternative measures that simultaneously address FDR needs, while also addressing the floodplain marsh habitat fragmentation problem.</p>
Forest Habitat Loss	<p>Forest was and remains an important component of the floodplain landscape for many reptile, amphibian, bird, and mammal species. Contemporary forests are distributed differently and have different species composition than in the past. They are even-aged and have low tree species diversity. Changes in response to river and floodplain development differ among geomorphic reaches. Floodplain forests in northern-pooled reaches were replaced mostly by water impounded by dams and also by development. Forests remaining in the upper-pooled reaches have species composition similar to the past. In the southern pooled reaches, the lower Illinois River, and the Open River south to the Kaskaskia River, open forests and grassland-oak savannas joining dense riparian forests and grasslands were eliminated, but riparian forests remain largely intact. In the Open River south of the Kaskaskia River, the floodplain was once almost completely forested, but was later cleared and levees were constructed to protect crops.</p> <p>References: HNA, 2000</p>	<p>The UMRCP Study provides an opportunity to develop alternative measures that simultaneously address FDR needs, while also addressing the floodplain forest habitat loss problem.</p>

DESCRIPTION OF POTENTIAL MEASURES

Category	Measure	Description
Flood Damage Reduction Measures		
Structural	Levee Removal	This measure would remove all or selected agricultural levees from the UMR floodplain.
	Levee Realignment	This measure would involve the reconfiguration of certain sections of levee to make them less susceptible to failure during major flood events.
	Controlled Levee Breaching	This measure calls for the back flooding of selected D&L District locations in the event of major flooding events.
	Levee Set-Backs	Setback of a levee refers to moving the levee from the present location to a new location, which is farther from the river. They are intended to increase the cross section flow width instead of constricting the flow area to a narrow channel.
	Constant Systemic Levee Protection	This measure would provide a uniform level of protection (e.g. a 25-year level) to all or selected river reaches. Levees above the uniform level would be notched, and levees below the uniform level would be raised.
	Variable Systemic Levee Protection	This measure would provide a variable level of protection (e.g. a 25-year level for agricultural areas, and a 500-year level) for urban areas. Levees above the designated levels would be notched, and levees below the uniform level would be raised.
	Protection of Critical Infrastructure	This measure would provide a designated high level of flood protection for critical facility sites. Critical infrastructure includes: bridges, drinking water facilities, wastewater treatment plants, HTRW sites, electricity generating plants, hospitals, airports, etc.
	Watershed Small Ponds & Detentions	This measure would consider the stage reduction effects of incorporating different levels of runoff
	New Flood Control Reservoirs	This measure would retain all existing reservoirs, but also add some additional reservoir locations.
	Selective or Systemic Lowering Between Levees	
	Ag Levees—Raising Levees	This measure would raise the entire agricultural system to a designated high level of protection (e.g. to the SPF level—similar to that of the lower Mississippi River MR&T Project).
	Urban Levees—500-Year Protection	This measure would provide a minimum 500-year level of flood protection for urban areas.
	Major Flow Diversions	This measure involves major excavations to help substantially increase the cross-sectional drainage area of the system, and thus improve water flow.

Category	Measure	Description
Flood Damage Reduction Measures		
Non-Structural--General	Floodproofing Structures	Provide inexpensive remedial measures to enhance flood protection of specific floodplain structures.
	Flood Warning System	Improve existing flood warning system.
	Relocations	Acquisition of relocation of floodprone buildings through federal programs or state and local initiatives continues to be an important strategy for reducing potential flood damages.
	Modified Flood Control Reservoirs Operation	This measure would consider the increased retention or revised schedules as opportunities to reduce flood impacts.
Non-Structural--Programs	Establish an Upper MR&T Project	Seek Congressional authorization for an Upper Mississippi River and Tributaries project for the management of federal flood damage reduction and navigation activities in UMR basin.
	Enhanced Land Acquisition Programs	To take full advantage of existing federal programs, which enhance natural floodplain functions, legislative authority would be sought to better execute post-disaster land acquisition programs.
	Safety Net	To provide a safety net for low-income flood victims who were unable to afford flood insurance.
	Programmatic Buyouts	Provide state with the option of receiving Section 404 Hazard Mitigation Grants as block grants.
	Disaster Relief	Corps authority under Public Law 84-99 (as amended) allows for emergency response preparation, flood fighting and rescue operations, post flood response, emergency repair and restoration of flood control works can occur in accordance with the provisions of Public Law 84-99, as amended. Under the provisions of the Stafford Disaster Relief Act (Public Law 93-288), in response to a Presidential declaration of a major disaster, or a FEMA declared disaster, assistance to governments is provided in essential response and recovery operations.
	Wetlands Reserve Program (WRP)	This NRCS program helps landowners work toward a goal of no net loss of wetlands. One-third of program acres to be enrolled in permanent easements, one-third in 30-year easements, and one-third in restoration under cost-shared agreements. The WRP program may provide environmental benefits in areas of marginally productive highly erodible lands.
	Conservation Reserve Program (CRP)	This NRCS multi-year program, converts highly erodible and other cropland to perennial vegetation. The CRP program may provide environmental benefits in areas of marginally productive highly erodible lands.
	Continuous Research Program	This measures calls for a long-term data-gathering program (not unlike the intent of the LTRMP) to enhance our knowledge of the floodplain and the future trends inherent in the management action we take.

Category	Measure	Description
Flood Damage Reduction Measures		
Non-Structural--Policies	Floodplain Policy E.O.	To clearly define the responsibility of federal agencies to exercise sound judgment in floodplain activities.
	Reestablish Basin Commission	To clearly define the responsibility of federal agencies to exercise sound judgment in floodplain activities.
	Enhanced NFIP Marketing	To take steps to improve the marketing of flood insurance.
	Reduce Support to Uninsured	To reduce post-disaster support to those eligible to buy insurance but choosing not too.
	Flood Insurance Policy Surcharge	To reduce repetitive loss outlays by adding a surcharge to flood insurance policies following each claim under a policy.
	Actuarial Based Insurance	To require those who are behind levees that provide protection against less than the SPF discharge to purchase actuarial based insurance.
	Flood Insurance Map Improvement	To leverage technology to improve the timeliness, coverage and accuracy of flood insurance maps.
	Periodically Update Levee Profiles Data	Acquisition or relocation of Floodprone buildings through federal programs or state and local initiatives continues to be an important strategy for reducing potential flood damages. Buyout programs are usually in response to a flood or series of floods.
	Improve Interagency Data Links	Agencies should improve communication links to ensure that data collection schedules and data distribution mechanisms are well understood and documented.
	Replace Antiquated Computers & Communications	COE & NWS should improve communications systems and data exchange procedures.
	Cross-Training between Agencies	COE & NWS personnel would improve intra-agency and interagency operations during flood events and during routine operations.
	Improved Stage Gage Operations	More gage stations are needed to produce accurate and timely forecasts. NWS should support other agencies in maintenance of existing gages and the installation of additional gages at strategic locations.
	Improve Stage-Discharge Relationships	Flow measurements are too sparse in some areas. NOAA cooperators need to collaborate to improve these stage-discharge relationships.
	Relocation and Mitigation	Acquisition or relocation of Floodprone buildings through federal programs or state and local initiatives continues to be an important strategy for reducing potential flood damages. Buyout programs are usually in response to a flood or series of floods.
	Implement Mock Disaster Exercises & Review Action Plans	Coordination should be improved with EMA's and EOC's through periodic review of action plans and via mock disaster exercises.
	NWSRFC Software Readiness Evaluation	NWS should systematically evaluate the operational readiness of its River Forecast Center (RSC) software.
	Complete NEXRAD	Work on the Next Generation Weather Radar (NEXRAD) or Weather Surveillance Radar 88 Doppler (WSR-88D) system needs to be completed for the Upper Mississippi River basin. This is a component part of the ongoing modernization and associated restructuring (MAR) of the National Weather Service (NWS).
	Complete AWIPS	The Advanced Weather Interactive Processing System (AWIPS) under MAR is needed at RFCs to use effectively WSR-88D rainfall estimates for numerical input to hydrologic models.

Category	Measure	Description
Flood Damage Reduction Measures		
Non-Structural--Policies	Accelerate NWS Forecast & Warning Subsystem	NWS should accelerate development of Weather Forecast Office (WFO) Hydrometeorological Forecast and Warning Subsystem for use in AWIPS.
	Strengthen Partnerships Ensuring Life/Property Protection	NWS should strengthen cooperative arrangements with current partners and to seek additional opportunities to work with interested parties to ensure the protection of life and property.
	Improved LARCs Operations	Limited Automatic Remote Collectors (LARCs) increase the accuracy and timeliness of forecasts and warnings. High priority should be placed on the installation and maintenance of additional LARCs with attached, automated rain gages.
	Improve Info Transfer to Water Control & Emergency Management Decision Makers	NWS needs to modernize methods of providing information in graphical format.
	Strengthen Flood Warning & Flood Action Plan Activities	FEMA should be encouraged to strengthen coordination among local and regional agencies in the development of flood warning and flood action plans (e.g. identification of flood magnitude threshold to trigger sandbagging operations).
Environmental Resources Measures		
	Low Profile Berms	A low elevation earthen embankment structure used to sequester a wetland area from the river at lower flood stages. It serves as a partial barrier to an influx of river borne sediments, and as a structure useful for interior water level control independent of river stage.
	Gated Culverts	Gated (e.g. sluice gates, stop-logs) pipes (e.g. CMP, RCP) in combination with levees and/or pumps can be used for interior wetlands water control. At times, such structures may also function in fish passage between the wetland area and the river.
	Pump Stations	Pumps can be useful in interior water management control when gravity drainage via gated pipes alone is insufficient.
	Bank Line Riprap	Eroding bank lines can be stabilized using a number of different approaches; one approach is with the application of a stone blanket along the shoreline—commonly referred to as riprap.
	Channelization	The construction of new channels or modification of old channels can serve a variety of water management functions of use to habitat restoration efforts.
	Fill Material	River dredged material can be of use in combination with rock perimeters or earthen berm contained areas for the placement of fill material and subsequent use as island or as an elevated floodplain location for the planting of mast trees.
	Ditch Alterations	The creation of new ditches and/or the modification by widening/deepening of old ditches for habitat management purposes.
	Conservation Farming	The measure entails the application of various soil conservation practices (e.g. no fall till farming) to help reduce overall soil losses due to erosion.
	Terraces	This measure entails the conversion of a steep gradient section of farmland into a series of terraces to reduce erosion effects from the cultivated ground.

Category	Measure	Description
Environmental Resources Measures		
	Farm Ponds	Small hillside impoundments equipped with pipes allowing for a specified volume of the impounded water to drain within an approximate 24-hour time period. This detention time allows a portion of sediment in the runoff to settle out. This impoundment is intended to only partially drain after a local storm event, thus leaving a partial ponding effect for farm or habitat usage.
	Dry Detention Basins	Small hillside impoundments equipped with pipes allowing for an approximate 24-hour release rate. This detention time allows a substantial portion of sediments to settle out. This impoundment is intended to totally drain after a local storm event.
	Grade Control Weirs	Grade control structures can be a useful tool in stabilizing creek bank along high gradient streams. A series of these low water dams (constructed of stone, concrete, or reinforced earth) help to reduce stream velocities, and stair-step water down to a lower base elevation.
	Dredging	Grade control structures can be a useful tool in stabilizing creek bank along high gradient streams. A series of these low water dams (constructed of stone, concrete, or reinforced earth) help to reduce stream velocities, and stair-step water down to a lower base elevation.
	Dredge Material Placement	Dredged material can be placed in various ways to improve habitat conditions. For example, material placed on the floodplain within a berm confined area serves to raise the ground elevation sufficient for the subsequent growth of hard mast producing trees (e.g. pin oaks and hickory).
	Conservation Easements	This measure entails the acquisition of land areas by way of purchased easements to allow for the management of an area for conservation purposes (e.g. to provide for planting of trees to form a more continuous riparian corridor, i.e. one less fragmented).
	Flood Easements	This measure entails the acquisition of flooding rights on property essential to the management of an ecosystem project.
	Fee Title Acquisitions	When agreeable to a landowner, fee title land acquisition is generally more preferable to acquisition by easements. However, a willing seller situation is more likely to occur under easements.
	Tree Plantings	Tree plantings could facilitate the restoration of forest habitat at certain locations by filling in areas to create larger tracts of forest cover. This could help reduce the adverse effects of forest fragmentation on populations of neotropical songbirds.
	Nutrient Farming	Midwest streams convey excessive amounts of nitrate-nitrogen. Effects range from eutrophication in local waters to hypoxia in Gulf of Mexico. Nitrogen farming is a potential solution, employing restored wetlands in floodplains and on bottomlands to remove the excess nitrogen. It would also employ a mechanism for the buying and selling of nitrogen credits.
	Spawning Habitat Easements	Every 3 or 4 years a participating D&LD would be flooded for the primary purpose of fish spawning. Crop production on those years would be terminated or reduced to planting soybeans late in the season. To make this feasible, a levee-based fish passage structure would need to be installed at applicable D&LDs, perhaps similar to those structures at Swan Lake or Spunky Bottoms habitat projects. This feature could also be used in conjunction with a modification of the pool's water level regulation as part of Environmental Pool Management.
	Levee Habitat Easements	The planting of wildlife preferred herbaceous vegetation along the toe and slopes of certain levees could be obtained under easements. This would be compatible with a levee trails development for non-consumptive wildlife use (e.g. wildlife photography or wildlife observation).

Category	Measure	Description
Environmental Resources Measures		
	Riparian Corridor Easements	Riparian corridor habitat easements are obtained to allow for the filling in of forest gaps along the unveeved river corridor, thus reducing the adverse effects of forest fragmentation.
	Floodplain Forest Tract Easements	Large tracts of marginal floodplain farm habitat are placed in permanent easements or for a specified time interval (similar to NRCS--WRP).
	Tax Revenue Offsets	This measure would help to minimize the effects of lost tax revenues to local governments, resulting from land conversions. This action could be environmentally beneficial in that it would reduce some of the opposition to such land conversions.
	Environmental CAP Projects	This measure would encourage the application of Sec 1135 projects at locations consistent with the overall comprehensive planning efforts. Sec 1135 of the Water Resources Development Act of 1986. Authority provides for constructing environmental restoration projects where a Corps project contributed to the degradation of the environment.
	EMP Projects	This measure would encourage the application of EMP projects at locations consistent with the overall comprehensive planning efforts. Sec 1103 of the Water Resources Development Act of 1986. Authority provides for the development of habitat rehabilitation and enhancement projects (HREPs) within the UMRS.
Recreation Measures		
	Interpretive Trails	Feature developed at project compatible locations within the numerical limits consistent with the Corps' master planning effort.
	Access Roads	Feature developed at project compatible locations within the numerical limits consistent with the Corps' master planning effort.
	Parking Lots	Feature developed at project compatible locations within the numerical limits consistent with the Corps' master planning effort.
	Boat Ramps	Feature developed at project compatible locations within the numerical limits consistent with the Corps' master planning effort.

PURPOSE AND FUNCTION OF REGIONAL FOCUS GROUPS

Each Focus Group, with respect to its region, shall provide input and feedback to the Corps' study team on the following:

- Problems, Opportunities and Concerns
- Potential Planning Constraints
- Study Objectives
- Appropriate Measures
- Formulation of Alternative Plans
- Impacts of Alternative Plans
- Selection of Recommended Plan

UMRCP Regional Focus Group 1 –
Upper Mississippi River (Dubuque, IA to Anoka, MN)

County/Regional Planning Agency

Metropolitan Council (Twin Cities, MN)
Winona County Planning
LaCrosse County Planning
Dubuque County Planning

Transportation

Minnesota DOT
Iowa DOT
Wisconsin DOT

Recreation

Marina owner/operator.
Ducks Unlimited
Trout Unlimited

Economic NGO

Upper Mississippi Waterways Association
National Corn Growers Association
American Soybean Association

Environmental NGO

Audubon Society (Dan McGuiness)
UMRBA (Holly Stoerker/Barb Narimore)
Mississippi River Citizen's Commission (Robin Grawe)

Natural Resource Agencies

USFWS Region 3 (refuges)
Minnesota DNR
Iowa DNR
Wisconsin DNR

Total on RFG #1: 20 people

S T R A W M A N

REGIONAL FOCUS GROUP (Thebes to Alton)

Agricultural Interests:

Agricultural D&LD representative from Open River selected by UMIMRA

Agricultural D&LD representative from Open River selected by UMIMRA

Farm Bureau representative

Commercial Interests:

Commercial Interest to be selected by UMIMRA

Tri-city Regional Port Authority

Transportation:

Planning Director
MODOT (either HQ office or District Office)

Planning Director
IDOT (either HQ office or District Office)

Planning Director
Union Pacific Railroad

Municipal:

Planning Director
St. Louis, MO

Planning Director
E St. Louis

Planning Director
Arnold, MO

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Floodplain Manager
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Regional Planning Commissions:

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Jack Norman
Sierra Club