Appendix 6-1

Linkages between resource management strategies' recommendations, Plan objectives, and regional water-related issues

Agricultural Lands Stewardship Workgroup – RMS/Issues Linkage

UFR IRWM Resource Management Strategies **Rows: Color Code** # X RMS High Priority for Ag Workgroup # Y RMS of Interest for Ag Workgroup		Lack of consistent supply of surface & ground H_2O	Water-Demand vs Supply-Competing/Historical Uses	Climate Change: Snow pack-precipitation,	Regulatory costs (time, money, leadership)	Conveyance System Infrastructure	Clarification of Water Rights & Decrees	Groundwater Basin Recharge	Surface Water Storage	Management of Upland Forests-Storage and Evapotranspiration	Irrigation Management	Water Quality Management (nutrient, sediment, pathogen)	Holistic Management (soil health/forage mixes, etc.)	Availability of Public/Private Grazing Lands	Collaboration between Interests, eg treated muni water for irrigation	Capacity of Groups & individuals in Ag Community	Wildlife/Habitat Enhancement
1	**Agricultural water use efficiency**	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
2	Urban Water Use Efficiency																
3	**Flood Management**		?	X	X	X	X	X	X	X					X		
4	Conveyance - Delta																
5	**Conveyance – Regional/Local**	X	X	X	X	X	X	X	X	X	X	X			X	X	
6	System Reoperation																
7	Water Transfers																
8	**Conjunctive Management**	X	X	X	X	X	X	X	X	X	X				X		X
9	Desalination																
10	Precipitation Enhancement																
11	**Municipal Recycled Water**	X			X	?		X			X	X			X		
12	Surface Storage-CALFED/State																
13	**Surface Storage – Regional/Local**	X	X	X	X	X	X	X	X	X	X				X	X	
14	Drinking Water Treatment/Distribution																
15	Groundwater/Aquifer Remediation																
16	**Matching Water Quality to Water Use**	X	X	X		?	X	X		X	X	X	X		X		
17	**Pollution Prevention**	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
18	Salt and Salinity Management																
19	Urban Stormwater Runoff Management																
20	**Agricultural Land Stewardship**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
21	**Ecosystem restoration**	X	X	X	X		X	X	X	X	X	X	X		X		X
22	**Forest management**	X	X	X	X			X	X	X		X			X		X
23	**Land Use Planning and Management**	X	X	X	X		X	X	X	X		X	X		X		X
24	**Recharge Area Protection**	X	X	X	X	X	X	X	X	X	X	X			X	X	X
25	**Sediment Management**	X		X	X	X	X	X	X	X	X	X	X		X	X	X
26	**Watershed Management**	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
27	Economic Incentives																X
28	**Outreach and Engagement**	X	X	X	X		X	X	X	X	X	X	X		X	X	X

Agricultural Lands Stewardship Workgroup – RMS/Issues Linkage

UFR IRWM Resource Management Strategies **Color Code to Rows:** **# X RMS High Priority for Ag Workgroup** **# Y RMS of Interest for Ag Workgroup**		Lack of consistent supply of surface & ground H_2O	Water-Demand vs Supply-Competing/Historical Uses	Climate Change: Snow pack-precipitation.	Regulatory costs (time, money, leadership)	Conveyance System Infrastructure	Clarification of Water Rights & Decrees	Groundwater Basin Recharge	Surface Water Storage	Management of Upland Forests-Storage and Evapotranspiration	Irrigation Management	Water Quality Management (nutrient, sediment, pathogen)	Holistic Management (soil health/forage mixes, etc.)	Availability of Public/Private Grazing Lands	Collaboration between Interests, eg treated muni water for irrigation	Capacity of Groups & individuals in Ag Community	Wildlife/Habitat Enhancement
29	Water and culture																X
30	Water-Dependent Recreation																X
31	Other RMS(eg: crop idling, irrigated ag retirement, rainfed ag,)	X	X	X			X		X			X			X	X	
32	Wastewater/NPDES																

Agricultural Lands Stewardship Workgroup – IRWM Objectives/Issues Linkage

	Upper Feather River IRWM Plan Objectives	Ag Lands Stewardship Workgroup Issues																
		Lack of consistent supply of surface & ground H_2O	Water-Demand vs Supply-Competing/Historical Uses	Climate Change: Snow pack-precipitation, temperature	Regulatory costs (time, money, leadership)	Conveyance System Infrastructure	Clarification of Water Rights & Decrees	Groundwater Basin Recharge	Surface Water Storage	Management of Upland Forests-Evapotranspiration/Storage	Irrigation Management	Water Quality Management (nutrient, sediment, pathogen, etc.)	Holistic Management (soil health/forage mixes, etc.)	Availability of Public/Private Grazing Lands	Collaboration between Interests, eg treated muni water for irrigation	Capacity of individuals and groups in Ag Community	Wildlife/Habitat Enhancement	
1	Restore natural hydrologic functions.	X		X				X		X								
2	Reduce potential for catastrophic wildland fires in the Region.			X					X					X				
3	Balance the needs of forest health, habitat preservation, fuels reduction, forest fire prevention, and economic activity in the Upper Feather River Region.	X	X	X	X	X		X	X	X	X	X	X			X	X	
4	Build communication and collaboration among water resources stakeholders in the Region.		X		X		X				X			X	X	X		
5	Work with the Department of Water Resources to develop strategies and actions for the management, operation, and control of State Water Project facilities in the Upper Feather River Watershed in order to increase water supply, recreational and environmental benefits to the Region.	X	X		X	X	X		X		X							
6	Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	X	X					X							X			
7	Continue to actively engage in Federal Energy Regulatory Commission (FERC) relicensing of hydroelectric facilities in the Region.																	
8	Address economic challenges of municipal service providers to serve customers.														X			
9	Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the Basin Plan.							X	X	X							X	
10	Address water resources and wastewater needs of Disadvantaged Communities (DACs) and Native Americans.														X			
11	Coordinate management of recharge areas and protect groundwater resources.	X	X		X			X							X	X		
12	Balance management of recharge areas for all users including agriculture, municipal and environmental resource needs.	X	X		X	X		X							X	X	X	
13	Improve coordination of land use and water resources planning. (CWP)	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
14	Maximize agricultural, environmental and municipal water use efficiency.	X	X	X	X	X		X	X	X	X				X	X		
15	Effectively address climate change adaptation and/or mitigation in water resources management.	X	X	X									X					
16	Improve efficiency and reliability of water supply and other water-related infrastructure.	X	X	X	X	X	X	X	X	X					X	X	X	
17	Enhance public awareness and understanding of water management issues and needs.	X	X	X			X									X	X	
18	Address economic challenges of agricultural producers.	X	X		X	X					X					X	X	
19	Work with counties/communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding.														X	X		

Floodplains, Meadows, & Waterbodies Workgroup – RMS/Issues Linkage

UFR IRWM Resource Management Strategies	Floodplains, Meadows, & Waterbodies Workgroup Issues																		
	Water Quality	Water Quantity	Fisheries Habitat	Grazing on public lands	Degraded Meadows	Wildfire Impacts	Waterbodies-sediments	Conifer Encroachment	Water Storage/Release - Impoundments	Flood Management - Timing	Preserving Floodplains	Extending Stream Flow – Water release	Improve Wildlife Habitat	Improve Recreation Facilities	Sediment Management	Abandoned mines impacts	Salmon – Middle Fork	Integration of Programs	Better Collaboration btn agencies & people	Threatened & Endangered Species
Flood Management *	X	X	X		X		X		X	X	X	X			X			X		
Conveyance – Regional/Local	X	X	X				X		X			X	X		X			X	X	X
Conjunctive Management*		X							X		X	X						X	X	
Precipitation Enhancement	X	X										X							X	
Surface Storage – Regional/Local	X	X	X				X		X	X		X	X	X				X		
Pollution Prevention*	X		X										X	X		X				
Agricultural land stewardship	X	X	X		X		X				X		X		X			X	X	X
Ecosystem Restoration*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Forest Management	X	X	X	X	X	X	X	X				X	X		X			X	X	X
Land Use Planning & Management				X														X	X	
Recharge Area Protection*	X	X			X				X	X	X	X	X					X		
Sediment Management*	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X
Watershed Management*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Outreach & Engagement																		X	X	
Water & Culture		X																X	X	
Water-dependent Recreation*	X		X						X				X	X			X	X		

NOTE: FMW Workgroup will probably add "Monitoring" as one of its issues.

Floodplains, Meadows & Waterbodies Workgroup – Objectives/Issues Linkage

Upper Feather River IRWM Plan Objectives	Floodplains, Meadows & Waterbodies Workgroup Issues																			
	Water Quality	Water Quantity	Fisheries Habitat	Grazing on public lands	Degraded Meadows	Wildfire Impacts	Waterbodies-sediments	Conifer Encroachment	Water Storage/Release - Impoundments	Flood Management - Timing	Preserving Floodplains	Extending Stream Flow – Water release	Improve Wildlife Habitat	Improve Recreation Facilities	Sediment Management	Abandoned mines impacts	Salmon – Middle Fork	Integration of Programs	Better Collaboration btn agencies & people	Threatened & Endangered Species
Restore natural hydrologic functions.	X	X	X		X		X			X	X	X			X			X	X	
Reduce potential for catastrophic wildland fires in the Region. (Uplands)																				
Balance the needs of forest health, habitat preservation, fuels reduction, forest fire prevention, and economic activity in the Upper Feather River Region. (Uplands)																				
Build communication and collaboration among water resources stakeholders in the Region.																		X	X	
Work with the Department of Water Resources to develop strategies and actions for the management, operation, and control of State Water Project facilities in the Upper Feather River Watershed in order to increase water supply, recreational and environmental benefits to the Region.		X							X					X					X	
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality. (Muni)																				
Continue to actively engage in Federal Energy Regulatory Commission (FERC) relicensing of hydroelectric facilities in the Region.	X	X	X				X		X	X		X					X		X	
Address economic challenges of municipal service providers to serve customers. (Muni)																				
Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the Basin Plan.	X	X	X		X		X				X				X	X		X	X	
Address water resources and wastewater needs of Disadvantaged Communities (DACs) and Native Americans. (MUNI,Tribal)																				
Coordinate management of recharge areas and protect groundwater resources.																		X	X	
Improve coordination of land use and water resources planning.																		X	X	
Maximize agricultural, environmental and municipal water use efficiency.		X			X			X										X	X	
Effectively address climate change adaptation and/or mitigation in water resources management.																		X	X	
Improve efficiency and reliability of water supply and other water-related infrastructure.									X			X							X	
Enhance public awareness and understanding of water management issues and needs.																			X	
Address economic challenges of agricultural producers. (Ag)																				
Work with counties/communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding.																			X	

NOTE: MFW Workgroup will probably add "Monitoring" as one of their issues.

Municipal Services Workgroup – RMS/Issues Linkage

UFR IRWM Resource Management Strategies	Municipal Services Workgroup Issues															
	Water Quality	Wastewater Reuse	Infiltration/ Inflow	Inadequate Storage	Aging infrastructure	Regulatory Requirements	Wastewater pond/levee integrity	Regional Facilities	Dam/reservoir integrity	Reservoir capacity loss	Insufficient O&M Revenue	Limited staff and budget	Insufficient flow capacity	Location of private wells	Staff training	Flood Management
Agricultural water use efficiency																
Urban Water Use Efficiency		**X**	**X**	**X**	**X**	**X**			**X**	**X**	**X**		**X**	**X**	**X**	
Flood Management	X		X	X		X	X		X	X			X			X
Conveyance – Regional/Local	X	X		X		X		X	X	X					X	
System Reoperation	**X**	**X**								**X**	**X**	**X**			**X**	
Water Transfers		**X**		**X**	**X**	**X**		**X**	**X**	**X**		**X**			**X**	
Conjunctive Management	X	X		X	X	X		X		X		X		X		
Municipal Recycled Water	**X**	**X**		**X**	**X**	**X**		**X**	**X**			**X**			**X**	
Surface Storage – Regional/Local	X	X		X	X	X			X	X			X			
Drinking Water Treatment/Distribution	**X**			**X**	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
Groundwater/Aquifer Remediation	**X**	**X**										**X**		**X**	**X**	**X**
Matching Water Quality to Water Use	X	X				X					X	X			X	X
Pollution Prevention			X		X	X	X		X					X	X	X
Salt and Salinity Management	X	X	X			X						X			X	
Urban Stormwater Runoff Management	**X**		**X**	**X**				**X**	**X**				**X**			**X**
Land Use Planning and Management	X	X						X				X	X			
Recharge Area Protection	X		X	X	X	X	X		X					X		X
Sediment Management	X			X		X				X		X			X	X
Watershed Management	X		X			X		X			X	X	X		X	X
Economic Incentives	X	X	X	X	X			X			X	X			X	
Outreach and Engagement						X					X	X			X	
Water-Dependent Recreation	X			X		X			X	X						X
Wastewater/NPDES	**X**	**X**	**X**		**X**	**X**	**X**	**X**			**X**	**X**	**X**		**X**	

Notes: Shaded and bold lines are priority RMS selected by the Workgroup.

Municipal Services Workgroup – Issues/Objectives Linkage

Upper Feather River IRWM Plan Objectives	Municipal Services Workgroup Issues															
	Water Quality	Wastewater Reuse	Infiltration/ Inflow	Inadequate Storage	Aging infrastructure	Regulatory Requirements	Wastewater pond/levee integrity	Regional Facilities	Dam/reservoir integrity	Reservoir capacity loss	Insufficient O&M Revenue	Limited staff and budget	Insufficient flow capacity	Location of private wells	Staff training	Flood Management
Restore natural hydrologic functions.			X						X	X			X			
Reduce potential for catastrophic wildland fires in the Region.				X	X							X		X		
Balance the needs of forest health, habitat preservation, fuels reduction, forest fire prevention, and economic activity in the Upper Feather River Region.																
Build communication and collaboration among water resources stakeholders in the Region.	X	X				X									X	
Work with the Department of Water Resources to develop strategies and actions for the management, operation, and control of State Water Project facilities in the Upper Feather River Watershed in order to increase water supply, recreational and environmental benefits to the Region.	X					X			X	X					X	X
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	X	X	X			X		X				X			X	
Continue to actively engage in Federal Energy Regulatory Commission (FERC) relicensing of hydroelectric facilities in the Region.																
Address economic challenges of municipal service providers to serve customers.	X	X	X	X	X	X						X			X	
Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the Basin Plan.	X	X			X	X	X	X	X	X	X	X		X	X	
Address water resources and wastewater needs of Disadvantaged Communities (DACs) and Native Americans.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Coordinate management of recharge areas and protect groundwater resources.	X	X	X			X								X	X	
Improve coordination of land use and water resources planning.	X	X						X	X			X		X	X	X
Maximize agricultural, environmental and municipal water use efficiency.		X			X	X			X					X		
Effectively address climate change adaptation and/or mitigation in water resources management.	X	X		X	X					X				X		X
Improve efficiency and reliability of water supply and other water-related infrastructure.	X	X	X	X	X				X	X	X		X	X	X	
Enhance public awareness and understanding of water management issues and needs.	X	X		X		X	X		X	X		X			X	X
Address economic challenges of agricultural producers.		X								X				X		
Work with counties/communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding.												X			X	

Uplands Forest Workgroup – RMS/Issues Linkage

UFR IRWM Resource Management Strategies	Uplands Forest Workgroup Issues													
	Soil impacts	Loss of riparian forests	Infiltration/ Inflow changes	Conversion of forests to brush	Loss of critical habitats	Post burn rehabilitation	Active biomass infrastructure is Inadequate	Regional wood processing Facilities Upgrades	Conifer encroachment into meadows aspens & black oaks	Groundwater infiltration & soil moisture	Fire liability	Increasing stand densities & ET	Role of applied science & data: Monitoring, modeling, & management & linkages to policy regulations, & economic incentives	Water for fire & forest management
Agricultural Water Use Efficiency^			X							X		X		
Flood Management^			X							X		X		
Conveyance – Regional/Local^			X											
System Reoperation														X
Water Transfers										X		X		
Conjunctive Management^ N/A														
Municipal Recycled Water														X
Surface Storage – Regional/Local														X
Drinking Water Treatment/Distribution N/A														
Groundwater/Aquifer Remediation N/A														
Matching Water Quality to Water Use N/A														
Pollution Prevention^	X					X								
Forest Management X	**1,2, 4, 5**	**1, 2, 3, 4, 5**	**1, 2, 3, 4**	**1, 2, 3, 5**	**1, 2, 3**	**1, 2, 3, 4, 5**	**1, 3, 4**	**3, 4, 5**	**1,2, 3. 5**	**2, 3, 5**	**1. 3, 5**	**1, 2, 3, 5**	**1, 2, 3, 4. 5**	**1**
Ecosystem Restoration X	**1, 2 3, 4, 5**	**1, 2, 3, 4, 5**	**2, 3, 4, 5**	**1, 2, 3, 5**	**1, 2..3, 5**	**1, 2, 3, 4, 5**	**1, 3, 4**	**3, 4, 5**	**1.2.3, 4**	**2, 3, 5**	**3, 5**	**1, 2, 3, 5**	**1, 2, 3, 4, 5**	
Precipitation Enhancement^			**X**				**X**	**X**		**X**		**X**		**X**
Land Use Planning and Management^		**X**			**X**		**X**	**X**						**X**
Recharge Area Protection^												**X**		
Sediment Management X	**1, 5**	**1, 5**	**1, 5**	**1, 5**	**1, 2, 5**	**1, 5**	**-**	**-**	**-**	**-**	**-**	**-**	**1, 2, 5**	
Watershed Management X	**1, 3, 5**	**1, 2, 3, 4, 5**	**1, 2, 3, 5**	**1, 2, 3, 4, 5**	**1, 3, 5**	**1, 3, 5**	**3, 5**	**3, 4, 5**	**1, 2, 3, 4, 5**	**1, 2, 3, 4, 5**	**3, 4, 5**	**1, 2, 3, 4, 5**	**1, 2, 3, 4, 5**	
Economic Incentives X	**-**	**-**	**2, 3, 4, 5**	**-**	**-**	**-**	**1, 3, 5**	**3, 4, 5**	**3, 4, 5**	**2, 3, 5**	**1, 3, 4, 5**	**2, 3, 4,5**	**5**	**1**
Water and Culture ^					**X**		**X**		**X**		**X**			**X**
Water-Dependent Recreation^														**X**
Outreach and Engagement X	**1,2, 3, 5**	**1, 2, 3, 5**	**X**	**1, 2, 3, 4, 5**	**1, 2, 3, 5**	**1, 2, 3, 5**	**1, 3, 4, 5**	**1, 3, 4, 5**	**1, 2, 3, 5**	**2, 3, 4, 5**	**1, 3, 5**	**1, 2, 3, 4, 5**	**X**	**X**
Wastewater/NPDES Permits														

Uplands Forest Workgroup – RMS/Issues Linkage

Uplands and Forests Water Issues: reducing ET & increasing infiltration for forest ecosystem health

1 **Reducing catastrophic wildfire to improve watershed conditions and water supply and quality**

2 **Climate Change: forest species impacts and impacts to the forest hydrograph**

3 **Pace and scale of forest health treatments for watershed health, and for enhanced groundwater storage, and instream benefits**

4 **Forest management infrastructure and implementation capacity**

5 **Adaptive management and evaluation processes that integrate field measurements with larger watershed monitoring and modeling networks**

Uplands Forest Workgroup – Objectives/Issues Linkage

Upper Feather River IRWM Plan Objectives	Uplands Forest Workgroup Issues													
	Soil impacts	**Loss of riparian forests**	**Infiltration/ Inflow changes**	**Conversion of forests to brush**	**Los of critical habitats**	**Post burn rehabilitation**	**Active biomass infrastructure is Inadequate**	**Regional wood processing Facilities Upgrades**	**Conifer encroachment into meadows aspens & black oaks**	**Groundwater infiltration & soil moisture**	**Fire liability**	**Increasing stand densities & ET**	**Role of applied science & data: Monitoring, modeling, & management & linkages to policy, regulations, & economic incentives**	**Water for fire & forest management**
Restore natural hydrologic functions.	**x**	**x**	**x**	**x**	**x**	**x**			**x**	**x**		**x**	**x**	
Reduce potential for catastrophic wildland fires in the Region in order to improve watershed conditions for downstream benefits and beneficiaries.	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Balance and integrate the needs of forest health, water supply and quality, habitat preservation, fuels reduction, forest fire prevention, and economic activity in the Upper Feather River Region.	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Build communication and collaboration among water resources stakeholders in the Region.	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Work with the Department of Water Resources to develop strategies and actions for the management, operation, and control of State Water Project facilities in the Upper Feather River Watershed in order to increase water supply, recreational and environmental benefits to the region & for California	**X**	**X**	x	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	x
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.											**x**			**x**
Continue to actively engage in Federal Energy Regulatory Commission (FERC) relicensing of hydroelectric facilities in the Region.			**x**										**x**	**X**
Address economic challenges of municipal service providers to serve customers.											X			X
Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the Basin Plan.	**x**	**x**	**X**	**x**	**x**	**x**			**x**	**x**	**x**	**x**	**x**	
Address water resources and wastewater needs of Disadvantaged Communities (DACs) and Native Americans.			**x**										**x**	**x**
Coordinate management of upland recharge areas and protect and enhance groundwater storage.	X	**x**	**x**	X	**x**	**x**			X	**x**		X	**x**	
Improve coordination of land use and water resources planning.	X	x	**x**	X	x	x	X	X	X	X	X	X	X	X
Maximize agricultural, environmental and municipal water use efficiency.													X	X
Effectively address climate change adaptation and/or mitigation in water resources management.	x	x		**x**	x	x	X	X	x	x	x	**x**	**x**	**x**
Improve efficiency and reliability of water supply and other water-related infrastructure.	X	X	X	**x**	X	X	X	X	X	X	X	X	**x**	**x**
Enhance public awareness and understanding of water management issues and needs.	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**
Address economic challenges of agricultural & forest product producers.							**x**	**x**			**x**			**x**
Work with counties/communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding.	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**

Uplands Forest Workgroup – Objectives/Issues Linkage

Uplands and Forests Water Issues: reducing ET & increasing infiltration for forest ecosystem health

1 **Reducing catastrophic wildfire to improve watershed conditions and water supply and quality within the region and for downstream water users**

2 **Climate Change: forest species impacts and impacts to the forest hydrograph**

3 **Pace and scale of forest health treatments for watershed health and for enhanced groundwater storage and instream benefits**

4 **Forest management infrastructure and implementation capacity**

5 **Adaptive management and evaluation processes that integrate field measurements with larger watershed monitoring and modeling networks**