Compensatory Mitigation

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Objectives

- Brief overview of mitigation process/sequence
- Discuss the Colorado Mitigation Procedures
- Identify requirements of a compensatory mitigation plan

Overview

The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to waters of the United States authorized by DA permits (33 CFR 332.3(a)(1))

- Watershed approach – mitigation in **same watershed** and most likely to **replace lost functions & services**
- Preference for restoration – **more likely to succeed** (vs. creation) and **less likely to impact ecologically important uplands**
- Hierarchy
  - Mitigation bank (MB)
  - In-lieu fee (ILF) programs
  - Permittee-responsible mitigation (PRM)
    - Onsite and in-kind
    - Offsite and/or out-of-kind

Mitigation Sequence

Avoidance

Minimization

Compensation

Definition

Compensatory mitigation means the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of **offsetting unavoidable adverse impacts** which remain after all appropriate and practicable avoidance and minimization has been achieved.

2008 Mitigation Rule
Purpose & General Requirements

Mitigation Rule establishes standards and criteria for the use of all types of compensatory mitigation, including on- and off-site PRM (33 CFR 332.1(a)(1))

- Consistency
- Replaced previous guidance
- Culmination of best practices of successes and lessons learned from past failures
- Requirements and considerations for PRM (33 CFR 332.4(c))

2008 Mitigation Rule
General Requirements (continued)

2015 South Pacific Division (SPD) Mitigation and Monitoring Guidelines (MMGs)

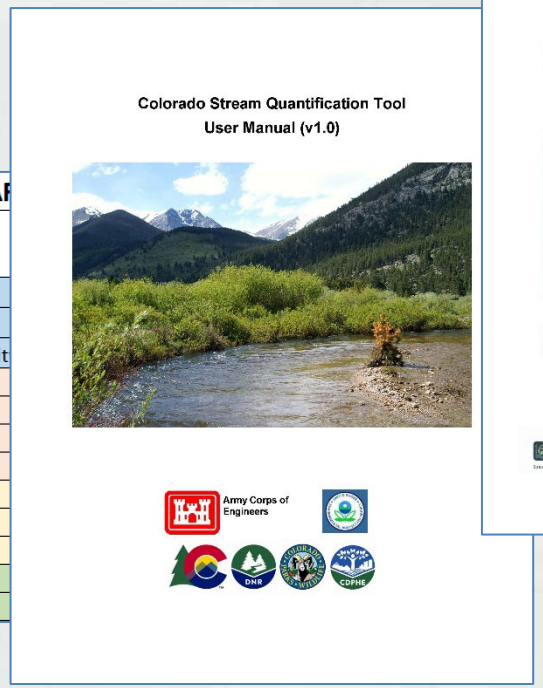
- Overview of 2008 Mitigation Rule
- Functional and Condition Assessment Methods (FCAM)
- Crediting – Mitigation Ratio Setting Checklist (MRSC)
- Monitoring

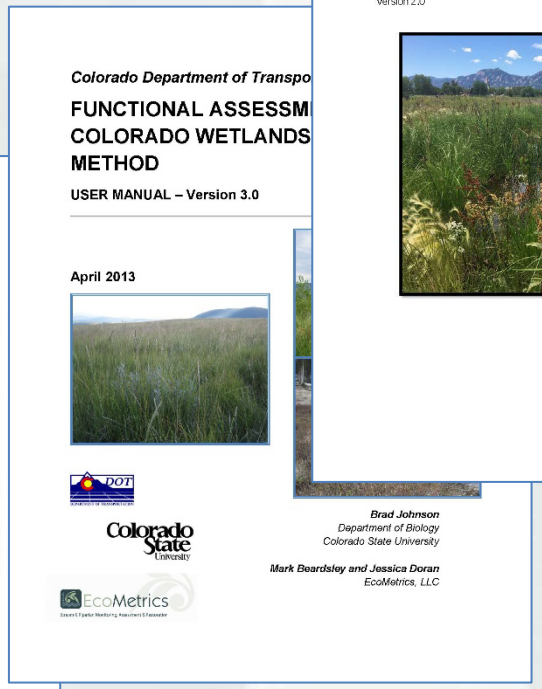
General Requirements (continued)

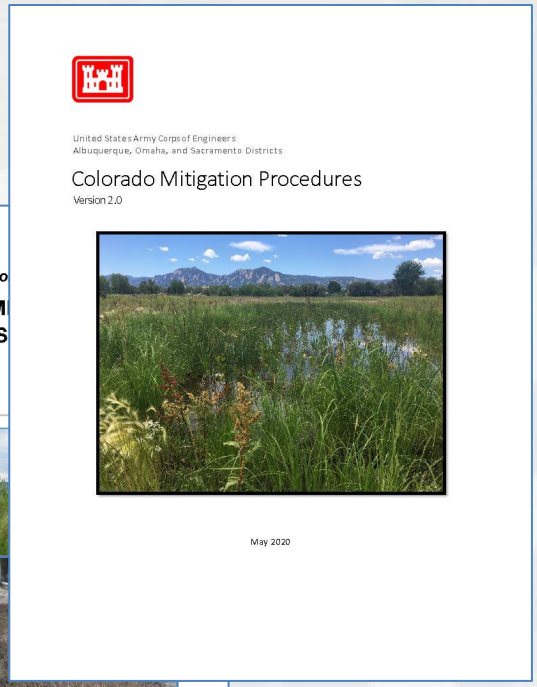
Colorado Mitigation Procedures (COMP) v2

- Colorado consistency
- Colorado Stream Quantification Tool (CSQT) v1.0
- FACWet

FUNCTION BASED PAR	
Functional Category	**Function-Based Parameters**
Reach Hydrology & Hydraulics	Reach Runoff
	Baseflow Dynamics
	Floodplain Connectivit
Geomorphology	Large Woody Debris
	Lateral Migration
	Bed Form Diversity
	Riparian Vegetation
Physicochemical	Temperature
	Dissolved Oxygen
	Nutrients
Biology	Macroinvertebrates
	Fish







Colorado Mitigation Procedures (COMP)

- Standardizes process for determining debits and credits
- Applicable for wetlands and streams
- Applicable **when mitigation is required**
  - Wetlands
    - ***Loss*** exceeds 1/10th of an acre (i.e., acreage threshold); and
    - Pre-construction notification (PCN) is required
  - Streams
    - ***Loss*** exceeds 3/100ths of an acre (i.e., acreage threshold); and
    - Pre-construction notification (PCN) is required
- When compensatory mitigation may not be required
  - Another form of mitigation would be more environmentally appropriate; or
  - Adverse environmental effects are not more than minimal
  - **Requires waiver**
  - **Corps cannot be arbitrary and capricious**

COMP (continued)

Mitigation Rule defines debit as:

- A unit of measure
  - Functional
  - Areal
  - Another suitable metric
  - Based on type of aquatic resource impacted
- Represents the loss of aquatic functions at the impact site

Wetlands

- Mitigation Ratio Setting Checklist (MRSC)
- FACWet when loss ≥ ½ acre

Streams

- CSQT – FF loss

Wetland Debits

Date:	Corps File No.:	SPL-2013-NNN		
Impact Site Name:		ORM Resource Type:		
Impact Cowardin or HGM type:				4.2
	Column A			
	Mitigation Site Name:			
	Mitigation Type:			
	ORM Resource Type:			
	Cowardin/HGM type:			
	Hydrology:			
Qualitative impact-mitigation comparison:	Starting ratio:	**1.0**	:	**1.0**
	Ratio adjustment:			
	Baseline ratio:	**1.00**	:	**1.00**
	PM justification:			see
Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached):		:	
Preservation (Table 2, step A)	Baseline ratio:		:	**1.00**
Preservation (Table 2, step E)	Ratio adjustment:			
Mitigation site location:	Ratio adjustment:			
	PM justification:			
Net loss of aquatic resource surface area:	Ratio adjustment:			
	PM justification:			
Type conversion:	Ratio adjustment:			
	PM justification:			
Risk and uncertainty:	Ratio adjustment:	**1.5**		
	PM justification: Added 0.3 for each risk factor including 1 (PRM), 6 (Long term maintenance structures), 7 (planned vegetation maintenance), 8(shallow buried structures), 9 (absence of long term preservation mechanism)			
Temporal loss:	Ratio adjustment:	**1.6**		
	PM justification: Step A (0.05x12) + Step B (+1)			
Final mitigation ratio(s):	Baseline ratio from 2.a, b or c:	1.00	:	1.00
	Total adjustments (3-8):	3.10		
	Final ratio:	**4.10**	:	**1.00**
	Proposed impact (total):	4.22		acres
		0		linear feet
	to Resource type:	0		
	Cowardin or HGM:	0		
	Hydrology:	0		
	Required Mitigation*:	17.30		acres
		0.0		linear feet
	of Resource type:	0		
	Cowardin or HGM:	0		
	Hydrology:	0		
	Proposed Mitigation**:	4.20		acres
				linear feet
	Impact Unmitigated:	76		%
		3.20		acres
	Additional PM comments:			

MRSC provides framework

- A variety of impact-mitigation scenarios were considered during development of MRSC
- Steps 2-7 provide adjustment ranges to address the factors listed at 33 CFR 332.3(f)(2)
  - Functions
  - Location (relative)
  - Method of mitigation (net loss)
  - Conversion of aquatic resource type to another
  - Risk & uncertainty (e.g., experience and degree of legal protection)
  - Temporal loss (5% per month)
- Adjustments require justification
- Instructions provide examples for guidance in determining adjustment amounts
- Cumulative adjustments produce a reasonable range of final mitigation ratios

Stream Debits

Colorado Stream Quantification Tool (CSQT) v1

Option 1

- CSQT used to calculate existing condition score (ECS) ***and*** proposed condition score (PCS)
- Can result in functional gain (i.e., credit) if PCS is greater than ECS
- Requires data collection for ECS ***and*** PCS
- *May be* the best option when the applicant expects an accrual of function (credit)

Option 2

- CSQT used to **measure** existing conditions
- Debit Tool used to **estimate** proposed conditions
- Debit tool estimates percent functional loss (i.e., debit) based on impact severity tiers
- Activity may result in no loss (Impact Severity Tier 0)
- Requires data collection for ECS

Option 3

- Uses **Debit Calculator** to estimate ECS ***and*** PCS
- ECS based on percent value per foot
- PCS based on Impact Severity Tier
- Activity may result in no loss (Impact Severity Tier 0)
- **No data collection required**

Compensatory Mitigation Hierarchy

Order of preference

- MB must be used if credits available
- ILF must be used if no bank credits available
- PRM may be used if no MB or ILF available or if Corps determines PRM is more **environmentally preferable**
  - Onsite and in-kind
  - Offsite and/or out-of-kind
- Permittee proposes mitigation but Corps ultimately decides what is environmentally preferable

Permit Conditions – 33 CFR 332.3(k)

- Compensatory mitigation must be included in **special conditions**
  - **Type** and **amount** of required compensatory mitigation
  - Must be **enforceable**
- IPs
  - Must identify the **party that is responsible** for providing the mitigation
  - Must incorporate **final mitigation plan** into the permit conditions
  - Must state **objectives**, **performance standards**, and required **monitoring**
  - **Financial assurances** and/or **long-term management**
- GPs
  - Must describe compensatory mitigation proposal (**may be conceptual or detailed**)
  - Must state that work in WOTUS **cannot proceed** until DE approves final mitigation plan (unless DE determines impracticable or unnecessary)
  - Must include **items i-iv above** (to the extend appropriate & practicable)
- MBs & ILFs
  - Credit **type(s) and amount(s)** required to offset debits
  - IPs – must identify the **specific MB or ILF**
  - GPs – not required to identify specific MB or ILF but must state that the **Corps must approve of the MB or ILF** before securing credits

12 Elements of a Compensatory Mitigation Plan 33 CFR 332.4(c)

12 Elements

1. Objectives
2. Site Selection
3. Site Protection Instrument
4. Baseline Information
5. Determination of Credits
6. Mitigation Work Plan
7. Maintenance Plan

12 Elements (continued)

8. Performance Standards
9. Monitoring Requirements
10. Long-term Management Plan
11. Adaptive Management Plan
12. Financial Assurances

1. Objectives

- Aquatic resource type(s) and amount(s) to be provided
- Method of compensation (restoration, establishment, preservation, etc.)
- How the anticipated functions of mitigation site will address watershed needs

2. Site Selection

A description of the factors considered during the site selection process

- Consideration of watershed needs
- Applicable onsite alternatives
- Practicability of accomplishing ecologically self-sustaining site (ecological suitability)

2. Site Selection (continued)

Ecological suitability

- Hydrology, soil, and other physical/chemical characteristics
- Habitat diversity, habitat connectivity, etc.
- Size and location relative to hydrological source (including availability of **water rights**)
- Compatibility with adjacent land uses
- Reasonably foreseeable effects on ecologically important aquatic or terrestrial resources, cultural sites, or habitat for federally- or state-listed T&E species
- Other relevant factors
  - Regional development trends
  - Relative location in the watershed
  - Local/regional goals for certain habitat types (e.g., habitat corridors)
  - Floodplain management goals
  - Water quality goals
  - Climate change

2. Site Selection (continued)

Water rights

- Identify and discuss existing water rights
- Adequacy of hydrology source for long-term sustainability
- Colorado Division of Water Resources (DWR) review - do water rights upstream/downstream of the mitigation site have the potential to influence hydrology at the mitigation site, and vice versa?
- DWR consultation and written statement if project may require water rights and/or related permits to manipulate surface or groundwater hydrology

3. Site Protection Instrument

The aquatic habitats, riparian areas, buffers, and uplands that comprise the overall compensatory mitigation project must be provided long-term protection through real estate instruments or other available mechanisms, as appropriate (33 CFR 332.7(a))

- Conservation easements
- Dead restrictions
- Government entity open space/preserve management plan (requires justification why other options are not used)
- Government property – federal facility management plans or integrated natural resources management plans
- A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the mitigation site

3. Site Protection (continued)

Site protection instrument requirements:

- Prohibits **incompatible uses** (e.g., clear cutting or mineral extraction)
- *May* allow compatible uses (e.g., fishing or grazing rights)
- **Must include a provision** requiring 60-day advance notification to the Corps before any action is taken to void or modify, including transfer of title to, or establish any other legal claims over the mitigation site
- Mitigation on federal lands – must include statement requiring the agency to provide alternative mitigation if changes in statute, regulation, or agency needs/mission result in an incompatible use
- **Long-term protection mechanism** (e.g., real estate instrument, management plan) must be approved by the Corps in advance of, or concurrent with, the authorized impacts

4. Baseline Information

Description of the ecological characteristics

- Both the impact and mitigation sites
- Historic and existing
  - Plant communities, hydrology, soil conditions
  - Delineation of aquatic resources
- Other characteristics appropriate to the type of resource
  - Impacts, mitigation, and reference site
  - Adjacent land uses
  - Easements
  - Mineral rights

5. Determination of Credits

Description and rationale for the credits (type and amount) to be provided

- MB & ILF
  - Number and type(s) of credits
  - How these were determined
- PRM
  - Must demonstrate how mitigation project will provide the required compensation for unavoidable impacts
  - Comparison of the mitigation site to impact site
  - Watershed location – mitigation site location relative to impact site
  - Must address risk and uncertainty
- Mitigation Rule requires the Corps to document mitigation requirement in the administrative record
  - MRSC used to determine **wetland mitigation ratios**
  - MRSC is net sum calculator and requires assessment of impacts and mitigation
- CSQT used to calculate stream credits
  - PCS – ECS = ΔFF

Wetland Credits

Method of Mitigation (Mitigation Type)		Credit Ratio
Establishment (Creation)		1:1 - 2:1
Restoration	Re-establishment	1:1 - 2:1
	Rehabilitation	2:1 - 3:1
Enhancement		3:1 - 5:1
Preservation*	In combination with above activities	5:1 - 10:1
	Alone	case-by-case
Upland buffer enhancement & preservation**		5:1 - 15:1

- COMP provides wetland credit ratios for each mitigation type
- 33 CFR 332.3(h) is used to determine when preservation may be appropriate
- Upland buffer is almost always appropriate to protect the wetland mitigation site and should be incorporated as part of site protection measures
- Preservation typically cannot exceed 10% of total credits
- FACWet used to document success (i.e., functional gain)

6. Mitigation Work Plan

Detailed written specifications and work descriptions for the PRM project

- The geographic boundaries
- Construction methods, timing, and sequence
- Source(s) of water (water right needed/secured?)
- Method(s) for establishing the desired plant community
- Plans to control invasive plant species
- Proposed grading plan
- Soil management
- Erosion control

6. Mitigation Work Plan (continued)

Stream mitigation

- CSQT
- Planform geometry
- Channel form (e.g., typical channel cross-sections)
- Design discharge
- Riparian area plantings

Wetland mitigation

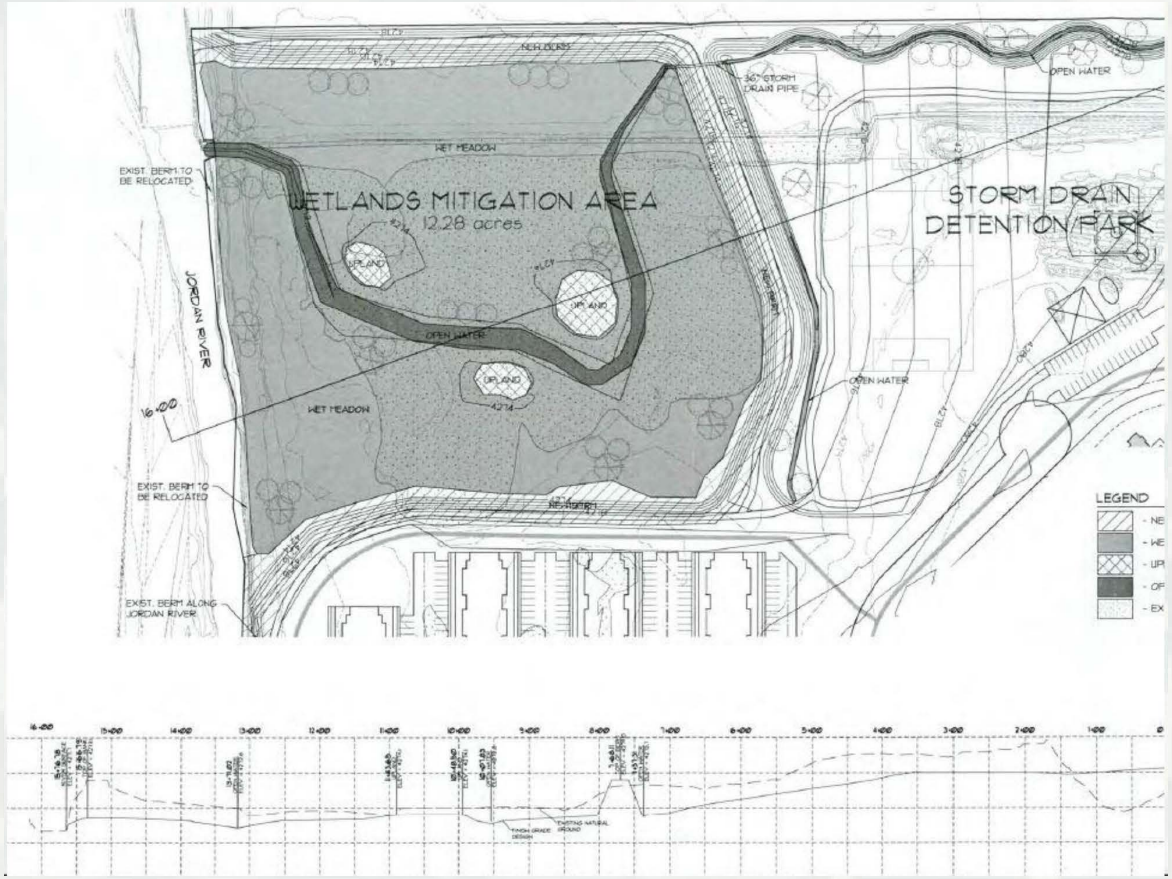
- MRSC
- FACWet

6. Mitigation Work Plan (continued)

Description of **avoidance measures** for non-impacted aquatic resources or other sensitive resources within the compensatory mitigation site

- Erosion control
- Flagging
- Fencing
- Signage
- Construction monitor
- Contractor training

6. Mitigation Work Plan (continued)



- Existing and proposed WOTUS types and amounts
- Existing and proposed grading
- Proposed structures (if applicable)
- Cross section and profile

7. Maintenance Plan

A description and schedule of maintenance activities required to ensure the continued viability of the resource once initial construction is completed

- Weed treatment
- Irrigation
- Fence maintenance
- Inspection schedule (including structures)
- Remedial measures (e.g., replanting and regrading)

8. Performance Standards

Ecologically-based standards that will be used to determine whether the mitigation project is achieving its objectives

- SPD Uniform Performance Standards (UPS)
  - Physical, hydrological, and biological metrics
  - Interim success
  - Final success
  - Adaptive management
  - Consider existing conditions at reference site(s)
- PM should work with applicants help identify applicable performance standards for the site

9. Monitoring Requirements

Description of parameters monitored to determine if site is on track to meet performance standards and if adaptive management is needed

- Monitoring methods
- Contingency measures
- Monitoring period (consider targeted AR Type)
- Reporting
- Attainment of success and release from monitoring and reporting

10. Long-term Management Plan

A description of how the PRM site will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including:

- Annual cost estimates/budget
- Long-term financing mechanism
- Long-term steward

11. Adaptive Management Plan

Management strategy to address unforeseen changes in site conditions or other components of the mitigation project, including the party or parties responsible for implementing adaptive management measures

- Failure of the site (rehab or relocate)
- Act of nature (fire, flood)

12. Financial Assurances

If required, the permit special conditions must require financial assurances to be in place prior to commencing the permitted activity

- A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the mitigation project will succeed (i.e., meet performance standards)
- 2015 SPD MMGs
  - Amount (33 CFR 332.3(n)(2))
  - Approval process
  - Release process
- Short-term and interim should be combined where possible to minimize the number of releases
- A formal, documented commitment from a government agency or public authority may be appropriate in lieu of financial assurances

Other Information

Corps may require additional information to determine the appropriateness, feasibility, and practicability of the compensatory mitigation project

Examples:

- Biological Assessment
- Cultural resources inventory
- Phase I Environmental Site Assessment
- Mineral rights
- Title restrictions/leans

Resources

SPA District webpage: www.spa.usace.army.mil/reg/mitigation

- Summary of 2008 Mitigation Rule (33 CFR 332)
- Colorado Mitigation Procedures (COMP) v2
- SPD Standard Operating Procedure (SOP) for Determination of Mitigation Ratios & Mitigation Ratio-Setting Checklist (MRSC)
- Colorado Stream Quantification Tool (CSQT)
- Mitigation Plan Requirements for IPs and GPs (33 CFR 332.4(c)(i)-(ii))
- 2015 SPD Regional Compensatory Mitigation and Monitoring Guidelines
- SPD Uniform Performance Standards

NWO District webpage:

www.nwo.usace.army.mil/Missions/Regulatory-Program/Mitigation/

Questions?

Thank you!

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