

## Sediment Management Alternatives Ranking Tool Summary & Scoring Examples

The ranking tool is composed of five evaluation factors. Each of the factors has a maximum of 10 points, which are distributed among a number of criteria. The maximum score of each criteria is relative to how significant that criteria is to the evaluation of the given factor. For example, under the Project Performance Factor the Ability to Meet Peak Demands criterion was assigned a maximum of 5 points with the other 5 points being the maximum for the Ability to Meet Long-Term Needs / Sustainability criterion; thus, the two criteria are considered to be equally important in evaluating the Project Performance Factor. The higher the score, the better the alternative is considered. The total score for each alternative is a weighted average of the factors scores, that is, each factor score is multiplied by its respective weight (0-100%) and added together. All five factor weights must add up to 100%. For example, if all factors were considered to be equally important, each factor would have a weight of 20%.

The five factors and their criteria are listed below. The next pages show examples for the various scores under each criteria.

### Factors and Criteria

#### **Environmental Factor**

- Concerns about habitat, including effects on special status vegetation and wildlife species (4 points)
- Concerns about water quality or quantity, including groundwater effects (3 points)
- Concerns about air quality and emissions (3 points)

#### **Social / Quality of Life Factor**

- Concerns about traffic and noise (5 points)
- Concerns about effects on scenic/visual resources (3 points)
- Concerns about effects on recreation and recreational resources (2 points)

#### **Project Performance Factor**

- Ability to meet peak (emergency) demands (5 points)
- Ability to meet long term (20-year) needs/sustainability (5 points)

#### **Project Implementability Factor**

- Within existing rights-of-way (including easements)/Likelihood of acquiring land required (2 points)
- Complexity of permitting (2 points)
- Technical certainty, proven technologies, available, and easily acquired (2 points)
- Maintenance intensity (2 points)
- Consistency with surrounding land uses (2 points)

#### **Cost Factor**

- Index Based on Unit Present Value of Capital and Operating Cost (10 points)

### Examples of Scoring Process for Sediment Alternatives

**Factor: Environmental**

**Criteria: Habitat, including Connectivity**

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
4	Effects on sensitive wildlife habitat & habitat corridors not expected	Standard or low emission trucking	Existing processing facility, landfill, or a new facility in industrial area	Quarry, landfill, or new SPS in an industrial area
3	Some potential adverse effects on sensitive species which can be mitigated	Slurry pipelines less than 1 mile	New facility in remote area w/ recoverable habitat	Areas w/recoverable habitat or beach nourishment
2	Significant concerns but mitigation strategies are available	Sluicing in existing channels for less than 5 miles		
1	Serious concerns that would require extensive mitigation	New rail lines for 1-5 miles		Offshore placement
0	High potential for immitigable effects on special status species & habitat	New rail lines longer than 5 miles	New facility in area w/ sensitive habitat	Continue use of active SPS w/ sensitive habitat

### Examples of Scoring Process for Sediment Alternatives

**Factor: Environmental**

**Criteria: Water Quality or Quantity, including Groundwater Recharge**

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
3	Do not reduce, consume, or degrade the quality of local water resources including groundwater recharge capability	Standard or low emission trucking	Existing processing facility or a new processing at a landfill or in an industrial area	Placement in areas with recoverable habitat
2	Produces impacts that are temporary, & that will be in compliance with all regulatory agencies	Trucking in channels for less than 10 miles	Processing near sensitive habitat (2.5)	Placement near sensitive habitat (2.5)
1	Produces long term impacts that may be difficult to reliably mitigate, & which may be difficult to obtain water resource regulatory agency concurrence	Sluicing in existing channels or slurry pipelines for 10-20 miles		

**Examples of Scoring Process for Sediment Alternatives**

0	Alternative consuming significant quantities of local runoff or groundwater without replenishment, compromising groundwater recharge capability, or which degrades the quality of local water resources such that the water cannot be used for its normally intended purposes	Sluicing in existing channels or slurry pipelines over 20 miles scores 0.5		
---	---	--	--	--

### Examples of Scoring Process for Sediment Alternatives

**Factor: Environmental**

**Criteria: Air Quality & Emissions**

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
3	Avoids the effects of dust & air pollution emissions, or could be implemented without requiring mitigations beyond best management practices	Sluicing in existing channels or slurry pipelines up to 20 miles	New processing facility in a remote area	Acquire property and develop new SPS in a remote area with recoverable or sensitive habitat
2	Moderate potential to generate concerns about effects to local communities from dust & air pollution, or where acceptable mitigations could be implemented	Low emission trucking 1-10 miles	New processing facility in industrial area or at a landfill	Existing quarry pit
1	Significant potential to generate significant public or regulatory concerns that require substantial mitigations or entail constraints on operations	Standard trucking from 5-20 miles	New processing facility at an active SPS	Active SPS with recoverable or sensitive habitat
0	High potential to generate concerns about dust & air quality, or where feasible mitigations will be unacceptable to the regulatory agencies & public	Standard trucking greater than 20 miles scores 0.5	New processing facility in a residential area with or without sensitive habitat	Acquire property and develop new SPS near a residential area with recoverable or sensitive habitat

### Examples of Scoring Process for Sediment Alternatives

**Factor: Social / Quality of Life**

**Criteria: Traffic & Noise**

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
5	Traffic & noise avoided without mitigation	Slurry/sluicing systems		
4	Some levels of traffic & noise over limited distances or durations	Cable/bucket or conveyor systems less than 10 miles	Existing processing facility or a new processing facility in remote area	Offshore placement, existing quarry, or a new SPS in a remote area w/ recoverable habitat
3	Moderate levels of traffic & noise with some mitigation	Trucking in channels		Continued use of an active SPS with recoverable or sensitive habitat
2	Exposure to high levels of traffic & noise over limited distances or durations	Standard or low emission trucking	New processing facility in an industrial area	
1	Exposure to high levels of traffic & noise over longer distances or durations		New processing facility in remote area w/ sensitive habitat	
0	Extensive exposure of sensitive receptors to traffic & noise		New processing facility near residential areas	Acquire property for a new SPS near residential area with recoverable or sensitive habitat

### Examples of Scoring Process for Sediment Alternatives

**Factor: Social / Quality of Life**

**Criteria: Scenic/Visual Resources**

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
3	Avoids degradation of the viewshed including adverse visual impacts to scenic & natural areas	Standard or low emission trucking	Existing facility or develop a new processing facility at a landfill, in a remote area, or an industrial area	Existing quarry pit or offshore placement
2	Produces temporary alteration of the viewshed rather than permanent alteration	New rail lines less than 1 mile	New processing facility at an existing SPS	New SPS in a remote area with recoverable or sensitive habitat
1	Moderate potential to generate concerns related to permanent changes to the viewshed, but where mitigations will likely be acceptable to the regulatory agencies & the public	Cable/bucket systems 10-20 miles in length or conveyor systems over 20 miles in length	New processing facility near a residential area with recoverable or sensitive habitat	Acquire property and develop a new SPS near a residential area with recoverable or sensitive habitat
0	High potential to generate concerns about permanent alteration of the viewshed, including scenic & natural areas, or landmarks	New rail lines over 20 miles		

### Examples of Scoring Process for Sediment Alternatives

**Factor: Social / Quality of Life**

**Criteria: Recreation**

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
2	No effect on public's access to & use of regional recreational resources	Trucking, cable/bucket systems, or conveyor systems	Existing processing facility or a new facility in a remote area	Industrial areas, landfills or existing quarries
1	Potential to produce moderate concerns with respect to recreational resources yet could be mitigated in a manner acceptable to recreational interests & the public	New rail lines 1-10 miles in length	New processing facility near a residential area with recoverable or sensitive habitat (1.5)	New SPS near a residential area with recoverable or sensitive habitat (1.5)
0	Significant impacts & concerns regarding recreational resources for which no acceptable mitigation could be implemented	New rail lines longer than 20 miles in length		

### Examples of Scoring Process for Sediment Alternatives

**Factor:** Performance

**Criteria:** Ability to Meet Peak (Emergency) Needs

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
5	High capability to handle peak sediment production periods	Standard or low emission trucking for less than 1 mile		Retired (inactive) quarry owned by third party
4	Moderate to relatively high potential to handle peak sediment production events	Standard or low emission trucking for 5-10 miles	New processing facility at a landfill, remote area, or industrial area	Acquire property & develop new SPS in a remote or in a residential area with recoverable or sensitive habitat
3	Moderate potential to handle peak sediment production events	Conveyor system less than 1 mile or new rail line for 5-10 miles	Processing near residential area w/ sensitive habitat	Continue use of an active SPS with recoverable or sensitive habitat
2	Low to moderate potential to handle peak sediment production events	Conveyor systems for 1-5 miles		Landfill as cover
1	Low potential to handle peak sediment production events	Cable/bucket or slurry systems for 1-5 miles		
0	Clearly incapable of handling peak sediment production events	Sluicing in existing channels (Note: cannot sluice during storm events)		

### Examples of Scoring Process for Sediment Alternatives

**Factor: Performance**

**Criteria: Ability to Meet Long-Term Needs / Sustainability**

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
5	High probability of effectively handling at least a 20-year sediment production & is sustainable, i.e. could be used indefinitely	Low emission trucking (4.5)	New processing facility capable of handling peak sediment quantities at any feasible location	Offshore sediment placement
4	High probability of effectively handling at least a 20-year sediment production while reusing sediment; however, not expected to be used indefinitely	Standard trucking, slurry pipelines, or new rail lines	Existing processing facility (4.5)	Retired (inactive) quarry pit with 20 years or greater storage capacity
3	High capability to handle the 20-year sediment production but may not be sustainable past that	Conveyor system longer than 1 mile.		Operational quarry with 20 years of sediment capacity
2	Estimated capability of 10-20 years to handle long-term sediment production	Cable/bucket system for 1-5 miles.		
1	Estimated capability of 5-10 years to handle long-term sediment production	Cable/bucket system for 5-10 miles.		Continue use of an active SPSs
0	Estimated capability of less than 5 years to handle long-term sediment production	Cable/bucket system longer than 10 miles		

### Examples of Scoring Process for Sediment Alternatives

**Factor:** Implementability

**Criteria:** Within Existing Rights-Of-Way (including Easements)/Likelihood of Acquiring Land Required

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
2	High potential to be sited entirely within existing lands, rights-of-way, & easements	Standard or low emission trucking	Existing processing facility	Continue use of an active SPS
1	Moderate potential to be sited at least partially within existing rights-of-way or easements, or where additional lands, easements, or rights-of-way can be readily acquired	Cable/bucket or conveyor systems for 5-10 miles	New processing facility in an industrial area	Operational quarry pit or offshore placement
0	Requires all infrastructure & components be sited within, or have exclusive use of, entirely new lands, rights-of-way, or easements	New rail lines longer than 5 miles	New processing facility near a residential area with recoverable or sensitive habitat	Acquire property and develop a new SPS in a residential area with sensitive habitat

### Examples of Scoring Process for Sediment Alternatives

**Factor:** Implementability

**Criteria:** Technical Certainty, Proven Technologies, Available, & Easily Acquired

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
2	High potential for technical certainty & which utilizes proved technologies that are readily available on the open market (low risk of performance problems)	Standard or low emission trucking	New processing facility in an industrial area or at a landfill	Existing quarry pit
1	Moderate potential for technical certainty	Sluicing in existing channels and slurry pipelines less than 5 miles	New processing facility near a residential area w/ sensitive habitat	Offshore placement
0	An alternative that could not be implemented using proven technologies that are available & easily acquired on the open market	Cable/bucket systems longer than 5 miles		

### Examples of Scoring Process for Sediment Alternatives

**Factor:** Implementability

**Criteria:** Complexity of Permitting

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
2	High potential for successful permitting, or where the permitting requirements will be of low intensity	Low emission trucking	Existing processing facility (1.5)	Continue use of an active SPS with recoverable or sensitive habitat
1	Moderate potential for successful permitting, or where the permitting requirements will be of moderate intensity	Cable/bucket or conveyor systems less than 10 miles in length	New processing facility at an existing SPS or landfill	Existing quarry pit
0	An alternative that could not be implemented without overcoming numerous permitting hurdles, or where the permitting requirements will be of extreme intensity	New rail lines of any length	New processing facility near a residential area with or without sensitive habitat	Develop a new SPS on lands near a residential area with recoverable or sensitive habitat

### Examples of Scoring Process for Sediment Alternatives

**Factor:** Implementability

**Criteria:** Maintenance Intensity

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
2	Utilizes infrastructure durable enough to remain in place over the project life with routine (low tech) maintenance & high reliability (low incidence of downtime)	New rail lines	New processing facility in a remote location	Continue use of an active SPS with recoverable habitat
1	Moderately complex and/or somewhat more frequent maintenance requirements over the project life	Cable/bucket, slurry pipelines, or conveyor systems less than 5 miles in length	New processing facility at a landfill	Operational quarry pit
0	Complex and/or frequent maintenance requirements that could compromise overall project performance, or has a low potential for a reasonable service life	Cable/bucket, slurry pipelines, or conveyor systems greater than 20 miles in length	New processing facility near a residential area with sensitive habitat (0.5)	Develop new SPS on FCD property near a residential area with sensitive habitat (0.5)

### Examples of Scoring Process for Sediment Alternatives

**Factor:** Implementability

**Criteria:** Consistency with Surrounding Land Uses

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
2	High potential for compatibility with existing land uses & service area activities	Sluicing in existing channels (1.5)	New processing facility at a landfill	Beach nourishment or offshore placement
1	Moderate potential for compatibility with existing land uses & service area activities	Standard and low emission trucking	New processing facility at an industrial area	Continue use of an active SPS which has sensitive habitat
0	Incompatible with existing land uses	New rail lines	New processing facility in a residential area with or without sensitive habitat	Acquire property and develop new SPS in a residential area with recoverable or sensitive habitat

### Examples of Scoring Process for Sediment Alternatives

**Factor:** Cost

**Criteria:** Index Based on Unit Present Value of Capital & Operating Cost

Points	Definition	Example		
		Transportation	Processing Location	Placement Location
10	Expected ranges of costs for placement/processing & transportation options were given relative values. The options expected to have the lowest cost in each category were given a value of 10.	Standard trucking and sluicing less than 1 mile	Existing processing facility	Continued use of an active SPS with recoverable habitat
9-1	Values assigned in inverse proportion to relative cost. An option that is expected to cost twice as much as the lowest cost option will be given a score of half of the top score, or 5. Costs for transportation options will generally increase with haul distances and, therefore, longer distances will have lower scores.	<p>Standard trucking between 1 and 5 miles (8.9)</p> <p>Conveyor systems between 1 and 5 miles (6)</p> <p>Standard trucking between 10 and 20 miles (5.3)</p>	<p>New processing at a landfill (8)</p> <p>New processing near a remote area w/ sensitive habitat (6)</p> <p>New processing near a residential area w/ sensitive habitat (2)</p>	<p>New SPS on FCD property in remote area w/ recoverable habitat (8)</p> <p>New SPS on acquired land in remote area w/ recoverable habitat (6)</p> <p>New SPS on acquired land in remote area w/</p>
0	Placement/processing & transportation options that are expected to be more than 10 times larger than the lowest value in each of these categories will be given 0.	New rail lines more than 5 miles		SPS on acquired land near residential area w/ sensitive habitat