Choosing By Advantages (CBA)

National Park Service

Process for the Selection of the Preferred Alternative

Tamiami Trail Modifications: Next Steps Project

PDT Meeting

October 5, 2009

10 am – 12 pm

CBA Process for Identification of the Preferred Alternative

- Prior to 11/3-11/4 Workshop, complete the following:
  - **Step 1**: Identify the Factors
  - **Step 2**: Identify the Measures and Metrics
  - **Step 3**: Assign Attributes/Advantages Analysis to Appropriate Sub-Team
  - **Step 4**: Assign Attributes to Each Factor for all Alternatives
  - **Step 5**: Determine the Least Preferred Attribute for each Factor
  - **Step 6**: Calculate or Assign Advantages for all Alternatives for each Factor
  - **Step 7**: Identify the Most Important Advantage for each Factor for all Alternatives

CBA Process for Identification of the Preferred Alternative (Con't)

- During 11/3-11/4 Workshop, complete the following:
  - **Step 8**: Identify the Paramount Advantage
    - Use priority criteria provided by NPS
  - **Step 9**: Decide the Remaining Important Advantage
  - **Step 10**: Decide the Other Advantages
  - **Step 11**: Check Importance Values Across Factors
  - **Step 12**: Total the Advantages
  - **Step 13**: Add the Alternative Costs to the Matrix
  - **Step 14**: Review the Importance-To-Cost Graph

Hypothetical Project: Select Campsite

- Three potential sites
  - Alternative 1
  - Alternative 2
  - Alternative 3
- Interdisciplinary Project Team (IDT) has been formed and data collected on each site
- Project team has identified the factors that will be used in the selection of the site
  - Water
  - Tent Spot
  - Table
  - Privacy
- Choosing By Advantages will used by the team to identify the preferred alternative (most desirable site for the cost)

Step 1-Identify the Factors

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes								
Advantages								
Factor 2-Tent Spot								
Attributes								
Advantages								
Factor 3-Table								
Attributes								
Advantages								
Factor 4-Privacy								
Attributes								
Advantages								
Total Importance of Advantages								
Initial Costs								

Step 2-Identify the Measures and Metrics

Factor	Factor Measure (Metric)/Target	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes	Distance from site to Water (feet)							
Advantages	Target: 0 feet							
Factor 2-Tent Spot								
Attributes	Site ground slope (degree of level)							
Advantages	Target: level							
Factor 3-Table								
Attributes	Table Present (Table/No Table)							
Advantages	Target: Table							
Factor 4-Privacy								
Attributes	Degree of privacy (narrative)							
Advantages	Target: High privacy							
Total Importance of Advantages								
Initial Costs								

This column was not included in the handout but deemed important by DOI. This column was added for clarification and will also be used in the CBA matrix for the TTM: Next Steps alternative analysis. Proposed factors, measures and metrics will be provided in a similar matrix for our project at the end of this presentation.

Step 3-Assign Attributes/Advantages Analysis to Appropriate Sub-Team

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes	Distance from site to Water (feet)							
Advantages	Target: 0 feet							
Factor 2-Tent Spot								
Attributes	Site ground slope (degree of level)							
Advantages	Target: level							
Factor 3-Table								
Attributes	Table Present (Table/No Table)							
Advantages	Target: Table							
Factor 4-Privacy								
Attributes	Degree of privacy (narrative)							
Advantages	Target: High privacy							
Total Importance of Advantages								
Initial Costs								

The need for the sub-team assignments will be made evident when we present the proposed factors and associated attributes at the conclusion of this presentation. In this example, no sub-teams exist, so none are assigned.

Step 4-Subteam Assigns Attributes to Each Factor for all Alternatives

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1	Alternative 2	Alternative 3
Factor 1-Water					
Attributes	Distance from site to Water (feet)		60 feet away	260 feet away	150 feet away
Advantages	Target: 0 feet				
Fa					
A			Moderately level	Almost level	Quite sloping
A					
Fa					
At			No table	No table	Table
Ac					
Factor 4-Privacy					
Attributes	Degree of privacy (narrative)		Close sites near roads	Screened distant sites	Screened close sites
Advantages	Target: High privacy				
Total Importance of Advantages					
Initial Costs					

The assigned sub-team will use the factor and measure to calculate or assign the attribute for each alternative. This is repeated for each factor and alternative.

Step 5-Subteam Determines the Least Preferred Attribute for each Factor

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1	Alternative 2	Alternative 3
Factor 1-Water					
Attributes	Distance from site to Water (feet)		60 feet away	**260 feet away**	150 feet away
	Target: 0 feet				
			Moderately level	Almost level	**Quite sloping**
			No table	**No table**	Table
Factor 4-Privacy					
Attributes	Degree of privacy (narrative)		**Close sites near roads**	Screened distant sites	Screened close sites
Advantages	Target: High privacy				
Total Importance of Advantages					
Initial Costs					

Subteam underlines the least preferred attribute. In this example, since 260 ft > 150 ft > 60 ft the 260 ft value is determined to be the least preferred attribute since this alternative site is the greatest distance from water.

Step 6-Subteam Calculates or Assigns Advantages for all Alternatives for each Factor

Numeric: Calculate or establish the advantage the other alternatives have over the alternative having the least preferred attribute. In this example, Alternative 1 is 200 feet closer (260 feet-60 feet) to water than alternative 2 (alternative having the least preferred attribute).

		Alternative		
	b Team ssigned	1	2	3
		60 feet away	**260 feet away**	150 feet away
		200 feet (=260-60) closer		110 feet (=260-150) closer
		Moderately level	Almost level	**Quite sloping**
		Moderately more level	Much more level	
Factor 3-Table				
Attributes	Table Present (Table/No Table)	No table	**No table**	Table

Non-numeric: In this example, alternative 3 has the least preferred attribute for the factor slope. Since this is a non-numeric attribute, a narrative difference is assigned to the advantage the other alternatives have when compared to the least preferred attribute. Therefore, alternative 1 becomes "Moderately more level" when compared to the higher slope of alternative 3 and alternative 2 is "much more level" when compared to alternative 3. This is repeated for each factor and alternative.

Initial Costs

Step 7-Subteam Identifies the Most Important Advantage for each Factor for all Alternatives

Factor	Factor Measure (Metric)	Sub Team Assigned	1		
Factor 1-Water					
Attributes	Distance from site to Water (feet)		60 feet away	260 feet away	150 feet away
Advantages	Target: 0 feet		**200 feet closer**		110 feet closer
Factor 2-Tent Spot					
Attributes	Site ground slope (degree of level)		Moderately level	Almost level	Quite sloping
Advantages	Target: level		Moderately more level	**Much more level**	
Fa					
At			e	No table	Table
Ac					**Table versus no table**
Fa					
A			ar roads	Screened distant sites	Screened close sites
A				**Much more privacy due to screening and remoteness**	Moderately more privacy due to screening
T					
Initial Costs					

Circle the most important advantage for all factors across all alternatives.

Circle the most important advantage for each Factor. This is the advantage that comes closest to the target for that advantage.

For example, for Factor: Tent Spot, alternative 2 has the most important advantage by being closest to the target for this advantage of "level".

Example of Project Spreadsheet Going Into CBA Workshop

At the completion of Steps 1-7, ENP will compile subteam results and send to entire PDT for review and concurrence prior to workshop.

		Alternative		
		1	2	3
Factor 1-Water				
Attributes	Distance from site to Water (feet)	60 feet away	**260 feet away**	150 feet away
Advantages	Target: 0 feet	200 feet closer		110 feet closer
Factor 2-Tent Spot				
Attributes	Site ground slope (degree of level)	Moderately level	Almost level	**Quite sloping**
Advantages	Target: level	Moderately more level	Much more level	
Factor 3-Table				
Attributes	Table Present (Table/No Table)	No table	**No table**	Table
Advantages	Target: Table			Table versus no table
Factor 4-Privacy				
Attributes	Degree of privacy (narrative)	**Close sites near roads**	Screened distant sites	Screened close sites
Advantages	Target: High privacy		Much more privacy due to screening and remoteness	Moderately more privacy due to screening
Total Importance of Advantages				
Initial Costs				

The following steps will be completed as part of the CBA Workshop

During 11/3-11/4 Workshop, complete the following:

- **Step 8**: Decide on the Paramount Advantage
  - Use priority criteria provided by NPS (detailed in subsequent slide)
- **Step 9**: Decide the Remaining Important Advantage
- **Step 10**: Decide the Other Advantages
- **Step 11**: Check Importance Values Across Factors
- **Step 12**: Total the Advantages
- **Step 13**: Add the Alternative Costs to the Matrix
- **Step 14**: Review the Importance-To-Cost Graph

Step 8-Identify the Paramount Advantage

Consider all of the most important advantages and circle the paramount advantage: This is the **most important** of the important advantages.

Factor	Factor Measure (Metric)	Sub Team Assigned	1	2	3
Factor 1-Water					
Attributes	Distance from site to Water (feet)		60 feet away	260 feet away	150 feet away
Advantages	Target: 0 feet		200 feet closer		110 feet closer
Factor 2-Tent Spot					
Attributes	Site ground slope (degree of level)		Moderately level	Almost level	Quite sloping
Advantages	Target: level		Moderately more level	Much more level	
Factor 3-Table					
Attributes	Table Present (Table/No Table)		No tab		
Advantages	Target: Table				
Factor 4-Privacy					
	Degree of privacy		r roads	Screened distant sites	Screened close sites
				Much more privacy due to screening and remoteness	Moderately more privacy due to screening
				100	
Initial Costs					

Assign a value of 100 in the cell adjacent to the paramount advantage

For this example, "much more privacy due to screening and remoteness" was selected as the paramount advantage.

Step 9-Decide the Remaining Important Advantage

Using the value of 100 assigned to the paramount advantage as the benchmark, assign relative values of importance to the remaining important advantages. This is done by comparing each remaining important advantage, directly or indirectly, to the paramount advantage.

Attributes	Distance from site to Water (feet)		60 feet away		260 feet away		150 feet away	
Advantages	Target: 0 feet		200 feet closer	40			110 feet closer	
Factor 2-Tent Spot								
Attributes	Site ground slope (degree of level)		Moderately level		Almost level		Quite sloping	
Adva			el		Much more level	70		
Factor								
Attribu					No table		Table	
Advan							Table versus no table	65
Factor								
Attributes	Degree of privacy (narrative)		Close sites near roads		Screened distant sites		Screened close sites	
Advantages	Target: High privacy				Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	
Total Importance of Advantages								
Initial Costs								

For this example, the values indicated in the importance cell adjacent to each of the remaining important advantages indicate the relative importance of these advantages to the paramount advantage

Step 10-Decide the Other Advantages

Using the values assigned to the most important advantages as a benchmark, assign relative values of importance to the remaining advantages. This is done by comparing each remaining advantage, directly or indirectly, to the important advantage for each factor.
Consider:
What is the relative importance of the advantage of being “200 feet closer” to water in comparison to only being “110 feet closer” to water?

For this example, a value of “30 was assigned to the importance of being “110 feet closer” to water when compared to the importance value of 40 assigned to being “200 feet closer” to water

Assign importance values of “0” to the least important advantage for each factor

			closer	40		0	110 feet closer	30
			y level		Almost level		Quite sloping	
			more level	30	Much more level	70		0
Factor 3-Table								
Attributes	Table Present (Table/No Table)		No table		No table		Table	
A				0		0	Table versus no table	65
F								
Attributes	Degree of privacy (narrative)		Close sites near roads		Screened distant sites		Screened close sites	
Advantages	Target: High privacy			0	Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	45
Total Importance of Advantages								
Initial Costs								

Step 10-Decide the Other Advantages (con't)

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes	Distance from site to Water (feet)		60 feet away		260 feet away		150 feet away	
			et closer	40		0	110 feet closer	30
			tely level		Almost level		Quite sloping	
			y more level	30	Much more level	70		0
Factor 3-Table								
Attributes	Table Present (Table/No Table)		No table		No table		Table	
				0		0	Table versus no table	65
Attributes	(narrative)		Close sites near roads		Screened distant sites		Screened close sites	
Advantages	Target: High privacy			0	Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	45
Total Importance of Advantages								
Initial Costs								

Assign importance values of the remaining advantages somewhere between "0" and the importance value assigned to most important value for that factor

Assign importance values of "0" to the remaining least important advantage for each factor

Step 11-Check Importance Values Across Factors

Examine the importance values across the factors and alternatives for consistency. For example, is the importance score of 30 for alternative 3 under factor 1 equal to the importance score of 30 for alternative 1 under factor 2?

Similarly, is the importance score of 30 for alternative 2 under factor 2 appropriate in consideration of the importance value of 45 for alternative 3 under factor 4?

			Alternative			
			2		3	
Fac						
Att			260 feet away		150 feet away	
Advantages	Target: 0 feet	200 feet closer	40	0	110 feet closer	30
Factor 2-Tent Spot						
Attributes	Site ground slope (degree of level)	Moderately level		Almost level		Quite sloping
Advantages	Target: level	Moderately more level	30	Much more level	70	0
Fa						
At		e		No table		Table
Ac			0	0	Table versus no table	65
Fa						
Attributes	(narrative)	Close sites near roads		Screened distant sites		Screened close sites
Advantages	Target: High privacy		0	Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	45
Total Importance of Advantages						
Initial Costs						

Step 12-Total the Advantages

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes	Distance from site to Water (feet)		60 feet away		260 feet away		150 feet away	
Advantages	Target: 0 feet		200 feet closer	40		0	110 feet closer	30
Factor 2-Tent Spot								
Attributes	Site ground slope (degree of level)		Moderately level		Almost level		Quite sloping	
Advantages	Target: level		Moderately more level	30	Much more level	70		0
Factor 3-Table								
Attributes	Table Present (Table/No Table)		No table		No table		Table	
A				0		0	Table versus no table	65
F								
			ear roads		Screened distant sites		Screened close sites	
Advantages	privacy			0	Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	45
Total Importance of Advantages				**70**		**170**		**140**
Initial Costs								

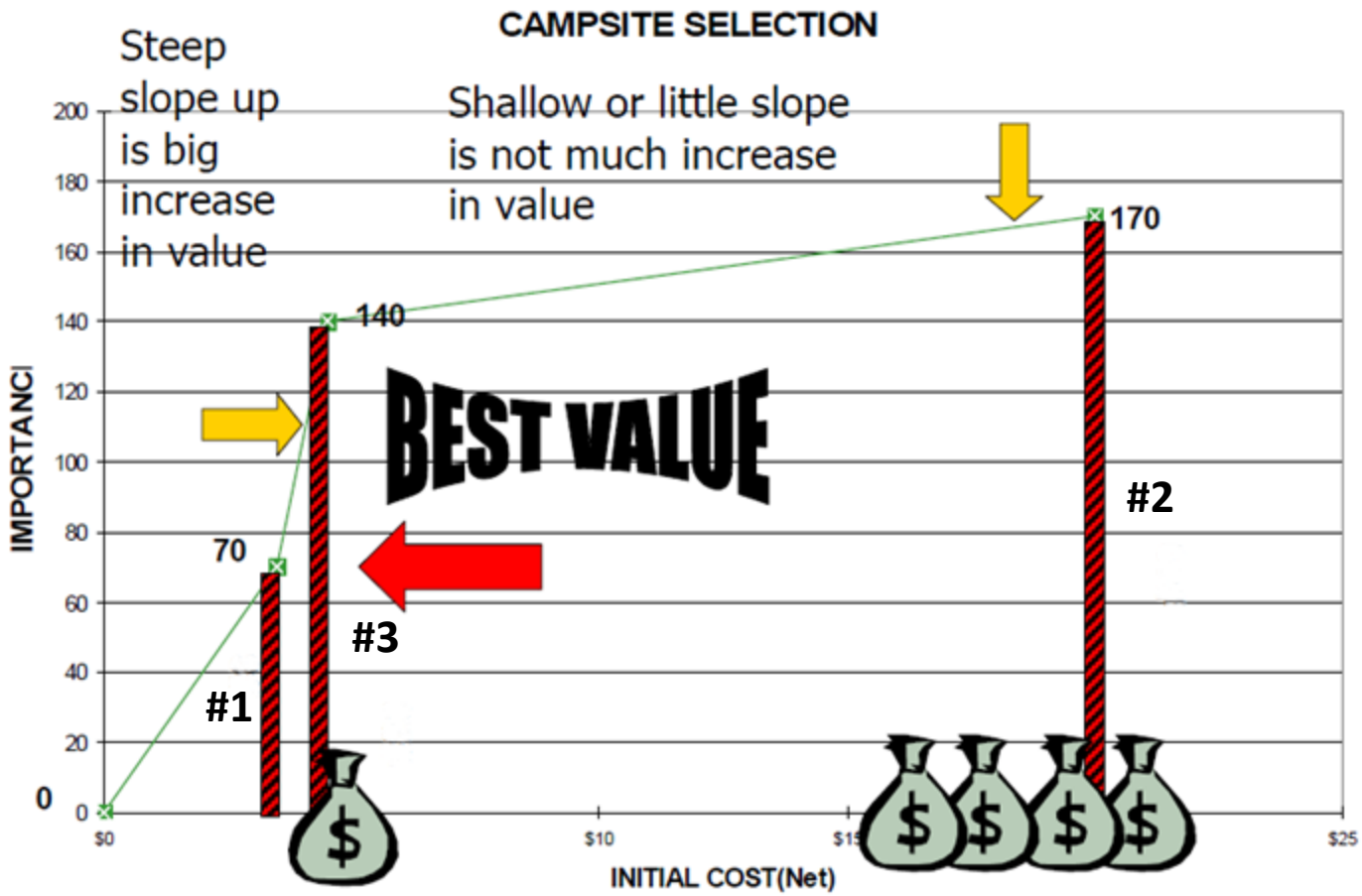
When the team is satisfied with the importance scores across factors and alternatives, total the importance scores for each of the alternatives.

Step 13-Add the Alternative Costs to the Matrix

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes	Distance from site to Water (feet)		60 feet away		260 feet away		150 feet away	
Advantages	Target: 0 feet		200 feet closer	40		0	110 feet closer	30
Factor 2-Tent Spot								
Attributes	Site ground slope (degree of level)		Moderately level		Almost level		Quite sloping	
Advantages	Target: level		Moderately more level	30	Much more level	70		0
Factor 3-Table								
Attributes	Table Present (Table/No Table)		No table		No table		Table	
Adv				0		0	Table versus no table	65
Fac								
Att			roads		Screened distant sites		Screened close sites	
Advantages	Target: High privacy			0	Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	45
Total Importance of Advantages				70		170		140
Initial Costs				$3		$20		$4

Add the alternative costs under the totaled importance scores for each alternative

Step 14: Review the Importance-To-Cost Graph



Example of Project Spreadsheet At End of CBA Workshop

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes	Distance from site to Water (feet)		60 feet away		260 feet away		150 feet away	
Advantages	Target: 0 feet		200 feet closer	40		0	110 feet closer	30
Factor 2-Tent Spot								
Attributes	Site ground slope (degree of level)		Moderately level		Almost level		Quite sloping	
Advantages	Target: level		Moderately more level	30	Much more level	70		0
Factor 3-Table								
Attributes	Table Present (Table/No Table)		No table		No table		Table	
Advantages	Target: Table			0		0	Table versus no table	65
Factor 4-Privacy								
Attributes	Degree of privacy (narrative)		Close sites near roads		Screened distant sites		Screened close sites	
Advantages	Target: High privacy			0	Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	45
Total Importance of Advantages				70		170		140
Initial Costs				$3		$20		$4

Application of CBA Process to Tamiami Trail Modifications: Next Steps Project

Application of CBA Process to Tamiami Trail Modifications: Next Steps Project

- Review strawman matrix containing the following steps:
  - Factors (Step 1)
  - Measures and metrics (Step 2)
  - Assign attributes/advantages analysis to appropriate sub-team (Steps 3)
- Reach consensus on the factors, measures and metrics, and sub-team assignments (Steps 1-3)
- PDT agrees on next sub-team steps in advance of CBA Workshop
  - Assign attributes to each factor for all alternatives (Step 4)
  - Determine the least preferred attribute for each factor (Step 5)
  - Calculate or assign advantages for all alternatives for each factor (Step 6)
  - Identify the most important advantage for each factor for all alternatives (Step 7)

Step 1: PDT Agrees on the Factors

Factor	Factor Measure (Metric)	TTM:NS Sub Team	Alternative											
			No Action		1		2		3		5		6a		6b	
Factor 1-Ecological Connectivity														
Attributes														
Advantages														
Factor 2-Marsh Flow														
Attributes														
Advantages														
Factor 3-Sloughs														
Attributes														
Advantages														
Factor 4-Sheet Flow														
Attributes														
Advantages														
Factor 5-Fish and Wildlife Resources														
Attributes														
Advantages														
Factor 6-Cultural Resources														
Attributes														
Advantages														
Factor 7-Wetlands														
Attributes														
Advantages														
Factor 8-Recreation														
Attributes														
Advantages														
Total Importance of Advantages														
Initial Costs														

Step 2-PDT Agrees on the Measures and Metrics

Factor	Factor Measure (Metric)	TTM:NS Sub Team	Alternative											
			No Action		1		2		3		5		6a	6b
Factor 1-Ecological Connectivity														
Attributes	Amount of bridging (miles)													
Advantages	Target: 9.7 miles													
Factor 2-Marsh Flow														
Attributes	Marsh flow (velocity)													
Advantages	Target: 0.024 ft/sec													
Factor 3-Sloughs														
Attributes	No. Sloughs reconnected (TBD)													
Advantages	Target: Highest number (TBD)													
Factor 4-Sheet Flow														
Attributes	Sheet flow attained (%)													
Advantages	Target: 100%													
Factor 5-Fish and Wildlife Resources														
Attributes	Species mortality (No. of roadkills)													
Advantages	Target: Zero roadkills													
Factor 6-Cultural Resources														
Attributes	TBD													
Advantages	Target: TBD													
Factor 7-Wetlands														
Attributes	TBD													
Advantages	Target: TBD													
Factor 8-Recreation														
Attributes	Opportunities (Score 1-10)													
Advantages	Target: Score of 10													
Total Importance of Advantages														
Initial Costs														

Step 3-PDT Agrees on Sub-Team Assignments for Attributes/Advantages Analysis

Factor	Factor Measure (Metric)	TTM-NS Sub Team	Alternative						
			No Action	1	2	3	5	6a	6b
Factor 1-Ecological Connectivity		ECO							
Attributes	Amount of bridging (miles)								
Advantages	Target: 9.7 miles								
Factor 2-Marsh Flow		ECO							
Attributes	Marsh flow (velocity)								
Advantages	Target: 0.024 ft/sec								
Factor 3-Sloughs		ECO							
Attributes	No. Sloughs reconnected (TBD)								
Advantages	Target: Highest number (TBD)								
Factor 4-Sheet Flow		ECO							
Attributes	Sheet flow attained (%								
Advantages	Target: 100%								
Factor 5-Fish and Wildlife Resources		ECO							
Attributes	Species mortality (No. of roadkills)								
Advantages	Target: Zero roadkills								
Factor 6-Cultural Resources		URS							
Attributes	TBD								
Advantages	Target: TBD								
Factor 7-Wetlands		ECO							
Attributes	TBD								
Advantages	Target: TBD								
Factor 8-Recreation		TBD							
Attributes	Opportunities (Score 1-10)								
Advantages	Target: Score of 10								
Total Importance of Advantages									
Initial Costs									

Step 4-PDT Agrees on Sub-Team Attributes for the Alternatives

Factor	Factor Measure (Metric)	TTM:NS Sub Team	Alternative											
			No Action		1		3		4		5		6a		6b	
Factor 1-Ecological Connectivity		ECO												
Attributes	Amount of bridging (miles)		0.00		2.15		3.34		1.01		1.52		5.05		5.05	
Advantages	Target: 9.7 miles															
Factor 2-Marsh Flow		ECO														
Attributes	Marsh flow (velocity)															
Advantages	Target: 0.024 ft/sec															
Factor 3-Sloughs		ECO														
Attributes	No. Sloughs reconnected (TBD)															
Advantages	Target: Highest number (TBD)															
Factor 4-Sheet Flow		ECO														
Attributes	Sheet flow attained (%)															
Advantages	Target: 100%															
Factor 5-Fish and Wildlife Resources		ECO														
Attributes	Species motality (No. of roadkills)															
Advantages	Target: Zero roadkills															
Factor 6-Cultural Resources		URS														
Attributes	TBD															
Advantages	Target: TBD															
Factor 7-Wetlands		ECO														
Attributes	TBD															
Advantages	Target: TBD															
Factor 8-Recreation		URS														
Attributes	Opportunities (Score 1-10)															
Advantages	Target: Score of 10															
Total Importance of Advantages																
Initial Costs																

Step 5-Subteam Determines the Least Preferred Attribute for each Factor

Factor	Factor Measure (Metric)	TTM:NS Sub Team	Alternative											
			No Action		1		2		4		5		6a		6b	
Factor 1-Ecological Connectivity		ECO												
Attributes	Amount of bridging (miles)		**0.00**		2.15		3.34		1.01		1.52		5.05			
Advantages	Target: 9.7 miles															
Factor 2-Marsh Flow		ECO														
Attributes	Marsh flow (velocity)															
Advantages	Target: 0.024 ft/sec															
Factor 3-Sloughs		ECO														
Attributes	No. Sloughs reconnected (TBD)															
Advantages	Target: Highest number (TBD)															
Factor 4-Sheet Flow		ECO														
Attributes	Sheet flow attained (%)															
Advantages	Target: 100%															
Factor 5-Fish and Wildlife Resources		ECO														
Attributes	Species motality (No. of roadkills)															
Advantages	Target: Zero roadkills															
Factor 6-Cultural Resources		URS														
Attributes	TBD															
Advantages	Target: TBD															
Factor 7-Wetlands		ECO														
Attributes	TBD															
Advantages	Target: TBD															
Factor 8-Recreation		URS														
Attributes	Opportunities (Score 1-10)															
Advantages	Target: Score of 10															
Total Importance of Advantages																
Initial Costs																

Step 6-Subteam Calculates or Assigns Advantages for all Alternatives for each Factor

Factor	Factor Measure (Metric)	TTM:NS Sub Team	Alternative						
			No Action	1	2	4	5	6a	6b
Factor 1-Ecological Connectivity		ECO							
Attributes	Amount of bridging (miles)		0.00	2.15	3.34	1.01	1.52	5.05	5.05
Advantages	Target: 9.7 miles			2.15	3.34	1.01	1.52	5.05	5.05
Factor 2-Marsh Flow		ECO							
Attributes	Marsh flow (velocity)								
Advantages	Target: 0.024 ft/sec								
Factor 3-Sloughs		ECO							
Attributes	No. Sloughs reconnected (TBD)								
Advantages	Target: Highest number (TBD)								
Factor 4-Sheet Flow		ECO							
Attributes	Sheet flow attained (%)								
Advantages	Target: 100%								
Factor 5-Fish and Wildlife Resources		ECO							
Attributes	Species motality (No. of roadkills)								
Advantages	Target: Zero roadkills								
Factor 6-Cultural Resources		URS							
Attributes	TBD								
Advantages	Target: TBD								
Factor 7-Wetlands		ECO							
Attributes	TBD								
Advantages	Target: TBD								
Factor 8-Recreation		URS							
Attributes	Opportunities (Score 1-10)								
Advantages	Target: Score of 10								
Total Importance of Advantages									
Initial Costs									

Step 7-Subteam Identifies the Most Important Advantage for each Factor for all Alternatives

Factor	Factor Measure (Metric)	TTM:NS Sub Team	Alternative											
			No Action		1		2		4		5		6a	6b
Factor 1-Ecological Connectivity		ECO												
Attributes	Amount of bridging (miles)				2.15		3.34		1.01		1.52		5.05	5.05
Advantages	Target: 9.7 miles				2.15		3.34		1.01		1.52		5.05	5.05
Factor 2-Marsh Flow		ECO												
Attributes	Marsh flow (velocity)													
Advantages	Target: 0.024 ft/sec													
Factor 3-Sloughs		ECO												
Attributes	No. Sloughs reconnected (TBD)													
Advantages	Target: Highest number (TBD)													
Factor 4-Sheet Flow		ECO												
Attributes	Sheet flow attained (%)													
Advantages	Target: 100%													
Factor 5-Fish and Wildlife Resources		ECO												
Attributes	Species motality (No. of roadkills)													
Advantages	Target: Zero roadkills													
Factor 6-Cultural Resources		URS												
Attributes	TBD													
Advantages	Target: TBD													
Factor 7-Wetlands		ECO												
Attributes	TBD													
Advantages	Target: TBD													
Factor 8-Recreation		URS												
Attributes	Opportunities (Score 1-10)													
Advantages	Target: Score of 10													

Total Importance of Advantages
Initial Costs

Guidance for Paramount Advantage Identification

- Based on the guidance provided by the National Park Service, the paramount advantage should be identified using the following criteria:
  - **Priority 1**: Is the advantage consistent with the congressional intent of the project?
  - **Priority 2**: Is the advantage consistent with the NPS mission?
  - **Priority 3**: Is the advantage consistent with DOI leadership guidance?

Priority 1: Consistent with Purpose and Objectives of TTM: NS Project

- Construct additional bridging of the Tamiami Trail to provide for unconstrained flows to Northeast Shark River Slough (NESRS) and Florida Bay
- Improve ecological connectivity by removing obstructions to sheet flow between Water Conservation Area 3B and NESRS
- Improve historic flow patterns between WCA-3B and NESRS by reconnecting remnant sloughs, allowing natural re-contouring of the ridge and slough landscape
- Improve ecological habitats in Everglades National Park (ENP), including ridge and slough, Rocky Glades, and coastal estuaries
- Ensure compatibility with pre-Comprehensive Everglades Restoration Plan (CERP) and CERP projects

Priority 2: Consistent with National Park Service Mission

- A fundamental purpose for the establishment of Everglades National park was provided in the enabling legislation: "The said area or areas shall be permanently reserved as a wilderness, and no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna and the essential primitive natural conditions now prevailing in this area.“In order to fulfill this purpose, ENP developed a “Strategic Plan” for protection and preservation of these resources as captured in the following bullets:
- *Everglades NP Goal I*: ENP is restored and protected in ways that allow natural processes, functions, cycles, and biota to be reestablished and maintained in perpetuity and with archeological and historical resources appropriately preserved.
- *Everglades NP Goal II*: Hydrological conditions within ENP and the south Florida ecosystem are characteristic of the natural ecosystem prior to Euro-American intervention, including water quality, quantity, distribution, and timing.

Priority 3: Consistent with DOI Leadership Guidance

- The design high water should allow for unconstrained flows under the trail
- The assessment of cost will include acquisition of all lands needed for implementation of the recommended plan, including the airboat operators, except for the Airboat Association
- No cost cap for the preferred alternative
- Rely heavily on previous analyses (2005 RGRR and 2008 LRR)
- No new regional modeling of alternatives
- Use available, more recent modeling to better depict the ecological benefits of bridging and raising the trail
- Attempt to provide access to all airboat operators

Step 15-Select the Preferred Alternative from the Final Populated Project Spreadsheet

Factor	Factor Measure (Metric)	Sub Team Assigned	Alternative 1		Alternative 2		Alternative 3	
Factor 1-Water								
Attributes	Distance from site to Water (feet)		60 feet away		260 feet away		150 feet away	
Advantages	Target: 0 feet		200 feet closer	40		0	110 feet closer	30
Factor 2-Tent Spot								
Attributes	Site ground slope (degree of level)		Moderately level		Almost level		Quite sloping	
Advantages	Target: level		Moderately more level	30	Much more level	70		0
Factor 3-Table								
Attributes	Table Present (Table/No Table)		No table		No table		Table	
Advantages	Target: Table			0		0	Table versus no table	65
Factor 4-Privacy								
Attributes	Degree of privacy (narrative)		Close sites near roads		Screened distant sites		Screened close sites	
Advantages	Target: High privacy			0	Much more privacy due to screening and remoteness	100	Moderately more privacy due to screening	45
Total Importance of Advantages				70		170		140
Initial Costs				$3		$20		$4