

Challenges Facing Small Airports: Effective Practices for Preparing Airport Improvement Program Benefit-Cost Analyses

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AAAE Workshop on CIP Finance

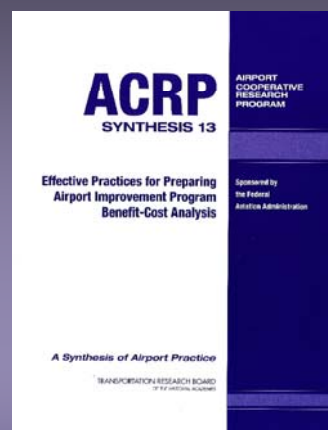
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Findings from ACRP Synthesis 13 Effective Practices for AIP Benefit-Cost Analysis

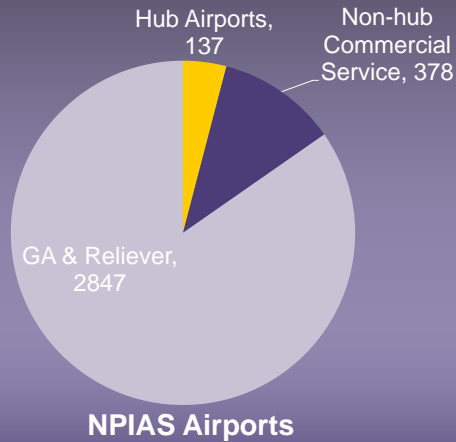
1. Overview
2. Case Studies



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BCA Studies Are Submitted Primarily From Hub Airports

BCA Applications 1988 - 2008	
Hub Airports	71
Non-Hub Commercial	20
GA& Reliever	26



Common Benefits in BCAs

Used by Hub Airports. Robust volume of commercial operations and enplanements drive benefit calculations.

- Reduced Aircraft Operation Costs
- Reduced Passenger Delays
- Reduced Aircraft Delays
- Air Time Savings
- Ground Time Savings
- Salvage Value
- Consolidation of Flights

Why Do Small Airports Have Trouble Reaching “1.0”?

1. Volume of Activity
 - A lot of benefits are based on savings/returns realized from operations and/or passengers
2. Congestion is rarely an issue
3. Similar facilities nearby minimize costs for diversion
 - e.g., nearby GA airport with ILS or a 5,000 foot runway

Small airports rely on singular and contextual benefits, while also making the most of frequency measures.

Use of Difficult-to-Measure & Non-Quantified Benefits in a BCA Study

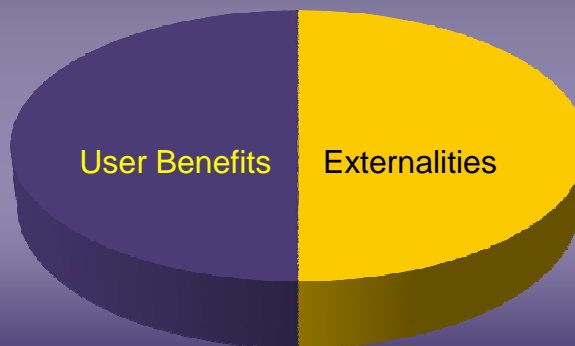
- Small airports might not be held to a 1.0 BCA for project approval if there significant non-quantified benefits
- Demonstrating strong non-quantified benefits can lead to FAA support for AIP funds
 - Examples include:
 - Noise reduction
 - Potential cargo benefits
 - Environmental benefit
- Base case & safety issues
 - Regulatory Compliance

These can also be quantified & monetized

Capacity Enhancements at Small Airports

Enable new types of aircraft and air services at the airport, such as new corporate aviation uses or air cargo that benefit local economy

Are user benefits & externalities separated by a fine line or barrier?



Four Case Studies

- Jimmy Stewart Airport – PA
- Concord Regional Airport – NC
- Houma-Terrebonne Airport – LA
- Rock County Southern WI Regional Airport - WI

Jimmy Stewart Airport Indiana Country PA



Overview	
Airport Type	GA
Proposed Project	Lengthen runway from 4,000 to 5,500 ft; add ILS
B/C Ratio	0.65 combined 1.21 for ILS, only 0.38 for runway extension, only
Outcome	Partial FAA funding provided

Quantified Benefits

- Ability to land with lower cloud or visibility
- Induced operational demand resulting from additional runway length (supported by survey of area business users)
- Avoidance of operational restrictions or impacts during construction activities
- Reduced passenger travel time resulting from commuter travel to other airports

Unquantified Benefits

- Operational Safety: full RSA & elimination of nonstandard OFA
- Environmental Benefits: decreased vehicle emissions due to reduced ground travel time to airport & reduced emissions from less aircraft circling and fewer missed approaches
- Airport revenues by meeting demand for aviation storage, fuel, and other factors
- Expedient transportation of critical trauma patients
- Community economic Impacts

Issues Guiding FAA Review

- Accepted BCA methodology
- Project approved w/partial funding due to need for safety improvements

Concord Regional Airport Concord, North Carolina



Overview	
Airport Type	Reliever
Proposed Project	Extend runway from 5,500 ft. to 7,000 ft.; add section of parallel taxiway; associated drainage, erosion control and lighting
B/C Ratio	1.35; all sensitivity tests returned BCA > 1.0
Outcome	BCA Accepted

Quantified Benefits	Unquantified Benefits
<ul style="list-style-type: none"> •Reduction of aircraft delays for users of Charlotte Douglass International Airport •Time saved by passengers of Concord Regional Airport (certain critical aircraft departures will not have to stop for refueling) 	<ul style="list-style-type: none"> •None required

Issues Guiding FAA Review

- Accepted BCA methodology
- Indicated that benefits may have been underestimated
 - Although the BCA counted *air carrier delay avoidance cost savings* for operations occurring at Concord, it omitted associated *air carrier passenger delay avoidance cost savings*

Houma-Terrebonne Airport Houma, Louisiana



Overview	
Airport Type	General Aviation
Proposed Project	Strengthen primary runway to allow the reliable operation of larger, heavier aircraft. Strengthen aircraft parking apron Improve the east-side automobile access road and expand the aircraft parking apron to provide additional public-use aircraft parking
B/C Ratio	.2 – 4.0
Outcome	BCA Accepted

BCA driven entirely by environmental benefits. Other factors did not alter the BCA ratio

Environmental Benefits – Avoidance of damage due to untreated oil spills

- Total cost avoided is a function of:
“number of spills and the distance off shore”
 - The more events that occur and the farther off-shore they occur, the greater the cost avoided
- BCA evaluated scenarios with combinations of number and distance from:
 - 2 - 7 events/year
 - Between 50 and 600 miles off-shore

Issues Guiding FAA Review

- Concerned that project appeared to support only one user. FAA requested:
 - Additional information regarding who the benefits would accrue to (aviation users or aeronautical purposes)
 - Additional years of historical data regarding past clean-up activities (number of events, locations)
 - Needed to determine likely future activity
 - Hard commitment to purchase heavier aircraft
 - Information if other airports had been given the opportunity to house cleanup activities

FAA Review (continued)

The issues were addressed through subsequent correspondence between the applicant and the FAA

- Although the concerns were not entirely resolved, the FAA ultimately was satisfied that the project would generate a B/C ratio greater than 1.0
- BCA was approved. Project was completed in 2005, allowing airport to be key staging area for Hurricanes Katrina and Rita cleanups.

Rock County Southern WI Regional Airport Janesville, Wisconsin



Overview	
Airport Type	General Aviation
Proposed Project	Extend & strengthen runway from 5,400 ft. or 6,700 ft. to 7,300 ft. Install ILS
B/C Ratio	0.28 -0.46 3.23 – 5.27
Outcome	BCA Accepted

Quantified Benefits. Direct costs to operators represent only a small portion of the total economic cost of inadequate runway conditions at Rock County Airport

Cost savings associated with air & ground transportation	Cargo efficiencies realized with extended runway
<ul style="list-style-type: none"> • <u>Aircraft substitution benefits</u> - operators will be able to use 1 large plane in place of 2 small ones • <u>Refueling reduction benefits</u> - larger planes will not need to stop en route to refuel • <u>Airport substitution benefits</u> – operators use more distant airports because larger and heavier aircraft could accommodate “just-in-time” deliveries at Rock County 	<ul style="list-style-type: none"> • Logistics savings • Avoiding indirect costs, such as production line slowdowns and shutdowns

Issues Guiding FAA Review

- BCA is justified in including external plant which is directly impacted by airport's cargo capacity
 - Plant is direct consumer of aviation services
 - "Just-in-time" aviation deliveries are part of daily operations.
 - Plant is effectively part of the aviation community
- BCA documents results of not being able to land air carrier size cargo flights
 - Annual productivity loss at was estimated at \$4.4 mil/year
- B/C is greater than 1.0 if only \$1.5-\$2 million per year is actually realized in these cost savings

Summary

Core BCA metrics are a large airport's game.
To Push the Envelope for Small Airports:

- ✓ Itemize & discuss *hard to quantify benefits*
- ✓ Take advantage of unique circumstances
 - Sometimes this includes externalities and *expanding the aviation community*
- ✓ Address *multi-modal efficiencies*

THANK YOU

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