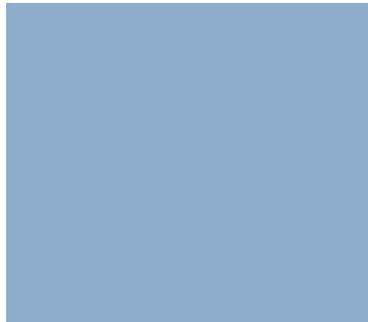
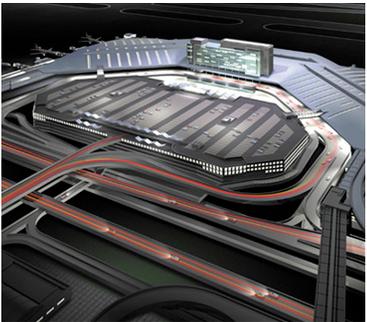




Experience and insight remain the most effective tools for airport planners



**NASA/Industry
AIRPORT PLANNING
September 8, 2005**

NASA Ames Research Center (ARC)
Building 943, Eagle Room
Moffett Field, CA 94035-1000





“I am going to talk today about some controversial things.”

– R. W. Reagan





**Repeating
the
obvious**

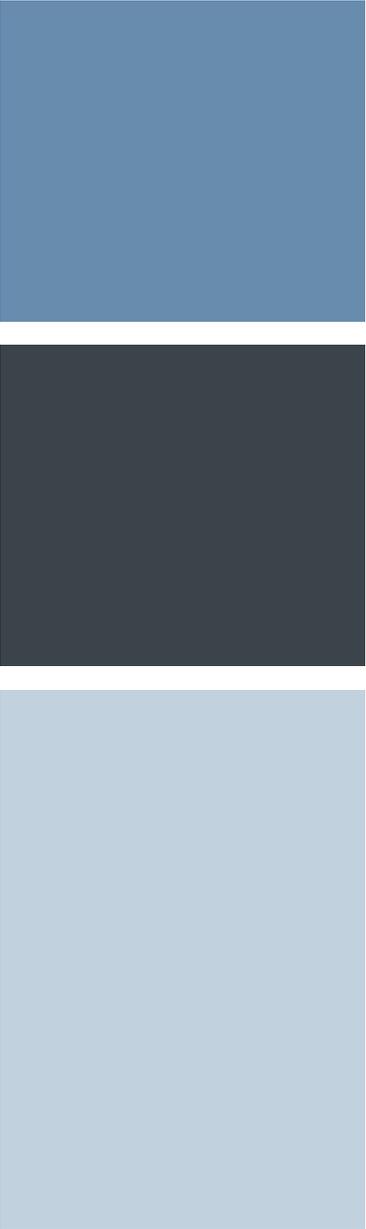


- Most large airport needs greatly exceed AIP funds available for eligible projects.
- Many airport master plans face legal challenges on environmental grounds.
- Airline controls over cost and pricing have been unsuccessful for more than six consecutive years, imperiling the stability of this mode of transport.
- More than half of US air transportation is discretionary leisure travel.
- Professional airport managers usually serve at the pleasure of elected officials, most of whom are ill-informed about the air transportation business.

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In most cases, the master plan will include the following elements:

- Pre-planning (\$)
- Public Involvement (\$\$)
- Environmental Considerations (\$\$\$\$\$)
- Existing Conditions (\$-\$\$\$)
- Aviation Forecasts (\$\$)
- Facility Requirements (\$)
- Alternatives Development and Evaluation (\$\$\$)
- Airport Layout Plans (\$)
- Facilities Implementation Plan (\$-\$\$)
- Financial Feasibility Analysis (\$-\$\$)



What are the most costly aspects of airport expansion planning?

- Opponents who use environmental approvals to delay projects and the efforts sponsors make to cope with them
- Irresistible urge for completeness despite the inherently sketchy nature of planning
- Need to “prove” results to decision- and opinion-makers with expensive visualization tools
- Failure to adopt the intent of the plan within the institution, leading to false starts and divergence in implementation



**Most
costly
aspects**

“Environmental” opponents

- The environmental approval process is spring-loaded to help opponents delay airport development.
- Master planners often must perform analysis that does nothing to advance airport development other than to support the environmental process.
- Airport sponsors must always treat everyone with respect and courtesy. They must comply with the intent and letter of the law, but they are unwise when they make preemptory concessions.



Irresistible urge for completeness despite the inherently sketchy nature of planning

- Why is this a problem?
 - Master plans cannot achieve even the 15% factor of ignorance inherent in final design.
 - They are not less complete than preliminary design documents.
 - They cannot accurately forecast demand
 - They will not be executed as drawn.



Irresistible urge for completeness despite the inherently sketchy nature of planning



**Most
costly
aspects**

- What can be done about it? Master Plans should reflect the sound judgment and experience of preparers who...
 - Understand the airport,
 - Know how projects are designed, bid, and built at the airport,
 - Understand the air transport industry,
 - Can describe more than one way to achieve the planned result, and
 - Explain why the sponsor should seek that result.



**Most
costly
aspects**

Need to “prove” results to decision- and opinion-makers with expensive visualization tools

- An example:
 - At SEA, we estimated the capacity of existing and proposed curbs and curb lanes with spreadsheets for a few thousand dollars.
 - We proved the validity of these estimates with peer-reviewed visual simulation at a cost of more than \$100,000.
 - Simulation findings closely matched spreadsheet results.

Need to “prove” results to decision- and opinion-makers with expensive visualization tools

Most
costly
aspects



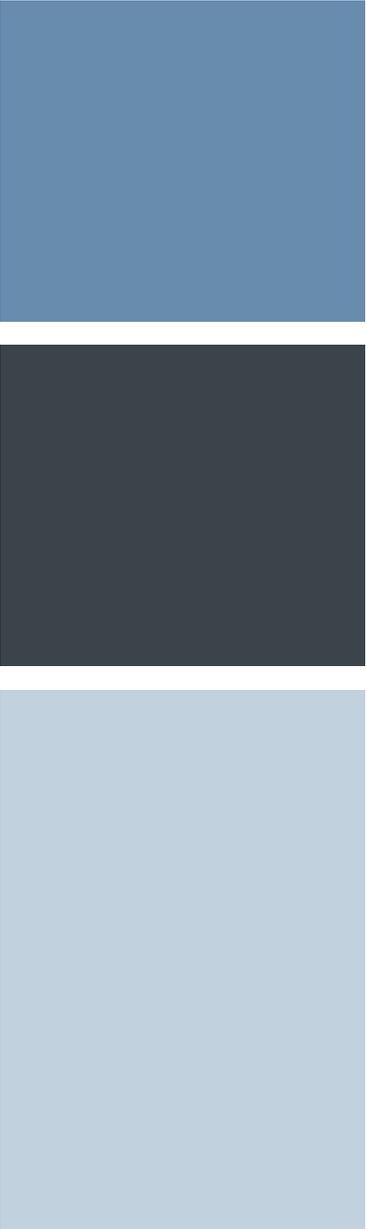


Failure to adopt the intent of the plan within the institution



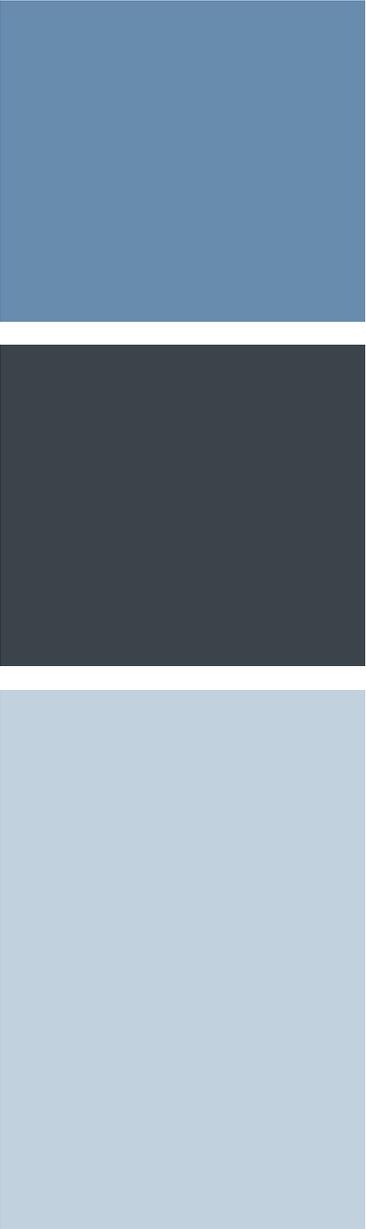
**Most
costly
aspects**

- 
- If internal stakeholders don't help develop the plan, will they help implement it?
 - If diehards don't accept the outcome, will they undermine it?
 - If the plan lacks clear vision, expression, and fitness to the airport mission, will newcomers get aligned with the plan?
 - In each case, the planning investment can be wasted, and the airport may chase down blind alleys as it implements its development program.



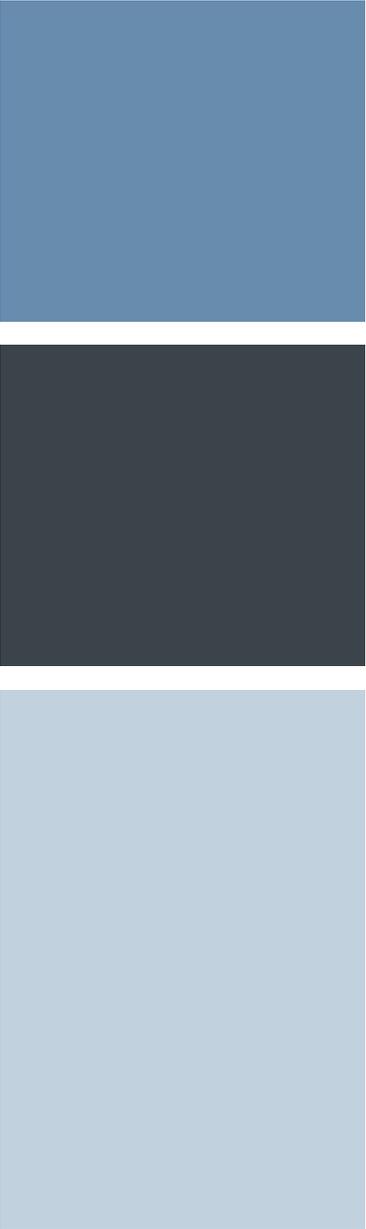
What airport expansion costs can be controlled?

- Simple answer: all of them.
- The airport sponsor can control any three of the following:
 - Quantity
 - Quality
 - Timing
 - Cost



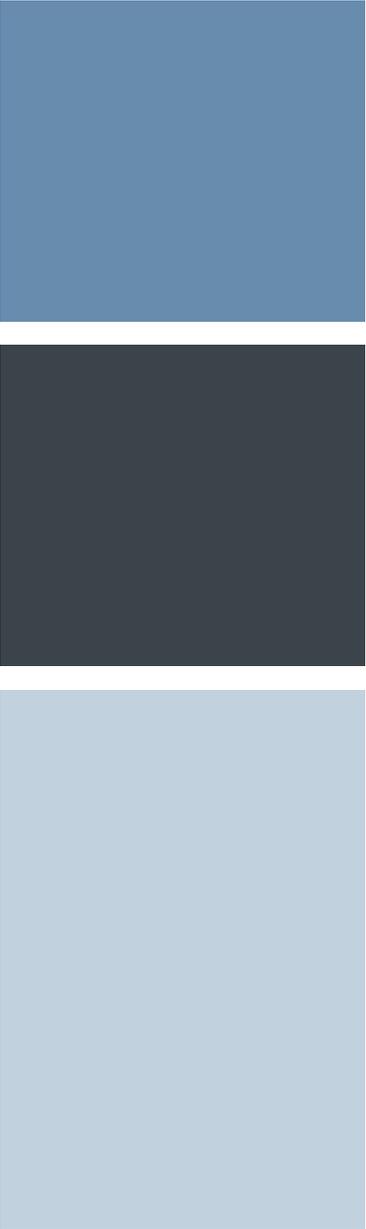
What needs are not being met today?

- Sponsors need to begin with the end in mind.
 - If environmental approval requires detailed analysis of alternatives the sponsor will not pursue, sponsors and the planners should find a least-cost way of developing the required support *while planning*.
 - Economic and financial constraints should contribute to alternative evaluation from the outset. Why waste money developing a plan that no one can afford to implement?
 - Change is certain. Plans should be robust and able to deal gracefully with it.



How do future forecasts affect the designs of today?

- Forecasts are *always* wrong.
 - 1973 oil embargo
 - 1983 TEFRA-2 S&L crisis
 - 1991 Gulf War
 - 1999 dot bomb
 - 2001 WTC2/Pentagon attacks
- Trends seldom endure.
 - Up gauging
 - RJs
 - Legacy airline hubs

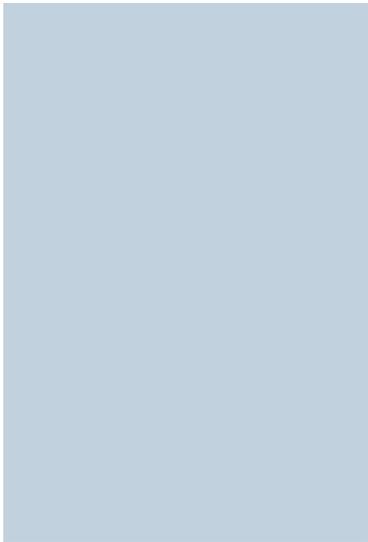


How can the process be improved?

- Follow FAA advice to stop performing “cook book” plans. Focus on what really matters.
- Fight back against eco-hegemony. Do what’s best, and be prepared to be sued by airport opponents.
- Focus attention on the plan. Much time and money is lost when planners don’t have the attention of opinion- and decision-makers as they work.
- Limit use of complex tools for routine analysis. It’s fun, but is it productive?



Experience and insight remain the most effective tools for airport planners.



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