

**ACRP Project 03-03
Enhancing Airport Land Use
Compatibility**

Case Studies of Airport Experiences

National Aviation System Planning Symposium

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First, what is Incompatible Land Use?

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- **OBJECTIVE:**
 - When a land use is judged by some specific airport / aviation based guideline or criteria to be inappropriate
- **SUBJECTIVE:**
 - When an airport expects a land use to result in some constraint on its operation or growth, or
 - When some community members believe the airport adversely affects their lives
- **These three perspectives are not always synonymous – especially when considering noise, but also sometimes in the case of airspace obstructions**

Case Study Overview

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- **A Survey distributed through National Association of State Aviation Officials (NASAO)**
- **Responses from 123 airports**
 - 34 Commercial Service Airports
 - 89 General Aviation Airports
 - Attempted to select across size, location and type – not random but diverse
- **From survey responses, selected 16 case studies**
 - Phone interviews
 - Reviewed reports – Part 150 studies, Master Plans, etc.
 - Our report provides detailed information on each airport

Summary Survey Results

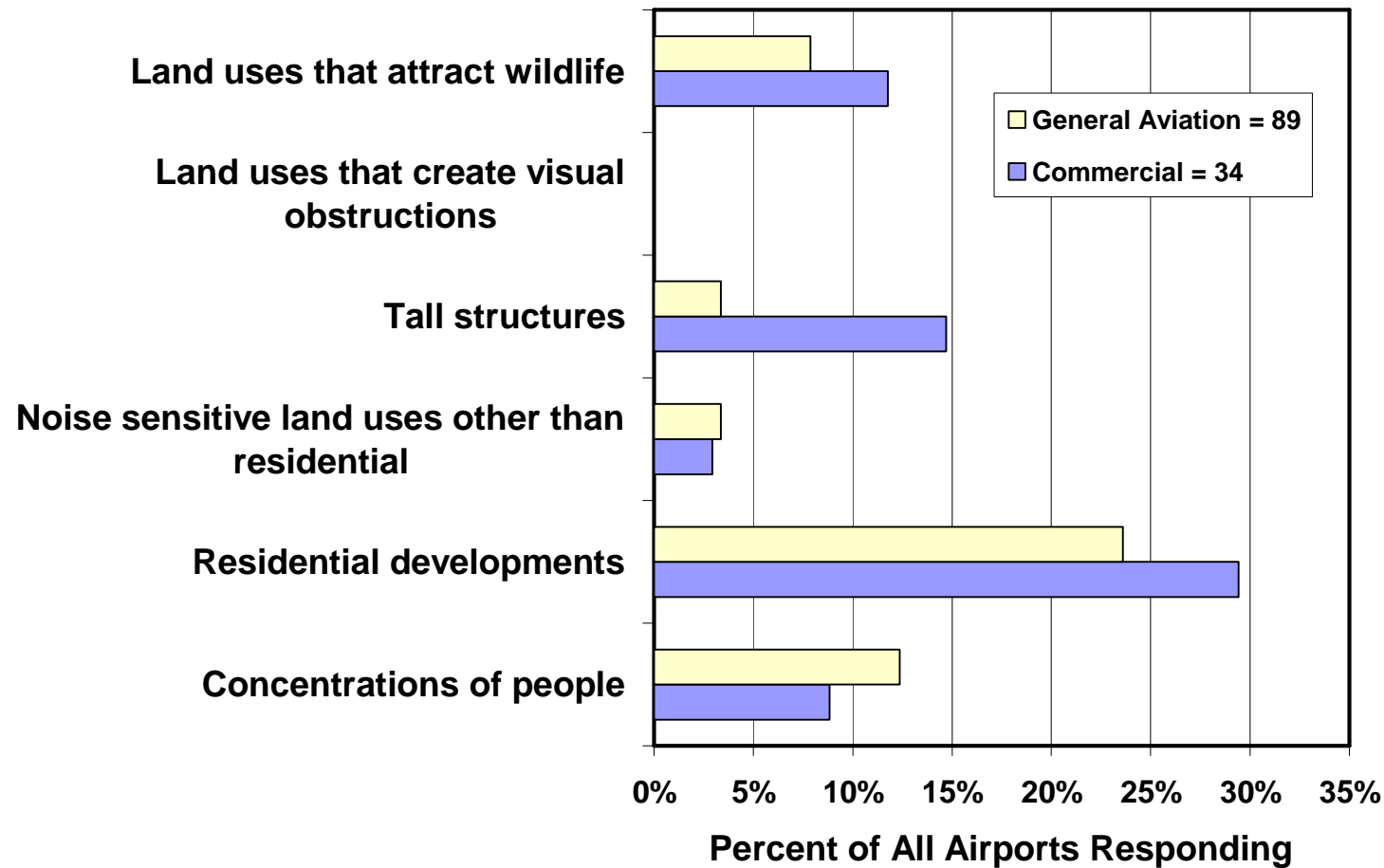
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- **Noise ranks very high in concerns about compatibility**
- **FAR Part 150 studies are usually helpful, but not always**
- **Regulations regarding height of structures are prevalent, but not always effective**
- **Community support, land acquisition and strong regulations encourage compatibility**
- **Airports need to work hard to protect themselves – no one is going to do it for them**
- **Incompatibilities will almost certainly occur, if they haven't already, and they can seriously limit an airport's options**

What off-airport land uses cause extensive concern about compatibility?

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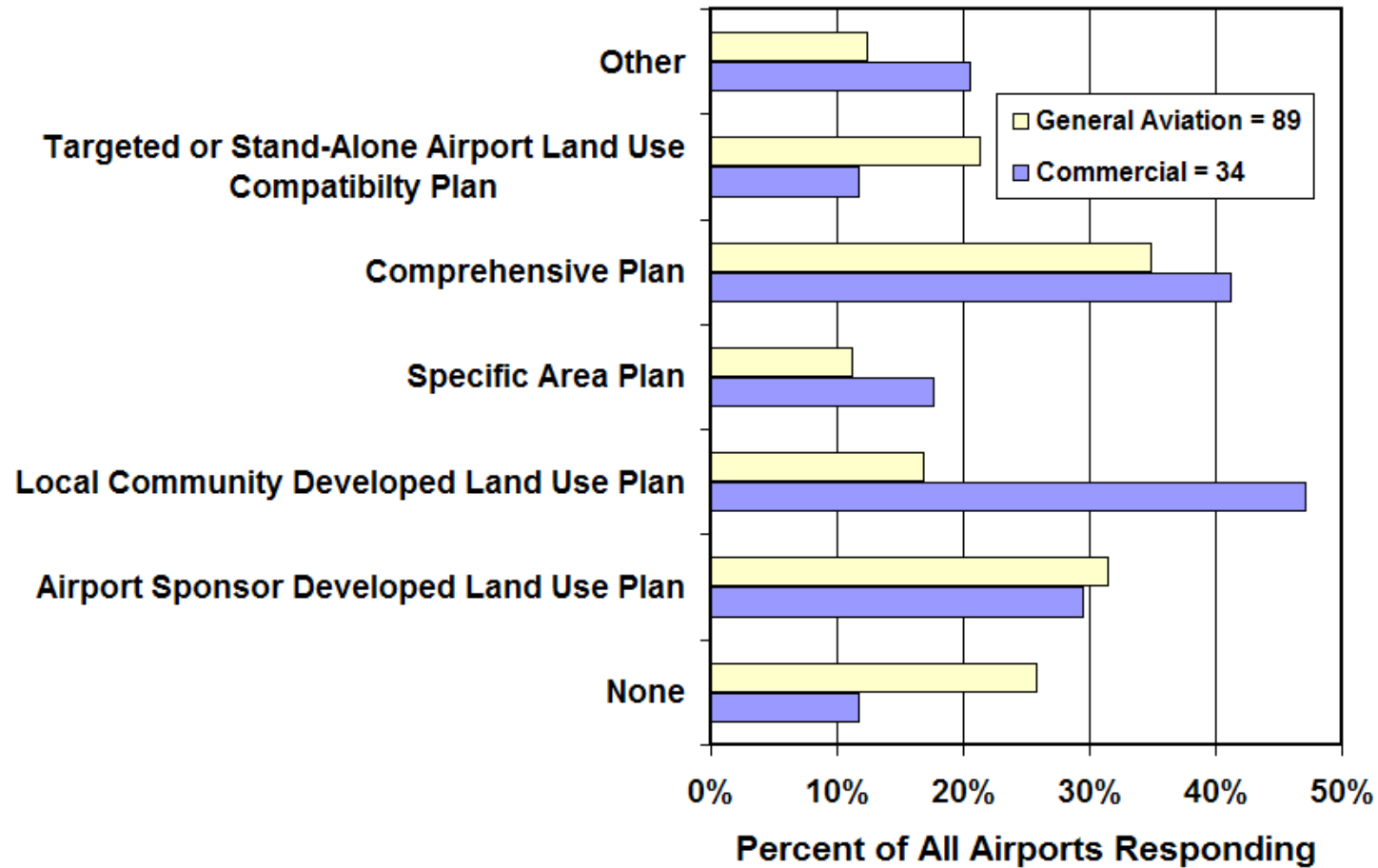
Extensive Concern about Compatibility



What formal land use plans are there?

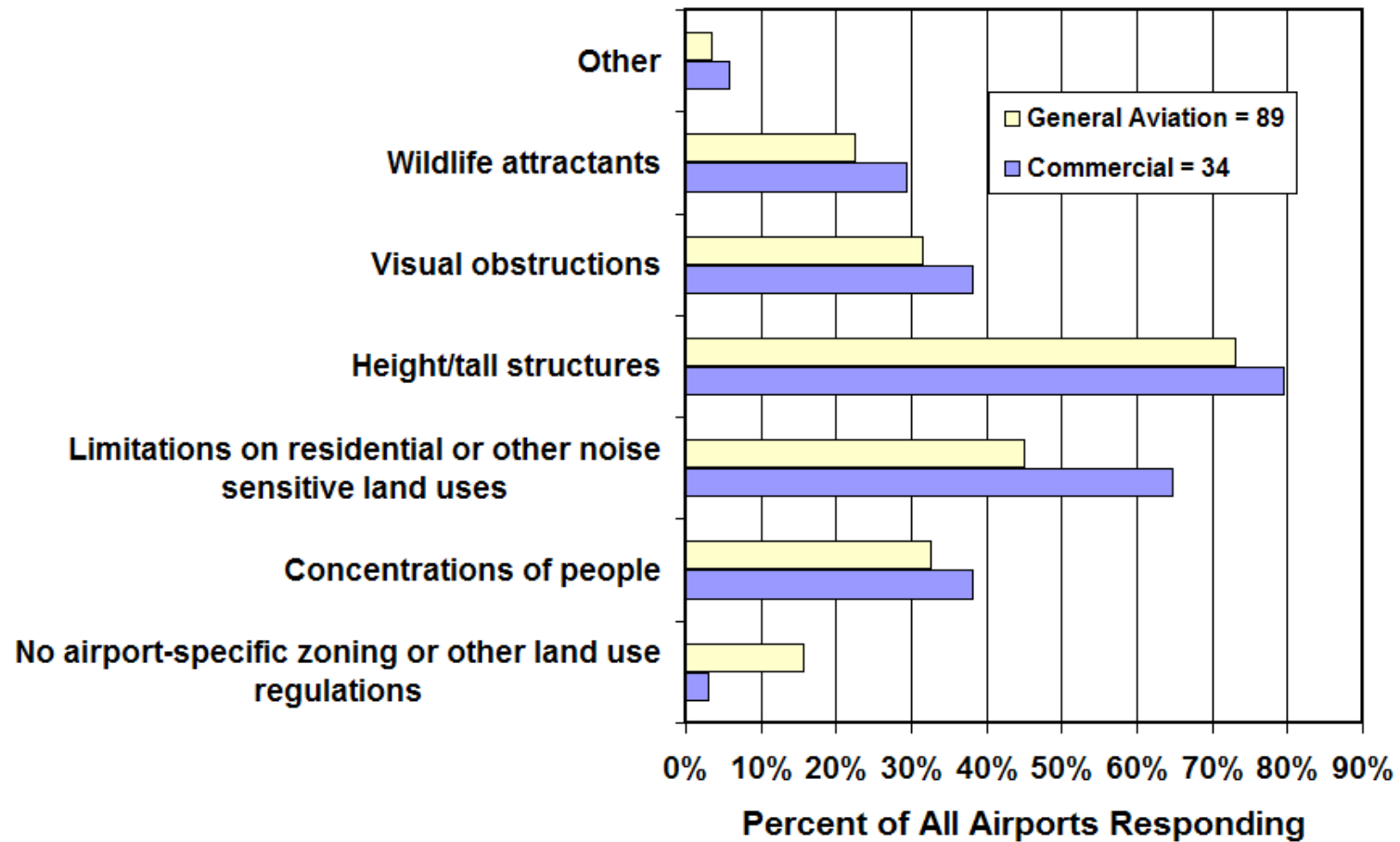
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Formal Land Use Plans



What land uses are regulated?

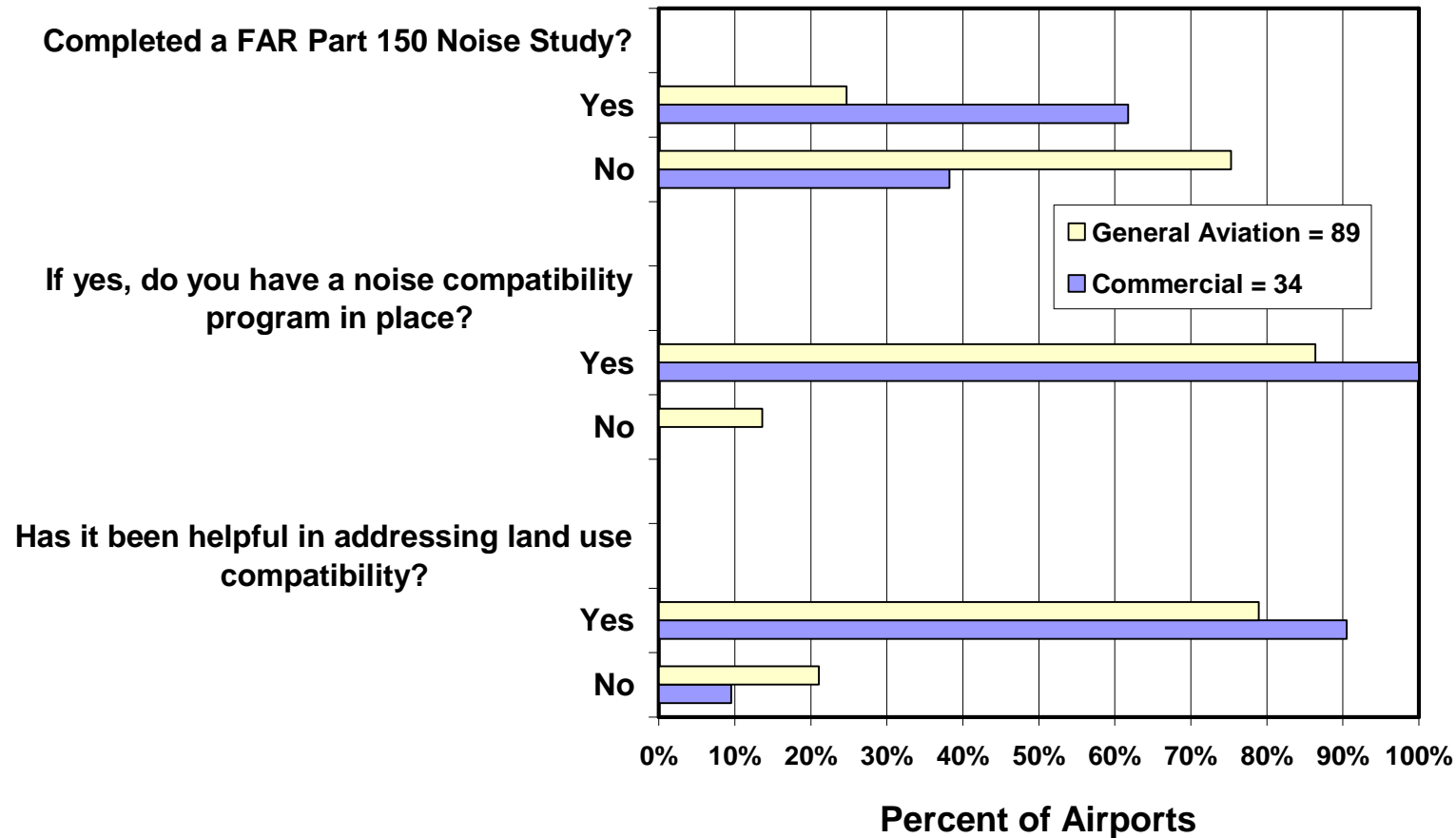
What is Regulated by Zoning or Other Land Use Regulations?



Have you completed a FAR Part 150 Study and with what results?

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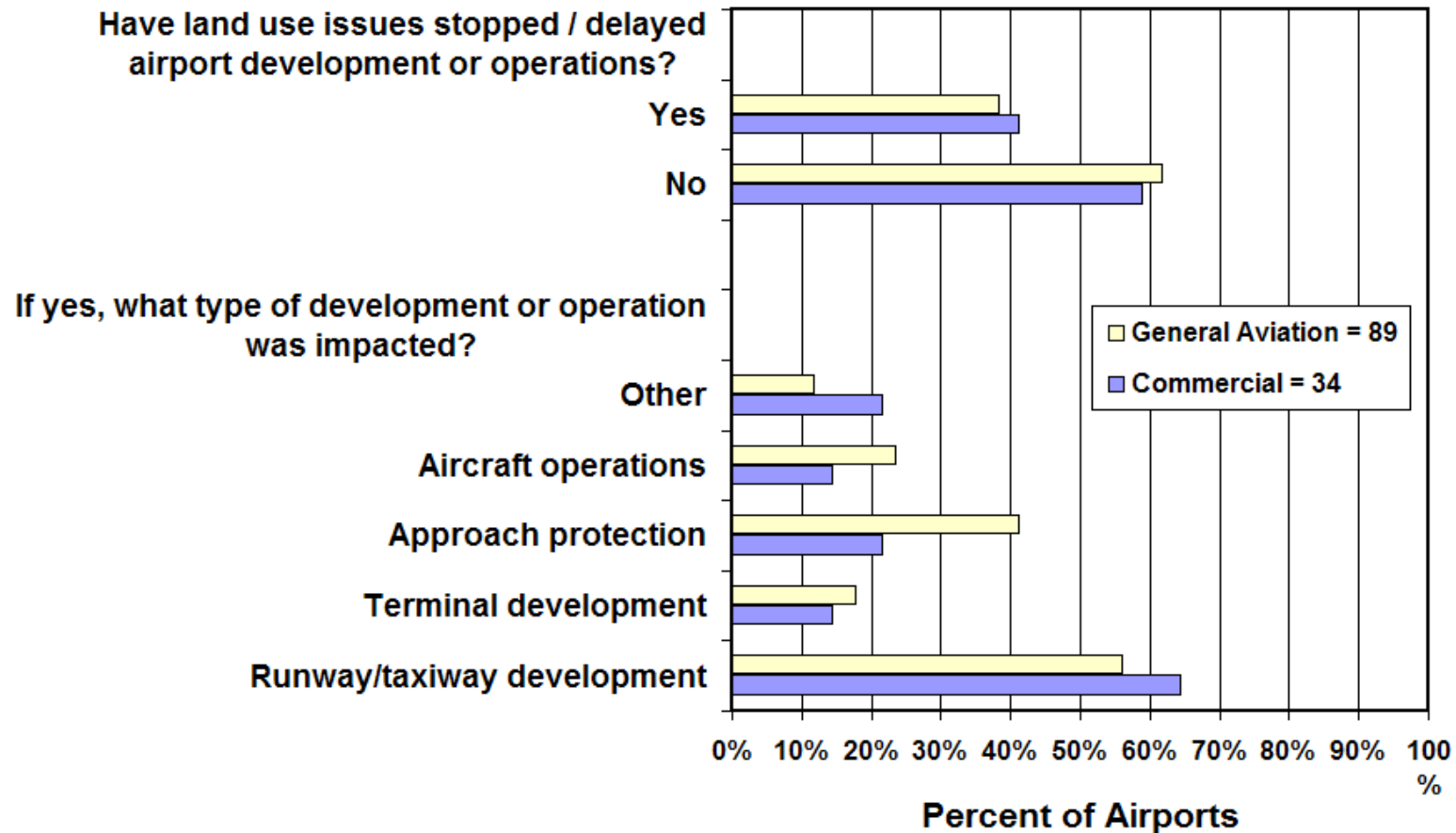
Part 150 Studies



Have land uses affected airport development or operations? - YES

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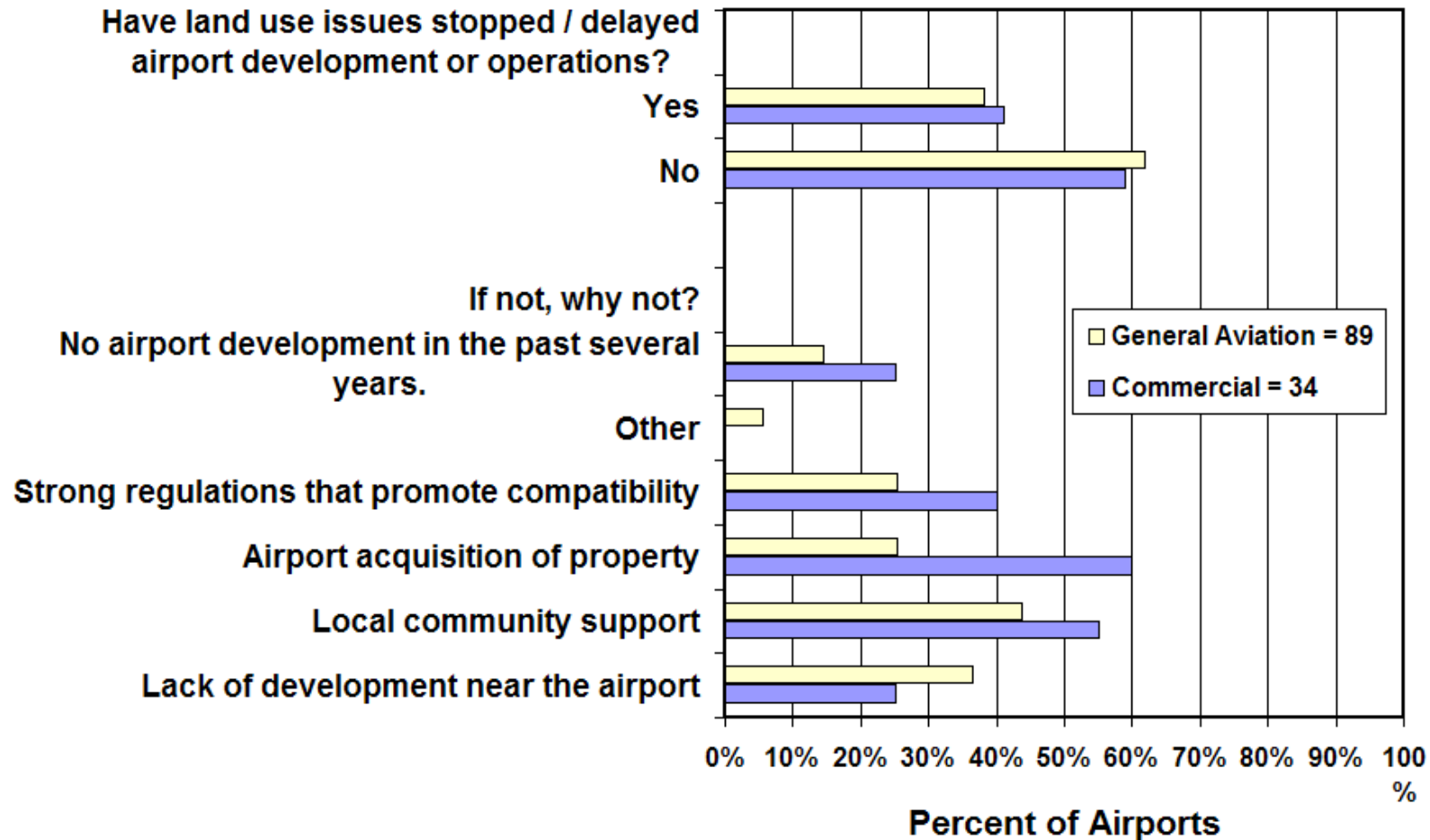
Effects of Land Use on Development & Operations



Have land uses affected airport development or operations? - NO

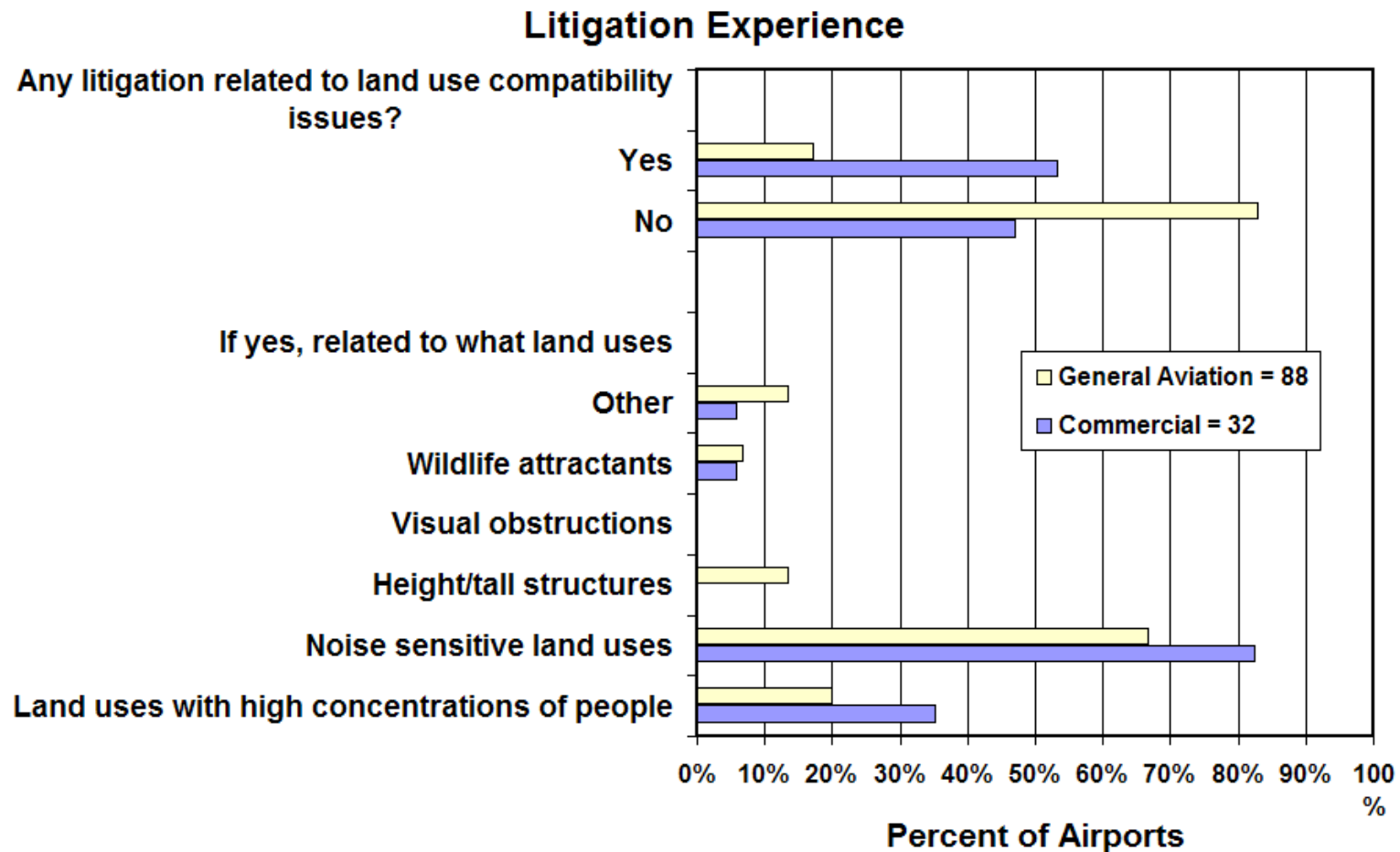
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Effects of Land Use on Development & Operations



Has the airport been involved in litigation related to land use?

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Case Study Airports

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- **Baltimore Washington International/Thurgood Marshall Airport**
- **Buckley Air Force Base - CO**
- **Centennial Airport - CO**
- **Collin County Regional Airport - TX**
- **Denver International Airport - CO**
- **Fort Bragg Army Base and Pope Air Force Base - NC**
- **Fort Lauderdale Executive Airport - FL**
- **Independence State Airport - OR**
- **Indianapolis International Airport - IN**
- **Naples Municipal Airport - FL**
- **Naval Air Station Pensacola - FL**
- **O'Hare International Airport - IL**
- **Randall Airport - NY**
- **Sacramento County Airport System - CA**
- **Willmar - MN**

Case Study Findings – As Questions to an Airport

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- **Have you accepted that the responsibility for encouraging land use compatibility falls entirely on the airport and will continue to do so for the indefinite future?**
- **Has some one person at the facility taken full ownership of the compatibility issue?**
- **Has a true long-term and continuing partnership been established with local communities and planning organizations, and are you working cooperatively to establish clear compatibility guidelines / requirements?**

Case Study Findings – As Questions to an Airport

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- **Does someone on the staff receive notices of all proposed developments in the surrounding communities?**
- **Does someone on the staff understand FAA regulations and guidance on off-airport airspace obstructions?**
- **Does someone on the staff understand DNL?**
- **Do the airport and surrounding communities understand the link between protecting the community from noise and protecting airport operations and growth?**

Translating DNL

Three scenarios that produce DNL 65 dB

Maximum Aircraft Sound Level	Required No. of Operations in 24 Hrs (none at night)	~Time Above 60 dB(A), Each	~Total Time Above 60 dB(A)
95 dB(A)	10	50 Seconds	8 Minutes
85 dB(A)	100	35 Seconds	1 Hour
75 dB(A)	1000	20 Seconds	6 Hours

Translating DNL

Relating DNL Values to Effects on People

DNL Range (dB)	Effects on People		Number of Daily Aircraft Events that:	
	Chance Average Person Awakened at least once	Percent of population Highly Annoyed	Interfere with Conversation Indoors (windows open)	Cause Feelable House Vibration
>70	> 40%	> 40%	> 250	>200
65 - 70	35% - 40%	30% - 40%	100 - 250	50 - 200
60 - 65	30% - 35%	20% - 30%	50 - 100	<50
55 - 60	20% - 30%	10% - 20%	< 50	negligible

Conclusions

- **Achieving airport land use compatibility is a continuing process**
- **The more successful approaches require long-term dedication and considerable knowledge about:**
 - **Airspace use and limitations**
 - **Aircraft noise**
 - **Community and airport planning**
 - **Public outreach**
 - **Working with the FAA**
- **We hope the report can provide some insights into all these factors that affect the ability of an airport to protect its operation and to work successfully with surrounding communities**

Thank you