Runway Incursions: An Industry Examination of FAA Initiatives and Objectives

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Use of Funds and Outcomes

The amount of $168.53 was used for postage and the purchase of envelopes.

Abstract

Previous research by Rankin in 1994 addressed the problem of runway incursions at the largest US towered airports and examined the perceptions of industry officials as to the effectiveness of the FAA initiatives or objectives implemented by the FAA Runway Incursion Plan of 1991. A similar study was completed in 2007 and investigates perception of industry officials as to the effectiveness of the FAA initiatives contained in the FAA Runway Safety Blueprint 2002-2004. For purposes of this paper, the studies are compared to see if there is a continued similarity of the perceived effectiveness by industry officials of the FAA initiatives or objectives. Since airport driver training was ranked as the number one initiate in the 1994 study and is not included in the FAA Runway Safety Blueprint 2002-2004, the 2007 study asked industry official if airport driver training should, or should not be included in the FAA Runway Safety Blueprint.

Descriptive Statistics Results-Outcomes

In the 1994 each participant was asked to rate the degree of effectiveness that each initiative in the FAA’s Runway Incursion Plan has or will have on reducing the number of runway incursions using a five point Likert-type survey instrument with a scale of 0 (the least effective) to 5 (the most effective). A 96% response rate was achieved in the 1994 study. The same type of survey instrument was used to collect data for the 2007 study. Nineteen of the 54 participants surveyed in the 2007 study responded achieving a 35% response rate. The mean for each initiative or objective was then determined using SPSS © software, which is the quotient of the sum of the values for each initiative or objective divided by the number of responses received for each initiative or objective. A comparison of the effectiveness of each initiative or objective was then determined by ranking each initiative or objective by its mean to establish the five most effective and the five least effective initiatives or objectives for both the 1994 and 2007 surveys. The survey results for the 1994 survey are contained in Table 2 below.
Table 2
Rankings of Most and Least Effective Initiatives – 1994

In the 1994 survey the five most effective initiatives were identified by industry officials as: (a) Training of Ground Vehicle Operators with a mean value of 4.42; (b) Airport Surface Detection Equipment with a mean value of 4.30; (c) Stop Bar Lighting with a mean value of 4.23; (d) Airport Surface Traffic Automation with a mean value of 4.18; and (e) Airport Movement Area Safety System with a mean value of 4.00.

In the 1994 survey the five least effective initiatives were identified by industry officials as: (a) New Runway Safety Database with a mean value of 2.25; (b) Airport Technology Conference with a mean value of 1.92; (c) Audiotape on Runway Incursions with a mean value of 1.76; (d) Ground Movement Safety Awareness Products with a mean value of 1.75; and (e) New Computerized Database for Aircraft Performance with a mean value of 1.51.

The survey results for the participants responding to the 2007 survey are contained in Table 3 below.
Table 3
Rankings of Most and Least Effective Objectives – 1994

In the 2007 survey the five most effective objectives were identified by industry officials as: (a) Evaluate, and if appropriate, implement national procedures that require read backs of any clearance to enter a specific runway, hold short of a specific runway, or taxi into position and hold instructions with a mean value of 4.61; (b) Develop and evaluate a visual signal that provides direct warning to flight crews on final approach when the runway is occupied with a mean vale of 4.50; (c) Publish guidance on standard surface operations phraseology guidance for pilots and mechanics moving aircraft with a mean value of 4.44; (d) Assess selected Air Traffic procedures in terms of enhanced runway safety and recommend actions to retain, modify, or eliminate as appropriate with a mean value of 4.39; and (e) Improve runway safety data collection, storage, retrieval and distribution. Data and information useful for improving runway safety is contained in multiple data bases operated by different organizations with a mean value of 4.33.

In the 2007 survey the five least effective objectives were identified by industry officials as: (a) Create and accomplish a regional runway safety plan for each FAA region (every 18 to 36 months) tailored to specific operational and geographical needs with a mean value of 3.78; (b) Improve the collection and analysis of operational error data by supporting the implementation and dissemination of the JANUS tool throughout the air traffic control environment with a mean value of 3.72; (c) Maintain the published AMASS deployment waterfall schedule with a mean value of 3.61; (d) Complete over 1,000 safety seminars per year incorporating runway safety, RIIEP, surface movement Advisory Circulars and marking, signage and lighting as seminar themes with mean value of 3.56; and (e) Expand the role of Flight Service Station Specialists to provide
runway safety information for towered and non-towered airports with mean value of 3.44.

Five of the participant's ranked objective 33 as the most effective; while two each stated that objectives 9, 17, and 22 were the most effective in reducing the number of runway incursions. As to the least effective objectives, two participants each stated that objectives 1, 25, 26, and 29 were the least effective in reducing the number of runway incursions. In response to the question - *In a 1994 survey on FAA objectives, airport movement area driver training ranked the most effective objective. Airport movement area driver training is no longer a specific objective. Should it be included as an FAA objective?* - Seventeen participants (89.5%) responded yes, while two (10.5%) responded no.