



AirTAP Briefings

A publication of the AirTAP program of the Center for Transportation Studies at the University of Minnesota

Workshop illuminates the latest in airfield lighting and navigational aids

In May 2002, the Airport Technical Assistance Program, also known as AirTAP, sponsored three airport lighting sessions at different locations in Minnesota. These sessions were designed to offer practical-yet-specialized training and information outreach for personnel operating, maintaining, and administering Minnesota's public-use airports. This particular series provided information on airport lighting and navigational aid equipment selection, funding, maintenance, and operation.

Funding options

Seminar instructor **John Schroeder**, an airport lighting engineer for the aeronautics division of the Minnesota Department of Transportation (Mn/DOT), discussed several federal and state funding options available for installing and maintaining airport lighting systems. To qualify for federal funding, which will cover 90 percent of project costs, an airport's airfield lighting must comply with the regulations outlined in Federal Aviation Administration advisory circulars, available online at www.faa.gov. FAA advisory circulars may also be obtained by mail at the following address:

Federal Aviation Administration, Airports
800 Independence Avenue S
Washington DC, 20591

Federal funding guidelines also require airport owners to fulfill the terms of their current Mn/DOT airport maintenance and operations agreement. In addition, the airport must be classified in the national plan

of integrated airport systems (NPIAS), the lighting equipment must be new, not refurbished, and the airport layout plan (ALP) must be current.

With state funding programs, the state will pay 60 percent of project costs.



John Schroeder (center) points out the lighting used for this runway sign at the Grand Rapids-Itasca County Airport.

Obtain detailed highlights of the airport lighting seminar or previous workshops and issues of Briefings online at:

www.airtap.umn.edu

Minnesota's state airport lighting regulations are outlined in Minnesota Rule 8800.1600, which is available online at www.revisor.leg.state.mn.us. This rule provides runway length-based lighting requirements as well as wind indicator and other lighting requirements.

In order to receive state financial assistance, Schroeder said, municipalities must fulfill their current Mn/DOT maintenance and operations agreement, the airport must be licensed as a publicly owned and used airport, the project must be on a capital improvement plan, and there must be a consultant or qualified electrical contractor working on the project. State funding is not limited to NPIAS airports.

One state-funded program, the temporary airport lighting system (TALS) program grant, is available to help fund lighting projects under \$25,000 at publicly owned and used airports. This program is primarily for entry-level airports or for refurbishing an original TALS project. TALS funding requests should be sent to Mn/DOT. Funding for all lighting equipment except a rotating beacon is available through TALS. State funding for electrical maintenance is available by request.

continued

Upcoming workshops

Wildlife Control Seminar

October 10, 2002: Cloquet-Carlton County Airport
October 15, 2002: South St. Paul Municipal Airport
October 17, 2002: Marshall Municipal Airport

This workshop will provide information on airport wildlife control, including wildlife identification, rules and regulations, and FAA expectations in controlling wildlife at an airport. Along with this information, participants will receive a practical "hands-on" look at various techniques and methods used for wildlife control.

The workshop runs from 9 a.m. to 3 p.m. Cost is \$25. For more information or to obtain a registration form, contact Mindy Jones at 612-625-1813 or jones154@cts.umn.edu.

Required lighting and navigational aids

Next, Schroeder described several required lighting and navigational aid systems, including edge lights, threshold lights, rotating beacons, windcones, guidance signs, and pilot-controlled lighting such as visual approach slope indicators (VASI) and precision approach path indicators (PAPI). He also explained the uses, requirements, selection criteria, and funding options available for these systems.

For information on equipment specifications and wiring installation standards and guidelines, Schroeder suggested several FAA advisory circulars. He noted that advisory circulars 150/5340, 150/5345, and 150/5370 include information on all aspects of airport lighting, from taxiway guidance signs to plug and receptacle specifications.

Lighting specifications and guidelines may be found in the following publications:

- ➔ *FAA order 6850.2A: Facilities and Equipment Visual Aids Installation Standards*
- ➔ *FAA GL600-1: Typical Installation Drawings for Lighting Equipment*
- ➔ *The Project Consultant's Project Spec and Plan Drawings*

FAA documents are available online at www.faa.gov or by mail.

Safety first

Schroeder provided a summary of lighting installation procedures for runway and taxiway surfaces as well as typical routine maintenance issues associated with airport lighting. He emphasized that safety procedures must be followed when replacing lamps or fixing light structures, and he noted the importance of disabling the power before changing lamps and wearing clean gloves to prevent skin oils from damaging lamps. Always call an electrician, Schroeder warned, unless maintenance workers are qualified to handle advanced maintenance issues—open-circuit voltages



Duane Smedsrud, from Hali-Brite, Inc., demonstrates new LED illumination technology for taxiway edge lighting at the Grand Rapids-Itasca County Airport.

in an electrical series circuit loop are fatal.

He further explained that every airport must have a foolproof safety routine and should include procedures for shutting down regulator(s) circuit breakers, keeping plug cutout units in the truck with maintenance workers, locking electrical vaults, and

always working under the assumption that all circuits are energized. FAA advisory circular 150/5340-26, he added, is an excellent reference for airport visual aid maintenance information.

Emerging technologies

In recent years, Schroeder said, new technologies have greatly improved airport lighting. One new product now on the market is a remote lamp-monitoring system. This system detects low-frequency signals over regulators or 120-VAC circuits and can monitor more than 100 lamps per receiver. The system can monitor runway lights, VASI lights, PAPI lights, a windcone, beacon, and medium intensity approach lighting system with runway-alignment indicator lights (MALSR). (Pilots use MALSR during instrument landing approaches to align the aircraft with the runway centerline.) The systems also can keep a data log for future reference, and can be remotely monitored via modem hookup.

Mn/DOT has provided \$12,000 to install and evaluate such a system at the Aitkin, Minnesota, airport. ✕

For more information about this seminar or for copies of the AirTAP materials mentioned, contact Jim Grothaus, Center for Transportation Studies, University of Minnesota at 612-625-8373 or jgrothaus@cts.umn.edu.

New Resources

Transportation Research Board Special Report 263, *Future Flight: A Review of the Small Aircraft Transportation System Concept*, is available directly from the TRB business office or online at www.trb.org. You may also borrow the report from the CTS transportation research library by contacting CTS at 612-626-1077 or cts@tc.umn.edu.

Among the 122-page TRB report's findings:

- ➔ There is little evidence to suggest that SATS (small aircraft transportation system) aircraft can be made affordable for use by the general public.
- ➔ SATS has minimal potential to attract users if it does not, as conceived, serve the nation's major metropolitan areas. ✕

AirTAP was developed through the joint efforts of the Minnesota Department of Transportation, the Minnesota Council of Airports, and the Center for Transportation Studies.

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