STATEWIDE MASTER PLAN for FIRE and LAW ENFORCEMENT TRAINING FACILITIES in MINNESOTA

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Report to the Minnesota Legislature
February 1999

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from the Commissioner of Public Safety
as directed in 1998 Laws, Chap. 404, Sec. 21, Subd. 3

A Management Analysis Division Report

The Management Analysis Division is Minnesota government and higher education's in-house fee-for-service management consulting group. We are in our second decade of helping public managers increase their organization's effectiveness and efficiency. Our highly skilled professional management consultants provide quality management consultation services to local, regional, state, and federal agencies.

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EXECUTIVE SUMMARY

The 1998 Minnesota Legislature directed the commissioner of public safety to prepare, in consultation with affected organizations and stakeholders, a statewide master plan for fire and law enforcement training facilities. Specifically, the commissioner was directed:

> *to develop a statewide master plan for siting, ownership and operation of fire and public safety training facilities. The commissioner of public safety will consult with the Minnesota state colleges and universities, the department of military affairs and the peace officer standards and training board in preparation of the master plan* [1998 Laws, Chap. 404, Sec. 21, Subd. 3].

The commissioner of public safety contracted with the Department of Administration's Management Analysis Division to create the statewide plan.

A 15-member advisory committee was established to advise the commissioner and Management Analysis about components of project design and content. The committee included representatives from professional organizations for fire and law enforcement personnel, local governments, the Peace Officer Standards and Training Board, Minnesota State Colleges and Universities, the Department of Military Affairs, and the public.

The project team collected data through a variety of mechanisms, including:

- six public meetings at locations around the state;
- a statewide survey of fire and law enforcement agencies;
- a tour of some existing facilities;
- interviews with training organizations, specialized facilities, and other states; and
- background research in trade journals.

The purpose of fire and law enforcement training is to help personnel respond to a variety of stressful situations and to reduce or prevent damage to property and injuries and fatalities of both personnel and victims. Effective training increases a person's ability to effectively manage a range of situations encountered in the course of duty.

Minimum standards for peace officer training are established in statute and governed by the Peace Officer Standards and Training Board. Most schools and training organizations rely on National Fire Protection Association recommendations to set standards for firefighter training, which are widely available and used across the country. Also, both disciplines are subject to the rules of the federal Occupational Safety and Health Administration (OSHA).

TABLE A. Count of specialized training facilities

Ownership type	Firing range		Firearm simulator	Burn facility	Mobile fire	Driving range
	Indoor	Outdoor				
Education	2	0	3	3	6	4
Military	2	11	0	0	0	0
Public-agency joint ownership	12	3	2	1	0	1
Private	60	5	1	1	0	2
Public single-agency ownership	60	30	3	7	1	0
TOTAL	**136**	**49**	**9**	**12**	**7**	**7**

SOURCE: Management Analysis Division public safety training facility inventory.

Beyond the level of minimum standards to be met by all personnel, there are also needs specific to a particular area or locality that can apply to training facilities.

Table A provides a count of the specialized training facilities identified by the project. Facilities are grouped by ownership type.

Firefighter training deals with all aspects of the job, from rescues to live fires. Some of the most prevalent types of training are:

- Equipment training with all equipment firefighters will be expected to use on the job. Much of this training occurs at individual fire stations.
- Driving training for firefighters with vehicle responsibilities, covering maneuvering, backing, stopping, and parking. Most fire departments use parking lots for this training, but sophisticated driving ranges are available at St. Cloud State University and Dakota County Technical College to conduct this type of training as well.
- Live burns to experience the smoke, heat, and other effects of a fire in a controlled situation."Burn buildings" are designed to simulate burns. Many departments also use acquired structures for burn training. Of the burn buildings, some are stationary, multi-floor buildings while others may be a single room or even a mobile trailer where materials can be set on fire for training.
- Specialized training usually involves props, such as old cars for vehicle extrication training or trailers to simulate confined spaces or smoke-filled rooms where rescues are often needed.

Law enforcement training requires a range of space and space configurations to simulate situations peace officers may encounter on the job. Specific types of training include:

- Firearms training, which requires weapons qualifications in varying weather and lighting conditions at either an indoor or outdoor firing range.
- Scenario-based training, generally in a mock house or street setting, or as part of a computer-based simulation.
- Emergency vehicle driving training, which requires a variety of maneuvers at varying speed, on a driving range or other large paved surface. Some departments use runways or race tracks rather than driving ranges for vehicle training.
- Defensive tactics, which involves practicing unarmed techniques for controlling a suspect or situation. Training is generally conducted in a large open area with mats to allow space for movement.
- Computer training on the range of systems used by peace officers in the department to make the officer familiar with each system and how to use it. Training requires access to a computer workstation with the department's software.

Some aspects of fire and law enforcement training require separate facilities, but several areas could be shared in a cross-disciplinary facility. Live burn towers or rooms cannot be used for any purpose that would involve chemicals, including simulated weapons firing paint pellets, due to combustibility. Firing ranges also have limited cross-applicability. However, classrooms, locker rooms, tactics areas, hazardous material spill props, and search-and-rescue props could be used by both fire and law enforcement personnel. Although few models exist for cross-disciplinary training facilities, a multi-purpose facility could ensure a broader appeal for more users to share the costs and maximize use of the training facility.

A limited assessment of needs for specialized training facilities was developed based on information gathered from the department facility survey, discussions in public meetings, and interviews with training organizations. The data pointed to several trends and issues that will affect all fire and law enforcement agencies to some degree:

- Outdoor spaces will become increasingly scarce because of growing residential development in many areas and environmental restrictions.
- Training for both fire and law enforcement agencies will require greater use of technology in the future, for safety and environmental reasons. For firefighters, live burns will increasingly need to take place either in stationary facilities or with liquid petroleum tanks because acquired buildings offer a less-safe fire site for firefighters and the environment. For peace officers, use-of-force training will require more realistic scenarios, using either simulators to supplement live firearms and tactics training or constructed mock cities located away from residential development.

- Driving distances for training are a significant perceived problem, particularly for the volunteer fire service throughout the state. Most volunteers cannot commit the time required to drive long distances for training, and most volunteer department budgets cannot accommodate the cost of travel and related expenses. Law enforcement agencies also reported that overtime costs and per diems resulting from travel to distant training are difficult to pay within their training budgets.

RECOMMENDATIONS

The project's recommendations were developed by the Management Analysis Division and discussed with the advisory committee. Recommendations and criteria for evaluating facility siting, ownership, and operation are grouped into five categories: location; mobile equipment; design; ownership, operation, and funding; and capacity and usage. Most criteria apply to both stationary facilities and mobile equipment, although not all criteria may be relevant in every situation.

LOCATION of FACILITIES

1. **Public safety personnel should continue to use the state's situation-specific training facilities for refinery and aircraft burn simulations, as appropriate.** Some training equipment is so specialized that it is needed in only one location in the state. Some specialized training is needed on a limited basis and does not have to be widely available at various locations. Specific Minnesota facilities include simulated refinery and aircraft burn equipment (at Koch Refinery and Lake Superior College, respectively). Few of these facilities exist nationally. First responders should continue to use these facilities as needed to train them in handling these specific situations.

2. **The location of a public safety training facility should ensure cost-efficient, easy access for users and maximum use of the facility, while capitalizing on existing infrastructure or other capital investments where possible.** To that end, priority for facility development in a given area should be:

   First, increased use of an existing facility with time available in its schedule to accommodate additional training exercises — making the facility available to other departments or using it for new types of training on a fee-for-service basis.

   Next, expansion or upgrade of existing facilities — adding new features or buildings to support new or additional training options in an existing site.

   Last, construction of a new facility — building a training facility where no facility exists or where current facilities are inadequate.

3. **Priority for new facilities should be given to areas with inadequate or no reasonable access to training facilities.** Recommended site-specific components for proposed facilities are:

   - written documents showing support of local governments, fire and law enforcement agencies, and private-sector businesses in the area where the facility would be located;
   - documentation of the availability of amenities, such as food and lodging;
   - maps showing proximity to major roadways;
   - maps of existing or planned infrastructure (streets, water, sewer) to support the facility;
   - details showing sufficient land for future expansion; and
   - evaluation of neighborhood appropriateness for the facility. An outdoor firing range or live burn facility would create noise and smoke emissions and should not be located in a densely populated area. Siting of indoor ranges and tactical areas is of less concern for the surrounding neighborhood.

   Recommended area components for proposed facilities are:

   - training resources or facilities already available in the area — nearest facilities that provide similar training;
   - deficiencies in current training options that make the facility necessary (distance, cost, availability); and
   - number of potential users within 20, 50, and 100 miles of the site and the distance departments are expected to travel for training. If the facility is mobile, how far it will travel to reach its audience.

MOBILE EQUIPMENT

4. **Demand for public safety training facilities should be assumed to be from departments within a 100-mile driving distance from the site, unless the siting plan includes a formal commitment from departments willing to travel further to train there.**

5. **Mobile facilities should be considered in areas where the density of departments within a 100-mile radius is not sufficient to support a fixed facility (at least 75 percent of the hours available for training). Given the experience of MnSCU in operating, maintaining, and managing mobile facilities, local MnSCU institutions should be involved in plans for siting and use of mobile training equipment.**

Recommended components for proposed facilities are:

- cost assumptions for mobile equipment, including purchase and maintenance costs and costs of personnel needed to manage as well as move and operate the equipment;
- number of training hours offered and how many hours will be spent in transit and maintenance; and
- participating departments and the number of hours or days of training for each.

DESIGN

6. Public safety training facilities should support safe, realistic training in a controlled environment. Technology should aid in creating more realistic training simulations, while also keeping participating personnel safe from accidents and injuries.

Recommended components for proposed facilities are:

- types of training supported in the facility and how the facility accommodates them;
- a plan for meeting pollution control and environmental protection agency standards to minimize noise, air, and water pollution from training activities (including lead abatement, content of smoke and vapors released, and soundproofing);
- safety mechanisms for training exercises; and
- technology supported by the facility (audio/visual equipment, teleconferencing, computers, and simulators for driving and firearms) and adaptability for future technological advances in these tools.

OWNERSHIP, OPERATION, and FUNDING

7. Additional consideration for funding should be given to facilities with collaborative ownership or operation among federal, state, and local agencies and private-sector organizations, in order to maximize cost-efficiency and use.

8. Multi-purpose facilities should be encouraged, to maximize the potential base of users and spread costs across agencies.

9. The state's role in funding public safety training facilities should ensure that agencies can meet minimum standards for training established by the Peace Officer Standards and Training Board, OSHA, and the National Fire Protection Association.

10. To ensure equal state and local participation in training facilities, state funds should be assumed to provide no more than 50 percent of the total capital costs for the facility and no state subsidy should be provided for the ongoing operation of the facility, unless a state agency is an ongoing partner in the use and operation of the facility.

Recommended components for proposed facilities are:

- a plan for funding the capital and operating costs of the facility, including the costs to each partner and the effects of any fees collected for the use of the facility;
- a fee schedule for the facility, including plans for whether partners funding the facility pay full, partial, or no fee for the use of the facility;
- the proposed legal governing structure for the facility (joint powers agreement, contract), including how management and operational decisions will be made and how the facility will be staffed; and
- calculations of capacity and use estimates for the facility.

This recommendation does not prevent state agencies from contributing operating funding to facilities they lease for training.

CAPACITY and USAGE

11. Facility plans should include mechanisms for marketing and rental of the facility to maximize its use and recover a portion of operating and capital costs.

Recommended components for proposed facilities are:

- a list of Peace Officer Standards and Training Board, OSHA, National Fire Protection Association, and other standards being met through the training supported by the facility;
- the estimated annual number of training hours to be provided at the facility, the number of hours committed to the facility's owners or partners, and the number to be made available to other agencies or groups;
- a marketing plan for ensuring use by outside agencies or groups when it is not in use by its partners; and
- anticipated availability to other public groups, such as state agency training schools (MnSCU, Bureau of Criminal Apprehension) or state and federal agencies.

INTRODUCTION

Numerous proposals made to the 1998 Minnesota Legislature for new fire and law enforcement training facilities had to be evaluated without reference to a comprehensive statewide plan for siting such facilities. As a result, the legislature directed the commissioner of public safety to prepare, in consultation with affected organizations and stakeholders, a statewide master plan for fire and law enforcement training facilities. The master plan was intended to help ensure that fire and law enforcement personnel have access to appropriate training facilities in a cost-effective statewide system. Specifically, the commissioner was directed:

> to develop a statewide master plan for siting, ownership and operation of fire and public safety training facilities. The commissioner of public safety will consult with the Minnesota state colleges and universities, the department of military affairs, and the peace officer standards and training board in preparation of the master plan (1998 Laws, Chap. 404, Sec. 21, Subd. 3).

The commissioner of public safety contracted with the Department of Administration's Management Analysis Division to work with the Department of Public Safety in creating the statewide plan. This report contains the criteria and recommended proposal components to be used as the statewide plan for siting public safety training facilities.

SCOPE

This study focused on needs and criteria for specialized training facilities. Specialized facilities have space or equipment that is not commonly available, such as firing ranges for weapons practice or fireproofed rooms for controlled burns. Training activities requiring specialized facilities include:

- defensive tactics — physical training on levels of force and equipment training with chemical sprays, baton, and simulated weapons firing paint pellets;
- live firearms training — firing a weapon under varying environmental conditions and circumstances on a firing range (indoor or outdoor);
- scenario-based training — making decisions about what to do in a variety of situations, including when to fire a weapon in a computerized or live action scenario, typically in either a simulator room or a simulated town or city outdoors;
- hazardous material spill response — special techniques for dealing with hazardous material spills;
- search-and-rescue exercises — first-responder training on basic search-and-rescue and specific situations such as confined space and vehicle extrication generally using portable car or trailer props;

- live burn training — using standard firefighting equipment to extinguish a fire in a controlled environment in a fireproof "burn building" constructed to control the spread of fire; and
- emergency vehicle driving — effective maneuvering of emergency vehicles (fire engines, squad cars) on a driving course or range.

The project's primary objective was to develop a set of recommendations and criteria to be used by the legislature in its decisions about locating and funding training facilities throughout the state. Therefore, the project did not focus on evaluating or recommending existing or proposed public safety training facilities.

According to the Peace Officer Standards and Training Board, there are 513 law enforcement agencies in Minnesota, with a total of 8,971 sworn peace officers. Data from the State Fire Marshal's Office states that there are 789 fire departments. Although no centralized data base exists for firefighters, the Minnesota State Fire Departments Association, the State Auditor's Pension Oversight Division, and Minnesota Professional Firefighters estimate a total of 18,244 firefighters in Minnesota.

ADVISORY COMMITTEE

The commissioner appointed a 15-member committee to advise the commissioner and the Management Analysis Division on components of project design and content. The advisory committee was composed of representatives from professional organizations for fire and law enforcement personnel, the Peace Officer Standards and Training Board, the Department of Military Affairs, the public, and the Minnesota State Colleges and Universities system (MnSCU). Ad hoc members represented the departments of Natural Resources and Corrections and the Department of Public Safety's Office of the State Fire Marshal and Bureau of Criminal Apprehension. A complete list of advisory committee members is provided in Appendix A. The committee met monthly throughout the project, and many members assisted the project team in collecting data from their organizations.

METHODS

The project team collected data through public meetings; a statewide department survey; a facility inventory composed of data from several sources; interviews with training organizations, industry representatives, specialized facilities, and other states; literature research; and tours of four existing facilities.

Public meetings To gather a broad range of input from all parties concerned with fire and public safety training facilities, the team held six public meetings during the week of Sept. 21, 1998, in Brainerd, Detroit Lakes, Marshall, Rosemount, Owatanna, and Duluth. Participant attendance ranged from 15 to 45 per location. Participants, including personnel from fire and law enforcement services, training coordinators, groups with facility proposals, and others, answered questions on several topics:

- how well current training facilities are meeting their needs,
- what changes they foresee in training facility needs, and
- what suggestions they have to improve availability of facilities.

The public meetings were structured to allow small-group discussion as well as individual written responses to the questions. Participants also were asked to provide names and locations of training facilities they use; this list contributed to an inventory derived from other sources, discussed below.

Statewide department survey Another important data source for the project was a survey of all law enforcement agency and fire department chiefs. The survey's two purposes were to collect names and locations of existing training facilities and to gather the chiefs' opinions on how well training facilities are meeting their needs and how well they expect the facilities to meet their needs in the next three to five years (Appendix B has a copy of the survey text). An analysis of the survey responses is presented in the Training Facility Needs section of this report.

Thirteen hundred and two copies of the survey were mailed to the chiefs of all Minnesota fire departments and law enforcement agencies (police departments and sheriff's offices). In addition, surveys were sent to other enforcement organizations that use public safety training facilities, including the Department of Public Safety's State Patrol, State Fire Marshal's Office, Bureau of Criminal Apprehension, and Alcohol and Gambling Enforcement Division; and the Department of Natural Resources' Enforcement Division. The Peace Officer Standards and Training Board provided the team with names and addresses of law enforcement chiefs, and the State Fire Marshal's Office provided addresses of fire departments.

The survey was mailed in late October and returns were accepted until Dec. 23[1] (end notes begin on Page 47). Non-respondents received either a second mailed survey or a call requesting them to complete the survey over the telephone. Cities with a population of more than 4,500 were given priority for telephone calls in order to have representation from as much of the training population as possible. Table 1 on the next page summarizes the survey response rates.

TABLE 1. Training facility survey response rates, by location

Public safety agency type	LOCATION of RESPONDING AGENCIES		
	Greater Minnesota	Twin Cities Metropolitan Area	Combined
Law enforcement (police, sheriffs, State Patrol, BCA, Alcohol & Gambling Enforcement, DNR Enforcement)	45%	80%	51%
Fire (State Fire Marshal and fire departments)	35%	71%	39%

The 39 percent return rate from fire departments represents 51 percent of all firefighters in the state; the 51 percent return from law enforcement agencies represents 88 percent of all peace officers.[2] Map 1 on Page 51 shows the location of all fire and law enforcement agencies (Maps 7 and 8 show the number of fire and law enforcement personnel by county), and Map 2 shows the location of survey respondents.

Facility inventory To create an inventory of training facilities throughout the state, the project team relied on data supplied at public meetings, in interviews with industry organizations and advisory committee members, and through survey responses. The survey asked for names and locations of facilities used for training, including: classrooms/meeting rooms, indoor open space, outdoor open space, firearm ranges, firearm simulators, burn facilities, emergency vehicle driving ranges, and mobile training facilities. In addition, the Department of Natural Resources provided the project with results of a 1997 survey of firing ranges across the state. The Minnesota National Guard provided the team with a list of armories and facilities at Camp Ripley, and the Bureau of Criminal Apprehension provided a list of classroom spaces used throughout the state.

Telephone calls were made to specialized facilities (firearm ranges and simulators, burn facilities, emergency vehicle driving ranges, and MnSCU campuses with mobile firefighter training units) to gather information. The interviews with facility staffs helped to verify both the existence and name of facilities, thereby eliminating a substantial number of errors and duplicates from the lists. Appendix C provides the inventory of specialized facilities reported for public safety training. Because the scope of this project was limited to specialized training facilities, no attempts were made to verify the existence of non-specialized facilities or to gather more detailed information about them.

Interviews and literature search Finally, in order to develop a broader perspective on issues surrounding training facilities, the team conducted the following research:

- interviews with representatives from industry organizations, including members of the project's advisory committee and regional training coordinators and organizations;
- a review of current industry literature on trends in training and training facilities for fire and law enforcement services;
- interviews with the federal Occupational Safety and Health Administration and the Minnesota Pollution Control Agency regarding current and expected training regulations and requirements;
- interviews with and background research on other states (Texas, West Virginia, Indiana, Washington, Wisconsin, Illinois, Colorado, and California) to learn about their systems and models for siting, funding, and operating fire and public safety training facilities; and
- tours of fire and law enforcement training facilities.

Information learned from the interviews and literature review is discussed in the relevant report sections.

REPORT ORGANIZATION

This report has four main components. The first section discusses types of training and facilities in Minnesota today and is followed by a section about future training facility needs. Project team conclusions and recommendations are presented in the last two sections. End notes and a bibliography for these sections follow the recommendations. Color maps precede the appendices.

FIRE and LAW ENFORCEMENT TRAINING

Although training is an important function for both fire and law enforcement personnel, the requirements and means of delivering training are different. The disciplines have different local, state, and national requirements and recommendations for the content and frequency of training.

Purposes of training The basic purpose of training for fire and law enforcement personnel is to create learned, practical responses to stressful situations in order to minimize damage to property and reduce the number of injuries and fatalities of both personnel and victims. Practical training increases a person's ability to effectively manage a range of situations encountered on the job. Having well-trained firefighters and law enforcement officers not only increases personal safety but also limits public liability and the costs of injuries and incidents.

Training environments for fire and law enforcement are changing. For example, fire departments increasingly deal with hazardous material incidents, while law enforcement officers face shifting types of situations, like domestic abuse and gang-related assaults. New challenges along with new tools and equipment make practical training an important function for effective fire and law enforcement departments.

Standards for training Minimum standards for peace officer training are established in M.S. 626.8452 and governed by the Peace Officer Standards and Training Board. Training standards and the required documentation of training events and qualifications are clearly established by the board and shared with law enforcement agencies throughout the state.

OSHA mandates some basic training activities and proficiencies for firefighters. However, beyond the OSHA requirements, other standards for firefighter training are not mandated. Most schools and training organizations rely on recommendations of the National Fire Protection Association. No centralized record keeping exists for firefighter training activities and qualifications.

Beyond the level of minimum standards to be met by all fire and law enforcement personnel, additional needs may be specific to a particular area or locality. For example, fire departments in areas of the state with feedlots may need training on rescue from manure pits. Similarly, law enforcement officers must frequently focus on law enforcement needs such as business security or gang-related offenses in their communities. Training needs associated with local or regional concerns are important and difficult to apply on a statewide level.

EXISTING TRAINING and TRAINING FACILITIES

Through the public meetings, interviews, and surveys, 202 training facilities were located. Appendix C contains a full list of facilities and the training activities they support.

FACILITY DATA

Table 2 provides a count by ownership type of the specialized training facilities identified, including indoor and outdoor firing ranges, firearm simulators, live burn facilities, mobile fire training equipment, and driving ranges. Most facilities are publicly owned by cities, counties, and state agencies, either individually or jointly with other public agencies (called "single-agency, publicly owned" or "joint, publicly owned"). The University of Minnesota's firing range is listed as a joint facility because it is co-owned by the Federal Bureau of Investigation. Camp Ripley, which is owned by the Department of Military Affairs, is also considered a jointly owned facility because the Department of Natural Resources and Minnesota State Patrol have training facilities there.

"Privately owned" facilities are not owned by a public agency but can be used by law enforcement or fire departments. The most common type of privately owned facility is a "gun" or "sportsman's" club where a law enforcement agency or its officers are members.

TABLE 2. Count of specialized training facilities

Ownership type	Firing range		Firearm simulator	Burn facility	Mobile fire	Driving range
	Indoor	Outdoor				
Education	2	0	3	3	6	4
Military	2	11	0	0	0	0
Public-agency joint ownership	12	3	2	1	0	1
Private	60	5	1	1	0	2
Public single-agency ownership	60	30	3	7	1	0
TOTAL	**136**	**49**	**9**	**12**	**7**	**7**

SOURCE: Management Analysis Division public safety training facility inventory.[3,4]

Map 1 shows the location of all law enforcement agencies and fire departments; Maps 3 and 4 show the location of fire and law enforcement training facilities throughout the state; and Map 5 locates MnSCU campuses and National Guard armories.

Facility operators were called individually to collect data on each facility's characteristics, number of peace officers and firefighters trained annually, amount of time in use, and potential plans for expansion or closure. Seventy percent (95) of 136 outdoor firing ranges were contacted. Because outdoor ranges have varying availability due to weather and level of use, not all could be reached. Not every training facility was able to provide information on the number of personnel trained annually or the percent of time the facility is in use.

Neither Table 2 nor the facility inventory in Appendix C shows qualitative differences among training facilities. For example, a firing range in a gravel pit with stationary targets supports a level of training different from an indoor range with moving targets at varying distances. This project did not evaluate the impact of qualitative differences in facilities or training results for the individuals who participated.

FIRE TRAINING

One essential element of firefighter education is live burn training, so that firefighters understand the feel of the heat and smoke of a fire. Buildings used for live burns are also subject to the most regulations and requirements for training content and safety, as well as environmental protection. Other important areas of firefighter training that are less complicated from a regulatory standpoint include equipment training, use of specialized training props, and classroom training.

OSHA requires that fire departments provide training commensurate with the duties firefighters will be expected to perform (OSHA 1910.156). General training activities on aspects of firefighting common to all personnel compose one type of training. The National Fire Protection Association has set standards for training different types of firefighters. However, individual fire departments have also said that they want to determine the types of training needed for issues or situations encountered locally (Department of Public Safety, 1998), and local needs are often critical for dealing with specific issues faced by a local fire or law enforcement agency. Therefore, most departments are given a mix of OSHA- and National Fire Protection Association-suggested training as well as training to address specific local needs.

Equipment training Firefighters need to train with all the equipment they would normally be expected to use in the course of their duties. OSHA has specific standards for some safety equipment, such as the protective clothing that must be worn by firefighters. Other types of equipment include hoses, hydrants, and axes.

Equipment training requires a large open space for moving people and vehicles and sometimes simple target props for hoses or axes. Most departments conduct this type of training at their fire stations; the majority did not report unmet needs in the area of equipment training and practice.

Driving training Firefighters with vehicle responsibilities must be trained to operate and maneuver their vehicles. Training involves maneuvering around obstacles, using lights and sirens, parking, backing, and stopping and requires a large open space with movable obstacles. Most fire departments responding to the survey reported that they use parking lots (theirs or someone else's) to conduct emergency vehicle training. Most said they were satisfied with those arrangements. Driving ranges at Dakota County Technical College and St. Cloud State University incorporate skid pads and more complex obstacle courses, but few fire departments reported using them.

Live burns In its interpretation section of 1910.156, OSHA suggests that firefighters participate in live fire training at least annually, perhaps more often for interior structure firefighting. However, it is also clear that individual departments decide what training to provide under the "commensurate with duties to be performed" OSHA requirement.

Live fire training can be provided at a stationary burn facility, at a mobile burn facility, or in acquired structures set on fire for training purposes. Stationary facilities and acquired structures are discussed in this section. Mobile burn facilities are discussed in the next section.

Stationary burn facilities – Minnesota has 10 stationary burn facilities. Two North Dakota facilities, in Fargo and Grand Forks, are used by Minnesota fire departments and Northwest Technical College – East Grand Forks. The burn facilities range from multi-story burn towers designed to simulate a single-family home or high-rise building to single burn rooms. Many older burn buildings are basically fireproof but burn "Class A" materials, such as wood palettes and cardboard, that could be encountered in a structure fire. Although Class A materials create a realistic simulation, their smoke also pollutes the air. In addition, several fire training officers expressed safety concerns about Class A materials, because the materials will continue to burn until they are fully extinguished, so that training cannot be effectively stopped once it has begun. This could put firefighters at greater risk of injury if accidents or mistakes occur during the training.

Most newer stationary burn facilities are propane or natural gas-fired, meaning that they burn more cleanly and can be cleaned and prepared for the next training exercise more quickly. In addition, most gas-fueled burners can be turned off at the touch of a button, allowing an exercise to be interrupted or stopped entirely in case of an accident or injury. Gas burners may require a greater capital investment to build and install, but the ongoing cost of the fuel may be less than the cost of Class A materials used in older burn buildings.[5]

Most burn facilities also provide confined space, smoke rooms, hazardous materials, and search-and-rescue training.

Greater Minnesota has three burn facilities, and departments in Greater Minnesota use two facilities in North Dakota. One Greater Minnesota facility specializes in aircraft fire training and another is closed. Lake Superior College owns the Emergency Response Training Center, a highly specialized facility designed for aircraft fire training that includes a commercial airline mock-up and is one of few such facilities in the nation. The training center is not designed for structural-burn training that most departments need, but uses donated mobile homes for live burn training.

The Central Lakes College – Staples facility has a live burn tower that is officially closed, but is still operational and occasionally used by nearby fire departments. The facility was constructed in 1985 - 1986 with federal funds. In addition to the tower, the facility has a hydrant system, a pond for drawing water, and liquid propane training props. A railroad car and burn pit have been removed. Four fire department chiefs were contacted in the area around Staples to determine why the facility closed. The chiefs reported that most of their training is in-house or at MnSCU's "sectional" schools held in larger cities. Two chiefs reported that they have sent a few department members to training at Staples, but never the entire department. Training on that scale was not a high priority and, as a result, the facility was seldom used even by neighboring fire departments.

The Riverland Technical College – Winona facility is a fixed mobile home trailer using Class A materials for burns, as is the Grand Forks, N.D., facility. The burn facility in Fargo, N.D., simulates a two-story house.

The other seven Minnesota burn facilities are located in the Twin Cities area. One is owned by Koch Refinery in Rosemount and the remainder by city fire departments. The city-owned facilities are located in Burnsville, Fridley (both the Minneapolis Fire Training Facility and the North Metro Training Center), St. Paul, St. Paul Park, and White Bear Lake. All facilities are available or becoming available for use by other departments.

Most facilities reported training 200 to 400 people a year, although the St. Paul facility reported training 800. Seven of the 12 facilities used by Minnesota departments reported usage rates of less than 25 percent, and most of the others were in use 25 to 50 percent. The exception was the St. Paul facility, which is open 40 hours a week and in use more than 75 percent of the time. The Koch Refinery facility is open only by appointment.

Stationary burn facilities are expensive to build. They require land for the building(s) and for moving equipment, as well as for other props needed at the location. Most current facility proposals include other specialized facilities in addition to a burn structure, so it is difficult to isolate the costs for the burn facility specifically. However, interviewees estimated that the costs for constructing a burn facility could be more than $1 million, depending on location and size.

Acquired structures – Sixty-one departments reported using acquired structures for live burn training. This number may be understated, because the survey instrument did not specifically request information on using acquired structures. However, it appears to be a prevalent practice in some areas of the state.

National Fire Protection Association Standard 1403 expresses safety concerns: "Acquired structures . . . were never designed or intended for burn applications and can lack even the fundamental elements of fire resistance due to disrepair." The unpredictability of a burn in an acquired structure can put firefighters at risk for serious injury during the training exercise. The National Fire Protection Association encourages use of burn facilities instead of acquired structures, where available.

Further, some interviewees expressed concern that environmental regulations could be violated in burning acquired houses. Frequently, the homes may have asbestos, lead, or other substances that are released into the air when burning and may be released into the water supply as the fire is extinguished. Fire departments generally check for dangerous substances in acquired houses, but substances may not be clearly visible.

Some departments that use acquired buildings also reported few, if any, houses available to acquire and burn for training. So, acquired structures may no longer be an option for many departments in Minnesota.

For all of these reasons, several states also have stopped using acquired buildings for live burn training. Safety concerns, inability to meet pollution regulations, and the shortage of buildings are making live burn training in acquired structures increasingly rare across the country.

Mobile fire training equipment Many fire departments also need training on such frequently encountered situations as confined-space rescue, vehicle extrication, and smoke-filled interiors. OSHA now requires training on hazardous material spills and containment (OSHA 1910.120). Most of the stationary fire training facilities offer props supporting these types of training; however, few such facilities exist in the state. As a result, many agencies use mobile props for much of their specialized training. Most mobile equipment is owned by MnSCU and used to simulate confined-space rescues and smoke-filled rooms for training with self-contained breathing apparatus. Many departments use old cars for vehicle extrications. In addition, many stationary and mobile facilities have special equipment for simulating hazardous material spills and containment.

Research was conducted on the most common types of mobile fire training equipment: Class A material burn trailers, liquid petroleum tanks to simulate live burns, and search-and-rescue and/or confined-space trailers that may be filled with smoke to allow firefighters to use self-contained breathing apparatus and simulate rescues. More specialized mobile equipment is listed in the facilities inventory in Appendix C.

TABLE 3. Mobile equipment for fire training in Minnesota

COLLEGE	EQUIPMENT
South Central Technical College – North Mankato	LP trailer, confined-space trailer
Northwest Technical College – East Grand Forks	Confined-space trailer
Northwest Technical College – Moorhead	LP trailers
Anoka-Hennepin Technical College – Anoka	Class A burn trailer, LP trailers, confined-space trailer
Hennepin Technical College – Hopkins	Hazardous materials trailer
Riverland Technical College – Austin	Confined-space trailer

SOURCE: Minnesota State Colleges and Universities.

Table 3 shows mobile equipment available for state training and where it is based.

The chief advantage of mobile training equipment is that it can be taken to fire departments so that personnel do not incur travel time and expenses. Training coordinators reported that neighboring departments will often contract with a technical college to bring in a trailer over a weekend, thereby sharing expenses and creating the added benefit of training together. Some of MnSCU's mobile equipment travels all over the state and even to other states for training contracts. Also, as with fixed facilities, using LP trailers is safer than burning acquired buildings, in terms of both personal injury and environmental damage.

The primary drawback of mobile facilities is that it is difficult to vary scenarios, given the limited space and weight capacities of a trailer. Once firefighters have been through a trailer several times, their decision-making skills are not as challenged as during their initial training. Similarly, certain scenarios, such as a railroad car fire or spill, cannot be reproduced on a trailer. Some fixed facilities also offer more complex scenarios, such as multi-story houses with several rooms; trailers are much more limited. For some departments the training supported by mobile equipment is sufficient to meet their needs. These departments are typically in more rural settings and do not fight a great deal of interior structure fires. However, for departments dealing with interior structure fires in more-populated areas, more complex scenarios are needed for effective training.

Capital costs of trailers depend on the sophistication of the trailer and labor costs (Table 4). For example, some search-and-rescue trailers employ infrared lighting and cameras to monitor firefighter activity in complete darkness. Cost differences for LP trailers depend on the LP tank size. Some technical colleges employ students from their construction programs to

TABLE 4. Costs of mobile fire training equipment

Type of equipment	Capital costs	Annual operating costs
Trailer for self-contained breathing apparatus	$10,000 - $200,000	$1,000
Class A materials burn trailer	$50,000	$12,500
Liquid petroleum tanks/trailer	$10,000 - $100,000	$4,000

SOURCES: Capital costs: Anoka–Hennepin Technical College, Northwest Technical College, South Central Technical College, and Riverland Technical College. Operating costs for self-contained breathing apparatus trailer and Class A materials burn trailer: Anoka–Hennepin Technical College (actual Fiscal Year 1998). Operating costs for LP tanks: from above-named colleges.

build the trailers, thereby lowering costs. Operating costs include replacement of parts and props, such as search-and-rescue dummies, and expenses associated with mobility, such as tires and fuel. Other operating costs, not reflected in Table 4's figures, are the instructor's time and travel expenses. Several colleges noted that liquid petroleum is often donated by local gas companies. Actual capital and operating costs were not readily available for all types of training units; however, training coordinators gave a range of estimates.

Burn trailers are estimated to last 12 years, LP trailers 10 to 15 years, and search-and-rescue or self-contained breathing apparatus trailers 10 to 20 years.

LAW ENFORCEMENT TRAINING

The Peace Officer Standards and Training Board establishes statewide requirements for law enforcement training. The board requires that the following training on use of force occur annually:

- weapons and firearms,
- defensive tactics, and
- other training along the continuum of force.

The board also requires one-time training on hazardous materials, community policing, and emergency vehicle operation. OSHA requires annual training on blood-borne pathogens. These as well as additional requirements established by localities are generally met through a range of activities, although the level of sophistication of the training and equipment depends on available facilities and resources in a given area.

Firearms training Live firearms training is important for improving proficiency and understanding the operation of a weapon and what may affect it. The Peace Officer Standards and Training Board requires that each peace officer in the state qualify annually with 50 rounds of ammunition. Officers should practice in inclement weather and low light conditions, as well as under different scenarios. In addition, many law enforcement agencies have firearm requirements beyond the yearly qualification. Several localities require quarterly firearm qualification, others monthly.

The training facilities inventory lists 136 outdoor and 49 indoor ranges. In Greater Minnesota, 80 percent of the identified ranges are outdoors. In contrast, half of the Twin Cities area's ranges are outdoors.

Outdoor firing ranges – Most law enforcement agencies use an outdoor range. It could be an area designed for firing weapons, with backstops for containing lead bullets, covered shooting positions, varying shooting distances, and moving targets. Or it could be a gravel pit or other outdoor open space with stationary targets. Outdoor ranges provide varying weather conditions for training, and it is most often outdoors where officers ultimately draw and use their weapons. Seventy-five percent of the outdoor ranges contacted accommodate pistol, rifle, and shotgun practice, and almost 40 percent allow automatic weapon firing.

Although outdoor ranges provide a realistic training environment for peace officers, they are becoming scarce. The ranges take up an enormous amount of space, result in a significant amount of noise for the surrounding neighbors, and, when set up in informal settings without good backstops, leave lead contamination in the soil. Many agencies in Greater Minnesota reported using makeshift ranges in sewage treatment areas, gravel pits, or other undeveloped areas of land owned by the local government. Additionally, if the land is later developed or converted to another use, costs of cleaning up lead contamination can be significant. One agency reported that estimated lead cleanup costs for its recently closed outdoor range could reach $250,000. One alternative in the future may be non-lead bullets, currently available but costly. Several training officers reported that the cost of non-lead bullets is decreasing and may become more competitive in another three to five years.

Nearly 45 percent of the outdoor ranges identified from the inventory are privately owned and operated. With private ranges, law enforcement agencies could experience scheduling problems or be restricted to target shooting, without varied distances, shooting from cover, and other situations.

Indoor firing ranges – Indoor ranges are being constructed to contain the noise, odors, and other byproducts of weapon fire and allow training regardless of weather conditions, time of day, or presence of other development. The indoor ranges in the inventory vary from one or two to multiple firing positions. Some are large enough for tactical training, a mock street with targets, and scenarios using parked cars. Unlike outdoor ranges, indoor ranges typically accommodate a more limited

selection of weapons. Thirty-five percent of the identified indoor ranges allow pistol, rifle, and shotgun fire and 30 percent allow only pistol fire. The remaining ranges allow pistol and rifle or pistol and shotgun firing. Almost 30 percent accommodate automatic weapons. Newer indoor ranges are more likely to accommodate a range of weapons, ammunition, and practice situations. New ranges are insulated to block out sound and vented to protect against dust and lead, and support a variety of firing distances and conditions (Pilant, July 1994). These designs are often more costly to construct and maintain than outdoor ranges. However, in populated or developing areas, an indoor range may be the only possible option for conducting live weapons training without affecting the safety and comfort of the surrounding neighbors.

Forty percent of the contacted ranges are open 24 hours a day or by appointment, and another 40 percent are used exclusively by the owning agency, limited to a few departments, or used only when needed for qualification exercises. The remaining ranges are typically open only during daylight hours or for set times during the day.

Of the 144 ranges contacted, eight are expected to close in one to three years, and one will be closed to law enforcement agencies. Another nine ranges might close, but the timing is not clear. Four ranges identified by survey respondents have closed already (these are not counted in Table 2, nor are they shown on the maps). Typical reasons given for actual or potential closure were:

- environmental problems,
- developing the land for other uses,
- community complaints or encroaching development, and
- being replaced by a new range being built.

The National Guard is studying its indoor ranges for air quality and bullet trap problems and may close some. A few other ranges could not be used extensively because of air quality problems.

Of the 133 ranges that provided data on numbers trained annually and available time in use, two-thirds are used less than 25 percent of their available time and nearly three-quarters reported 100 or fewer officers trained annually. Only 15 percent of these ranges are used by more than 250 officers and only 10 percent are in use more than 75 percent of their available time. These statistics may indicate that firearm training for most departments is conducted a few times a year for qualifications and that officers are broadly dispersed around the state.

Scenario-based training Scenario-based training situations are a critical means for testing an officer's reactions under stress. Scenarios typically involve role-playing exercises where an officer is required to make decisions and react quickly. In an environment where situations and challenges are constantly changing, this type of simulation is viewed as an increasingly important

component of peace officer training (Faulkner, 1997). Officers are evaluated according to their ability to choose the proper force option, whether it be verbalization, escort compliance, pain compliance, chemical aerosol tactics, baton, or deadly force. Three types of scenario training are often used by law enforcement agencies:

- simulated firarms – officers simulate a search or chase, firing paint pellet guns;
- a mock street with hostile and non-hostile pop-up targets where the officer must decide whether and when to fire (may use live ammunition or simulated weapons);
- video screen simulators – scenes are shown on a screen at a firing range; action stops once the officer has fired a weapon; and
- interactive simulator systems – computer-based simulations of situations an officer may encounter, with shots fired through a simulator weapon that tracks aim.

Low-tech simulations using simulated weapons in a simulated town or city type of setting can be set up fairly cheaply, especially if construction materials and/or labor are donated. Several departments in Greater Minnesota reported having makeshift simulated settings with popping and turning targets that they said were effective for training. Props can be rearranged to change the scenario each time they are used. Pilant (August, 1997) also cites several examples of creative outdoor ranges with movable props used to simulate real situations for law enforcement training.

Simulated weapons and simulated town or city training environments can also be large and complex. These very realistic types of facilities are significantly more expensive to build and maintain. Camp Ripley maintains a mock city area for this type of training, and a similar mock city is part of a training facility proposal for several law enforcement agencies in Anoka County.

Simulated environments are beneficial because they require quick reactions, but they are less costly than computer-based simulation and, as a result, may provide a more workable scenario training option for smaller agencies with limited training budgets. The limitation is that most of these facilities are stationary, so officers must travel to the facility, wherever it is located. Also, they may not be as realistic as computer-based simulation and cannot perform some of the more advanced functions of the computer, such as tracking aim or simulating weapons malfunction and returned fire.

Computer-based firearm simulators are more advanced. Top-of-the-line simulators carry the brand names Fire Arms Training Simulator (FATS) and Caswell Sentronic.[6] These simulators show various scenarios where the participant makes shoot/don't shoot decisions. The systems can also incorporate the user's action into the scenarios, such as when the officer fires at, but does not kill, an on-screen assailant. The simulators can record the shooter's aim and cause the shooter's weapon to malfunction. The newest simulators can fire back through a camera, registering a "hit" on the officer. Simulators can also be used on indoor ranges to incorporate live fire and the feel of weapon recoil.

Simulators can help shooters improve their aim. They trace the shooter's point of aim and point of impact, allowing the instructor to analyze them and identify problems with the shooter's technique. Simulators also realistically create dangerous situations in which an officer must make shoot/don't shoot decisions. One interviewee said that simulators offer "the most realistic training for the most deadly encounters," and another said that a simulator "wakes officers up and makes them aware that things happen fast" in a situation where a weapon is drawn.

Data provided by interviewees suggests that firearm simulators cost around $100,000 to purchase. Accessories like a recoiling weapon or one that can simulate a weapon jam cost about $3,000 each. Different shoot/don't shoot scenarios cost $3,000 each. New simulations are needed frequently because the user becomes familiar with a given scenario after one or two sessions.

Eight Minnesota organizations own the sophisticated simulators discussed here. Three are owned by large city or county law enforcement agencies (Maple Grove–Hennepin County Law Enforcement Training Center, Ramsey County Sheriff's Department, and Minneapolis Police Department) and one each by the Minnesota Department of Corrections, Camp Ripley, and a private gun club. The remaining three simulators are mobile and are owned by Alexandria Technical College and Hibbing Community College, both of which offer law enforcement degrees and continuing education to officers. Alexandria estimated that its simulator is used by 900 people a year. Hibbing estimated that 1,000 people use its simulators. Similar to the way fire departments train with mobile equipment, several law enforcement agencies in a region contract with the college for training. The cost is $24 per officer, if an instructor is provided. Otherwise, the unit can be leased to a department for $250 per day.

One drawback of simulators is the maintenance cost. Hardware repairs alone can cost thousands of dollars a year, and software upgrades are costly and frequent. Also, the equipment is very sensitive and moving the simulators around the state may cause them to deteriorate more quickly and require more frequent repair.

Emergency vehicle driving The Peace Officer Standards and Training Board requires that all officers take a one-time emergency driving course involving vehicle operations, defensive driving, and traffic stops. In the wake of recent accidents during police pursuits, the Police Pursuit Committee (made up of representatives of several professional organizations, the Peace Officer Standards and Training Board, the State Patrol, and the Bureau of Criminal Apprehension) has recommended to the 1999 Legislature an additional requirement for pursuit driving training every three years.

Driving training requires sufficient space to practice maneuvers at varying rates of speed and in varied conditions, such as inclement weather. The seven driving ranges in the state include four at MnSCU institutions — St. Cloud State University (Minnesota Highway Traffic Safety Center), and Alexandria, Dakota County, and Winona technical colleges. Camp Ripley has an open space that can be set up with obstacles and maneuvers to serve as a driving range. The other two driving

ranges are race car tracks in Fergus Falls and Sauk Centre. Additionally, many agencies use parking lots, airports, and city streets for vehicle driving training.

St. Cloud State's Highway Traffic Safety Center was the most widely mentioned driving range, and the center reported training approximately 1,700 people annually. The other MnSCU ranges reported training 100 to 250 people a year. Few public agencies use the race car tracks. Dakota County Technical College and the two race tracks reported being used less than 25 percent of their available time, and the other ranges reported 25 to 50 percent use of their available time. Both Dakota County and Highway Traffic Safety Center ranges have 20 acres available for expansion. The Highway Traffic Safety Center also has a snowmobile and all-terrain-vehicle training course.

The Highway Traffic Safety Center and Dakota County driving ranges are designed to provide driver training for both urban and rural roadway characteristics, with corners, intersections, straight-aways, flat curves, and long sweeping curves. Appendix D displays a diagram of Dakota County's driving range. The ranges allow training in evasive maneuvering, serpentine navigation, off-road recovery, braking and steering, and driving in wet and icy conditions. Training includes vehicle handling and understanding its limits and abilities at various speeds and turning angles, decision making, and the psychology of pursuits. The two ranges' staffs said they train under "low-speed, high-stress" situations: maximum speeds are 50 to 60 miles an hour and stress is created by the maneuvers and cornering to be performed.

The staffs at Dakota County and the safety center said that safety is the primary advantage their facilities offer. They are designed and engineered for different types of vehicle training and speeds and have buffer zones, especially a skid pad, in case a driver loses control of the vehicle. An observation tower provides instructors with a better view of the exercise and eliminates the dangers of standing near the track. Driving range speeds can also be faster than in parking lots and runways. One staff member said that parking lot speeds are about 15 miles an hour and courses have to be "higher stress," with more cornering and tighter turns.

The other driving ranges' designs are not as sophisticated as those at St. Cloud and Dakota County. Winona's range has similar characteristics, with curved lanes, an intersection, and a cloverleaf approach, but speeds are typically limited to 30 or 40 miles per hour. Camp Ripley's range is a large open space that can be configured with obstacles to facilitate driving training. The race car tracks are 3/8-mile ovals with concrete center pads that can be set up with a cone course. The tracks are not open in the winter. The Alexandria Technical College track's surface is mostly gravel, but it does have a skid patch and a stretch of pavement.

Although there is none in Minnesota currently, driving simulators are available with pursuit modules that could be used for law enforcement training, which would lessen the need for additional driving courses and traveling to courses. The Police Pursuit Committee is recommending purchasing simulators as an alternative to constructing additional driving ranges throughout the state. However, the simulator cost is estimated to be nearly $500,000. Also, some trainers expressed concern about whether simulator training would be realistic enough to give an officer experience in making decisions and maneuvering, especially in a pursuit.

Defensive tactics Part of the use-of-force training involves practicing unarmed tactics. These involve verbalization as well as techniques of force such as use of chemical sprays, handcuffs, and batons to restrain suspects. Defensive tactic training generally requires a large unfurnished space with mats. Many facilities do not have the space to accommodate defensive tactic training. Classrooms are generally too small and have too much furniture. Some departments reported using school gymnasiums and armory drill floors when they are available, but their availability for training is often limited by commitments to other activities.

In addition, gymnasium and armory drill floors are not always appropriate for some types of training. With the advent of expandable batons, damage can be done to floors when batons are closed. Also, baton training requires space between students and a high ceiling (1,500 unobstructed square feet for 15 students).

Computer training Computers are an increasingly important part of law enforcement. Peace officers are relying more on computers and computer-based tools to do their jobs. As a result, providing access and a facility for computer training is important.

Computer-based training on classroom material is also useful. Using computer-based learning instead of traditional classroom methods often offers a more individualized pace for each officer and a more efficient overall use of time. More information is retained and the information can be conveyed much more quickly than through lectures (Dempsey, 1998). Additionally, officers need to be trained in the use of computers as an investigative tool. Many newer law enforcement training facilities have computer equipment, but some older facilities, especially in smaller departments in Greater Minnesota, do not.

MULTI-PURPOSE FACILITIES

Facilities could be multi-purpose in a number of ways. Several National Guard armories also serve as community centers offering programs sponsored by local governments or schools. The more potential users there are, the more likely a facility will be fully used in the longer term. Multi-disciplinary training facilities have been suggested among the public safety disciplines to support both fire and law enforcement training activities. No training facility in the state supports training for both disciplines, although several proposed facilities would include both types. Very few cross-disciplinary facilities are located in other states, as well.

Some aspects of fire and law enforcement training require separate facilities, but several areas could be shared. Live burn towers or rooms cannot be used for other purposes that would involve chemicals, including simulated weapons, due to combustibility. Firing ranges also have limited cross-applicability. However, classrooms, locker rooms, tactic areas, hazardous materials, and rescue props could be used by both fire and law enforcement personnel. Although few models exist for cross-disciplinary training facilities, sharing a training facility could ensure the facility's appeal to a broader base of users who could share the costs and maximize use of the facility.

PROPOSED FACILITIES

Table 5 lists six public safety training facilities and one expansion being planned, built, or discussed. All are jointly owned and/or operated. Five of the planned facilities would be used for both law enforcement and fire training. Estimated capital costs for the Maple Grove expansion and South Metro are $2 million to $3 million. Estimated cost for the Ramsey County facility is $5 million and for the Washington County facility, $8.6 million. In addition, some law enforcement agencies reported building new ranges as part of new public safety buildings. Those projects are not included in Table 5.

TABLE 5. Proposed Minnesota public safety training facilities

NAME	STATUS	Participants	FEATURES								Comments
			Class-room	Train-ing room	Out-door space	Out-door range	Indoor range	Firearm simula-tor	Burn build-ing	Mobile equip-ment	
Maple Grove Law Enforcement Train-ing Facility	Proposed '98	Maple Grove and Hennepin County	U	U			U				Site expansion to in-clude smaller range, two scenario-based training rooms, and a defensive tactic room
Marshall Public Safety Training Fa-cility	Funded 7/98	City, county, MnSCU, pri-vate sector	U	U	U		U	U	U	U	Funded; should be a plan in place
Midwest Regional Public Safety Train-ing Facility, Roch-ester	In develop-ment	Rochester, Olmsted County	U	U	U		U	U	U	U	In beginning discus-sion stage
Ramsey County Law Enforcement Training Facility	Unknown	8 cities and Ramsey County	U	U	U	U	U	U	U	U	In discussion stage
Mankato Area Pub-lic Safety Depart-ment	Unknown	MnSCU and surrounding law and fire departments, pvt. industry	U	U	U		U	U	U		Joint fire–law enforce-ment facility
South Metro Public Safety Training Fa-cility, Edina	1/98 proposal	Edina, Eden Prairie, Bloom-ington, Rich-field, MAC	U	U	U		U	U	U	U	Joint fire–law enforce-ment facility
Washington County Public Safety Training Fa-cility	7/98 proposal	Cities and county	U	U	U		U	U	U		Joint fire–law enforce-ment facility

SOURCES: Proposal documents submitted to the 1998 Legislature and contact people at the proposing organizations.[7]

TRAINING FACILITY NEEDS

A limited assessment of needs for specialized training facilities was developed using several sources, including discussions from the public meetings, interviews with training organizations and others knowledgeable about the industries, and the department survey. No research was conducted on individual departments' or municipalities' needs that would be necessary to identify specific geographic areas of need. Therefore, this study did not identify specific areas of the state that have more need for specialized facilities than others, although the facilities inventory and Maps 3 and 4 can help by showing the location of existing facilities. Instead, the data pointed to general trends and issues that will affect all agencies in varying degrees:

- Outdoor spaces will become increasingly scarce because of growing residential development and environmental restrictions. This affects primarily outdoor firing ranges and burn facilities.
- Training for both fire and law enforcement agencies will require greater use of technology for safety and environmental reasons. For firefighters, live burns will increasingly need to take place either in stationary facilities or with liquid petroleum tanks, because acquired buildings are less safe for firefighters and the environment. For peace officers, use-of-force training will require more realistic scenarios, using either simulators to supplement live firearm and tactic training or constructed mock cities located away from residential development.
- Driving distances for training are perceived as a significant problem, particularly for the volunteer fire service throughout the state, although actual drive times to facilities vary widely. For example, in Greater Minnesota, driving to a burn facility is so burdensome for some departments that they do not consider the facilities as "available" to them. Of the 36 fire departments in Greater Minnesota that reported no burn facility available for their use, most said in written comments that the facilities were unavailable because the travel distance was too great. Of the three burn facilities in Greater Minnesota, only Riverland Technical College in Winona is regularly available for simulated structural burns. Law enforcement agencies also reported that overtime costs and per diems resulting from travel to training are difficult to pay within their training budgets.

This project's primary source of information on needs was the facility survey. It should be noted that much of this data is somewhat subjective. Responses depended on how departments defined their needs. The term "need" was not defined for survey respondents, so an agency's perception of its need may be limited by what the respondent considers normal or attainable.

For example, a police department may have responded that a local outdoor firing range is meeting most of its needs even though officers are shooting at fixed targets in a gravel pit when more realistic scenarios with shooting from cover and moving targets would provide better training. Some departments wrote comments on their surveys discussing this issue. In contrast, a department

experienced with more sophisticated ranges may have responded that its needs are not being met because it is unable to conveniently schedule exercises at the desired range facilities. Map 6 shows the location of fire and law enforcement agencies that reported that specialized facilities do not or will not meet their needs.

LAW ENFORCEMENT FACILITIES

Specialized law enforcement training facilities typically support either an indoor or outdoor firing range. They may also have space or equipment for other training activities, such as scenario-based training, defensive tactics, and classrooms.

Firearm ranges The law enforcement training population is divided almost evenly between the Twin Cities area and Greater Minnesota; Twin Cities area departments represent 52 percent of the state's peace officer population. Eighty-one percent of all responding law enforcement agencies that answered this question reported that existing firearm ranges are meeting their needs (Table 6), with little variation between the Twin Cities area and Greater Minnesota agencies. However, as summarized in Table 7, 47 percent of responding Twin Cities area agencies that answered this question indicated that existing firearm ranges will meet their needs in three to five years, and 16 percent were unsure.[8] In contrast, 71 percent of responding Greater Minnesota agencies said that existing firearm ranges will meet their needs in three to five years, with 5 percent unsure. One explanation for the difference may be that Twin Cities area agencies reported more concern over range closures than did those in Greater Minnesota.

TABLE 6. Survey responses on current needs — firearm ranges

Location	Meeting needs	Not meeting needs
Twin Cities area	82%	18%

TABLE 7. Survey responses on future needs — firearm ranges

Location	Will meet needs	Will not meet needs	Unknown
Twin Cities area	47%	37%	16%
Greater Minnesota	71	24	5
Combined	63	28	9

Interviews with industry and training organizations as well as responses from the public meetings contrasted with the perception of the majority of survey respondents that firearm ranges are meeting their needs. Training coordinators reported that private gun clubs can be difficult to schedule, are often too small, and do not facilitate realistic training because many lack movable props and targets. It is possible that agencies feel that as long as they can meet Peace Officer Standards and Training Board criteria, their needs are being met. However, industry organizations believe that training to higher standards, including realistic scenario training for firearms, is necessary for peace officer and community safety (Pilant, July 1994).

TABLE 8. Why firearm ranges are not meeting needs

Location	Unavail-ability	Cost	Needs upgrades
Twin Cities area	14%	10%	9%
Greater Minne-sota	10	2	11

Survey respondents were asked to explain why facilities are not meeting or are expected to not meet their needs. Reasons included "facility is not available when we want to train," "cost of using the facility is high," "facility is closing," "travel distance and travel expenses are too great," "facility may not be available for environmental reasons," "facility will require significant upgrades or renovation," and an "other" category, where respondents listed such reasons as residential development, size, and simply "doesn't exist."

Table 8 shows agencies' reasons[9,10] why firearm ranges are not meeting current needs — primarily unavailability and the need to upgrade the facilities. "Unavailability" refers to difficulties in scheduling practices because they are full or unavailable on short notice for activities like shooting in inclement weather. This was confirmed in interviews with industry and training organizations. "Needs upgrades" may refer to improvements to meet environmental regulations, enlargement of indoor ranges, or addition of props or technology to make practices more realistic. Facility fees ("cost") are a factor in the Twin Cities area, as well, indicated by 10 percent of the area's respondents.

TABLE 9. Why firearm ranges are not expected to meet future needs

Location	Unavail-ability	Closure	Cost	Needs upgrades
Twin Cities area	13%	32%	9%	11%
Greater Minne-sota	6	7	1	12

TABLE 10. Survey responses on current needs — burn facilities

Location	Meeting needs	Not meeting needs	Unknown
Twin Cities area	61%	39%	0%
Greater Minnesota	32	55	13
Combined	41	50	9

TABLE 11. Survey responses on future needs — burn facilities

	Will Meet Needs	Will Not Meet Needs	Unknown
Twin Cities area	50%	44%	6%
Greater Minnesota	27	54	19
Combined	35	51	14

Reasons cited for firearm ranges not meeting future needs (Table 9) focused mainly on the need for facility upgrades, as well as a strong perception by 32 percent of Twin Cities area respondents that ranges will be closing.[11] The growing scarcity of outdoor ranges due to environmental restrictions was cited as a concern by participants at the project's public meetings, as well. Also, growing residential development of once open spaces is projected to make some outdoor ranges unsafe or at least impractical.

FIRE FACILITIES

Specialized fire training facilities primarily contain facilities for some type of live burn simulation, with either stationary or mobile equipment. Facilities may also include props for search and rescue, confined space, and vehicle extrication, as well as classrooms.

Burn facilities As discussed in the Training Facilities section, seven of the 10 fixed burn facilities in Minnesota are in the Twin Cities area, although Twin Cities fire departments represent just 26 percent of the state's firefighters. One explanation for this apparent disparity is that many rural areas of the state, although they have fire departments, could not sustain a fixed facility because of the low concentration of training populations in the immediate area. This issue is discussed in more depth in the recommendation section of this report.

Twin Cities area fire departments responding to questions about facilities meeting their needs reported that burn facilities are meeting their needs at a much higher rate (61 percent) than they are for departments in Greater Minnesota (32 percent) (Table 10). Departments in both areas of the state are less certain that their future needs will be met (Table 11).

Primary reasons given for burn facilities not meeting needs were availability and distance, confirming information from interviews and public meetings.[12,13,14] For Greater Minnesota fire departments, these reasons combined represent 49 percent of the responses to this question (Table 12). Firefighter and training organizations offered several explanations why many firefighters may not be able to travel great distances to fixed burn facilities. First, the departments are overwhelmingly composed of volunteers with regular day jobs, families, and other commitments who are not willing to travel many hours for training. Moreover, small volunteer departments reported that their training budgets do not accommodate overnight stays and other travel expenses. Finally, departments cannot send a large number of staff or their equipment away at one time to train unless a neighboring department is willing to cover their jurisdiction in case of a fire. However, neighboring departments sometimes send joint teams to distant burn facilities, which provides benefits from training together. For all of these reasons, distant burn facilities are impractical for many outstate departments. To meet their needs, some departments use acquired buildings and mobile facilities such as Class A material burn trailers or liquid petroleum tanks, as discussed in the Training Facilities section.

TABLE 12. Why existing burn facilities are not meeting needs

Location	Unavailability	Distance	Cost	Environment
Twin Cities area	21%	18%	6%	6%
Greater Minnesota	27	22	8	3
Combined	25	21	8	4

TABLE 13. Why burn facilities are not expected to meet future needs

Location	Availability	Distance	Cost	Environment
Twin Cities area	19%	20%	5%	9%
Greater Minnesota	20	17	5	3
Combined	19	18	5	6

Thirty-nine percent of Twin Cities area fire departments also reported that availability and distance are a problem for them. The reason for this is unclear, but it may be because most facilities are owned by other fire departments and respondents may not be aware that they could lease those facilities for their own use.

Availability and distance remain the primary reasons departments cite for why burn facilities will

not meet their future needs (Table 13). The percentages are somewhat lower than for not meeting the departments' current needs, but the difference is most likely because many departments answered the current-needs but not the future-needs question. Some departments noted that their needs will be met if planned facilities, such as the Marshall facility, are built.

Mobile fire training facilities Fewer than half of the responding fire departments reported using mobile facilities, although this may have been under-reported. Thirty-two departments in the Twin Cities area (representing 46 percent of Twin Cities area respondents) and 96 departments in Greater Minnesota (representing 40 percent of Greater Minnesota respondents) answered the survey question about current use of mobile facilities. As a result, the data on mobile facilities may be somewhat less reliable than other survey information.

TABLE 14. Survey responses on current needs — mobile firefighter training facilities

	Meeting needs	Not meeting needs	Unknown
Twin Cities area	75%	22%	3%
Greater Minnesota	67	24	9
Combined	69	23	8

TABLE 15. Survey responses on future needs — mobile firefighter training facilities

	Meet needs	Will not meet needs	Unknown
Twin Cities area	68%	29%	3%
Greater Minnesota	61	23	16
Combined	63	25	13

SOURCE for Tables 14 and 15: Management Analysis Division survey, 1998.

For the departments that reported using them and answered the question, mobile facilities appear to be meeting needs in both Greater Minnesota and the Twin Cities area. Sixty-nine percent overall reported that their needs are being met. The percentage is slightly higher in the Twin Cities area (75 percent), but still high for Greater Minnesota (67 percent). Fewer departments perceived that mobile training facilities will meet future needs, but the overall percentage of those that believe their needs will be met is still high, at 63 percent. Tables 14 and 15 give a full breakdown of results.

TABLE 16. Why mobile facilities are not meeting needs

	Availability	Cost
Twin Cities area	9%	9%
Greater Minnesota	15	13
Combined	13	12

TABLE 17. Why mobile facilities are not expected to meet future needs

	Availability	Cost	Will need upgrades
Twin Cities area	6%	10%	10%
Greater Minnesota	10	11	1
Combined	9	11	3

Where mobile facilities are not meeting fire department needs, the primary reasons include availability and cost (Table 16). Availability issues stem from having to schedule the equipment some time in advance. "Cost" is the rate charged for using the equipment. Twelve percent of respondents reported cost as a problem. Ten percent of Twin Cities area respondents reported that the mobile facilities they use will need upgrades. The nature of the upgrades is not clear from survey responses. However, interviews with MnSCU training coordinators indicated that new types of training scenarios are being developed for mobile equipment.

CLASSROOMS (both disciplines)

Training organizations and regional training coordinators reported that finding adequate classroom space throughout the state is a problem, because there are not enough rooms and they have to be reserved far in advance. Also, they said, many are too small, arrangements are inflexible or difficult to change, and technology, such as audio/visual and computer equipment, is inadequate.

However, departments themselves reported at very high rates that classrooms are meeting their needs, with approximately 10 percent reporting that their needs are not being met. Perhaps the discrepancy can be explained by the fact that, in many cases, the training coordinator finds the classroom space for the departments. As a result, the departments themselves may not experience the space shortage firsthand. It is also possible that, in the context of their training facility needs overall, classroom problems are viewed as less critical than more specialized needs.

CONCLUSIONS

Based on the data collected and analyzed from research, interviews, public meetings, and the statewide survey, five conclusions were reached about public safety training facilities in Minnesota.

1. **Practical training for fire and law enforcement personnel contains elements of both minimum qualifications set by state and federal agencies and locally or regionally determined needs.**

   All fire and law enforcement agencies are required to meet established minimum levels of training set by such organizations as the Peace Officer Standards and Training Board, National Fire Protection Association, and OSHA. However, additional training needs may be determined by the locality or region in response to a specific area of concern that would affect firefighters and/or peace officers in carrying out their duties.

   As a result, no standard prototype exists for the design of an effective public safety training facility. Including local needs beyond minimum standards for training influences the design and operation of a facility.

2. **The level of need for public safety training facilities varies widely across the state.**

   Some areas of the state do not have public safety training facilities that meet departments' needs, in two ways: no facility exists, or existing facilities do not fully meet their needs.

   As an example of no facility, some areas of the state do not have reasonable access to a burn facility. Seven of 10 stationary burn facilities are located in the Twin Cities area. Of the three remaining facilities, only one is designed to simulate interior structure fires and is regularly available for use. Clearly, there are areas in the state that have no access to a live burn facility without traveling long distances. Although acquired structures have been used by some departments without access to a live burn facility, those structures are becoming scarce and do not ensure access to live burn training.

   Facilities that do not fully meet needs can be best exemplified by the broad range of facilities used as firing ranges. At least one firing range is used by law enforcement personnel in every county in the state. However, the quality of those ranges differs substantially, especially for outdoor ranges. Some ranges are sophisticated, with turning targets and lead-containing backstops; others are simply soil piles or gravel pits with stationary targets. Although both can meet the minimum Peace Officer Standards and Training Board criteria, officers receive more realistic training in a facility that supports a broader range of firing distances, positions, and conditions. Additionally, inadequate access is occurring with closure of firing ranges in some areas, due to residential development or environmental restrictions.

Even when facilities exist, they are not always used as fully as they could be. A significant number of existing facilities reported that they are not being used to capacity. Two-thirds of firing ranges and 58 percent of burn buildings are reportedly being used less than 25 percent of the time they are available (open and staffed for use).

3. Fire and law enforcement agencies are broadly dispersed throughout the state and need infrequent access to specialized training facilities.

As Map 1 shows, there is a broad dispersion of both fire and law enforcement agencies across the state. This creates challenges for locating training facilities so that they are accessible to fire and law enforcement personnel throughout the state. Some areas may not have the critical population in the surrounding area to support a stationary facility.

Also, specialized training is needed periodically. OSHA suggests annual live burn training for firefighters. Peace officers, at most, have weapons qualifications monthly, but many have it quarterly or annually. Training on defensive tactics is also annual. As a result, need for specialized training facilities for any given department or individual is sporadic. A key to maximizing the use of facilities is to have enough departments involved so that their periodic use of the facility maximizes its available time.

4. Many different agencies and organizations can have a role in the development and operation of public safety training facilities.

Most public safety training facilities have been built and operated by local units of government, either individually or in collaboration with other localities. Because most law enforcement and fire personnel are employed by local units of government, local agencies are most at risk for the consequences of inadequate training, primarily liability for injuries or property damage.

Minimum standards, however, are established by the state (Peace Officer Standards and Training Board), federal government (OSHA), and other national groups (National Fire Protection Association). Therefore, the state may have another role to play, as well. Given the costs of building specialized training facilities, the state is increasingly being approached for assistance in funding the facilities, often in collaboration with local and/or federal agencies.

Additionally, other states have experienced success in greater funding and more fully used training facilities when involving private- as well as public-sector agencies in the planning and operation of multi-use facilities. Private security companies and industrial fire brigades need access to the same types of facilities needed by peace officers and firefighters. The facility being planned for Marshall includes private-sector partners.

5. Multi-use facilities could be more efficient to build and operate than facilities with more limited uses.

Although certain aspects of fire and law enforcement training require separate facilities, several other areas could be shared. Multi-use facilities would offer greater potential utility and appeal to a greater number of agencies. This would enable more users to share capital and operating costs and would help to maximize use of those facilities, a critical issue, given the number of existing facilities not being used to their full capacity.

6. Advancements in the technology of training are making it possible to design realistic, practical training that is safer for participants.

New equipment and better computers are changing the nature of training for both fire and law enforcement. Gas-fired burners make it possible to conduct safer and more environmentally sound burn simulations for firefighter training. Computer-based simulations provide realistic scenarios for peace officer training that could not be duplicated safely in other training situations. Gas-fired burners can be immediately deactivated in the event of a problem during training, and computer simulations can be stopped or changed at the will of the instructor.

RECOMMENDATIONS

including recommended components for facility proposals

The project's recommendations were developed by the Management Analysis Division and discussed with the advisory committee. Recommendations and criteria for evaluating facility siting, ownership, and operation are grouped into five categories: location; mobile equipment; design; ownership, operation, and funding; and capacity and usage. Most criteria apply to both stationary facilities and mobile equipment, although not all criteria may be relevant in every situation.

LOCATION of FACILITIES

1. **Public safety personnel should continue to use the state's situation-specific training facilities for refinery and aircraft burn simulations, as appropriate.** Some training equipment is so specialized that it is needed in only one location in the state. Some specialized training is needed on a limited basis and does not have to be widely available at various locations. Specific Minnesota facilities include simulated refinery and aircraft burn equipment (at Koch Refinery and Lake Superior College, respectively). Few of these facilities exist nationally. First responders should continue to use these facilities as needed to train them in handling these specific situations.

2. **The location of a public safety training facility should ensure cost-efficient, easy access for users and maximum use of the facility, while capitalizing on existing infrastructure or other capital investments where possible.** To that end, priority for facility development in a given area should be:

   First, increased use of an existing facility with time available in its schedule to accommodate additional training exercises — making the facility available to other departments or using it for new types of training on a fee-for-service basis.

   Next, expansion or upgrade of existing facilities — adding new features or buildings to support new or additional training options in an existing site.

   Last, construction of a new facility — building a training facility where no facility exists or where current facilities are inadequate.

3. **Priority for new facilities should be given to areas with inadequate or no reasonable access to training facilities.** Recommended site-specific components for proposed facilities are:

   - written documents showing support of local governments, fire and law enforcement agencies, and private-sector businesses in the area where the facility would be located;
   - documentation of the availability of amenities, such as food and lodging;

- maps showing proximity to major roadways;
- maps of existing or planned infrastructure (streets, water, sewer) to support the facility;
- details showing sufficient land for future expansion; and
- evaluation of neighborhood appropriateness for the facility. An outdoor firing range or live burn facility would create noise and smoke emissions and should not be located in a densely populated area. Siting of indoor ranges and tactical areas is of less concern for the surrounding neighborhood.

Recommended area components for proposed facilities are:

- training resources or facilities already available in the area — nearest facilities that provide similar training;
- deficiencies in current training options that make the facility necessary (distance, cost, availability); and
- number of potential users within 20, 50, and 100 miles of the site and the distance departments are expected to travel for training. If the facility is mobile, how far it will travel to reach its audience.

MOBILE EQUIPMENT

4. **Demand for public safety training facilities should be assumed to be from departments within a 100-mile driving distance from the site, unless the siting plan includes a formal commitment from departments willing to travel further to train there.**

5. **Mobile facilities should be considered in areas where the density of departments within a 100-mile radius is not sufficient to support a fixed facility (at least 75 percent of the hours available for training). Given the experience of MnSCU in operating, maintaining, and managing mobile facilities, local MnSCU institutions should be involved in plans for siting and use of mobile training equipment.**

   Recommended components for proposed facilities are:

   - cost assumptions for mobile equipment, including purchase and maintenance costs and costs of personnel needed to manage as well as move and operate the equipment;
   - number of training hours offered and how many hours will be spent in transit and maintenance; and
   - participating departments and the number of hours or days of training for each.

DESIGN

6. **Public safety training facilities should support safe, realistic training in a controlled environment. Technology should aid in creating more realistic training simulations, while also keeping participating personnel safe from accidents and injuries.**

   Recommended components for proposed facilities are:

   - types of training supported in the facility and how the facility accommodates them;
   - a plan for meeting pollution control and environmental protection agency standards to minimize noise, air, and water pollution from training activities (including lead abatement, content of smoke and vapors released, and soundproofing);
   - safety mechanisms for training exercises; and
   - technology supported by the facility (audio/visual equipment, teleconferencing, computers, and simulators for driving and firearms) and adaptability for future technological advances in these tools.

OWNERSHIP, OPERATION, and FUNDING

7. **Additional consideration for funding should be given to facilities with collaborative ownership or operation among federal, state, and local agencies and private-sector organizations, in order to maximize cost-efficiency and use.**

8. **Multi-purpose facilities should be encouraged, to maximize the potential base of users and spread costs across agencies.**

9. **The state's role in funding public safety training facilities should ensure that agencies can meet minimum standards for training established by the Peace Officer Standards and Training Board, OSHA, and the National Fire Protection Association.**

10. **To ensure equal state and local participation in training facilities, state funds should be assumed to provide no more than 50 percent of the total capital costs for the facility and no state subsidy should be provided for the ongoing operation of the facility, unless a state agency is an ongoing partner in the use and operations of the facility.**

    Recommended components for proposed facilities are:

    - a plan for funding the capital and operating costs of the facility, including the costs to each partner and the effects of any fees collected for the use of the facility;
    - a fee schedule for the facility, including plans for whether partners funding the facility pay full, partial, or no fee for the use of the facility;

- the proposed legal governing structure for the facility (joint powers agreement, contract), including how management and operational decisions will be made and how the facility will be staffed; and
- calculations of capacity and use estimates for the facility.

This recommendation does not prevent state agencies from contributing operating funding to facilities they lease for training.

CAPACITY and USAGE

11. Facility plans should include mechanisms for marketing and rental of the facility to maximize its use and recover a portion of operating and capital costs.

Recommended components for proposed facilities are:

- a list of Peace Officer Standards and Training Board, OSHA, National Fire Protection Association, and other standards being met through the training supported by the facility;
- the estimated annual number of training hours to be provided at the facility, the number of hours committed to the facility's owners or partners, and the number to be made available to other agencies or groups;
- a marketing plan for ensuring use by outside agencies or groups when it is not in use by its partners; and
- anticipated availability to other public groups, such as state agency training schools (MnSCU, Bureau of Criminal Apprehension) or state and federal agencies.

NOTES

1. Given that the survey was administered over a two-month period and that both written and telephone survey methods were used in gathering information, the data may not present a clear picture of agencies' opinions at a specific point in time. Given the response rates, the data represents opinions of respondents only and should not be interpreted to represent all fire or law enforcement agencies.

2. Total fire personnel numbers include volunteer, paid-on-call, and professional firefighters, supplied by the Minnesota State Fire Department Association, State Auditor Pension Oversight Division, and Minnesota Professional Firefighters. Total peace officer numbers include full- and part-time officers, supplied by the Peace Officer Standards and Training Board.

3. The actual number of firing ranges in Minnesota is higher than represented in this table because not all law enforcement agencies in the state completed a survey. Additionally, there are private gun clubs that law enforcement agencies do not use. The Department of Natural Resources conducted its own inventory of firing ranges for a project unrelated to this one. The total unduplicated count of ranges from the Department of Administration and DNR inventories is 270.

4. All facilities are located in Minnesota except three firing ranges in LaCrosse, Wis., Fargo, N.D., and Camp Dodge, Iowa, and two burn facilities in Grand Forks and Fargo, N.D.

5. No specific data was available on the cost of fuel in gas-fired burn buildings, but designers and vendors of the equipment reported that propane and natural gas are cheaper than Class A materials. Facilities with gas burners believed it to be true as well, but did not have specific data on their fuel costs.

6. A few ranges own older-model simulators that show scenarios on a screen in a firing range. The scenarios freeze once an officer fires a weapon. However, they do not track aim, nor can they change simulations each time. Because they do not provide the same level or quality of training as interactive simulators and because one department reported that it rents an interactive simulator rather than use its old one, this type of simulator was included in the facility inventory but not in the counts used for Table 2.

7. The City of Grand Forks, N.D., is planning a joint fire and law enforcement training facility that may have classrooms, tactic rooms, indoor and outdoor firing ranges, a live burn facility, a flammable liquids pit, and a driving range.

8. Through telephone interviews and written survey comments, it was clear that the response "meeting most needs" was interpreted to encompass a broad range, from meeting most of the agencies' needs to "just barely meeting our needs." The responses for "meeting most needs"

are grouped with "meeting needs" to more easily identify agencies with facility needs that are not being met. As a result, the percentage of agencies with facility needs on the borderline of being met may be higher than the "meeting needs" percentages indicate. This is also the case for Tables 8 through 17.

9. Tables that reflect "reasons" show the percentages based on the number of survey respondents who answered the question evaluating how the facility is meeting or is expected to meet needs by type of service (fire or law enforcement). Rows do not add up to 100 percent because some respondents did not provide reasons. The reasons with the highest percentage of responses are reflected in the table. This applies to all tables summarizing reasons why facilities are not or are not expected to meet needs.

10. Some departments listed more than one reason why facilities are not meeting or are not expected to meet their needs. Also, percentages reflect reasons given by departments that responded that facilities were "meeting needs" or "meeting most needs," not just reasons given by departments that said that facilities were "not meeting needs."

11. Sixteen percent of respondents to this question reported that they think facilities will be closed to them for an unspecified reason and 16 percent reported that facilities will close for environmental reasons.

12. Some departments did not answer survey questions about their needs, which may result in an underestimated level of need.

13. "Availability" and "distance" were used interchangeably by some departments. So, the two categories may not be as distinct as was intended.

14. Departments listing "environment" as a reason why burn facilities are not meeting their needs may have understood the term "burn facility" to include acquired buildings, which indeed can pose environmental problems.

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