SECTION VIII

APPENDIX

DRIVING

THIS PACKAGE SHOULD BE SENT TO THE AUTHORITY HAVING JURISDICTION WITH THE STUDENT FOR COMPLETION BY THE EMPLOYING AGENCY.

OFFICE OF THE STATE FIRE MARSHAL
DIVISION OF PERSONNEL STANDARDS AND EDUCATION

PREREQUISITES FOR CERTIFICATION

APPARATUS DRIVING

1. Member of an organized fire department or brigade according to the Illinois Administrative Code, Section 140.

2. Certification as Firefighter II.

3. Completion of an approved Fire Apparatus Engineer course of a minimum of 40 student contact hours.

4. Pass State administered written examination and locally administered State practical examination for both Pumping Operations and Apparatus Driving.

5. Possess a VALID driver's license of Class B, Non-CDL or better.

6. Completion of the practical evolutions as determined in the Instructor's Reference Manual which meets *NFPA 1002 (1998 edition), Chapters 1, 2, 3, and Appendix A.*

7. Submit an application for certification with attestation of local authority having jurisdiction

PURPOSE AND SCOPE

The attached general instructional objectives and specific learning outcomes have been prepared to support educational activities designed to train Illinois fire service personnel to the CERTIFIED FIRE APPARATUS ENGINEER. Each objective is a statement of the skills and/or knowledge a person must achieve to attain this level of certification from the Illinois Office of the State Fire Marshal, Division of Personnel Standards and Education.

While written specifically for Illinois fire service personnel, the National Fire Protection Association standard for Fire Department Vehicle Driver/Operator (*NFPA 1002-1998*) have been used as minimum criteria. Instructional objectives and learning outcomes have, where appropriate, have been referenced to this standard.

It is not the intent of this program to restrict any jurisdiction from exceeding these requirements.

The attached objectives must be completed by the Local Authority Having Jurisdiction.

“Local Authority Having Jurisdiction” is defined as the Fire Apparatus Engineer candidate’s employer or fire department.

The Driving Attestation/Validation statement on the reverse side of the application must be completed. The completed objectives must be on file with your department.

SPECIFIC OBJECTIVES THAT THE RESPONSIBILITY OF THE LOCAL AUTHORITY HAVING JURISDICTION ARE:

NFPA 1002 (1998):

11-5-9 The Fire Apparatus Engineer shall position a fire department pumper to operate at a fire hydrant and static supply source utilizing each existing pumper intake connection, given a pumper, a length of intake hose, an appropriate fitting or tools, so that the intake house can be connected, without kinks, to the pump connection without repositioning the vehicle. (*NFPA 1002, 8-2.1, A 3-1.3*)

11-12-1 The Fire Apparatus Engineer shall be licensed to drive all vehicles they are expected to operate in accordance with applicable state and local laws. (*1-3.1)*

11-12-2 The Fire Apparatus Engineer shall be subject to periodic medical evaluation, as specified by the authority having jurisdiction, to determine physical ability adequate for performance of duties as an operator of fire department vehicles. (*1-3.2*)

11-12-3 All firefighters who drive fire department vehicles or apparatus under emergency response conditions shall meet the objectives specified in Chapter 2, Driving/Operating. (*1-3.3*)

11-12-4 The Fire Apparatus Engineer shall demonstrate the recording and the reporting, as specified by the authority having jurisdiction, of all servicing functions. (*2-2*)

11-12-5 The Fire Apparatus Engineer shall identify all applicable state and local laws of the authority having jurisdiction, including rules and regulations governing the safe driving and operating of fire department vehicles. (*2-3.1*)

11-12-6 The Fire Apparatus Engineer, given a fire department vehicle, shall identify all automotive gauges and demonstrate their usage. (*2-3*)

11-12-7 The Fire Apparatus Engineer shall ascertain the expected fire flow, given a specific location, a water source, and water supply information for that location, so that the amount of water available for firefighting at the location is estimated and alternative sources of water are identified. (*3-2.1*)

11-12-8 The Fire Apparatus Engineer shall identify the pipe sizes used in water distribution systems for residential, business, and industrial districts served by the authority having jurisdiction. (*3-2.4)*

11-12-9 The Fire Apparatus Engineer, given a fire department pumper, shall locate, identify and demonstrate the operation of all equipment carried on or attached to that pumper. *(Chapter 3)*

11-12-10 The Fire Apparatus Engineer shall demonstrate the method specified to supply water to fire sprinkler and standpipe systems, given specific system information and a fire department pumper, so that water is supplied to the system at the proper volume and pressure. (*3-2.4*)

11-12-11 The Fire Apparatus Engineer shall pump a supply line of 2-1/2 in (65 mm) or larger, given a relay pumping evolution, the length and size of the line, desired flow and intake pressure, so that the proper pressure and flow are provided to the next pumper in the relay. (*3-2.2*)

11-12-12 The Fire Apparatus Engineer shall produce a foam fire stream, given foam-producing equipment, so that properly proportioned foam is provided. (*3-2.3*)

11-12-13 The Fire Apparatus Engineer shall change water supply from the apparatus water tank to an external source, given a pumper with an operating fire attack line of 1 1/2 in. (38 mm) or larger, so that the flow of water to the attack line is not interrupted and the proper pressure is maintained. (*3-2.1)*

11-12-14 The Fire Apparatus Engineer shall perform the specified routine tests, inspections, and servicing functions listed below, in addition to those contained in 2-2.1, given a fire department pumper and it's manufacturer's specifications, so that the operations status of the pumper is verified. *(3-1.1)*

NFPA 1500 (1997)

11-13-1 Fire department vehicles shall be operated only by members who have successfully completed an approved driver training program or by student drivers who are under the supervision of a qualified driver. Driver operators of fire apparatus shall meet the requirements specified in *Chapter 3* of this standard. (*4-2.1*)

11-13-2 Drivers of fire department vehicles shall have valid driver's licenses. Vehicles shall be operated in compliance with all traffic laws, including sections pertaining to emergency vehicles and other requirements of the authority having jurisdiction. (*4-2.2*)

11-13-3 During non-emergency travel, drivers of fire department vehicles shall obey all traffic control signals and signs and all laws and rules of the road of the jurisdiction for all the operation of motor vehicles. (*4-2.5)*

11-13-4 The fire department shall develop written standard operating procedures for safely driving fire department vehicles during non-emergency travel and emergency response and shall include specific criteria for vehicle speed, crossing intersections, and traversing railroad grade crossing, and the use of emergency warning devices. Such procedures for emergency response shall emphasize that the safe arrival of fire department vehicles at the emergency scene is the first priority. (*4-2-6*)

11-13-5 The fire department shall develop written standard operating procedures requiring drivers to discontinue the use of manual brake limiting valves, frequently labeled as "wet road/dry road" switch, and requiring that the valve/switch remains in the "dry road" position. (*4-2.10)*

11-13-6 Drivers of fire department vehicles shall be directly responsible for the safe and prudent operation of the vehicles under all conditions. When the driver is under the direct supervision of an officer, that officer shall also assume responsibility for the actions of the driver. (*4-2.3*)

11-13-7 Drivers shall not move fire department vehicles until all persons on the vehicle are seated and secured with seat belts or in approved riding positions, other than specifically allowed in *4-3.1.1* of this chapter. (*4-2.4*)

11-13.8 During nonemergency travel, drivers of fire department vehicles shall obey all traffic control signals and signs, and all laws and rules of the road of the jurisdiction for the operation of motor vehicles. (*4-2.5*)

AERIAL LADDER OPERATIVE OBJECTIVES
optional
NFPA 1002 (1998)

11-14-1 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall be able to perform the routine tests, inspection, and servicing functions listed below, in addition to those specified in *2-2.1*, given a fire department aerial apparatus, so that the operation readiness of the aerial apparatus is verified: (*4-1.1)*

a) Cable systems (if applicable)
b) Aerial device hydraulic systems
c) Slides and rollers
d) Stabilizing systems
e) Aerial device safety systems
f) Breathing air systems
g) Communication systems

11-14-2 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall perform the practical driving exercises specified in *2-3.2* through *2-3.5*, given a fire department aerial apparatus and a spotter for backing, so that each exercise is performed safely without striking the vehicle or obstructions. (*4-1.2*)

11-14-3 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall operate a fire department aerial apparatus over a predetermined route on a public way, using the maneuvers specified in *2-3.1*, so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of *NFPA 1500*, *Section 4-2. (4-1.3*)

11-14-4 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall have knowledge of the capabilities and limitations of aerial devices related to reach, tip load, angle of the inclination, and angle from chassis axis; effects of topography, ground and weather conditions on safe deployment, and use of the aerial device. (*4-2.1*)

11-14-5 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall have knowledge of the aerial apparatus hydraulic systems, manufacturer's specifications for stabilization, stabilization requirements, effects of topography and ground conditions on safe stabilization. (*4-2.2*)

11-14-6 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall have knowledge of the aerial device hydraulic systems, hydraulic pressure relief systems, gauges and controls, cable systems, communication systems, electrical systems, emergency operating systems, locking systems, manual rotation and lowering systems, stabilizing systems, aerial device safety systems, system overrides and the hazards of using overrides, safe operational limitations of the given aerial device, safety procedures specific to the device, and operations near electrical hazards and overhead obstructions. (*4-2.3*)

11-14-7 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall lower the aerial device using the emergency operating system so that the aerial device is safely lowered to its bedded position. (*4-2.4*)

11-14-8 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall have knowledge of nozzle reaction, range of operation, weight limitations. (*4-2.5)*

TILLER OPERATIVE OBJECTIVES
Optional
***NFPA 1002 (1998*)**

11-15-1 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall perform the practical driving exercises from the tiller position specified in *2-3.2* through *2-3.5*, from the tiller position, given a qualified driver, fire department aerial apparatus equipped with a tiller and a spotter for backing, so that each exercise is performed safely without striking the vehicle or obstructions. (*5-2.1*)

11-15-2 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall operate a fire department aerial apparatus equipped with a tiller from a tiller position, given a qualified driver, a fire department aerial apparatus equipped with a tiller, and a spotter for backing, over a predetermined route on a public way, using the maneuvers specified in *2-3.1*, so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations and the requirements of *NFPA 1500, Section 4-2*. (*5-2.2*)

11-15-3 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall have knowledge of the principles of tiller operation, methods of communication with the driver, the effects on vehicle control or general steering reactions, night driving, negotiating intersections, and manufacturer's operation limitations, (*5-2.2*)

11-15-4 The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall have knowledge of the principles of positioning and stabilizing the aerial apparatus from the tiller position. (*5-2.3.*)

I. DRIVING EMERGENCY VEHICLES IFSTA PUMPING APPARATUS *(NFPA 1002)*

The Fire Apparatus Engineer/Pumping Apparatus Operator/Driver shall:

A. Identify appropriate licensing requirements for fire apparatus drivers. (NFPA 1002, 1-3.1)

1. Applicable regulations.
2. Responsibilities of state licensing-appropriate license requirements.

B. *DRIVER'S DUTIES, SAFE DRIVING PRACTICES, DRIVING EXERCISES, AND DRIVING REGULATIONS, SHALL BE TAUGHT BY THE LOCAL AUTHORITY HAVING JURISDICTION, FOLLOWING CURRENT NFPA 1002 STANDARDS.

It is the responsibility of the local authority having jurisdiction to maintain records to substantiate the skills the department is utilizing. (*NFPA 1002, Chapters 2-3)*

1. CANDIDATE MUST DEMONSTRATE TO THE SATISFACTION OF THE LOCAL AUTHORITY HAVING JURISDICTION THE FOLLOWING GROUPS OF SKILLS:

a	serpentine	(*Appendix 2-3.3)*
b.	alley dock	(*Appendix 2-3.2*)
c.	diminishing clearance	(*Appendix 2-3.5*)
d.	straight line	(*2-3.1(b))*
e.	turn around	(*Appendix 2-3.4)*
f.	offset alley	(*2-3.1*)
g.	confined space	*(2-3.4)*
h.	parallel parking	*(2-3.2)*
i.	opposite alley pull-in	*(2-3.5)*
j.	stopping procedure	*(2-3.1(b))*
k.	parking procedures	*(2-3.1(b))*

2. Identify both the theory and principles of defensive driving techniques, both emergency and non-emergency. (*NFPA 1002, 2-3.6*).

3. Demonstrate, under simulated emergency conditions, the legal and safe driving, positioning, and operating of assigned fire department vehicles of the authority having jurisdiction. (*NFPA 1002, 2-3.6*)

<u>NOTE:</u> PERFORMANCE OF OBJECTIVES FOR QUALIFICATION, WHEN THE WORD "DEMONSTRATE" IS USED IN THIS STANDARD, SHALL REQUIRE THAT ACTUAL PERFORMANCE AND OPERATION BE ACCOMPLISHED, UNLESS OTHERWISE INDICATED WITHIN THE SPECIFIC OBJECTIVE. SIMULATION, EXPLANATION, AND ILLUSTRATION MAY BE SUBSTITUTED WHEN ACTUAL OPERATION IS NOT FEASIBLE.

4. Describe the safety precautions necessary when driving during adverse environmental conditions. (*NFPA 1002, 2-3.6)*

5. Describe the effects of vehicle control of (*NFPA 1002, 2-3.6*):
    a. braking reaction time
    b. load control factors
    c. general steering reactions

*IFSTA Pumping Apparatus Driver/Operator Handbook 1st edition, pages 73-74, may be used as a sample checklist for local authority having jurisdiction.

SAMPLE COURSES: See NFPA 1002, 1998 edition, Appendix A and/or sample below.

Office of the State Fire Marshal
Div. of Personnel Standards and Education
1035 Stevenson Dr.
Springfield, Ill 62703-4259

NAME: **Date:**

F.D. **S.S.#:**

AUTHORITY HAVING JURISDICTION EVALUATION SHEET

NFPA 1002 Objective

to be retained in fire department records

		Evaluator's Initials & Date	
1-3.2	The applicant is physically able to perform the duties of Fire Apparatus Engineer as specified by the AHJ.	_____	_____
2-2	The applicant has demonstrated the recording of service checks and preventive maintenance including locating, indentifying and demonstrating all equipment carried on or attached to a pumper in the AHJ.	_____	_____
2-2	The applicant has demonstrated the use of proper reporting procedures for equipment and apparatus malfunctions.	_____	_____
3-1.1	The applicant has performed the specified routine tests, inspections and servicing functions listed below, in addition to those contained in 2-2.1, given a fire department pumper and its manufacturer's specifications, so that the operational status of the pumper is verified. a) Water tank and other extinguishing agent levels (if applicable) b) Pumping system c) Foam systems	_____	_____
3-2.1	The applicant shall ascertain the expected fire flow, given a specific location, a water source, and water supply information for that location, so that the amount of water available for firefighting at the location is estimated and alternative sources of water are identified.	_____	_____
3-2.2	The applicant shall pump a supply line of 2½" or larger, given a relay pumping evolution the length and size of the line and the desired flow and intake pressure so that the proper pressure and flow are provided to the next pumper in relay.	_____	_____
3-2.3	The applicant shall produce a foam fire stream, given foam-producing equipment, so that properly proportioned foam is provided.	_____	_____
3-2.4	The applicant shall supply to fire sprinkler and standpipe systems given specific system information and a fire department pumper so that water is supplied to the system at the proper volume and pressure.	_____	_____
3-2.4	The applicant shall identify the pipe size used in the water distribution system for residential, business, and industrial districts served by the AHJ.	_____	_____

_____

(Applicant's Signature)

_____

(Training Officer's Signature)

_____

(Fire Chief's Signature)

Office of the State Fire Marshal
Div. of Personnel Standards and Education
1035 Stevenson Dr.
Springfield, Ill 62703-4259

NAME: **DATE:**

F.D: **S.S. #:**

AUTHORITY HAVING JURISDICTION EVALUATION SHEET
DRIVING
to be retained in fire department records

NOTE: FOR SIMULATION, SEE DEMONSTRATION IN GLOSSARY OF INSTRUCTORS REFERENCE MANUAL.

		Evaluator's Initials & Date	
1-3.1	The applicant is legally licensed to drive fire department vehicle.	_____	_____
2-3.7	The applicant shall identify all automotive gauges and demonstrate their usage.	_____	_____
2-3.1	The applicant shall identify all applicable state and local laws, departmental rules and regulations, and procedures and guidelines governing the safe driving and operating of fire department vehicles.	_____	_____
2-3.1 to 2-3.5	The applicant shall demonstrate proficiency in maneuvering a fire apparatus through the following evolutions:		
	a) serpentine	_____	_____
	b) alley dock	_____	_____
	c) opposite alley pull in	_____	_____
	d) straight line	_____	_____
	e) diminishing clearance	_____	_____
	f) turn around	_____	_____
	g) offset alley	_____	_____
	h) stopping procedure	_____	_____
	i) parking procedures	_____	_____
2-3.6	The applicant shall identify and demonstrate the theory and principles of defensive driving techniques for both non-emergency and simulated emergency conditions.	_____	_____
2-3.6	The applicant, under simulated emergency conditions, shall demonstrate the legal and safe driving, positioning, and operating of assigned fire department vehicle.	_____	_____
2-3.6	The applicant shall describe the safety precautions necessary when driving during adverse environmental conditions.	_____	_____

AUTHORITY HAVING JURISDICTION EVALUATION SHEET
DRIVING
continued
to be retained in fire department records

		Evaluator's Initials & Date	
2-3.1.a	The applicant shall describe the effects on vehicle control concerning:		
	a) braking reaction time	_____	_____
	b) load control factors	_____	_____
	c) general steering reactions	_____	_____
2-3.1	The applicant shall operate a fire department vehicle on a pre-determined route to include:		
	a) 4 left and right turns	_____	_____
	b) a straight urban business street of at least one mile	_____	_____
	c) 1 through intersection, 2 stop intersections	_____	_____
	d) 1 railroad crossing	_____	_____
	e) 1 curve, either right or left	_____	_____
	f) a section of limited access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow 2 lane changes	_____	_____
	g) a downgrade steep enough and long enough to require down shifting and braking.		
	h) an upgrade steep enough and long enough to require gear changing to maintain speed.		
	i) 1 underpass or low clearance bridge	_____	_____
3-2.1(b)	The applicant shall position a fire department pumper to operate at a fire hydrant and static supply source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multi-stage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources and assemble hose lines, nozzles, valves and appliances.	_____	_____
3-1.1	The applicant will perform the specified routine tests, inspections and servicing functions listed below, in addition to those contained in 2-2.1, given a fire department pumper and its manufacturer's specifications so that the operational status of the pumper is verified.	_____	_____

_____
(Applicant's Signature)

_____
(Training Officer's Signature)

_____
(Fire Chief's Signature)

Office of the State Fire Marshal
Div. of Personnel Standards and Education
1035 Stevenson Dr.
Springfield, Ill 62703-4259

NAME: **DATE:**

F.D.: **S.S. #:**

AUTHORITY HAVING JURISDICTION EVALUATION SHEET

Aerial Ladder Skills

optional

to be retained in fire department records

		Evaluator's Initials & Date	
4-1.1	The applicant shall perform the routine tests, inspections, and servicing functions listed below, in addition to those specified in 2-2.1, given a fire department aerial apparatus, so that the operations readiness of the aerial apparatus is verified:		
	a) cable systems (if applicable)	_____	_____
	b) aerial device hydraulic systems	_____	_____
	c) slides and rollers	_____	_____
	d) stabilizing systems	_____	_____
	e) aerial device safety systems	_____	_____
	f) breathing air systems	_____	_____
	g) communication systems	_____	_____
4-1.2	The applicant shall perform the practical driving exercises specified in 2-3.2 through 2-3.5, given a fire department aerial apparatus and a spotter for backing, so that each exercise is performed safely without striking the vehicle or obstructions.	_____	_____
4-1.3	The applicant shall operate a fire department aerial apparatus over a predetermined route on a public way, using the maneuvers specified in 2-3.1, so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of **NFPA 1500, Standard on Fire Department Safety and Health Program,** Section 4-2.	_____	_____
4-2.1	The applicant shall maneuver and position an aerial apparatus given an incident location, a situation description, and an assignment, so that the apparatus is properly positioned for safe aerial device deployment.	_____	_____

AUTHORITY HAVING JURISDICTION EVALUATION SHEET

Aerial Ladder Skills

continued

		Evaluator's Initials & Date	
4-2.2	The applicant shall stabilize an aerial apparatus, given a properly positioned vehicle and the manufacturer's recommendations, so that the power can be transferred to the aerial device hydraulic system and the device can be safely deployed.	_____	_____
4-2.3.	The applicant shall be able to perform the following skills of the aerial device:		
	a) raising	_____	_____
	b) rotating	_____	_____
	c) extending	_____	_____
	d) positioning to a specified location	_____	_____
	e) locking	_____	_____
	f) unlocking	_____	_____
	g) retracting	_____	_____
	h) lowering	_____	_____
	i) bedding	_____	_____
4-2.4	The applicant shall be able to lower the aerial device using the emergency operating system so that the aerial device is safely lowered to its bedded position.	_____	_____
4-2.5	The applicant shall be able to deploy and operate an elevated master stream, given a master stream device and desired flow so that the stream is effective and the device is operated safely.	_____	_____
4-2.5.(b)	The applicant shall be able to connect a water supply to a master stream device, manual or remote control of an elevated nozzle.	_____	_____

_____

(Applicant's Signature)

_____

(Training Officer's Signature)

_____

(Fire Chief's Signature)

Office of the State Fire Marshal
Div. of Personnel Standards and Education
1035 Stevenson Dr.
Springfield, Ill 62703-4259

NAME: **DATE:**

F.D.: **S.S. #:**

AUTHORITY HAVING JURISDICTION EVALUATION SHEET

Apparatus Equipped with Tiller

optional

to be retained in fire department records

		Evaluator's Initials & Date	
5-2.1	The applicant shall perform the practical driving exercises from the tiller position specified in 2-3.2 through 2-3.5, given a fire department aerial apparatus equipped with a tiller and a spotter for backing, so that each exercise is performed safely without striking the vehicle or obstructions.	_____	_____
5-2.2	The applicant shall operate a fire department aerial apparatus equipped with a tiller from the tiller position over a predetermined route on a public way, using the maneuvers specified in 2-3.1, given a qualified driver, a fire department aerial apparatus equipped with a tiller and a spotter for backing, so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of **NFPA 1500, Standard on Fire Department Occupational Safety and Health Program**, Section 4-2.	_____	_____
5-2.2(b)	The applicant shall be able to perform the operation of the communication system between the tiller operator's position and the driver's compartment.	_____	_____
5-2.3	The applicant shall position a fire department aerial apparatus equipped with a tiller from the tiller position, given the apparatus operating instructions, an incident location, a situation description, and an assignment, so that the aerial device is properly positioned to safely accomplish the assignment.	_____	_____

_____

(Applicant's Signature)

_____

(Training Officer's Signature)

_____

(Fire Chief's Signature)