This Safety Bulletin establishes Department policy and procedures for safe operation and proper maintenance of all aerial lift devices operated by Department employees, and is based on Occupational Safety & Health Administration (OSHA) and American National Standards Institute (ANSI) requirements for aerial lift devices, personal protective equipment (PPE) and water safety. It applies to all operations (and programs) which require employees to access elevated locations by use of aerial lift devices; in particular bridge maintenance and inspection, tree pruning and removal, and traffic signal work. These procedures shall be carefully reviewed by Program Management in consultation with Employee Safety & Health, as necessary, prior to work beginning, to assure full compliance with this Safety Bulletin.

DEFINITIONS

Active (Personal) Fall Protection System - Personal fall arrest system means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Aerial Lift - A piece of equipment, extendible and/or articulating, designed to position personnel and/or materials in elevated locations.

Competent Person - "Competent person" means a person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as well as in their application, use with related equipment and has the authority to take prompt corrective measures.

Controlled Access Zone (CAZ) - An area where a recognized hazard exists requiring demarcation by a competent person through use of signs, wires, tapes, ropes, chains, or other devices. All protective elements of the CAZ shall be implemented prior to beginning work.
**Floating Work Platform** - Platform or barge capable of safely supporting workers, equipment, and materials necessary to perform work.

**Full Body Harness** - ANSI approved body device designed for fall protection, which by reason of its attachment to a lanyard and safety line or structure will limit a fall to 6’ or less.

**Lanyard** - ANSI approved line designed for supporting one person, with one end fastened to a full body harness, and the other end secured to a safety line or structural member. Lanyards shall not exceed 6’ in length, and preferably include a retractable or deceleration device to attenuate fall impact.

**Motorized Equipment** - Any specialized, motor-driven equipment used in an operation that includes, but is not limited to, aerial lift devices, fork lifts, drill rigs, cranes, excavators, etc.

**Passive Fall Protection System** - System used to prevent a fall from a working level that does not require immediate action by an employee, such as guardrail or safety nets.

**Positioning Device** - Harness system designed to allow an employee to be supported on an elevated vertical surface, with both hands free, and limit a free fall to 2’ or less.

**Restraint Device** - Harness system designed to keep an employee within a passive fall protection system.

**SAFETY EQUIPMENT**

All safety equipment and personal protective equipment (PPE) shall meet applicable OSHA and/or ANSI standards, and shall only be used as intended by the manufacturer for employee protection. All fall protection equipment shall be carefully inspected before each use and periodically throughout the day. Safety equipment showing any sign of mildew, torn or frayed fiber or fabric, burns, excessive wear, or other damage or deterioration which could cause failure shall be permanently removed from use. Full body harnesses, lanyards, safety lines, and all other active fall protection equipment shall be properly maintained and stored in a dry location, out of sunlight, and away from caustics, corrosives or other materials which could cause failure.

Hard hats and full body harnesses shall be worn by employees in the bucket or on the platform of any aerial lift device while in operation. Because aerial lifts have passive fall protection (bucket or rail system), the intent of a full body harness is to keep each occupant in the device upon impact, not to attenuate a fall from it. Loose-fitting clothing shall not be worn while working in any aerial lift device. Working in or on aerial lift equipment in the ROW shall require approved high-visibility apparel conforming to the Safety Bulletin on High Visibility Apparel and Hard Hat Policy. Employee attire shall conform to Safety Bulletin on Work Clothing Guidelines.

When working in locations where you could fall into the water, regardless of fall protection, refer to the Safety Bulletin on Working in Proximity to Water.
AERIAL LIFT EQUIPMENT

Aerial lift devices shall conform to ANSI Standards applicable to the type of equipment being used - - - bucket truck, work platform, underbridge inspection vehicle, portable and/or self-propelled personal lift. Aerial lift devices shall only be used for the purpose(s) intended by the manufacturer. All manufacturer and Office of Fleet Administration & Support (OFA&S) recommendations and warnings regarding operation, capacity, and specific safety precautions shall be strictly followed. Permanent labeling must be conspicuously posted to indicate lifting capacity and travel height.

Only devices approved for lifting personnel shall be used by employees to reach elevated locations. Loaders, fork lifts, or other material lift devices shall not be used to transport employees to elevated locations nor as work platforms.

Maintenance inspections of aerial lifts shall be made every three months by OFA&S in accordance with M.A.P. 7.11-17, Inspection of Aerial Lift Devices. Modification shall not be made to any aerial lift device without written approval of OFA&S. Buckets and bucket liners shall not be cut or drilled.

OPERATING PROCEDURES

Lift equipment shall be inspected and controls tested daily before use. Under Bridge Inspection Units (UBIU’s) shall be operated in accordance with TMI-12-03 - NYSDOT UNDER BRIDGE INSPECTION UNIT (UBIU) TRAINING PROGRAM. On boom devices, one crew member trained in the operation of the ground controls shall remain readily available on the ground at all times while the lift is operating. Only properly trained employees shall operate any aerial lift. Ground controls shall not be operated without permission from the employee(s) "in the air," except in emergencies.

Before extending the boom or raising the platform, outriggers (if the vehicle is so equipped) shall be positioned properly at the truck level. Outriggers shall be placed on pads, blocking, or other solid surface, and shall not be used to level the vehicle. The parking brake (and micro brake if so equipped) shall be set and wheel chocks in place. Sufficient overhead clearance shall be checked before raising any aerial lift. For underbridge units, adequate clearance beneath the boom shall be assured.

Employees shall keep both feet on the bucket floor while the bucket is moving and work is being performed. Employees shall not attach their harness to an adjacent pole, structure or tree while working from the bucket, but shall remain connected by full body harness and lanyard to the manufacturer’s approved anchorage. Employees required to leave the bucket to gain access to a work location shall maintain 100% fall protection by connection of a lanyard to a safety line, structure or tree capable of supporting the employee(s). Tree spikes shall not be worn in the bucket while performing work. Buckets shall have an inside and outside step (portable "E-Z step" or step through features, for example).
Work platform lifts shall have a top and mid rail and kick plate, and a manufacturer's approved anchorage point for each person to attach a full body harness and lanyard to the platform. A full body harness and lanyard shall be used by each employee on the platform. Employees shall keep both feet on the floor of the platform; shall not sit or climb on the railing; or use planks, ladders, or other devices to raise the working height. The gate shall be closed before raising the work platform.

The carrier portion of an aerial lift unit shall not be moved (travel) while the lift is out of its cradle, unless the unit is designed to do so (underbridge unit, for example). When any aerial lift is moved with an employee(s) in the air, they shall be aware of the move and be in communication with those moving the vehicle. Employees shall not ride in the bucket or work platform from one work location to another. Generally, for transport the boom shall be properly cradled and the outriggers properly stowed.

Tools, parts or any materials shall not be dropped or thrown from the bucket. When using welding or heating equipment from the bucket or platform, the vehicle shall be protected from sparks or slag and special care taken to protect or remove flammables.

For the underbridge unit, radio communication between employee(s) in the bucket and the vehicle operator shall be tested prior to using the unit. If the communication system is not working properly, work in the bucket shall not be started or shall cease. Alternate use of bullhorns or portable radios is acceptable in the event radio communications are disrupted during operations.

Positioning of any vehicle on the highway pavement or shoulder requires traffic control procedures in accordance with the Federal Manual of Uniform Traffic Control Devices & NYS Supplement, and Department Highway Work Zone Safety Policies and Procedures.

**AERIAL LIFT DEVICES ON FLOATING WORK PLATFORMS & BARGES**

When using aerial lifts on floating work platforms and barges, a Site Safety Plan shall be developed to address the following:
- Competency of operator(s)
- Load rating capacities
- Design consideration to eliminate risk of capsize
- Motorized equipment capabilities / limitations
- Fall protection requirements and other required PPE
- Use of CAZ or perimeter guarding
- Method(s) of anchoring equipment
- Lighting (if necessary)
- Access to barge / platform
- Communication devices
- First aid
- Emergency notification
- Conformance to all other appropriate OSHA/ANSI and Department safety requirements
Personnel, equipment, and materials shall not exceed load rating capacity or cause risk of capsize.

Only aerial lifts with manufacturer approval to work on floating vessels shall be used. Aerial lifts shall be positioned as close to the center of the platform or barge as feasible. A CAZ or perimeter guarding shall be in place. Aerial lifts shall be securely anchored / tethered if required by the manufacturer.

Employees walking or working on unguarded decks of floating work platforms shall be protected with proper fitting U.S. Coast Guard-approved life jacket or buoyant work vest.

**ELECTRICAL SAFETY**

When working near electrical lines or equipment, avoid contact. Always assume that lines are "live" and carry high voltage. Electrical lines can only be considered "dead" when verified by the utility.

Department operations shall conform to the High Voltage Proximity Act, which applies to electrical systems carrying 600 volts or more and requires employers to:

- Ensure employees are not placed in proximity to high voltage (within 10' up to 50 kilovolts).
- Inform employees of the hazards and precautions when working near high voltage.
- Post warning decals on equipment regarding 10’ minimum clearance.
- Ensure that when an equipment operator is unable to assess clearances, a "spotter" observes for clearance and directs the operator.
- Notify the utility at least 5 working days before any work begins. The utility will identify voltages and minimum clearances, or de-energize, insulate or relocate lines.

As voltages increase, minimum clearances increase and potential for arcing increases. Injuries or fatalities may occur even if contact is not made. Weather and contact with conductors such as tools can increase the possibility of arcing. Because Department employees are not qualified to determine voltage, the utility shall be called to establish voltages and minimum clearances, and to render the work safe. Where prior notification cannot be made, an attempt shall be made to have the utility respond immediately.

Tree crews and traffic signal crews shall receive specialized electrical safety training due to frequent work near energized electrical systems. Training shall be conducted, preferably in conjunction with or supplemented by training from local utility companies, and include characteristics, hazards and precautions for high voltage electricity.

Prior to the start of an operation where contact with energized electrical systems is possible, supervisors shall identify energized lines or equipment, reference their location, and discuss at a pre-work safety meeting with all crew members.
For additional information regarding electrical safety precautions, refer to the Safety Bulletin on Electrical Safety.

**AWARENESS & TRAINING**

Regional managers responsible for operations which require using any type of aerial lift device shall ensure that employees involved in such operations are aware of this document and receive initial and periodic refresher training in accordance with current ANSI requirements A92.5 for “Boom-Supported Elevating Truck Platforms”, A92.2 for “Vehicle Mounted Elevated & Rotating Aerial Devices,” and A92.8 for “Vehicle Mounted Bridge Inspection Devices”. (Also refer to electrical safety training requirements above). Supervisors shall conduct brief daily tailgate safety meetings to review special job features, traffic considerations, and appropriate safety precautions.

**RELATED SAFETY REFERENCES**

For further reference, see the following Safety Bulletins:

- Work Clothing Guidelines
- Fall Protection
- Working in Proximity to Water
- High Visibility Apparel & Hard Hat Policy
- Rental / Leased & Surplus Equipment
- Railroad Safety
- Electrical Safety

MAP 7.11-17 Inspection of Aerial Lift Devices
ANSI/SIA A92-2 Vehicle Mounted Elevating & Rotating Aerial Devices
ANSI/SIA A92.5 Boom-Supported Elevating Truck Platforms
ANSI/SIA A92-8 Vehicle Mounted Bridge Inspection & Maintenance Devices