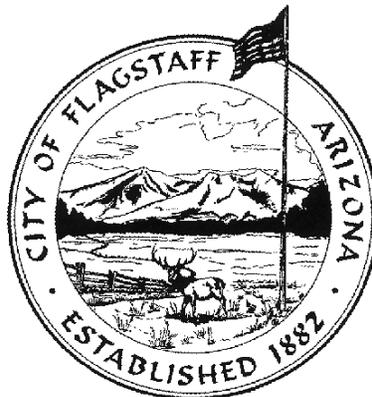


CITY OF FLAGSTAFF
PUBLIC WORKS SECTION

SAFETY MANUAL

“Each employee is expected, as a condition of employment, to concern themselves with their own safety, the safety of their fellow workers, and the safety of the general public. Safety is a matter of continuing concern, equal in importance to all other operational considerations.”



*“Our employees are our most important asset
– their safety is our greatest responsibility”*

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CITY OF FLAGSTAFF

DIVISION OF PUBLIC WORKS

SAFETY MANUAL

This manual is intended to develop behaviors, skills and habits which help assist the worker in meeting the responsibilities associated with safe work practices. This safety policy has been specifically tailored for the job duties and responsibilities within the section. This manual will be utilized by your supervisor for our continuing concern of employee safety training, in addition to any other safety training necessary.

All employees of the Public Works Division are expected to read this document within 30 days of its issuance. Your supervisor will make time available to you during the next month to accomplish this task. In addition, updates and amendments will be provided to you as the policies and procedures described in this document change.

It is the responsibility of the employee to read this manual, and use it as a resource. It will assist you in understanding your job, your rights and your obligations. Following the safety information in this manual may save you from a painful, disabling injury or even death.

Thank you for your cooperation.

Environmental Services Representative

Facilities Maintenance Representative

Streets Representative

Streets Representative

Parks Representative

Parks Representative

Sustainability & Environmental Mgmt Representative

Fleet Services Representative

Public Works Director

PUBLIC WORKS DIVISION

The Public Works Division is divided into nine primary sections.

1. **Public Works Administration** has the overall responsibility for the safe and smooth operation of its various sections. Its main concern is the planning and budget processes, as well as the coordination of Public Works' responsibilities with the other City Divisions and sections.
2. The **Cemetery Section** is responsible for internment and the upkeep at Citizens Cemetery and internments for Calvary Cemetery.
3. The **Environmental Services Section** encompasses City of Flagstaff solid waste and recycling collection services and the Cinder Lake Landfill. It plans, implements, coordinates and directs programs for the collection of trash and recycling material. Additionally, their programs oversee and direct the disposal of non-recyclable solid waste at the Cinder Lake Landfill in compliance with all regulations. Various programs are split between this section and the Sustainability and Environmental Management Section. Both sections are comprised of a valuable team of professionals committed to working together to provide residents of Flagstaff with a clean, safe and ecologically sound environment.
4. The **Facilities Maintenance Section** is responsible for all renovations and general maintenance of buildings owned or leased by the City of Flagstaff. The division ensures, through effective building maintenance programs and long-range planning, that City buildings are safe, efficient, reliable, clean, code compliant, esthetically pleasing and environmentally friendly.
5. The **Fleet Services Section** is responsible for the maintenance, repair and service of vehicles and equipment assigned to the City of Flagstaff. We are dedicated to the safe, reliable, economical, and environmentally friendly transportation and related support services.
6. The **Parks Section** has the responsibility for the on-going maintenance and development of Parks, Streetscapes, Civic Sites, Flagstaff Urban Trail System, Right of Ways, Athletic Complexes, Downtown Management Area and School Sites throughout the city. We are dedicated to providing the citizens of Flagstaff safe, clean and aesthetically pleasing facilities for recreational purposes.
7. The **Sustainability and Environmental Management Section (SEMS)** works to ensure that all residents of Flagstaff are provided with a clean, safe and ecologically sound community. SEMS mission is to preserve and enhance the community and natural environment by implementing resource conservation and sustainability through leadership and education.
8. The **Streets Section** dedicates its efforts to provide safe quality service for the growing transportation needs of the Flagstaff community. The Streets Section is responsible for street, storm drain and traffic control facilities in the City, along with snow removal duties. Street sweeping, street patching and paving, street painting, striping and signing, and installation of curbs and sidewalks are part of the section's responsibilities.

INTRODUCTION

This manual is issued to inform Public Works employees about the management policies that are the basis for the safety program, and to establish uniform safety procedures for tasks that are performed within the Public Works Sections. It is divided into sections, each concerned with a particular type of task, equipment, operation, or hazard so that it will be easy to read, understand and follow. As new sections or amendments are published, they will be distributed to you for addition to the manual.

Division and Section Heads have been directed to make safety a matter of continuing concern, equal in importance to all other operational considerations. The safety standards set forth in this manual must be followed by all employees for the department and division to be successful and to protect the safety of the general public. This means willing acceptance and active support of approved safety rules and safety procedures. It is important that employees be constantly on the alert for potential hazards which are not referred to in any written procedures, but which may result in injury or property damage. Where potential hazards are thought to exist, employees must use all known precautionary measures, and when in doubt as to the procedure to follow, must consult their supervisor before proceeding with the work.

Safety is a way of life. Most people endorse it, many talk of it frequently, but all of us fail in varying degrees to live up to the commitment we adopt. Failures in accident prevention occur when we overlook safety to concentrate on a mechanical skill or problem; or when we fail to recognize a hazard; or when we just get in too big of a hurry to get the job done and take unnecessary risks. Complacency is one of the top killers in the workplace today. Statistics point out that the established workers, on the same job for 10 or more years, is likely to justify overlooking safe work practices because: "this is the way we always have done the job" eventually to suffer an agonizing injury or death.

Experienced professionals in any occupation recognize that you cannot afford to ignore safety. Accidents are too costly. They cost employees physical pain, possible disability and potential loss of income or future earning power. Workers compensation, no matter how liberal, will never equal the cost of injuries to employees. It is certainly small consolation to the spouse and children of an employee who suffers a severely crippling or fatal injury. Accidents cost lost productivity, worker's compensation, medical treatment, repair of damaged equipment and hidden costs. In fact, uninsured costs of accidents to the City of Flagstaff and its employees may be more than 5 times the insured costs.

Accident prevention is self-insurance. The lesson that is important to heed is that the so-called "near-misses" are warning signals. A careful study of accidents over the years has proved a simple, basic law governing human behavior. If an unsafe act is performed enough times, or an unsafe condition is allowed to exist long enough, it will eventually result in an accident. Just how long it will take may vary, but an accident is bound to occur sooner or later. Accidents don't just happen. They are caused. But human failure can be controlled. By exercising self-control, every employee has an opportunity to demonstrate job skill. By passing on this knowledge to others, an employee demonstrates teamwork. By demanding safe performance and enforcing approved safety procedures, supervisors demonstrate concern for their employees' welfare. Accident prevention can be the most important employment benefit any of us have.

SAFETY

There is vital concern in providing you with safe working conditions and instructing all employees in safe work practices. These safe work practices help prevent painful injuries to employees and reduce injury-related absences.

The Public Works Safety Committee has been established within the Public Works Division. This committee meets regularly to review accidents, policies and procedures. They also meet to discuss potential hazards and to recommend corrective actions to avoid the possibility of accidents in their respective Sections. This committee has commensurate authority delegated to them by the Public Works Director to develop and recommend applicable procedure and policies.

The membership and terms of the Public Works Committee are as follows:

Chairperson.....	1.5 Year Term
Co-Chairperson.....	1.5 Year Term
Committee Members	3 Year Term

Should a vacancy occur on the committee, a new member shall be appointed by the Public Works Director. The Committee shall elect a Chairperson from the current members to serve on the committee for a period of one year. The date, hour, frequency and location of meetings shall be determined by the committee.

The **Accident Review Board** is comprised of two Risk Management Advisors and seven peer members selected from the various City Divisions. The ARB, at the request of the Risk Manager or Division Head, will hear accident cases to determine recommendations or corrective action to prevent similar accidents. If the ARB finds that an accident was “PREVENTABLE” because of the actions of an employee it could recommend that the employee receive new or additional training, suspension, or termination.

EMPLOYEE SAFETY SUGGESTION PROGRAM

The Employee Safety Suggestion Program provides a means to encourage all employees to take part in the task of improving the safety and effectiveness of the operations within the City. Under the program, the employees recognize unsafe conditions and suggest possible solutions to be acted upon by the Public Works Safety Committee. All employees are encouraged to participate in the program.

The duty of the Public Works Safety Committee will be to review and evaluate suggestions, and, based on a majority vote, refer worthwhile suggestions to the Public Works Director.

Evaluation of suggestions will be based on the following criteria:

1. Impact on essential City services.
2. Feasibility of implementation.
3. Estimated cost savings.

Suggestions requiring equipment, hardware, repairs, or maintenance must be evaluated by the Section affected as to cost and savings where applicable.

The following are some examples of ineligible suggestions:

1. A suggestion that does not pertain to Public Works operations.
2. A suggestion for change that the employee could have introduced without approval of higher authority.
3. A suggestion for routine improvement which the employee, in the normal course of employment, would be expected to make without reference to an award program.
4. Any suggestion which, in the opinion of the Committee, duplicates, or is very similar to a suggestion previously submitted or is now under consideration.

REPORTING UNSAFE CONDITIONS:

Employee observations can be extremely important to preventing accidents. Many times, an accident may result from a condition that employees were aware of, but did not report. If an employee notices an unsafe condition in his or her work area, that employee is required to report the information immediately to their supervisor. The attached form may be used for this purpose. Once the condition is reported, the supervisor must take the necessary corrective action. Supervisors should use the attached form to document the action taken.

STEPS FOR REPORTING SAFE/UNSAFE CONDITIONS

Employees shall immediately report unsafe conditions, defective equipment or any other situation they judge to be unsafe to their supervisor or safety committee representative. Additionally, safe conditions may also be reported to recognize safe practices. The Safe/Unsafe Condition form is to be filled out at this time.

Please follow the following steps for reporting Safe/Unsafe Conditions:

1. Employee fills out Employee Section of the form
2. Employee turns form into Supervisor or Safety Committee Representative
3. Within five (5) days of receiving form, Supervisor is to investigate the situation, fill out their section of the form and discuss an action plan with the reporting employee. Employee is to receive a copy of the form at this time.
4. Forward form to the Public Works Administrative Specialist and if applicable, Supervisor fills out 7K award form, signs it, and staples it to original form
5. Manager/Division Head reviews and signs form and 7K award form
6. Manager returns form to Public Works Administrative Specialist
7. Department Head reviews and signs the safety and 7K forms
8. Department Head returns forms to Public Works Administrative Specialist
9. Safety Committee reviews forms and 7K award, makes comments as necessary and signs.
10. Administrative Specialist copies form and 7K award, original to HR, 1 copy in Safety Committee File, 1 copy to employee, and 1 copy in Public Works personnel file.

At the end of the year, all forms will be reviewed by the Public Works Safety Committee and they will select the one that has the greatest impact on safety for a WOW award.



EMPLOYEE REPORT OF SAFE/UNSAFE CONDITION

EMPLOYEE COMPLETES SECTION BELOW AND GIVES TO SUPERVISOR

Employee: _____
 Department: _____ Date: _____ Time: _____
 Location: _____
 Hazard or Problem: _____

 Suggestions: _____

SUPERVISOR COMPLETES SECTION BELOW AND GIVES TO PUBLIC WORKS ADMIN. ASST.:

Supervisor: _____
 Department: _____ Date Received: _____
 Action Taken: _____

 Date Action Was Taken: _____
Signature of Supervisor: _____
7K Award?
 Yes No – If no why? _____

MANAGER COMPLETES SECTION BELOW AND FORWARDS TO ADMIN. ASST.:

MANAGER REVIEW:
 Review Comments/Action to Correct: _____

 Date Received: _____
Signature of Manager: _____

SAFETY COMMITTEE REVIEW:
 Comments: _____

 Date Received: _____
Signature of Safety Committee Chair: _____

Routing

Supervisor Manager/Division Head Department Head Safety Committee

**CITY OF FLAGSTAFF
PUBLIC WORKS DIVISION**

SAFETY COMMITTEE ORGANIZATIONAL CHARTER

SAFETY POLICY DECLARATION

- A. Safety will take precedence over expediency and shortcuts.
 - 1. Supervisors will provide all reasonable safeguards to ensure safe working conditions.
 - 2. No job is so important and no order is so urgent that time cannot be taken to perform the work safely.
- B. A goal of **“NO INJURY”** is realistic!
- C. Special effort will be made to train all employees to perform work safely.
 - 1. Employees are expected to take the initiative to use the safety equipment provided. Rules of safety conduct must be observed.
 - 2. The employer will promote safe working practices among all employees and maintain equipment in safe operating condition.
- D. Employees may actively participate in the Public Works Safety Program through the suggestion program.
- E. Each new employee will be provided with instruction regarding safe work practices for each job.
- F. No employee is to return to work if their physical condition restricts their ability to complete their job duties. Capability to return to work will be determined by the administering physician and the successful completion of a physical exam. An employee injured in the course of employment will participate in the City’s Return to Work Program to aid in their recovery process enabling the employee to return to work as quickly as possible.
- G. It is the policy of the City of Flagstaff through the Public Works Division that every employee is entitled to a safe and healthy place in which to work. To this end, every reasonable effort will be made in the interest of accident prevention, to avoid accidents, suffering, loss of time and possible impairment of earning power for its employees.

SAFETY RESPONSIBILITIES

SAFETY COMMITTEE RESPONSIBILITIES:

The Public Works Safety Committee has the authority through the Division Head to cease unsafe practices and make recommendations for the correction of unsafe conditions.

- A. Meet regularly to review accidents, policies and procedures.
 - 1. Maintain records and meeting minutes for corrections and recommendations.
- B. Identify safe practices, unsafe conditions, hazards or issues.
- C. Meet periodically with Risk Management to review safety performance of employees and to keep informed about accident experience trends.
 - 1. The Public Works Safety Committee will implement safety recommendations within the Committee's authority and refer remainder to the Public Works Director.
- D. The representative of each Section is responsible for recommending and following up on safety suggestions which will provide a safe and healthful working environment and for setting up and carrying out an effective safety program.
 - 1. Safety awareness will be instilled in each employee through personal contact and group safety meetings.
 - 2. Safety films will be furnished upon request from Risk Management, along with other safety items.
- E. Conduct safety inspections as necessary or required.
- F. Each new employee should be thoroughly instructed in general safety policies, rules and procedures before being referred to a supervisor for job training. Respective safety officers will give safety instruction to all new employees. All new employees will be provided with a copy of this Safety Manual and be required to read it within the first 30 days of employment.
- G. Provide assistance to supervisor in setting standards for the proper placement of employees with physical limitations.

MANAGEMENT SAFETY RESPONSIBILITIES:

Management shall make every reasonable effort to provide a place of employment that is free from recognized safety hazards that could result in injuries or accidents. Since it is impossible for managers to personally observe all employee activities, management must assure that all supervisors are trained and are aware of their safety responsibilities. Other safety responsibilities for managers include:

- 1. Provide leadership and direction concerning safety activities.
- 2. Participate actively in the continuous evaluation of the safety program.
- 3. Set goals concerning safety performance within your Division.
- 4. Review losses for potential trends on a regular basis.
- 5. Enforce all safety rules.
- 6. Participate in facility and work site inspections.
- 7. Participate and support all accident investigation activities.
- 8. Review accident reports and recommend corrective actions.

SUPERVISOR SAFETY RESPONSIBILITIES:

Safety is as much a part of the supervisor's responsibility as is getting the job done efficiently. Among the important safety responsibilities of each and every supervisor are:

1. Familiarize yourself with and enforce the safety rules and regulations that have been established by applicable local, state and federal agencies. These regulations are intended to set minimum standards for safety and the contents of the regulations should be enforced as minimum safety requirement for all activities on City sites and facilities.
2. Correct all reported hazards or unsafe working conditions. Operating under known hazardous conditions will not be tolerated.
3. Do not permit new or inexperienced employees under your supervision to work with power tools, machinery, complex equipment, hazardous chemicals or waste without proper instruction and training.
4. Give adequate instructions. Do not assume that an employee knows how to do a job unless you personally have knowledge that the person can perform the task correctly.
5. Ensure tools, equipment and machinery being used in the workplace are in proper working condition.
6. Ensure that proper personal protective equipment is available and used by employees when necessary or required.
7. Always set a good example in safety, such as using proper personal protective equipment (safety glasses, hard hat, etc)
8. Do not allow the use of broken, defective, or otherwise unsafe tools or equipment.
9. Consistently enforce the requirements of the Public Work's Safety Program and any associated practices and procedures.
10. Ensure that all employees have access to a copy of the Public Work's safety manual. Encourage employee's participation in the safety suggestions program.
11. Obtain proper first aid for injured employees.
12. Participate in near miss, incident or accident investigations involving your employees.
13. Conduct inspections/job hazard analysis and/or standard operating procedures of all work sites and facilities on a regular basis in an effort to improve housekeeping, eliminate unsafe conditions and encourage safe work practices.
14. Post accident responsibilities to assure employees are tested according to policy.
15. Report accidents and injuries within 1 business day and work with HR and Risk Management to transition employee back into the work place after their injury.

EMPLOYEE SAFETY RESPONSIBILITIES:

All employees play a key role in the safety program. You must be aware that your actions, mental state, physical condition, and attitude directly affect the safety of your self and your fellow employees. All employees must:

1. Know your job, follow instructions, and think before you act.
2. Use your personal protective equipment (eye protection, hard hats, gloves, etc.) as the job or hazard assessment requires.
3. Work according to good safety practices as posted, instructed, and/or discussed.
4. Refrain from any unsafe act that might endanger yourself or your fellow workers.
5. Use all safety devices provided for your protection.
6. Report any unsafe situation or act to your supervisor immediately.
7. Assume responsibility for thoughtless or deliberate acts that may cause injury to yourself or your fellow workers.
8. Abide by all policies, procedures, rules etc. associated with the City of Flagstaff Safety Program.
9. Never operate equipment that you are unfamiliar with or not trained to use. Also, equipment that is defective or in need of repairs must not be used and must be reported to your supervisor.
10. Report all accidents/ incidents to your supervisor as soon as they occur.

SECTION I

GENERAL RULES

Safety means efficient performance. Safety must, therefore, be a part of the planning for every job; equal in importance to all other operational considerations. Observing the safety procedures contained in this manual will make Public Works operations safer, as every employee must be alert to the possibility of improvement. Unsafe conditions and unsafe procedures must be identified before they can be corrected. Employee suggestions for improvements to work conditions and work procedures are welcome, in fact, they are invited. Procedural changes must not be made, however, until suggestions have been evaluated and revisions to the current procedures have been approved.

The following general safety procedures are established:

1. Report all injuries, regardless of how minor, to your supervisor immediately. This must be done whether or not the injury resulted in medical treatment or time lost from work. Prompt reporting of accidents is a requirement under Federal Law and Worker's Compensation Law and failure to report in a timely manner could jeopardize your rights and benefits.
2. The City does not expect you to take any unnecessary chances or to work under hazardous conditions. Learn the right way to do your job; which is the safe way. If you are not sure you thoroughly understand the job, ask your supervisor for further instructions.
3. Avoid horseplay and practical jokes on the job. Any employee participating in such activities will be subject to disciplinary action.
4. Consumption of drugs or alcohol on the job is prohibited. Any employee reporting to work under the influence during working hours will be subject to disciplinary action. Refer to Human Resources Alcohol and Controlled Substance Testing policy.
5. Work at a speed consistent with safety. Remember – “near misses” are danger signals.
6. Keep yourself in good physical condition to do a day's work.
7. Always inspect tools and equipment before use. Report defects to supervisors and other potential users. Do not use tools and equipment that are defective. Tag tools that are in need of repair so that fellow employees are aware of the defect.
8. Work clear of suspended loads; if a load is moved above where you are working, stand aside until it has passed by.
9. Obey warning tags and signs. They are posted to point out hazards.
10. Operate only the machinery or equipment you have been authorized and trained to operate safely.
11. Unless medically necessary, remove jewelry such as rings, identification bracelets, etc., in work involving climbing, materials handling or operation of mechanical equipment.
12. Never reach over moving parts of machinery or equipment.
13. Never operate machinery or equipment with guards removed.
14. Report to work in appropriate clothing suitable for the type of work you perform. This includes footwear. Do not wear baggy clothing, shirts without sleeves, clothing with holes, rips, or tears near machinery or equipment with moving parts.

15. Wear personal protective equipment as required. Its use will be enforced.
16. Common sense, health, and sanitation rules, must be observed for the welfare and consideration of other employees.
17. Be aware of and adhere to all Section and facility specific rules.

SECTION II

WORK STATION SAFETY

Office work is more dangerous than is commonly supposed and many accidents occur during normal office routine.

1. Every employee must be responsible to see that their own desk and work area are clean and orderly. Good housekeeping is the key to a safe office environment.
2. Be extra cautious when you come up to a door that can be pushed toward you. Take it easy when pushing one open and slow down when coming to a blind corner.
3. Be cautious when walking between desks, they can result in bruises and falls. Watch out for electrical cords and keep them out of aisles.
4. All file, desk and table drawers must be kept closed when not in use. As soon as you have used them, close them. Never open more than one file drawer at a time.
5. Overloading the top drawer of unsecured file cabinets can cause injury and damage. If unfamiliar with the file cabinet, test the drawers and be careful not to pull them out too far if there is no locking device.
6. Tilting chairs can be a hazard when improperly used and care should be taken to assure that they are in good condition. Learn the limits. Be sure your chair is behind you before you sit down.
7. Never use chairs, desks or other office furniture as a makeshift ladder. Use a step ladder. Don't overreach it could cause you to lose your balance.
8. Keep the blade of a paper cutter closed when not in use.
9. Pencils/pens are safest when carried point down in pockets.
10. Scissors, paper cutters, glass, and razor blades can cause painful injuries. Report such injuries at once and use first aid to protect yourself from infection.
11. Paper cuts can hurt. Use a sponge or other wetting device for envelopes. Use rubber finger guards when working with stacks of paper.
12. Keep paper clips, thumb tacks, and pins in a place where they can't stick you inadvertently, like a small box. Use only single edge razor blades and keep blades covered.. Even a small scratch can get infected.
13. Be sure equipment is grounded and that the cord is in good condition. If a machine gives you a shock or starts smoking, unplug it and report it to your supervisor.
14. All exits and entrances shall be kept clear with free access at all times.
15. All emergency exits must be posted and visible and free from obstruction at all time.
16. Do not overload power strips.
17. Building evacuation signs should be posted conspicuously in multiple locations.
18. All fire extinguishers must be accessible, charged, and all employees should be trained on how to use.
19. Hazard Communication information should be posted in a conspicuous space and updated on a regular basis with an OSHA/ADOSH Right To Know poster.

SECTION III

HOUSEKEEPING

Many injuries and much property damage stem from fires caused by poor housekeeping practices and improper storage of flammable materials. The best protection against these hazards is good housekeeping.

When materials are stored properly with adequate space to move through the storage area, or with adequate clearance to work within the storage area, accidents are prevented. With some planning before starting a job, tripping hazards can be avoided and many sprains, fractures and bruises that result from falls can be avoided.

Aside from the accident prevention benefits, good housekeeping means efficient performance. When materials, tools and equipment all have a place for orderly storage, and are returned to the proper place after use, they are easier to find and easier to inspect for damage and wear.

The following safety procedures are established:

1. Keep work areas and storage facilities clean, neat and orderly.
2. All aisles, stairways, passageways, exits and access ways to buildings must be kept free from obstructions at all times. All grease and water spills must be removed from traffic areas at once.
3. Do not place supplies on top of lockers unless a load rating has been established. Boxes, or other movable containers must not be stored at a height where they are not visible from the floor.
4. When piling materials for storage, make sure the base is firm and level. Cross tie each layer. Keep piles level and not stacked too high. Keep aisles clear and with adequate space to work in them. Chain or secure standing items.
5. When stored materials are suspended from racks or hooks, secure them from falling and route walkways a safe distance away from the potential hazard.
6. When storing materials overhead on balconies, provide adequate toe boards to prevent objects from rolling over the edge. Balconies, mezzanines and overhead decks for storage should have floor load ratings posted.
7. Do not let soft drink bottles, soiled clothes, etc., accumulate in lockers and work places.
8. Tools, equipment and work areas are to be maintained in a clean and safe manner. Defects and unsafe conditions must be reported to your supervisor.
9. Return tools and equipment to their proper place when not in use.
10. Lay out extension cords, air hoses, ladders, pipes, tools, etc., in such a way as to eliminate tripping hazards or obstructions to traffic.
11. Clean up spills immediately to avoid slipping hazards. In the event the removal cannot be done immediately, the area must be appropriately guarded, signed or roped off.
12. Sharp or pointed articles should be stored to prevent persons from coming in contact with the sharp edges or points.
13. All packing materials should be properly disposed of to prevent fire.
14. Oily and greasy rags must be stored in appropriate containers.

15. Adequate lighting in obscure areas must be maintained for the protection of both employees and public. Exposed fluorescent lights which hang low need to have protective coverings, or the lights need to have safety tube coverings. Spent fluorescent bulbs must be placed in sealed cardboard boxes or fiber drums for future proper disposal.
16. Employees should not handle food, tobacco, etc., with gasoline or fuel, chemicals or waste on their hands.
17. A lock out/tag out procedure must be instituted to assure that electrical power or any other stored hazardous energy is isolated, locked out, blocked out, on all machines or equipment before cleaning, greasing, oiling or making adjustments or repairs. All guards must be replaced after servicing.
18. Control panel circuit breaker or fuse boxes should be kept closed at all times and at least three feet clear of obstructions and debris. Never block or obscure fire extinguishers and electrical boxes.
19. Extension cords should not be run across aisles or through oil or water. Cords should be properly sized for required load, inspected for kinks, worn insulation, and exposed strands of wire before use. If a defect is found in the cord properly dispose of it at the Hazardous Product Center. Do not use cords that have had the grounding plug removed.
20. When circuit breakers or fuses blow continually, it is an indication of an overload or short. Reset the breaker or replace the fuse once. If it blows again report the condition to Facilities Maintenance or your supervisor. Do not attempt to bypass or repair the circuit yourself.
21. When chemicals are not being utilized, they should be returned to their designated areas. Compatibility of all chemicals and/or waste must be checked. Proper segregation is crucial to safety. Verify compatibility and segregate all chemicals/wastes accordingly. Contact staff at the Hazardous Products Center if you need assistance.
22. Hazard Communication requires all containers of hazardous chemicals, entering or leaving the workplace, to be labeled to show the identity of the hazardous chemical, appropriate hazard warnings (e.g. flammable, corrosive), and the name and address of the manufacturer, distributor or importer. The label may also include picture symbols that help to identify the hazard, and show the proper personal safety equipment needed when working with the chemical. All containers (either in use or waste containers) must be labeled properly. All drums must be labeled properly in the upper third portion under the largest bung, then stored under cover.
23. Labeling is also required for portable containers filled with chemicals from other containers. Tanks and other non-movable containers may be labeled by using the National Fire Protections Association (NFPA) fire diamonds, or the Hazardous Materials Identification System (HMIS) labels.
24. Secondary containment must be utilized for waste containers larger than 5 gallons in capacity, including storage of spent lead acid batteries. Spill kits should be on hand to clean up any potential spill/hazard and personnel should be properly trained on use of spill kits.

SECTION IV

FIRE PREVENTION

One of the most fearsome and damaging disasters that can happen in the work location is fire. In the variety of activities performed in municipal operations, there are shops and job sites in which potential fire hazards exist. Fire can be prevented by orderly planning, sensible arrangement of fire producing activities in relation to combustible materials, good housekeeping, and observance of practical control of smoking habits when flammable substances are present.

The following safety procedures are established:

1. Fire extinguishers must be prominently displayed, labeled for usage, inspected monthly, and kept clear for easy access at all times.
2. Know the location of fire extinguishers and how to use them. After use of an extinguisher, report such use immediately to your supervisor so a replacement may be obtained or the extinguisher recharged. Report all incidents to the Fire Division.
3. Use of gasoline or other fuel is prohibited for cleaning parts, floor, or any part of buildings.
4. Gasoline utilized in small quantities in shops for fueling engines being repaired, tested, adjusted, etc. must be handled and dispensed from approved safety cans, having a spring-loaded cap. Container must be labeled as to contents, with HMIS or NFPA labels adhered to the sides of the container.
5. The fueling of any type of motorized equipment while the engine is running is prohibited. Stay in contact with a metal part of the vehicle or touch the metal part of a vehicle away from the fuel filler to discharge any static electrical build-up. When transferring flammable liquids, bonding wire between containers and a ground wire must be in place to guard against the build-up of a static electrical charge. When filling portable containers, the container must be on the ground, not in a truck bed or other elevated surface.
6. Never overfill a fuel tank but rather under-fill it to allow room for expansion of the fuel. If there is a spill report it immediately to Fleet Services and your supervisor.
7. No artificial light except UL approved electrical flashlights will be used near escaping gasoline or other flammable vapors or when entering an enclosure suspected of containing gasoline or vapors. Stay out of the area completely and call the Fire Department.
8. “NO SMOKING” must be followed and enforced in all areas where hazardous substances are stored or used and any other area where posted. Please refer to City Tobacco Cessation Program.
9. Exits must not be locked (chained or otherwise) from the inside.
10. Electrical extension cords are approved for temporary use only and they should never be a smaller gauge than the appliance cord connected to it.
11. It is necessary that shops and fixed activities that contain potential fire hazards have a fire plan to combat fire if it should occur. The plan must include: adequate warning measures for alerting all person in the area of the existence of a fire; procedures for containing the fire insofar as it is safe to do so and, particularly, only to the extent that it is possible to maintain safe exit for personnel so engaged; instruction of personnel who regularly work there in the duties they are to perform in given fire situations; and adequate fire extinguishing equipment that is regularly inspected by the responsible safety representative.

Fire Extinguishers

Fire Extinguishers, when used properly, can be a very effective way of preventing a small fire from turning into a disaster. It is extremely important that the right extinguisher is used in the right situation and that the extinguisher is used properly.

Fires are commonly classified as A, B, C, and, D, which is not as common. The D fire is a metal fire, such as magnesium, where a special extinguishing agent is needed. When faced with the need of having to use an extinguisher, the one that you use will have one of the above mentioned classification letters:

- Class A: This is an ordinary combustible fire such as wood, paper, cloth, rubber and plastics. On this type of fire, you should use water, a Class A extinguisher, or a multi-purpose powder extinguisher marked ABC.
- Class B: This is a flammable liquid of fire which can consist of thinner, gasoline, grease, oils and similar products. On this type of fire you should use a multi-purpose ABC or carbon dioxide extinguisher. The carbon dioxide extinguisher will be marked B, C. NEVER USE WATER ON A FLAMMABLE LIQUID FIRE. When using these types of extinguishers, get close to the fire and spray at the base with a sweeping motion so that you can smother the fire with the extinguisher.
- Class C: This is an electrical fire in energized electrical equipment such as televisions, appliances, machinery or computers. The best extinguisher to use is a B, C rated carbon dioxide. The multi-purpose ABC can also be used, but may cause more damage. Shut off the power as soon as possible, and NEVER USE WATER ON AN ELECTRICAL FIRE.
- Class D: The D fire is a metal fire, such as magnesium, where a special extinguishing agent is needed.

The multi-purpose ABC dry chemical extinguisher is the most common type and best for around the house. At work be sure that you are familiar with the locations and types of extinguishers available and the classes for which they are designed.

SECTION V

MATERIAL HANDLING

Many injuries occur in the process of handling materials. The types of injuries that have been experienced are strains and sprains, crushing, hernia and rupture, fractures, lacerations, bruises, and contusions.

Accidents of this nature can be avoided by taking a little time to plan ahead, using mechanical equipment wherever possible. Think about the proper way to do the task, and use the proper tool to perform it. Use of material handling equipment (hoists, conveyors, lift gates, hand trucks, dollies, forklifts, hydraulic tables) is ALWAYS the best practice when lifting and moving materials even if it is inconvenient to get it or set it up.

The single and most important preventative safety measure employees should be aware of is the FOUR STEP LIFTING PROCESS. This technique, putting aside considerations of costly hospital and medical bills, will save you pain and suffering that may extend into your retirement years. Therefore, it is essential that you carefully read and implement this lifting process.

1. Get ready – size up the load, get help if needed. Remove protruding nails, splinters, sharp edges, oil, grease or moisture. Wear gloves and safety shoes. Be sure the path is clear of obstacles.
2. Pick it up – get a firm footing and good balance, have your feet shoulder width apart. If the load is below waist level, bend your knees to get into position. Keep your back as straight as possible, grip load firmly, lift the object to carrying position, keeping it close to the body. Let leg and arm muscles do the work.
3. Carry it carefully – be sure your vision is clear. When changing directions, be careful not to twist your body. Turn your body by changing the position of your feet. Use caution in tight places so as not to smash fingers or hands.
4. Put it down – if the receiving surface is about waist high, use the edge to take part of the load, then push it forward. If you lower the load to the floor, bend your knees, keep your back as straight as possible and the load close to your body.

Beyond knowing the proper technique for lifting, employees are to follow established material handling rules:

Hand Trucks

1. Four-wheel hand trucks with swivel axles and tongues are to be pulled; all other hand trucks are to be pushed.
2. Use the right type of hand truck for the material you are handling. If there is a special hand truck, for example a drum or drawbar truck, it should be used.
3. Watch where you are going when pushing or pulling a hand truck, and slow down at corners.
4. Allow clearance for your hands when moving through doorways or past other objects. Use hand truck handles.
5. Secure help in getting hand trucks up or down inclines to prevent them from getting away from you.
6. Always park hand trucks at a spot where people will not stumble over them; leave handles in a vertical position.
7. When using hand trucks, be sure to watch the floor ahead to avoid bumps, cracks, uneven surfaces, etc.
8. Pile loads evenly. An unbalanced load may shift, causing the hand truck to overturn.

Hoisting Equipment

1. All hoists are to have a rated load capacity posted on the exterior of the hoist. Employees are not to exceed the specified limit.
2. Pile to a safe height, that means not so high the pile will be unsteady or that the floor load limit is exceeded.
3. Lock the material by crisscrossing the layers so there are no unsteady stacks within the pile.
4. Maintain aisle space for workers and fire equipment. Materials should not protrude beyond the face of the pile.
5. Hoisting equipment must be inspected by the user before each use. All hoisting equipment, cranes, slings, and hooks must be thoroughly inspected at least monthly and documented. If equipment is not used for extended periods, the frequency of documented inspections must not be greater than 6 months.
6. Hooks used for lifting must have a safety latch.

Handling Gas Cylinders

1. The protective cap over the valve should be kept on when the cylinder is not in use.
2. Never wear gloves or let grease or oil be on your hands. Keep hands away from the oxygen cylinder controls.
3. Lifting cylinders is always a job for two people.
4. Keep cylinders on end; strap or chain them securely so that they cannot fall.
5. Store cylinders away from salt, acids, or other corrosive materials.

SECTION VI

PROTECTIVE CLOTHING AND EQUIPMENT

When necessary to work on or service any machinery, a lock out/tag out procedure must be instituted to assure that electrical power or any other stored hazardous energy is isolated, locked out, blocked out by authorized employees performing the job. The securing device should not be removed until the work has been completed and the area has been cleared. The variety of work operations performed by municipal employees involves many industrial hazards. The tasks performed range from custodial services to heavy construction activities. In all tasks, however, there are counterparts in private industry where much research has been done to develop measures to protect employees from accidental injury. Most commonly, this is done by providing guards for various types of machinery. All machine guards must be kept in place while machinery is in operation. Tampering with machine guards is prohibited and any removal requires the prior approval of a supervisor. All guards are to be properly replaced after the repair work that necessitated their removal has been completed.

When it is impractical or impossible to place a guard over the source of the hazard, then it becomes necessary to place the guard on the worker. This is done by wearing approved personal protective equipment such as hard hats, safety goggles, traffic vests, face shields, gloves, aprons, toe guards, respirators, etc. Supervisors are responsible for assessing the hazards and determining what personal protective equipment is required, making sure that employees are trained on the hazards and equipment, making sure that the equipment is available and maintained, and that it is used. Dress codes may be established within a particular Division, section or work area, and each employee is expected to know and follow these codes where applicable.

Every possible effort will be made by management to select protective clothing and equipment that is acceptable for comfort, appearance and utility and still afford the desired protection. It is sometimes less comfortable to wear than ordinary dress, however, and this creates a temptation for some individuals to lay it aside. That employee becomes a gambler who is betting their life, or eyesight, or other physical well-being, that "it won't happen to me." Losing that bet becomes more uncomfortable for a lifetime than wearing the equipment for the duration of the job. Safety, in this instance, is a knowledge of the hazards, knowledge of the protection available, and using the protection that is appropriate.

General Clothing

1. For your safety and comfort, invest in work clothes that are sturdy, that fit well, and are washable.
2. The wearing of loose, flowing or ragged clothing on or near moving machinery or equipment is prohibited.
3. Short-sleeve shirts or tee-shirts should be worn for operating machinery. Rolled up sleeves are dangerous because they have flapping ends and because the added thickness of the cloth can pull your arm into a machine before the cloth tears.
4. Long sleeves, buttoned at the wrist, should be worn for all work other than machine operation.
5. Steel-toe safety shoes must be worn on those jobs requiring safety shoes. Shoes with run-down heels or turned soles are hard on the feet and can cause falls. Keep your shoes in good repair.
6. The safe worker does not wear rings, medals, identification bracelets, and other jewelry. Jewelry increases the danger of electric shock and can cause fingers to be badly injured.
7. Work clothes should be washed frequently as a safeguard against skin infections and irritation.
8. Oil-soaked clothes are a serious fire hazard. Keep your clothes free from oil.

Head Protection

The many construction and maintenance activities performed by Public Works' employees involve working above or below ground levels, movement of material overhead, or working near construction machinery. In such operations, the hazards of being struck by falling objects, machinery, or loads being moved by machinery, constantly exist. Hard hats are provided to prevent head injuries caused by falling objects, and bumps against objects when working in confined spaces. The proper protection is provided when the head harness is adjusted so that there is approximately 1-1/2 inch clearance, plus or minus 1/8 inch between the skull and the inside of the hat. When the harness becomes worn to the extent that it no longer can be adjusted to maintain that clearance, hard hats should be turned in for repair or replacement. Hard hats that have been repaired, reconditioned, etc., shall be sterilized and kept sterile until issued to an employee. The construction and shape of hard hats must not be altered in any manner by the employees. A hard hat is a personal item and must be used exclusively by the person to whom it is issued.

Face and Eye Protection

Hazards involving the possibility of injuries to the face and eyes exist in both indoor and outdoor tasks. They range from dust blown into eyes on a windy day to particles of steel, sand, concrete, etc., propelled into eyes with considerable force by power tools, compressed air and machinery, or splashes of corrosive dust and liquid chemicals.

There are many types of safety glasses, goggles, shields, etc. made of glass or plastic to protect workers from these hazards. The loss of one or both eyes can have extremely serious consequences to an employee. This is probably one of the most important protective features of any safety program, yet one of the most difficult to sell. Face and eye protection shall be provided for any task where there is any probability that an injury may occur without such protection. Employees assigned to perform tasks which require eye protection must wear the protector provided. The City must provide appropriate devices at no expense to the employee and make their use mandatory for specific tasks.

Safety glasses, goggles, and other eye protective equipment offer vital protection. If sufficient care is not exercised to maintain them properly, dirty or scratched lenses may provide another hazard from reduced visibility.

The following safety procedures are established:

1. Safety goggles, glasses, and/or face shields must be worn when:
 - a. Grinding, cutting, milling or drilling with powered tools.
 - b. Using impact wrenches and compressed air tools.
 - c. Chipping, scraping, or scaling paint, rust, carbon or other materials.
 - d. Using punches, chisels, or other impact tools.
 - e. Cutting or breaking glass.
 - f. Chipping or breaking concrete.
 - g. Using paint remover.
 - h. Using power activated tools.
 - i. Soldering.
 - j. Cleaning dust or dirt from vehicles, machinery, using compressed air.
 - k. Sandblasting or air cleaning operations.
 - l. Using metal cutting lathes, shapers, drill press, power hack saw and other metal working tools.
 - m. Using power wood working machinery, both fixed and portable.
 - n. Tree trimming, brush slipping, or stump removal.
 - o. Using brush cutters.
 - p. Steam cleaning, washing vehicle parts with soaps or solvents.
 - q. Pouring, transferring or bulking chemical liquids.
 - r. Opening pressurized containers.
 - s. Performing laboratory operations.
 - t. Using wash rack or pressure washers.

2. A full plastic face shield must be used in addition to safety glasses or goggles whenever using any type of grinder (i.e. bench or portable).
3. A full plastic face shield must be used in addition to proper fitting safety goggles when handling acids, caustics, and other harmful dusts, liquids, or gasses.
4. A face shield with the proper filter lens, or welder's lens, or welder's goggles, must be worn in all welding and cutting operations.

Eye protection may be required on other jobs not listed if so designated at the time by your supervisor. Beyond this, you are encouraged to wear eye protection at all times. **REMEMBER – YOU HAVE BUT ONE PAIR OF EYES AND THEY CANNOT BE REPLACED. PROTECT THEM.**

Hearing Protection

In the variety of activities conducted by municipal work crews, there are some machines or equipment that may produce sound levels in the frequencies which cause hearing loss. When employees are subjected to excessive sound levels, attempts should be made to use engineering controls. If the sound level cannot be reduced within tolerable range, then personal protective equipment must be provided and used by employees. Ear protection may consist of ear muffs or ear plugs. Cotton or waste will not be used as ear plugs. Stereo or music headsets are not suitable hearing protection.

Foot Protection

Many tasks involve manual lifting or handling of heavy tools and materials. Foot injuries frequently occur when heavy objects are dropped, resulting in bruises, dislocations, fractures or crushes. Shoes, rubber boots, etc., reinforced with steel toes and/or soles will prevent foot injuries from impact of falling objects, stepping on sharp objects, or exposure to blades of power tools. These items of footwear can be as comfortable as any pair of properly fitted shoes.

Finger, Palm and Hand Protection

One of the most dangerous human ornamentations to wear in occupational or industrial work is a ring. They should be removed or not worn to work if there is the slightest chance of getting the ring caught in any hook, tool, or piece of machinery. Rings can cause serious injury or loss of fingers and they frequently have to be cut off fingers if bent in such a manner as to shut off circulation.

Gloves with leather palms should be worn when handling rough edges or abrasive materials or when the work subjects hands to possible lacerations, puncturing or burns. Other hand protection may be designated by authorized persons. Skin irritation should be prevented by washing with soap and water – not gasoline. Nitrile, specialized or rubberized gloves should be worn when handling irritating materials.

Respiratory Protection

The best way to deal with hazardous particulate, dusts, fumes, gases, mists, and vapors is to engineer the risk. One way to do this is to substitute the hazardous material with a material of lower hazard. An example might be substitution of a urethane-based wood stain with a water-based wood stain. Another method is through ventilation and exhaust. Local exhaust systems can reduce exposures to hazardous materials to almost zero. Fans can dilute hazardous concentrations. Engineering the risk is always preferable to personal protective equipment and engineering hazardous atmospheres is always preferable to respirators. With that said, respirators are to be used only as additional controls to engineering. Respirators cannot be used to enter IDLH (Immediately Dangerous to Life or Health) or oxygen deficient atmospheres regardless of the level of respiratory protection.

Respiratory protection is to be used only:

1. In addition to engineering or administrative controls or when there are no options for engineering or administrative controls.
2. When required by a hazard assessment.
3. When the employee wants to use a respirator voluntarily because the chemical is a carcinogen, results in cumulative exposure, causes permanent or long-term damage, is a sensitizing agent, or PELs, TLVs, or RELs may not be appropriate.
4. Escape from a potential IDLH atmosphere.
5. When a physician or LHCP (Licensed Healthcare Professional) has evaluated the employee and given an opinion that they are physically able to use a respirator; trained in the City of Flagstaff's Respiratory Protection Program; and passed a fit test within the last 12 months.

There are some tasks in Public Works operations involving exposure to fumes, gasses, mists, chemicals, dusts, etc., that are harmful to the human respiratory system, or exposure to environments containing insufficient oxygen to support human life.

These hazards can be managed by use of the appropriate filter action breathing mask, self-contained breathing apparatus, etc. A degree of safety is achieved through adequate knowledge of noxious or toxic effects of the substances being handled, the circumstances under which a harmful atmosphere may exist in the work environment, adequate testing to determine the nature of the environment before entering it, the type of equipment that will provide adequate protection, and training in the proper way to use the protective equipment.

The following safety procedures are established:

1. Supervisors must thoroughly instruct all employees whose work assignments may involve exposure to atmospheres containing noxious or toxic substances or oxygen deficiency, about the properties of such atmospheres, the potential hazards, the circumstances under which these hazards may exist, the proper method of testing for hazardous atmospheres, the proper type of protective breathing apparatus to use, and how to use it. Suitable breathing apparatus shall be supplied in work environments involving the possibility of exposure to harmful atmospheres. Employees requiring the use of an approved respirator must be FIT tested initially and annually.
2. Employees who use a respirator whether required by hazard assessment or voluntarily must be medically able to do so as determined by a medical evaluation by a physician or licensed healthcare professional prior to assignment. A respirator user will also be trained in respiratory protection and must pass a fit test initially and at least annually. (This does not apply to 4-strap dust masks, i.e. N95, which can be used voluntarily.)

Other Protective Equipment

1. High visibility safety vests must be worn by all employees in and around any area where there is a danger from street traffic, such as patching and maintenance of streets, in and around street excavations, construction or maintenance of areas where there is moving machinery or equipment, while surveying on City streets where there is moving traffic, or in any other area designated as a “safety vest” area by the supervisor.
2. Safety seat belts must be properly fastened whenever a motor vehicle is so equipped and is in motion.
3. A First Aid Kit, Fire Extinguisher and Three Reflective Triangles should be placed in each piece of equipment or carried by the operator if one is not stored in the vehicle. A Federal motor carrier law mandates that spare fuses are required in trucks traveling out of the City. A First Aid Kit is issued to each piece of equipment or employee who is then responsible for making sure all items are stocked and not outdated. The first aid kit would then follow the employee to any vehicle or piece of equipment that he/she is using.

SECTION VII

HAND TOOLS

Disabling injuries, such as metal chips from mushroomed chisel heads flying in an eye, do happen. Injuries to fingers and hands are a common occurrence.

The following safety rules are established:

1. Select the right tool for the job.
2. Sharpen the cutting edges of the tool and carry the tool with the sharp edge down.
3. Sand the wooden handles of a shovel, rake, mall, etc., thus preventing splinters and burns.
4. Check the handle on each tool for tightness.
5. Check the head of each tool, such as hammers, chisels, punches, malls, and have the tool dressed if it is mushroomed (includes burrs and chipped edges).
6. Wear impact resistant goggles when using chisels, punches and wedges. Be sure no one is in the area before using such a tool.
7. Avoid using metal measuring tapes, fabric tapes containing woven metal strands, rope with wire cord, or other tools and equipment that have conductive properties while around energized electrical circuits or equipment.
8. Return tools to their proper place so that they do not fall from a ledge or could be tripped on. Practice good housekeeping.

SECTION VIII

POWER TOOLS

Power tools substantially increase the number and types of hazards to an employee. Hazards range from electrical shock of a short circuit to being struck by chips, shavings, or other debris during operation.

Electrical Equipment

1. All electrical tools used in Public Works operations must be grounded by connecting a three-wire cord with polarized, three-prong plug, to a properly grounded three-hole receptacle (unless the power tool has U.L. approved dual insulation and two wired cord).
2. Each electrical tool or machine must be visually inspected each time it is used for damage to cords and ground connections. The most common defects occur at the points where the cord is attached to the tool or where the cord is attached to the plug. Be sure to check for a secure connection that allows for an insulation plate on the inside portion of the plug.
3. Never operate power tools without the provided guards.
4. Ground Fault Circuit Interrupters (GFCI) are required whenever using any electrically powered tools outdoors, in wet or damp environments, or where there are a great deal of conductors or metals. This applies to any tool powered from fixed electrical sources, temporary electrical sources and generators. GFCIs must be inspected and tested before each use.

Grinders

1. Only those employees who are familiar with the mounting of grinding wheels are permitted to do so. A ring test on each of the new grinding wheels should be completed before installation. (A ring test is made by supporting the wheel freely on a rod through the arbor hole and tapping it lightly with a wooden object. A clear, metallic ring indicates absence of cracks.)
2. Wheel must fit easily onto the spindle. Too loose or too tight is dangerous.
3. When wheel is mounted, stand out of danger at one side while you allow it to develop full operating speed for at least one minute.
4. Apply work gradually to a cold wheel at the beginning of each work period, as cold wheels are most subject to breakage.
5. Never store a grinding wheel on damp or cement surfaces, do not put oily rags on the wheel.
6. Every grinding tool must be securely fastened to the shaft before commencing work.
7. The maximum operating speed as given by the wheel manufacturer is on the wheel label; grinding wheels are not to be operated in excess of these speeds.
8. The work-rest must be securely adjusted on all stationary grinders to about 1/8 inch of the wheel. Never attempt this adjustment while machine is in motion.
9. Avoid using the side of an emery wheel for grinding, unless it is especially designed for side grinding. Side grinding weakens the ordinary wheel and may cause it to burst.
10. Use the cutting surface of a grinding wheel uniformly, as a grooved wheel has been dangerously weakened.

11. Grinder bearings must be kept properly oiled and adjusted. This will help to prevent hot bearings and spindles, which are sometimes responsible for melted bushings.
12. Do not abuse the wheel by applying excess pressure.
13. Be particularly careful when grinding narrow tools or other objects as they are apt to catch between the rest and the wheel.
14. The operator's eyes must be protected with safety glasses or goggles AND face shield at all times when the machine is in use.
15. Do not stand in the plane of the grinding wheel, stand slightly outside the plane so that if the wheel does shatter, less risk of injury to the operator.
16. All grinding wheels must have a tool rest adjusted to within 1/8 inch of the wheel and a tongue guard at the top of the opening adjusted to within 1/4 inch of the wheel.

Drill Presses

1. Adjust the table so that you have plenty of room for the jig and keep your hands away from the revolving drill. Never run the point of the drill into the table.
2. Be sure that both the chuck and the drill are tight on the spindle, and that any circular tables are tightened before beginning to drill.
3. A sluggish drill is probably the result of incorrect grinding. Be sure the drills are sharpened properly for the particular material, so that the cut may be the right size.
4. Materials must be clamped or otherwise fastened to the drill press bed, not held in the hand.
5. Never run a drill faster than the rated speed as this may result in broken drills, damaged material and serious injury.
6. Never leave key in chuck after tightening the drill. If set screws protrude, report it to your supervisor.
7. Lower the spindle close to the table before removing the chuck, so that it may not cause any injury or damage to the material as it falls.
8. Reduce the pressure if there is any backlash in the spindle. Listen carefully for the distinctive noise made when the drill comes through work so that you can ease off the pressure.
9. Safety stop must be set to keep the over arm of a radial drill from swinging out where it may cause injury.
10. The wearing of gloves and loose clothing while operating a drill press is prohibited.
11. If the base of the drill press is designed so that it can be bolted to the floor it must be bolted to the floor.

Lathe Operations

1. Lathe tools should be ground so that the chips will break off instead of curl. Only lathe dogs equipped with safety set screws are to be used.
2. Make sure that all gear and belt guards are in place. This includes back gears and in gears, especially.

3. Whenever chuck or face plates are changed, they must be started on the spindle by hand power. Keep hands off chuck rims when lathe is in motion.
4. After adjusting a chuck, be sure to remove the chuck wrench immediately. See that the tailstock tool-holder and material are properly clamped before turning on power.
5. For external work, never set the lathe tools below the center of the work being turned.
6. Use a brush to remove chips. Do not use compressed air.
7. Wear only short sleeves when filing on a lathe. When near the chuck end or head stock, file with the right hand over the lathe stock instead of the left hand, holding file in such a position that in case it is forced back, the hand will not be forced against the body.
8. The operator's eyes must be protected with goggles at all times when the machine is in use.

Compressed Air

The use of compressed air for housekeeping purposes is prohibited. Brushes should be used for cleaning machinery. Only air nozzles with diffusers are allowed in shop areas. Regular air nozzles are permitted if air pressure is regulated to 30 psi. Tanks must be drained of moisture each day. Screw style hose clamps are not acceptable on hose lines. Use only hoses with proper fittings. Never point compressed air at any person.

Jack Hammers

1. Remove the piston or tool of an air hammer whenever it is not in use to avoid the danger of it flying out and striking someone.
2. Always close the valve on the air line and release the air from the hose before cleaning, repairing, trying to insert any tool, or leaving any air powered unit.
3. Maintain your hold securely on the handle of an air motor to prevent it from flying around and striking you.
4. Be sure to show that the discharge end is secure before turning compressed air into a hose so that it will not swing around and cause injury.
5. Hearing protection in the form of ear plugs or muffs is required. The use of safety goggles and steel toe shoes are also required.

Woodworking Machinery

1. Machine guards are to be permanently attached.
2. If you are running short or narrow stock, protect your fingers by using a block.
3. Before using a circular saw, check all materials for possible warping. If a concave edge is found, always place it away from the straight-edge guide of the table saw.
4. If the saw binds in a cut, the saw must be shut off before attempting to dislodge the lumber.
5. A rip saw must not be used for cross-cutting, and a cross-cut saw must not be used for ripping. A spreader and kickback fingers shall be required when using a rip saw. A spreader will be required when using a cross-cut saw.

6. Learn to stand out of the line of a possible “kickback” and to avoid the danger of being struck by the small pieces that are frequently thrown from a circular saw.
7. Never reach over any machine to get finished materials from the opposite side, to remove dust or wood particles from the saw table, or to oil the machine, while it is in operation.
8. When using a jointer, never allow either hand to pass over the knife. Use both hands, one on each side of the material, using particular care at the start and finish.

Gas Welding

1. All gas welding equipment and connections should be kept free from grease and oil (Oxygen will explode upon contact with oil or grease). Oily and greasy gloves may bring about the same effect, besides making it difficult to handle the cylinder.
2. Whenever opening or closing valves, open or close the fuel first, then open or close the oxygen.
3. Never roll tanks on the floor, nor attempt to carry them by hand or hoist unless properly slung. Use the skid provided when unloading cylinders from the truck. After unloading a tank, the cylinder must be securely chained.
4. Securely fasten with a chain or cage the acetylene and oxygen tanks in an upright position where there is no danger of their falling or being bumped.
5. Use only standard green oxygen hose with right-hand couplings, together with red acetylene hose with left-hand thread.
6. Blow out the tank valve before attaching the regulator. Never use compressed air for blowing out equipment, as air may contain some oil and moisture. Use oxygen to blow out the oxygen hose and acetylene to blow out the acetylene hose.
7. When changing empty tanks for full ones:
 - a. Shut off valve on empty tanks,
 - b. Release thumb screw on regulator.
 - c. Disconnect regulator, blow out tank valve and connect on full tank.
 - d. Stand on opposite side of tank, point the acetylene valve outlet away from the oxygen tank and face away from the gauge while opening the tank valve.
 - e. Adjust thumb screw on regulator to proper pressure, making sure that you do not have excess oxygen, which only causes unnecessary sparks in operation.
8. Be sure that the end of your torch is cleaned before attempting to light. Before igniting the flame at the torch ignite the gas first then introduce the oxygen slowly. Use only friction lighters.
9. Do not put the materials in such a position as to permit sparks, hot metal, or the severed section of metal to fall on the gas supply hose or the feet of any employee.
10. At the completion of the work, the welder must make a careful inspection of the job site to insure that hot articles have not been left smoldering which might later develop into a serious fire. Close the cylinder valves, remove the regulators and gauges and install the safety caps after each job.
11. Proper safety glasses or goggles and gloves must be worn. Employee must wear steel toe shoes.

Electric Arc Welding

1. Welding operations should be carried on such that the arc must be effectively screened to prevent eye injury to anyone present.
2. Before entering the welding area, and effective warning, such as shouting, must be given, so that the operator may be aware of your presence and help you to avoid a sudden flash or other injury.
3. Like the welding operator, the person entering the welding area is to also wear required eye protection.
4. The welding of galvanized material requires the operators to protect themselves with a specially designed airline respirator which fits under the operator's helmet.
5. Deposit short end of welding rods in the containers provided for that purposed to prevent burning holes in your shoes or starting fires.
6. When not in use, place the electric holder where it cannot cause an arc.
7. Prevent injury to yourself and to others from short circuits by only using welding cables that are in good condition.
8. Only properly authorized operators are permitted to use welding equipment. Never attempt to repair welding equipment yourself.
9. Helmets and shields will be used with all electrical welding. Do not remove your helmet while bending over a hot weld.

Tree Trimming and Chain Saw Safety

1. Before starting any tree operations, time should be taken to check the trees in the surrounding area for any dangerous conditions.
2. Except in cases of emergency, tree work should be avoided when trees are wet, during high winds, or extreme low temperatures.
3. Only physically fit employees should be allowed to work in trees.
4. Danger signs and barriers must be placed around areas where tree work is to be done.
5. Supervisors are responsible for: instruction to their employees, inspection of their employees and tools, enforcement of all safety rules, and wearing of suitable clothing as determined by the supervisor.
6. Ropes of a suitable strength should be used for lowering of large limbs.
7. Ropes must be used for raising and lowering of tools.
8. Safety or climbing ropes should not be used for lowering of limbs.
9. Ladders should not be used unless they can be set on a firm foundation.
10. Climbers should always call a warning before dropping limbs.
11. Never leave hangers or tools in a tree over the lunch period or overnight.
12. Special precaution should be taken when it is necessary to work around live wires.

13. All wires broken during tree work should be reported to the proper utility company and guarded until servicemen arrive.
14. In case of contact with live wires, do not touch the victim. The victim must be separated from wires by use of nonconductive materials, or the power must be disconnected.
15. For removal operations: pull ropes are used to guide the fall of large trees. Once notching has started, the street must not be left unattended.
16. Walk with the chain saw stopped and the guide bar pointing to the rear.
17. Always stand at the end of the saw when cutting, never at the side.
18. Avoid using the tip of the saw for cutting.
19. Never replace chain in guide rail groove while motor is running.
20. Clean and check saw thoroughly and lubricate daily as required. Maintain a proper tension on the chain. Always inspect the saw for sharpness, as a sharp saw will reduce maintenance cost, and result in faster, safer and easier cutting.
21. Refuel the saw before it runs out of gasoline to avoid a “bound saw” which is difficult to refuel and start; and to avoid the danger of fire when starting a saw at the refueling site.
22. Hard hats, goggles and proper personal protective equipment, including chaps, are mandatory and steel toe shoes must be worn.

Lawn Mowers

1. Power mowers will not be left unattended with motor running.
2. Prior to starting mower, inspect for loose engine parts or blades. Area to be mowed must be inspected for foreign objects. Wire, stones, etc., should be removed before mowing.
3. Bystanders should be warned by the operator of the danger of flying objects. Extreme caution must be taken when there are children in the immediate area.
4. Operator must keep hands and feet away from the undercarriage of the mower.
5. During maintenance repairs or when refueling, the spark plug wire must be disconnected from the spark plug.
6. After mowing is complete, disconnect spark plug wire from the spark plug; remove dirt, grass, etc., from the top of the mower; place mower in dry location under cover.
7. Operators of power mowers must wear steel toe shoes.

SECTION IX

LADDERS

Electrocution and free falls are the two most critical types of injuries on ladders. Other hazards include: splinters, slivers, and slips resulting in sprains, strains, bruises and abrasions.

The following safety procedures will prevent accidents and possible injury:

1. Metal ladders must not be used in the vicinity of electrical circuits. Use fiberglass ladders when working on overhead lighting or electrical fixtures, above dropped ceiling grids, or any other situation that might involve electricity.
2. Periodically inspect ladders. Wooden ladders shrink over a period of time. In a stepladder, this may cause steps or back bar members to become loose. Hold the rods beneath the steps with pliers and tighten the nut at the end with a wrench to maintain strength and steadiness.
3. Wooden ladders or scaffold planks should not be painted as defects may be covered by paint. Use a good grade of spar varnish or a mixture of linseed oil and turpentine to preserve the wood.
4. Nonskid feet must be used on all straight and extension ladders.
5. Straight ladders form a triangle when placed against the wall or objects for climbing. When properly placed, the bottom side of the triangle should be about one fourth as long as the vertical (i.e., if the ladder is leaned against a wall eight feet high, the feet should be set two feet from the wall).
6. When using a straight ladder, it should be long enough to extend at least three rungs above the level to which the user is climbing. Step ladders must not be used as straight ladders; they are not designed for this purpose.
7. If the bottom of a ladder is placed on an unsecured surface, secure the ladder in position by the use of hooks, ropes, spikes, cleats or other anti-slip devices or by stationing an employee at the base of the ladder to hold it in position during use.
8. Never stand on the top step of a ladder to work.
9. Only one person can be on a ladder at a time unless the ladder is designed to be used on both sides.
10. Never carry articles in hand while climbing. Use a hand line to raise and lower tools and materials, or suspend them suitably in a tool belt.
11. Always face a ladder when ascending or descending and have free use of both hands utilizing three points of contact.
12. Clean muddy or slippery shoes before climbing.
13. Keep rungs clean and free of grease and oil.
14. If it is necessary to place a ladder near a door or where there is potential traffic, set up warning signals or take other precautions to prevent accidental contact that might upset the ladder.
15. If any part of a ladder is visibly bent or broken, take it out of service and report it to your supervisor.

SECTION X

CONSTRUCTION SAFETY

ABOVE GROUND AND UNDERGROUND WORK

Public Works employees are often involved in tasks related to heavy construction. Heavy machinery is employed in Public Works projects to save time and labor, but potential hazards to inexperienced or untrained workers are multiplied in the process. The operators of construction machinery often do not have sufficient visibility to detect danger to nearby workers, or the ability to avoid an accident by quick reversal of controls. The machinery is designed to handle extremely heavy work and being struck by, or caught in or between such machinery and its load usually inflicts severe injuries.

The most immediate danger to workers lies in contact with electric service or rupture of gas service. Such accidents can be prevented by advance planning. Safety precautions must be a part of the Job Hazard Assessment. Overhead lines constitute a hazard that must be considered when operating machinery beneath them. Underground services constitute many hazards when damaged in a dig-up.

Some of the principle hazards affecting employees and/or public safety are:

1. Dig-ups resulting in gas explosions, electrocution, flash burns, etc.
2. Rupture of gas, water, sewer or communication facilities from using mechanical compaction, boring or digging equipment.
3. Electrocution resulting from contact with overheard electrical wires.
4. Fractures, contusions, crushes, etc., from being struck by or caught in materials and/or machinery.
5. Strains from lifting and materials handling tasks.
6. Eye injuries from dust and debris propelled by machinery and tools used in the operations.

Construction accidents can be prevented by constantly including consideration of necessary safety precautions in planning every job, coordinating with other utilities to locate services near the job site, instruction to workers about hazards involved as each job is explained to them, use of protective clothing and equipment, and adherence to approved safe job procedures.

The following safety procedures are established in a Job Hazard Assessment:

BEFORE WORK IS STARTED, the supervisor/lead person (etc) must:

1. Check plans to see what public utility services are located on or near the job site area.
2. Contact other public utilities having services in the job site area to secure assistance in locating and protecting all underground or overhead services that may be affected. **Call for Blue Stake – 1-800-782-5348 or 811.**
3. Make a personal inspection on the job site area to identify what signs, post markers, overhead electrical lines, etc., may be seen and inform the crew and anyone working in nearby or affected areas.
4. Obtain the service and repair telephone number of all utilities having services in the job site area so that an immediate report may be made to them if accidental contact is made.

NATURAL GAS SERVICE

1. Inform all crew members of locations and depths of buried pipelines.
2. Specifically instruct equipment operators to avoid contact with buried lines. Do hand digging when in close proximity to buried pipelines.
3. Be aware of proper compaction procedures when using mechanical compaction equipment after backfilling over buried pipelines.

If a Gas Pipeline is Damaged

1. Immediately call the **Unisource Energy Services** repair office to report the damage.
(877) 837-4968
2. Shut off all motors in the area.
3. Remove all flares or lanterns.
4. Enforce NO SMOKING in the area.
5. Do not cover up damaged pipeline.
6. Do not operate gas valves.
7. Check buildings in the immediate area for gas odors.
8. Request occupants to leave the area if gas odors are detected.
9. Re-route traffic from the immediate area and notify the Police Division and the Director of Public Works of the situation.
10. Stay near the area until relieved by Police or Gas Company personnel.

ELECTRICAL TRANSMISSION SERVICE

1. Contact Arizona Public Service (APS) if work is to be done near electric service and accurately locate any buried service.
2. **ALL** wires and conduit must be considered energized and dangerous.
3. If excavating beneath buried conduit or cables, arrangements must be worked out in advance with APS concerning maintenance of electrical services, proper support of exposed conduit, and suitable compaction of backfill.
4. If excavating near poles or guide wires and the possibility of damage to cables or collapse of a pole line exists, consult APS
5. Booms and protruding parts of construction machinery must not be operated closer than 10 feet from overhead electrical lines. When construction machinery is operated in close proximity to energized lines that a full traverse of the moving parts could result in contact, a crew member must be provided to direct the operator. Crew members in those circumstances must be especially watchful that movement of the machinery be no closer than the minimum 10 foot clearance prescribed above.

6. Workers on the ground handling suspended loads, slings, cables, etc., in contact with the machine are in the most hazardous position if contact with energized electrical lines occurs. Ground crews must be repeatedly warned of the hazard and especially watchful to prevent such contact.

If Machines Contact Energized Wires

1. Immediately contact the APS repair office (779-6911) or (800) 253-9407.
2. The operator should attempt to swing the boom clear.
3. Persons on the rig are usually safe, stay in the rig. **Only if absolutely necessary to leave the rig**, jump clear at least 3 feet from the rig without falling, being careful that no part of the body is in contact with the machine and the ground at the same time. Make sure that only one point of contact is made with the ground at any one time i.e. jump or hop with both feet together, until you clear the area. Do not just walk away from the rig, shuffle your feet until you are at least 10 feet away.

UNDERGROUND TELEPHONE/CABLE TV SERVICES

Underground telephone cable/cable TV service is generally buried with a minimum cover of 24 inches. Subsequent grading may have reduced this minimum. Pipe pushers, trenchers, boring tools, air hammers, pins for paving and curb forms, etc., should not be used until determining the depth and location of buried communication cables and conduit.

DIGGING AND TRENCHING OPERATIONS

1. Approved guards such as shoring, barricades, warning signals, or crew members assigned flagging duty must be in place when workers are engaged in any street excavation or street repair work. Warning devices must be placed a sufficient distance with due regard for visibility, speed, and volume of traffic. Open manholes must be properly guarded with approved warning devices.
2. A crew member must be posted on the surface to assist the machine operator. Crew members must station themselves where they can be seen by the operator, outside the range of movement or hazardous area from loads and warn the operator of the presence of others who may enter the area.
3. All tools, materials and equipment must be kept at a reasonable and safe distance from the edge of trenches, curbs or embankments.
4. Protective systems of trenches must commence at a depth of five feet. Earth banks more than five feet in depth, when not shored or braced, must be sloped to 1 ½:1 (Horizontal:Vertical). Excavation work must be under the supervision of someone with the necessary experience and authority to modify the shoring and method of excavating as necessary to insure safety (Competent Person). Excavations less than five feet must also be protected when hazardous ground movement may be expected.
5. If the texture of the earth being removed is unstable (sand, loose fill, etc.) warn all workers against working too close to the excavation before shoring is installed. All soil classifications are assumed to be Type C soils.
6. Hard hats must be worn at all times by workers in or around excavations, trenches, tunnels, sewers, or other sub-surface operations.
7. When chains, ropes, cables, slings, etc., are placed under tension, warn workers and observers to stay beyond the range of whipping strands if they should part from the tension.

OVERHEAD CRANES

1. Read and understand operator's manual and follow all safety requirements.
2. Know the load capacity of your crane.
3. Never exceed the manufacturer's load ratings.
4. Visually inspect equipment.
5. Check hydraulic fluids regularly.
6. Check cables for kinking or fraying.
7. Lift loads at proper lifting points.
8. Use lifting cable or straps.
9. Control loads at all times using hand line to prevent excessive motion.
10. Stand clear of loads at all times.
11. Keep clear of all moving parts.
12. Know and understand crane signals.
13. Use only one signal person.
14. Never operate crane unless outrigger is placed and properly support the equipment.
15. Work well away from power lines (at least 10 feet).
16. Before working near power lines contact the utility company.
17. Overhead cranes are made to pick up or drop loads, never drag loads.
18. Death or serious injury can occur if safety procedures are not followed.

OVERHEAD AUTO LIFTS

1. Read and understand operator's manual and follow all safety requirements.
2. Visually inspect equipment.
3. Check hydraulic lines; check cables for kinking or fraying.
4. Check chains for wear.
5. Regularly check fluid levels.
6. Before operating, check safety catches.
7. Before raising completely make sure vehicle is mounted on lift safely.
8. If dual hoist is used, raise vehicle evenly.

DUMPBEDS AND OUTRIGGERS

1. Never work under dumpbeds when engine is running. Follow lock out/tag out procedures.
2. Always block or support bed or outrigger when working on or under bed.
3. Use proper blocks for support; check operator's manual.

AERIAL PLATFORMS AND BASKETS

This equipment is used by traffic signal technicians, tree trimmers and in various maintenance tasks.

The hazards involved are:

1. Contact with electrically charged overhead wires.
2. Falls.
3. Dropping tools and other objects upon workers below.
4. Being caught in, on, or between equipment parts.

Falls can be prevented by use of adequate and appropriate safety equipment. A raised platform or basket becomes a highly unstable support if jarred by a collision with the base vehicle, jerky operation, or failure of mechanical controls. Prevention of falls is achieved by using a fall protection lanyard or safety line, if it is secured to the employee and to the boom or platform.

The equipment used by City crews has controls located in various parts of the basic machine to operate the outriggers, booms, power take-off, etc. There is little standardization, even on equipment of the same general type. The operator who activates such controls should make sure that all persons in the vicinity of this equipment are clear of any moving part before power is applied. The supervisor or employee in charge of the crew is responsible for insuring that this precaution is taken and that appropriate warning is given. Under no circumstances should employees or the public be permitted to walk underneath booms, platforms, or suspended loads.

The following safety procedures are established:

1. Read and understand operator's manual and follow all safety requirements.
2. Always lower outriggers before raising the basket. (Most equipment now in use is equipped with an interlock which prevents raising the basket until the outriggers are down).
3. Give verbal warning to persons near the vehicle when lowering outriggers if an automatic audible signal is not available.
4. When working aloft in aerial baskets or platforms, a hardhat and a fall protection lanyard or safety line must be worn by the employee.

WORKING IN PUBLIC RIGHTS OF WAY

Maintenance activities may include street painting, street sweeper operation, traffic signal repair, etc. They may interfere with normal right of way. The feature of simultaneous flashing of all turn signal lights augmented by the mars light should be used as a warning device. For minor construction or maintenance operations requiring 15 minutes or less, the work vehicle itself with high visibility color or reflective markings mounted on the vehicle and warning lights described above, will usually be adequate.

When maintenance or construction activities exceed 15 minutes duration, adequate signs and barricades must be set up.

The following safety procedures are established:

1. No City street can be completely closed for utilities repair work without adequate notice to the Police and Fire Divisions through the Dispatch Center.
2. When City work crews must perform emergency repair work in a posted traffic lane during peak traffic periods (6:00 a.m. to 9:00 a.m., 11:00 a.m. to 1:00 p.m., and 3:00 p.m. to 6:00 p.m.), the Public Information Officer should be notified as to location, time work started, and estimated time of completion so as to issue a Public Service Announcement.
3. If an open cut is left in a posted traffic lane when work is stopped or suspended for any reason, a steel plate cover of sufficient strength to sustain normal traffic loads should be placed over the cut and anchored, or A.B.C. material will be placed in the cut and compacted to the proper density. If a cut cannot be covered and must be left overnight, signs and barricades must be left in place in accordance to the Manual of Uniform Traffic Control Devices (MUTCD), adequate lighting shall be provided, and the Street Superintendent consulted.
4. All mobile equipment used for maintenance and repair work in City streets must be equipped with a mars light.
5. When a portion of a street has been closed for maintenance and repair work and construction equipment must be intermittently operated in lanes left open to traffic, a trained flagger (refer to Flagger Handbook) must be provided to control traffic.
6. Any obstruction of a public right-of-way by City work crews for maintenance and repair work exceeding 15 minutes duration must be signed and barricaded according to the Manual of Uniform Traffic Control Devices (MUTCD).
7. Every attempt should be made to work in front of your vehicle to buffer traffic from the rear.

TRAFFIC WARNINGS

1. Protection of hazards such as large holes, soft patches, etc:
 - a. Place signs in advance of hazard.
 - b. Protect holes and patches with barricades at the hazard.
 - c. Where flags are used to mark a hazard, they must be replaced by signs as soon as possible.
2. Removal of temporary construction signs:
 - a. Signs placed solely for the protection of workers must be removed at the end of the day's work.
 - b. Signs to warn of temporary hazards (bump, one-way traffic, etc.) must be removed as soon as the hazard has been eliminated.
3. Protection of employees working on roadway:
 - a. Warning signs must be placed in advance of the work in both directions during crack-filling operations.
 - b. Work must be done on only one-half of the roadway at a time when patching and/or filling cracks, etc.
 - c. Trained flaggers (refer to Flagger Handbook) must be used when the amount or speed of traffic warrants.
 - d. All employees working in the right-of-way must wear safety vests.
4. Members of the flag crew should:
 - a. Stand near enough to the employees being protected so there is no doubt as to the flag crew's purpose.
 - b. Stay not less than 100 feet from the employees unless conditions make this impossible.
 - c. Stand on the shoulder, to the right of approaching traffic.
5. To stop traffic:
 - a. Hold sign stationary, extended into the traffic lane, until the car has stopped.
 - b. Speak to the driver if necessary and give the signal to proceed with the free hand.
6. To slow traffic:
 - a. Hold sign stationary, extended into the traffic lane, until the vehicle has slowed sufficiently.
 - b. Lower sign and give signal to proceed with free hand.
7. Flagging traffic at night:
 - a. Use a bright red lantern or fuses.
 - b. To stop traffic, wave the light back and forth until the vehicle has stopped.
 - c. Give the signal to proceed with your free hand or by speaking to the driver.

SECTION XI

MOTOR VEHICLE AND HEAVY EQUIPMENT

City vehicles are easily identified as such and thus constitute a traveling advertisement seen by many citizens. They have what advertising employees call “high exposure”. In our relationship with other motorists and pedestrians while operating City vehicles, we control and important influence for good or poor public relations with the City. By courteous, considerate driving habits we build good public relations, and by applying the principles of defensive driving we avoid accidents. The following safety procedures are established:

1. All employees shall be responsible for a safety check **EACH DAY** for any vehicle or mobile equipment they are assigned to drive. A City of Flagstaff Driver’s Vehicle Safety Check is to be done each day by each operator using the equipment. The Safety Check is required for all vehicles.

General Preventative Maintenance Checklist for light duty vehicles up to 1 ½ tons

A. Walk Around Inspection

1. Check tire air pressure and condition.
2. Check engine fluid levels (oil, coolant, transmission and windshield washer fluid), check for leaks.
3. Check mirrors, glass and windshield wipers.
4. Check seat belts.
5. Check lights and back up alarm, if equipped.
6. Check for any body damage (report damage to supervisor).

Report any noted items to supervisor or Fleet Services for repairs.

General Preventative Maintenance Checklist for Heavy Equipment

A. Walk Around Inspection

1. All walk around inspections must be done at the start and end of each shift according to the operator’s manual.
2. Check directional signals, mars light.
3. Check all wheels, including rims, oil seals and lugs, tire inflation, tire condition and tread depth and mud flaps.
4. Check battery box cover and fuel tank.
5. Check mirrors, doors and windshield.
6. Check integrity of all lines, hoses, and pipes (exhaust pipes and muffler) for leaks and attachments.
7. Check front and rear suspension including springs, spring mounts, shock absorbers and torsion bar.
8. Each brake should be checked for proper slack adjustment, chamber, hose and drum condition.
IMPORTANT: Vehicle tires must be chocked in BOTH directions before going underneath of it!
9. Check steering box and linkage.
10. Under the vehicle check the drive shaft, exhaust system and frame.
11. Check hydraulic reading.
12. If using a combination vehicle, inspect the coupling system; release arm, kingpin and apron. On the 5th wheel, inspect the locking pins, lights and reflectors along with the air/electric connections.
13. Drain air tanks daily to remove moisture and oil. Otherwise the brakes could fail.

B. Under the Hood

1. Check oil and coolant levels.
2. Check automatic transmission and power steering fluid while engine is warm.
3. Check integrity of all lines, hoses and fittings (including exhaust system).
4. Check water pump, alternator and air compressor belts.
5. Look for any leaks.

- C. Inside the Cab
1. Check indicators and gauges (air and oil pressure).
 2. Check fire extinguisher, first aid kit, and 3 reflective triangles.
 3. Check seat belts.
 4. Check back-up alarm and horn.
 5. Be sure inside is clear of litter.
 6. Check fuel gauge.
 7. Perform 7-step air brake inspection if equipped with air brakes.
- D. Position all adjustments for safe driving before putting the vehicle into gear, i.e., the seat, seat belt, inside and outside mirrors. If service is needed, report it to the Vehicle Shop.
- E. Lock Out Tag Out Procedure
Red, yellow, and green tags are to be used for identifying the current status of vehicles.
1. Red tags are to show that the equipment is out of service and should not be operated, this tag needs to be zip tied to the steering wheel or to an area that will prevent starting.
 2. Yellow tags need to be attached to equipment that is not properly operating but can be operated if deemed necessary, please include name, date, time, and brief description of problem on tag.
 3. Green tags will be issued by Fleet Services after repairs are completed.
- F. Drivers of City vehicles with a gross combined weight rating of 26,001 or more pounds must possess an Arizona Commercial Drivers License (CDL) along with the proper endorsements and they must be thoroughly familiar with the state and local regulations governing motor vehicle operation. It is the driver's responsibility to maintain their Commercial Driver's License by making and keeping necessary appointments for renewal tests and medical certificates. CDL drivers are required by law to inform the City of Flagstaff whenever the status of their driver's license changes for any reason (suspension, revocation, medical or expiration) and to notify the City of Flagstaff of any traffic convictions. Failure to do so is a criminal offense. The fact that employees may operate an emergency vehicle does not absolve them from civil or criminal liability for the consequences of wantonly reckless driving. The driver must be in a position to satisfy a jury that they used reasonable care and prudence in operating emergency vehicles. Even though emergency equipment has warning devices, the driver is expected to **PROCEED WITH CAUTION**.
- G. Load Security:
1. Supplies transported in motor vehicles must be secured in such a manner that they will not be dislodged or fall out or forward during transit or sudden stops. Loads must be secured with a minimum of two tie downs.
 2. Loader operators will not overload any equipment.
 3. All tower equipment (ladder trucks, aerial buckets, etc.) will be checked and secured prior to the movement of the vehicle.
- H. Never take drugs or strong medication before operating a vehicle. Remember that drugs, illness, or extreme fatigue may affect your ability to judge distances, speed and driving conditions. Make sure to notify your supervisor of any prescription drugs that you are taking that could impair your driving.
- I. All persons who drive or ride in City vehicles must, in all cases, wear the installed seat belts.
- J. Not more than three persons are permitted to ride in the front seat of any vehicle. Persons must not be transported in any vehicle unless safe and secure seating is provided for each such person.

K. Parking Vehicles

1. Except when working conditions require otherwise, parked vehicles must have motor stopped, emergency brakes set, transmission in park or low gear, and ignition keys removed and in the possession of the driver. Please refer to the City's Anti-Idling Policy for further details.
2. Vehicles will not be parked on the wrong side of the street facing traffic except in case of emergency.
3. When trucks or vehicles must be stopped on streets or highways, adequate warning signals must be used and also a trained flagger (refer to Flagger Handbook) if traffic warrants.
4. Before leaving the curb, look to see that no cars are approaching from either direction, and signal your intention. Best practice is to make a quick 360 degrees walk around of the vehicle to check for hazards before moving the vehicle.

L. When backing up a vehicle, be sure the way is clear. Get out of the vehicle when necessary and inspect the area to be backed into. Back up slowly. Sound horn while backing when necessary. If there is another employee available, the other employee should get out and spot. If at all possible, plan work so that vehicle backing is not necessary.

M. Drivers must be particularly alert while driving near children. Children must be kept from playing in or around City owned vehicles. While working in areas such as parks, playgrounds, swimming pools, or community centers, drivers will be especially watchful for children and will drive carefully and slowly at all times.

N. Stay within posted speed limits. Slow down when conditions warrant. The speed limit within all Public Works Facilities is 5 M.P.H. unless otherwise posted.

O. Do not assume the right-of-way. The driver who has the last chance to avoid an accident may be the driver with legal responsibility. **DON'T BE PUSHY; YIELD OR STOP.**

P. When approaching a four way stop or intersection, make your intentions clear if there are other vehicles in the intersection. Use turn indicators.

Q. Keep a distance behind other vehicles so as to avoid tailgating. Do not allow others to tailgate. Slow down, pull over to the side, let the tailgater pass.

R. Filling Tanks:

1. Shut off the motor of the equipment.
2. Stay in contact with the vehicle or touch a metal part of the vehicle away from the filler neck with your hand to discharge any static.
3. Do not smoke near fuel pumps.
4. Keep the hose nozzle against the edge of the filler pipe.
5. To avoid spills, do not fill tank too fast or too full.
6. Stay at pump/vehicle while fueling.

TANK VEHICLES

Hauling liquid in tanks requires special skills because of the high center of gravity and liquid surge. Tests have shown that tankers can turn over at the speed limits posted for curves.

A. General Instructions and Warnings:

1. Take highway curves or on/off ramp curves well below posted speeds.
2. Baffled liquid tanks have bulkheads in them with holes that let liquids flow through. Baffles help control the forward and backward liquid surge. However, side to side surge can still occur which can cause a roll-over. Use extreme caution in making sharp turns with a partially or fully loaded tanker.
3. Unbaffled liquid tankers or “smooth bore” tankers have nothing inside to slow down the liquid surge. Be extremely cautious especially when starting, stopping, or turning.
4. Never load a cargo tank totally full because liquids expand as they warm. Some liquids also expand as altitude increases. The amount to load depends on the amount the liquid will expand in transit, the weight of the liquid and the legal weight limits. Recognize overloads and poorly balanced weight.
5. Empty tank trucks take longer to stop than loaded trucks.
6. Operation of a tank vehicle having a capacity of 1000 gallons or more requires a “N” Tanker Endorsement on a Commercial Drivers License.
7. Operation of a tank vehicle containing hazardous/flammable liquid a “X” Hazmat Endorsement on a Commercial Drivers License is required.

SECTION XII

VEHICLE ACCIDENT PROCEDURE

In the event of an accident involving City-owned vehicles, the following procedure will be followed:

A. **DO:**

1. Stop immediately and administer first aid if necessary in the event of personal injuries to another party. It is your legal duty to see that the injured party receives first aid. This is not an admission of liability.
2. Report ALL accidents to the Flagstaff Police Division immediately and to your supervisor as soon as possible. Get full information to assist the police in completing the accident report. Report carefully the position of the respective vehicles, the location and length of any skid marks, the distance traveled by each vehicle after the accident and any unusual conditions of the roadway, the vicinity or the respective vehicles involved. These are all important in placing responsibility for the accident.
3. Obtain the name, address, age, and telephone numbers of ALL witnesses, including occupants of the other car. If a name or address is refused or cannot be obtained, get the house number if they live nearby, and license number of their car.
4. Obtain an accident report form from your Supervisor, the Human Resources office, or online, complete it, and return it in person to your supervisor, acting supervisor, section head or Division head immediately after the Flagstaff Police Division and/or your physician has released you.

B. **DO NOT:**

1. Make admission as to your negligence or fault for ANY accident, and under no circumstances assume any liability or authorize any repairs on the other party's vehicle. Such acts violate the provisions of our insurance policy. Refer all claimants to the Risk Manager's office; if you are liable, their claim will be promptly taken care of.
2. Take part in any altercation or argument with the other party. You cannot win an argument of this kind, and it only makes it more difficult for the insurance adjuster who has to take up the accident where you leave off.
3. Sign any statement or discuss the accident with an adjuster of any other insurance company, or any attorney or representative of the injured or damaged party.

SECTION XIII

SNOW REMOVAL OPERATIONS

Due to increased hazards during snow removal work, this section is directed at the safe operation of equipment that is assigned to permanent and temporary employees. This includes all safety precautions, warning and operating instructions as suggested by the manufacturer of the equipment. Please report any unsafe conditions to the immediate supervisor prior to use as well as after the shift.

1. All plow trucks should be equipped with clearance indicators on the plows.
2. When necessary to clear or clean truck beds or cinder boxes, only use the ladders provided.
3. Always disengage P.T.O. when working on augers. Follow lock out/tag out procedures.
4. When installing cinder boxes, be sure they are chained to the front of the truck bed.
5. All truck beds should be waxed prior to pick-up operations. Be sure the truck is level before raising bed to dump. Recognize overloads and poorly balanced weight.
6. Mud flaps need to be hooked up out of the way when dumping snow.
7. When using a loader to pick up snow, utilize appropriate traffic control. When necessary, call for traffic control on ice-packed hills before cindering.
8. All P.T.O valves should be checked prior to work shift indicating the position of the valve which operates the truck bed or cinder unit.
9. With blade wing in roading position, do not force internal mast cylinder down.
10. Always connect safety cable or chain to wing when not in use.
11. Use extreme caution if it becomes necessary to articulate blades when wings are mounted.
12. If two blades are being used when cutting ice the rear blade should stay at least one blade length behind the front blade.
13. The mandatory use of seat belts must be observed at all times during snow removal.

SECTION XIV

FIRST AID

While emphasis is placed on the prevention of accidents and the injuries which often result, accidents do occur. Prompt, knowledgeable treatment of wounds or other physical results of accidents will, in many cases, prevent minor injuries from becoming major ones, and sometimes save lives.

The following first aid rules are established:

1. First aid cabinets or kits must be maintained in Public Works buildings. First aid kits shall be carried in all Public Works vehicles.
2. Supervisors or designee are to check first aid supplies on a periodic basis. The supplies must be those specified by the City Purchasing Director. Minimum amounts of each item must be maintained.
3. Cuts, scratches, etc., should be given prompt medical attention. Always be sure that open wounds are thoroughly cleansed with soap and water to prevent infection. Direct pressure is the best way to stop most bleeding injuries.
4. There are many cases in which an injured employee, when needing professional medical attention, can be transported to the hospital by City car or private ambulance. There may be serious cases, however, in which it is important that the injured employee be seen by Paramedics. If there is any doubt in the mind of the supervisor or leadman in charge, it should be resolved by calling for Paramedic service. As an example, the following conditions would definitely indicate Paramedic service:
 - a. Employee unconscious or apparently in shock.
 - b. Any apparent open or angulated fracture.
 - c. Any uncontrolled bleeding or large blood loss.
 - d. Severe abdominal cramps and/or vomiting.
 - e. Other symptoms of internal injury.
5. To obtain Paramedic service, radio the office or call the Emergency number, 911.
6. All injuries, no matter how minor, are to be reported to Risk Management. Injury report forms are available in the supervisor's office or the administrative office and on the City Intranet page.

SECTION XV

MATERIAL SAFETY DATA SHEET

(M.S.D.S. LABELING SYSTEM)

All Divisions are responsible for communicating the chemical and physical dangers, safety procedures and emergency response techniques to their personnel. In 1983 OSHA introduced its Federal Hazard Communications Standard, 29 CFR 1910.1200, referred to as HAZCOM. The Occupational Safety and Health Administration oversees this program, and the law guarantees the right of access to information concerning hazardous chemicals in the workplace. The Federal Hazard Communication Standard, HAZCOM, establishes requirements in the following five areas:

1. Determination of the chemical hazards found in a workplace (inventory)
2. Labeling chemicals that are hazardous (discussed in the Housekeeping section)
3. Maintaining Material Safety Data Sheets (MSDS)
4. Providing a written hazardous chemical training program
5. Employee information and training

A determination of the chemical hazards found in the workplace is also an inventory. Inventories consist of a detailed list of all chemicals in a facility along with proper identification, the associated hazards and manufacturer. Once an inventory is complete, facilities can then compile and maintain an MSDS binder.

An MSDS for all chemicals must be available in the Right-to-Know area for every workplace. The MSDSs must be readily accessible and free from barriers at all times. MSDSs serve as the primary communications link between chemical manufacturers and chemical users or handlers. The objective of a Material Safety Data Sheet is to communicate the hazards associated with the chemicals or compounds that may be anticipated when handling, using, or encountering that chemical or compound in an emergency situation. Chemical manufacturers, importers, and distributors of chemicals and compounds are required to provide a Material Safety Data Sheet upon delivery of a chemical or compound. MSDSs must be updated on an annual basis.

MSDS contains information that is needed for handling, using, or encountering chemicals or compounds to determine the likely harm, potential hazards and risks involving those chemicals. An MSDS contains information that identifies four factors affecting hazardous substances behavior. Those four factors are:

1. Inherent properties and quantity of the hazardous material
2. Built-in characteristics of the container
3. Natural laws of physics and chemistry
4. Environment, including the physical surroundings and the conditions

Material Safety Data Sheets

The following lists information required on a standard Material Safety Data Sheet:

Note: No section on the Material Safety Data Sheet may be left blank!

Section 1. Chemical product and company identification

Links the MSDS to the material. Identifies the supplier of the product. Identifies a source for more information-Required by OSHA. It is important that you have the MSDS for the manufacturer and the product you are handling.

- Manufacturer's Name and Address
 - Product Identification: Chemical name, chemical family, trade name, formula
 - Emergency Contact Information
-

Section 2. Composition/information on ingredients

Lists the OSHA hazardous components. May also list significant non-hazardous components. May also include additional information about components (e.g., exposure guidelines).

- The approximate percent of the substance compared to total weight for Pigments, Catalysts, Vehicle, Solvents, Additives, Others
 - Chemical Name and Synonyms:
 - For example, propanol is the same as propyl alcohol or acetone is the same as 2-propanone and car is the same as automobile.
 - Chemical Family:
 - The chemical family is a broad category which simply groups chemicals. Fore example, alcohol is a chemical family for propanol, methanol and isopropyl alcohol, much like cats include a tabby.
 - Trade Name:
 - Similar to (a) but using manufacturers name, i.e. Freon, Photo resist
 - Formula:
 - A chemical formula, for example-Hydrochloric Acid is HCL and Sulfuric Acid is H₂SO₄

Comment: If it has hazardous materials in it, they must be listed.

Section 3. Hazards identification, including emergency overview

May provide emergency overview. Provides information on the potential adverse human health effects and symptoms that might result from reasonably foreseeable use and misuse of the material.

- Boiling Point
 - The temperature at which vapor pressure of a liquid equals atmospheric pressure. At this temperature, vapor produced results in the bubble formation. Water boils at 100 ° C
- Vapor Pressure (mm Hg)
 - The higher VP, the chemical will boil at a lower temperature
- Vapor Density
 - The density of vapor. Density being the mass of substance per unit volume. With air being equal to 1, substances greater than 1 would be heavier than air.
- Solubility in Water
 - Ability of a substance to dissolve in water
- Specific gravity
 - (water=1 at 4° C), therefore a substance >1 will sink

- Percent Volatile by volume
 - The % of a liquid or solid by volume that will evaporate at a temperature of 70 ° F. Alcohols and gasoline are 100%, epoxies are usually 0%
 - Evaporation Rate
 - The rate at which a particular material will vaporize when compared to the rate of a known material, usually butyl acetate
 - Appearance and odor
-

Section 4. First aid measures

Provides instructions to be taken if accidental exposure requires immediate treatment. May also include instructions to medical professionals.

- Threshold Limit Value (TLV)
 - Standards established for airborne concentrations of chemical compounds; usually a time weighted average concentration for a normal 8-hour or 40-hour workweek, without adverse effects.
- Effects of Overexposure
 - Health effects for exposure over the established TLV
- Emergency and first aid procedures

Comment: Includes instructions to medical professionals. Doctors won't know about the hazards of ingesting "*****'s paint remover". Instructions should be short and to the point, e.g.: "Supportive measures only", "Activated charcoal recommended for all ingestions", "Induce vomiting for ingestions greater than 1 ml", "Caustic solution. Irrigate eyes with 1L saline and repeat until pain free", etc.

Section 5. Fire fighting measures

Provides basic fire fighting guidance, including appropriate extinguishing media. Describes other fire and explosive properties useful for avoiding and fighting fires involving the material, such as flash point or explosive limits.

- Flash point
 - The lowest temperature at which vapors above a volatile substance ignite in air when exposed to a flame
 - Flammable limit: LEL and UEL
 - The range of concentrations over which a flammable vapor mixed with proper proportions of air will flash or explode if an ignition source is present
 - LEL-Lower explosive limit: lowest % of chemical vapor in air that produces an explosive mixture
 - UEL-Upper explosive limit: highest % of chemical vapor in air that produces an explosive mixture
 - Extinguishing Media
 - Will be listed such as water, foam or dry chemical, etc.
 - Fire Fighting procedures
 - Special procedures and precautions for a burning material
 - Unusual fire and explosion hazards
 - Lists the hazards that may occur as a result of overheating or burning of a substance
-

Section 6. Accidental release measures

Describes actions to be taken to minimize the adverse effects of an accidental spill, leak, or release of the material.

- Steps for accidental release of spill
 - Waste disposal method
-

Section 7. Handling and storage

Provides information on appropriate practices for safe handling and storage.

Section 8. Exposure controls/personal protection

Provides information on practices and/or equipment that are useful in minimizing worker exposure. May also include exposure guidelines. Provides guidance on personal protective equipment.

- Respiratory Protection
 - Ventilation
 - *Good examples:*
 - “When spraying this paint outside in open areas wear a dust mask.”
 - “...indoors in well ventilated areas wear a respirator with organic vapor cartridge.”
 - “...in poorly ventilated areas you must wear a supplied air respirator.”
 - *Useless example:*
 - “Wear a NIOSH/OSHA approved respirator if TLV is exceeded.”
 - Protective Gloves
 - Eye Protection
 - Other Protective Equipment
-

Section 9. Physical and chemical properties

Provides additional data that can be used to help characterize the material and design safe work practices.

Section 10. Stability and reactivity

Describes the conditions to be avoided or other materials that may cause a reaction that would change the intrinsic stability of the material.

- Stability
 - The resistance of the material to chemical and physical change
- Conditions to avoid
 - Environmental conditions such as humidity, high heat, sunlight...
- Incompatibility
 - Materials to avoid such as acids or bases
- Hazardous decomposition products
 - Material that may be produced from long storage, burning, oxidation, excessive heat or allowed to react with other chemicals
- Hazardous polymerization
 - Polymerization occurs if the chemical combines to form another compound
 - Conditions that could trigger a hazardous polymerization

Comment: Should be specific: (e.g. If hazardous polymerization may occur, you must give the specific situations in which it is likely.)

Section 11. Toxicological information

May be used to provide background toxicological information on the material, its compounds, or both.

Section 12. Ecological information

May be used to provide information on the effects the material may have on plants or animals and on the material's environmental fate.

Section 13. Disposal considerations

May provide information that is useful in determining appropriate disposal measures.

- *Good example:*
 - "Waste latex wall paint may be allowed to dry and disposed of as a non-hazardous solid waste."
 - *Better example:*
 - "Waste oil should be returned to a permitted recycler."
 - *Useless example*
 - "Dispose of in a manner consistent with federal, state, and local regulations."
-

Section 14. Transport information

May provide basic shipping classification information.

Comment: If any specific transportation label is required, it is stated here. For bulk chemicals include the UN number or "May be shipped normally as a non-hazardous material".

Section 15. Regulatory information

May be used to provide any additional information on regulations affecting the material.

Section 16. Other information

May be used to provide any additional information.

SECTION XVI

SAFETY DECLARATION CONCLUSION

We consider safety of personnel to be of first importance and ask the full cooperation of the Public Works Division and Sections in making this policy effective. Our employees are our most important asset – their safety is our greatest responsibility.

Environmental Services Director

Risk Management Manager

Sustainability and Environmental Management Manager

Human Resources Director

Public Works Director

Deputy City Manager

City of Flagstaff Public Works

EMPLOYEE:

I have read and understand the Public Works Safety Manual and will follow the rules and guidelines it contains.

Date _____ Division _____

Employee name (print) _____

Employee signature _____

SUPERVISOR:

I have instructed the above employee in the safe working practices for:

(Describe job, operation, activity)

Supervisor's name (print) _____

Supervisor's signature _____ Date _____

When completed, this form must be removed from the Safety Manual and sent to Public Works Administration to be placed in the employee's file.