Incident Management Assistance Patrol

Field Training Guide

for IMAP Responders

2022 Edition

North Carolina
Department of Transportation

Introduction:

Welcome to the 2022 Edition of the Incident Management Assistance Patrol (IMAP) Field Training Manual for IMAP Responders. This manual is one of the official training documents of the North Carolina Department of Transportation's IMAP Responders Training Program. The Field Training Manual (FTM) was designed for IMAP responders to use as a reference when participating in IMAP training.

The concepts and guidelines presented within this document were developed in collaboration with IMAP personnel from all regions of North Carolina. This manual is intended to provide standard, critical knowledge but should not be used as a substitute for training. Guidance from knowledgeable & experienced instructors is essential to assuring that all IMAP drivers are properly trained.

Contributors:

The North Carolina Department of Transportation (NCDOT) would like to recognize the following, whose input and involvement have made the IMAP Field Training Manual possible;

- IMAP Supervisors
- IMAP Responders
- Division Traffic Engineers
- Regional ITS Engineers
- Incident Management Engineers
- Regional TIM Coordinators
- Master IMAP Trainer
- Assistant IMAP Trainer
- Statewide (Traffic Systems Operations)
- Statewide TIM Coordinator
- Mobility and Safety Group

Feedback:

Please send all questions or feedback related to this document to NCDOT Statewide Traffic Incident Management (TIM) Coordinator.

Ordering Printed IMAP Training Materials:

If you would like to order hard copies of the IMAP Field Training Manual or other IMAP training materials, please submit your requests to NCDOT Printing Services by phone or email.

Phone: 919-707-2888

Email: dot.printingservices@ncdot.gov

Cost and time to receive printed materials are subject to change. Please inquire at time of order.

In Service Training:

All IMAP personnel must renew their certification every two-years after their first full year of service. IMAP personnel will be required to complete four (4) modules of mandatory training biennially (every 2 years).

Rehire Process:

Former IMAP personnel, who resigns from the Department and wishes to re-apply for employment, may re-apply at any time provided the member is otherwise qualified for employment as set forth in state personnel hiring guidelines, including successful re-completion of the IMAP Driver Training Course.

Former member separated for less than one (1) calendar year may reapply for employment with the NCDOT as an IMAP personnel provided the former member:

- Was assigned and worked as an IMAP personnel immediately prior to separation from the Department
- Had received and passed IMAP Training, IMAP Responder Assessment conducted by the Statewide IMAP trainer and had a current IMAP certification
- Member will ride with a Regional IMAP Field Training Driver (FTD) for one (1) week [5 calendar days] prior to being released for solo patrol
- Member may be subject to participate in and successfully complete a pre-assessment ride-along with a Regional IMAP Supervisor as well as successfully complete an assessment conducted by the Statewide IMAP Trainer
- Submit an application for re-employment with the Department and is actively employed within 12 months of date of separation

Former member separated for at least one (1) calendar year, but less than two (2) years may reapply for employment with the NCDOT as an IMAP personnel provided the former member:

- Was assigned and worked as an IMAP personnel immediately prior to separation from the Department
- Had received and passed IMAP Training, IMAP Responder Assessment conducted by the Statewide IMAP trainer and had a current IMAP certification
- Member will be required to participate and successfully complete In Service Training for recertification within two (2) years
- Member will be required to successfully complete two (2) weeks [10 calendar days] competency/refresher training conducted by the Statewide IMAP Trainer
- Member will ride with a Regional IMAP field Training Officer (FTO) for two (2) weeks [10 calendar days] prior to being released for solo patrol
- Member will be required to participate in and successfully complete a pre-assessment ride-along with a Regional IMAP Supervisor as well as successfully complete an assessment conducted by the Statewide IMAP Trainer
- Submit an application for re-employment with the Department and is actively employed within 24 months of date of separation

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Learn about the general rules, guidelines and expectations for the safe and ethical conduct of all IMAP responders.

Objectives:

- Become familiar IMAP's mission statement and understand the role of IMAP responders as public servants
- Learn about elements of the NCDOT Ethics Policy and expectations of professional and ethical conduct for all IMAP responders
- Learn about elements of the NCDOT Workplace Safety Manual and understand the necessity for all IMAP responders to perform their duties safely
- Review responder's commitment to the IMAP Code of Conduct Agreement

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- NCDOT Ethics Policy
- NCDOT Workplace Safety Manual

IMAP Mission through Dedicated Public Service:

Objective: Become familiar with IMAP's mission statement and understand the role of IMAP responders as public servants

Critical Knowledge:

IMAP Mission Statement:
"To manage incidents and congestion by utilizing all available means to communicate, coordinate, and cooperate with other agencies, the media, and the public, thereby improving **highway safety**, maintaining **traffic flow**, and thus saving lives, time, and money."

Public Service: IMAP responders are public servants which means;

- Public interest comes before a responder's own self-interest
- IMAP exists to improve conditions for members of the general public
- All IMAP services are free of charge

Representing NCDOT & IMAP: IMAP responders are not only public servants, they are representatives of the NCDOT and of the IMAP program overall

- Responders interact with partners & the traveling public every day
- A single responder's appearance, behavior, and actions directly impact the credibility, value, and overall perception of the Department and IMAP
- It is up to all IMAP responders to take pride in themselves and in the services they provide
- Responder's should hold themselves and their team to higher standards of conduct and performance
- **Without dedicated public servants, IMAP cannot truly achieve its mission**

Professional Conduct of IMAP Responders: All responders are expected to;

- Represent the NCDOT and IMAP program in a positive manner
- Take initiative and perform all duties to the fullest extent of their abilities
- Treat other responders, supervisors & TMC operators with courtesy & respect
- Actively assist other responders and seek their help when needed
- Be prompt & on-time for all shifts as scheduled
- Be polite, courteous and helpful to the general public and all partners

Ethical Conduct of IMAP Responders:

Objective: Learn about elements of the NCDOT Ethics Policy and expectations of ethical conduct for all IMAP responders.

Critical Knowledge:

NCDOT Ethics Policy:

- Applies to all NCDOT employees (see instructor for policy)
- **Ethical behavior is a condition of employment**
- All employees are expected to maintain and exercise the highest ethical standards in the performance of their duties
- **Examples of unethical behavior include** but are not limited to;
  - Acts of prejudice of any kind (e.g. race, religion, gender, etc.)
  - Accepting and/or failing to report gifts in return for services
  - Theft or misuse of state property
  - Dishonesty or misrepresentation
  - Misuse of position for personal gain
  - Participation in any illegal or criminal activity

Ethical Conduct of IMAP Responders:

- Committing or participating in unethical behavior is prohibited
- Even the appearance of unethical behavior should be avoided
- **Unacceptable behavior includes**;
  - Purchasing alcohol while in uniform
  - Leaving IMAP vehicle idle in public places unless on incident scene or performing vehicle maintenance/inspections
- **DO NOT accept any money or gifts** from the public for your services
  - If a citizen leaves money/gifts in your truck, contact TMC dispatch immediately via cell phone to report it
  - Turn money/gifts in to supervisor at the end of your shift
- DO NOT take equipment home unless approved by supervisor – exceptions include uniforms and state-issued pagers or cell phones
- State-issued cell phones are for business and emergency calls only
- Time spent while on-duty should be focused on performing work-related tasks or services
- Lunch/Breaks should be taken in close proximity to your patrol route (between 1 and 5 miles from route is best)

IMAP Responders' Commitment to Safety:

Objective: Learn about elements of the NCDOT Workplace Safety Manual and understand the necessity for all IMAP responders to perform their duties safely

Critical Knowledge:

NCDOT Workplace Safety Manual:

- Applies to all NCDOT employees (see instructor for policy)
- NCDOT believes that all accidents and injuries are preventable
- **Working safely is a condition of employment –** breaking any of the following can be grounds for disciplinary action up to & including dismissal;
    - Failure to report all incidents (e.g. accidents, injuries, etc.)
    - Possession of or use of illicit drugs or alcohol
    - Possession of firearms
    - Moving violations (e.g. speeding, not wearing seat belt, etc.)
    - Malicious destruction of state property
    - Fighting or horseplay
    - Falsification of any documents

Safe Working Practices for IMAP Responders:

- IMAP responders work in an unsafe and unpredictable environment
- IMAP's mission and all of its services **hold safety as the #1 goal**
- All IMAP responders must take personal responsibility for their own safety and the safety of their team
- NEVER take on the role of a law enforcement officer and DO NOT carry a weapon/object that is NOT necessary to perform your duties
- DO NOT attempt any procedure that is beyond your level of training
- **At all times while on-duty, responders must;**
    - Hold safety as the #1 goal when making decisions or taking action
    - Properly utilize their Personal Protective Equipment (PPE)
    - Adhere to all IMAP policies, procedures, and safety precautions
    - Watch for possible hazards and react responsibly in unsafe situations
    - Actively protect the safety of others by speaking up or taking action

IMAP Code of Conduct Agreement:

As an IMAP responder for the North Carolina Department of Transportation (NCDOT), I understand that;

1. I am a public servant and, as such, the interests of the public come before my own self-interests

2. My appearance, behavior, and actions directly impact the credibility, value, and overall perception of the Department and of the IMAP program

3. Ethical behavior and safe working practices are a condition of my employment

While performing my duties as an IMAP responder, I agree to;

1. Hold myself and my team to the highest standards of ethical conduct

2. Maintain safety as my #1 goal and to actively protect my own safety and the safety of others

3. Adhere to all policies, procedures and safety precautions established for the IMAP program

4. Actively assist all members of my team and seek their help when it is needed

Responder's Name:_____

Responder's Signature:_____ **Date:**_____

(see instructor for copy of agreement to sign)

Description:

Become familiar with the guidelines that comprise the dress code for all IMAP responders as well as details related to the IMAP uniform and its care.

Objectives:

- Learn about the various parts of the IMAP responder uniform
- Become familiar with additional IMAP apparel for normal wear & adverse weather
- Understand the primary dress code guidelines and expectations for responder appearance
- Become familiar with the guidelines & process for proper care and replacement of IMAP uniforms

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- GE-100: General Rules & Guidelines

Parts of the IMAP Uniform:

Objective: Learn about the various parts of the IMAP responder uniform

Critical Knowledge:

- **Uniform items that MUST be worn at all times while on duty include:**
  - Red IMAP Shirt
  - Black Cargo Pants
  - Black/Brown Steel-toed Boots
  - NCDOT Employee Badge
  - **Other items may be added as needed** (e.g. reflective vest, caps, portable radio, black or red suspenders, etc.)

- **All IMAP responders are issued:**
  - 10 Shirts*
  - 2 Pullovers
  - 5 Pairs of Black Cargo Pants
  - Black/Brown Steel-toed Boots
  - 2 Summer Caps
  - 2 Winter Caps
  - 1 Toboggan
  - 1 Lightweight Coat
  - 1 Winter Coat

- **Additional items issued as needed:**
  - Reflective Vest and other PPE
  - Rain Gear
  - Winter Gear
  - Flashlight
  - Portable Radio
  - Cell/Direct Connect Phone

IMAP Uniform Logos
(top to bottom):
- IMAP logo: Hat
- Incident Management logo: Left shoulder
- IMAP logo: Right shoulder
- NC State Flag: Left sleeve

*Responder may choose any combination of long and short sleeve shirts

Additional IMAP Apparel:

Objective: Become familiar with additional IMAP apparel* for normal wear & adverse weather

Critical Knowledge:

- **A –** IMAP Uniform & Reflective Vest
- **B –** IMAP Uniform & Lightweight Coat
- **C –** IMAP Uniform, Winter Coat, Toboggan, & Gloves
- **D –** IMAP Uniform & Waterproof Rain Gear

*Some additional IMAP apparel (e.g. Winter Coat & Rain Gear) may differ in appearance by Region

IMAP Dress Code Guidelines:

Objective: Understand the primary dress code guidelines and expectations for responder appearance.

Critical Knowledge:

- The complete IMAP uniform must be worn at all times while on duty
- DO NOT wear the uniform while off duty unless traveling to/from work
- Responders must wear the uniforms/apparel provided – No alterations or substitutions are allowed
- Steel-toed boots must be black or brown and kept in good condition
- Responders must wear their NCDOT employee badge at all times while on duty
- All IMAP responders must project a professional image for our customers, the motoring public, and the community
    - A neat, clean appearance must be maintained at all times
    - Uniforms/apparel must be clean & in good condition when worn
    - Torn, dirty or frayed clothing should be replaced
    - Shirts must be ironed and tucked into pants
    - Pants must be worn at the waist
    - Facial hair must be trimmed and groomed
    - Long hair must be pulled back & off the shoulder to prevent injury
    - Jewelry, makeup, and perfume/cologne should be in good taste and should NOT pose a safety hazard
- Dress code violations are determined at the discretion of the IMAP Supervisor
    - Dress code violations may result in disciplinary action
    - Responders in violation may be sent home to change into proper attire

Care & Replacement of IMAP Uniform:

Objective: Become familiar with the guidelines & process for proper care and replacement of IMAP uniforms

Critical Knowledge:

Uniform Care:

- All IMAP responders are responsible for cleaning their own uniforms – No cleaning allowance will be provided
- All uniforms and other apparel must be cleaned according to manufactures specifications
- Additional apparel (e.g. Winter Coat & Rain Gear) should be cleaned and dried off between each use
- Additional apparel kept on-hand should be folded/hung properly to preserve a neat appearance when they are worn

Uniform Replacements:

- New IMAP uniforms/apparel are issued to responders;
  - After initial training is complete
  - On an as needed basis to replace damaged uniforms
- Damaged uniforms/apparel may be replaced when needed
  - Responders should notify supervisor of damage within 24 hours
  - Damaged uniforms/apparel will NOT be replaced until returned
- All uniforms/apparel must be returned to supervisor upon separation from the IMAP program

Description:

Learn the importance of teamwork to IMAP's success and explore ways that Responders can use their knowledge & experience to solve problems

Objectives:

- Become familiar with the concepts of critical thinking and how it can be applied to incident managements
- Explore the concepts of teamwork and understand its necessity for IMAP

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-102: Temporary Lane Closures
- ETC-103: Emergency Rolling Roadblocks
- ETC-104: Motorist Cooperation
- IM-102: Push / Pull / Drag Operations

Critical Thinking:

Objective: Become familiar with the concepts of critical thinking and how it can be applied to incident management

Critical Knowledge:

- **All incidents are different** & no single plan or process can address all circumstances or obstacles – IMAP Responders must:
  - Think critically to overcome new challenges
  - Rely on their training & experience to respond properly
- **Critical Thinking** is a decision-making & problem-solving technique where solutions are formed by;
  - Considering the issue carefully & objectively (i.e. without bias)
  - Looking at all the factors that caused & surround an issue
  - Knowing what your resources are & what they can & can't do
  - Using knowledge & experience to adapt old solutions to new issues
  - Evaluating results & modifying solutions to be more effective
- **Opposite of Critical Thinking:**
  - Acting without thinking through an issue
  - Doing something just because it has always been done that way
  - Doing nothing because a solution does not appear immediately
  - Not having an ESCAPE ROUTE
- **Asking ourselves questions can help us think critically on-scene**
  - **Assess Location** – How many lanes are blocked and how many are open? Is sight distance affected? Are any ramps nearby?
  - **Assess Traffic** – How fast are cars traveling? Where is the queue building? How are motorists reacting to my traffic control?
  - **Action** – Do I have an escape route and where is it?
  - **Visualize Impact** – Where are responders at risk? How long could this incident last? How much congestion could it cause?
  - **Visualize Response** – How will lanes be reopened? What can I do to manage traffic? What can I do to reopen lanes sooner?
  - **Re-evaluate Response** – Do my actions match current conditions? What more can or should be done?
  - **Re-evaluate Impact** – Are my actions keeping others safe? Are my actions keeping traffic flowing?

Teamwork:

Objective: Explore the concepts of teamwork and understand its necessity for IMAP

Critical Knowledge:

- **A team is more than just a group of people.** People on a team;
  - Possess a variety of skills that complement one another
  - Understand their team's goals and are engaged in achieving them
  - Feel collectively responsible for the team's success
  - Support & help to improve other members

- IMAP may patrol alone but are often brought together suddenly to respond to major incidents – **if IMAP DO NOT act as a team:**
  - Response efforts will be ineffective & disorganized
  - Work will be unevenly distributed & also duplicated
  - Increased safety risk if no one is watching out for one another
  - Partners (e.g. SHP) will see IMAP as unreliable, ineffective amateurs

- **All IMAP Responders are expected to act as a team** which includes;
  - Sharing the workload & offering help without being asked
  - Getting to know the strengths & weaknesses of each member
  - Helping other Responders to develop & strengthen their skills
  - Communicating freely & being open to different opinions
  - Treating others with respect & consideration
  - Resolving conflict independently with the goal of mutual benefit
  - Including others, seeking their input, and making decisions together
  - Sharing recognition and even blame
  - Speaking positively about team members in public & in private
  - Leading when needed but ready to follow as other leaders step up

- **On-scene, IMAP team members should;**
  - Formulate a response plan together
  - Clearly establish who is responsible for specific tasks or actions
  - Perform duties to the best of their abilities
  - Regularly check on & communicate with one another
  - Help assure that all duties are performed properly
  - Remain with team until extra help is no longer needed

Description:

Become familiar with the guidelines & processes for properly responding to irate motorists

Objectives:

- Learn about common causes of motorist frustration so Responders better understand & properly respond to irate motorists
- Explore the guidelines & processes for properly handling irate motorists

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- GE-100: General Rules & Guidelines
- MA-100: Changing Tires on Disabled Vehicles & IMAP Trucks
- MA-101: Providing Fuel to Motorists

Causes of Motorist Frustration:

Objective: Learn about common causes of motorist frustration to better understand & properly respond to irate motorists

Critical Knowledge:

- **All motorists are different** & respond to crisis/inconvenience differently. IMAP Responders should understand that most motorist they interact with;
  - Have just experienced a stressful, unexpected situation
  - Are unfamiliar with IMAP & unaware of what IMAP can/can't do

- **Common Causes of Motorist Frustration include;**
  - In a hurry or late for an important occassion
  - Tired or hungry
  - Unable to speak or understand English
  - Lost or unable to find destination
  - Overwhelmed by incident & unsure what to do
  - Concerned about financial or legal consequences of incident
  - Scared for the safety of themselves or others

- **Irate motorists typically want to be;**
  - Listened to & taken seriously
  - Treated with respect
  - Helped & have their problem resolved for them

- **Road Rage** – an extreme & potentially dangerous form of motorist frustration. Responders can recognize the signs of road rage in motorists who;
  - Accelerate, brake, or change lanes suddenly & without cause
  - Drive aggressively, forcing other vehicles to avoid them
  - Shout, gesture or otherwise threaten other motorists
  - Direct their anger/actions towards specific vehicles or individuals
  - Challenge others in order to instigate a fight
  - Physically or verbally assault motorists or even responders

Proper Response to Irate Motorists:

Objective: Explore the guidelines & processes for properly handling irate motorists

Critical Knowledge:

- **IMAP Responders are public servants** whose services exist to improve travel conditions for members of the general public – Responders should;
  - Positively represent NCDOT & IMAP in all interactions
  - Offer whatever help is within their power & abilities to provide
- **Communicating with an Irate Motorist:**
  - Remain patient, calm & professional
  - Speak at a lower volume & a slower pace than the motorist
  - Listen carefully with the goal of fully understanding their frustration
  - DO NOT interrupt – let them talk until they have vented completely
  - Empathize & directly acknowledge what is upsetting them
  - Offer help & suggest all options that are available
  - DO NOT become defensive or engage in an argument
- **Responding to Road Rage or Violent Motorists:**
  - DO NOT engage them or match their behaviors
  - Call TMC, law enforcement, or backup immediately if threatened
  - Hold down transmit button for radio – TMC will hear conflict and dispatch law enforcement to your location immediately
  - Keep distance from enraged motorist & **leave the scene if needed**
- **Processing a Formal Complaint:**
  - Provide motorist with IMAP supervisor name and contact information. The motorist may follow up with the supervisor about the complaint.
  - Notify IMAP supervisor via cell/direct connect immediately
  - Provide the IMAP supervisor an account of the complaint by end of shift

Description:

Become familiar with the guidelines & expectations related to proper, professional interaction between IMAP and other agencies as well as some groups internal to NCDOT

Objectives:

- Learn about the concepts and overall purpose of positive interaction between IMAP responders and their internal/external partners & agencies
- Explore the basic roles of agencies/partners that IMAP interacts with
- Become familiar with the concepts & guidelines for on-scene interaction related to the Incident Command System (ICS)
- Explore additional guidelines & provide further guidance to support positive interaction between IMAP & other agencies

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control Techniques
- IM-102: Push / Pull / Drag Operations

Introduction & Purpose of Positive Interaction:

Objective: Learn about the concepts and overall purpose of positive interaction between IMAP responders and their internal/external partners & agencies

Critical Knowledge:

- **Incident Management (IM)** is a set of actions & procedures taken by multiple agencies/partners acting cooperatively in a coordinated manner in order to respond to & resolve traffic incidents
  - Each agency typically has different resources & abilities
  - Each agency typically has different priorities & goals

- **NO agency has the resources or ability to properly manage every incident –** therefore, all agencies rely on one another to manage their particular piece of the puzzle

- As a whole, agencies may completely agree or disagree with one another **BUT it is the quality of the interaction between individuals that determines whether efforts fail or succeed**

- The **purpose of positive interaction** between IMAP responders & individuals from other agencies is to;
  - Overcome barriers that prevent agencies from working together
  - Understand each agency's goals so shared goals can form
  - Demonstrate capabilities so the work load is shared, not duplicated
  - Build cohesion between responders so their efforts are more effective
  - Establish positive relationships with each agency as a whole

Overview of Internal/External Partners Roles:

Objective: Explore the basic roles of agencies/partners that IMAP interacts with

Critical Knowledge:

- **Traffic Services/DOT Maintenance –** part of NCDOT, responsible for;
  - Repairing damage to roadway & other NCDOT property
  - Treating & clearing roads affected by adverse weather
  - Providing additional emergency traffic control (ETC) when needed
- **Traffic Management Centers** (TMC or STOC for statewide) – part of NCDOT, responsible for;
  - Detecting traffic incidents & notifying responders
  - Providing travel information & additional ETC through DMS
  - Coordinating response between NCDOT & other agencies/states
- **NC State Highway Patrol (NCSHP or SHP)** – responsible for;
  - Enforce NC laws, emergency response, crash investigation, & public safety on state highways
  - May dispatch IMAP in areas without TMC/STOC
- **Local/Municipal Law Enforcement (LE)** – responsible for;
  - Law enforcement, emergency response, & crash investigation on local roads and some areas on state highways
  - Operates local 911 comm. centers – dispatches Fire Dept. & EMS
- **Local/Municipal Fire Department (FD)** – responsible for;
  - Fire prevention & suppression
  - Rescue, emergency medical services, and HazMat support
- **Towing & Recovery** – private partners, responsible for;
  - Removing damaged vehicles from roadway
  - Cleanup/disposal of non-HazMat crash debris (e.g. plastic, glass, etc.)
- **IMAP may also interact with the following partners;**
  - HazMat Disposal Services
  - Municipal DOTs
  - Emergency Medical Services (EMS)
  - News Media
  - Medical Examiners
  - State & Local Emergency Management (EM)

Incident Command System (ICS):

Objective: Become familiar with the concepts & guidelines for on-scene interaction related to the Incident Command System (ICS)

Critical Knowledge:

- **Incident Command System (ICS)** is a standardized, on-scene, all-hazards approach to IM that focuses on **interoperability & coordination**

- In ICS, all on-scene responders (regardless of agency) coordinate their activities through an **Incident Commander (IC)** who;
  - Establishes the overall incident action plan
  - Prioritizes & delegates response activities
  - Oversees & assures progress of response activities
  - Communicates activity status to other internal groups (e.g. TMC)

- The IC can be from any agency (e.g. Fire Dept., SHP, etc.) but is typically the individual who;
  - Has the most experience of the responders who arrive 1st on-scene
  - Has the knowledge & authority to coordinate/procure necessary personnel/resources

- **Unified Command** is a form of shared leadership where the ICs of all participating agencies make decisions together but directly coordinate the activities of those within their own agency
  - **Ex.** Fire Dept., SHP, & IMAP each establish their own ICs – Individual IMAP units report to the IMAP IC
  - Responders will most often encounter this mode of command on-scene

- **IMAP responders should actively participate in ICS** and should;
  - Properly position their vehicle on-scene & assure their own safety
  - Assess the incident & traffic conditions & determine possible actions
  - Identify the IC or ICs and announce IMAP's presence on-scene
  - Advise the IC of initial actions IMAP may take (e.g. traffic control)
  - Work with IC to discuss & prioritize IMAP's actions
  - Establish IC for IMAP – call for backup/supervisor as needed
  - Perform initial actions as planned & follow-up with IC(s)

Additional Guidelines for Interacting with Other Agencies:

Objective: Explore additional guidelines & provide further guidance to support positive interaction between IMAP & other agencies

Critical Knowledge:

- In all interactions, IMAP responders should positively represent NCDOT & IMAP by demonstrating;
  - Their willingness & ability to work with & help others
  - The practical knowledge & relevant experience they possess
  - The value of having IMAP support

- **Clear, consistent communication** is critical. IMAP responders should;
  - Use simple, easily understood language to communicate
  - Avoid use of 10-codes (use plain English instead) or jargon
  - Meet with responders from each agency – ask what their objectives are and share IMAP's
  - Keep communication brief – focus on giving/receiving necessary info without detracting from your tasks or theirs
  - Follow-up with your IC and/or other ICs so all have up-to-date info

- **Polite, cooperative communication** is also critical. IMAP responders should;
  - Address everyone professionally & by their proper title/rank
  - Respect that other responders have different duties, goals, & policies
  - Seek to establish mutually respectful relationships & repair negative perceptions based on bad experiences in the past
  - Speak up about unsafe, incorrect, or ineffective actions – follow chain of command when possible
  - NOT tell people what to do – offer insight & alternate options
  - NOT say you CAN'T do something – attempt to do what is safe & within your abilities (call your supervisor for guidance, if needed)

- Individuals from other **agencies may question what you're doing** & why;
  - Calmly explain your actions & what you hope to accomplish
  - Ask for their input to form a mutually accepted plan
  - DO NOT compromise safety because of a disagreement
  - DO NOT argue – notify your supervisor if conflict persists/escalates

Description:

Become familiar with the processes & techniques for coordinating the response of multiple IMAP units at the same incident scene.

Objectives:

- Learn about IMAP's various responsibilities on an incident scene & explain how multiple IMAP units may be needed to perform all duties properly
- Explore the roles of primary and backup IMAP units & their responsibilities

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- COM-101: Interacting with Other Agencies

IMAP Responsibilities & Incident Activity Points:

Objective: Learn about IMAP's various responsibilities on an incident scene & explain how multiple IMAP units may be needed to perform all duties properly

Critical Knowledge:

- **IMAP often has several responsibilities at a moderate-major severity traffic incident,** which includes but is not limited to;
  - Deploying emergency traffic control (ETC)
  - Providing advance warning (AW)
  - Participating in Incident Command System (ICS)
  - Relaying info to TMC dispatch
  - Removing vehicles/clearing lanes
  - **Each of these can be described as an Incident Activity Point**
- **Incident Activity Points –** areas where at least 1 IMAP unit is needed to properly perform a specific response duty/task
  - For some incidents, 1 unit can manage all activity points, properly
  - However, larger/more complex incidents may involve more activity points or effort at each point may be more than 1 unit can handle
  - Responders should NOT abandon 1 activity point to handle another – responders should call for backup so all points are handled properly
- **Multiple IMAP units may be needed for incidents involving;**
  - Multiple lane closures
  - Multiple damaged vehicles to remove
  - Multiple accidents in close proximity to one another
  - Emergency rolling roadblocks
- **Responder (primary unit) should call for backup if the primary unit;**
  - Does NOT have sufficient resources for response (e.g. lane closure requires more cones than a single unit carries)
  - Cannot complete duties safely without assistance
  - Cannot perform duties at an activity point without neglecting duties at another activity point (e.g. AW is needed 1½ miles away and a nearby entrance ramp also needs to be closed)

Multi-Unit Coordination:

Objective: Explore the roles of primary & backup IMAP units & their responsibilities

Critical Knowledge:

- **1st IMAP responder to arrive on-scene of an incident is the primary unit**
  - This unit acts as the initial Incident Commander (IC) for IMAP
  - Less experienced responders can turn over command as backup arrives
- **Initial responsibilities of the primary unit include;**
  - Relaying initial incident details to TMC dispatch
  - Working with other agency ICs to identify/prioritize IMAP actions
  - Deploying initial ETC measures
  - Identifying separate incident activity points & determining backup units needed to handle all points properly
  - Contacting TMC dispatch to request closest available backup units
- **Responsibilities of primary unit once backup is dispatched include;**
  - Instructing backup units to switch to tactical radio channel
  - Assigning backup units to activity points based on priority & expected time of arrival (ETA) of each unit
  - Providing CLEAR instructions to backup units about where they should position & what they should do when they arrive
- **Responsibilities of primary unit once backup units arrive include;**
  - Briefing backup units on current conditions & incident activities
  - Regularly checking on the status/progress of backup units
  - Following-up with other ICs to report status & plan next tasks
  - Re-assigning backup units to new activity points/tasks
  - Continuing to relay up-to-date incident details to TMC dispatch
- **Responsibilities of backup units include;**
  - Acknowledging call for backup & providing ETA to location
  - Following instructions/completing tasks as directed by primary unit
  - Reporting status (e.g. on-scene, task complete, etc.) to primary unit
  - Assisting other IMAP units as needed/directed
  - Notifying primary unit of new tasks or delays in task completion
  - Requesting assignment if primary unit does NOT provide instruction

Description:

Become familiar with the personal protective equipment (PPE) used by IMAP to prevent injury

Objectives:

- Learn about the personal protective equipment (PPE) used by IMAP
- Explore all mandatory PPE items

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- GE-100: General Rules & Guidelines

Personal Protective Equipment (PPE):

Objective: Learn about the personal protective equipment (PPE) used by IMAP.

Critical Knowledge:

- **Purpose of PPE –** used to ensure the greatest possible protection for IMAP responders while performing everyday duties and unique tasks

- **Mandatory PPE** – all PPE items listed below are considered mandatory PPE that responders are required to have availabled at all times while on duty

- **Reflective Safety Vest –** must be worn whenever outside of IMAP truck

- **Steel-Toed Boots –** must be worn at all times while on-duty
  - Boots must be equipped with slip-resistant treads/soles
  - Toes must be steel or an approved composite material (see supervisor)

- **Work Gloves –** must be worn when there is risk of hand injuries including;
  - Abrasions or lacerations
  - Burns or blisters

- **Safety Glasses –** must be worn when eyes may be injured such as;
  - Handling chemicals or other fluids that may splash into eyes
  - Working near equipment that may kick up dust/small particles

- **Medical-Grade Gloves –** must be worn when handling biological pathogens or equipment contaminated with biological pathogens such as;
  - Removal of animal carcasses
  - Working in or near vehicles where bodily fluids (e.g. blood) is present
  - **Used medical gloves must be disposed of in a sealed container marked, "BIOHAZARD"**

- **Hard Hat –** must be worn when exposed to danger from falling objects or flying materials

Images of IMAP PPE:

⬅ Reflective Vest
(Front)

Hard Hat ➡

⬅ Reflective Vest
(Back)

Steel-toed Boots ➡

⬅ Work Gloves

Medical Gloves ➡

⬅ Safety Glasses

Description:

Become familiar with the IMAP vehicle including its primary technical specifications & capabilities and understand the responder's role in the routine maintenance & upkeep of their vehicle

Objectives:

- Explore the components, controls, and technical specifications of the IMAP vehicle
- Learn about the responder's role in maintaining their vehicle through regular inspections and basic, preventative care
- Become familiar with the primary guidelines related to the IMAP truck and vehicle maintenance procedures
- Learn about the important forms and documentation guidelines for vehicle inspections and maintenance activities
- Review step-by-step instructions for how to perform daily vehicle and equipment inspections at the beginning and end of every shift

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)

IMAP Vehicle Introduction:

Objective: Learn about the IMAP truck and establish core expectations for the vehicle's care and use by IMAP responders

Critical Knowledge:

- **All IMAP responders must have a valid state driver's license and must submit to an annual check of their driving record**

- The IMAP truck is one of the most important tools an IMAP responder has
  - It gets you where you need to go
  - It carries all of your equipment
  - It keeps you and everyone else around an incident safe

- Every IMAP Responder is responsible for assuring that their truck is;
  - Operated safely
  - Properly maintained
  - Ready for duty

- Truck models and features vary by region so **all responders must get to know their vehicle inside and out**

Walk Around Tour – Basic Vehicle Specifications:

Objective: Explore the components, controls, and technical specifications of the IMAP vehicle

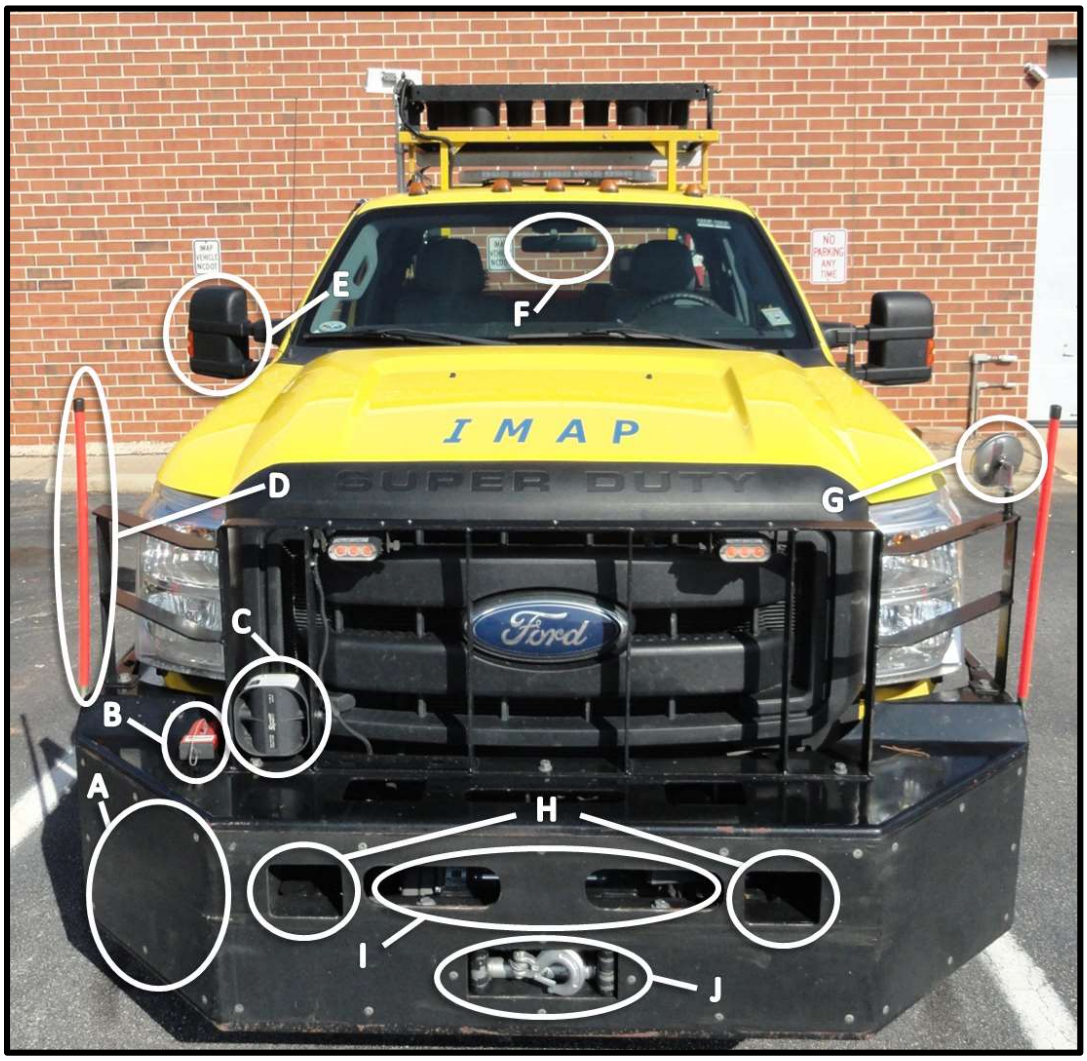
Critical Knowledge:

- **Make and Model:** Ford F-250, F-350, or F-450 Super Duty*
- **Storage:** Truck bed for large equipment and 6 cabinets (3 on each side) for most other equipment
- **Transmission:** Automatic with optional 2 and 4-wheel drive
- **Fuel:** Diesel
- **Fully Loaded Weight:** Approx. 9,000lbs to 12,000lbs
- **Towing Capacity:** In optimal conditions, can pull a fully loaded tractor trailer

*Some older model IMAP trucks, made by Chevrolet, are still in use. Some features and controls mentioned in this document may vary or not apply to these vehicles.

Walk Around Tour – Front of Vehicle:

Objective: Examine the items equipped at the front of the IMAP truck



Critical Items:

- **A –** Push Bumper
- **B –** External Jumper Cable Hookup
- **C –** Air Horn
- **D –** Front-End Indicator
- **E –** Driver & Passenger-side Mirrors
- **F –** Rear View Mirror
- **G –** "Fish-Eye" Arrow Board Mirror
- **H –** Towing Anchor Bolts
- **I –** Front Winch Housing
- **J –** Front Winch

Walk Around Tour – Sides of Vehicle:

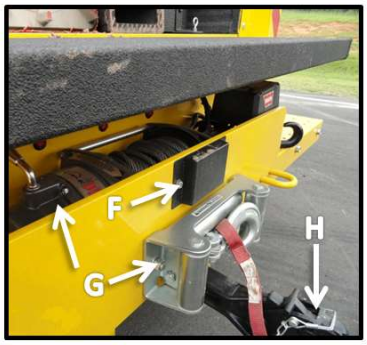
Objective: Examine the items equipped on the sides on the IMAP truck

Critical Items:

- **A –** Front Wheel Hub Locks
- **B –** Equipment Storage Cabinets (3 to a side)
  - **B1 –** Reflective tape on inside of cabinet door
  - **B2 –** Lock and latch system to secure cabinet doors
- **C –** Diesel Exhaust Fluid (DEF) Tank
- **D –** Diesel Fuel Tank
- **E –** Air Compressor
- **F –** Power Inverter
- **G –** Air Hose Reel

Walk Around Tour – Rear of Vehicle:

Objective: Examine the items equipped on the rear on the IMAP truck

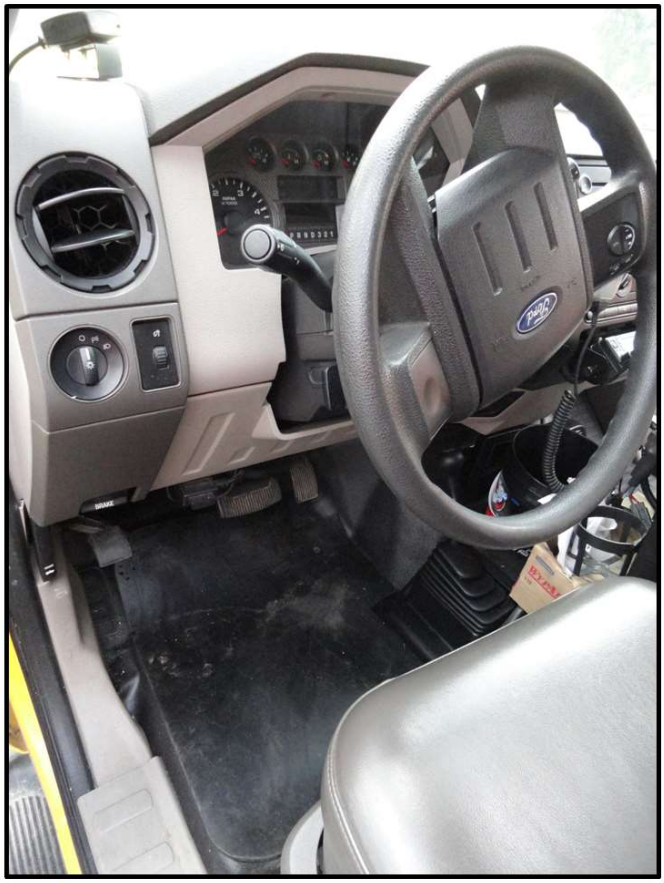


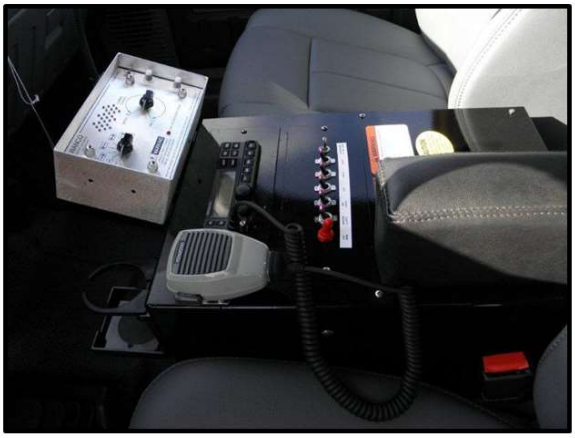
Critical Items:

- **A –** Fire Extinguisher
- **B –** Spare IMAP Truck Tire
- **C –** Truck Bed and Tailgate
- **D –** Handhold for Mounting/Dismounting
- **E –** Towing Hooks (2) and Anchor Bolts (2)
- **F –** Sensor for Backup Alarm
- **G –** Rear Winch
- **H –** Trailer Hitch and Ball Mount
- **I –** Folding Safety Step

Walk Around Tour – In the Cab:

Objective: Examine the items and controls within the cab of the IMAP truck





Critical Items:

- Seatbelts, Adjustable Seat and Steering Wheel controls
- Accelerator, Brake, and Emergency Brake
- Running Lights, Turn Signals, Windshield Wiper, and Air Condition controls
- 2 and 4-Wheel Drive Shifter
- Public Address (PA) system and Radio equipment & controls
- Radio and Equipment Battery Chargers
- Emergency Lights and Arrow Board controls
- Dashboard Displays;
  - Speedometer
  - Odometer
  - Fuel Gauge
  - Voltmeter
  - Tachometer (RPM)
  - Oil Pressure Gauge
  - Water Temperature Gauge
  - Backup Alarm Indicator

Walk Around Tour – Vehicle Lights and Warning Devices:

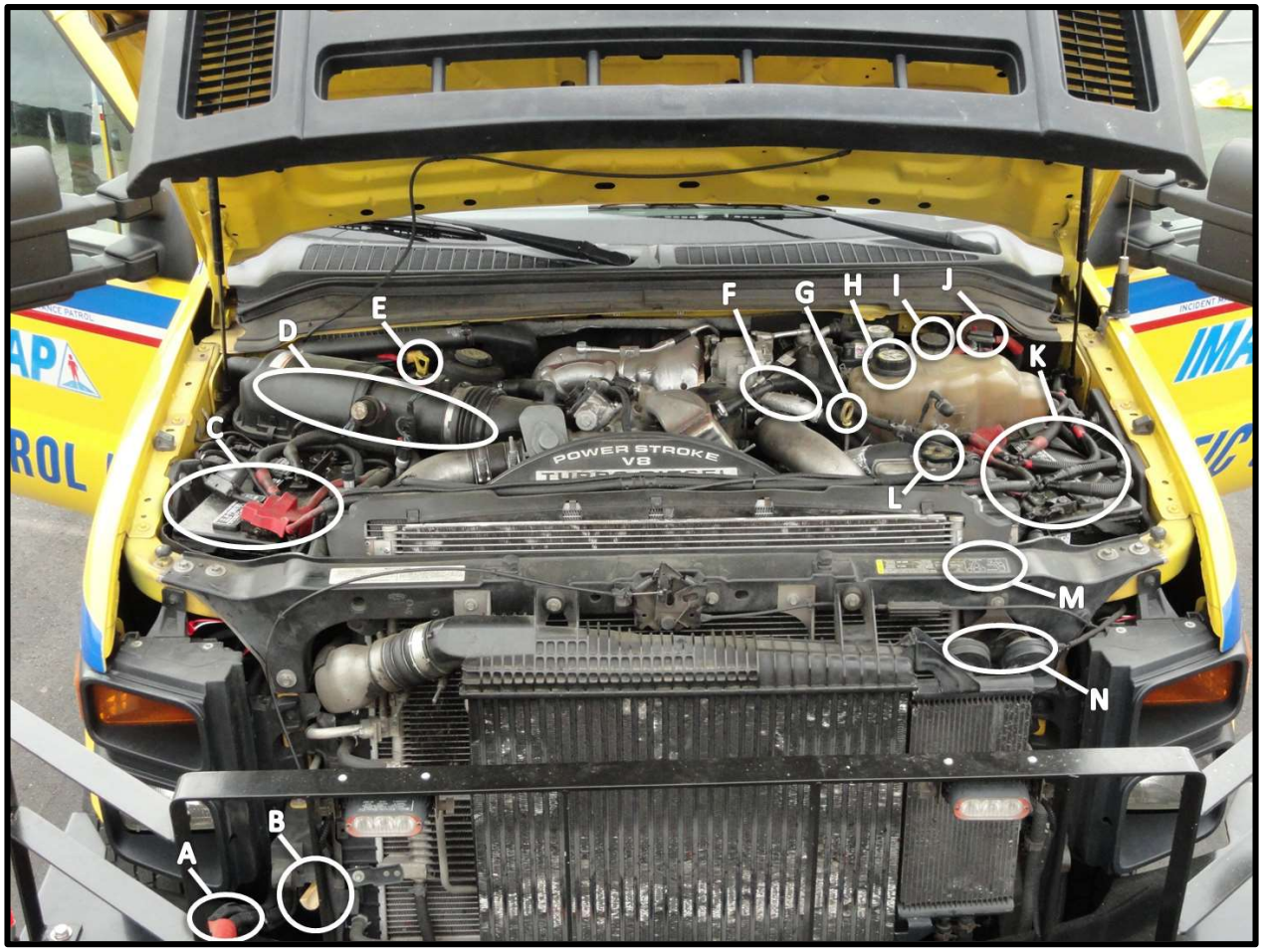
Objective: Examine the different lights and warning devices used on the IMAP truck

Critical Items:

- **A –** Arrow Board
- **B –** Work Light
- **C –** Static "SUDDEN STOPS" Sign
- **D –** Light Bar
- **E –** Emergency Flashers
- **F –** 4-Way / Hazards
- **G –** PA Speaker / Air Horn

Walk Around Tour – Under the Hood:

Objective: Examine the internal components of the IMAP truck.



Critical Components:

- **A –** External Jumper Cable Hookup
- **B –** Hood Latch
- **C –** Battery #1
- **D –** Air Filter
- **E –** Transmission Fluid Dipstick
- **F –** Hoses
- **G –** Oil Dipstick
- **H –** Water/Coolant
- **I –** Brake Fluid
- **J –** Equipment Breaker
- **K –** Battery #2
- **L –** Power Steering Fluid
- **M –** Engine Drive Belts
- **N –** Horns

IMAP Vehicle and Maintenance Guidelines (1 of 2):

Objective: Become familiar with the primary guidelines and procedures that IMAP responders should adhere to in order to properly maintain the IMAP truck

Critical Knowledge:

- **Safety is Number 1 – Even with vehicle maintenance**
  - Know your vehicle and adhere to Vehicle Owner's Manual
  - Avoid performing any maintenance on the IMAP truck in an unsafe environment
    - IMAP headquarters is the best location for most maintenance
    - For emergency maintenance; seek solid, level ground away from traffic
    - ALWAYS call for backup if doing maintenance in the field
  - Wear proper safety equipment (e.g. safety glasses & work gloves)
  - Do NOT plug a punctured IMAP tire unless no other options are available
  - Use non-flammable solutions when cleaning vehicle/parts
  - Do NOT use slick cleaning solutions (e.g. tire shine) on floors
  - Always maintain **3 Points of Contact** when mounting truck:
    - One foot on the ground
    - One foot on the step
    - Firm grip on hand hold or truck
  - DO NOT JUMP FROM THE VEHICLE, EVER

- **IMAP Responders are NOT Mechanics**
  - Equipment Shop must approve any alterations to IMAP vehicle
  - All repairs must be reported to a supervisor/coworker PROMPTLY
  - All repairs or vehicle service must be documented in the **Equipment Maintenance Record (EMR) Booklet**

IMAP Vehicle and Maintenance Guidelines (2 of 2):

Objective: Become familiar with the primary guidelines and procedures that IMAP responders should adhere to in order to properly maintain the IMAP truck

Critical Knowledge:

- **Stay near and/or keep an eye on your vehicle at all times –** DO NOT leave the vehicle idling while in public places unless on an incident scene or performing vehicle maintenance/inspections

- **Truck must be checked BEFORE and AFTER each shift**
  - Walk Around Procedure (formal) – performed before each shift and documented using **Operator's Daily Inspection Sheet**
  - Walk Around Procedure (informal) – performed every time you exit and re-enter the vehicle
  - Shutdown Procedure – performed at end of each shift and ensures vehicle and equipment is ready for next shift

- **Responders are responsible for INSIDE and OUTSIDE of their truck**
  - Smoking is NOT allowed in the IMAP vehicle
  - Eating and drinking is allowed but you MUST keep truck clean
  - All surfaces within cab should be free of water, grease, and dirt
  - All items in the cab must be secured or removed
  - Items under pressure (e.g. aerosol cans) are NOT allowed in cab
  - Trucks should be washed TWICE a week outside of patrol hours
  - Safety decals must be kept clean and replaced if missing/damaged

- **The appearance of YOU and your TRUCK must positively represent the IMAP program and the NCDOT, overall**

Important Vehicle Documents:

Objective: Learn about the important documents related to the IMAP vehicle that should be readily accessible in all IMAP trucks

Critical Knowledge:

- **Vehicle Owner's Manual –** provides all official settings, levels, equipment and part specifications related to the vehicle
- **Vehicle Registration –** proof of vehicle ownership and current registration status
- **Driver's License –** proof of IMAP responder identification and legal ability to operate a motor vehicle
- **Accident Reporting Guide –** offers immediate instruction to responders for what to do when/if they are involved in an accident
- **Equipment Maintenance Record (EMR) Booklet –** kept by responders and used to document all repairs or vehicle services performed
- **Operator's Daily Inspection Sheet –** form MCSA1 or regional equivalent; completed each day BEFORE and AFTER each shift during the Pre-Start Inspection, Walk Around Procedure, and Shutdown Procedure. **Responders must turn this in to their supervisor at end of each week**

TIME & DAILY TRUCK INSPECTION SHEET							
Incident Management Assistance Patrol							
Driver P#							
Name							
PM Due							
DATE:							
Day of the Week	SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Truck # →							
Spare Truck # →							
End Mileage →							
Begin Mileage →							
Total Trip Miles →							
Route (Example AA, BB Etc..)							
SIGN IN: →							
SIGN OUT: →							
CHECK LIST							
WATER							
OIL & BATTERY							
TRANSMISSION FLUID							
POWER STEERING FLUID							
BRAKE FLUID							
BELTS/RUBBER HOSES							
TIRES/LUG NUTS							
WASHER FLUID/WIPER BLADES							
PM STICKER							
GROUND FOR OIL & WATER							
TRUCK FUEL LEVEL/CAP							
FRAME/BODY/DOORS							
SEAT/MIRRORS/WINDOWS							
LOW/HIGH BAND RADIOS							
BACK-UP ALARM & HORN							
EMERGENCY LIGHTS							
PARKING & HEAD LIGHTS							
CAB LIGHTS							
TAIL & BRAKE LIGHTS							
TURN SIGNALS & 4-WAY FLASHERS							
INTERIOR OF TRUCK CLEAN							
AC/HEAT							
PARKING BRAKE							
EQUIPMENT							
GAS CANS							
OIL DRI							
AIR COMPRESSOR							
ALL FIRE EXTINGUISHERS							
20 CONES Fleetside							
40 Cones Service Body							
FLARES							
2 WHEEL CHOCKS							
JUMP BOX (CHARGED)							
INSPECT WINCH & CABLES							
TOW STRAPS							
J-HOOKS							
ARROW BOARD							
Comments							

Pre-Start Inspection (1 of 2):

Objective: Learn about the Pre-Start Inspection procedure

Critical Knowledge:

- **Perform pre-start inspection BEFORE the IMAP truck is started**

1. **Check all safety features and equipment**
    a. **Seatbelts –** belts function properly, are accessible, and free from damage or fraying
    b. **Fire Extinguishers –** all extinguishers are accounted for, properly secured, and fully charged
    c. **First Aid Kit –** kit is fully stocked and accessible
    d. **Responder PPE –** All personal protective equipment (PPE) is accounted for, in good condition, and ready for use;
        i. Reflective Vest
        ii. Steel-toed Boots
        iii. Safety Glasses
        iv. Work Gloves AND Medical Grade Gloves
        v. Hard Hat

2. **Check oil levels and condition**
    a. Look for leaks and/or fluid on the ground beneath IMAP truck
    b. Remove oil dipstick to inspect oil for presence of contamination
    c. Foam or Condensation = bad oil filter or abnormal engine wear
    d. Wipe clean, replace, and pull dipstick again to confirm oil level
    e. Oil level should be between "ADD" and "FULL"
    f. Over-FULL oil level could = fuel or coolant contamination
    g. Add oil immediately when levels are low or contamination is present – bring vehicle to maintenance if needed

Pre-Start Inspection (2 of 2):

Objective: Learn about the Pre-Start Inspection procedure

Critical Knowledge:

3. **Check coolant and transmission fluid levels, hoses and radiator**
   - **a.** Visually inspect ground under vehicle for fluids
   - **b.** Visually inspect the radiator fill reservoir to determine coolant level – should be between "MIN" and "MAX" line
   - **c.** Pull the transmission fluid dipstick out, wipe clean, replace, and pull again to confirm correct transmission fluid levels
   - **d.** Inspect all engine hoses for wear, leaks, and loose clamps

4. **Check engine drive belts**
   - **a.** ENGINE SHOULD NOT BE RUNNING
   - **b.** Check for proper tension (not loose) and wear (not cracked)

5. **Check BOTH batteries**
   - **a.** Inspect battery terminals for corrosion – clean if necessary
   - **b.** Assure that wires are not worn or frayed and cable connections are tight

6. **Check tires, wheels, and body**
   - **a.** Inspect tires for cuts, unusual wear and proper air pressure
   - **b.** Check for cracked rims and missing or loose lug nuts
   - **c.** Inspect truck body for dents and other damage

7. **Check windshield, windows, and mirrors**
   - **a.** Assure that windshield and all windows and mirrors are clean
   - **b.** Check windshield wiper blades for wear and confirm wiper fluid levels

Walk Around Procedure:

Objective: Learn about the formal Walk Around inspection process

Inspection Process:

1. **Warm-up engine**
   - **a.** Start the engine and allow to warm-up for 3-5 minutes
   - **b.** Check tachometer (i.e. RPM gauge) to assure engine idles at manufacturer-recommended levels
2. **Check gauges and indicators**
   - **a.** If any system indicators (e.g. check engine light) remain on after 1 minute, **shut down the engine immediately**, and investigate
   - **b.** Assure oil pressure and water temperature levels are normal
   - **c.** Check fuel gauge to confirm that you have sufficient fuel
3. **Check auxiliary systems**
   - **a.** Adjust driver's seat for comfort & all mirrors for clear viewing angle
   - **b.** Confirm that windshield wipers function properly
   - **c.** Check and adjust heater or air conditioning and defroster
   - **d.** Roll down and roll up all windows
   - **e.** Sound air horn
   - **f.** Check radio equipment
   - **g.** Turn on all vehicle lights and raise and activate the arrow board
4. **Check pedals and steering**
   - **a.** Make sure NO objects are around or under any pedals
   - **b.** Turn steering wheel side to side and confirm front wheels move
5. **Check vehicle lights and arrow board**
   - **a.** Work with a partner to confirm that all lights are functioning
   - **b.** Check all lights for burned-out bulbs, dirty lenses or other damage
6. **Check equipment and tools**
   - **a.** Confirm all tools are in place, secured and cabinets are latched
   - **b.** Test all equipment (e.g. winches, work light, air compressor, etc.)
7. **Fill out Operator's Daily Inspection Sheet**

Shutdown Procedure:

Objective: Learn about the final Shutdown Procedure for the IMAP vehicle

Procedure:

1. **Refuel truck and cans**
   - **a.** Refuel vehicle as soon as you return to headquarters
   - **b.** Make sure vehicle is parked and the engine is off
   - **c.** DO NOT smoke in the vicinity of fuel pump or fuel cans
   - **d.** Only use fuel specified for truck (diesel) and cans (gas or diesel)
   - **e.** Place fuel cans on ground before refueling
   - **f.** DO NOT overfill fuel cans – allow space for fume expansion
   - **g.** Secure caps to fuel tank and cans tightly
   - **h.** Wipe excess/spilled fuel from cans and truck bed
   - **i.** Return and secure fuel cans to truck bed

2. **Park truck in a safe area**

3. **Allow engine to idle for 3-5 minutes**

4. **Perform final Walk Around inspection of the day**
   - **a.** Inspect tires and lug nuts
   - **b.** Check for damage to vehicle body, lights, mirrors, etc.
   - **c.** Look for fluid leaks from underside of truck or cans in truck bed
   - **d.** Replace and dispose of spent or damaged equipment
   - **e.** Release compressed air from air compressor and hoses

5. **Clean out truck cab**
   - **a.** Remove trash
   - **b.** Organize and store equipment
   - **c.** Return equipment and radio batteries to charging stations

6. **Shutdown IMAP Truck**
   - **a.** Roll up all windows and lock doors
   - **b.** Turn off engine
   - **c.** Assure all vehicle lights are off
   - **d.** Turn in all paperwork and truck keys if necessary

Description:

Become familiar with the various tools and equipment found on the IMAP truck and explore the specific guidelines and procedures related to their use and care.

Objectives:

- Learn about the Responder's role in maintaining their equipment through regular inspections and basic, preventative care
- Become familiar with the primary guidelines related to the appropriate use of IMAP equipment
- Gain in-depth knowledge of all mandatory tools and equipment found on the IMAP truck

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance

IMAP Equipment Usage & Care Guidelines

Objective: Learn about the Responder's role in maintaining their equipment and understand the primary guidelines related to appropriate equipment use

Critical Knowledge:

- **All equipment must be inspected BEFORE & AFTER each shift** and inspections should be documented in the **Operator's Daily Inspection Sheet**

- **IMAP Responders should assure that all equipment is;**
  - Present and accounted for
  - In good condition and ready for use
  - Stored and secured properly when not in use

- **Damaged or missing equipment should be reported immediately** and should be **repaired or replaced as soon as possible**

- IMAP Responders should **wear all appropriate Personal Protective Equipment (PPE)** when moving or using equipment

- **Handle all equipment with care.** Below are some DOs & DO NOTs;
  - DO NOT – Throw, drop or abuse equipment
  - DO – Check for damage before each use
  - DO NOT – Leave equipment unattended or give it away
  - DO – Clean and dry off equipment before storing it
  - DO NOT – Store equipment haphazardly
  - DO – Keep equipment organized and **properly secured**

- IMAP Responders may use equipment in ways not specified in training in order to solve unique problems as they encounter them. **BEFORE using a tool for anything other than its intended use, make sure that;**
  - Available equipment is not better suited for the task
  - The equipment can withstand the weight or strain of use
  - Safety is NOT sacrificed

TIME & DAILY TRUCK INSPECTION SHEET							
Incident Management Assistance Patrol							
Driver P#							
Name							
PM Due							
DATE:							
Day of the Week	SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Truck # →							
Spare Truck # →							
End Mileage →							
Begin Mileage →							
Total Trip Miles →							
Route (Example AA, BB Etc..)							
SIGN IN: →							
SIGN OUT: →							
CHECK LIST							
WATER							
OIL & BATTERY							
TRANSMISSION FLUID							
POWER STEERING FLUID							
BRAKE FLUID							
BELTS/RUBBER HOSES							
TIRES/LUG NUTS							
WASHER FLUID/WIPER BLADES							
PM STICKER							
GROUND FOR OIL & WATER							
TRUCK FUEL LEVEL/CAP							
FRAME/BODY/DOORS							
SEAT/MIRRORS/WINDOWS							
LOW/HIGH BAND RADIOS							
BACK-UP ALARM & HORN							
EMERGENCY LIGHTS							
PARKING & HEAD LIGHTS							
CAB LIGHTS							
TAIL & BRAKE LIGHTS							
TURN SIGNALS & 4-WAY FLASHERS							
INTERIOR OF TRUCK CLEAN							
AC/HEAT							
PARKING BRAKE							
EQUIPMENT							
GAS CANS							
OIL DRI							
AIR COMPRESSOR							
ALL FIRE EXTINGUISHERS							
20 CONES Fleetside							
40 Cones Service Body							
FLARES							
2 WHEEL CHOCKS							
JUMP BOX (CHARGED)							
INSPECT WINCH & CABLES							
TOW STRAPS							
J-HOOKS							
ARROW BOARD							
Comments							

IMAP Personal Protective Equipment (PPE):

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

- **Mandatory PPE –** Responders must keep the following Personal Protective Equipment (PPE) with them or in IMAP truck at all times while on duty

- **A –** Reflective Safety Vest
- **B –** Steel-Toed Boots
- **C –** Work Gloves
- **D –** Safety Glasses
- **E –** Medical-grade Gloves
- **F –** Hard Hat

- **Suggested PPE –** Responders are encouraged to use the following PPE in order to increase their safety and comfort while on duty

- **A –** Knee Pads
- **B –** Insect Repellent
- **C –** Sunblock

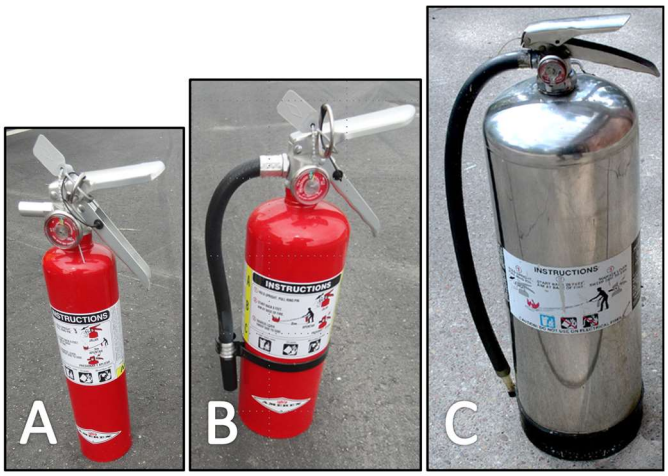
First Aid & Fire Extinguishers:

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

- **First Aid Kit –** Each IMAP truck is equipped with an NC 24 Unit First Aid Kit
  - Kit must be accessible and fully stocked at all times
  - Dispose of and replace any used or expired items

- **Fire Extinguishers –** Each IMAP truck is equipped with four (4) fire extinguishers (shown below)
  - **A –** 1 small "ABC" extinguisher in truck cab
  - **B –** 2 medium "ABC" extinguishers on sides of truck
  - **C –** 1 large (2-gallon) Water extinguisher in truck bed



- **"ABC" Extinguishers** use a white, chemical powder to put out fires
  - Shake extinguisher to prevent powder from settling at bottom
  - Powder can blow sparks off of fire and into grass, causing more fires

- **Water Extinguisher** uses compressed water to put out fires
  - Responders should refill after every use
  - A small amount of EPA-friendly antifreeze can prevent water from freezing in cold weather

- **All fire extinguishers must be properly secured when not in use**

- Responders must **inspect all fire extinguishers daily** to confirm that they are **charged/filled, ready for use** and **up-to-date on monthly inspection**

Tire Changing Equipment (1 of 2):

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

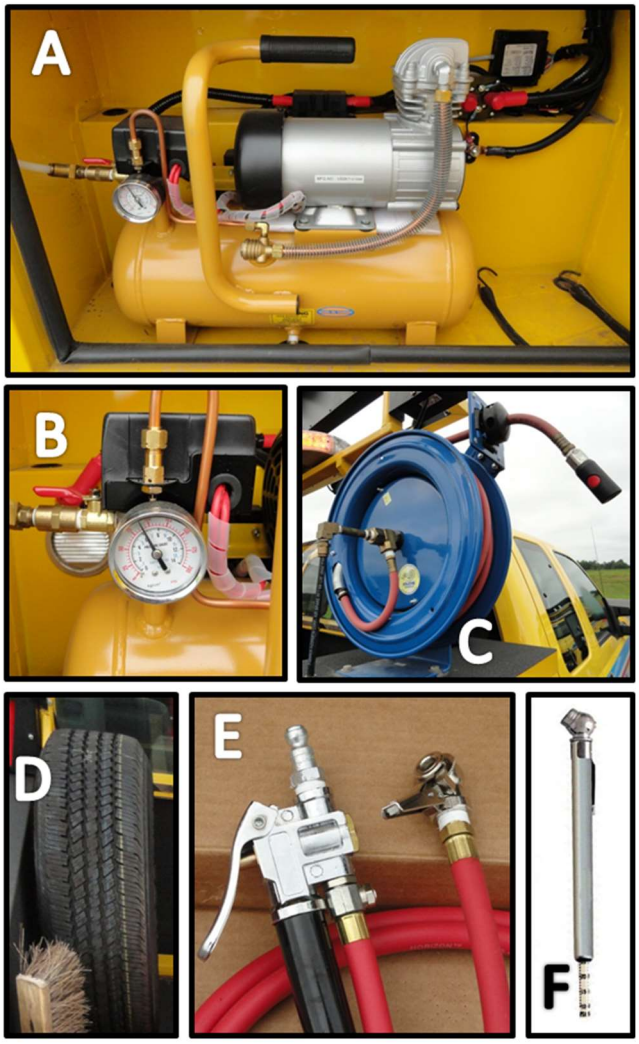
A – Rolling Jack:
- Raises vehicles during tire changes
- 2.5 ton capacity

- **B – Jack Stands:**
  - Supports raised vehicle in case jack slips/fails
  - MUST be used when a vehicle is raised
- **C – Bottle Jack:**
  - Raises larger vehicles including IMAP truck
  - 6 ton capacity
  - Place flat piece of metal under jack to stabilize
- **D – Jacks in Use:**
  - Jack & stand make contact with frame
  - Raise and lower vehicle CAREFULLY
- **E – Impact Wrench:**
  - Removes lug nuts
  - Assure battery is charged
- **F – Socket Set:**
  - Use with impact wrench
  - Assure sockets fit lugs
  - Breaker Bar
- **G – 4-Way Lug Wrench:**
  - Manually removes lugs
  - Use to confirm lugs are on properly
- **H – Wheel Chocks:**
  - Prevents vehicles from rolling unintentionally
  - MUST be used when a vehicle is raised
- **I – Chocks in Use**

Tire Changing Equipment (2 of 2):

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:



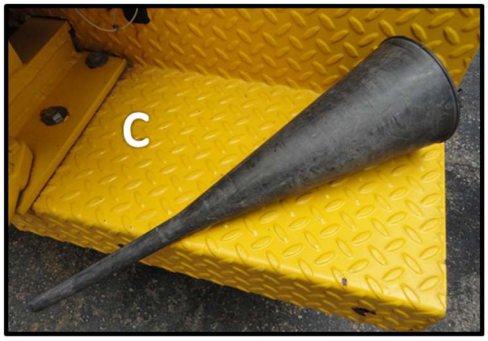
- **A – Air Compressor:**
  - Uses gas or electric motor to fill tank with pressurized air
  - Primarily used to refill flat tires
  - Different IMAP trucks have different models – know which you have and how to operate it
- **B – Pressure Gauge & Release Valve:**
  - Use pressure gauge to monitor pressure of air within tank
  - Use release valve to let air out of tank
- **C – Air Hose & Reel:**
  - Air hose feeds compressed air from tank to tire inflator
  - Reel spools out up to 30 feet of hose and keeps hose contained when not in use
- **D – Spare IMAP Tire:**
  - For use on IMAP trucks ONLY
  - Assure spare is filled and in good condition during all vehicle & equipment inspections
- **E – Tire Inflator & Pressure Gauge:**
  - Connects to air hose and feeds air into tire
  - Use built in pressure gauge to monitor air pressure in tire while filling
- **F – Small Pressure Gauge:**
  - OPTIONAL EQUIPMENT
  - Can make checking tire pressure more convenient
- **Air Compressor in Use:**
  - Wear all necessary PPE – especially work gloves and safety glasses
  - Activate air compressor and pressurize tank only when needed
  - Make sure tank has sufficiently pressurized before attempting to refill tire
  - Keep people and vehicles from standing on or parking on air hose
  - ALWAYS let pressurized air out of tank and air hose when not in use

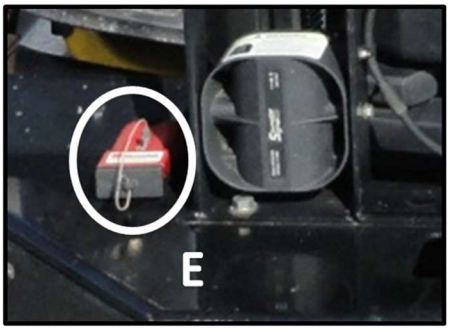
Refueling, Coolant & Jumpstarting Equipment:

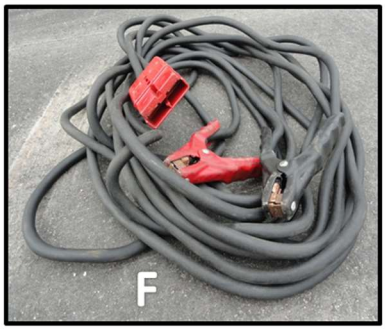
Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

- **A – 2 Gallon Fuel Cans:**
  - Truck equipped with 2 cans
  - All fuel cans may carry either gas or diesel fuel
- **B – 5 Gallon Fuel Cans:**
  - Additional, smaller fuel cans may be substituted for 5 gallon cans
  - All cans should be wiped clean and secured properly
- **C – Funnel:**
  - Prevents spilling when pouring fuel for disabled vehicles
  - Rinse clean regularly
- **D – 1 Gallon Water Cans:**
  - 3-5 cans on truck to hold water for overheated coolant systems
  - Add small amount of EPA-friendly antifreeze to prevent freezing in cold weather
- **E – External Jumper Hookup:**
  - Located on IMAP front bumper
  - Replace cover when not in use
- **F – External Jumper Cables:**
  - Connect to external jumper hookup
  - Provides longer reach than standard jumper cables
- **H – Jump Box:**
  - Portable battery pack can be carried to disabled vehicle
  - MUST be fully charged before being used





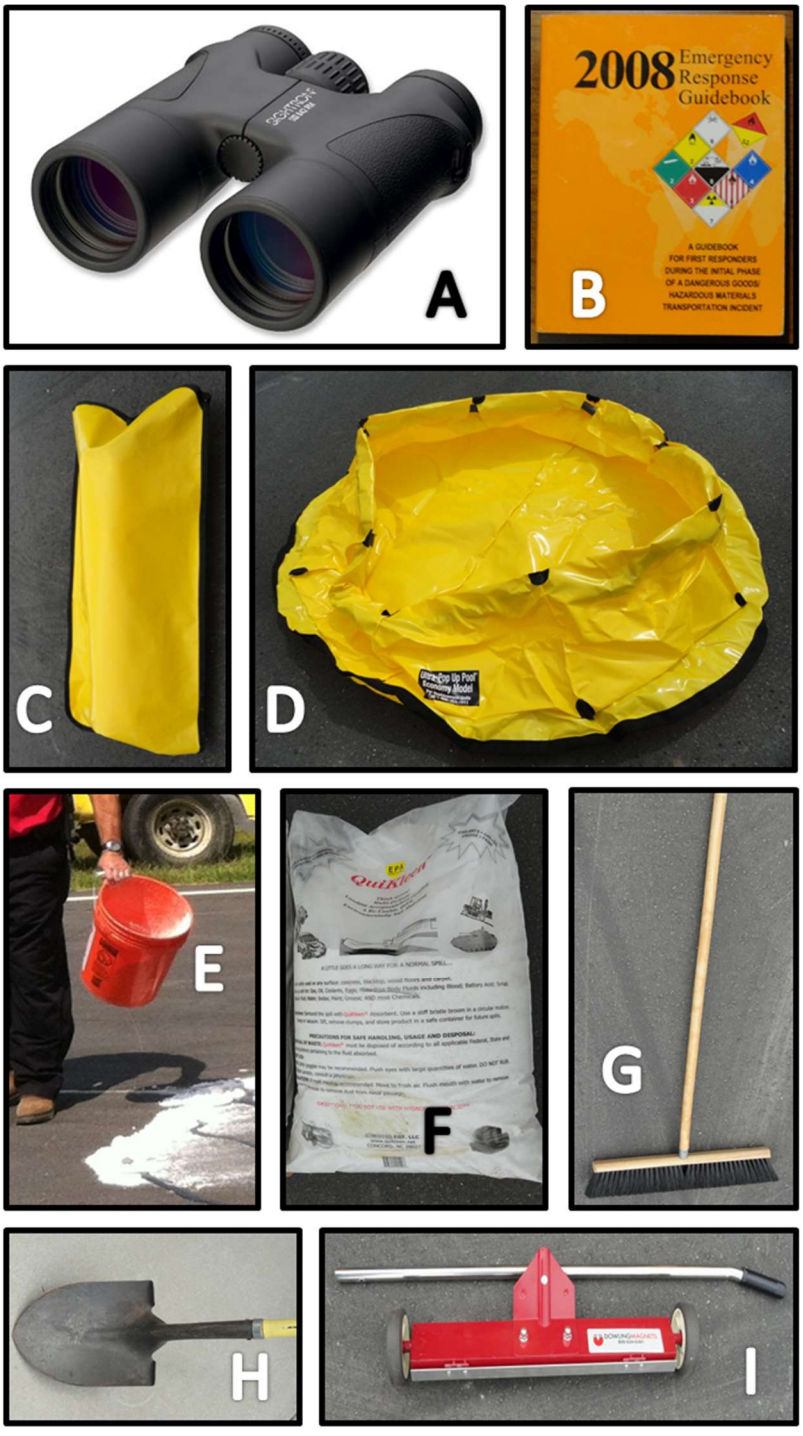


HazMat / Clean Up Equipment:

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

- **A – Binoculars:**
  - Use to read Hazardous Materials placards from a distance
  - Store in protective case
- **B – ERG Guidebook:**
  - "Emergency Response Guidebook"
  - Use to identify hazardous materials
- **C – Pop-Up Pool Bag:**
  - Contains Pop-Up Pool
  - Disposable
- **D – Pop-Up Pool:**
  - Use to collect fluids leaking from damaged vehicles or containers
  - Give used Pop-Up Pool to Fire Department for disposal
- **E – Quick Dry:**
  - Use to **increase traction** where fluids (e.g. fuel) have spilled
  - Can be used to create a dam around spills to keep them from spreading
  - Kept on hand in a 5 gallon bucket
- **F – Extra Quick Dry Bags:**
  - Use to refill Quick Dry bucket
  - 2-3 bags kept on IMAP truck
- **G – Push Broom:**
  - Use to spread Quick Dry
  - Can also sweep up small debris (e.g. glass) from lanes
- **H – Shovel:**
  - Use to remove smaller debris (e.g. gravel) from lanes
- **I – Push Magnet:**
  - OPTIONAL EQUIPMENT
  - Use to pick up small, metallic debris (e.g. nails)

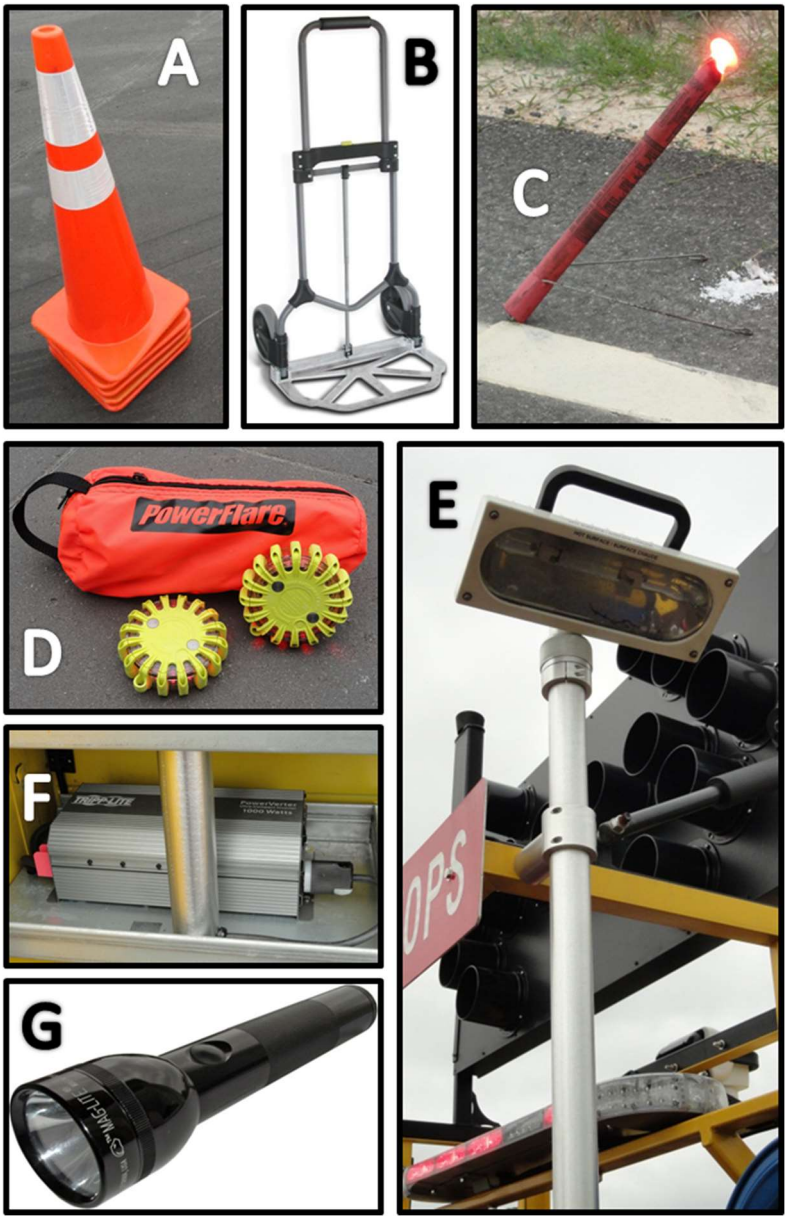


Traffic Control & Lighting Equipment:

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

- **A – Traffic Cones:**
  - Use to guide on-coming traffic around & away from incident scenes
  - Must carry a minimum of 27 cones
  - Keep cones clean – dirty cones are less reflective and harder to see
  - Replace as needed – damaged cones do not stack or stand properly
- **B – "Cone Caddy":**
  - OPTIONAL EQUIPMENT
  - Collapsible hand truck that can make hauling cones easier
- **C – Flares:**
  - Use to make traffic control easier to see at night or in inclement weather
  - Also used as advanced warning
  - 30-minute burn time
  - Do NOT place in grass or near flammable surfaces/fluids
- **D – Electric Flares:**
  - OPTIONAL EQUIPMENT
  - Rechargeable, lit by LEDs
- **E – Work Light:**
  - Use to light incident scene
  - Can raise, lower or turn 360°
  - Direct at ground when not in use
  - ALWAYS wear gloves & adjust light by the handle
  - Do NOT point directly at traffic
- **F – Power Inverter:**
  - Powers electrical equipment on IMAP truck – including Work Light
  - Turn OFF if Work Light overheats
- **G – Flashlight:**
  - Use to help see in the dark
  - Can help draw motorist attention
  - Can also be used to signal motorists



Hand Tools & Miscellaneous Equipment:

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

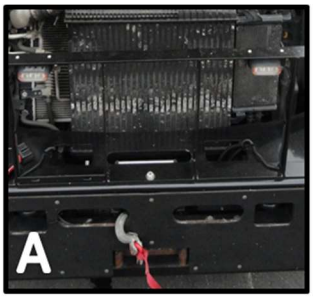
- **A – Hand Tools:**
  - Use to perform numerous tasks
  - Includes Screw Responders, Wrenches, Wire Cutters, Pliers, Box Cutters, etc.
- **B – Disposable Wipes:**
  - Use to clean vehicle, equipment, or hands
  - Kept on hand in dispenser bucket
- **C – "Tie Down" Equipment:**
  - SUGGESTED EQUIPMENT
  - Various items used to secure, seal or tie down equipment or other objects
  - Includes Duct Tape, Bailing Wire, Bungee Cords, etc.
- **D – Lubricant Spray:**
  - Use to maintain IMAP equipment (e.g. winch cable) & to loosen screws, nuts, etc.
  - Can also be used as a solvent to remove grease or other sticky fluids/residue
- **E – Starter Fluid:**
  - Typically sprayed into engine intake or spark plug holes to help re-start disabled vehicles
  - Read instructions and refer to vehicle owner's manual BEFORE using
- **F – Spray Paint:**
  - Use to mark vehicle location to assist with crash investigations
  - Must use brightly colored paint
- **G – Tire Plugs:**
  - OPTIONAL EQUIPMENT
  - Can repair small holes/punctures in tires
- **H – Storage Trays/Shelves:**
  - Use to store and organize small tools
  - Can be raised or lowered in storage cabinet
  - Keep tools from rusting by cleaning & drying them off before returning to trays

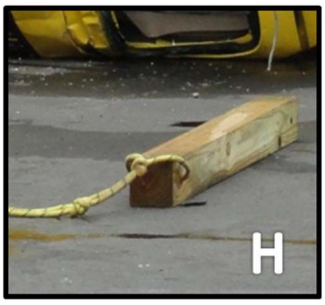
Towing Equipment – Front & Rear Winches:

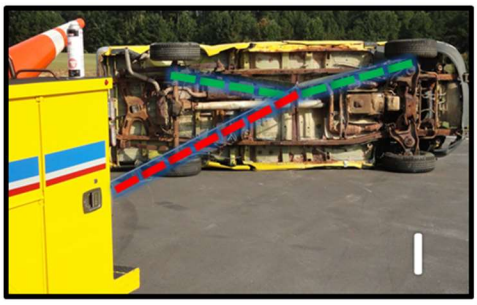
Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

- **A – Front Winch:**
  - Housed within push bumper
  - Assure front hook is flush with bumper before pushing
- **B – Rear Winch:**
  - Mounted on rear bumper
  - Both winches have pulling capacity of 12,000lbs
- **C – Winch Hooks & Cables:**
  - Both hold approx. 30ft of cable
  - Hooks equipped with safety clasps
- **D – Cable Clutch:**
  - Engages/disengages winch motor
  - Disengage to pull cable out by hand
- **E – Winch Controller:**
  - Use to operate winch from a safe distance and behind IMAP door
  - Connects to winch control boxes
- **F – Control Box:**
  - Connect winch controller here
  - Cover connection when not in use
- **G – Heavy Blanket/Rubber Mat:**
  - Drape across winch cable to prevent damage/injury if cable snaps
- **H – Wood Beam Wheel Chocks:**
  - OPTIONAL EQUIPMENT
  - Often used to keep overturned vehicle from rolling unintentionally
  - Place where tires of overturned vehicle will land once up-righted







- **I – Winch Use & Care:**
  - Typically used in combo with other towing equipment; **RED** = winch cable, **GREEN** = hook straps
  - Assure that both front & rear winches are functioning & cables are not damaged before each shift
  - Keep cable straight and taught when pulling cable in/out to **avoid kinks in the cable**
  - Use a clean rag or towel to remove dirt or debris from winch cable as needed

Towing Equipment – Hooks, Chains & Straps:

Objective: Gain in-depth knowledge of all IMAP tools & equipment

Critical Knowledge:

- **A – J-Hooks:**
  - Chain with large, "J" shaped hooks on each end
  - All-purpose accessory; best for moving large vehicles or objects
- **B – Tow Strap:**
  - Durable nylon strap in-place of chain with open loops on each end for various hooks
  - Often used to avoid damaging vehicles
- **C – Clevis Shackles:**
  - "U" shaped metal bolts with removable pins
  - Use to securely fasten hooks, chains, and straps together
- **D – Hook Strap:**
  - Similar to Tow Strap; uses nylon in-place of chain
  - Hook permanently attached to end(s) of strap
- **E – Frame Keys:**
  - Refers to bundle of metal "keys" at end of chain
  - Each "key" is designed to fit frame of a particular make of vehicle
  - Often used to hook onto smaller vehicles
- **F – Crowbar:**
  - Solid metal tool used to lift or bend objects
  - Use to clear bent bumpers away from tires
  - Use to pry stuck hooks from vehicles
- **G – Double-Loop Cable:**
  - OPTIONAL EQUIPMENT
  - Wrap around vehicle frames to create a solid connection point for other hooks and chains
- **H – Hooks/Chains/Straps Use & Care:**
  - Inspect all towing equipment before use
  - Only connect equipment to solid parts of the object/vehicle (e.g. frames, axles, etc.)
  - Only connect to the IMAP truck's Tow Hooks, Anchor Bolts, Winch Hooks, or Trailer Hitch
  - Store all hooks and chains in a dry location to avoid rusting

Description:

Become familiar with IMAP's radio equipment and the protocol for communicating with TMC dispatch, other responders, and law enforcement

Objectives:

- Learn about the different types of radios in the IMAP truck
- Explore the primary components of a typical handheld VIPER radio
- Learn the basic concepts of dispatch communication and understand the channels & call signs used by IMAP responders & TMC dispatch
- Become familiar with the use of 10-codes, signals, and plain English to communicate over the radio properly
- Learn the guidelines & techniques for proper radio communication
- Review specific call & response protocols for communicating with TMC dispatch & other IMAP units

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-101: IMAP Vehicle & Maintenance

Radio Hardware in the IMAP Truck:

Objective: Learn about the different types of radios in the IMAP truck.

Critical Knowledge:

- **All IMAP trucks are equipped with multiple radios –** since radio devices & channels are different in each region, all responders must learn;
  - What radios they will use in their truck & on-scene
  - How to operate the specific devices (e.g. change channels, etc.)
  - Which radio channels are used in their region & who uses them
  - Which radio channels CAN and CANNOT be used by IMAP
- **Primary Radio Hardware Guidelines –** all responders should;
  - Inspect all radio equipment & charge all batteries before every shift
  - Keep portable radios clipped to belt or in truck while on-scene
  - Keep radios organized & secured in truck cab while driving
- **VIPER/800 MHz Radios –** Voice Interoperability Plan for Emergency Responders (VIPER):
  - Primary radio for communication between TMC & other IMAP units
  - Also allows responders to communicate with other response agencies
  - **Scan mode** allows responders to listen to multiple channels at a time
  - Responders have one truck-mounted VIPER radio & one handheld
- **Cell Phone/Direct Connect –** a backup to VIPER, can be used to;
  - Communicate with TMC/IMAP without transmitting to all units
  - Help stranded motorists call for additional assistance (e.g. wrecker)
  - **DO NOT use for personal calls**
- **Low-Band Radios –** a backup to VIPER, can be used to communicate;
  - With other IMAP units (must use cell/direct connect for TMC)
  - With DOT maintenance who use low-band exclusively in some areas
  - With other response agencies – especially those NOT using VIPER
  - Some trucks have **CB radios** for talking to commercial truck drivers
- **Multi-Function PA System –** Public Address (PA) is used to;
  - Communicate with motorists over a truck-mounted loud speaker
  - Amplify radio traffic over loud speaker so it can be heard on-scene
  - Attract attention/alert bystanders using an air horn

Components of the Handheld VIPER Radio:

Objective: Explore the primary components of a typical handheld VIPER radio.

Critical Knowledge:

- **Handheld VIPER Radio Components –** some components may be different on different models but most handheld VIPER radios have;
  - **A –** Volume & Power Knob: turns radio on & raises/lowers volume
  - **B –** Channel Knob: selects channel that radio is tuned to
  - **C –** Mode Selector: **A-mode** = talk/listen, **B-mode** = define channels to scan, and **C-mode** = scan defined channels
  - **D –** Signal Strength Indicator: push to see signal strength (under 40 prevents communication)
  - **E –** Push to Talk (PTT) Button
  - **F –** Zone Selector: push & use arrows to select frequencies (zones)
  - **G –** Home Button: push to save settings & return to main screen
  - **H –** Zone Icon: shows zone currently in use
  - **I –** Talk Group Label: displays name of talk group currently in use
  - **J –** Mode/Priority Icon: shows priority level of scanned channels
  - **K –** Battery Status Indicator
  - **L –** Microphone: kept where responder can easily talk/listen to radio while keeping handheld clipped to belt

VIPER Channels & Call Signs:

Objective: Learn the basic concepts of dispatch communication & understand the channels & call signs used by IMAP responders & TMC dispatch.

Critical Knowledge:

- **Basics of Dispatch Communication –** dispatch/radio communication is different from other communication modes (e.g. telephones);
  - Two groups are involved – **Base** (TMC) & **Field** (IMAP units)
  - Communication between these groups is called **"Traffic"** or a **"Transmission"**
  - **Primary Dispatch Channel/Talk Group** is used for most traffic
  - **Tactical Channel/Talk Group** is used for special traffic
  - Traffic **can be heard by anyone** tuned to a particular talk group
  - Anyone on a talk group can transmit but only one transmission can be heard at a time (i.e. if someone is talking, others must wait to talk)
- **VIPER Zones, Channels & Talk Groups:**
  - Zones – reserved for different functions; contains multiple Channels
  - Channels – contain the individual Talk Groups available in a Zone
  - Talk Groups – unique channels where actual transmissions occur
  - Talk Groups are often referred to as "Channels" by VIPER users
- **Dispatch Call Signs –** the designations given to radio users to help identify who is speaking and who they are speaking to
  - Call signs for Base & Field are different for each IMAP region
  - **P#**'s are given to each IMAP responder (**Ex**. P311) – the number after the P defines which region the responder works in (**Ex.** P311 = Triad)
- **Call Signs & P#'s by Region:**
  - Western Mountains – Base: TMC or Mountain, Field: **P4**xx
  - Metrolina – Base: TMC or Metro, Field: **P1**xx
  - Triad – Base: TMC or Triad, Field: **P3**xx
  - Triangle – Base: STOC, Field: **P2**xx
  - Southest Coastal – Base: STOC, Field: **P5**xx
  - **P01** thru **P09 –** call signs reserved for Statewide operations personnel
  - **P10** thru **P19** – call signs reserved for Regional Traffic Incident Management (TIM) Coordinators

10-Codes, Signals, & Plain English:

Objective: Become familiar with the use of 10-codes, signals, & plain English to communicate over the radio properly.

Critical Knowledge:

- **10-Codes & Signals –** numeric phrases developed to keep radio traffic brief & clear. IMAP responders should;
  - Learn the 10-codes/signals & know when each should be used
  - Relay as much information as possible through 10-codes/signals
  - Use **Plain English** as needed to relay a complete & clear message
  - **NEVER use 10-codes/signals** when communicating with ANY agency other than SHP or TMC/IMAP – use Plain English

- **Definitions of Commonly Used 10-Codes:**
  - **10-1:** Signal Weak (when radio traffic is hard to hear/understand)
  - **10-2:** Signal Good (when confirming radio traffic is clear)
  - **10-4:** Affirmative/OK
  - **10-7:** Out of Service (when taking breaks or transporting motorists)
  - **10-8:** In Service (when returning to active patrol from break/task)
  - **10-9:** Say Again/Repeat (when message was not fully understood)
  - **10-10:** Negative
  - **10-12:** Standby/Stop (when user must wait to give/receive info)
  - **10-17:** En Route (when user is on the way to a location)
  - **10-20:** Location
  - **10-22:** Disregard (when cancelling a request or correcting wrong info)
  - **10-23:** Arrived at Scene
  - **10-24:** Assignment Complete (when leaving scene/returning to patrol)
  - **10-41:** Beginning Tour of Duty (when starting shift & on patrol)
  - **10-42:** Ending Tour of Duty (when ending patrol & returning to base)
  - **10-50 (PD, PI, or F):** Collision (when reporting a vehicle crash)
  - **10-53:** Road Blocked (when all lanes & shoulders are closed to travel)
  - **10-63:** Investigate ___ at ___ (when reporting debris in the roadway)
  - **10-78:** Report of an Abandoned Vehicle
  - **10-79:** Report of a Vehicle Fire
  - **10-82:** Report of a Disabled Vehicle (when motorist is on-scene)

Radio Use & Etiquette:

Objective: Learn the guidelines & techniques for proper radio communication.

Critical Knowledge:

- **Primary Guidelines for Radio Communication:**
  - Only communicate on channels approved for IMAP's use
  - All transmissions must be appropriate (i.e. no foul language)
  - When hailed, responder must respond as soon as possible
  - TMC must be notified whenever a responder's location or availability changes **AND** whenever conditions at an incident change
  - Responders must notify TMC when they begin (10-41) & end (10-42) their tour of duty & must provide their truck's mileage at both times

- **ABCs of Proper Radio Communication:**
  - **A – ACCURATE.** Provide current & accurate info only (NO assumptions). Estimates are OK but state that they are estimates
  - **B – BRIEF.** All transmissions should be brief & relevant to incident response. Other users cannot transmit until you are done talking
  - **C – CLEAR.** Speak clearly & use easily understood language. Use Plain English and/or Phonetic Alphabet if words are long/unfamiliar

- **Tips for Better Radio Communication:**
  - **Listen before you speak** – DO NOT interrupt other transmissions
  - **Think before you speak** – long pauses & 'umms' make messages hard to understand & keep others from transmitting
  - **Speak at an even rate –** avoid talking too fast or changing the pitch of your voice; a medium-paced, monotone voice is best for radio
  - **Avoid 'Voice Clipping' –** voice clipping occurs when radio users push the transmit button too early/release it too soon while talking. Push button, start talking, finish talking, THEN release the button
  - **OK to Repeat or Standby –** accuracy & clarity are critical to radio communication so, if you didn't hear a message or need a moment to complete a task, it is okay to ask others to REPEAT or STANDBY
  - **Be Patient –** everyone using the radio (including TMC dispatch) has other tasks to do. Calmly give all users a moment to respond – your patience will be returned when you need a moment

Dispatch Protocol:

Objective: Review specific call & response protocols for communicating with TMC dispatch & other IMAP units.

Critical Knowledge:

- **Hailing Users –** calling for specific users in order to relay info
  - **Base to Field:** "TMC to P509…"
  - **Field to Base:** "P509 to TMC…"
- **Acknowledging Users –** alerting users that you are ready to receive info
  - **Base to Field:** "TMC to P509, go ahead…"
  - **Field to Base:** "P509 to TMC, go ahead…"
- **Reporting Incidents –** relaying ALL relevant & available incident details
  - **Crash:** "TMC: I'm 10-23 with a 10-50 PI on I-77 Northbound at mile marker 9. Lane #1 of 3 is blocked by SHP & Fire Dept. Vehicles involved are a blue sedan and an overturned box truck…"
  - **Disabled Vehicle:** "TMC: 10-82 on I-40 Eastbound at mile marker 161, on the right shoulder. Vehicle is a white Toyota Corolla with North Carolina plate ADAM, NORA, HENRY 1-4-6-1; that's A-N-H, 14-61…"
- **Acknowledging Receipt –** confirming info was heard & understood
  - **OK:** "P509 to TMC: 10-4…"
  - **OK + En Route:** "10-4 TMC. I'm 10-17 from I-40 Eastbound, mile marker 286…"
- **Miscellaneous Traffic:**
  - **Transporting Motorist (before):** "P211 to TMC: I'm 10-7 on I-40 Westbound at Gorman Street, Exit 295. Preparing to transport one female motorist to BP gas station. Beginning mileage 47, 386…"
  - **Missed Transmission:** "P322 to TMC: 10-9 your last; you're 10-1…"
  - **Standby Request:** "P130 to TMC: 10-12. I'm pulling a vehicle…"
  - **Disregard:** "P505 to TMC: 10-22 DMS for the 10-50 at Exit 412. All lanes are open and I'm 10-8…"
  - **Beginning Tour of Duty:** "P217 to TMC: 10-41. Mileage is 72,315…"

NC Highway Patrol 10-Codes:

10-1 Signal Weak	**10-30** Danger	**10-62** Burglary/Breaking and Entering
10-2 Signal Good	**10-31** Pick Up	**10-63** Investigate ___ at ___ (DEBRIS)
10-3 Stop Transmitting	**10-32** Units Needed (Specify)	**10-64** Crime in Progress
10-4 Affirmative (OK)	**10-33** Help Me Quick	**10-65** Report of Armed Robbery
10-5 Relay (to)	**10-34** Time	**10-66** Notify Coroner/Med. Examiner
10-6 Busy	**10-36** Restraint Violation	**10-67** Investigate Report of Death
10-7 Out-of-Service	**10-40** Fight in Progress	**10-68** Livestock on Highway
10-8 In-Service	**10-41** Beginning Tour of Duty	**10-69** Advise Present Phone Number
10-9 Say Again (Repeat)	**10-42** Ending Tour of Duty	**10-70** Improperly Parked Vehicle
10-10 Negative	**10-43** Chase	**10-71** Improper Use of Radio
10-12 Stand by (Stop)	**10-44** Riot	**10-72** Have Prisoner in Custody
10-13 Existing Conditions	**10-45** Bomb Threat	**10-73** Mental Subject
10-14 Message/Information	**10-46** Bank Alarm	**10-74** Prison or Jail Break
10-15 Message Delivered	**10-47** Complete Assignment Quickly	**10-75** Records Indicate Wanted/Stolen
10-16 Reply to Message	**10-48** Detaining Subject, Expedite	**10-76** Report of Prowler
10-17 En Route	**10-49** Drag Racing	**10-77** Assist Fire Dept. with Traffic
10-18 Urgent	**10-50** Accident PD, PI, F	**10-78** Report of Abandoned Vehicle
10-19 (in) Contact	**10-51** Wrecker Needed	**10-79** Report of Vehicle Fire
10-20 Location	**10-52** Ambulance Needed	**10-80** Report of Reckless Driving
10-21 Call – by phone	**10-53** Road Blocked	**10-81** Report of High Speed
10-22 Disregard	**10-54** Hit and Run PD, PI, F	**10-82** Report of Disabled Motorist
10-23 Arrived at Scene	**10-55** Intoxicated Driver	**10-83** Report of Improper Registration
10-24 Assignment Completed	**10-56** Intoxicated Pedestrian	**10-84** Report of License Violation
10-25 Report to (Meet)	**10-57** Request Breathalyzer Operator	**10-85** Report of Bike/GoCart Violation
10-26 Estimated Arrival Time	**10-58** Direct Traffic	**10-86** Beginning Authorized Travel
10-27 License/Permit Information	**10-59** Convoy or Escort	**10-87** Ending Authorized Travel
10-28 Ownership Information	**10-60** Investigate Suspicious Vehicle	
10-29 Records Check	**10-61** Stopping Suspicious Vehicle	

NC Highway Patrol Signals & Phonetic Alphabet:

Signal 1 Suspect Armed and Dangerous
Signal 2 Report of Suspected Drug Trafficking (vehicle/suspect description, direction of travel & "Signal 1" if applicable)
Signal 4 Report of Vehicle Stored/Recovered
Signal 9 Meet at – troop meeting or division meeting.
Signal 11 All men affected by this signal should immediately prepare for emergency duty and radio contact.
Signal 12 Report to – at – for emergency duty
Signal 13 Conviction/Revocation
Signal 14 Current Suspension/Revocation other than DWI
Signal 18 Accident/Incident involving Hazardous Material
Signal 19 Report of Aircraft Crash at
Signal 20 Report of Aircraft in Difficulty at
Signal 21 Request for radio or car repair
Signal 24 Daily accident summary
Signal 25 –needs immediate assistance to make arrest of resisting person. Report at once to
Signal 26 Computer terminal is temporarily out-of-service

A	**ADAM**	**N**	**NORA**
B	**BOY**	**O**	**OCEAN**
C	**CHARLES**	**P**	**PAUL**
D	**DAVID**	**Q**	**QUEEN**
E	**EDWARD**	**R**	**ROBERT**
F	**FRANK**	**S**	**SAM**
G	**GEORGE**	**T**	**TOM**
H	**HENRY**	**U**	**UNION**
I	**IDA**	**V**	**VICTOR**
J	**JOHN**	**W**	**WILLIAM**
K	**KING**	**X**	**X-RAY**
L	**LINCOLN**	**Y**	**YOUNG**
M	**MARY**	**Z**	**ZEBRA**

Description:

Become familiar with the guidelines & techniques used to properly operate IMAP vehicles on the roadway

Objectives:

- Learn about the primary guidelines that IMAP Responders must adhere to when operating an IMAP vehicle
- Become familiar with the concepts related to general stopping and maneuverability of the IMAP vehicle and guidelines for repositioning in reverse
- Explore the guidelines and strategies used by IMAP to detect incidents while patrolling their assigned route(s)
- Learn about the various guidelines and strategies used by IMAP Responders when unexpected driving conditions or circumstances occur

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics

Primary Guidelines for Operating the IMAP Vehicle:

Objective: Learn about the primary guidelines that IMAP Responders must adhere to when operating an IMAP vehicle

Critical Knowledge:

- IMAP Responders **must obey all traffic laws** when operating an IMAP vehicle;
  - DO NOT exceed the posted speed limit
  - Seatbelts must be worn at all times when IMAP vehicle is in motion
  - Vehicle lights and turn signals must be activated as appropriate
  - Aggressive or reckless driving is PROHIBITED
- IMAP Responders **should drive defensively** when operating an IMAP vehicle;
  - Prevent accidents by anticipating & avoiding hazardous situations
  - Adjust driving behavior to suit current travel conditions
  - Avoid conflict with aggressive or erratic Responders
- IMAP vehicles must be inspected BEFORE and AFTER each shift
  - IMAP vehicle must pass inspection before leaving headquarters
  - Report or (if minor) repair any malfunctions promptly
- **Additional guidelines for safe & effective driving include;**
  - ALWAYS have an ESCAPE ROUTE – even while driving
  - Know how your truck handles under normal & adverse conditions
  - Adjust seat, steering wheel position, mirrors, etc. to suit you
  - Keep truck cab organized and secure any loose items
  - Keep windshields & mirrors clean – remove fog/film before driving
  - Stay alert & continuously scan ahead and on both sides of vehicle
  - Check rear & side view mirrors frequently – at least every 6-8 seconds
  - Know where your blind spots are – watch them carefully & often
  - Maintain adequate distance from other vehicles on all sides of truck
  - Regularly check equipment, cabinets, and arrow board while in motion
  - Maintain steady speed consistent with traffic flow (within legal limits)
  - Avoid sudden stops/lane changes – brake gradually & merge smoothly
  - Sound air horn before repositioning in reverse or when maneuvering in heavy traffic

Stopping, Maneuverability & Repositioning in Reverse:

Objective: Become familiar with the concepts related to general stopping and maneuverability of the IMAP vehicle and guidelines for repositioning in reverse

Critical Knowledge:

- Sudden stops can disrupt traffic, cause rear-end crashes, and cause equipment to shift or fall off of the vehicle completely
- Responders should use brakes to control speed & bring IMAP vehicle to a safe and gradual stop. Below are a few DOs and DO NOTs for proper braking;
  - **DO** look at traffic ahead & behind to estimate safe stopping distance
  - DO NOT pump, slam, ride, or habitually tap the brakes
  - **DO** use steady, even pressure on brake pedal to decelerate/stop
  - DO NOT use emergency brake unless all other braking systems fail
  - **DO** use brakes to maintain a safe distance between other vehicles
  - DO NOT brake sharply when traveling around curves
  - **DO** gradually reduce speed then accelerate smoothly through curves
- **Factors that Affect Maneuverability & Stopping Distance:**
  - Higher Speed = less maneuverable & longer stopping distance
  - Wet/Slick Pavement = less maneuverable & longer stopping distance
  - Brakes Hot from Overuse = longer stopping distance
  - Letting ON & OFF Gas Pedal = less maneuverable
- **"Backing up" is NOT a suggested IMAP driving technique** – Responders may reposition the truck in reverse but must follow the guidelines below;
  - Plan ahead to minimize need to reposition in reverse
  - When parking, reposition into or pull through space so first vehicle movement is FORWARD when driving resumes
  - Assure area behind truck is clear & sound air horn before repositioning
  - Use mirrors rather than turning head so traffic in front & behind can be monitored continuously
  - Reposition at a significantly slower speed to prevent accidents
  - Use caution when maneuvering in reverse – steering may FEEL counter-intuitive but turning wheel right will point rear of truck right
  - **Responders should be familiar with backing policies for their Region**

Detecting Incidents while on Patrol:

Objective: Explore the guidelines and strategies used by IMAP to detect incidents while patrolling their assigned route(s)

Critical Knowledge:

- IMAP is responsible for actively patrolling assigned route(s) in order to detect road hazards, traffic incidents, and damaged DOT property
- In order to properly and thoroughly patrol a route, IMAP Responders should drive to and travel on all areas of the route which includes;
  - Full length of patrol route and both directions of travel
  - All entrance and exit ramps that access assigned route
  - All over/underpasses with return access to assigned route
- When searching for incidents while on patrol, IMAP Responders should;
  - Scan 12-15 second ahead
  - Visually sweep both directions of travel
  - Regularly note MM's/Exits #'s to locate incidents once detected
- Responders should watch for clues that may indicate a traffic incident such as;
  - Stopped vehicles and/or pedestrians on or near roadway
  - Flashing lights from other responders (e.g. law enforcement)
  - Abnormal congestion levels for area and/or time of day
  - Vehicles making sudden or unusual lane changes
- Responders should avoid traveling behind/beside large vehicles that can obstruct their view of the road and possible incidents
- **Additional guidance for initial arrival on-scene:**
  - See "Vehicle Positioning & Responder Approach" for complete guidance
  - IMAP may drive on shoulder to access incident scene (GS 20-168)
  - Watch for & avoid pedestrians, responders, & response vehicles
  - DO NOT drive over any equipment – especially fire hoses
  - If dispatched, steer into lane mentioned as "blocked" by dispatcher
  - If incident is accidently passed, DO NOT stop & reposition – notify TMC and take next exit in order to turn around & make a 2nd pass

Emergency Driving Techniques:

Objective: Learn about the various guidelines and strategies used by IMAP Responders when unexpected driving conditions or circumstances occur

Critical Knowledge:

- **Driving in Adverse Weather –** Adverse weather typically affects driving conditions by limiting visibility and/or decreasing traction. Responders should;
  - Travel at a reduced speed appropriate for conditions
  - Allow more distance between other vehicles and expect other motorists to drive erratically
  - Initiate all driving actions sooner, slower, & with more room to occur
  - Activate running lights & windshield wipers
  - Avoid using high beams/overrun lights which can cause glare
  - Resist instinct to brake when hydroplaning or skidding on ice – take foot off of gas pedal, keep steering wheel straight, and let truck's momentum decrease until tires regain traction
  - Engage 4-wheel drive and/or apply tire chains if needed
  - Steer away from ruts & snow banks and steer straight on hills

- **If IMAP Vehicle Gets Stuck –** If an IMAP vehicle becomes stuck on slick/unpaved surfaces, Responders may attempt any/all of the following;
  - Attempt to move with 4-wheel drive & front hub locks engaged
  - Shovel a clear path ahead of each tire
  - Place brush, tire debris, sand, etc. ahead of tires to increase traction
  - Use front/rear winch to pull truck to surface with better traction*****
  - Rock vehicle & push from behind while slowly pressing gas pedal*****
  - **If vehicle remains stuck or ceases to move after attempting any of the above, notify TMC dispatch to contact a wrecker (if applicable, one that has a contact with DOT for your area)**

*IMAP Responder should call for backup before attempting this technique

Description:

Become familiar with the proper use of the IMAP truck's 2-wheel & 4-wheel drive capabilities

Objectives:

- Learn about the various drive capabilities that allow the IMAP truck to operate properly under different road/surface conditions
- Review step-by-step instructions for how to shift from 2 to 4-wheel drive on a typical IMAP truck equipped with manual wheel hub locks

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-104: Driving Techniques

IMAP Truck Drive Capabilities:

Objective: Learn about the various drive capabilities that allow the IMAP truck to operate properly under different road/surface conditions

Critical Knowledge:

- **2-Wheel HIGH (2H) –** for everyday on-road driving in dry conditions. Power from engine is sent only to rear wheels

- **4-Wheel HIGH (4H) –** for driving on slick surfaces and/or off-road. Power from engine is sent to ALL wheels. DO NOT use on dry pavement

- **4-Wheel LOW (4L) –** for low-speed, off-road conditions on a steep grade or on tough/low-traction terrain. Power from engine is sent to ALL wheels

- **Wheel Hub Locks –** engages & disengages the 4-wheel drive system
  - Most hub locks are manual – responders exit truck to engage hub locks
  - Some have a "push button" system to lock hubs without exiting truck
  - Some IMAP trucks DO NOT have wheel hub locks at all
  - Responders should confirm the type of hub locks (if any) on their truck

Example of Manual Wheel Hub Locks:

Shifting Between 2 and 4-Wheel Drive:

Objective: Review step-by-step instructions for how to shift from 2 to 4-wheel drive on a typical IMAP truck equipped with manual wheel hub locks

1. Lock the front wheel hubs;
   a. Park & safely exit IMAP truck
   b. Manually turn dials to LOCK on both front wheels & re-enter truck
2. Keep brake pedal depressed and shift transmission to neutral (N)
3. Position drive lever into appropriate 4-wheel drive setting (4H or 4L)
4. Shift transmission into reverse (R) or drive (D)
5. Let off of brake and accelerate slowly up to desired speed
6. When 4H/4L is not needed, assure that front wheel hubs are unlocked;
   a. Park & safely exit IMAP truck
   b. Manually turn dials away from LOCK on front wheels & re-enter truck
7. Keep brake pedal depressed and shift transmission to neutral (N)
8. Return drive lever to 2H position
9. Shift transmission into reverse (R) or drive (D)
10. Let off of brake and accelerate slowly up to desired speed

Description:

Become familiar with the sand truck & snow plow attachment as well as the guidelines and strategies for its use during winter weather operations

Objectives:

- Explore the components of the sand truck & snow plow
- Learn about the sand truck's purpose & the primary guidelines for its use
- Become familiar with the guidelines & procedures for inspecting the sand truck before use & properly shutting it down when sand & plowing operations are over
- Become familiar with the guidelines & techniques for driving the sand truck and for the backup unit (if used) escorting the sand truck
- Learn the guidelines & procedures related to plowing/sanding operations

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

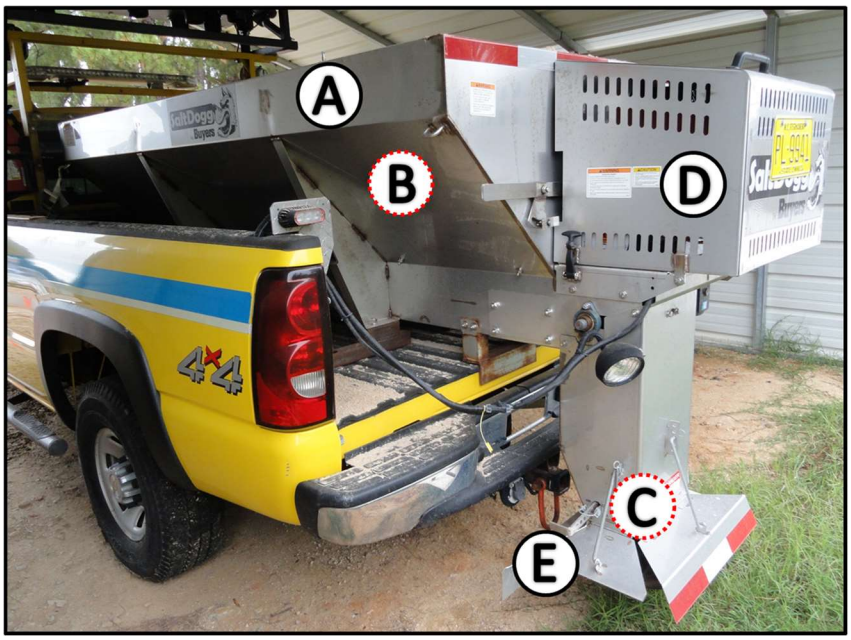
- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- IM-107: Adverse Weather – Reporting Conditions & Basic Response

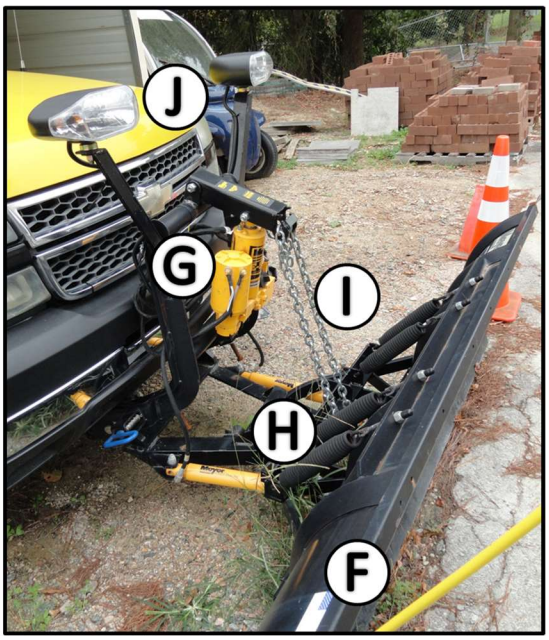
Sand Truck Components:

Objective: Explore the components of the sand truck & snow plow.

Critical Knowledge:

- **IMAP Sand Trucks –** standard IMAP trucks modified to carry & spread sand over icy patches to increase traction during winter weather operations. Some sand trucks are also equipped with snow plows
- **Typical Components of the Sand Spreader:**
  - **A –** Hopper: holds sand for spreading
  - **B –** Auger: inside hopper; draws sand into spreader
  - **C –** Spinner: under spreader gates; spins to spread sand
  - **D –** Spreader Engine: powers auger & spinner
  - **E –** Spreader Gates: adjustable flaps; controls width of spread
- **Typical Components of the Snow Plow:**
  - **F –** Plow Blade: pushes snow & ice out of travel lanes
  - **G –** Hydraulic Lift: raises/lowers & adjusts angle of plow blade
  - **H –** Mount & Suspension: connects plow & controls to sand truck
  - **I –** Safety Chains: secures connection of plow attachment to truck
  - **J –** Headlights: work in place of truck lights which are blocked by plow





Purpose & Primary Guidelines of the Sand Truck:

Objective: Learn about the sand truck's purpose & the primary guidelines for its use.

Critical Knowledge:

- **Large-scale plowing & de-icing operations are handled by DOT Maintenance –** IMAP uses their sand truck to plow/spread sand on;
  - Minor icy patches that are an immediate hazard
  - Short stretches of single lane ramps, bridges & overpasses
  - Transition areas before and/or within a temp. traffic control (ETC) area
  - **IMAP does NOT plow/sand** sidewalks, driveways or parking lots
  - **IMAP may use plow to remove large amounts of small debris**

Example: Sand truck (escorted by backup unit) plowing snow & spreading sand in advance of ETC area, at transition area, & ahead of response vehicles

- **Primary Sand Truck Guidelines –** in addition to all guidelines related to IMAP vehicles, equipment, & driving techniques, IMAP responders should;
  - Be trained to operate the sand truck in order to use it for response
  - Request & receive supervisor approval before using sand truck
  - Notify TMC dispatch that they are leaving route to get sand truck
  - Wear all necessary PPE & appropriate winter weather gear
  - Inspect sand truck before use & perform shutdown procedure after
  - NEVER drive faster than road conditions & visibility permit
  - Avoid driving on rough terrain & DO NOT plow/sand off-road
  - NEVER start or run the spreader if someone is near the mechanism
  - Avoid plowing on bare pavement – only plow where there is snow/ice
  - NEVER plow if road has been treated with salt within last 1-2 hours – sanding is OK
  - Plow snow/ice to shoulder – DO NOT leave snow mounds in lanes
  - NEVER use sand truck to push vehicles or for ETC – call for backup

Sand Truck Inspection & Shutdown Procedures:

Objective: Become familiar with the guidelines & procedures for inspecting the sand truck before use & shutting it down when sand & plowing operations are over

Critical Knowledge:

- **Sand truck must be inspected before use**
  - Use **Operator's Daily Inspection sheet** to document inspection
  - Submit inspection sheet to IMAP supervisor
- **Pre-Start Check BEFORE Operating Sand Truck:**
  - Make sure hopper is sufficiently loaded with sand
  - Use shovel to break up sand & remove chunks/debris that may get caught in the spreader
  - Make sure plow is securely attached to sand truck
  - Refuel spreader engine & make sure it turns ON
  - Remove any loose items from truck bed & sweep away excess sand
  - Check sand truck's tires & attach snow chains if needed
- **Pre-Operations Check BEFORE Departing with Sand Truck:**
  - Turn ON truck & allow engine to warm up (approx. 3-5 minutes)
  - Confirm proper oil level in hydraulic lift's oil reservoir
  - Make sure plow's hydraulic lift works & plow is raised before driving
  - Test sand spreader controls – make sure spreader turns ON & OFF
  - Make sure all headlights work & brake lights/turn signals function
- **Shutdown Procedure AFTER Operating Sand Truck:**
  - Go to DOT Maintenance yard & receive assistance from maintenance personnel to refill hopper with sand
  - Use shovel to remove excess sand – sand level should NOT be greater than 6 inches above the sides of the hopper
  - Refuel sand truck & park at designated location at headquarters
  - Lower plow – NEVER leave plow in raised position when NOT in use
  - Shut OFF sand truck engine & make sure auger & spreader are OFF
  - Turn spreader engine ON (auger/spreader still OFF) & let spreader engine run out of fuel – prevents fuel from gelling between use
  - Remove all personal belongings from vehicle & return sand truck key to supervisor/proper storage location

Driving & Escorting the Sand Truck:

Objective: Become familiar with the guidelines & techniques for driving the sand truck and for the backup unit (if used) escorting the sand truck

Critical Knowledge:

- **Basic Guidance for Driving the Sand Truck:**
  - Follow guidelines related to driving techniques, 2-wheel/4-wheel driving, and adverse weather response
  - Adjust driving speed, stopping distance, & turn radius for weight of sand & weather conditions
  - Even when raised, plow has VERY low clearance – use caution
  - Look for & avoid obstructions – especially those hidden under snow
  - DO NOT ride brakes – brake gently, shift to lower gears to control speed & allow brakes to cool when possible
  - Avoid parking on slopes – use wheel chocks & emergency brake if needed
  - Activate emergency lights & arrow board when plowing/sanding

- **Repositioning Sand Truck in Reverse –** sand hopper & spreader prevent responder from seeing properly behind them
  - Plan ahead to minimize need to reposition in reverse
  - Use backup unit as spotter to help guide sand truck, if possible
  - Spotter should stand to side of sand truck – NOT directly behind
  - Make sure area behind truck is clear before & during repositioning
  - Sound air horn before repositioning in reverse

- **Escorting the Sand Truck –** sand truck driver may be escorted by a backup unit or law enforcement (LE). If used, backup unit should;
  - Follow behind the sand truck and activate emergency lights & arrow board as appropriate – coordinate arrow display with sand truck
  - Help sand truck driver plan plowing & sanding operations
  - Provide ETC as needed to protect sand truck while plowing/sanding
  - Remove obstructions in sand truck's path – push/pull/drag vehicles out of road **OR** provide motorist assistance if necessary
  - Watch sand truck's progress & notify its driver of issues (e.g. snow mounds left in travel lanes or no sand coming from spreader)
  - Help sand truck move if it gets stuck in slick conditions

Plowing/Sanding Operations (1 of 2):

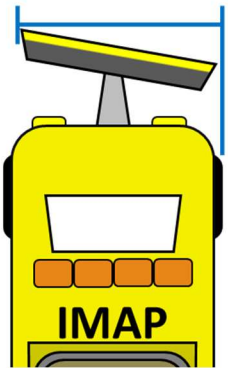
Objective: Learn the guidelines & procedures related to plowing/sanding operations

Critical Knowledge:

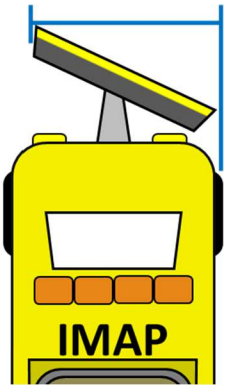
- **PLAN AHEAD Before Plowing/Sanding:**
  - Determine where plowing/sanding will occur
  - Identify potential obstacles that might affect sand truck
  - Consider where plow will push snow/ice so snow mounds are NOT left in travel lanes – plan additional passes with plow if needed
  - Determine if escort is needed to protect sand truck
  - Discuss plan with other responders if needed – especially if plowing/sanding will occur at an active incident scene

- **Setting the Angle of the Snow Plow:**
  - Angle LEFT to push snow to LEFT shoulder
  - Angle RIGHT to push snow to RIGHT shoulder
  - SHALLOW angle if snow is DRY & LIGHT
  - STEEP angle if snow is WET & HEAVY

DRY/LIGHT Snow = SHALLOW Plow Angle



WET/HEAVY Snow = STEEP Plow Angle



- **Plowing Direction** – IMAP responders should plow;
  - In a steady, forward direction – DO NOT use back of blade to plow
  - In the same direction as traffic unless appropriate ETC is in-place
  - To low side of ramps/curves to keep water from melting snow from running back into lanes & potentially re-freezing

- **Plowing Speed –** sand truck should travel fast enough to move snow to shoulder but NOT fast enough to;
  - Cause damage/injury by throwing snow violently
  - Decrease visibility of responder or motorists behind sand truck

Plowing/Sanding Operations (2 of 2):

Objective: Learn the guidelines & procedures related to plowing/sanding operations

Critical Knowledge:

- **Spreading Sand –** sand is usually spread while plow is in use. If NOT, **plow FIRST, sand SECOND**
- **Spreading Speed –** sand truck should travel fast enough to evenly spread sand over the plowed area but NOT;
  - So slow that excess sand is dispensed in piles
  - So fast that sand is spread too thin
- **Turn sand spreader OFF when;**
  - Sand truck is stationary or sand is NOT needed
  - Sand is no longer coming out of spreader – even if some sand remains in hopper
- **To Begin Plowing/Sanding;**
  - Park on shoulder (or ramp) before area affected by snow/ice
  - Form a plan for plowing/sanding – advise escort/responders if needed
  - Advise TMC/DOT Maintenance where plowing/sanding will occur
  - Set plow angle & adjust spreader gates for appropriate spread width
  - Deploy ETC **OR** enter traffic carefully & use emergency rolling roadblock to reduce traffic to appropriate speed for plowing/sanding
  - Lower plow to pavement and/or turn ON spreader before affected area
  - If escort is used – notify BEFORE plowing/sanding begins
- **After Initial Plowing/Sanding;**
  - Raise plow and/or turn OFF spreader after affected area
  - Notify escort (if used) that plowing/sanding is complete
  - Park sand truck at safe location nearby
  - Check plow blade for damage & allow brakes to cool
  - Plan any additional passes (e.g. to remove snow mounds from lanes or plow any patches that were missed)
  - Execute additional passes as needed – avoid multiple passes if possible
  - Advise TMC dispatch/DOT Maintenance when plowing/sanding is complete

Description:

Become familiar with the guidelines, equipment, & processes related to portable changeable message signs (CMS).

Objectives:

- Learn about the basic concepts & external components related to portable CMS
- Explore the additional components used to set up & operate portable CMS
- Learn about the guidelines & processes for connecting to & towing portable CMS
- Learn where CMS should be located & how to properly set them up to provide emergency traffic control on the roadway
- Become familiar with the primary CMS message policies
- Review the basic steps for how to program CMS to display message
- Review examples of CMS messages used for common incidents/conditions

Audience: IMAP Responders

Duration of Training: 4 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

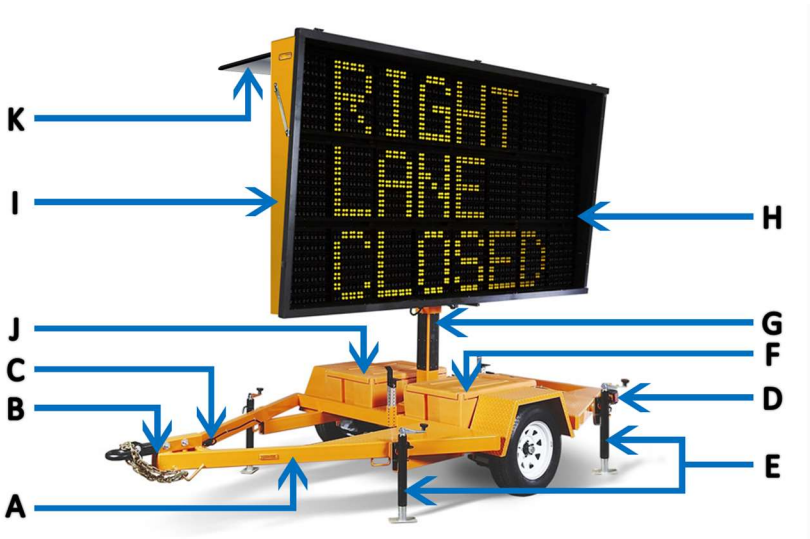
- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-102: Temporary Lane Closures

Introduction to CMS & External Components:

Objective: Learn about the basic concepts & external components related to CMS.

Critical Knowledge:

- **Portable Changeable Message Signs (CMS)** – trailer-mounted signs that can be placed where existing signs are not available & whose messages can be changed to advise motorists of unexpected traffic conditions
- **Dynamic Message Signs (DMS) vs. CMS –** Both can change their messages as needed & both display similar info but DMS;
  - Are fixed at permanent locations
  - Can only be controlled remotely (i.e. by TMC operators)
  - Are larger & can display more info than CMS
- **CMS models are different in each region** – IMAP Responders should learn;
  - Which models are used in their region & where they are located
  - How to set up & program their region's CMS
- **External components of portable CMS** most often include;



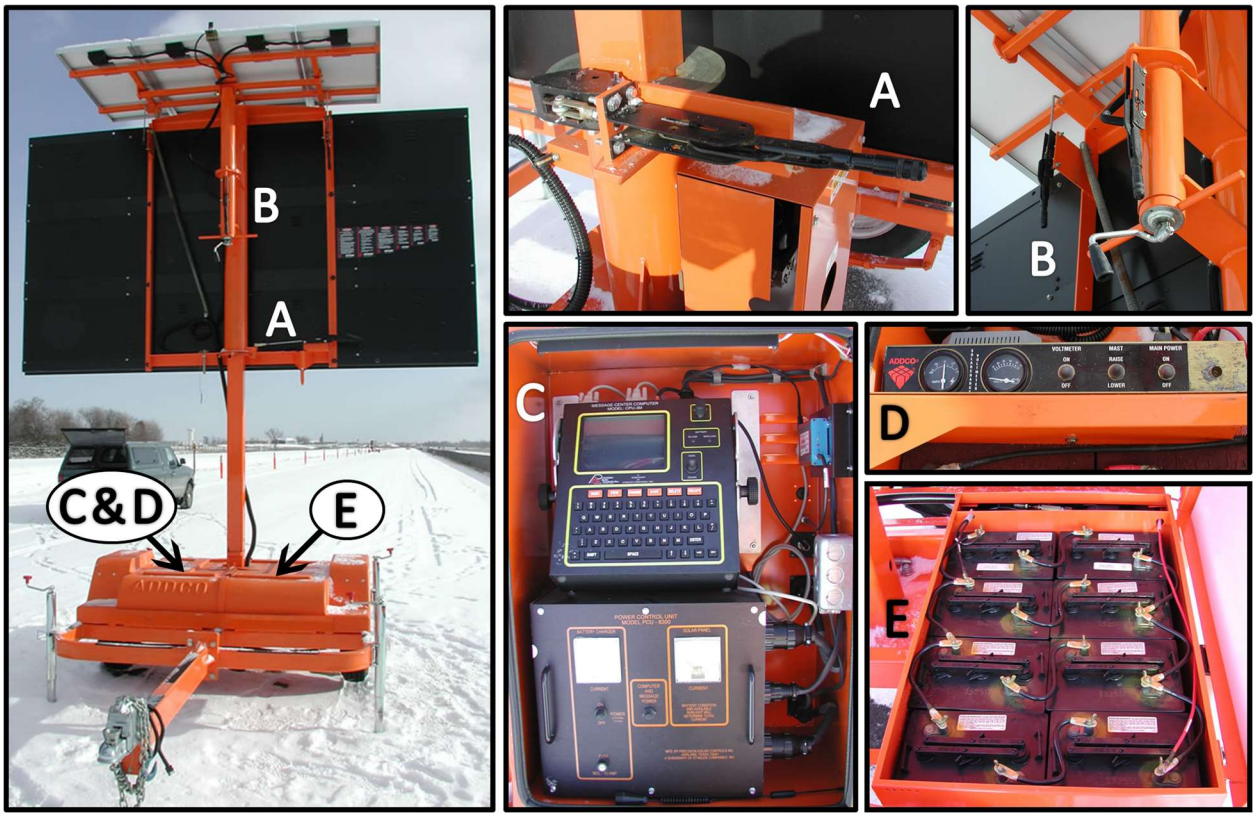
- **A –** Sign Trailer
- **B –** Trailer Hitch & Chains
- **C –** Brake Light/Turn Signal Cable
- **D –** Brake Lights & Turn Signals
- **E –** Leveling Jacks
- **F –** Control Cabinet
- **G –** Sign Mast
- **H –** Sign Face
- **I –** Sign Case
- **J –** Power Plant
- **K –** Solar Panels

Additional CMS Components:

Objective: Explore the additional components used to set up & operate CMS.

Critical Knowledge:

- **Additional CMS components differ by model** but most often include;
  - **A –** Sign Lift/Rotation Mechanism (manual or pneumatic)
  - **B –** Solar Panel Lift/Rotation Mechanism (solar-powered CMS only)
  - **C –** Sign & Message Control Device; found in Control Cabinet
  - **D –** Battery Gauge & Other Switches; found in Control Cabinet
  - **E –** Diesel Generator (diesl-powered CMS only) & Batteries; found in Power Plant



- **Other switches often found in CMS Control Cabinet** may include;
  - Main ON/OFF switch
  - Service switch – controls current from solar panel to batteries
  - Communication Mode switch – determines if CMS is controlled remotely (i.e. by TMC) or locally (i.e. by on-scene personnel)

Hooking Up & Towing CMS:

Objective: Learn about the guidelines & processes for connecting to & towing CMS.

Critical Knowledge:

- **BEFORE hooking up to or towing a CMS,** IMAP Responders should;
  - Notify TMC dispatch that they are leaving patrol route to get CMS
  - Follow all regional guidelines for checking a CMS out for use

- **CMS Inspection & Hook-Up Preparation:**
  1. Confirm that trailer & trailer tires are in good condition
  2. Check battery gauge to assure CMS will operate as long as needed
  3. Make sure sign case is fully lowered & resting on sign supports
  4. Make sure the sign lift/rotation mechanism is locked in place
  5. Lower & lock any solar panels **OR** turn generator completely OFF
  6. Ensure all components are stored and all cabinets closed & locked

- **Hooking Up to a CMS Trailer:**
  1. Wear all necessary PPE – especially work gloves
  2. If needed, raise front two leveling jacks so CMS trailer hitch is above the ball of the IMAP truck's trailer hitch
  3. Position IMAP truck directly in front of CMS trailer hitch
  4. DO NOT allow anyone between the truck & the trailer
  5. Use a spotter to help keep truck in line with trailer while backing up
  6. Assure area behind is clear, sound horn, & reverse slowly to trailer
  7. When truck & trailer hitches are properly lined up, stop & park truck
  8. Slowly lower front leveling jacks until the hitch is firmly on the ball
  9. Attach trailer's safety chains in crossed pattern to truck's rear bumper
  10. Connect the brake light/turn signal cable to the IMAP truck
  11. Raise all four leveling jacks completely and lock them in-place
  12. Use a spotter to help test trailer's brake lights & turn signals
  13. Make sure all cables, chains, etc. are secure & will NOT drag ground

- **Towing a CMS will affect how IMAP truck handles while driving;**
  - Increase following distance & allow extra braking distance on stops
  - Signal WELL in advance & check blind spots carefully
  - Avoid quick stops & make wide, smooth turns to avoid jackknifing
  - Ease onto/off of shoulders gradually & avoid driving off-road

Site Selection & CMS Set Up:

Objective: Learn where CMS should be located & how to properly set them up to provide emergency traffic control (ETC) on the roadway.

Critical Knowledge:

- **CMS Placement Requirements –** CMS must be placed so that;
  - Sign is NOT within 6 feet of a travel lane
  - Sign is visible from 1/2 mile away under day or night conditions
  - Message is legible from ALL LANES at a distance of 1,000 feet
- **Guidelines for Optimal CMS Placement –** CMS should be placed;
  - In advance of incident work zone & before backup from incident – reposition CMS as conditions change
  - On level ground/wide shoulders and behind guardrails if possible
  - At least 500 feet from other signs (800 feet is better)
  - At least 1,000 feet from ramps – avoid placing in gore areas
  - **Use DMS rather than CMS** if DMS is located within 1/2 mile from desired CMS location
- **Unhooking & Setting Up a CMS –** IMAP Responders should;
  1. Activate emergency lights & arrow board properly
  2. Safely ease trailer into position and set truck's emergency brake
  3. Notify TMC dispatch & put on necessary PPE before exiting truck
  4. If CMS is NOT behind a guardrail/barrier, use cones to **deploy a shoulder taper behind the sign** – angle taper towards roadway
  5. Lower all of the trailer's leveling jacks to the ground & lock in-place
  6. Disconnect the brake light/turn signal cable & remove safety chains
  7. Unhook CMS trailer from hitch – raise front leveling jacks if needed
  8. Adjust leveling jacks as needed until CMS is completely level
  9. Confirm all jacks are lowered completely to the ground & are locked
  10. Turn CMS ON (activate solar panels/generator as appropriate)
  11. Raise sign case until bottom of sign is at least 7 feet above roadway
  12. Have/Utilize an Escape Route
  13. **DO NOT stand under sign case while raising/lowering**
  14. Lock sign case in position on sign mast
  15. Rotate/adjust sign face to face traffic & avoid sun glare – lock in-place
  16. Confirm CMS is level & all jacks/lifting mechanisms are locked

CMS Message Policies & Guidelines (1 of 2):

Objective: Become familiar with the primary CMS message policies.

Critical Knowledge:

- **NCDOT DMS/CMS Policy:** the official statement of guidelines that all DMS & CMS messages must adhere to.
  - Operational procedures DO NOT supersede the DMS/CMS policy
  - Only Division Engineer may authorize exceptions to the policy
  - **All IMAP Responders must read this policy before operating CMS**

- **Primary Guidelines from the DMS/CMS Policy:**
  - CMS must relay info that is relevent to the motorists that see it
  - CMS messages must reflect current travel conditions & be updated as conditions change
  - When **multiple incidents occur simultaneously**, CMS must **display a message for the incident that is higher in priority**
  - Messages must NOT in any way advertise commercial events/entities
  - Jingles, slogans, or catchphrases must NOT be displayed on CMS
  - When a CMS is NOT in use, it must remain blank or be removed

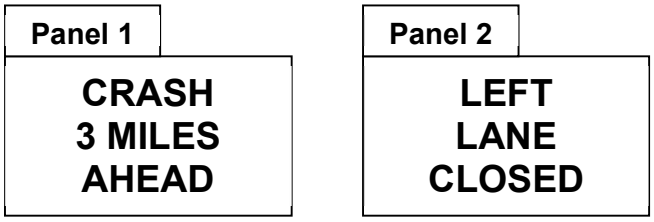
- **CMS Message Priorities** (ranked from highest priority to lowest) are;
  1. Signing for Work Zones (i.e. planned construction projects)
  2. Road closures on interstates/US routes within 10 miles of CMS
  3. Emergencies, such as evacuation information
  4. Congestion or lane closures due to incidents within 10 miles of CMS
  5. Closures due to incidents that are greater than 10 miles from CMS
  6. Advance notice of planned events likely to cause congestion
  7. Special Events (i.e. concerts, sporting events, etc.)
  8. Messages for other modes of transportation (e.g. ferries, buses, etc.)
  9. Congestion or unusual conditions greater than 10 miles from CMS
  10. Hazardous/uncommon conditions that require motorists to alter their driving (e.g. icy patches) within 10 miles of CMS
  11. MOVE OVER/FENDER BENDER messages
  12. Travel Times for closures, congestion, or other unusual conditions

CMS Message Policies & Guidelines (2 of 2):

Objective: Become familiar with the primary CMS message policies.

Critical Knowledge:

- CMS can display 3 lines of text at a time & each line can hold 8-9 characters (including spaces) – **each 3-line message is known as a "Panel"**



Example: 2-panel CMS Message

- **General CMS Message Guidelines:**
  - Each message panel should convey a single thought
  - Messages may use up to 2 panels only with NO blank panels between
  - If using 2 panels, each panel should be visible for at least 3 seconds

- **Guidelines for Message Content/Format –** messages should;
  - Be in ALL CAPS & centered on the panel
  - Be simple, clear, & specific – NO vague messages
  - Use appropriate language only & NOT diminish respect for the signs
  - NOT use fading, flashing, moving, or other animated effects
  - NOT use graphics, **other than static arrows** (→, ←, or ←→)
  - Only use approved special characters if needed such as **@, #,** or **–**
  - Only use approved abbreviations to make long words fit the sign
  - **NOT use the term, "BLOCKED" –** use "CLOSED" instead
  - Refer to MUTCD & NCDOT DMS/CMS Policy for complete message guidelines & lists of approved abbreviations

- **Message Development Guide –** IMAP Responders can create appropriate CMS messages by first asking themselves;
  - **HOW** is traffic affected and **WHAT** can motorists do to avoid it?
  - **WHERE** is this sign located and **WHERE** is traffic affected?
  - **WHEN** will traffic be affected and **HOW** long will it be affected?
  - **WHO** does this message apply to?

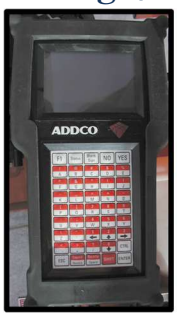
Programming CMS Messages:

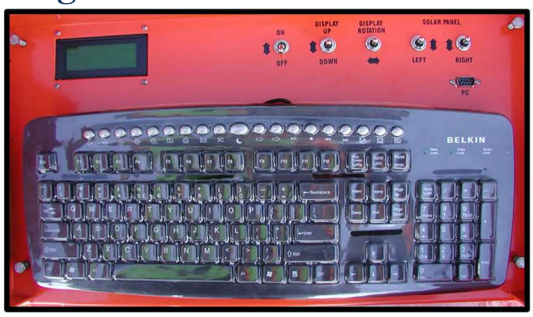
Objective: Review the basic steps for how to program CMS messages.

Critical Knowledge:

- **Most Sign/Message Control Devices allow Responders to;**
  - Display messages & remove messages (a.k.a. "blank the sign")
  - Create custom messages by typing them out with a keyboard
  - Select existing messages saved in the CMS's **Message Library**
  - Program the sign to display/remove a message at certain times
  - Adjust message display options (e.g. how long each panel is shown)
  - Set the sign up to be controlled locally or remotely

Sign/Message Control Devices for Different CMS Models:





- **Basic Steps for Programming CMS:**
  1. Make sure that CMS is properly set-up & ETC is in-place
  2. If needed, call TMC to confirm the message that will be displayed
  3. Turn CMS ON (activate solar panels/generator as appropriate)
  4. Open control cabinet to access sign/message control device
  5. Follow prompts from device to manually enter the message **OR**
  6. Select the appropriate message from CMS's message library
  7. Adjust other settings as needed (e.g. sign brightness, display time, etc.)
  8. When message is ready, activate CMS to display message
  9. Review the actual message on the CMS for at least 1 minute
  10. If needed, deactivate message and reprogram CMS to fix any errors
  11. If CMS does NOT function properly, call TMC via cell for assistance
  12. Once the message is running properly, notify TMC dispatch
  13. Monitor the CMS while it is in use & adjust message/sign as needed
  14. When CMS is no longer needed, deactivate message & notify TMC
  15. Take CMS down, hook up to trailer, & return it to storage location

CMS Message Examples:

Objective: Review examples of CMS messages for common incidents/conditions.

Critical Knowledge:

- **CRASH AHEAD:**

Panel 1	Panel 2
CRASH 3 MILES AHEAD	←

Panel 1	Panel 2
TRAFFIC STOPPED AHEAD	PREPARE TO STOP

- **ALL LANES CLOSED:**

Panel 1	Panel 2
ALL LANES CLOSED	DETOUR: USE EXIT ____

- **DEBRIS AHEAD:**

Panel 1	Panel 2
DEBRIS AHEAD	REDUCE SPEED

- **MOVE OVER:**

Panel 1	Panel 2
SHOULDER CLOSED	MOVE OVER

Description:

Become familiar with the guidelines and procedures for properly changing damaged or deflated tires on disabled vehicles and on the IMAP truck.

Objectives:

- Gain in-depth knowledge of tire changing equipment
- Become familiar with the guidelines and practices for working with flat and spare tires
- Learn about proper placement of jacks, jack stands, and wheel chocks during tire changes
- Review step-by-step instructions for how to refill a deflated tire
- Review step-by-step instructions for how to change a flat tire

Audience: IMAP Responders

Duration of Training: 4 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach

Tire Changing Equipment (1 of 2):

Objective: Gain in-depth knowledge of tire changing equipment.

Critical Knowledge:

Equipment Inspections: Inspect all equipment BEFORE every shift

- Check air pressure on all tires – including spare
- Inspect all tires for cuts, unusual wear, cracked rims, & missing/loose lug nuts
- **Make sure batteries for impact wrench are fully charged**
- Confirm air compressor works & tank is filling – release compressed air after inspection

Rolling Jack: use to raise most vehicles (2.5 ton capacity). To use;

- Insert lever into slot and twist until locked in place
- Raise by pumping lever up & down
- Lower by turning lever to the left
- Use the jack that came with the motorist's vehicle if rolling jack won't fit

Bottle Jack: use to raise large vehicles & IMAP truck (6 ton capacity). To use;

- Place a flat piece of metal underneath bottle jack to stabilize it
- Insert lever into slot and hook into place
- Raise by turning lever to the right
- Lower by turning lever to the left

Jack Stands: use to stabilize raised vehicles and as backup if jack fails. To use;

- Place jack stand near jack
- Raise jack stand so that vehicle's frame is resting securely on it
- **MUST be used whenever a vehicle is raised**

Wheel Chocks: Use to prevent vehicle from rolling unintentionally. To use;

- Place snuggly in front of or behind tires
- Place on side of tire in direction that you DO NOT want vehicle to roll
- **MUST be used whenever a vehicle is raised**

Tire Changing Equipment (2 of 2):

Objective: Gain in-depth knowledge of tire changing equipment.

Critical Knowledge:

Impact Wrench with Impact Sockets, Breaker Bar, & 4-Way Lug Wrench: use to tighten/loosen lug nuts.

- Lug nuts come in different sizes
  - Impact Wrench uses various sockets to match different lug nuts
  - Each end of 4-Way Lug Wrench fits a different size of lug nut
  - **If tool does not fit, lug nuts won't turn OR could be stripped**
- As Impact Wrench battery dies, torque decreases significantly
  - Keep batteries fully charged
  - **Use 4-Way Lug Wrench to confirm lug nuts are tight**
- The rolling jack lever can be fixed to the end of a socket wrench to provide additional leverage and torque
  - **DO NOT stand on levers or wrenches** to increase torque
  - Use a longer lever instead

Air Compressor & Accessories: use to assist with deflated tires.

- Deflated tires may NOT need to be removed in order to be refilled
- Turn air compressor on and pressurize tank BEFORE attempting to refill tire
- **Confirm proper air pressure BEFORE refilling tire**
- Make sure tire inflator is connected securely to air hose BEFORE refilling tire
- Keep people and vehicles from standing on or parking on air hose
- **Check air pressure periodically while refilling** to avoid over filling the tire
- Press a key or other tool against the tire's air valve to release excess pressure
- When finished using air compressor; release pressurized air from tank and hose, disconnect & stow tire inflator, and reel-in air hose

Tire Plugs: use to plug small holes in tires. **NEVER use if sidewall of tire is damaged.** To use Tire Plugs;

1. Receive approval from motorist BEFORE using
2. Fill tire with as much air as possible (DO NOT exceed owner manual specs)
3. Locate puncture and, if needed, remove obstruction (e.g. nail)
4. Thread plug into hole of insertion needle & quickly push into puncture
5. Remove insertion needle – plug should remain in tire, sealing puncture
6. Continue to fill tire with air until proper air pressure is reached

Flat Tires & Spare Tires:

Objective: Become familiar with the guidelines and practices for working with flat & spare tires

Critical Knowledge:

Assessing Flat Tires: BEFORE providing assistance, inspect and assess the condition of the flat tire to determine how it might be fixed. Examples below;

- **Deflated** – tire appears intact but sags indicating that it has lost air pressure. Tire may just need more air and may NOT need to be removed
- **Punctured –** tire appears deflated and is pierced by a sharp object. Tire plug may fix issue but tire will likely need to be removed or even changed
- **Worn Out –** tire appears deflated, tread depth is very thin, and metal wires may be sticking out. Tire will need to be removed and replaced
- **Blown Out –** tire is largely shredded with pieces missing or hanging off. Tire will need to be removed and replaced
- **Bent/Cracked Rims –** tire may appear intact and/or inflated but rims are bent or cracked. Tire will need to be removed and replaced
- **Custom Wheels/Rims –** regardless of appearance, custom wheels/rims are costly, easy to damage, and are sometimes equipped with locks. Responders should avoid working on custom wheels/rims that are damaged

Working with Spare Tires: BEFORE providing assistance, confirm that the motorist has a spare that is properly inflated and in good condition

- **If a good spare is NOT available**;
  - Determine if refilling flat tire with air will resolve problem, **OR**
  - Ask motorist if their auto insurance includes roadside assistance, **OR**
  - Contact a wrecker – advise that wreckers will charge for service, **OR**
  - Transport motorist to the nearest safe exit with telephone access
  - **DO NOT mount a spare tire that is in poor condition**
- **Spare tires can be hard to find –** Refer to owner's manual to locate spare
- **Proper air pressure may NOT be in owner's manual –** correct pressure level is also listed on the tire's sidewall
- **Remove spare tires carefully** to avoid damaging vehicle

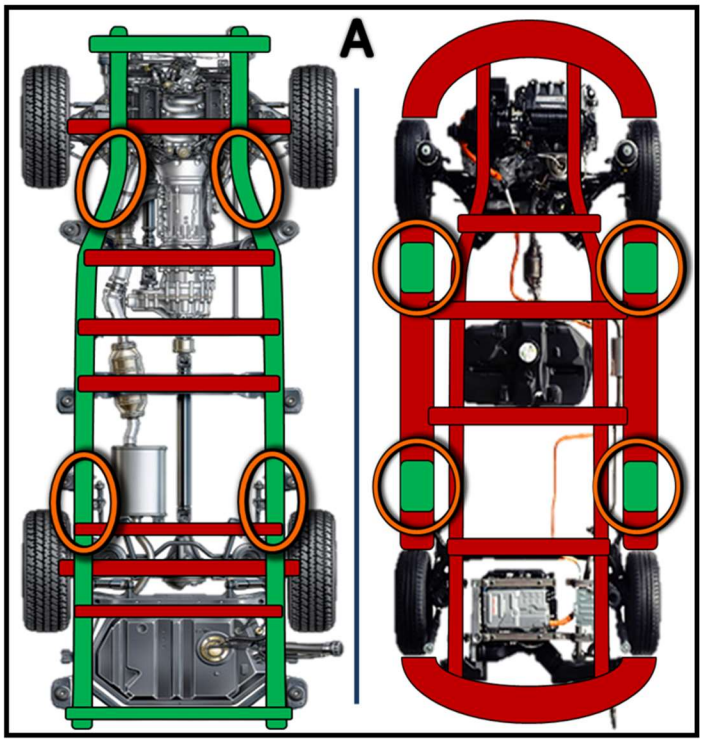
Unsecured Tires: Lay all unsecured tires flat on the ground to prevent them from rolling into traffic

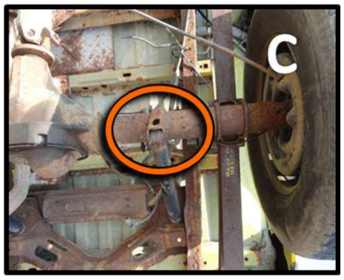
Jack, Jack Stand & Wheel Chock Placement:

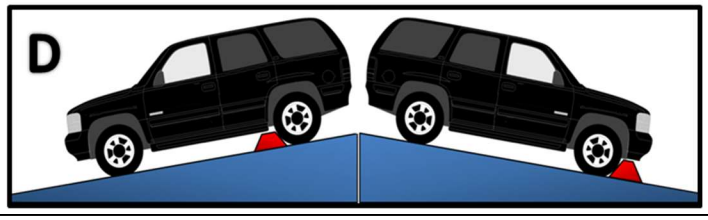
Objective: Learn about proper placement of jacks, jack stands, & wheel chocks

Critical Knowledge:

- **A – Jack & Stand Placement:**
  - This diagram shows a typical vehicle chassis (left) & unibody frame (right)
  - **GREEN =** Solid parts of frame that can support vehicle's weight
  - **RED =** Weaker parts of frame that support vehicle parts (transmission, etc.) but CANNOT support weight of vehicle
  - **ORANGE =** Optimal locations to place Jack and Jack Stands
- **B – Jack & Stand in Use:**
  - This image shows the rolling jack and jack stand placed properly
  - They are pushing against a **solid portion of the frame** and are located **near the tire that will be changed**
- **C – Shock Bracket:**
  - This image shows the "shock bracket" in **ORANGE**. Each tire has a shock bracket near the axle.
  - This is also a solid location to place a jack – especially the **bottle jack**
- **D – Wheel Chock Placement:**
  - This diagram shows where wheel chocks should be placed **to prevent vehicles from rolling**
  - Chocks should be placed snuggly in front of or behind tires
  - Place on the side of the tire **of the direction that you DO NOT want the vehicle to roll**







Wheel Chocks and Jack Stands MUST be used whenever a vehicle is raised.

Refilling Deflated Tires:

Objective: Review step-by-step instructions for how to refill a deflated tire

1. Assess on-coming traffic and assure that you are safely away from the road
    a. Instruct motorist to relocate vehicle if needed
    b. Continue to monitor traffic while the motorist does the same throughout process
2. **Put on PPE** – reflective vest, work gloves & safety glasses are mandatory
3. Inspect flat tire and determine if refilling with air may resolve issue
4. Locate and inspect condition of motorist's spare tire
5. Instruct motorist to turn off engine and engage parking brake
6. Keep motorist away from traffic & **DO NOT** allow them to stand in between your truck & their vehicle – they must watch for on-coming traffic, unless prevented to do so (i.e., amputation, etc.)
7. Turn on air compressor and allow tank to pressurize
8. Retrieve tire inflator & pressure gauge and pull air hose to deflated tire
9. Connect tire inflator & pressure gauge securely to air hose
10. Refer to owner's manual/tire sidewall to determine proper air pressure for tire
11. Use pressure gauge to determine what the tire's starting air pressure is
12. When air tank has pressurized, connect tire inflator to tire's air valve
13. Depress tire inflator's handle to allow pressurized air to flow into the tire
    a. Avoid kinks or knots in air hose – this will restrict air flow
    b. Keep people and vehicles from standing on or parking on hose
14. Release tire inflator's handle periodically to check current pressure in tire
15. Continue to fill tire with air until tire pressure reaches appropriate level
    a. **If tire does NOT inflate;**
        i. Air may be escaping from tire
        ii. Tank may not be pressurized or hose may be blocked/leaking
    b. **If tire bulges or inflates unevenly, tire may be damaged;**
        i. Stop refilling immediately
        ii. Consider replacing the tire with a spare
    c. **If you hear air leaking, tire is still losing air and will deflate**
16. When finished, turn off air compressor and release air from tank and air hose
17. Wait 5 minutes and check air pressure to see if air is still leaking out of tire
    a. If air pressure has dropped, remove and replace tire with spare
    b. If air pressure has NOT dropped, stow equipment and alert motorist

Changing Flat Tires:

Objective: Review step-by-step instructions for how to change a flat tire

1. Assess on-coming traffic and assure that you are safely away from the road
    a. Instruct motorist to relocate vehicle if needed
    b. Continue to monitor traffic throughout process
    c. **For IMAP:** Always call for backup if changing your own tire in the field
2. **Put on PPE** – reflective vest, work gloves & safety glasses are mandatory
3. Inspect flat tire and determine if refilling with air may resolve issue
4. Locate and inspect condition of motorist's spare tire
5. Instruct motorist to turn off engine and engage parking brake
6. Keep motorist away from traffic & **DO NOT** allow them to stand in between your truck & their vehicle – they must watch for on-coming traffic unless something is preventing them from doing so (i.e., amputation, etc.)
7. Retrieve all necessary equipment and set up work space near flat tire
    a. **For IMAP:** Remove all equipment & spare tire BEFORE raising truck
8. Place wheel chock(s) to prevent vehicle from rolling unintentionally
9. Position jack properly beneath vehicle, near the tire that needs to be changed
    a. **For IMAP:** Use bottle jack stabilized with flat piece of metal
10. Raise vehicle slightly but assure tire is still making solid contact with ground
11. Place jack stand(s) properly underneath vehicle, near the jack
12. Remove the hub cap and LOOSEN, but DO NOT REMOVE lug nuts
13. Inspect jack position to assure it has not slipped out of place
14. Continue to raise jack until flat tire is no longer making contact with ground
15. Raise and reposition jack stand(s) so that vehicle is stabilized and supported
16. Remove all lug nuts and place them in a safe location to prevent losing them
17. Remove flat tire and move it out of your work space
18. Retrieve spare tire and mount it on the exposed hub so that it is flush with hub
    a. Vehicle may need to be raised further in order for the spare to fit
    b. Larger spares can be hard to lift – use a sturdy tool to lever into place
19. Thread all lug nuts into place by hand
20. Tighten 1st lug nut with wrench; move in **crisscross pattern** to tighten the rest
21. Remove jack stand(s) & lower vehicle slowly – **make sure area is clear**, first
22. Use 4-Way/breaker bar wrench to confirm that all lug nuts are tightened securely
23. Replace hub cap and return flat tire to motorist's vehicle
    a. **For IMAP:** Return flat to maintenance and document in EMR booklet
24. Collect all equipment and return it to its proper location on the IMAP truck

Description:

Become familiar with the equipment, guidelines and processes used to provide fuel to motorists.

Objectives:

- Learn about the equipment & guidelines used by IMAP to provide fuel
- Review step-by-step instructions for how to provide fuel to motorists

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach

Refueling Equipment & Primary Guidelines:

Objective: Learn about the equipment & guidelines used by IMAP to provide fuel

Critical Knowledge:

Refueling & Quick Dry Equipment:

- **2 Gallon Fuel Cans –** Each truck is equipped with two, 2 gallon cans
- **5 Gallon Fuel Cans –** Smaller fuel cans may be used in-place of 5 gal. cans
- **Cans may carry GAS or DIESEL fuel –** Responders must label cans
- **Funnel –** Used to prevent spilling when dispensing fuel
- **Quick Dry –** Used to increase traction where diesel fuel has spilled
- **Push Broom –** Often used to spread Quick Dry evenly over spilled fluids

Equipment Care Guidelines:

- Fuel cans may only be stored in the bed of the IMAP truck
- Properly secure fuel cans by running a locking cable through each can
- BEFORE every shift – count, inspect & properly secure all fuel cans
- AFTER every shift – refill all fuel cans and return them to IMAP truck

Primary Guidelines for Providing Fuel to Motorists:

- Wear proper PPE – especially reflective vest and safety glasses
- Consider which side of vehicle the fuel tank is on when positioning truck
- Only give motorists enough fuel to reach the next safe exit with gas station
  - Gas maximum: 2 gallons
  - Diesel maximum: 5 gallons
  - Larger vehicles or those parked on an incline may require more fuel
- IMAP only provides regular gas and diesel fuel
- Face traffic while refueling and look up often to keep an eye on traffic
- Ask motorists to attempt starting their vehicle BEFORE dispensing fuel

Providing Fuel to Motorists:

Objective: Review step-by-step instructions for how to provide fuel to motorists

1. Assess on-coming traffic and assure that you are safely away from the road
   a. Help motorist relocate vehicle or temporarily hold lane if needed
   b. Continue to monitor traffic throughout process
2. Instruct motorist to attempt starting their engine – if vehicle starts;
   a. Check fuel gauge & provide fuel if tank is nearly empty
   b. If tank has enough fuel, follow motorist to nearest gas station
3. Keep motorist away from traffic & **DO NOT** allow them to stand in between your truck & their vehicle – they may help you watch on-coming traffic with an air horn to keep everyone as safe as possible. Use horn if danger arises.
4. Ask motorist to confirm proper fuel type (gas or diesel)
   a. Regular gas can be used in vehicles that use higher octane gasoline but vehicle may run "rough" until refilled with higher octane gas
   b. IMAP may inform motorist of use of regular gasoline in high octane vehicle and offer enough regular gasoline to reach a gas station, OR
   c. Offer to transport motorist to gas station to purchase fuel
5. Retrieve proper fuel can and funnel from truck and safely return to vehicle
6. Remove cap from fuel tank
7. Insert funnel securely into fuel tank – hold funnel steady while refueling
8. Uncap fuel can and carefully pour fuel into wide-end of funnel
9. When finished providing fuel, remove funnel and replace fuel tank cap
10. Instruct motorist to try starting their engine – if vehicle still does not start;
    a. Provide 1-2 more gallons of fuel and attempt re-starting engine
    b. Offer to help arrange for further assistance (e.g. AAA or wrecker)
11. Evenly spread Quick Dry over any spilled diesel fuel to increase traction
12. Collect all equipment & return to its proper location on the IMAP truck
13. Once the motorist's vehicle starts, instruct them to refuel completely at the nearest gas station

Description:

Become familiar with the guidelines & process for dispensing Quick Dry to increase traction where fluids have spilled on the roadway

Objectives:

- Learn how Quick Dry is used & explore related equipment used for fluid spills
- Receive guidance & learn strategies for dispensing Quick Dry properly

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics

Quick Dry Use & Equipment:

Objective: Learn how Quick Dry is used & explore related equipment for fluid spills

Critical Knowledge:

- **Quick Dry –** a white, granular powder which is spread over fluid spills to **increase traction on the roadway**
  - In some regions, **Oil Dry** may also be carried by IMAP Responders
  - Oil Dry is used in the same way as Quick Dry but may be easier to dispense in high wind due to its heavier grains (similar to kitty-litter)
- **Additional Uses/Benefits of Quick Dry:**
  - **Containing Spills –** by pouring extra Quick Dry at edges of spill, Responders can create a dam to prevent the fluid from spreading
  - **Protecting Fresh Water** – by absorbing & containing spills, Quick Dry can prevent toxic fluids from contaminating water sources
- **IMAP Responders should use Quick Dry on fluids that;**
  - Are NOT immediately life-threatening
  - Cause slick spots on roadway (e.g. diesel fuel, engine oil, etc.)
  - Threaten to contaminate fresh water (e.g. 1+ gallon of gasoline)
  - **For high-volume spills, notify the local Fire Department**
- **Quick Dry Equipment & Guidelines:**
  - **Safety glasses –** mandatory PPE to protect eyes from Quick Dry
  - **Gloves** – Mandatory PPE to protect hands from any kind of splash or contamination
  - **1-5 Gallon bucket** – for carrying & dispensing Quick Dry
  - **Extra Quick Dry bags** – for refilling bucket as needed
  - **Push Broom –** for spreading & sweeping up Quick Dry
  - Refill & re-stock Quick Dry during daily vehicle inspections
  - Store Quick Dry in a secure, dry location

Safety Glasses:

Bucket:

Extra Bag:

Push Broom:

Dispensing Quick Dry for Fluid Spills:

Objective: Receive guidance & learn strategies for dispensing Quick Dry properly

Critical Knowledge:

- **General Usage Guidelines for Quick Dry:**
  - Dispense Quick Dry by hand until spill area is evenly covered
  - If possible, stand upwind to avoid Quick Dry being blown into face
  - Avoid stepping in spill to prevent self-contamination
  - Use push broom to spread evenly over larger spill areas
  - Sweep excess to shoulder but leave enough on road for traction
  - DO NOT sweep Quick Dry onto grass/soil – fluids absorbed by Quick Dry can seep into & contaminate groundwater

- **For medium-large spills** (e.g. ruptured fuel tanks), **IMAP Responders should;**
  - Stop the leak, if possible, **OR**
  - Place **Pop-Up Pool** under leak source to catch leaking fluids
  - Create Quick Dry dams at edge of spill to keep fluid from spreading
  - Concentrate damming efforts at areas where fluids may spill into fresh water sources such as creeks or storm drains
  - Spread Quick Dry over remaining spill area – work from the far edge of the spill back to the spill's source
  - Continue to dispense Quick Dry until no pools of fluid remain
  - Sweep excess Quick Dry to shoulder
  - If Pop-Up Pool was used, call local Fire Dept. to come & collect the pool for proper disposal

Pop-Up Pool in Bag (left) **& Unfolded for Use** (right)**:**

Description:

Become familiar with the guidelines & process for transporting stranded motorists

Objectives:

- Learn about the guidelines & process for transporting stranded motorists

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol

Guidelines for Transporting Motorists:

Objective: Learn about the guidelines & process for transporting stranded motorists

Critical Knowledge:

- IMAP responders can assist stranded motorists by transporting them to the **nearest safe exit that is well-lit and has telephone access**

- **Primary Guidelines for Transporting Motorists:**
  - IMAP responders must contact TMC dispatch BEFORE & AFTER transporting motorists
  - If TMC dispatch is NOT available in your region, motorist must complete a **"Rider Agreement"** form before entering the vehicle
  - IMAP responders must observe all safety precautions and driving laws when transporting motorists
  - All motorists riding in an IMAP truck must wear a seatbelt & children must be in appropriate child seat – request assistance from law enforcement if enough seatbelts are NOT available
  - Motorists should NOT be transported beyond the drop-off location where their vehicle was towed
  - DO NOT make any stops (including incidents) while transporting motorists
  - DO NOT stop for hitchhikers – notify TMC dispatch to contact law enforcement
  - Remind passengers to retrieve ALL personal items (e.g. purses, cell phones, etc.) before dropping them off – responders should also check their own equipment/items to assure nothing has been taken
  - Motorists may dial ***HP** if assistance is needed after drop-off

- **Info IMAP Must Relay to TMC Dispatch:**
  - IMAP truck mileage BEFORE transport
  - Number of passenger(s) & gender
  - Location transporting FROM
  - Location transporting TO
  - IMAP truck mileage AFTER transport

Description:

Become familiar with the guidelines & processes used to jumpstart disabled vehicles

Objectives:

- Gain in-depth knowledge of jumpstarting equipment
- Learn about the guidelines & safety precautions for jumpstarting disabled vehicles
- Review steps for jumpstarting disabled vehicles using external jumper cables
- Explore additional steps & guidelines for jumpstarting disabled vehicles

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach

Jumpstarting Equipment:

Objective: Gain in-depth knowledge of jumpstarting equipment.

Critical Knowledge:

Primary Jumpstarting Equipment:

- **Standard Jumper Cables –** two insulated cables with black (negative) & red (positive) clamps at both ends to connect a live battery to a dead battery.
- **External Jumper Hookup –** located on IMAP's front/rear bumper; provides connection to truck's battery without lifting hood to engine
- **External Jumper Cables –** similar to standard jumper cables except one end has black (-) and red (+) clamps while the other connects to the external jumper hookup
- **Jump Box –** portable battery pack that can be used to jumpstart a disabled vehicle without connecting the dead battery to the IMAP truck

Additional Jumpstarting Equipment & PPE:

- **Work Gloves –** mandatory PPE when jumpstarting; prevents injury to IMAP Responder from electrical shock and/or corrosive battery chemicals
- **Safety Glasses –** mandatory PPE when jumpstarting; prevents damage to IMAP Responders' eyes from toxic/corrosive battery fumes or chemicals
- **Flashlight –** helps IMAP Responder correctly identify battery components
- **Stiff Wire Brush –** can help Responder remove build-up of corrosive chemicals around battery terminals which can prevent battery from fully charging

Equipment Care:

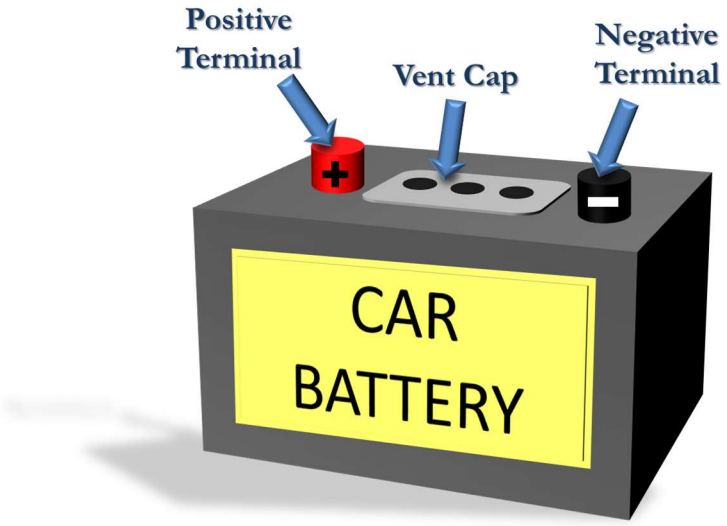
- IMAP Responders are responsible for keeping their equipment in good condition and ready for use
- Jumper cables should be stored neatly so that kinks do not develop
- Inspect jumper cables BEFORE connecting and DO NOT use if;
  - Insulation is missing or damaged
  - Internal wires are exposed
- External jumper hookup cover should be replaced when not in use
- Jump box must be fully charged before being used

Guidelines for Jumpstarting Disabled Vehicles:

Objective: Learn about the guidelines & safety precautions for jumpstarting disabled vehicles.

Critical Knowledge:

- **NEVER attempt to jumpstart a dead battery that is;**
  - Frozen, expanded, or warped
  - Otherwise visibly damaged (e.g. cracked, leaking, or smoking)



- **Use caution when jumpstarting vehicles to avoid damage/injury:**
  - **DO NOT stand between the IMAP truck and the disabled vehicle –** you could be pinned between them if they move suddenly
  - Use owner's manual to confirm live & dead batteries are same voltage
  - Vent caps of dead battery should be tight and level
  - Connect & remove jumper cables to battery in the proper order
  - Positive & negative clamps should NOT touch one another
  - Hold each clamp separately when handling live cables
  - Keep cables away from moving parts within the engine compartment
  - DO NOT attach black (-) clamp to painted or oily pieces of metal when grounding the connection with the disabled vehicle
  - Disconnect jumper cables if smoke is seen coming from the battery
  - **IMAP truck must be OFF at all times when jumpstarting luxury vehicles** (Mercedes, BMW, etc.)

Jumpstarting a Disabled Vehicle:

Objective: Review steps for jumpstarting disabled vehicles using external jumper cables

1. Assess on-coming traffic and assure that you are safely away from the road
   a. Help motorist relocate vehicle or temporarily hold lane if needed
   b. Continue to monitor traffic throughout process
2. Put on required PPE and keep motorist away from traffic – No one should stand between IMAP truck & disabled vehicle
3. Review owner's manual & raise vehicle's hood to inspect & confirm;
   a. Dead battery is NOT damaged & same voltage as IMAP truck
   b. Vent caps of dead battery are tight and level
4. Instruct motorist to try to start their engine – while restarting look/listen for;
   a. Vehicle lights off/flicker or engine fails to start, battery may be dead
   b. If vehicle starts, stay with motorist while battery recharges
5. Move IMAP truck in front of disabled vehicle, **leaving space between the IMAP truck & disabled vehicle**
6. Make sure vehicle & IMAP truck are OFF & parked with emergency brakes ON and all electrical components are OFF
   a. **Keep arrow board and emergency lights ON** – turn IMAP truck key to AUXILIARY
7. Remove cover from IMAP truck's external jumper hookup, retrieve external jumper cables, and safely return to vehicle
   a. **Use Jump Box prior to the external jumper hookup**. If this does not work, proceed with the external jumper hookup.
8. Attach red (+) jumper cable clamp to dead battery's red (+) terminal
9. Attach black (-) clamp to a piece of grounded metal on the disabled vehicle
10. Insert external jumper cable plug into hookup on front/rear bumper
11. Start the IMAP truck and allow dead battery to charge for 5-10 minutes – **Keep IMAP truck OFF when charging luxury vehicles**
12. Start disabled vehicle & let engine run for 10-20 minutes to fully charge battery
    a. If engine starts but battery light is ON, battery may NOT be charging – instruct motorist to seek assistance/replace battery immediately
    b. If engine does NOT start, dead battery may NOT be the issue – stay with motorist and help arrange further roadside assistance
13. Once vehicle starts & is fully charged, disconnect & store jumper cables and replace cover on external jumper hookup

Additional Guidance for Jumpstarting Disabled Vehicles:

Objective: Explore additional steps & guidelines for jumpstarting disabled vehicles.

Critical Knowledge:

- **Standard jumper cables** (if used) should be connected in the order below & disconnected by reversing the order of these steps;
  1. Red (+) clamp to dead battery's red (+) terminal
  2. Red (+) clamp to IMAP battery's red (+) terminal
  3. Black (-) clamp to IMAP battery's black (-) terminal
  4. Black (-) clamp to metallic ground of disabled vehicle
- **To use the Jump Box,** follow normal jumpstarting process and;
  1. Attach red (+) clamp to dead battery's red (+) terminal
  2. Attach black (-) clamp piece of grounded metal on disabled vehicle
  3. Jump box will automatically begin charging dead battery
     - Charging should take 5-10 minutes
     - Charging readout on box will indicate when charging is done
  4. Attempt to start disabled vehicle – if vehicle starts;
     - Let engine run for 10-20 minutes to fully charge
     - Disconnected cables and return jump box to IMAP truck
- IMAP Responders may jumpstart other vehicle types (e.g. electric vehicles, motorcycles, etc.) but must refer to owner's manual, FIRST to find specific process for each vehicle

Description:

Become familiar with the concepts related to cooling systems and guidelines for responding to overheated vehicles

Objectives:

- Learn basic concepts related to cooling systems & overheated vehicles
- Review basic steps & instructions for responding to overheated vehicles

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics

Introduction to Cooling Systems & Overheated Vehicles:

Objective: Learn basic concepts related to cooling systems & overheated vehicles

Critical Knowledge:

- **IMAP Responders assist motorists with overheated vehicles by;**
  - Checking coolant levels & looking for damage to cooling system
  - Pouring **water** into coolant reserve tank (or directly into radiator)
  - Helping motorist arrange for further assistance if needed

- **Components of a Typical Vehicle's Cooling System:**
  - **Radiator** – keeps coolant at appropriate temperature & circulates coolant through engine
  - **Coolant Reserve Tank** – plastic tank that releases excess coolant into radiator when needed (some vehicles may only have radiator)
  - **Radiator Hoses –** carries coolant to/from radiator and engine
  - **Thermostat –** controls the amount of coolant sent to the engine

- **General Knowledge about Overheated Vehicles:**
  - Vehicles most often overheat due to a lack of coolant
  - Most vehicles hold 2-3 gallons of coolant
  - Water can be used for coolant but as a temporary measure ONLY
  - Coolant in overheated vehicles is VERY HOT & under pressure which can cause SERIOUS injury
  - Engine block may crack if cold water is poured into hot engines
  - Water should be poured into coolant reserve tank OR directly into radiator if vehicle does NOT have a coolant reserve tank
  - Overheated vehicles may need 30+ minutes to cool down completely
  - Vehicle must be ON in order to pump coolant/water to engine

- **IMAP Equipment Guidelines for Overheated Vehicles:**
  - **Work gloves & safety glasses –** mandatory PPE
  - **3-5, 1-gallon water cans** – inspect & refill before each shift
  - Responders may add a small amount of EPA-friendly antifreeze to their water cans to prevent water from freezing in cold weather
  - **Rag –** place over radiator cap for additional protection from steam

Overheated Vehicle Response Process:

Objective: Review basic steps & instructions for responding to overheated vehicles

1. Have an ESCAPE ROUTE
2. Follow all guidelines from the Vehicle Positioning Process (ON SHOULDER)
3. Put on appropriate PPE (e.g. reflective vest, work gloves & safety glasses)
4. Approach vehicle & confirm motorist's vehicle is off & emergency brake is on
5. Have motorists stand in the safest location possible, watch for traffic to ensure safety of themselves and IMAP Responder while utilizing the air horn
6. Check for steam & look under car for signs of coolant leaks
    a. White clouds = steam
    b. Black/Gray clouds = smoke – follow procedure for Vehicle Fires
7. Raise hood carefully to avoid steam & allow engine to cool sufficiently
8. Check pressure of the radiator hose. If the hose is tight and cannot be squeezed together, there is pressure in the system. DO NOT OPEN RADIATOR CAP
9. Check cooling system for cracks/holes – if found, DO NOT add water until engine has cooled off completely (a wrecker will likely be needed for motorist)
10. Check coolant level in radiator/coolant reserve tank
    a. If empty, adding water may help vehicle run without overheating
    b. If full, issue may be mechanical – offer to call a wrecker for motorist
11. Inspect hoses & clamps – tighten or reattach if needed
    a. If main hose feels hard, hose is filled with hot coolant under pressure
    b. Responder must wait a few more minutes before opening radiator cap
12. Place rag over radiator cap & give cap a half turn to vent remaining pressure
    a. Use extreme caution to avoid steam
    b. A tight cap may mean HIGH pressure – allow more time to cool
13. When engine is cool enough for water, instruct motorist to turn vehicle on
14. Pour water into coolant reserve tank/radiator
    a. Coolant reserve tank – add water up to tank's DO NOT FILL line
    b. Radiator, only – add water until it is just visible but DO NOT top off
15. Replace caps to radiator and/or coolant reserve tank
16. Check vehicle's temperature gauge
    a. If gauge stays in RED, turn engine off & offer to call a wrecker
    b. If gauge reads normal, close vehicle's hood
17. Before sending motorist on their way, instruct them to;
    a. Seek long-term repair as soon as possible (especially in winter months)
    b. Watch temperature gauge carefully & allow enough time to reach a gas station/service center before vehicle overheats again
    c. If able to, turn off the heat inside the vehicle to pull more heat from the engine and keep it cooler while trying to make it to the next exit

Description:

Become familiar with the proper actions and safety precautions used by IMAP when positioning the IMAP truck at incident scenes and when the responder has exited the truck to approach the scene

Objectives:

- Become familiar with the Incident Work Zone and explore the common arrangement of responders on an incident scene
- Learn where responders should park the IMAP truck upon arriving on scene and proper distance from the incident
- Learn how to properly position the IMAP truck and understand how & when to angle tires
- Review different arrow board settings and vehicle lights and understand their use
- Review step-by-step instructions for how to position the IMAP truck for incidents on shoulders and in lanes
- Review step-by-step instructions for how to safely exit the IMAP truck
- Review step-by-step instructions for how to approach incidents on shoulders and in lanes
- Learn where to safely park the IMAP truck for incidents behind hills or curves
- Explore other safety precautions and considerations for responders' initial arrival on scene

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Communication Protocol
- VE-104: Driving Techniques

The Incident Work Zone:

Objective: Become familiar with the Incident Work Zone and explore the common arrangement of responders on an incident scene

Critical Knowledge:

- One of IMAP's main functions is to provide emergency traffic control (ETC) around an incident scene
- Incident Work Zone – the area that contains the incident and various response vehicles and separates responders and victims from on-coming traffic
- IMAP's goal is to create a SAFE Incident Work Zone that helps KEEP TRAFFIC MOVING
- Proper positioning of the IMAP truck is critical to creating a safe Incident Work Zone
- IMAP truck position establishes the BEGINNING of the Incident Work Zone
- Emergency vehicle lights and arrow board on IMAP truck also protect safety and help direct traffic
- IMAP responders must allow room for other responders to position their vehicles and operate their equipment
- If needed, IMAP responders should reposition their truck to;
  - Provide additional room for responders
  - Assure that motorists can see their truck in time to react safely
  - Close additional lanes to maintain a safe Incident Work Zone

Diagram of a Typical Incident Work Zone:

Wrecker: Access to damaged vehicle(s). Able to pull away from scene easily

Ambulance (EMS): Access to injured person(s). Able to leave scene quickly

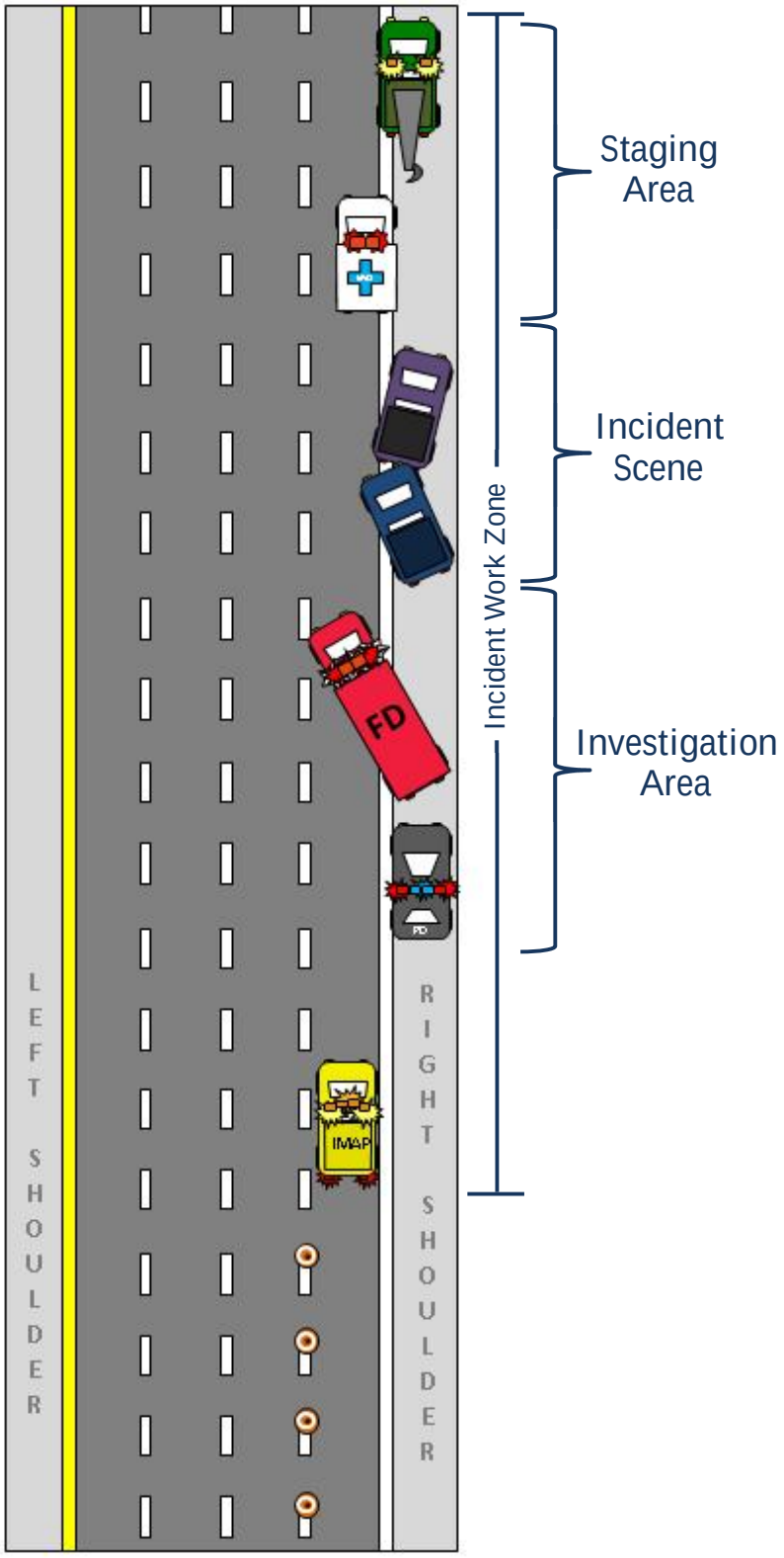
INCIDENT SCENE: Where damaged vehicles are located and where clearance activities occur

Fire Truck: Takes LANE + 1. Acts as additional barrier and screens incident from view

Law Enforcement Patrol Unit: Additional barrier against stray vehicles. Establishes Investigation Area

IMAP Truck: 1st physical barrier against stray vehicles. Displays arrow board (←) to direct traffic to merge

Traffic Control (cones): Direct traffic away from and around incident scene



Where to Park Upon Arrival:

Objective: Learn where responders should park the IMAP truck upon arriving on scene and proper distance from the incident

Critical Knowledge:

- Where to park changes for every incident – responders' should park in a location that;
  - Makes the IMAP truck & arrow board as visible as possible
  - Provides the most protection for the IMAP responder
  - Is wide enough and can support weight of the IMAP truck
- DO NOT park on the opposite side of the road or in the opposite direction unless absolutely necessary
- Try to close lanes that are already blocked by the incident or other response vehicles
- Parking distance – leave enough room for additional responders to arrive and provide a buffer zone between traffic and incident scene
- HazMat parking distance – refer to the Emergency Response Guidebook (ERG) to determine safest parking distance
- Reposition IMAP truck to new location whenever needed – especially as the incident scene changes (e.g. lanes close or reopen)

How to Position IMAP Vehicle:

Objective: Learn how to properly position the IMAP vehicle and understand how and when to angle tires to provide additional protection

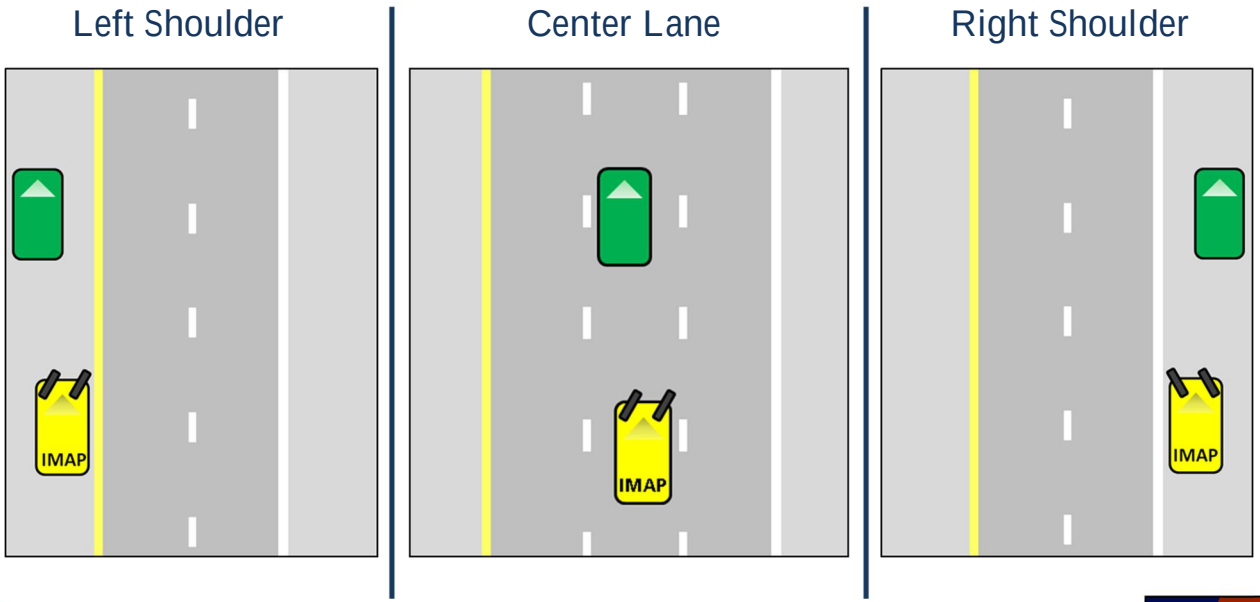
Critical Knowledge:

- How to position the IMAP truck changes for every incident – responders should position their vehicle so that;
  - On-coming traffic views arrow board head on – NOT at an angle
  - IMAP responder's approach to/from the incident is protected
  - If struck, IMAP truck and stray vehicle will be deflected AWAY from the responder and incident scene

- Off-set Position – try to position the truck so that it is slightly to the right or left of the vehicle in front of it
  - Helps protect responder's approach path/escape route
  - Do NOT block a lane in order to off-set truck

- Angle Truck for Arrow Board – when positioning near curves, responders may angle truck slightly so motorists view arrow board head on

- Angle Tires – when parked, angle front tires AWAY from responder's approach path/escape route & incident in case IMAP truck is struck



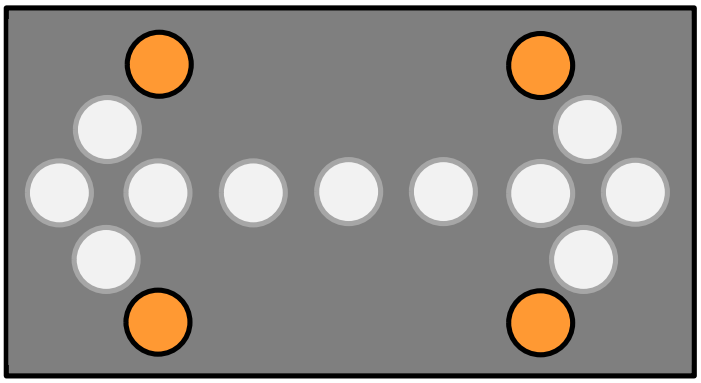
Arrow Board & Emergency Lights:

Objective: Review emergency lights & arrow board displays and understand their use

Critical Knowledge:

- Four Dots (⁘) = CAUTION. Use to indicate that occupied shoulder or road ahead is NOT available for travel
- Right Arrow (→) = MERGE RIGHT. Use when blocking left lanes to instruct motorists to merge into the adjacent right lanes
- Left Arrow (←) = MERGE LEFT. Use when blocking right lanes to instruct motorists to merge into the adjacent left lanes
- Dual Arrow (←→) = MERGE LEFT or RIGHT. Use when blocking center lanes to instruct motorists to merge into the adjacent left or right lanes
- Do NOT use any BLINKING, ANIMATED, or SYNCHRONIZED arrow displays
- Activate ALL emergency lights as soon as incident is in sight OR when traffic backup created by the incident is encountered
  - All emergency lights should remain ON while on-scene
  - Deactivate emergency lights AFTER departing scene and once truck is back up to speed
- Activate arrow board upon arrival – Deactivate arrow board once safely clear from incident scene
- Check arrow board & emergency lights EVERY time you exit the IMAP truck

Arrow Board Diagrams:



Four Dots = CAUTION
Use to indicate that occupied shoulder or road ahead is NOT available for travel

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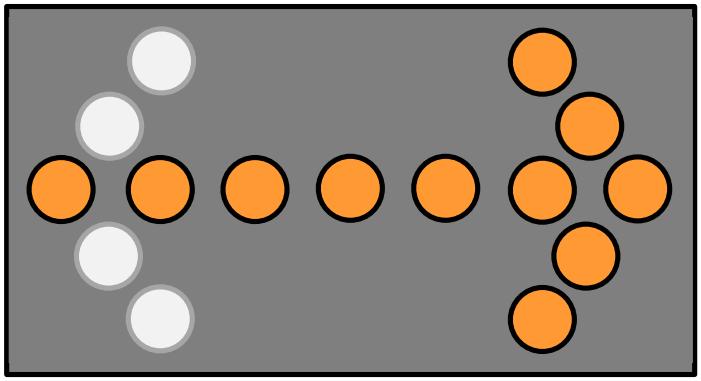
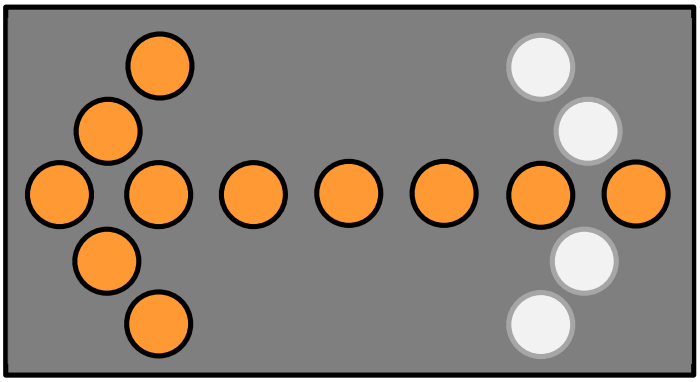
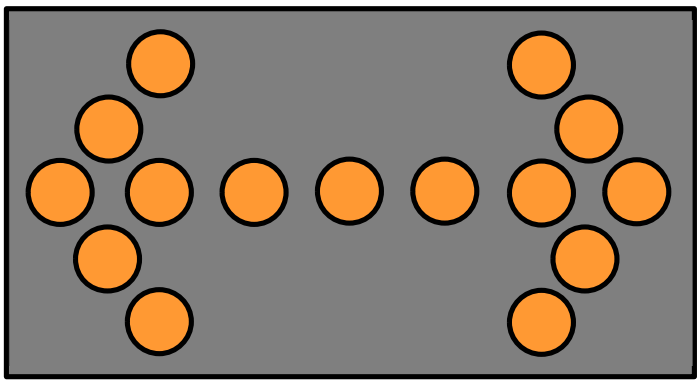




Left Arrow = MERGE LEFT
Use when blocking right lanes to instruct motorists to merge into the adjacent left lanes

Dual Arrow = MERGE LEFT or RIGHT
Use when blocking center lanes to instruct motorists to merge into the adjacent left or right lanes



Vehicle Positioning Process (ON SHOULDER):

Objective: Review step-by-step instructions for how to position the IMAP truck for incidents on shoulders

Step-by-Step Process:

1. Activate all emergency lights once incident is in sight or backup from incident is encountered
2. Assess the scene and plan an escape route
3. Park truck to provide sufficient room for responders
4. Position truck properly (off-set if possible; angle truck if needed)
5. Activate CAUTION display on arrow board
6. Contact TMC – provide initial incident details BEFORE exiting vehicle
7. Set parking brake
8. Roll down driver-side window
9. Turn front wheels AWAY from escape route and incident work zone
10. Put on reflective vest & bring along other appropriate PPE (e.g. work gloves, safety glasses, etc.)
11. Bring handheld radio and any other neccesary communication devices (e.g. cell/direct connect)
12. Prepare to exit vehicle and check arrow board and lights

Vehicle Positioning Process (IN LANE):

Objective: Review step-by-step instructions for how to position the IMAP truck for incidents in lanes

Step-by-Step Process:

1. Activate all emergency lights once incident is in sight or backup from incident is encountered
2. Assess the scene and plan an escape route
3. Park truck to provide sufficient room for responders
4. Position truck properly (off-set if possible; angle truck if needed)
5. Activate arrow board with appropriate arrow display
6. Contact TMC – provide initial incident details BEFORE exiting vehicle
7. Set parking brake
8. Roll down driver-side window
9. Turn front wheels AWAY from escape route and incident work zone
10. Put on reflective vest & bring along other appropriate PPE (e.g. work gloves, safety glasses, etc.)
11. Bring handheld radio and any other necessary communication devices (e.g. cell/direct connect)
12. Prepare to exit vehicle and check arrow board and lights

Exiting the IMAP Truck:

Objective: Review step-by-step instructions for how to safely exit the IMAP truck

Step-by-Step Process:

1. Assure that:
    a. All emergency lights are ON
    b. An escape route is planned
    c. Arrow board is activated with proper display
    d. Vehicle is parked at a sufficient distance and positioned properly
    e. TMC has been contacted
    f. Parking brake is on
    g. Appropriate PPE is on/with responder & handheld radio is in-hand
2. Check all side-view mirrors to assess on-coming traffic
3. Roll the driver-side window down
4. Crack the door to 1st latch
5. Double-check the side mirror on door closest to traffic
6. Exit truck with extreme caution
7. Close driver-side door
8. Face and assess traffic
9. Walk behind truck to check lights and arrow board

Responder Approach Process:

Objective: Review step-by-step instructions for how to approach incidents on shoulders and in lanes

Step-by-Step Process upon Exiting IMAP Truck:

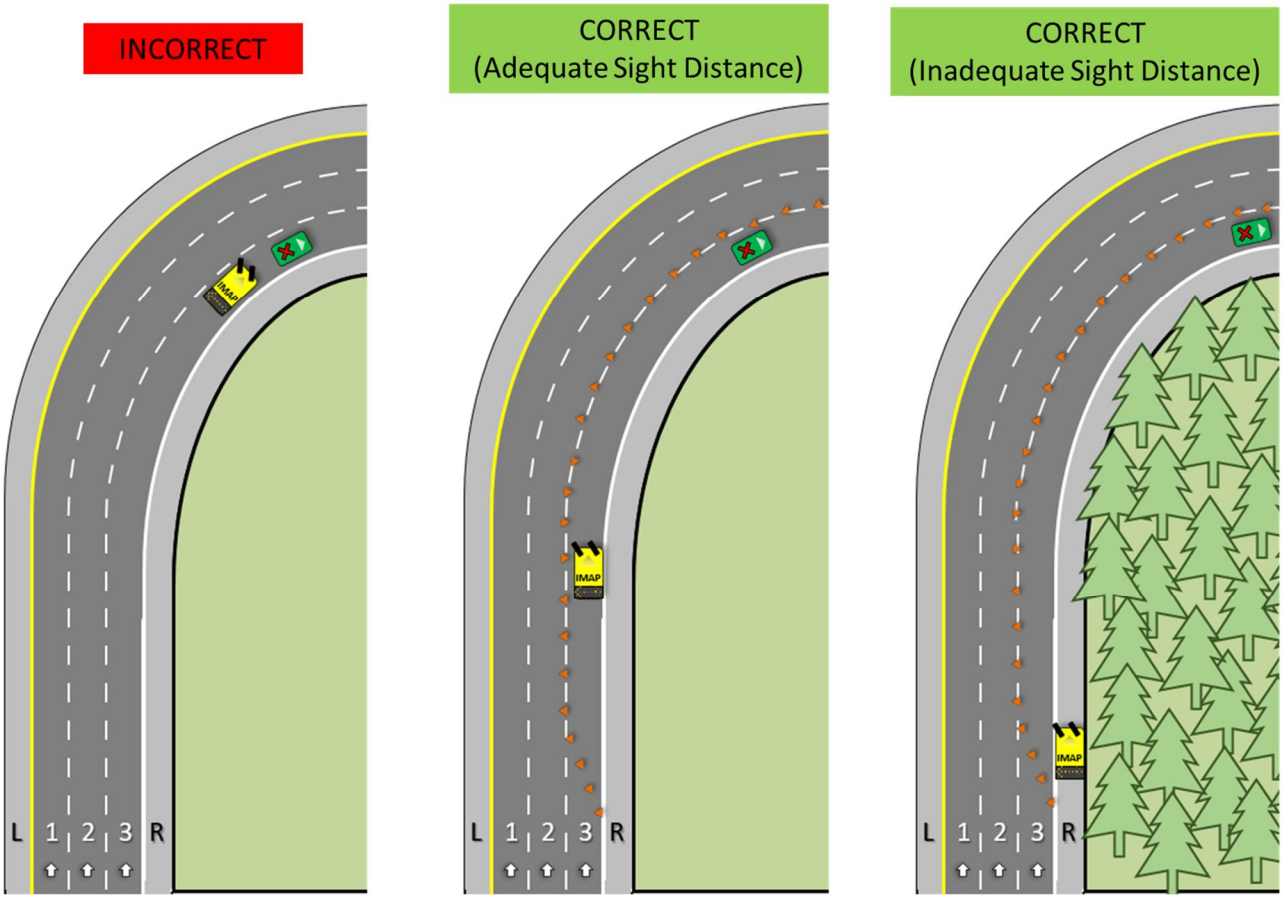
1. Face and assess on-coming traffic
2. Walk behind truck and visually check arrow board and emergency lights
3. Approach vehicle/incident with extreme caution
    a. Walk within shoulder if possible
    b. Walk behind guardrail/barrier if available
    c. Approach vehicle/incident on side furthest from traffic
    d. Continuously monitor traffic from arrival to departure
4. Inspect vehicle(s) and any passenger(s) inside or nearby
5. Place hand on vehicle's trunk or side panel to leave finger prints
6. Tap trunk to assure no one is inside
7. Assess incident and render services
8. Contact TMC to relay updated information and BEFORE departing scene
9. When departing, deactivate and lower arrow board – leave all emergency lights ON until you have re-entered traffic and are back up to speed

Parking Before Hills or Curves:

Objective: Learn where to safely park IMAP truck to limit impact to traffic for incidents behind hills or curves

Critical Knowledge:

- IF an incident is located around a curve or behind a hill, THEN park truck further back so oncoming traffic can see the IMAP truck & any traffic control devices before entering the curve or cresting the hill
- IF an IMAP truck cannot reposition safely, THEN a backup unit should be called for assistance
- Rule of Thumb: If you can't see traffic coming straight at you in your rear-view mirror, reposition (safely) until you can



Other Safety Precautions & Considerations:

Objective: Explore other safety precautions and considerations for proper vehicle positioning and responder approach while on scene of an incident

Critical Knowledge:

- If responder believes lane(s) will be blocked for 15 minutes or more, a emergency lane closure using cones must be deployed as soon as possible

- While on scene, responders should watch for:
  - Motorists' reaction to incident & traffic control
  - Changes in congestion or traffic speed around incident scene
  - Missing, damaged, or relocated traffic control

- Before approaching a possible HazMat incident, responders should use binoculars to assess incident scene

- While on scene, responders should attempt to keep all bystanders away from travel lanes

- While providing motorist assistance, responders should ask motorists to keep an eye on traffic and alert them to possible hazards

- Reposition IMAP truck to new parking location whenever needed – especially as the incident scene changes

Description:

Become familiar with the various emergency traffic control (ETC) techniques and guidelines used by IMAP responders to manage the flow of traffic.

Objectives:

- Learn about the purpose of emergency traffic control (ETC) & important ETC terminology
- Explore IMAP's ETC resources & discuss their use
- Become familiar with the primary guidelines associated with ETC
- Learn the basic concepts related to IMAP's various ETC techniques

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

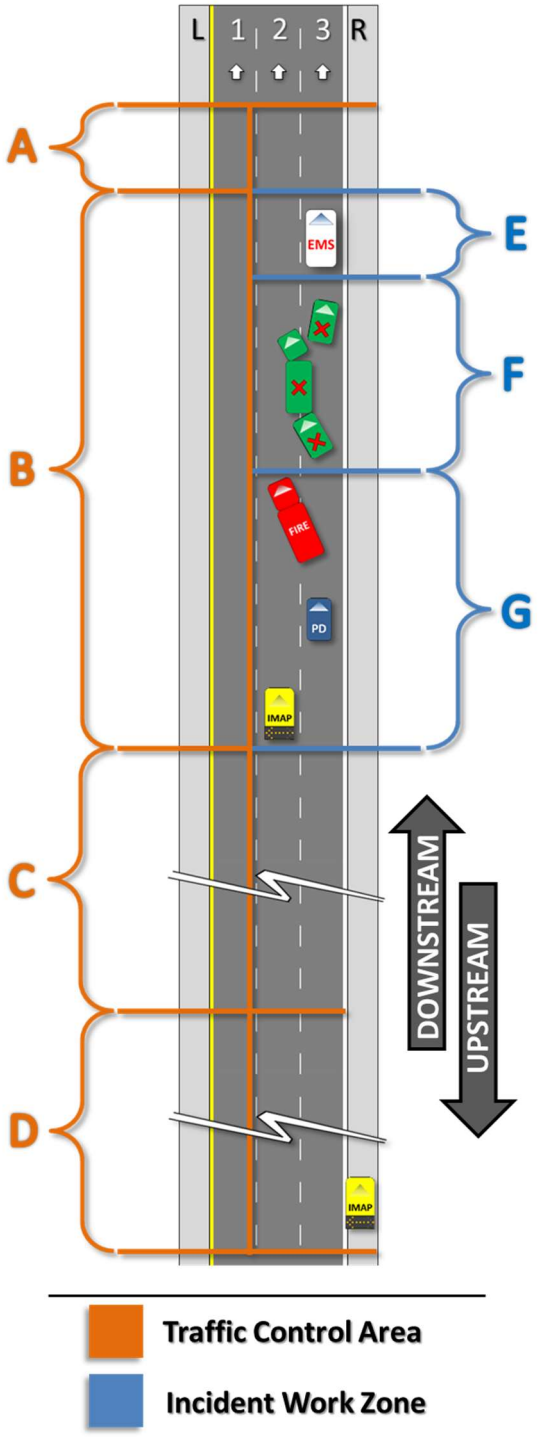
- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach

Introduction to Emergency Traffic Control:

Objective: Learn about the purpose of emerg. traffic control (ETC) & important terminology.

Critical Knowledge:

- The purpose of emergency traffic control is to create a safe area around an incident scene while keeping traffic flowing
- **Manual on Uniform Traffic Control Devices (MUTCD):** basis for IMAP's ETC activities; especially Chapter 6I: Temporary Traffic Control
- **Downstream:** the location of areas/objects in relation to the road's normal direction of travel
- **Upstream:** the location of areas/objects opposite to the road's normal direction of travel
- **A – Termination Area:** where the Traffic Control (TC) Area ends and where traffic returns to normal operations
- **B – Activity Area:** includes entire Incident Work Zone; separated from traffic by a longitudinal buffer
- **C – Transition Area:** where traffic is shifted from closed lanes to open lanes before the Incident Work Zone
- **D – Advanced Warning (AW) Area:** where devices are placed to notify traffic of an upcoming Incident Work Zone; Proper AW is placed before backup from incident **OR** a minimum of 1½ mile from end of Transition Area
- **E – Staging Area:** where other responders (e.g. EMS) park for easy access to & rapid departure from the incident scene
- **F – Incident Scene:** where first aid is rendered and where damaged vehicles are removed
- **G – Investigation Area:** where responders park and where Incident Command occurs



IMAP's Emergency Traffic Control Resources:

Objective: Explore IMAP's emergency traffic control resources & discuss their use.

Critical Knowledge:

- **IMAP Truck:**
  - Acts as a physical barrier between traffic and responders
  - Emergency lights make the truck more visible to motorists
  - Arrow board increases visibility & tells traffic what to do

- **IMAP Responder** (wearing reflective vest)**:**
  - Can verbally instruct motorists to stop, hold lanes, etc.
  - Use hand signals to attract motorists' attention & direct traffic

- **Traffic Cones:**
  - IMAP trucks carry a minimum of 27 traffic cones
  - Cones separate responders from traffic and shift on-coming traffic out of closed lanes and into available lanes
  - "Cone Caddy" can make hauling cones easier

- **Flares & Lighting:**
  - Flares make ETC areas easier to see at night/inclement weather
  - Flares can also provide advance warning before an incident scene
  - IMAP's Work Light helps light up incident scenes and can make the IMAP truck more visible to on-coming traffic
  - Flashlights can be used to signal motorists & direct traffic at night

- **TMC Dispatchers:**
  - Can monitor traffic around the incident and the queue behind it
  - Can notify IMAP responders of unsafe situations
  - Can activate dynamic message signs (DMS) as advance warning
  - Can plan detours/alternate routes & broadcast them to motorists

- **DOT Traffic Services/Maintenance:**
  - Brings additional ETC devices to establish "proper" ETC zones for incidents **expected** to last 2+ hours
  - Should be called as soon as possible to assure a timely response

Primary ETC Guidelines (1 of 2):

Objective: Become familiar with the primary guidelines associated with ETC.

Critical Knowledge:

- **All incidents are different –** responders must choose the ETC technique that is SAFEST and most EFFECTIVE for each circumstance

- **Minimize your exposure to traffic** as much as possible – stay out of travel lanes or behind barriers/ETC devices whenever possible

- **ALWAYS have an ESCAPE ROUTE** – even when conditions appear safe (e.g. While driving or when protected by ETC devices)

- **Try NOT to close lanes** unless absolutely necessary – if needed, only close lanes that are already blocked or must be closed for safety
  - Lanes are NEVER "partially closed"; lane is either open or closed
  - Responders must establish a lane closure using traffic cones whenever a lane is **expected** to be closed for 15 minutes or more
  - Upon arrival, determine an estimated duration as soon as possible
  - Call Traffic Services/Maintenance if closures are **expected** to last 2 hours or more

- **Motorists should NOT be surprised** by your ETC measures
  - Make yourself, your truck, and your ETC as visible as possible
  - Motorists should see your ETC well before they reach the incident
  - **Rule of Thumb –** if you CAN'T see traffic coming straight at you in your rear view mirror, reposition your truck (**safely**) until you can

- **Watch traffic carefully** and **modify your ETC as conditions change**

Primary ETC Guidelines (2 of 2):

Objective: Become familiar with the primary guidelines associated with ETC.

Critical Knowledge:

- **Communication is CRITICAL** – responders should;
  - Discuss their ETC plan with other IMAP units and with other responders
  - Work together with other IMAP units & clearly establish what each responder is responsible for. For example;
    - Unit 1 participates in incident command
    - Unit 2 deploys ETC devices and manages advance warning
  - Keep TMC dispatch informed

- **IMAP responders should call for backup** whenever ETC activities;
  - Are unsafe for a single unit
  - Exceed the capabilities of a single unit (i.e. more traffic cones are needed than are carried on a single truck)
  - Prevent responders from properly performing their other duties (i.e. participating in incident command, removing vehicles, etc.)

Emergency Traffic Control Techniques (1 of 2):

Objective: Learn the basic concepts related to IMAP's various ETC techniques.

Critical Knowledge:

IMAP Truck: used when stopping on the shoulder or when closures are BRIEF

- Emergency lights & arrow board MUST be properly activated
- Additional ETC measures should be used if closure may last longer than 15 minutes, if responder safety is threatened, or if visibility is limited

Emergency Rolling Roadblock: (a.k.a. "Moving Closure" or "Rolling Slowdown") used to control the speed of traffic by positioning IMAP truck(s) in front of moving vehicles & gradually slowing down or speeding up

- **Commonly used by IMAP when;**
  - Looking for debris in the roadway
  - Helping traffic get back up to speed safely after lanes are opened
- Can be performed by a single unit or multiple units
- When multiple units perform an emergency rolling roadblock, **communication is critical –** One unit should act as the leader & direct other units' actions

Motorist Cooperation: used to close lanes or divert traffic by verbally instructing lead motorists whose actions will stop or guide traffic behind them

- This method should only be used to close lanes BRIEFLY
- Responders should exercise EXTREME caution when using this method
- **Closing Lanes;**
  - IMAP responder signals lead motorists to slow & stop
  - Once stopped, responder tells each lead motorist to hold the lane until told to GO
  - When ready, responder steps out of travel lanes and instructs each lead motorist to continue forward
- **Diverting Traffic;**
  - IMAP responder signals lead motorists to slow & stop
  - Once stopped, responder tells each lead motorist which lane to move into (e.g. shoulder)
  - As lead motorist moves into lane and continues forward, responder waves traffic to follow lead motorist in new lane

Emergency Traffic Control Techniques (2 of 2):

Objective: Learn the basic concepts related to IMAP's various ETC techniques.

Critical Knowledge:

Temporary Lane Closures: used to close lanes or divert traffic by using traffic cones, arrow board, and other emergency traffic control (ETC) devices

- Use when lanes are **expected** to be closed for 15 minutes or more
- Traffic cones are used to create;
  - **Tapers** to gradually shift traffic from closed lanes to available lanes
  - **Buffers** to provide sufficient stopping distance for stray vehicles entering Activity Area and to separate responders from traffic
- ETC devices are deployed based on traffic conditions at the time of IMAP's arrival and must be modified as conditions change such as;
  - **Traffic speed increases**
  - **Sight distance is limited**

Increasing Visibility & Advance Warning: used to better attract motorists' attention & provide additional time to react before reaching the incident.

- **Initial vs. Proper Advance Warning (AW) –** Initial AW are basic measures (e.g. flares) deployed near Incident Work Zone. Proper AW are more complete measures positioned before backup from incident **OR** a minimum of 1½ miles from end of Transition Area
- **Flares** – can be used to increase visibility and as AW. Flares are placed in between traffic cones or on the shoulder before Incident Work Zone
- **Additional IMAP Unit –** can provide AW by parking before Transition Area. Advance warning unit should;
  - Activate all emergency lights & arrow board
  - Park before incident backup **OR** 1½ mile before Transition Area
  - Reposition as conditions change; if possible, park at an exit ramp and, when traffic backs up to you, take the exit and drive to a new exit (upstream) where the IMAP truck can be positioned as AW

Diverting Traffic onto Shoulder: used to ease congestion by allowing more vehicles to pass by the incident by traveling on an available shoulder

- Shoulder must be wide enough and should NOT be occupied by responders
- Use cones to divert traffic onto/off of shoulder and to separate shoulder traffic from traffic in the adjacent lane (if any)
- Use Motorist Cooperation technique to help start and stop this pattern

Description:

Become familiar with the guidelines & processes used to deploy emergency lane closures

Objectives:

- Learn about emergency lane closures and their components
- Explore standard roadway dimensions and concepts related to traffic control configurations
- Explore the dimensions and guidelines of standard emergency lane closures
- Review step-by-step instructions for placing & removing a standard single lane closure
- Review step-by-step instructions for placing & removing a standard multiple lane closure
- Become familiar with the concepts & guidelines for modifying emergency lane closures when traffic speeds increase above 40mph
- Receive additional guidance & techniques to help deploy emergency lane closures properly

Audience: IMAP Responders

Duration of Training: 4 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

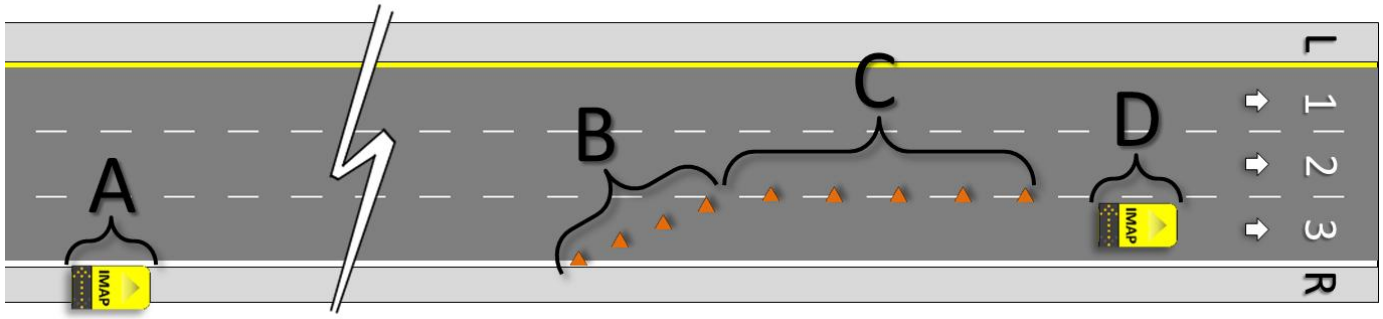
- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques

Introduction to Emergency Lane Closures:

Objective: Learn about emergency lane closures and their components

Critical Knowledge:

- Emergency lane closures are used to close lanes & divert traffic by using traffic cones, arrow board, & other emergency traffic control (ETC) devices
- IMAP responders deploy emergency lane closures when lanes are expected to be closed for 15 minutes or more
- ETC devices are deployed based on traffic conditions at the time of IMAP's arrival and must be modified as conditions change such as;
  - Increase in traffic speed
  - Limited sight distance
- Components of a Emergency Lane Closure:
  - A – Advance Warning: optional measure (based on conditions) used to alert motorists of approaching incidents/traffic control
  - B – Taper: used to gradually shift traffic from closed lanes to available lanes
  - C – Buffer: used to provide sufficient stopping distance for stray vehicles entering incident work zone and/or to separate responders from traffic as it moves past the scene
  - D – IMAP Truck: uses emergency lights to alert motorists of an incident, arrow board to direct traffic towards available lanes, and can also serve as a physical barrier to protect responders

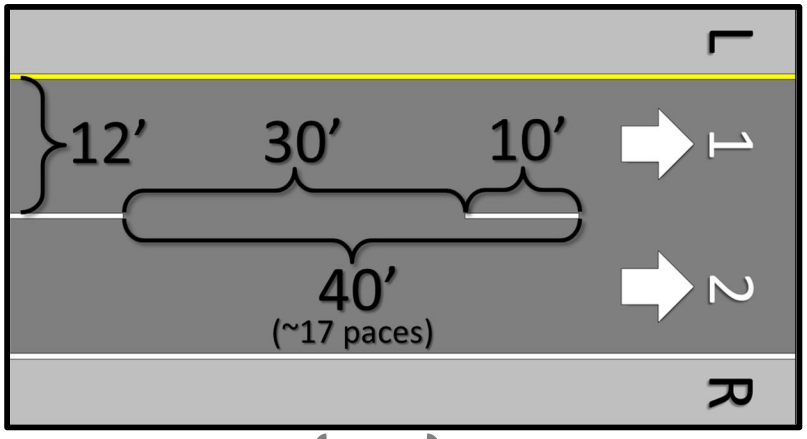


Roadway Dimensions & Traffic Control Configurations:

Objective: Explore standard roadway dimensions and concepts related to traffic control configurations

Critical Knowledge:

- Traffic control configurations describe the overall layout of ETC devices (e.g. traffic cones) used in emergency lane closures such as;
  - How many ETC devices are used
  - Distance between each ETC device
  - Length of traffic control area created by ETC devices
- The 2 primary factors that determine how to configure ETC devices are;
  - Traffic Speed – faster traffic needs more time & space to act
  - Sight Distance – limited sight distance gives less time & space to act
- When traffic speeds are higher and/or when sight distance is limited;
  - More ETC devices should be used
  - Length of traffic control area should increase
- IMAP responders must consider these factors when deploying emergency lane closures and must modify their closures as conditions change
- Standardized roadway dimensions help IMAP responders deploy ETC devices;
  - Lane Width = 12 feet
  - Skip Length = 10 feet
  - Space between Skips = 30 feet
  - Distance from Skip to Skip = 40 feet
  - Responders also count paces to judge distance (Skip to Skip = ~17 paces)



Standard Emergency Lane Closures:

Objective: Explore the dimensions & guidelines of standard emergency lane closures

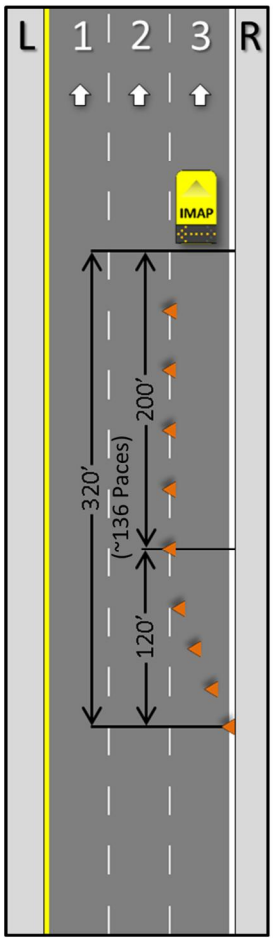
Critical Knowledge:

- A standard*, single lane closure should be at least 320 feet long and should use at least 9 traffic cones
  - 4-cone Taper – should angle towards available travel lane
  - 5-cone Buffer – should extend from taper to back of IMAP truck
- Skips are used as reference points to place traffic cones
  - For a single lane, 9 cones are placed in the space of 8 skips (320ft)
  - Each of the 5 buffer cones is placed at the end of a skip (40ft apart)
  - Each of the 4 taper cones is placed in the space of 3 skips (30ft apart)
- To close a lane, responders should deploy ETC in the following order;
  - Activate lights & arrow board and park truck in the blocked lane
  - Place the 4-cone taper, starting at the shoulder & working to the skip
  - Place the 5-cone buffer, starting at the taper & working to the truck
- To open a lane, responders should remove ETC in the following order;
  - Pick up buffer cones starting from truck and working back to taper
  - Remove taper cones working from the skip to the shoulder
  - Reposition truck to shoulder – responders may reposition truck in between traffic cone pickup to make removal easier
- IMAP responders should walk on the shoulder as much as possible – only cross travel lanes to place or remove traffic cones
- Multiple lanes are closed by repeating the 9-cone configuration so that where the buffer of one lane ends, the taper of the adjacent lane begins
  - 1 Lane = 9 cones, 320 feet (~136 paces)
  - 2 Lanes = 18 cones, 640 feet (~272 paces)
  - 3 Lanes = 27 cones, 960 feet (~408 paces)
  - Close lane closest to shoulder, first before closing adjacent lane(s)
- If an IMAP responder does not have enough cones for a closure, they should call for a backup unit or Traffic Services/DOT Maintenance

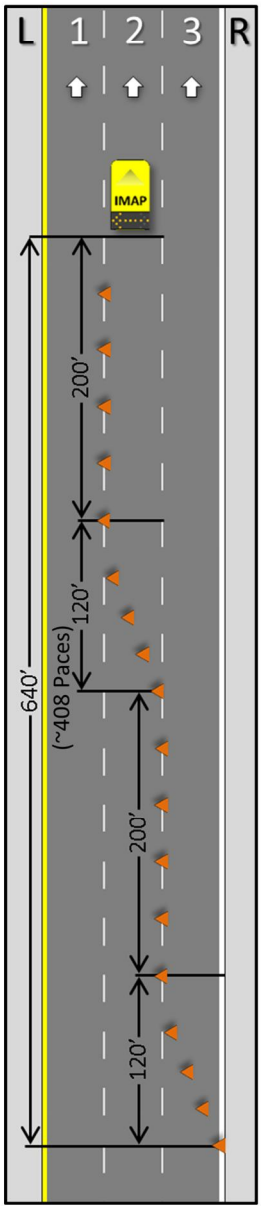
* "Standard" refers to a closure on a straight section of roadway where traffic is NOT exceeding 40mph past the incident and where NO extenuating circumstances are present that require additional traffic control measures

Standard Emergency Lane Closures – 40mph or Less:

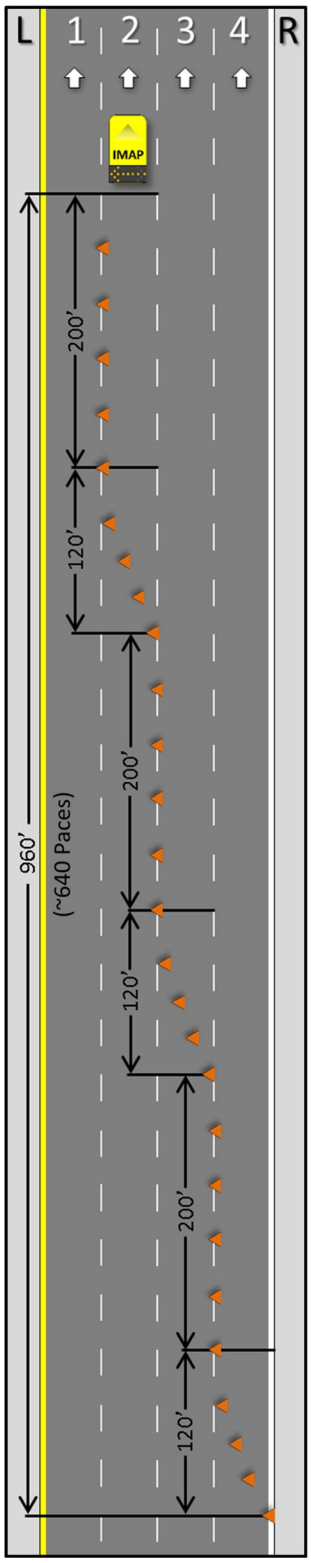
Example: Single Lane Closure



Example: Double Lane Closure



Example: Triple Lane Closure



Deploying & Removing Standard SINGLE Lane Closures:

Objective: Review step-by-step process for deploying/removing a single lane closure

1. Follow all guidelines from the Vehicle Positioning Process (IN LANE)
2. Exit IMAP truck safely and keep an eye on traffic
3. Walk behind IMAP truck and confirm;
    a. All emergency lights are activated
    b. Arrow board display is correct
4. Retrieve traffic cones from IMAP truck and walk to shoulder
5. Carry cones upstream on shoulder to where traffic control (TC) area will begin
    a. Count skips as you walk
    b. There should be 8 skips in your TC area
    c. Cones may be staged on shoulder to make placement easier on return trip
6. Place the 4-cone taper, FIRST
    a. Put 1st cone on the edge of shoulder, in-line with 8th skip
    b. Put 2nd and 3rd cone evenly spaced between 1st taper cone and 6th skip
    c. Put 4th cone near the 6th skip to complete the taper
7. Place the 5-cone buffer, SECOND
    a. Each buffer cone will be placed on its own skip
    b. Start from the skip after the taper and work back towards IMAP truck
8. Monitor traffic and modify your ETC measures as conditions change
9. Once the lane is no longer blocked, remove your ETC measures
    a. Remove buffer cones, FIRST – start at IMAP truck & work to taper
    b. Remove taper cones, SECOND – start from skip & work to shoulder
    c. Reposition truck to shoulder, LAST – set arrow board to CAUTION
10. Return cones to truck and notify TMC dispatch that lanes have reopened
11. Once the incident is clear, notify TMC dispatch, and prepare to depart scene
12. Deactivate arrow board and safely re-enter traffic before deactivating emergency lights

Deploying & Removing Standard MULTIPLE Lane Closures:

Objective: Review step-by-step process for deploying/removing a multi-lane closure

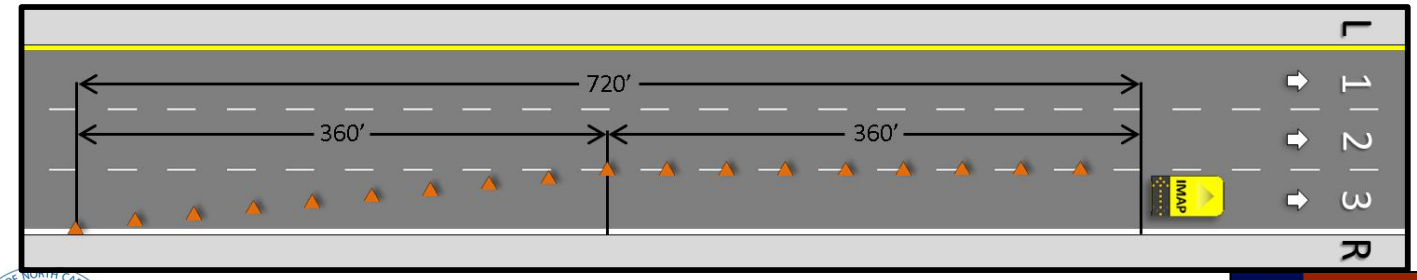
1. Follow all guidelines from the Vehicle Positioning Process (IN LANE)
    a. Park truck in blocked lane closest to available travel lane(s)
    b. Ex. Lane #1 is open and lanes #2 & 3 are blocked. Park in lane #2
2. Exit IMAP truck safely and keep an eye on traffic
3. Walk behind IMAP truck and confirm;
    a. All emergency lights are activated
    b. Arrow board display is correct
4. Retrieve traffic cones from IMAP truck & safely cross blocked lanes to shoulder
5. Carry cones upstream on shoulder to where traffic control (TC) area will begin
    a. Count skips as you walk – each lane closure covers 8 skips
    b. Cones may be staged on shoulder to make placement easier on return trip
6. Close the lane closest to the shoulder, FIRST, before closing the next lane
    a. Each lane closure should use the same, 9-cone configuration
    b. Ex. Lane #1 is open and lanes #2 & 3 are blocked.
        i. IMAP truck parks in lane #2
        ii. Responder walks to right shoulder & walks upstream 16 skips (640ft)
        iii. Responder closes lane #3, FIRST
        iv. Responder closes lane #2, SECOND
7. Monitor traffic and modify your ETC measures as conditions change
8. Once the lanes are no longer blocked, remove your ETC measures
    a. Remove closure from lane closest to available travel lane(s), FIRST
    b. Remove closures from adjacent lanes working towards the shoulder
    c. Reposition truck to shoulder, LAST – set arrow board to CAUTION
9. Return cones to truck and notify TMC dispatch that lanes have reopened
10. Once incident is clear, notify TMC dispatch, and prepare to depart scene
11. Deactivate arrow board and safely re-enter traffic before deactivating emergency lights

Modifying Emergency Lane Closures for High Speed Traffic:

Objective: Become familiar with the concepts & guidelines for modifying emergency lane closures when traffic speeds increase above 40mph.

Critical Knowledge:

- As congestion near an incident decreases, traffic speeds tend to INCREASE – higher speed traffic requires more time & space to act
- Standard emergency lane closures are designed to safely control traffic moving 40mph or less
- When traffic speeds increase above 40mph, responders should use a longer lane closure to give higher-speed traffic more time & space to act safely
- If a standard (under 40mph) lane closure is already in place, responders must modify the closure to make it longer for higher speed traffic
- A high speed single lane closure should be at least 720 feet and should use at least 18 traffic cones
    - 9-cone Taper – each cone placed on/in-line its own skip (40ft apart)
    - 9-cone Buffer – each cone placed on its own skip (40ft apart)
    - Multiple lanes are closed by repeating the 18-cone configuration
- If an IMAP responder does not have enough cones for a closure, they should call for a backup unit or Traffic Services/DOT Maintenance
- Responders should follow the same procedure and guidelines for placing & removing a high speed lane closure as they would for a standard closure



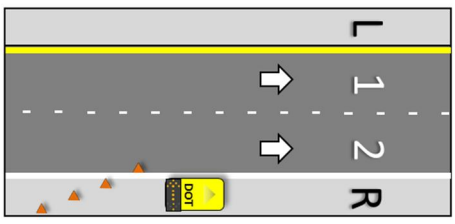
Additional Emergency Lane Closure Guidance / Techniques:

Objective: Receive additional guidance and techniques to help deploy emergency lane closures properly.

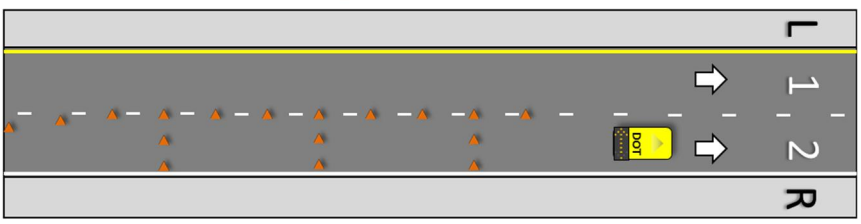
Critical Knowledge:

- ALWAYS have an ESCAPE ROUTE – even if traffic control is in-place
- Using a "Cone Caddy" can make hauling traffic cones easier – especially for high speed and/or multiple lane closures
- Plan Ahead – if you expect that more ETC will be needed than what you have, go ahead & call for backup or Traffic Services/DOT Maintenance
- When lane closures need to be adjusted, shift existing cones into new positions rather than picking up/deploying new cones
- Shoulder Taper – use to close shoulder if providing advance warning from shoulder or to prevent motorists from driving on shoulder
  - Arrange 4 cones (10ft apart) in taper across shoulder
  - Angle towards travel lanes
- Cone Spacing – use to control speed & keep motorists out of TC area
  - Add cones between existing ones if motorists drive between them
  - Push buffer cones closer to adjacent travel lane to make lane narrower which can reduce traffic speeds past the incident scene
- Lateral Buffers – use as additional protection against stray vehicles in TC area when buffers are longer than normal (i.e. traffic speeds above 40mph OR if incident is behind a hill/curve)
  - Place 2 cones perpendicular to traffic to create a lateral buffer
  - Space multiple lateral buffers evenly within main buffer

Example: Shoulder Taper



Example: Lateral Buffers



Description:

Become familiar with the guidelines & processes related to IMAP's use of emergency rolling roadblocks to control traffic

Objectives:

- Learn how emergency rolling roadblocks are used & the guidelines for their use
- Learn how IMAP Responders work together to perform emergency rolling roadblocks
- Review step-by-step instructions for performing an emergency rolling roadblock as a single IMAP unit
- Review step-by-step instructions for performing an emergency rolling roadblock as the primary unit with other IMAP units as secondary units

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques

Purpose & Guidelines for Emergency Rolling Roadblocks:

Objective: Learn how emergency rolling roadblocks are used & guidelines for their use

Critical Knowledge:

- **Emergency Rolling Roadblocks**
  - Used to control the speed of traffic by positioning IMAP truck(s) in front of moving vehicles & gradually slowing down, speeding up, or coming to a complete stop
  - Also referred to as, "Rolling Slowdowns" or, "Moving Closures"

- **Commonly used by IMAP when;**
  - Looking for & removing debris from the roadway
  - Allowing responders/other IMAP units to re-enter traffic safely
  - Helping traffic get back up to speed safely after lanes have opened

- **Primary Guidelines for Emergency Rolling Roadblocks:**
  - ALWAYS have an ESCAPE ROUTE – while in-motion & stopped
  - Roadblocks should begin NO LESS than ½ mile from incident
  - All emergency lights should be activated when roadblock begins
  - Arrow board should be activated when within 1 mile of incident
  - Arrow board display should direct motorists to open travel lane(s)
  - CAUTION display should only be used when all lanes are blocked
  - Traveling speed for rolling roadblocks should be below speed limit
  - All speed changes (i.e. stopping/starting forward) should be gradual
  - Any stops made during rolling roadblocks should be BRIEF
  - When stopping (e.g. to remove debris), Responders should control enough lanes to provide access to shoulder
  - Responders must carefully monitor traffic on all sides of IMAP truck
  - DO NOT weave to control lanes – straddle lane or call for backup
  - Notify TMC when emergency rolling roadblock begins and ends
  - If requesting an emergency rolling roadblock, clearly explain need for roadblock, where it is needed, and where units should meet

Communication & Responder Roles:

Objective: Learn how IMAP Responders work together to perform emergency rolling roadblocks

Critical Knowledge:

- Emergency rolling roadblocks can be performed by 1 IMAP unit or multiple units – COMMUNICATION IS CRITICAL with multiple units
- **Responder Roles during Multi-Unit Emergency Rolling Roadblocks:**
  - Primary Unit – leads the roadblock & instructs other Responders
  - Secondary Unit(s) – support roadblock by following instructions from primary unit
  - Exiting Responder – when stopped, the Responder who will exit the IMAP truck to perform BRIEF duties (e.g. removing debris)
- **Additional Guidelines for Multi-Unit Emerg. Rolling Roadblocks:**
  - Primary unit should establish a meet up area on a ramp at least ½ mile away from incident where units will meet & roadblock will begin
  - DO NOT start roadblock until all requested units have arrived
  - All units assisting with roadblock should switch to a tactical radio channel to communicate
  - Units should travel in-line with one another with enough space in-between so that other vehicles do not get past or between them
  - When stopped, the exiting Responder should be the one whose left side (driver-side door) is closest to shoulder or protected by another unit
  - When stopped, the exiting Responder should pull forward slightly so other units can protect them as they exit/re-enter the truck
  - When stopped, all units should angle tires away from exiting Responder & other units
- **Instructions that Primary Unit should Provide:**
  - Where units should meet to begin roadblock
  - Which lanes each unit will control
  - When to start and when to slow down & stop
  - What to display on arrow board
  - Which Responder will exit their truck when stopped

Emergency Rolling Roadblock – Single IMAP Unit:

Objective: Review step-by-step instructions for performing an emergency rolling roadblock as a single IMAP unit

1. Select an appropriate place to begin roadblock – Notify TMC dispatch
2. When safe, activate all emergency lights and enter traffic
3. Maneuver into the lane you wish to control as reported by TMC/other unit – if 2 lanes can be safely controlled by 1 unit, straddle both lanes with truck
4. Gradually reduce speed until traveling below the speed limit
5. Scan the roadway ahead for the incident/location where roadblock should stop
6. When within ½ mile from incident (or when incident is in sight) activate arrow board with appropriate display
7. Reduce speed further and carefully watch traffic on all sides of IMAP truck
8. If performing roadblock for another unit, notify them that you are approaching
9. When close to incident, gradually reduce speed before coming to a complete stop
10. Follow all guidelines from the Vehicle Positioning Process (IN LANE)
11. If exiting the IMAP truck;
    a. Exit safely while keeping an eye on traffic
    b. Quickly perform duties and return to truck
12. If NOT exiting the IMAP truck;
    a. Notify other IMAP unit that you have arrived
    b. Allow other unit/responder to enter traffic/perform brief task
13. When ready to continue forward, sound air horn and gradually accelerate
14. Deactivate arrow board when appropriate
15. Once up to speed, deactivate emergency lights & resume patrol – Notify TMC dispatch

Emergency Rolling Roadblock – Multiple IMAP Units:

Objective: Review step-by-step instructions for performing an emergency rolling roadblock as the primary unit with other IMAP units as secondary units

1. Select an appropriate place to begin roadblock
2. Notify TMC dispatch & request backup from closest available units – advise all to switch to tactical channel
3. Once all requested units have arrived, clearly describe purpose of roadblock and plan of action
4. When safe, activate all emergency lights and enter traffic
5. Maneuver into the lane you wish to control and direct other units to the lane(s) they should control
6. Maintain steady speed until all units are in position
7. Gradually reduce speed to below the speed limit & notify others to do same
8. Scan the roadway ahead for the incident/location where roadblock should stop
9. When within ½ mile from incident (or when incident is in sight) activate arrow board with appropriate display – instruct other units to do same
10. Reduce speed further and carefully watch traffic on all sides of IMAP truck
11. When close to incident, identify which Responder will be the exiting Responder
12. Instruct other units to prepare for stop and announce which Responder will exit
13. Gradually reduce speed until all units are stopped & slightly behind the exiting Responder's vehicle – all tires should be angled away from exiting Responder & other units
14. Carefully watch traffic & exiting Responder's progress until they re-enter their truck
15. When ready to continue, confirm that all units are also ready
16. Once all confirm, sound air horn and gradually accelerate
17. Deactivate arrow board when appropriate – instruct other units to do same
18. Once up to speed, deactivate emergency lights & resume patrol – instruct other units to do same and notify TMC dispatch

Description:

Become familiar with the guidelines & processes related to the motorist cooperation technique for controlling traffic.

Objectives:

- Learn about the primary concepts related to motorist cooperation as a traffic control technique
- Become familiar with the guidelines & safety precautions that responders must adhere to when using motorist cooperation to control traffic
- Learn about the hand signals used by IMAP to signal & instruct motorists
- Review step-by-step instructions for closing & opening lanes using motorist cooperation
- Review step-by-step instructions for diverting traffic to shoulders using motorist cooperation and traffic control devices

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques

Introduction to Traffic Control through Motorist Cooperation:

Objective: Learn about the primary concepts related to motorist cooperation as a emergency traffic control (ETC) technique.

Critical Knowledge:

- **Motorist Cooperation –** used by IMAP responders to briefly close lanes or redirect traffic by signaling & verbally instructing lead motorists whose actions will stop or guide traffic behind them

- **Lead Motorists –** refers to the citizen drivers who are instructed by IMAP to stop or guide traffic

- **How Motorist Cooperation Technique Works:**
  - NC law also allows IMAP to divert traffic onto the shoulder in response to traffic incidents (GS 20-146)
  - When properly signaled to slow & stop, vehicles driven by motorists can cause traffic behind them to also slow & stop
  - Motorists tend to follow the vehicle in front of them – if lead motorists are given clear instructions on where to go, they can set in motion a new traffic pattern that motorists behind them will follow

- **Examples of When Motorist Cooperation Technique is Used:**
  - Hold travel lanes to allow emergency response vehicles (e.g. ambulances, tow trucks, etc.) to reposition or depart scene
  - Hold travel lanes while debris is relocated to the shoulder
  - Direct traffic to travel on shoulder in order to decrease congestion by increasing traffic flow past an incident scene

Motorist Cooperation Guidelines:

Objective: Become familiar with the guidelines & safety precautions that responders must adhere to when using motorist cooperation to control traffic

Critical Knowledge:

- **Motorist cooperation should only be used to close lanes BRIEFLY** – IMAP responders should deploy a full lane closure and/or call for backup if;
  - Lane(s) needs to be closed for 15+ minutes
  - Traffic speeds are too fast to safely signal and stop motorists
  - Other duties prevent proper monitoring/directing of lead motorists

- **Exercise extreme caution when using motorist cooperation –** IMAP responders should;
  - ALWAYS have an ESCAPE ROUTE
  - Always wear reflective vest & make themselves as visible as possible
  - Stand so traffic can see responder clearly & have enough time to safely comply with hand signals & instructions
  - If incident is behind a hill or curve, responders should be visible to traffic BEFORE motorists come over the hill or around the curve
  - Approach lead motorists on side furthest from open travel lanes
  - Notify other IMAP units on scene BEFORE closing/opening lanes
  - Use traffic cones to divert traffic onto & off of the shoulder and assure that traffic control is in place BEFORE diverting traffic

- **IMAP must communicate with lead motorists clearly & carefully**
  - Be courteous but firm when instructing lead motorists
  - Use clear hand signals and simple but direct verbal instructions
  - Assure that you have lead motorists' attention – point to and make direct eye contact with the motorist you are addressing
  - Address and instruct lead motorists one at a time
  - Assure that lead motorists slow & STOP before stepping into roadway
  - Watch lead motorists closely to assure they continue to follow instructions

Hand Signals for Motorist Cooperation:

Objective: Learn about the hand signals used by IMAP to signal & instruct motorists.

Critical Knowledge:

- **IMAP Responder's Stance –** stand facing traffic with feet apart and eyes locked on approaching motorists
  - Initial position should be from shoulder or an already closed lane
  - Stand close to but NOT in travel lane(s) until they are safely closed

- **SLOW DOWN –** use to instruct on-coming traffic to reduce speed until a lead motorist can be identified, signaled, and stopped
  - Extend arms straight out with hands flat and palms facing traffic
  - Move arms up & down so palms point to ground on down stroke

- **STOP –** use to instruct a lead motorist to stop before approached by IMAP
  - Point to and make eye contact with lead motorist
  - Extend arms straight out with hands flat and palms facing traffic
  - Alternate pointing and hand signal until motorist stops completely

- **INDICATE MOTORIST –** use to attract lead motorists' attention
  - Start with hand to chest & sweep outward until pointing at motorist
  - Repeat until lead motorist stops and/or makes eye contact

- **CONTINUE TO HOLD LANE –** use to instruct lead motorists to remain stationary while relocation efforts continue
  - Stand in temporarily closed lanes where visible to all lead motorists
  - Hold arms outstretched with hands flat and palms facing traffic

- **DRIVE TO LOCATION –** use to direct motorists to a specific location
  - Point to and make eye contact with lead motorist
  - Sweep arm (turn body if needed) until pointing at desired location

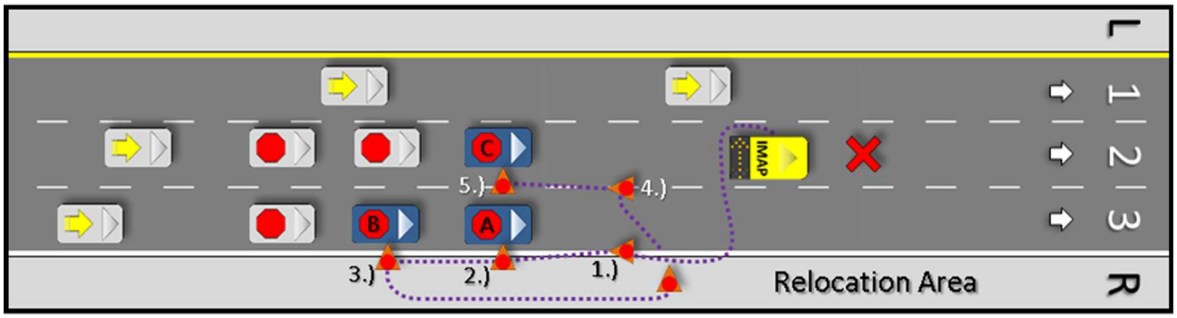
- **PROCEED –** use to instruct lead motorists to continue moving forward
  - Point to and make eye contact with lead motorist
  - Sweep hand to chest while flattening hand and turning palm to chest
  - **Be sure that all lead motorists understand who should proceed**

Motorist Cooperation Diagrams:

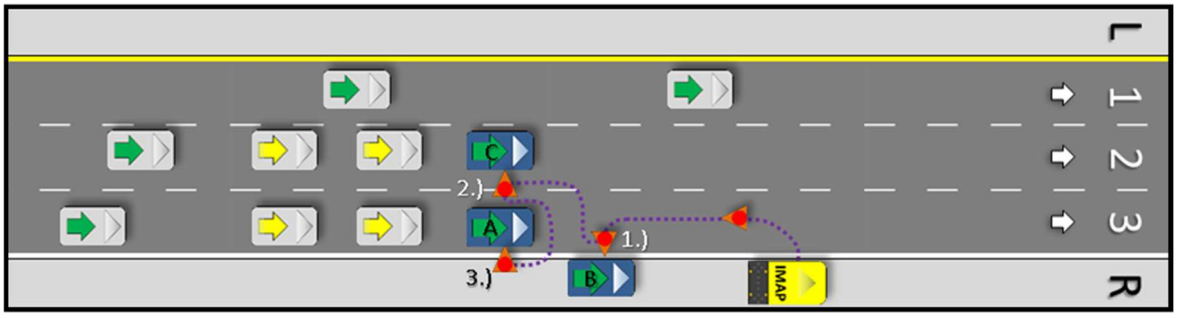
Objective: Review the diagrams below showing motorist cooperation in use when closing lanes, opening lanes, and diverting traffic.

Critical Knowledge:

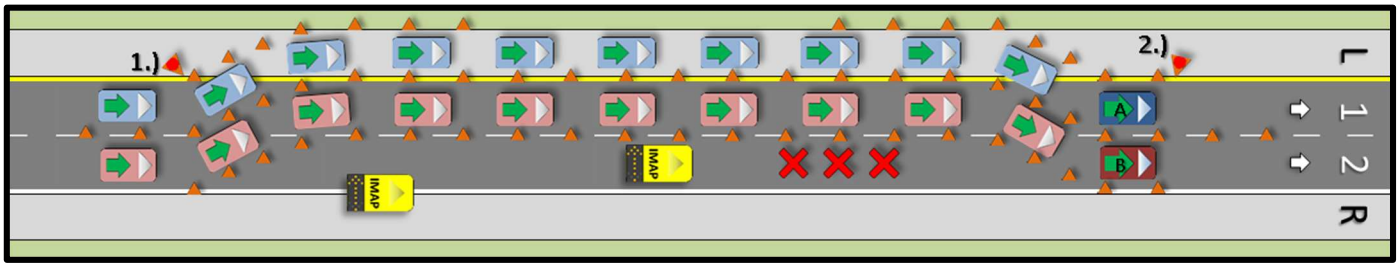
- **Closing Lanes –** IMAP signals and instructs lead motorists **(A & C)** to stop & hold lanes and instructs lead motorist **(B)** to pull onto shoulder while regular traffic (gray vehicles) stops or continues past incident



- **Opening Lanes –** IMAP instructs lead motorist **(B)** to re-enter traffic and instructs lead motorists **(A & C)** to proceed, allowing all traffic to continue



- **Diverting Traffic –** First IMAP unit stops lead motorist **(A)** at point **1.)** to divert traffic onto shoulder & gives instruction to merge into lane #1 when possible. Second IMAP unit waits at point **2.)** to end traffic shift when needed.



Closing & Opening Lanes using Motorist Cooperation:

Objective: Review steps for closing/opening lanes using motorist cooperation

1. Determine which lane(s) need to be closed and walk to the one closest to you
2. From the edge of this travel lane, use hand signals to instruct motorists to SLOW DOWN
3. Once traffic has slowed sufficiently, identify and make eye contact with a lead motorist – use hand signals to instruct them to STOP
4. When lead motorist has come to a complete stop, approach their vehicle
   a. Approach on side furthest from open travel lanes
   b. Maintain eye contact and hand signals while approaching
5. Verbally instruct lead motorist to hold lane until told to PROCEED
6. Repeat steps 1-5 until all necessary lanes are closed
7. If travel lane adjacent to shoulder is closed by a lead motorist;
   a. Approach 1st vehicle behind lead motorist in lane adjacent to shoulder
   b. Direct this 2nd lead motorist to drive to & HOLD THE SHOULDER
   c. At this point, all necessary lanes & shoulder are closed by lead motorists
8. Monitor traffic & lead motorists carefully – use signal for CONTINUE TO HOLD LANE if needed
9. When lanes are ready to be reopened, walk to a safe location where all lead motorists can easily see you – If shoulder is being held by a lead motorist;
   a. Instruct lead motorists in travel lanes to CONTINUE TO HOLD THEIR LANE(S)
   b. Signal lead motorist on shoulder to PROCEED into traffic
10. Address all lead motorists individually and signal each to PROCEED
    a. Start with the lead motorist in the travel lane furthest from you
    b. Work back to the lead motorist in the travel lane closest to you
    c. Continue until all temporarily closed lanes are moving steadily

Diverting Traffic to Shoulder using Motorist Cooperation:

Objective: Review steps for diverting traffic to shoulders using motorist cooperation

1. Once all appropriate traffic control measures are in-place, assess the shoulder & traffic conditions and determine if shoulder should be used for travel
   a. Call for a backup IMAP unit whenever diverting traffic
   b. Notify TMC dispatch
2. Add traffic cones to the furthest downstream buffer, extend beyond incident
3. On the shoulder where traffic will be diverted, arrange traffic cones to divert traffic onto/off of shoulder starting upstream and working downstream;
   a. Tapers diverting traffic onto & off of shoulders (or lanes, if traffic is diverted from inner lanes to outside lanes) should use standard, 4-cone taper configuration
   b. Tapers diverting traffic to shoulder (or lanes) should be parallel with the furthest original downstream taper
   c. Traffic on shoulder (or lanes) should be separated by cones in buffer configuration that should be same length as originally extended buffer
   d. Tapers diverting traffic off of shoulder (or lanes) should be parallel with one another & should begin where the extended/separating buffers end
   e. When multiple lanes are diverted at a time, 3-cone tails should be placed before and after diverting tapers
4. Stand in shoulder where traffic is being diverted, use motorist cooperation to signal a lead motorist in adjacent travel lane to SLOW DOWN and STOP
5. Instruct lead motorist to divert onto shoulder and merge back into adjacent travel lane when directed by temp. traffic control (ETC) – signal to PROCEED
6. Notify TMC & backup IMAP unit on-scene that traffic has been diverted to shoulder
   a. Backup unit should stand downstream where traffic returns to lanes
   b. Backup unit should use motorist cooperation to stop traffic while ETC is adjusted to divert additional lanes or to remove ETC when needed

Description:

Become familiar with the guidelines & concepts related to traffic control for closures or incidents behind hills or curves

Objectives:

- Learn about the concepts & primary guidelines related to the use of emergency traffic control (ETC) when closures/incidents are behind hills or curves
- Explore the dimensions and layout of ETC measures used by IMAP Responders to close lanes when incidents are behind hills or curves
- Review diagrams that illustrate possible ETC configurations for hills or curves

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

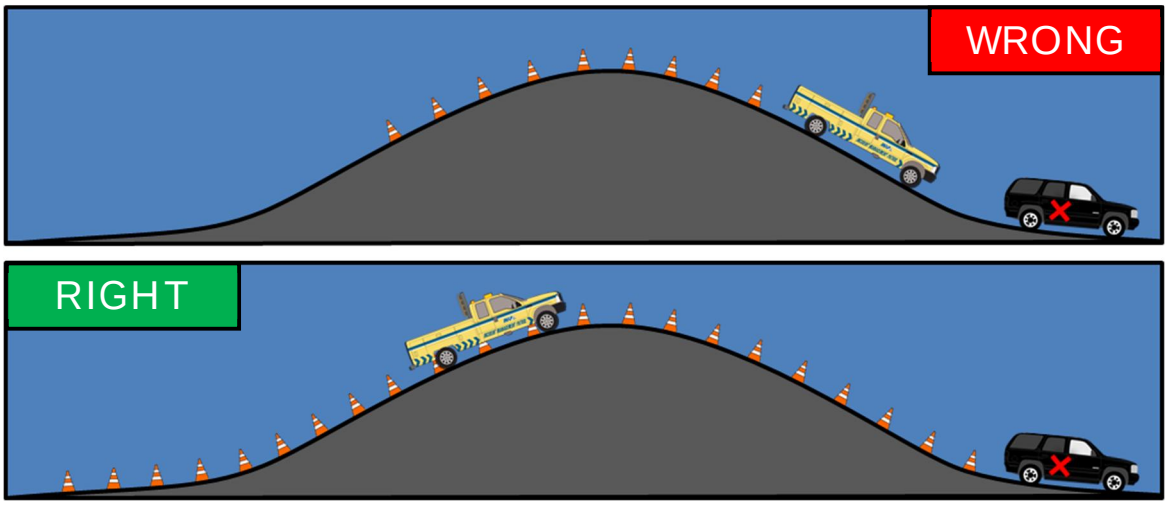
- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-102: Temporary Lane Closures

Primary Traffic Control Guidelines for Hills or Curves:

Objective: Learn about the concepts & primary guidelines related to the use of emergency traffic control (ETC) when closures/incidents are behind hills or curves

Critical Knowledge:

- When an incident is around a curve or over a hill, on-coming traffic is NOT able to see the incident with enough time to safely react
- Primary Guidelines – In addition to all other emergency traffic control (ETC) guidelines, IMAP Responders should;
  - Assure that ETC measures are visible to motorists BEFORE they enter the curve or reach the top of the hill
  - Position IMAP truck so that on-coming traffic has a clear, head-on view of the arrow board
  - Use arrow board, DMS, or CMS to provide advance warning (AW) if lanes will be closed for 15+ minutes
  - Use as many traffic cones as are needed to extend the traffic control (TC) area over/around the hill/curve to the incident scene
  - Call for a backup IMAP unit or Traffic Services/DOT Maintenance to assist with additional cones and advance warning, if needed
  - Watch traffic conditions closely & coordinate with other IMAP units and/or TMC dispatch to monitor the TC area
  - If stopping during an emerg. rolling road block, stop before hill/curve
  - Avoid deploying center lane closures behind hills or curves



(Advance Warning NOT shown)

Lane Closure Configurations for Hills or Curves:

Objective: Explore the dimensions and layout of traffic control measures used by IMAP Responders to close lanes when incidents are behind hills or curves

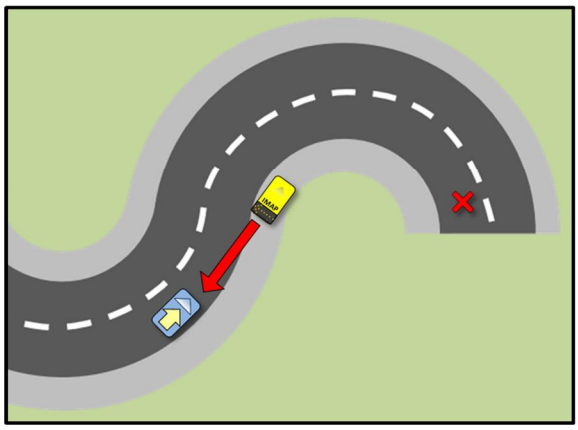
Critical Knowledge:

- IMAP Truck Position – Park before hill/curve with lights & arrow board properly activated
  - For curves, Responders may angle the truck so that on-coming traffic has a clear, head-on view of arrow board from further away
  - Responders may initially park closer to taper so traffic can see them but should return to normal position once ETC is in place/backup arrives
  - Backup IMAP units should position upstream from lane closure to provide AW – park on shoulder, if available
- Tapers – When possible, motorists should see entire length of tapers
  - Avoid placing tapers across a hill or within a curve
  - Deploy shoulder tapers when parked on shoulder to provide AW
  - Deploy 9-cone (40+mph) taper if no shoulder is available for AW
- Buffers – Furthest downstream buffer should extend past the IMAP truck and up to the incident to keep motorists from re-entering TC area
  - Use as many cones as needed – determine if backup or Traffic Services/DOT Maint. are needed as soon as possible after arrival
  - Responders should deploy lateral buffers within the extended buffer
- Advance Warning (AW) – Should be used for incidents behind hills/curves whether lanes are closed or not
  - Place initial AW (e.g. flares) in immediate area, BEFORE hill/curve
  - Proper AW (e.g. backup IMAP or DMS/CMS) should be located before area where traffic begins to backup OR a minimum of 1½ miles upstream from Transition Area
  - Contact TMC dispatch to confirm DMS location & use for AW
  - AW should be modified as traffic conditions change
  - All arrow boards, DMS/CMS, and other devices should provide motorists with the same information – Notify TMC & others when information needs to be updated

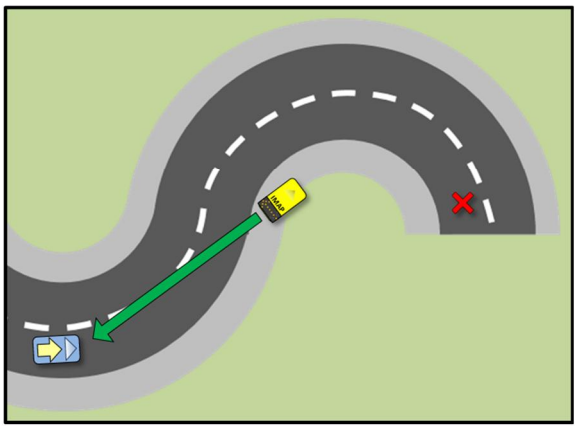
Example Diagrams of ETC for Hills or Curves (1 of 3):

Objective: Review diagrams of possible ETC configurations for hills or curves

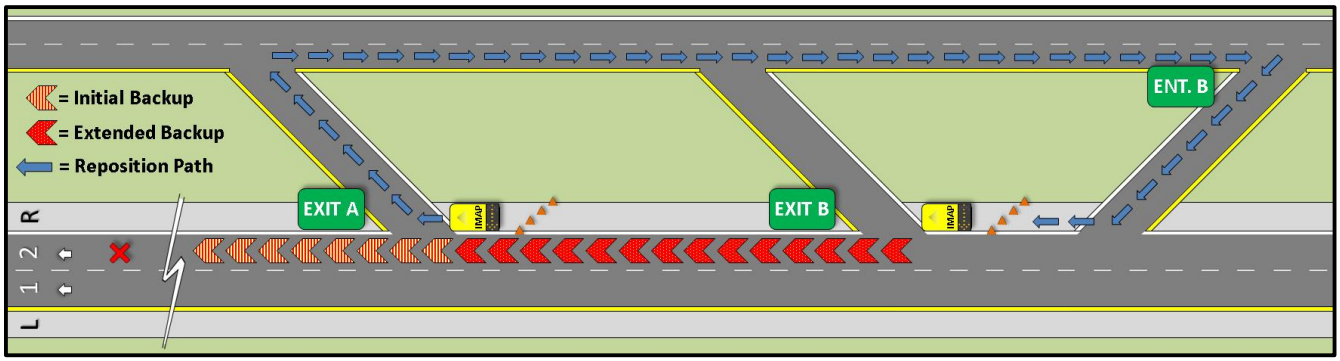
IMAP Truck NOT Angled:
SHORTER Sight Distance



IMAP Truck Angled:
LONGER Sight Distance

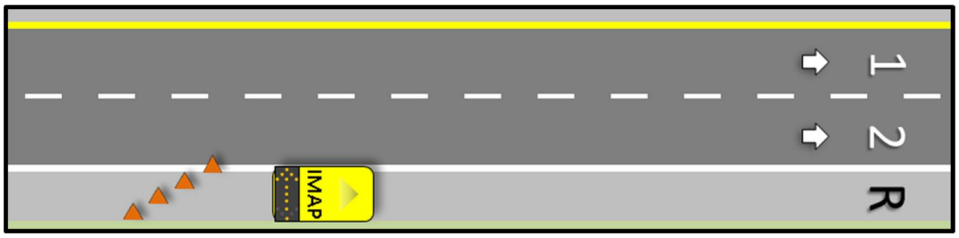


Repositioning IMAP Truck for AW in Relation to Backup from Incident:

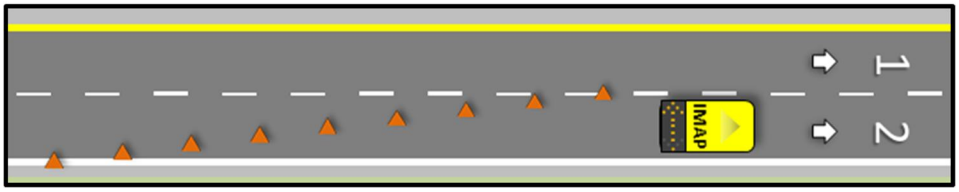


IMAP Truck as Advance Warning

With Shoulder:
Deploys standard shoulder taper



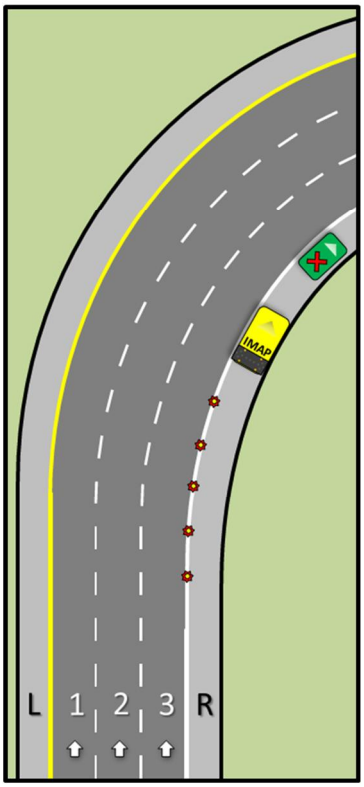
Without Shoulder:
Deploys 9-cone / high speed taper



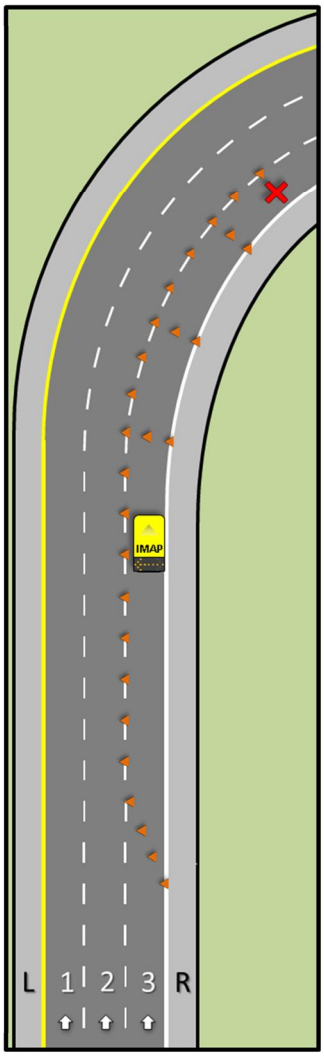
Example Diagrams of ETC for Hills or Curves (2 of 3):

Objective: Review diagrams of possible ETC configurations for hills or curves

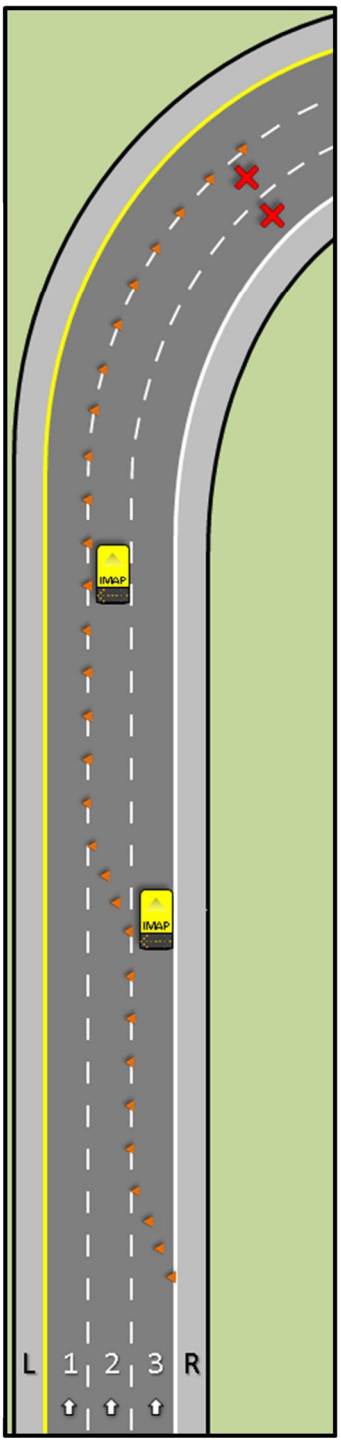
On Shoulder, Disabled Vehicle in Curve:
Flares on edgeline as initial advance warning



Single Lane Closure: Extended buffer deployed with lateral buffers



Double Lane Closure: Extended buffer deployed & backup IMAP unit on scene

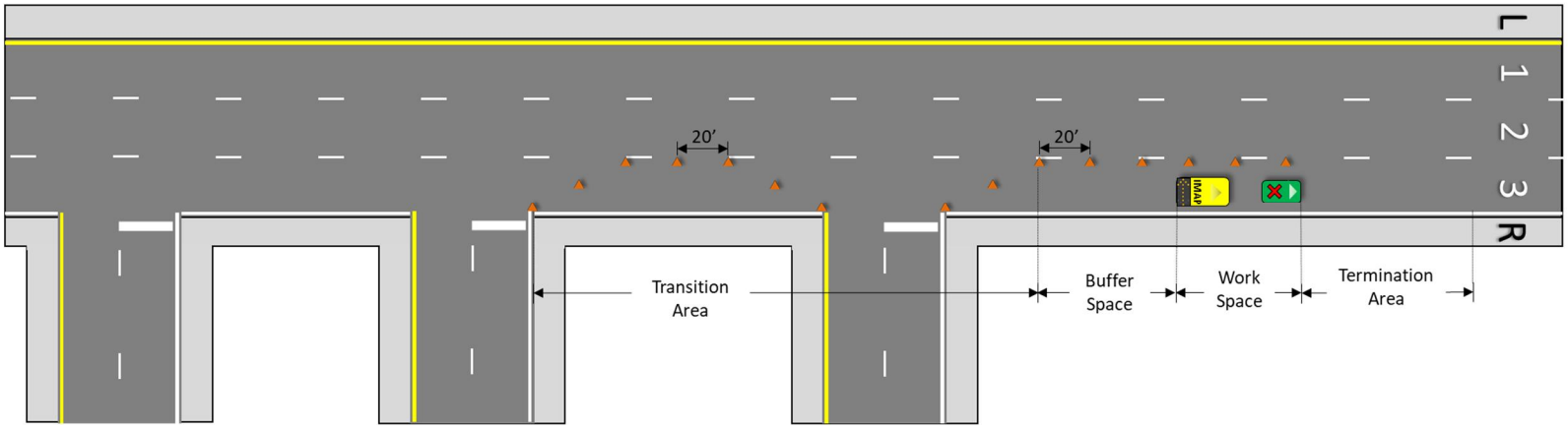


Example Diagrams of ETC for Hills or Curves (3 of 3):

Objective: Review diagrams of possible ETC configurations on Arterials with Multiple Driveways.

Crashed Vehicle in Through Lane:

- Commercial Vehicle turns into the open driveway upstream of incident
- Number of cones is based on roadway geometry
- If adequate distance based on stopping sight distance requires crossing several intersections, the taper pattern should be repeated to keep driveway open



*If additional taper length is needed then repeat previous taper to first driveway

Description:

Become familiar with the guidelines & processes used to deploy temporary center lane closures

Objectives:

- Learn about the guidelines for temporary center lane closures
- Explore the components and configuration of traffic control devices for center lane closures
- Review step-by-step instructions for deploying & removing a single center lane closure
- Review step-by-step instructions for deploying & removing a double center lane closure

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-102: Temporary Lane Closures

Introduction to Center Lane Closures:

Objective: Learn about the guidelines for temporary center lane closures.

Critical Knowledge:

- Standard* temporary center lane closures are used to close center travel lanes while keeping outside travel lanes open to traffic
- IMAP Responders may deploy center lane closures if lanes are **expected** to be blocked for 15 minutes or more
- Responders should close no more than 2 center travel lanes at a time
- A full, temporary lane closure between the affected lane(s) and the shoulder should be deployed if;
  - More than 2 center lanes need to be closed
  - A full closure is safer or more effective than a center lane closure
  - Travel lanes to either side need to be closed for 15 minutes or more
  - Traffic speeds are above 40mph
- Before closing center lanes, IMAP Responders should identify the Relocation Area (i.e. the side of the road where vehicles/objects will be relocated)
- When center lanes are closed, IMAP's arrow board should display a **double-arrow (←→)** to direct traffic to either side of the closure
  - Responders may deploy a full closure before adjusting to a center closure
  - If a full closure is deployed first, activate an appropriate arrow display
- ALWAYS have an ESCAPE ROUTE – for center lane closures, the safest escape route MAY be directly ahead; use/practice ESCAPE ROUTE
- Responders must use extreme caution when deploying center lane closures and should only walk on shoulder or in the lane(s) that are/will be closed
- Responders should call for backup if assistance with traffic control is needed

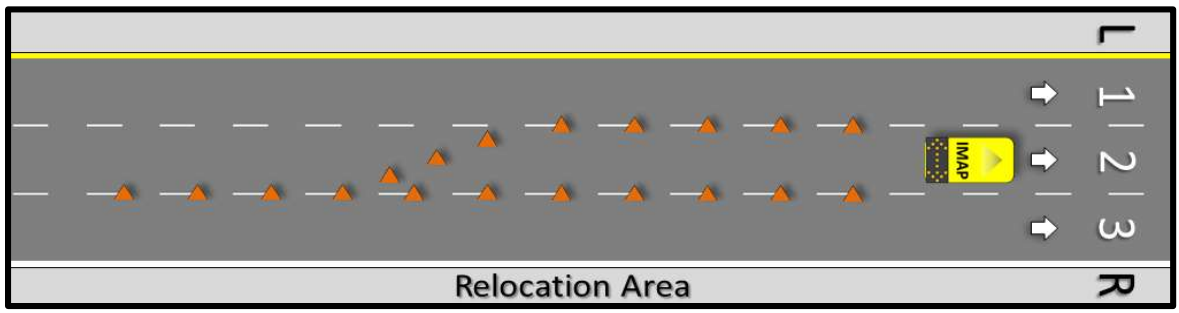
* "Standard" refers to a closure on a straight section of roadway where traffic is NOT exceeding 40mph past the incident and where NO extenuating circumstances are present that require additional traffic control measures

Center Lane Closure Configurations:

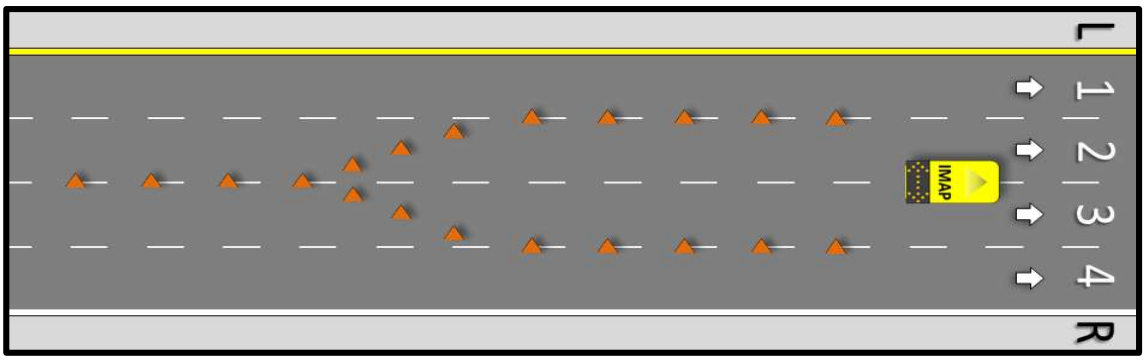
Objective: Explore the components and configuration of traffic control devices for temporary center lane closures.

Critical Knowledge:

- A standard, **single center lane** closure should be at least 420 feet long and should use at least 19 traffic cones in the space of 11 skips
  - **4-cone Taper** – should angle AWAY from relocation area
  - **3-cone "Tail" –** should extend upstream from taper
  - **5-cone Buffer 1 –** should extend from taper to back of truck
  - **7-cone Buffer 2 –** should extend from 1st taper cone to back of truck



- A standard, **double center lane** closure should be at least 420 feet long and should use at least 20 traffic cones in the space of 11 skips
  - **4-cone Taper 1** – should angle towards available travel lanes
  - **3-cone Taper 2 –** should angle towards available travel lanes
  - **3-cone "Tail" –** should extend upstream from taper
  - **5-cone Buffer 1–** should extend from Taper 1 to back of truck
  - **5-cone Buffer 2 –** should extend from Taper 2 to back of truck



Deploying & Removing SINGLE Center Lane Closures:

Objective: Review the steps for deploying & removing a single center lane closure

1. Follow all guidelines from the Vehicle Positioning Process (IN LANE)
2. Once parked, identify the relocation area and activate arrow board with arrow pointing AWAY from relocation area
3. Exit the vehicle safely while keeping an eye on traffic
4. Walk behind the truck and check that all emergency lights & arrow board are activated appropriately
5. Retrieve traffic cones and safely cross travel lanes to shoulder (relocation area)
   a. Walk upstream to where traffic control (TC) area will begin
   b. Count skips as you walk – there should be 11 skips in your TC area
6. Deploy traffic cones in the following order;
   a. Use tail cones to create an "interim taper" to close outside lane(s), FIRST
   b. Place 4-cone taper, SECOND – angle AWAY from relocation area
   c. Place 5-cone buffer, THIRD – on side furthest from relocation area
   d. Place 7-cone buffer, FOURTH – on side closest to relocation area
   e. Adjust interim taper cones to complete 3-cone tail, LAST
7. Modify arrow board display to direct traffic to either side of IMAP truck (←→)
8. Monitor traffic & modify your ETC as conditions change – Notify TMC dispatch
9. When lane can be reopened, modify arrow board with arrow pointing AWAY from relocation area and remove traffic cones in the following order;
   a. Adjust tail & taper cones to interim taper closing lanes to shoulder, FIRST
   b. Remove buffer cones, SECOND – start from truck & work towards taper
   c. Remove taper cones, THIRD – reposition truck to lane adjacent to shoulder
   d. Remove tail cones, LAST
10. Reposition truck to shoulder and modify arrow board to CAUTION (: :) display – Notify TMC dispatch
11. Once the incident is clear, notify TMC dispatch, and prepare to depart scene
12. Deactivate arrow board and safely re-enter traffic before deactivating emergency lights

Deploying & Removing DOUBLE Center Lane Closures:

Objective: Review the steps for deploying & removing a double center lane closure

1. Follow all guidelines from the Vehicle Positioning Process (IN LANE) but park IMAP truck so that it straddles the skip line between the 2 closed lanes
2. Identify the relocation area where vehicles/objects will be relocated
3. Exit the vehicle safely while keeping an eye on traffic
4. Walk behind the truck and check that all emergency lights are activated and arrow board is showing the appropriate display (←→)
5. Retrieve traffic cones and walk upstream to where your TC area will begin
   a. Keep a close eye on traffic and wave traffic to either side of IMAP truck
   b. Count skips as you walk – there should be 11 skips in your TC area
6. Deploy traffic cones in the following order;
   a. Place 4-cone taper, FIRST – angle towards available travel lanes
   b. Place 3-cone taper, SECOND – angle towards available travel lanes
   c. Place 5-cone buffer, THIRD – on side furthest from relocation area
   d. Place 5-cone buffer, FOURTH – on side closest to relocation area
   e. Place 3-cone tail, LAST – on skips, upstream from where tapers meet
7. Monitor traffic & modify your ETC as conditions change – Notify TMC dispatch
8. When lanes can be reopened, modify arrow board with arrow pointing AWAY from relocation area
9. Remove traffic cones in the following order while repositioning IMAP truck to adjacent lanes working to shoulder;
   a. Adjust tail & taper cones to interim taper closing lanes to shoulder, FIRST
   b. Remove buffer cones, SECOND – start from truck & work towards taper
   c. Remove taper cones, THIRD
   d. Remove tail cones, LAST
10. Reposition truck to shoulder and modify arrow board to CAUTION (: :) display – Notify TMC dispatch
11. Once the incident is clear, notify TMC dispatch, and prepare to depart scene
12. Deactivate arrow board and safely re-enter traffic before deactivating emergency lights

Description:

Become familiar with the guidelines & processes related to emergency traffic control (ETC) for closures or incidents near entrance & exit ramps

Objectives:

- Become familiar with proper roadway terminology related to entrance & exit ramps
- Learn about the primary guidelines related to ETC used when entrance & exit ramps are nearby/within the traffic control (TC) area
- Explore the guidelines & ETC configurations used to accommodate ramp traffic through or around the traffic control area
- Explore the guidelines & ETC configurations used when the road is closed and/or when entrance or exit ramps are closed

Audience: IMAP Responders

Duration of Training: 5 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

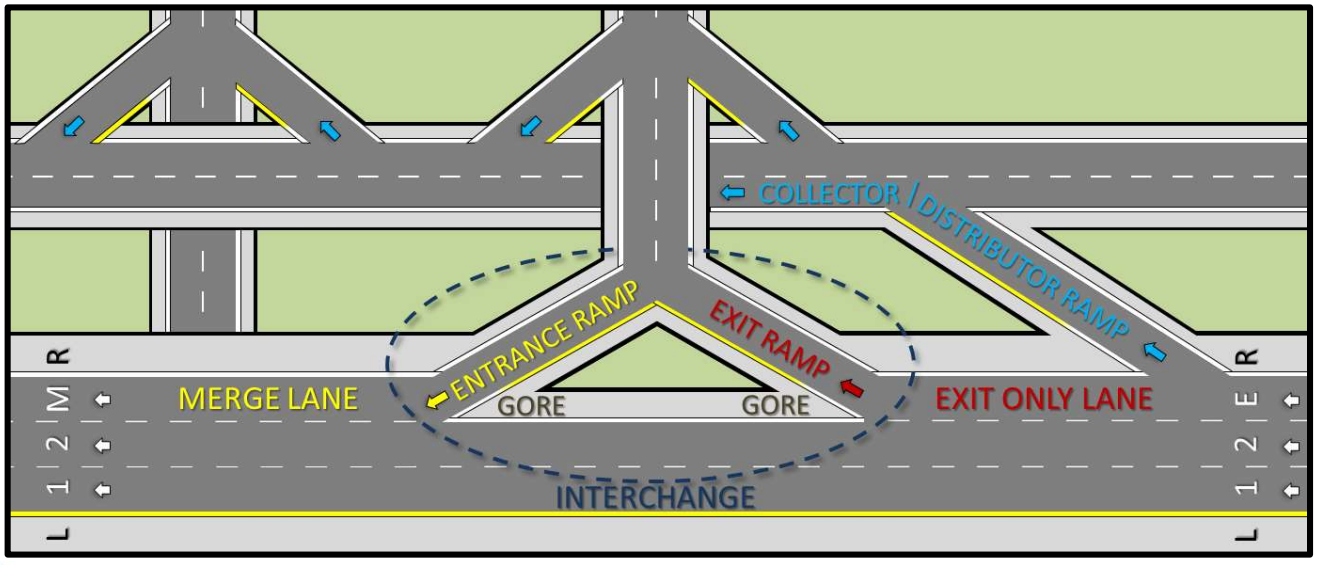
- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-102: Temporary Lane Closures

Roadway Terminology for Entrance & Exit Ramps:

Objective: Become familiar with proper roadway terminology related to entrance & exit ramps

Critical Knowledge:

- **Entrance Ramp –** short section of roadway that allows traffic to access freeways/expressways from another, sometimes smaller, roadway
- **Exit Ramp –** short section of roadway that allows traffic to leave a freeway/expressway in order to access other, sometimes smaller, roadways
- **Merge Lane –** section of roadway at the end of some entrance ramps that allows ramp traffic to accelerate & merge with freeway/expressway traffic
- **Exit Only Lane –** section of roadway on the main portion of the freeway/expressway that diverts traffic onto the exit ramp but does not continue as part of the main freeway/expressway
- **Collector/Distributor (C/D) Ramp –** any entrance/exit ramp that provides access to multiple routes and/or directions of travel
- **Gore Area –** small, triangular portion of shoulder in-between entrance/exit ramps
- **Interchange –** term used to refer to all ramps, merge & exit lanes that connect one or more routes to one another



Primary ETC Guidelines for Entrance & Exit Ramps:

Objective: Learn about the primary guidelines related to temp. traffic control (ETC) used when entrance & exit ramps are nearby/within the traffic control (TC) area

Critical Knowledge:

- IMAP Responders should follow all other ETC guidelines & safety precautions when providing ETC for entrance & exit ramps

- When entrance and/or exit ramps are nearby, IMAP ETC should NOT;
  - Prevent traffic from entering/exiting the highway safely
  - Channel ramp or highway traffic into the incident work zone
  - Force traffic to exit (unless all lanes ahead are closed)
  - Block motorist's view of ramp/ramp traffic with IMAP truck

- If ramps are within the TC area, IMAP Responders should use traffic cones to;
  - Extend TC area to include ramp(s) – DO NOT make ETC shorter
  - Guide exiting traffic through TC area safely to access exit ramps
  - Channel entrance ramp traffic around incident/ETC, into travel lanes
  - Prevent motorists from entering TC area or accessing closed ramps

- **If accommodating ramp traffic threatens safety, IMAP should close the ramp(s) entirely**

- If all lanes are expected to be closed for an extended amount of time, IMAP should divert all traffic onto an exit ramp upstream from incident
  - Exit should access a viable detour/alternate route
  - Coordinate with other IMAP units & responders on-scene, first
  - Notify TMC dispatch before diverting traffic onto an exit ramp

- Deploy ETC for entrance/exit ramps in the following order;
  - Place cones to keep ramp traffic from entering incident work zone
  - Deploy tapers & buffers to properly close blocked travel lanes
  - Add to/adjust ETC to accommodate ramp access through TC area

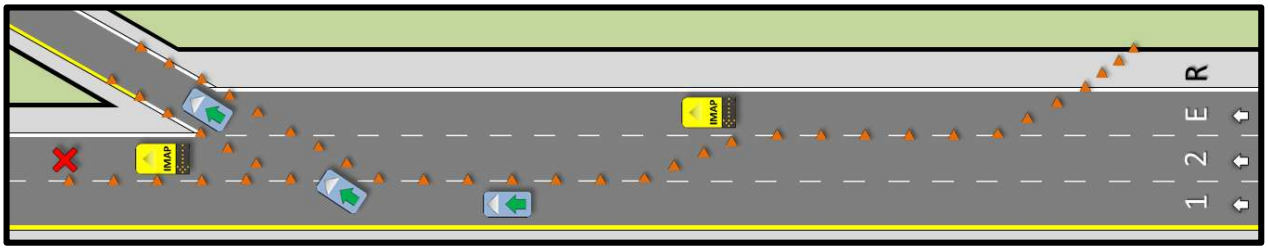
- Closures involving ramps often require multiple ETC points – call for backup or Traffic Services/DOT Maint. so all points are managed safely

Accommodating Ramp Traffic through TC Area:

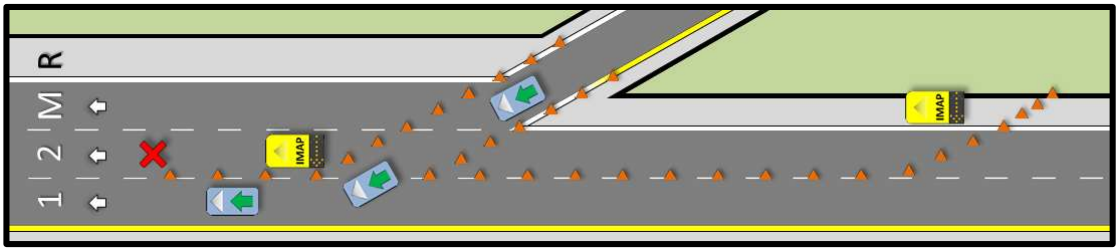
Objective: Explore the guidelines & ETC configurations used to accommodate ramp traffic through or around the traffic control (TC) area

Critical Knowledge:

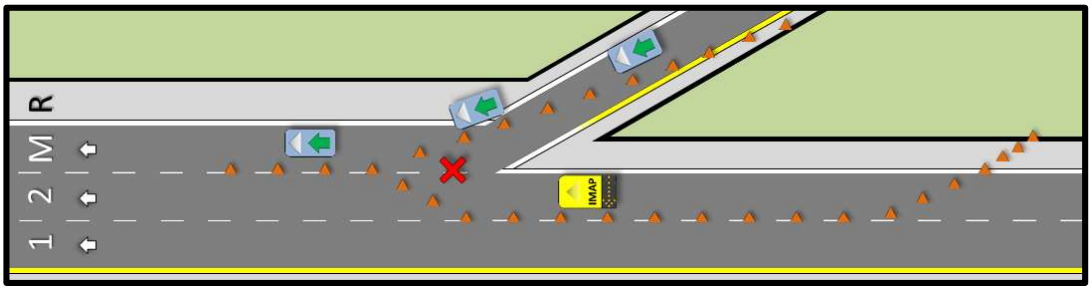
- **Exit through TC Area –** use when exit ramp remains open
  - Tapered channels guide exit traffic through TC area to exit ramp
  - IMAP unit parks downstream from channel so motorists see exit open
  - Shoulder taper used upstream to keep motorists out of TC area



- **Entrance through TC Area –** use when entrance ramp remains open
  - Tapered channels guide ramp traffic through TC area to travel lane
  - Backup IMAP unit parked upstream on shoulder with shoulder taper to provide AW and to keep motorists out of TC area



- **Narrow Entrance Ramp –** use when incident occurs at bottom of ramp
  - Extended taper narrows ramp, guiding traffic past incident
  - Downstream taper helps traffic in inside lanes merge after incident
  - Downstream buffer allows ramp traffic to speed up before merge

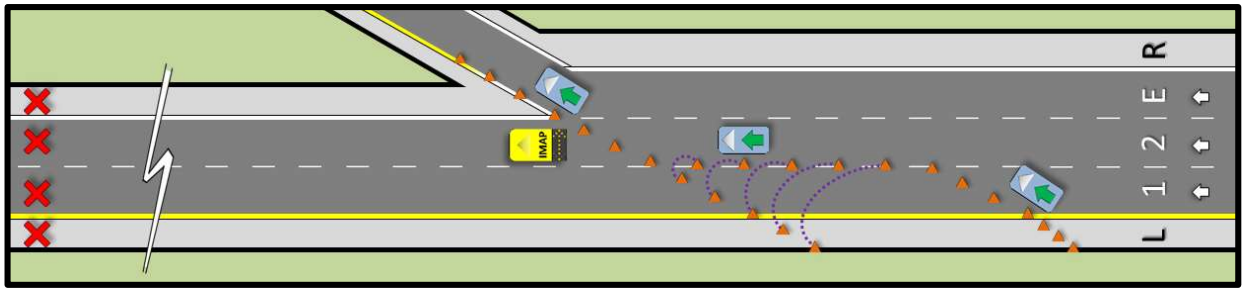


Road Closed & Ramp Closures:

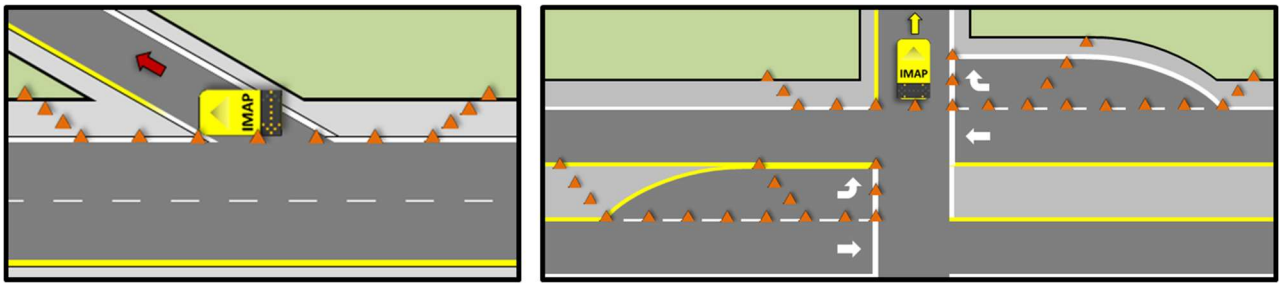
Objective: Explore the guidelines & ETC configurations used when the road is closed and/or when entrance or exit ramps are closed

Critical Knowledge:

- **Road Closed/Divert to Exit –** use to divert traffic off of closed roads
  - Standard tapers shift traffic from inside lanes towards exit ramp
  - Taper on ramp & shoulder keeps motorists from getting past ETC
  - Responders may deploy a long taper across all lanes to ramp, initially – then adjust to proper configuration



- **Ramp Closure –** use when roadway accessed by ramp is closed to travel
  - **To close exit ramp** (left diagram); park truck on ramp with appropriate arrow display activated. Use traffic cones to close off ramp and shoulders
  - **To close entrance ramp** (right diagram); park truck with front pointing straight down ramp with CAUTION display facing intersection. Use traffic cones to close off ramp and turn lanes for entrance ramp (if any)
  - Notify TMC whenever ramps are closed so DMS can be activated
  - Coordinate with law enforcement when closing entrance ramps – only certified traffic control officers can direct traffic at intersections



Description:

Become familiar with the concepts of traffic flow & queue formation and explore the guidelines, strategies, & processes used to properly manage traffic queues

Objectives:

- Learn the basic concepts & terminology related to traffic & queue management
- Explore the distinct areas of a queue & how it impacts traffic flow & safety
- Learn the guidelines & strategies for monitoring the queue & communicating queue details to TMC, other IMAP units, and law enforcement.
- Learn the role that rapid clearance plays in queue management and explore guidelines & strategies that support rapid clearance
- Become familiar with specialized emergency traffic control (ETC) techniques used by IMAP to manage queues

Audience: IMAP Responders

Duration of Training: 7 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control Techniques
- ETC-102: Emergency Lane Closures
- COM-101: Multi-Unit Coordination
- COM-102: Interacting with Other Agencies
- IM-101: Incident Priorities
- IM-102: Push / Pull / Drag Operations

Introduction to Queue Management:

Objective: Learn the concepts & terminology related to traffic & queue management

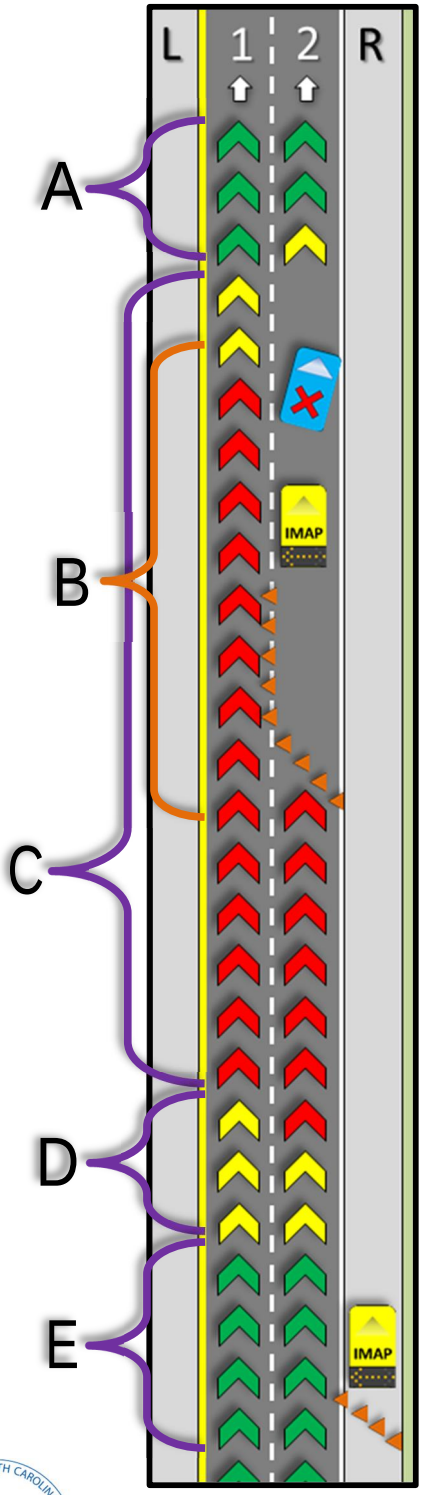
Critical Knowledge:

- Queue Management – refers to the coordinated efforts of IMAP, TMC, & other responders to limit the overall impact of an incident by;
  - Preventing queues from forming/decreasing queues once created
  - Using emergency traffic control (ETC) to keep traffic flowing safely
- Queue (a.k.a. Congestion) – a grouping of stopped or slow-moving vehicles whose normal traveling speed is limited by any of the following;
  - Peak travel periods (e.g. AM/PM rush hour or seasonal traffic)
  - Planned events (e.g. construction, concerts, sporting events, etc.)
  - Unplanned events (e.g. crashes, adverse weather, etc.)
- Queues are caused when VOLUME exceeds CAPACITY
  - Traffic Volume – number of vehicles traveling on a roadway
  - Roadway Capacity – maximum number of vehicles that a road is designed to handle without developing congestion
- Basic Traffic Flow Concepts – in general;
  - As volume increases and/or capacity decreases, congestion develops
  - Queue Length (amount of congestion in distance) increases over time
  - As duration increases, secondary crashes/responder injuries are more likely to occur
  - Secondary crashes account for 30% of ALL crashes & 18% of ALL highway fatalities
- Secondary Crashes & Responder Injury can be prevented by;
  - Decreasing incident duration through rapid response & lane clearance
  - Proper use of ETC & providing advance warning (AW) to motorists
- Traffic Volume can be managed by;
  - Diverting traffic to other, less congested routes
  - Increasing the road's capacity to handle a larger volume of vehicles
- Roadway Capacity can be increased by;
  - Reopening closed/blocked travel lanes as soon as possible
  - Creating "temporary travel lanes" (i.e. diverting traffic to shoulders)

Elements of the Queue & Hot Spots:

Objective: Explore the distinct areas of a queue & how it impacts traffic flow & safety

Critical Knowledge:



- A – Front of Queue: past incident; where traffic returns to normal speeds
  - Here, vehicles may collide as they shift into other lanes & pick up speed
  - A downstream buffer & taper may help here
- B – Activity Area & Transition Area: within queue; where traffic is guided safely around Incident Work Zone
  - Here, motorists may react unpredictably to ETC and/or slow down to look at incident
  - Transition Areas (tapers) may cause traffic to "bottleneck" (slowing/stopping to merge) – especially if tapers are NOT placed properly
  - Vehicles may collide with ETC here – especially if ETC is NOT visible in time
- C – Queue: main body of traffic congestion
  - Queue Length = distance from Front of Queue to End of Queue
  - Here, motorists often drive erratically in stop and go traffic (e.g. blocking shoulder, fender benders while changing lanes, etc.)
- D – End of Queue: before incident; where traffic speeds decrease significantly as vehicles enter queue
  - Hot spot for secondary crashes
  - Secondary crashes most often occur here when motorists are surprised by the sudden change in traffic speeds
- E – Before Queue: where traffic speeds are normal
  - Advance Warning (AW) should be placed here
  - Adjust AW to stay before End of Queue

Monitoring the Queue & Communication:

Objective: Learn the guidelines & strategies for monitoring the queue & communicating queue details to TMC, other IMAP units, and law enforcement.

Critical Knowledge:

- There is more to Incident Management than what is happening on-scene – IMAP manages the incident AND the queue it creates
- Queue Info is Critical to IMAP Response:
  - Traffic speed determines length of transition area (Ex. 120ft taper for 40mph or less vs. 360ft taper for 40+mph)
  - Queue length indicates where secondary crashes may occur, where AW should be placed, and whether alternate routes are needed
  - Vehicles stopping suddenly or colliding with ETC is a good indication that ETC is NOT placed properly
- TMC also relies on queue info & has special tools to monitor queue;
  - INRIX Maps – show live traffic speeds & full queue length
  - Traffic Cameras – can view incident scene & queue hot spots to monitor traffic's reaction to ETC and detect secondary crashes
  - These tools have their limitations so TMC & IMAP should share queue info to help one another respond properly
- Upon arrival, estimate Incident Duration ASAP
  - Best indicators are number of lanes blocked, type of vehicles involved (e.g. tractor trailers), and number of responders on-scene
  - Knowing typical response times for other responders can help, too
  - A good estimate can help initiate other actions sooner such as calling Traffic Services/DOT Maint. for proper TTC or requesting backup
  - Seek input from other responders to confirm or adjust your estimate
- Guidelines for Monitoring the Queue – IMAP responders should;
  - Monitor the queue regularly from arrival to departure
  - Communicate their observations/estimates to TMC & other units
  - Adjust their response (especially ETC) as the queue changes
  - Monitor queue hot spots – use backup units to monitor if possible
  - Backup unit providing AW should notify TMC & other units when queue length or approaching traffic speeds change

Rapid Lane Clearance:

Objective: Learn the role that rapid lane clearance plays in queue management and explore guidelines & strategies that support rapid clearance.

Critical Knowledge:

- Rapid lane clearance (when done safely) is the surest way to;
  - Decrease overall incident duration
  - Limit the amount of congestion that develops
  - Decrease the risk of responder injury & secondary crashes
- IMAP responders should NOT compromise safety in order to reopen lanes quickly – follow safety precautions but plan ahead & act decisively
- Common Strategies for Rapid Lane Clearance:
  - Anticipating required response efforts & initiating action ASAP
  - Marking vehicle locations to help speed up crash investigations
  - Advising motorists involved in fender benders to relocate to shoulder
  - Pushing, dragging, or up-righting to speed up vehicle removal
- Participate in Incident Command – engage other responders on-scene (e.g. Law Enforcement, Fire Dept., Towing & Recovery, etc.);
  - Discuss incident details as well as the incident's affect on traffic
  - Determine what is being done to open lanes & offer to help
  - Relay up-to-date queue info to Incident Commanders (IC) to emphasize traffic impact & so they can adjust their response if needed
  - Identify what actions are being taken to minimize congestion, provide input & notify TMC dispatch
  - Work with TMC to plan best detours/alternate routes & advise ICs
- Goals of Participating in Incident Command:
  - To play an active role in the response & management of the incident
  - NOT to take over OR give orders to other responders
  - To share info about traffic congestion so it can be addressed properly
  - NOT to force lane clearance as the highest priority – SAFETY is #1
  - To learn critical details that can support IMAP & TMC response
  - NOT to get involved in efforts that are outside of IMAP's domain

Traffic Control for Queue Management (1 of 3):

Objective: Become familiar with specialized traffic control techniques used to manage queues

Critical Knowledge:

- Properly deployed ETC can support queue management by;
  - Giving responders enough room to clear lanes quickly & safely
  - Guiding vehicles around incidents in a smooth & orderly fashion
  - Easing congestion by diverting excess volume to other routes
  - Recovering lost capacity by making new travel lanes (temporarily)
- Q-Technique # 1: Double Check ETC – watch for vehicles that are;
  - Stopping suddenly or swerving as they approach ETC area
  - Attempting to bypass ETC or drive on shoulder used by responders
  - If ETC is NOT working as intended, adjust it immediately
- Q-Technique # 2: DMS as Advance Warning – DMS can be used to provide AW instead of a backup unit if available DMS is;
  - Far enough from end of queue that motorists can react safely OR
  - Located at least 1½ miles from end of transition area
  - Notify TMC & request availability of DMS for AW – call for backup unit to provide AW if DMS is NOT available
- Q-Technique #3: Alternate Routes – IMAP should notify TMC to suggest alternate routes if;
  - 50% or more travel lanes are closed during peak hours OR
  - Incident causes more than 1 mile of congestion
  - DO NOT use ETC to divert traffic to an alt. route unless a Return Access Detour/Alt. Route is in place (Q-Technique #6)
- Q-Technique #4: Temp. Travel Lanes – if space permits, responders can;
  - Divert traffic onto shoulders NOT in use by responders OR
  - Combine 1 narrow shoulder with adjacent available travel lane to create 2, slightly narrow travel lanes
  - Responders must use tapers to shift traffic into & out of temporary lanes & must separate lanes from one another with a buffer

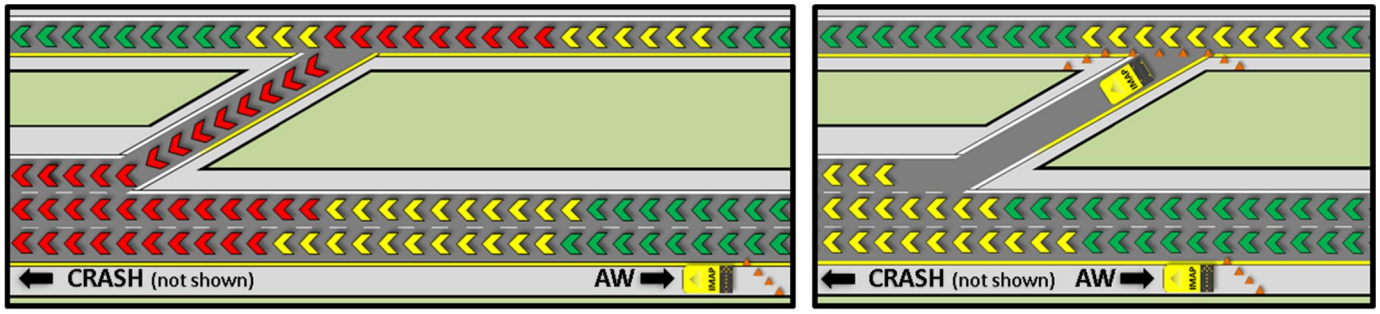
Traffic Control for Queue Management (2 of 3):

Objective: Become familiar with specialized traffic control techniques used to manage queues

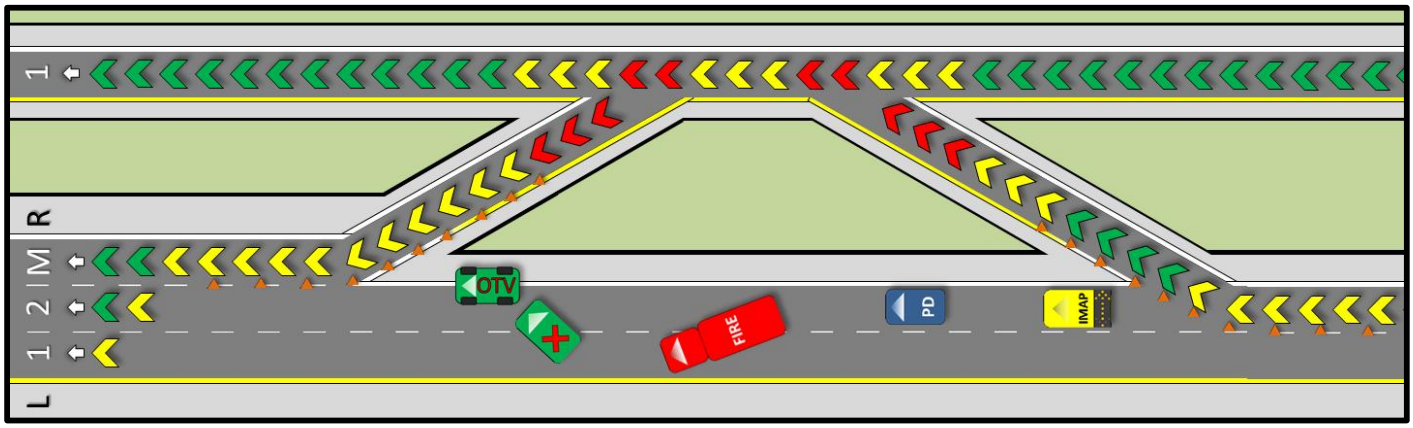
Critical Knowledge:

- Q-Technique #5: Close Ramps to Affected Route
  - Can keep other routes from adding to backup on affected route
  - This can also limit queue buildup on the adjoining routes
  - Allow emergency responders to use ramps if needed

Example: Queue on affected & adjoining route BEFORE closing ramp (left) & AFTER (right)



- Q-Technique #6: Return Access Detour/Alt. Route – use when;
  - Use when all or most travel lanes are blocked between the Exit & Entrance Ramp of the same exit
  - Exit MUST have return access to roadway
  - ETC may be used to divert traffic onto shoulder/temporary travel lanes unless traffic will disrupt incident clearance or endanger safety
  - Request Law Enforcement to control traffic at interchanges



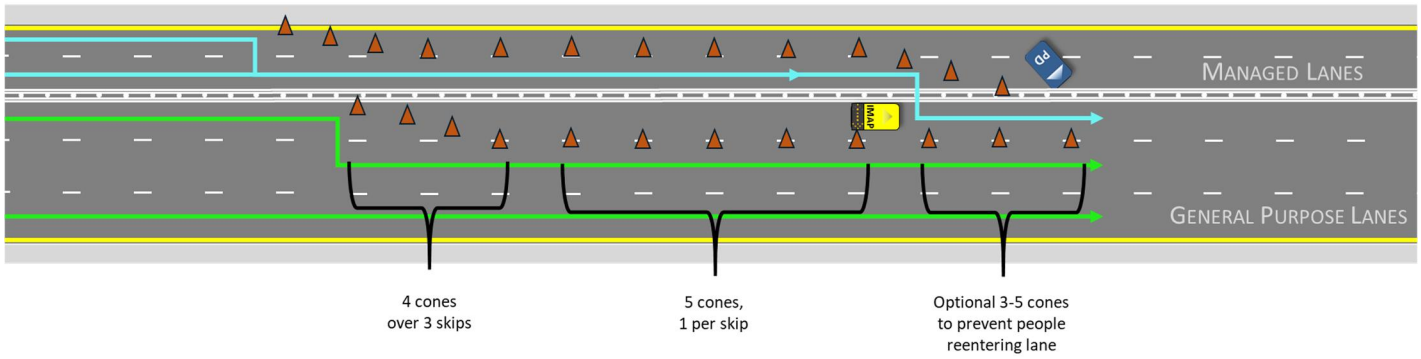
Traffic Control for Queue Management (3 of 3):

Objective: Become familiar with specialized traffic control techniques used to manage queues

Critical Knowledge:

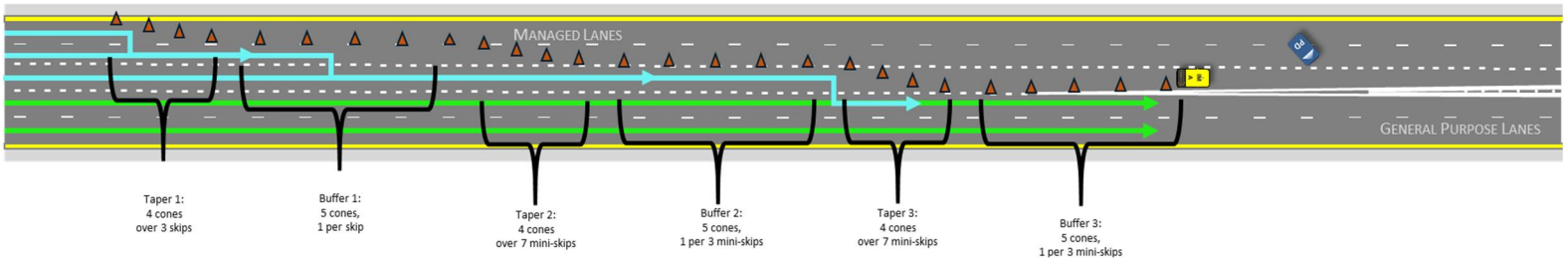
- Q-Technique #7: Lane Closure and Traffic Shift Across Separator
  - Traffic is moved from managed lanes into general purpose lanes
  - Traffic control is placed to merge vehicles through a safe area
  - Arrowboard on IMAP vehicle points to the right to alert vehicles

Example: Managed Lanes Across Separator



- Q-Technique #8: Lane Closure at Entry Access
  - Traffic is moved from managed lanes into general purpose lanes
  - Traffic control is placed to merge vehicles through a safe area
  - Arrowboard on IMAP vehicle points to the right to alert vehicles

Example: Managed Lanes Across Separator, at Entry Access, and at Exit and Entry Access



Description:

Become Familiar with the concepts & guidelines related to abandoned vehicles & the Signal 4 process

Objectives:

- Learn about abandoned vehicles and IMAP's responsibility to assist in the response and/or removal of abandoned vehicles from the roadway
- Become familiar with the guidelines & processes related to abandoned vehicle response
- Explore the components of the HP-303 tag for abandoned vehicles
- Learn about the Signal 4 process for removing abandoned vehicles

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol

Overview of Abandoned Vehicles:

Objective: Learn about abandoned vehicles and IMAP's responsibility to assist in the response and/or removal of abandoned vehicles from the roadway

Critical Knowledge:

- **Abandoned vehicles** (including abandoned equipment or boat trailers) **can endanger safety whether travel lanes are affected or not**

- **IMAP response activities for abandoned vehicles include;**
  - Inspecting abandoned vehicles as they are detected
  - Reporting vehicle & location information to TMC dispatch
  - Tagging abandoned vehicles for later removal
  - Moving and/or coordinating immediate removal of vehicles from the roadway

- **When removed from the roadway, abandoned vehicles are towed & stored by private towing & recovery companies (a.k.a. wreckers)**
  - Wreckers are dispatched on rotation basis by Highway Patrol (SHP)
  - TMC operators or IMAP responders request wreckers by calling SHP

- **Abandoned vehicles left in NON-hazardous locations should be removed AFTER 24 hours –** non-hazardous locations may include;
  - Wide shoulders/medians of main roadway
  - Grassy area near roadway
  - Untraveled portions of entrance/exit ramps & rest areas

- **Abandoned vehicles left in HAZARDOUS locations should be removed IMMEDIATELY** if the abandoned vehicle;
  - Blocks travel lanes or threatens safety
  - Is damaged or vandalized
  - Impedes construction or maintenance activity
  - Prevents emergency vehicle access to incident scenes
  - Is left in area where NO PARKING/TOW AWAY signs are posted

Abandoned Vehicle Response Guidelines:

Objective: Become familiar with the guidelines & processes related to abandoned vehicle response

Critical Knowledge:

- Responders should adhere to all guidelines/processes from "Vehicle Positioning & Responder Approach" course which includes but is not limited to;
  - Positioning truck and activating emergency lights & arrow board
  - Relaying incident details to TMC dispatch
  - Safely exiting the IMAP truck & approaching the vehicle
  - Checking vehicle for occupants & leaving fingerprints on rear side panel of vehicle
- **Abandoned Vehicles in NON-Hazardous Locations:**
  - Inspect vehicle & notify TMC dispatch
  - Fill out **HP-303 sticker** and place on vehicle to tag it
  - Monitor vehicle while on patrol – stop & assist if owner returns
  - If vehicle is already tagged and 24 hour period has expired, initiate Signal 4 process to have vehicle removed from roadway
- **Abdandoned Vehicles in HAZARDOUS Locations:**
  - Notify TMC & deploy appropriate emerg. traffic control (ETC)
  - Inspect vehicle & determine how and where to relocate vehicle
  - Mark vehicle's wheel locations (see "Push/Pull/Drag Operations")
  - Push/Drag vehicle to a non-hazardous location and tag it, **OR…**
  - Initiate Signal 4 process to remove vehicle immediately
  - Remain on-scene until ETC is no longer needed
- **Additional Guidelines for Abandoned Vehicles:**
  - Tagging is NOT necessary if vehicle will be removed immediately
  - IMAP should NEVER enter an abandoned vehicle – if it seems suspicious, notify law enforcement immediately
  - If vehicle is in a non-hazardous location & owner plans to leave scene, advise that their vehicle will be towed after 24 hours – tag vehicle if it is still in-place by the end of your shift

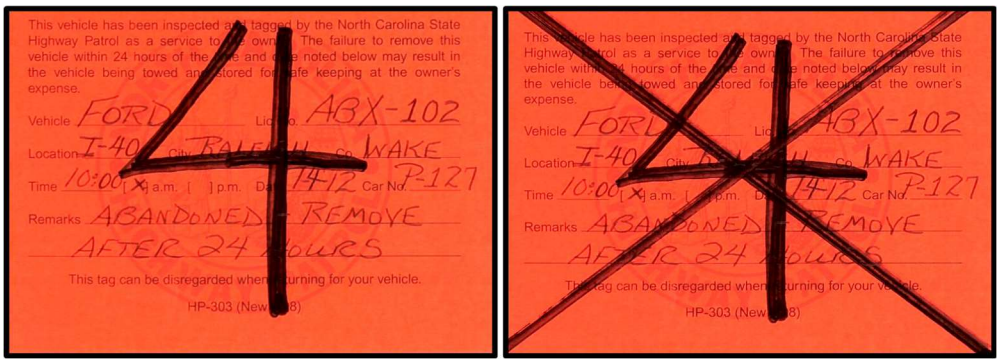
HP-303 Vehicle Tag:

Objective: Explore the components of the HP-303 tag for abandoned vehicles

Critical Knowledge:

- All abandoned vehicles in NON-hazardous locations **must be tagged with a completed, HP-303 tag –** this tag is intended to;
  - Notify owner that vehicle will be towed if left on road for 24+ hours
  - Tell IMAP/SHP that vehicle was inspected & when it can be towed

- **Completing the HP-303 Tag:**
  - Remain in IMAP truck while filling out the HP-303 tag
  - Use black ink pen to write in all information requested on tag
  - Use large, black marker to write the date of the month when vehicle was inspected across front of the tag (**Ex.** 7/4/12 = **"4"** across tag)
  - Draw a black "X" over the date when a wrecker is called for vehicle



- **Placing the HP-303 Tag on the Vehicle:**
  - The HP-303 tag is a sticker with a powerful adhesive on the back
  - Tag will NOT stick to wet surfaces – dry with towel before placing
  - Place tag where it can be seen easily – lower corner of the vehicle's rear window is best
  - DO NOT place the tag on painted or plastic vehicle surfaces
  - DO NOT place tag where it will obscure owner's view of the road (e.g. on front windshield, etc.)
  - Tag may be placed on vehicle's antennae or on back wheel closest to traffic if glass windows are not available

- **If initial tag is removed;**
  - Contact TMC to verify time/date when vehicle was first tagged
  - Re-tag with initial info **OR** call wrecker if 24-hr period has expired

Signal 4 Process:

Objective: Learn about the Signal 4 process for removing abandoned vehicles

Critical Knowledge:

- **Signal 4** refers to the process where IMAP responders call SHP to request immediate removal of vehicles that have been abandoned;
  - In a NON-hazardous location for 24 hours or more
  - In a HAZARDOUS location for ANY amount of time
- **Notify TMC before initiating Signal 4** and relay the following;
  - Location of abandoned vehicle
  - Vehicle description
  - Reason for Signal 4 (e.g. 24-hr expiration, hazardous location, etc.)
- **Request wrecker through SHP –** switch radio to the appropriate District Channel for SHP and relay the following to their telecommunicator;
  - IMAP unit P#
  - Location of abandoned vehicle
  - Vehicle description
  - License plate # (including state & year of issue)
  - Last 5 characters of Vehicle Identification Number (VIN)
  - Condition of vehicle (e.g. disabled, wrecked, etc.)
  - Reason for Signal 4
  - **For regions without a TMC, IMAP responder should document the information above using a Vehicle Relocation Report form**
- **Once wrecker has been dispatched by SHP;**
  - Call TMC & advise name of towing company that SHP dispatched
  - "X-out" date on HP-303 tag
  - Remain on-scene if needed or resume patrol – **IMAP is NOT required to remain with vehicles in non-hazardous locations**
  - Monitor abandoned vehicle to confirm wrecker arrival
  - If wrecker does NOT arrive after 30 minutes (hazardous location) or 2 hours (non-hazardous location) call SHP to request wrecker's ETA
  - If owner arrives to claim vehicle after Signal 4 is initiated, notify TMC & call SHP to cancel wrecker – re-activate Signal 4 if needed
  - If able, notify TMC when wrecker arrives & when vehicle is removed

Description:

Become familiar with the factors/characteristics related to incident prioritization as well as the guidelines & processes used by IMAP to properly prioritize incident response efforts

Objectives:

- Learn about incident priorities and the factors/characteristics that determine the priority level of an incident
- Become familiar with the response guidelines related to incident priorities

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-102: Emergency Lane Closures

Understanding Incident Priorities:

Objective: Learn about incident priorities and the factors/characteristics that determine the priority level of an incident

Critical Knowledge:

- **Traffic incidents are prioritized based on the following;**
  - Threat to responder & motorist safety
  - Severity of impact to traffic
  - Urgency of assistance needed

- **Incident prioritization ensures that;**
  - IMAP support is deployed where & when it is needed most
  - Incidents with the greatest impact are responded to, FIRST

- **Incident Priorities –** shown below are IMAP's incident priorities. Higher priority incidents (those that should be responded to, first) are at the top & lower priority incidents are at the bottom;
  1. HazMat spill or overturned tractor trailer
  2. Accident with injuries and/or major investigation
  3. Accident with unconfirmed injuries
  4. Vehicle fire
  5. Accident with NO injuries
  6. Debris in a travel lane
  7. Disabled vehicle
  8. Assisting NCDOT Maintenance/Construction personnel
  9. Abandoned vehicle

- **Factors that Affect Priority Level:**
  - **Lane(s) blocked vs. lane(s) available – most important factor**
  - Current or expected impact to traffic
  - Presence of other responders on scene
  - IMAP responder's distance/travel time to incident
  - Number of IMAP units available to respond

Response Guidelines Based on Incident Priorities:

Objective: Become familiar with the response guidelines related to incident priorities

Critical Knowledge:

- While on patrol, IMAP responders should stop, investigate, and respond to any potential traffic incidents that they detect
- When multiple incidents are active at once, **responders should respond to higher priority incidents BEFORE lower priority incidents**
- If a responder is en route to an incident and detects/is dispatched to a new, higher priority incident, the responder should;
  - Respond to the new, higher priority incident, first
  - Advise TMC that they are en route & provide ETA to new incident
- **Responders may leave the scene of a lower priority incident** before services are complete **in order to respond to a higher priority incident**
- If providing motorists assistance when a higher priority incident is detected/dispatched;
  - Attempt to properly render services quickly before departing **OR**
  - Advise motorist that you must leave for a higher priority incident but that you or another IMAP unit will return
  - Notify TMC before departure & request backup to assist motorist
  - Retrieve & properly store all equipment before departure
- If providing temp. traffic control (ETC) to close 1 or more lanes when a higher priority incident or **secondary crash** is detected/dispatched;
  - DO NOT leave scene unprotected to respond to new incident
  - Call for a backup IMAP unit to relieve you at original incident **OR** to respond to new incident
  - If nearby, adjust existing ETC to include new incident or deploy initial ETC around new incident to create a separate TC area
  - Reposition truck & modify arrow board as appropriate for the furthest upstream TC area – backup units position at downstream TC area(s)

Description:

Become familiar with the guidelines, equipment, & processes used to properly remove damaged vehicles or other large objects from the roadway

Objectives:

- Learn about push/pull/drag (P/P/D) operations & important terminology
- Learn the primary guidelines related to P/P/D operations & equipment
- Explore IMAP's towing equipment & guidelines for its proper use for P/P/D (Equipment is described in greater detail in course titled, "IMAP Equipment Specifics")
- Learn about the basic concepts for using hooks, chains, etc. during P/P/D operations
- Receive guidance to help maneuver properly during P/P/D operations
- Become familiar with the guidelines & processes for marking vehicles for removal in order to assist law enforcement crash investigations & expedite lane clearance
- Learn about the guidelines & processes for moving vehicles that may or may not be operated by motorists during P/P/D operations
- Review basic steps & instructions for the overall P/P/D process

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- VE-105: 2-Wheel / 4-Wheel Drive
- ETC-100: Vehicle Positioning & Responder Approach

Introduction to Push/Pull/Drag Operations:

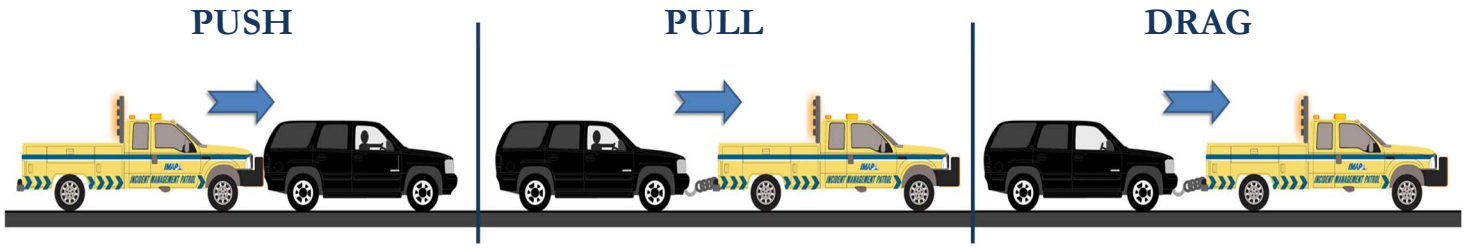
Objective: Learn about push/pull/drag operations & important terminology.

Critical Knowledge:

- **Push/Pull/Drag (P/P/D) Operations** refers to the techniques used by IMAP to remove damaged vehicles or large objects from the roadway
  - **PUSH –** to use the IMAP truck's push bumper to move an object/vehicle
  - **PULL –** to use hooks, chains, etc. to move a vehicle that is being operated by a motorist
  - **DRAG –** to use hooks, chains, etc. to move an object or a vehicle that is NOT being operated by a motorist

- **Push/Pull/Drag Legislation –** under certain circumstances, IMAP's use of P/P/D is protected and authorized by NC laws such as;
  - **Quick Clearance law (GS 20-161) –** IMAP may remove objects or vehicles that are a hazard to roadway or causing severe congestion
  - **Fender Bender law (GS 20-166) –** IMAP may remove vehicles following a minor crash if NO injuries/fatalities are involved
  - In ALL cases, IMAP may NOT move a vehicle that is involved in a crash investigation until law enforcement (LE) gives consent

- **IMAP responders should ONLY use Push/Pull/Drag if**;
  - The responder has experience moving a similar vehicle/object under similar conditions
  - Vehicle/object is in travel lanes or obstructing traffic
  - It is necessary to reopen travel lanes efficiently



Push/Pull/Drag Guidelines:

Objective: Learn the primary guidelines related to P/P/D operations & equipment.

Critical Knowledge:

- **Push/Pull/Drag Safety:**
  - Wear all necessary PPE – especially work gloves & safety glasses
  - Deploy appropriate emergency traffic control (ETC), first
  - Keep P/P/D area free of bystanders – honk horn & shout, "ALL CLEAR" before moving

- **Inspect Vehicle/Object BEFORE Using P/P/D:**
  - Determine if vehicle can move safely under its own power
  - Determine if vehicle/object can be moved by IMAP truck
  - Check under & around vehicle for occupants
  - Look under & around vehicle for parts (e.g. gas tank) that may scrape the ground or prevent vehicle from being moved
  - Check vehicle for damage & point out existing damage to motorist
  - IMAP should seek to **cause NO additional damage** using P/P/D

- **P/P/D Equipment –** all hooks, chains, straps, etc. should;
  - Be inspected BEFORE being used for P/P/D
  - NOT be used if damaged or NOT rated for load
  - Be connected securely before any tension is placed on them
  - Be connected securely only at solid points of the vehicle/object
  - Only be connected to IMAP truck at approved points that can bear the full weight & tension of the vehicle/object being moved
  - Be wiped clean & stored in a secure, dry location after each use

- **Moving the Vehicle/Object:**
  - Identify a relocation area before using P/P/D
  - Maintain control of the IMAP truck & load while using P/P/D
  - Vehicles/objects should be moved across as few lanes as possible and should always be relocated to the same side of the road

- **Communicate with Law Enforcement (LE) & Motorist:**
  - LE – confirm that any crash investigation will NOT be impeded, discuss removal plan and receive consent to use P/P/D
  - Motorist – advise them that their vehicle will be moved & assure that they understand their part in relocating their vehicle (if any)

Hooks, Chains & Other P/P/D Equipment:

Objective: Explore IMAP's towing equipment & guidelines for its proper use for P/P/D. For equipment details, see course titled, "IMAP Equipment Specifics."

Critical Knowledge:

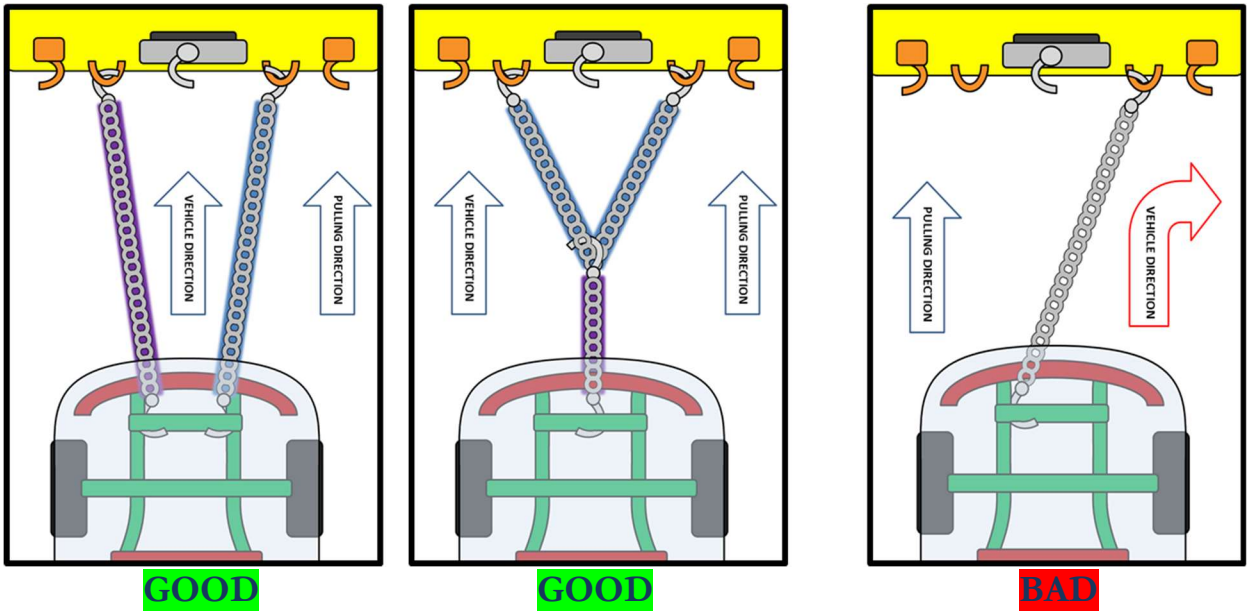
- **IMAP equipment used for P/P/D** includes but is not limited to;
  - Push bumper (DO NOT use "brush/cattle guard" for P/P/D)
  - Metal hooks, chains & cables (e.g. J-Hooks, frame keys, etc.)
  - Nylon tow straps
  - Front/Rear winch
  - Clevis shackles & other chain connectors
- **Using the Push Bumper:**
  - Push bumper should be level with vehicle/object being moved
  - Contact with bumper should be gentle – accelerate & stop gradually
  - Front winch hook must be flush with bumper BEFORE pushing
- **Only connect hooks/chains to following points on IMAP truck;**
  - Tow hooks & anchor bolts on front or rear bumper
  - Front/rear winch cable hooks (only if needed – winch is best used when IMAP truck is stationary)
  - Trailer hitch on rear bumper
- **Recommended locations on vehicles to connect hooks/chains;**
  - Vehicle frame or chassis
  - Trailer hitches, axles, etc.
- **Hooks should fit snuggly in vehicle, NOT jammed into place**
  - Poorly placed hooks may get stuck when put under tension
  - A crowbar may be used to remove stuck hooks
- **Use shorter chain lengths when pulling/dragging** (3-4ft is optimal)
  - Decreases force of "snap-back" if chain breaks
  - Can increase maneuverability of IMAP truck & load
  - Caution: if too short, vehicle may run into IMAP truck when stopped
- **Use the right hook, chain, strap, or cable for the job**
  - Nylon tow straps can prevent further vehicle damage during P/P/D
  - J-Hooks are large & very strong but may not fit smaller cars
  - Frame Keys are best for smaller cars but correct key must be used

Hook & Chain Configurations:

Objective: Learn about the basic concepts for using hooks, chains, etc. during P/P/D operations.

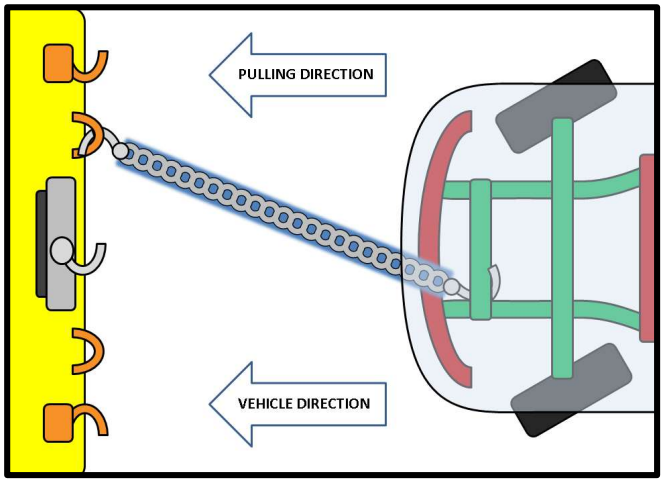
Critical Knowledge:

- **Hook & chain configurations should;**
  - Be appropriate for size & weight of vehicle/object being moved
  - Distribute tension evenly across hooks/chains used
  - Connect to vehicle/object so that it moves only in desired direction



GOOD GOOD BAD

- **Dragging Tip:** if vehicle's front wheels are locked at an angle, connect chain to side of vehicle that wheels are pointing so vehicle stays straight

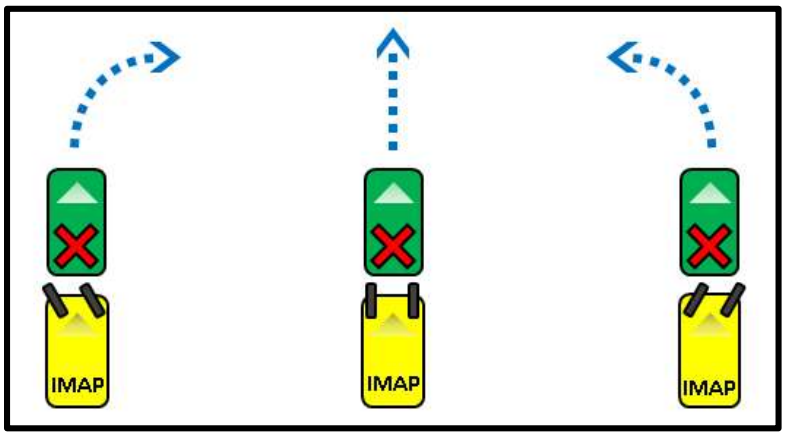


Maneuvering During P/P/D Operations:

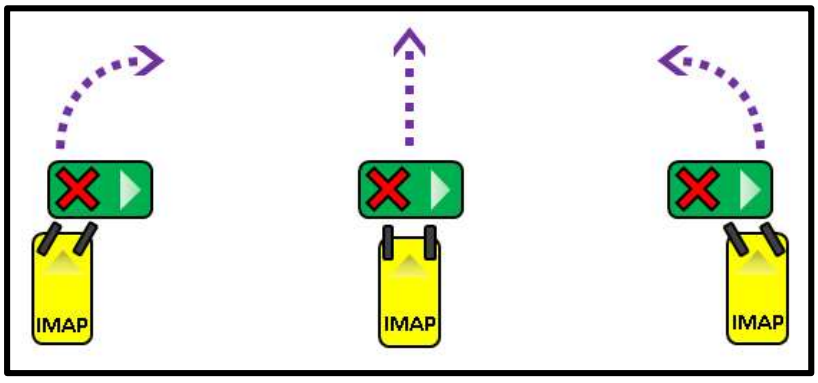
Objective: Receive guidance to help maneuver during P/P/D operations.

Critical Knowledge:

- **Plan Ahead –** know what will be moved, how it will be moved, and where it will be moved to BEFORE initiating P/P/D
- **Increase Traction –** shift IMAP truck into 4-wheel drive & lock front wheel hubs if needed
- **To keep a vehicle/object going straight,** push/pull on the center mass of the vehicle/object
- **Steering is often counter-intuitive when pushing:**
  - Steer LEFT to push vehicle/object to the RIGHT
  - Steer RIGHT to push vehicle/object to the LEFT



- **To turn a vehicle/object in-place, push off-center:**
  - Push LEFT side to turn CLOCKWISE
  - Push RIGHT side to turn COUNTER-CLOCKWISE



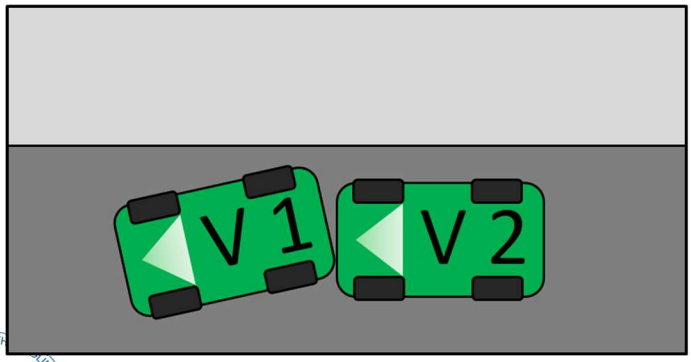
Marking Vehicles for Removal:

Objective: Become familiar with the guidelines & process for marking vehicles for removal to assist law enforcement (LE) crash investigations & expedite lane clearance.

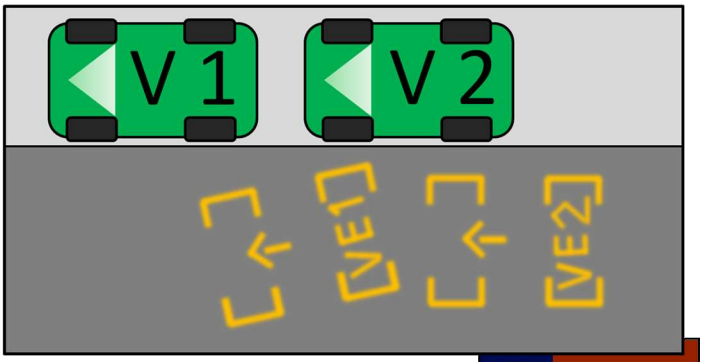
Critical Knowledge:

- IMAP responders may mark wheel locations of crashed vehicles to assist LE crash investigations so that vehicles can be removed from travel lanes
- **BEFORE marking vehicles for removal,** IMAP responders should;
  - Confirm that NO injuries or fatalities are involved
  - Receive consent from LE to mark & remove damaged vehicles
- **Use high-visibility spray paint (NOT white) to mark wheels;**
  - Mark wheels BEFORE moving vehicles
  - Spray FRONT, OUTER EDGE, & REAR of each wheel of all vehicles involved in crash
  - Avoid getting paint on vehicle parts OTHER THAN TIRES
  - Make sure each wheel is clearly marked on the pavement
- **Paint Markings should Indicate;**
  - Vehicles involved in crash – within each vehicle's wheel markings, spray first 3 letters/numbers of vehicle's license plate
  - Direction of vehicle – for each vehicle, spray an arrow pointing in direction vehicle was facing when marked
- IMAP responders should **communicate with LE** to assure that investigating officers understand wheel markings & have all necessary information

Before Marking Wheels:



After Marking Wheels:



Moving Vehicles With or Without Motorists:

Objective: Learn about the guidelines & processes for moving vehicles that may or may not be operated by motorists during P/P/D operations

Critical Knowledge:

- Vehicles that can move under their own power should be relocated without using P/P/D
  - Front wheel drive vehicles may still be safe to operate after a rear-end collision (so long as gas tank is NOT dragging on the ground)
  - IMAP responders may relocate these vehicles if their owners are unable
  - Responders should **wear medical-grade gloves** if any blood-borne pathogens are present in the vehicle
- **Moving a vehicle operated by a motorist;**
  - Advise motorist that vehicle will be moved & ask if they can drive
  - Turn on engine (if possible) to activate power steering & brakes
  - Explain relocation plan clearly & describe any actions motorist will have to do during relocation (e.g. where to steer & when to stop)
  - Watch motorist carefully & continue to communicate throughout relocation using PA system and/or hand signals
  - If vehicle will be towed, advise motorist to take all items with them
- **Explain Relocation Plan to Motorist CLEARLY –** tell motorists;
  - How you will be moving their vehicle
  - What to expect as their vehicle is moved
  - Where you will be moving their vehicle to
  - What they may need to do during relocation (e.g. steer/stop)
  - What they should NOT do (e.g. make sudden stops or accelerate)
  - How & when you will communicate with them (e.g. PA system)
- **Before moving a vehicle NOT operated by a motorist;**
  - Shift vehicle into gear or "PARK" & engage emergency brake
  - Immobilize steering wheel by tying off with seatbelt/bungee chord

Push/Pull/Drag Process:

Objective: Review basic steps & instructions for the overall P/P/D process

1. After assuring that all emergency traffic control (ETC) measures are in-place, determine if P/P/D operations are necessary for incident
2. Put on appropriate PPE (e.g. work gloves & safety glasses)
3. Inspect the vehicles & area to assure that NO injuries or fatalities are involved
4. Identify an appropriate relocation area & formulate a relocation plan
5. Discuss relocation plan with law enforcement & receive consent for P/P/D
6. Notify TMC dispatch of P/P/D operations – call for backup if needed
7. Inspect vehicle for damage and, if possible;
   a. Point out existing damage to owner
   b. Remove any damage that prevents vehicle from moving
8. If motorist will operate vehicle being moved;
   a. Turn on engine (if possible)
   b. Explain relocation plan clearly to motorist
9. If motorist will NOT operate vehicle being moved;
   a. Shift vehicle into gear or "PARK" & engage emergency brake
   b. Immobilize steering wheel
10. If hooks, chains & other P/P/D equipment is needed;
    a. Retrieve & inspect P/P/D equipment
    b. Connect hooks, chains, etc. securely to damaged vehicle & IMAP truck
11. Make sure the area is clear of bystanders – honk horn & shout, "CLEAR THE AREA"
12. Slowly & carefully push, pull, or drag vehicle to relocation area
13. Bring IMAP truck & damaged vehicle to a gradual stop – if hooks/chains have been used, reverse slightly to give sufficient slack to remove hooks/chains
14. Check mirrors & safely exit the IMAP truck to confirm that vehicle is;
    a. No longer affecting travel lanes
    b. Turned off & parked with emergency brake set
15. Remove any hooks/chains used to relocate vehicle & repeat steps 7-14 for any remaining vehicles/objects that need to be removed
16. Return any P/P/D equipment used to its proper location on the IMAP truck
17. Notify TMC dispatch that P/P/D operations have completed

Description:

Become familiar with the guidelines, equipment, & processes used to properly up-right & remove overturned vehicles

Objectives:

- Learn about the primary guidelines related to overturned vehicle operations
- Become familiar with the primary guidelines for IMAP's up-righting equipment (Equipment is described in greater detail in course titled, "IMAP Equipment Specifics")
- Receive further details about the front & rear winch and guidelines for its use
- Explore the concepts & strategies used to up-right overturned vehicles
- Review basic steps & instructions for up-righting overturned vehicles

Audience: IMAP Responders

Duration of Training: 4 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- VE-105: 2-Wheel / 4-Wheel Drive
- ETC-100: Vehicle Positioning & Responder Approach

Guidelines for Overturned Vehicle Operations:

Objective: Learn about the primary guidelines related to overturned vehicle operations.

Critical Knowledge:

- **IMAP Responders should ONLY up-right overturned vehicles if;**
  - Law enforcement has given consent
  - Responder has up-righted similar vehicles under similar conditions before
  - Vehicle is in travel lanes or obstructing traffic
  - It is necessary to reopen travel lanes efficiently
  - Vehicle must be up-righted in order to be removed from travel lanes
- **Safety Precautions:**
  - Wear all necessary PPE – especially work gloves & safety glasses
  - Assure that appropriate emergency traffic control (ETC) measures are in place, first
  - Operate winch from behind a door of the IMAP truck or other solid structure
  - Keep area free of bystanders – honk horn & shout, "CLEAR THE AREA" before up-righting
  - Place heavy blanket/rubber mat over winch cable to prevent damage/injury if cable snaps
  - Have/Utilize an Escape Route
- **Inspect Vehicle BEFORE Up-Righting:**
  - Determine if vehicle must be up-righted to be removed from road
  - Determine if vehicle can be up-righted by IMAP truck
  - Check under & around vehicle for motorists
  - Look under & around vehicle for parts that may prevent vehicle from being up-righted or cause additional safety hazards
- **Up-Righting the Vehicle:**
  - Identify a relocation area before attempting to up-right a vehicle
  - Only close enough lanes to safely up-right the vehicle – Responders may close a lane briefly to protect motorists while winch is in use
  - Use wheel chocks to keep vehicle stationary once it is up-righted
- **Communicate with Law Enforcement (LE):**
  - Discuss up-righting & relocation plan
  - Confirm that any crash investigation will NOT be impeded

Up-Righting Equipment & Guidelines:

Objective: Become familiar with the primary guidelines for IMAP's up-righting equipment. For equipment details, see course titled, "IMAP Equipment Specifics."

Critical Knowledge:

- **IMAP's up-righting equipment** includes but is not limited to;
  - Push bumper (DO NOT use "brush/cattle guard" to up-right)
  - Metal hooks, chains & cables (e.g. J-Hooks, frame keys, etc.)
  - Nylon tow straps
  - Front/Rear winch
  - Wheel chocks (standard or wood beam)
  - Clevis shackles & other chain connectors

- **Up-Righting Equipment Guidelines –** all equipment should;
  - Be inspected BEFORE being used to up-right vehicles
  - NOT be used if damaged or NOT rated for load
  - Be connected securely before any tension is placed on them
  - Be connected securely only at solid points of the vehicle
  - Only be connected to IMAP truck at approved points that can bear the full weight & tension of the vehicle being up-righted
  - Be wiped clean & stored in a secure, dry location after each use

- **Only connect hooks/chains to following points on IMAP truck;**
  - Tow hooks & anchor bolts on front or rear bumper
  - Front/rear winch cable hooks
  - Trailer hitch on rear bumper

- **Recommended locations on vehicles to connect hooks/chains;**
  - Vehicle frame or chassis
  - Trailer hitches, axles, etc.

- **Hooks should fit snuggly in vehicle, NOT jammed into place**
  - Poorly placed hooks may get stuck when put under tension
  - A crowbar may be used to remove stuck hooks

- **Use the right hook, chain, strap, or cable for the job**
  - Tow straps are designed to stretch so chains are best for winching
  - "Double-loop" cables can prevent hooks, chains, etc. from getting stuck under vehicles once up-righted

How to Use the Front/Rear Winch (1 of 2):

Objective: Receive further details about the front/rear winch & guidelines for its use.

Critical Knowledge:

- **IMAP truck is equipped with 2 electric winches** (one mounted on front & rear bumper) – each has a pulling capacity of 12,000lbs
- **Components of the Front/Rear Winch:**
  - Control box & winch controller
  - Electric winch motor & cable clutch
  - Winch cable & hook
- **Inspecting/Maintaining the Winches:**
  - Inspect & confirm that both winches work at beginning of each shift
  - **To inspect cables** – pull out by hand, look for damage, then use motor to pull cable back in until winch hook is flush with bumper
  - Keep cable straight & taught to prevent kinks in cable
  - **DO NOT unspool entire length of cable** – use spray paint to mark 'end of pull' point on cable
  - Apply lubricant spray to cable & drum on a regular basis
- **Operating the Front/Rear Winch:**
  - IMAP truck must be ON in order to operate winches
  - Wear all necessary PPE – especially work gloves & safety glasses
  - Keep hands, fingers, and clothing away from cable drum
  - Position & park IMAP truck and engage emergency brake – use wheel chocks to keep truck stationary
  - Disengage cable clutch & pull cable out by hand as needed
  - Connect winch hook securely to vehicle/object or other hooks/chains
  - Connect winch controller to control box and engage cable clutch
  - Use motor to remove slack and place cable under SLIGHT tension
  - Place blanket/mat over cable near vehicle/object and clear area of bystanders in case cable snaps
  - Stand behind truck door, honk horn, & shout, "CLEAR THE AREA"
  - Use motor to pull cable in so vehicle/object is moved as needed – keep cable taught until load is moved and completely at rest
  - Disconnect winch hook & use motor to retract cable completely

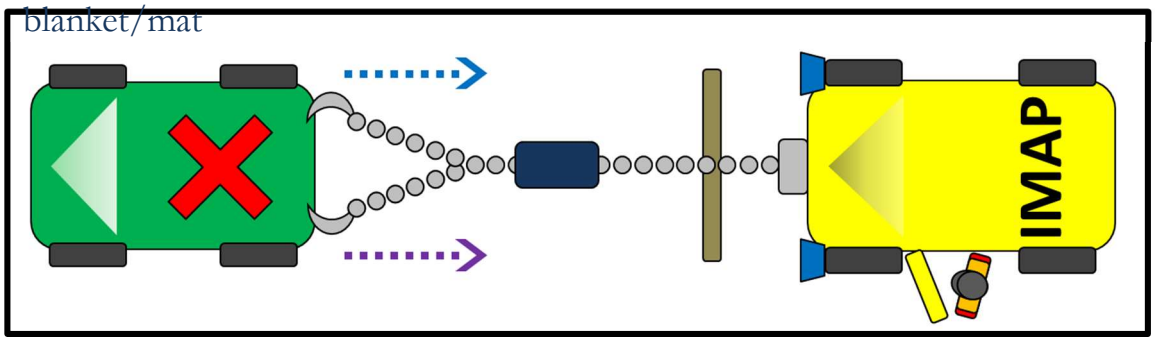
How to Use the Front/Rear Winch (2 of 2):

Objective: Receive further details about the front/rear winch & guidelines for its use.

Critical Knowledge:

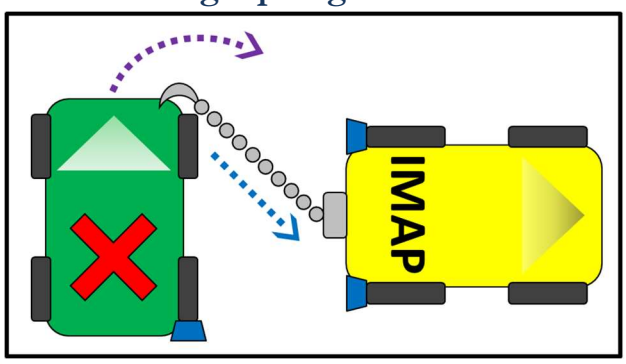
- **IMAP Truck Position –** in most cases, Responders should park truck;
  - In a safe area away from traffic & on dry, level ground (if possible)
  - In relocation area or between it & the vehicle/object being winched
  - Close enough so winch cable can reach vehicle/object
- **Vehicles/Objects may continue to move after being winched**
  - Have an escape plan in case vehicle/object continues toward you
  - If possible, engage vehicle's emergency brake
  - Place wheel chocks (wood beams are ideal) where vehicle will stop

Typical Winch Setup: Responder position, wheel chocks, & cable blanket/mat

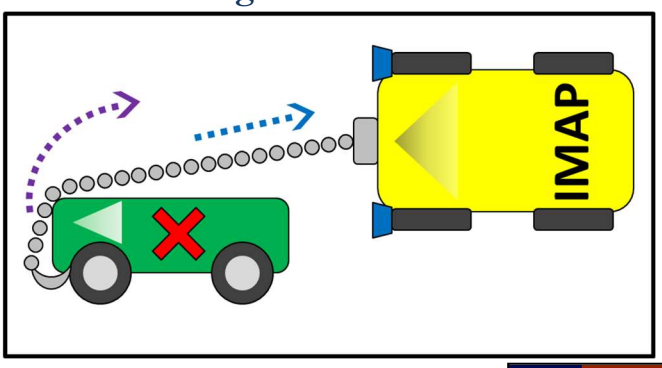


- **Turning a Vehicle In-Place with Winch:**
  - Position IMAP truck facing the direction you want vehicle to turn
  - Connect to vehicle at point that will face truck after winching
  - Place wheel chocks under both front or back IMAP truck wheels
  - If vehicle is up-right, chock one wheel to create a pivot point
  - Pull with winch until vehicle is facing the desired direction

Turning Up-Right Vehicle:



Turning Vehicle on Side:



Strategies for Overturned Vehicle Operations (1 of 2):

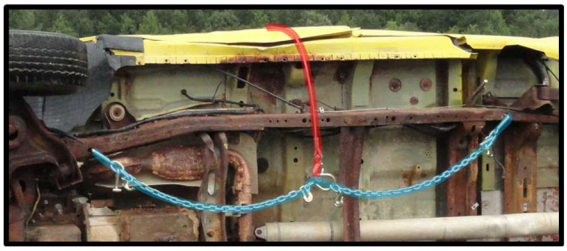
Objective: Explore the concepts & strategies used to up-right overturned vehicles

Critical Knowledge:

- **Plan Ahead – goal is to remove vehicle from lanes quickly & safely:**
  - Before up-righting, call for backup or LE to maintain ETC
  - Avoid blocking additional lanes but be ready to if needed for safety
  - If vehicle DOES NOT need to be up-righted, push or drag instead
  - Make sure you have enough room to maneuver & up-right
  - Identify a relocation area & position so vehicle is winched towards it
  - **Consider terrain**; vehicle may continue to roll downhill toward you
  - **Consider vehicle's center of gravity;** let vehicle's weight do most of the up-righting work for you

- **Know where vehicle will land once up-righted –** make sure that;
  - Area is clear & vehicle will NOT roll back on you/other responders
  - All hooks, chains, & cables, will NOT get stuck under vehicle
  - Wheel chocks are placed to keep vehicle stationary once up-righted

- **Use hooks & chains in combination with winch:**
  - Connect hooks, etc. to front AND back of vehicle's frame/axles
  - Hook winch to chains on vehicle so cable & chains form "Y" shape
  - **Keep winch cable taught** while up-righting to prevent vehicle from turning back over



Hook/chain (blue) & winch cable (red) configurations (top & bottom left)

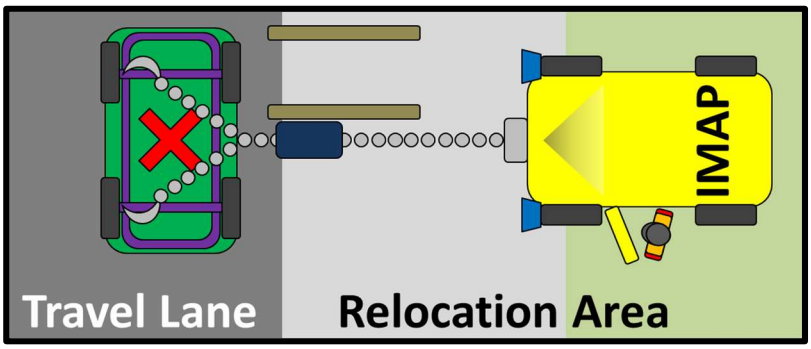
Wood beam wheel chocks (purple) where vehicle will land when up-righted (right)

Strategies for Overturned Vehicle Operations (2 of 2):

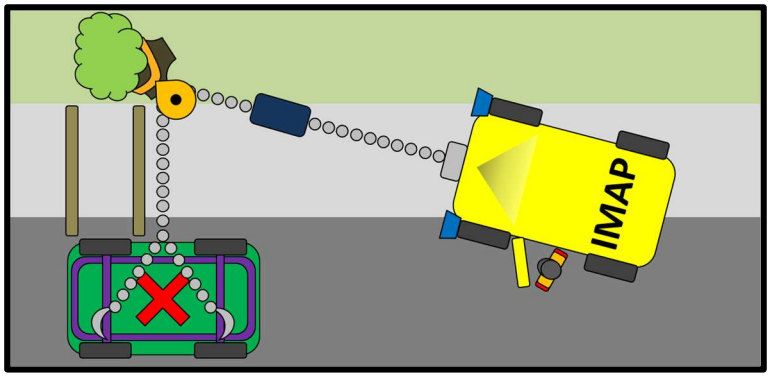
Objective: Explore the concepts & strategies used to up-right overturned vehicles

Critical Knowledge:

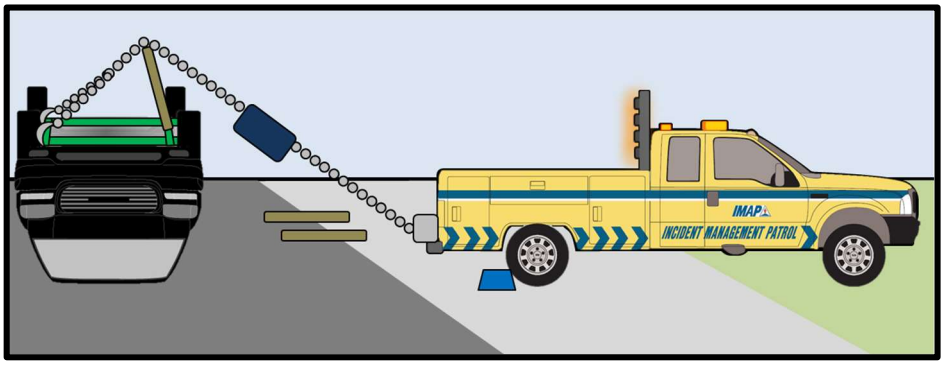
- **Up-Right Into Relocation Area –** if possible, position IMAP truck and connect winch & other hooks/chains so vehicle lands in relocation area



- **Snatch Block** (optional equipment) **–** changes pulling direction of winch & used when space is tight. Snatch block must be tied securely to a large tree, backup IMAP truck or other solid object



- **Boom Technique –** for additional leverage, a wood beam chock can be wedged in-between vehicle's frame & winch cable



General Process for Overturned Vehicle Operations (1 of 2):

Objective: Review basic steps & instructions for up-righting overturned vehicles.

1. After assuring that all emergency traffic control (ETC) measures are in-place, determine if overturned vehicle must be up-righted in order to be removed
   a. If up-righting is NOT needed – push or drag vehicle out of roadway
   b. If up-righting is needed – notify TMC dispatch & request backup IMAP unit or law enforcement to maintain ETC
2. Put on appropriate PPE (e.g. reflective vest, work gloves & safety glasses)
3. Inspect the vehicle & area to assure that NO injuries or fatalities are involved
4. Identify an appropriate relocation area & formulate a relocation plan
5. Discuss relocation plan with law enforcement & receive consent to up-right & relocate the overturned vehicle
6. Inspect overturned vehicle for damage and, if possible, remove any damage that prevents vehicle from being up-righted
7. Once ETC duties are handed off to backup unit or law enforcement, reposition IMAP truck & park at appropriate location to up-right vehicle
   a. Keep IMAP truck running
   b. Engage emergency brake
8. Retrieve all necessary equipment & organize work space
9. Place wheel chocks beneath IMAP truck wheels to keep truck stationary
10. If up-righting completely, place wheel chocks where vehicle's wheels will settle
11. Connect hooks, chains, etc. securely to the vehicle's frame or axles
12. Disengage cable clutch on winch and pull winch cable out by hand to overturned vehicle
13. Attach winch hook properly to hooks & chains connected to vehicle
    a. Hook is typically connected to center of chains forming a "Y" shape
    b. Safety clasp on winch hook should close completely
14. Connect winch controller to control box & engage cable clutch
15. Use winch motor to retract winch cable until cable is under SLIGHT tension

General Process for Overturned Vehicle Operations (2 of 2):

Objective: Review basic steps & instructions for up-righting overturned vehicles.

16. Drape heavy blanket/rubber mat over winch cable in case cable snaps
- **a.** If cable could snap into traffic, briefly stop traffic while winch is in use
- **b.** Make sure area around vehicle, truck & cable is clear of bystanders

17. Stand behind IMAP truck door, honk horn & shout, "CLEAR THE AREA"

18. Use winch motor to retract cable until vehicle turns over & settles completely
- **a.** Carefully monitor all equipment, vehicle, & winching area
- **b.** Keep winch cable taught after/in-between turns

19. Use winch motor to release tension on cable & allow vehicle to settle
- **a.** If needed, push or drag vehicle to relocation area
- **b.** Adjust wheel chocks to better stabilize up-righted vehicle

20. Remove any leftover debris from the roadway

21. Disconnect all hooks, chains, etc. & retract winch cable completely

22. Return all equipment to its proper location on the IMAP truck

23. Notify TMC dispatch that overturned vehicle operations have completed

Description:

Become familiar with the guidelines & processes related to proper debris removal response

Objectives:

- Learn about the concepts and primary guidelines that IMAP Responders should adhere to when removing debris from the roadway
- Receive further guidance to support proper removal & disposal of roadway debris
- Explore various emergency traffic control (ETC) techniques that IMAP Responders can apply to safely & effectively remove debris
- Review diagrams of possible ETC configurations for debris removal

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-104: Motorist Cooperation
- IM-102: Push / Pull / Drag Operations

Primary Debris Removal Guidelines:

Objective: Learn about the concepts & primary guidelines that IMAP Responders should adhere to when removing debris from the roadway

Critical Knowledge:

- **One of IMAP's services is to remove debris from the roadway** which includes but is NOT limited to;
  - Tire treads
  - Ladders
  - Mattresses
  - Appliances (e.g. refrigerators, washing machines, etc.)
  - Fallen trees or limbs
  - Animal carcasses
  - Gravel, sand, nails or other small objects

- **Radio Communication Regarding Debris –** IMAP Responders should;
  - Use the 10-code, **"10-63"** when referring to debris
  - Clearly describe the size, type & quantity of debris encountered
  - Precisely describe location – especially for small, hard to see debris

- **Primary Debris Removal Guidelines:**
  - Position vehicle prior to the debris (approximately 40 ft)
  - Regardless of size/type, if traffic is observed attempting to avoid debris, it should be removed from the roadway
  - Wear appropriate PPE when handling debris; work gloves are mandatory – other PPE (e.g. safety glasses) depends on debris type
  - Relocate debris to the shoulder OR grassy portion off roadway
  - Call TMC/DOT Maint. if additional disposal measures are needed
  - ALWAYS have an ESCAPE ROUTE – especially when carrying debris
  - Use emergency traffic control (ETC) measures appropriate for current traffic conditions when removing debris from the road
  - Identify debris relocation area before parking truck or deploying ETC
  - Use temporary lane closure if debris removal will take 15+ minutes
  - Call for backup if assistance with debris removal or ETC is needed

Additional Guidelines for Debris Removal & Disposal:

Objective: Receive further guidance to support proper removal & disposal of roadway debris

Critical Knowledge:

- **Debris Removal Techniques & Safety Precautions:**
  - Position vehicle prior to the debris (approximately 40 ft)
  - The winch or push bumper can help remove large/heavy debris
  - For large amounts of small debris (e.g. glass), use broom, shovel, or IMAP sand truck & plow (if trained to operate)
  - Where available, use push magnet for small, metallic debris (e.g. nails)
  - Wear work gloves & exercise caution when handling tire treads – dozens of sharp, metal wires are often exposed
  - Safety glasses should be worn if debris may threaten Responder's eyes (e.g. dust clouds formed when removing gravel or sand)
  - When removing debris from rock/landslide, beware of additional debris falling & wear hard hat while in the rock/landslide area
  - Plan ahead when walking into roadway to remove debris – know that you can move debris before running out to it
  - If debris is often used as a HazMat container (e.g. metal cylinder or barrel) treat it as HazMat until confirmed otherwise

- **Removal & Disposal of Animal Carcasses –** Responders should;
  - Position vehicle prior to the debris (approximately 40 ft)
  - Wear medical grade gloves along with other PPE
  - Remove carcass to a grassy portion off the roadway
  - Notify TMC/DOT Maint. to remove & dispose of carcass
  - Dispose of used medical gloves in a sealed container marked, "BIOHAZARD"
- **Contact TMC/DOT Maint. to assist with disposal of;**
  - Large/Difficult to move debris – appliances, boulders, etc.
  - Non-biodegradable debris – mattresses, plastic sheeting, etc.
  - Animal carcasses – deer, livestock, etc.
  - Any debris that poses a further threat or prevents safe use of shoulder – trees/limbs hanging over road, mounds of gravel, etc.

Emergency Traffic Control (ETC) for Debris Removal:

Objective: Explore various emergency traffic control (ETC) techniques that IMAP Responders can apply to safely & effectively remove debris

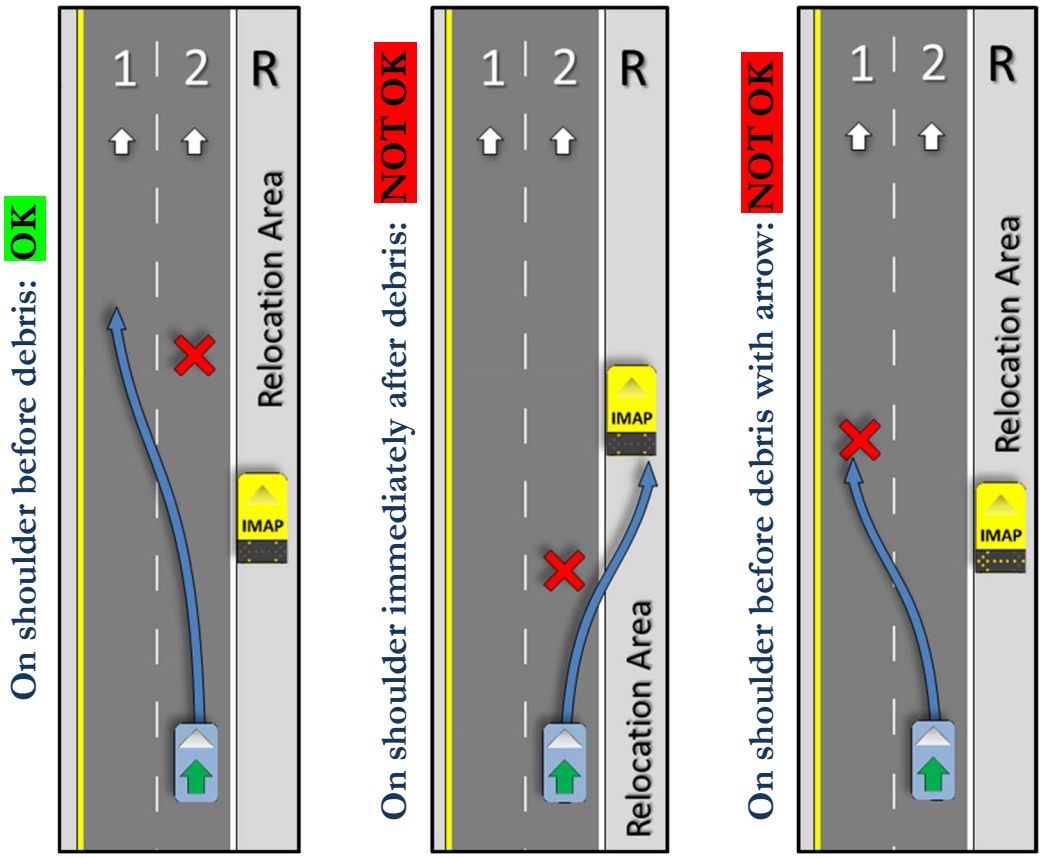
Critical Knowledge:

- Removing debris typically occurs quickly enough that full lane closures are NOT needed. However, Responders should **deploy a full lane closure if;**
  - Debris removal will take 15 minutes or more
  - Traffic conditions make debris removal unsafe without a lane closure
- **When traffic speed is LOW**, Responders may;
  - Park on shoulder, approximately 40 ft prior to the debris, wait for a gap in traffic, then safely cross lanes to retrieve debris, **OR**
  - Park in lane, use motorist cooperation technique to stop traffic & hold lanes, then safely cross lanes to retrieve debris, **OR**
  - Combine techniques (e.g. park on shoulder & use motorist cooperation)
- **When traffic speed is HIGH**, Responders may;
  - Use emergency rolling roadblock to slow/stop traffic then remove debris, **OR**
  - Park on shoulder as initial advance warning, approximately 40 ft prior to the debris, then call for backup unit to perform emergency rolling roadblock so debris can be removed
- IMAP truck position is also based on traffic conditions – Responders may park;
  - On shoulder before debris (approximately 40 ft) – prevents traffic from swerving into IMAP while avoiding debris
  - In lane before debris – truck acts as barrier between Responder & traffic
  - Straddle lanes before debris – for controlling 2 lanes with a single IMAP truck
  - **Angle front tires AWAY from Responder and/or relocation area**
- Arrow board display is based on truck position & debris relocation area
  - CAUTION (**: :**) – use when parked on shoulder. If a backup unit is assisting with emergency rolling roadblock, switch to arrow when backup arrives
  - LEFT or RIGHT ARROW (← or →) – use when in lane. Arrow should direct traffic AWAY from Responder and/or relocation area

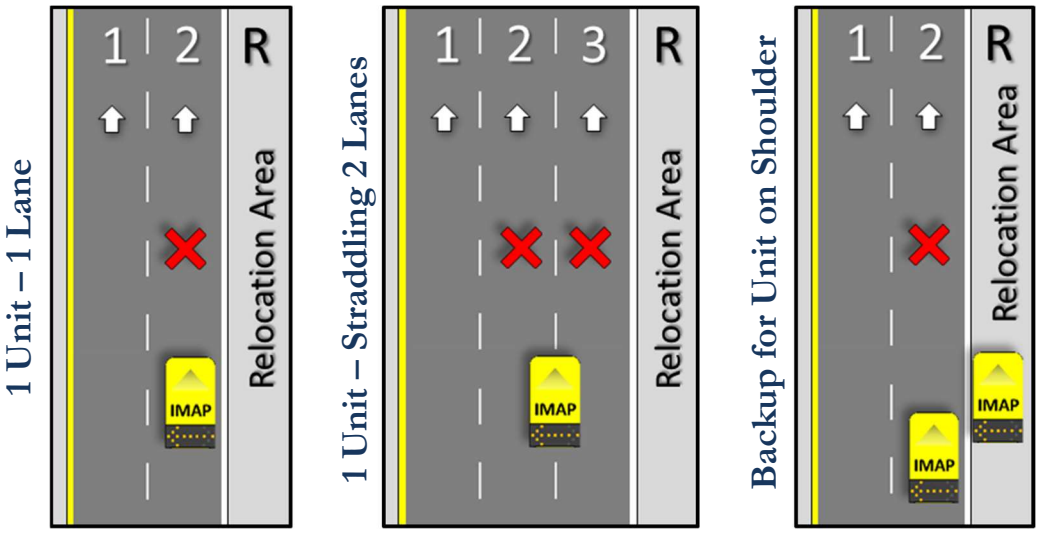
Example ETC Diagrams for Debris Removal:

Objective: Review diagrams of possible ETC configurations for debris removal

Positioning IMAP Truck for Debris Removal:



Rolling Roadblock for Debris Removal:



Description:

Become familiar with the guidelines, equipment, and processes related to vehicle & roadside fires.

Objectives:

- Learn about the basic knowledge & concepts related to vehicle & roadside fires
- Explore IMAP's fire response equipment & guidelines for its use. (Equipment is described in greater detail in course titled, "IMAP Equipment Specifics")
- Review the primary response guidelines related to vehicle & roadside fires
- Learn about the different methods for identifying hazardous materials
- Review basic steps & instructions for responding to vehicle fires & roadside fires

Audience: IMAP Responders

Duration of Training: 2 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach

Introduction to Vehicle & Roadside Fires:

Objective: Learn about the basic knowledge & concepts related to vehicle & roadside fires.

Critical Knowledge:

- **Affects of vehicle & roadside fires** include but are NOT limited to;
  - Severe injury or death due to burns and/or smoke inhalation
  - Destruction of equipment or property
  - Traffic delays due to lanes blocked by responders, limited visibility from smoke, and motorists slowing to look at fire
  - Secondary fires caused by thrown off sparks or embers
  - Compromised strength/stability of roadway when fire is instense
  - Igniting gas lines exposed beneath bridges or overpasses
- **Common causes of VEHICLE fires** include but are NOT limited to;
  - Electrical malfunctions that cause sparks or flames
  - Mechanical malfunctions igniting fuel or flammable engine fluids
  - Flammable cargo that is damaged or improperly transported
  - Engine exhaust igniting cargo/trailer – **especially for tractor trailers**

Example – Tractor Trailer at Risk of Fire: Most tractor trailers vent exhaust towards their trailer/cargo which can cause it to ignite. In some situations, **truck responders can disconnect & drive the cab away from the burning trailer**

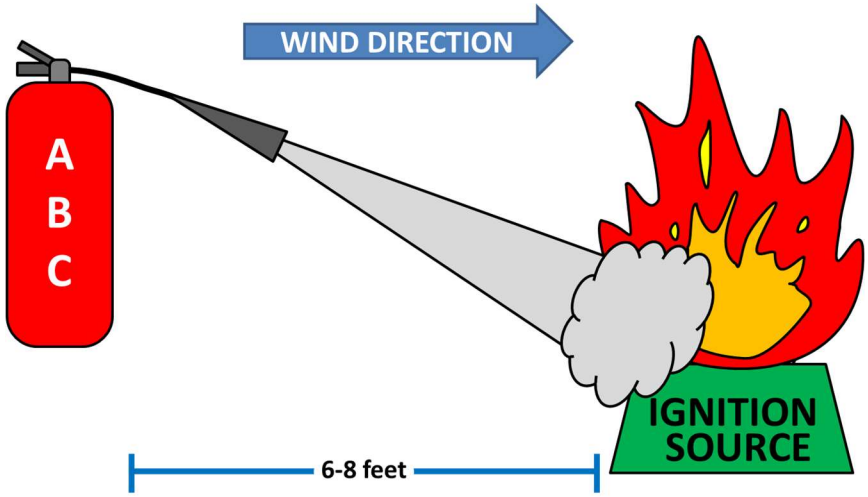
- **Common causes of ROADSIDE fires** include but are NOT limited to;
  - Motorists throwing lit cigarettes into dry grass or brush
  - Sparks/embers thrown off by passing vehicles or nearby burn piles
  - **One fire source can cause multiple fires at different locations**

Fire Equipment Guidelines:

Objective: Explore IMAP's fire response equipment & guidelines for its use. For equipment details, see course titled, "IMAP Equipment Specifics."

Critical Knowledge:

- **PPE & Clothing:**
  - Wear all necessary PPE – especially work gloves & safety glasses
  - **Work gloves are NOT fireproof** but can prevent burned hands
  - Safety glasses can protect eyes from hot embers thrown by fires
  - **Reflective vest & clothing are flammable** – stay back from flames
- **Fire Extinguishers:**
  - ABC Extinguishers spray a chemical powder to put out fires
  - Water Extinguishers spray compressed water to put out fires
  - Inspect all extinguishers before each shift & secure when not in use
  - Extinguishers deliver less than 30 seconds of spray so **ONLY use on small fires** (i.e. fires the size of a small trash can)
- **Fire Extinguisher Use & P.A.S.S. Method –** if fire is small enough;
  - Stand upwind (and uphill, if able) from fire to avoid flames, smoke, embers, or steam and **spray downwind**
  - Stand 6-8 feet from fire to avoid heat & stay in extinguisher's range
  - **P –** Pull pin to allow extinguisher to spray
  - **A –** Aim nozzle at the base of the fire – NOT the flames
  - **S –** Squeeze lever to spray for 1-2 second intervals then quick bursts
  - **S –** Sweep nozzle back & forth and spray ignition source entirely



P.A.S.S.

P – PULL

A – AIM

S – SQUEEZE

S – SWEEP

Vehicle & Roadside Fire Response Guidelines:

Objective: Review the primary response guidelines related to vehicle & roadside fires

Critical Knowledge:

- **IMAP responders are NOT fire fighters**
  - DO NOT try to put out a fire that is too large for 1 fire extinguisher
  - Contact TMC dispatch/Fire Dept. to handle large fires
- **IMAP's role in responding to vehicle & roadside fires includes;**
  - Detecting incidents involving vehicle/roadside fires
  - Notifying TMC dispatch/Fire Dept.
  - Extinguishing **small fires** before they grow & spread
  - Deploying emergency traffic control (ETC) to keep motorists away from smoke & fire
- **When arriving on-scene of vehicle/roadside fires;**
  - Watch for other responders & DO NOT drive over fire hoses
  - If IMAP is 1st to arrive, leave enough room for Fire Dept. to park
  - Park where fire will NOT reach truck if fire continues to spread
  - Notify TMC/Fire Dept. BEFORE exiting vehicle
- **Assess the scene from a distance & use caution**
  - If possible, position upwind to avoid flames & fumes
  - Determine what is burning & what fire hazards are nearby
  - Clear area of bystanders – tell motorist to exit burning vehicle (if able)
  - Remember that vehicles on fire can explode at any time
  - WHITE clouds = overheated vehicle | BLACK clouds = vehicle fire
  - Overheated engines = steam dissipates quickly | Smoke from fire – does not dissipates quickly
- **Use the right fire extinguisher for the job**
  - **Use ABC extinguisher for vehicle fires** – Volkswagen engine blocks are made of magnesium & may explode if sprayed with water
  - **Use Water extinguisher for roadside fires**
  - Use medium extinguisher to put fire out & use small extinguisher for embers & hotspots
- **If the fire is too large;**
  - Call TMC dispatch/Fire Dept. immediately
  - Deploy ETC to keep motorists away from flames & smoke
  - Divert traffic to an exit if flames are too large to drive past safely

Vehicle & Roadside Fire Response Process:

Objective: Review basic steps & instructions for responding to vehicle/roadside fires

VEHICLE FIRES:

1. Put on appropriate PPE (i.e. reflective vest, work gloves & safety glasses) & notify TMC/Fire Dept. before exiting IMAP truck
2. Inspect under, around, and inside vehicle – If passengers are still in the vehicle, tell them to get out (use PA system if necessary)
3. Determine if fire is small enough for IMAP to handle
    a. YES – Proceed to step 4
    b. NO – Deploy emergency. traffic control (ETC) until Fire Dept. arrives
4. Retrieve medium & small ABC extinguisher & clear area of bystanders
5. If a trailer is on fire, use extinguisher to put out as much of the fire as possible before telling motorist to disconnect & pull away from the trailer
6. If fire is coming from under the vehicle's hood;
    a. Pull the hood latch from inside the vehicle (if able)
    b. DO NOT raise hood fully – could cause major flare up
    c. Aim extinguisher into opening & spray into engine compartment
    d. Allow chemicals to settle then raise hood to put out remaining hot spots
7. Inspect nearby area and/or vehicle's cargo area for embers that may reignite
8. Use small extinguisher to put out any remaining embers or hot spots
9. Deploy/adjust ETC as needed until lanes are open & incident is clear

ROADSIDE FIRES:

1. Put on appropriate PPE & notify TMC/Fire Dept. before exiting IMAP truck
2. Determine if fire is small enough for IMAP to handle
    a. YES – Proceed to step 3
    b. NO – Deploy ETC until Fire Dept. arrives
3. Retrieve water extinguisher & clear area of any bystanders
4. Spray water at base of fire until fire is out and ground nearby is thoroughly soaked with water
5. Inspect grass & trees nearby for embers that may reignite
6. Spray water on any remaining embers or hot spots until all are put out
7. Deploy/adjust ETC as needed until lanes are open & incident is clear

Description:

Become familiar with the guidelines & processes related to HazMat response as well as IMAP's use of the Emergency Response Guidebook (ERG).

Objectives:

- Learn about HazMat operations & define IMAP's role in HazMat response
- Become familiar with hazardous materials involved in HazMat incidents
- Explore different methods for identifying hazardous materials
- Learn about the primary guidelines for responding to HazMat incidents
- Become familiar with the ERG and how to use it at HazMat incidents

Audience: IMAP Responders

Duration of Training: 3 hours

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol

Introduction to HazMat Operations:

Objective: Learn about HazMat operations & define IMAP's role in HazMat response.

Critical Knowledge:

- For the purpose of clarity, **Hazardous Materials (HazMat)** will refer to materials/circumstances where the following are immediately at risk;
  - Destruction of equipment or property
  - Contamination of surrounding area or water sources
  - Severe injury or incapacitation
  - Death

- **HazMat Operations –** refers to the coordinated efforts of normal responders (e.g. law enforcement, IMAP, etc.) and crews with special equipment & training (e.g. HazMat crews) in response to incidents involving hazardous materials

- IMAP responders are NOT equipped or trained to handle or dispose of hazardous materials **– IMAP responders only have AWARENESS & DISTANCE to protect them in a HazMat situation**

- **IMAP's Role in HazMat Operations:**
  - Detecting HazMat incidents and, if safe, helping identify materials
  - Notifying TMC; TMC notifies local Fire Dept. to send HazMat crews
  - Deploying emergency. traffic control to keep motorists out of HazMat areas
  - Coordinating with responders & relaying info to TMC dispatch

- **Role of HazMat Crews in HazMat Operations:**
  - Bringing proper equipment & trained personnel to incident
  - Identifying specific hazardous materials & quantities involved
  - Containing, stablizing, and/or neutralizing hazardous materials
  - Disposing of hazardous substances and contaminated materials

Overview of Hazardous Materials:

Objective: Become familiar with hazardous materials involved in HazMat incidents.

Critical Knowledge:

- **Hazardous materials can be SOLIDS, LIQUIDS, or GASSES** and can be hazardous on their own or due to different circumstances
- **HazMat Classification –** all hazardous materials are grouped into the HazMat CLASSES below based on HOW they cause damage;
  - **CLASS 1: Explosives –** may produce high heat and/or destructive blasts/shockwaves
  - **CLASS 2: Compressed Gasses –** any pressurized gas which may be flammable, poisonous, or otherwise hazardous
  - **CLASS 3: Flammable Liquids –** may be easily ignited, burn quickly, or spread fire
  - **CLASS 4: Flammable Solids –** may ignite & burn easily or become flammable when exposed to water
  - **CLASS 5: Oxidizers/Organic Peroxides –** may react dangerously to oxygen or cause substances to become explosive
  - **CLASS 6: Poisons/Bio-Hazards –** may cause severe injury to people or animals if touched, consumed, or inhaled
  - **CLASS 7: Radioactive Materials –** may emit harmful radiation and cause other materials to become radioactive
  - **CLASS 8: Corrosives –** may dissolve organic tissue and/or inorganic material through direct contact
  - **CLASS 9: Miscellaneous –** used when multiple hazardous materials in the same HazMat CLASS are stored together
  - **DANGEROUS –** technically not a CLASS but is used when materials from different HazMat CLASSES are stored together
- Based on quantity, level of exposure, & other factors (e.g. wind direction) **all hazardous materials have specific response requirements** such as;
  - **Minimum safe distance** (a.k.a. Evacuation or Isolation area)
  - **Mandatory PPE** (e.g. gas masks & oxygen tanks)
  - **Method of neutralizing threat** (e.g. use foam extinguisher because material may explode if exposed to water)
  - **Method of containment & disposal** (e.g. lead-lined barrels)

Identifying Hazardous Materials (1 of 2):

Objective: Explore different methods for identifying hazardous materials

Critical Knowledge:

- In addition to HazMat CLASSES, **all hazardous materials are assigned an individual 4-digit ID #**
  - **Ex.** Sulfuric Acid (CLASS 8) = ID #: 1830
  - **Ex.** Lead Cyanide (CLASS 2) = ID #: 1620

- **When shipped or stored, hazardous materials can be identified by;**
  - Shipping documents kept in cab of transport vehicle or with driver
  - Placards on containers & vehicles carrying hazardous materials
  - Orange Panels on intermodal shipping containers (e.g. rail cars)

- **HazMat Placards** use colors and recognizable symbols to identify hazardous materials and may also provide the HazMat CLASS & ID #

FLAMMABLE

FLAMMABLE Liquid (CLASS 3)

FLAMMABLE Liquid (CLASS 3) **Jet Fuel** (ID #: 1863)

- **Orange HazMat Panels** display the 4-digit ID # beneath a hazard code (based on HazMat CLASS) which gives more info about the material

1st digit of Hazard Code is HazMat CLASS
(8 = Corrosive)

2nd digit, if same as 1st, indicates greater intensity
(88 = Stronger corrosive)

Different 2nd/3rd digit means additional hazard from other HazMat CLASS
(83 = Corrosive & flammable)

Identifying Hazardous Materials (2 of 2):

Objective: Explore different methods for identifying hazardous materials

Critical Knowledge:

- **HazMat Placards or Panels may NOT be available to identify a hazardous material –** other indicators of HazMat incidents include;
  - Damaged containers/vehicles that typically carry hazardous materials
  - Hissing or bubbling sounds (especially from HazMat containers)
  - Fumes, vapor, or smoke with or without an apparent ignition source
  - Unusual & often very distinct odors
  - Abnormally colored flames often including sparks
  - Collapsed bystanders who appear unconscious for no reason

- **Common HazMat Containers** include but are NOT limited to;

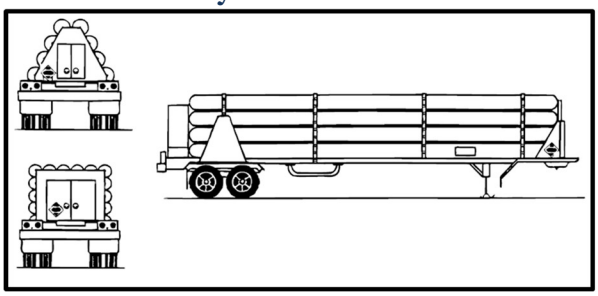
Gas Cylinders:

Metal Barrels:

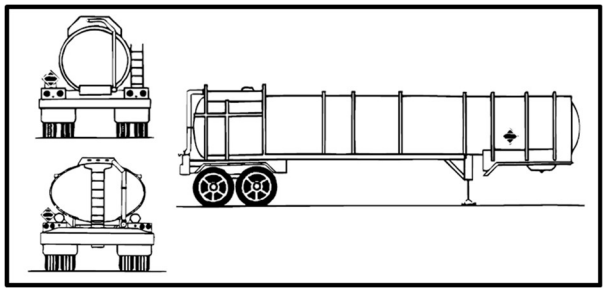
Red "Bio" Bags:

- **Common HazMat Transport Vehicles** include but are NOT limited to;

Gas Cylinder Trucks:



Tanker Trucks:



IMAP HazMat Response Guidelines:

Objective: Learn about the primary guidelines for responding to HazMat incidents

Critical Knowledge:

- **Assess the scene from a distance – DO NOT RUSH IN**
  - Stop approaching the moment you believe HazMat is involved
  - Park as far away as possible without losing sight of incident
  - If possible, park upwind and/or uphill from the incident
  - Use binoculars to search for placards or other signs of HazMat, **OR**
  - Contact TMC to use CCTV cameras to identify HazMat, **OR**
  - If safe to access, use shipping documents to identify HazMat
  - Relay observations to TMC to notify Fire Dept. and contact IMAP supervisor

- **IMAP responders should back away & call for help immediately** if they experience any of the following near a potential HazMat scene;
  - Sudden, unexplained dizziness, blurred vision, or nausea
  - Severe irritation wherever skin is exposed
  - Burning or stinging sensation in the eyes, nose or throat

- Refer to the **Emergency Response Guidebook (ERG)** to determine;
  - What hazardous materials are involved
  - How hazardous materials cause damage (e.g. inhalation, etc.)
  - Minimum safe distance to avoid harmful exposure

- **Once HazMat is confirmed, IMAP responders should;**
  - Make sure that HazMat crews are en route
  - Reposition to a location OUTSIDE of minimum safe distance, **OR**
  - Assemble with other responders at incident command post
  - Coordinate with Incident Commander (IC) from Fire Dept./HazMat crew & IMAP supervisor to plan next actions

- **Deploy Emergency Traffic Control (ETC) to keep motorists away**
  - Notify TMC to activate DMS to warn motorists if possible
  - Deploy ETC to divert traffic to exit outside of min. safe distance
  - Coordinate with responders & TMC to identify a detour route that does NOT travel through any part of HazMat area
  - Adjust ETC as needed to divert traffic away from HazMat area

How to Use the Emergency Response Guidebook (ERG):

Objective: Become familiar with the ERG and how to use it at HazMat incidents

Critical Knowledge:

- **Emergency Response Guidebook (ERG) –** a guide responders use to identify hazardous materials & find other info to assist HazMat response efforts & protect from exposure. **IMAP responders should;**
  - **Keep a copy of ERG in the IMAP truck at all times**
  - Be familiar with the ERG & know how to use it properly

- **Sections of the ERG:**
  - **WHITE Pages –** explain how to use the ERG & provide other useful info related to general HazMat knowledge & terminology
  - **YELLOW Pages –** list hazardous materials in **numerical order** by their 4-digit ID # & give the response guide # for that material
  - **BLUE Pages –** list hazardous materials in **alphabetical order** by the material's name & give the response guide # for that material
  - **ORANGE Pages –** contains **Response Guides** that describe the response requirements for different types of hazardous materials
  - **GREEN Pages –** provide additional info & response requirements for materials considered as **Toxic Inhalation Hazards (TIH).** Any material in ERG highlighted green is considered a TIH

- IMAP responders can find the appropriate **Response Guide (orange pages)** if they know the hazardous material's;
  - **Name** – turn to blue pages, look up material's name, find the 3-digit Response Guide #, then turn to guide in the orange pages
  - **ID # –** turn to yellow pages, look up material's ID #, find the 3-digit Response Guide #, then turn to guide in the orange pages

- **If the material's name or ID # is unknown,** IMAP responders should refer to the following Response Guides for initial guidance;
  - **Guide # 111 –** for mixed loads/unidentified hazardous cargo
  - **Guide # 112 –** for any cargo believed to be explosive (Guide # 114 may be used but ONLY if explosion hazard is known to be minor)
  - **Once material is confirmed, identify appropriate Response Guide and modify response**

Description:

Become familiar with the concepts, guidelines & processes for reporting adverse weather conditions and basic weather response activities

Objectives:

- Learn about the primary concepts related to adverse weather impacts and guidelines for reporting conditions
- Become familiar with the basic adverse weather response activities performed by IMAP Responders

Audience: IMAP Responders

Duration of Training: 1 hour

Prerequisite Knowledge: Before participating in this course, trainees should complete the following courses and review supporting documents;

- IMAP Standard Operating Procedures (SOP)
- VE-100: Personal Protective Equipment (PPE)
- VE-101: IMAP Vehicle & Maintenance
- VE-102: IMAP Equipment Specifics
- VE-103: Radio Hardware & Dispatch Protocol
- VE-104: Driving Techniques
- ETC-100: Vehicle Positioning & Responder Approach
- ETC-101: Emergency Traffic Control (ETC) Techniques
- ETC-102: Temporary Lane Closures

Adverse Weather Impacts & Reporting Conditions

Objective: Learn about the primary concepts related to adverse weather impacts and guidelines for reporting conditions

Critical Knowledge:

- **Dense Fog –** significantly limits visibility causing traffic to reduce speed which can increase congestion and likelihood of rear end crashes
- **Heavy Rain –** significantly limits visibility causing congestion and other impacts including;
  - Standing Water/Flooding – can cause vehicles to spin-out/hydroplane
  - Washouts/Mudslides – wet soil can let mud, rocks or trees fall in road
- **High Winds –** strong wind gusts can blow debris into roadway, knock down road signs or traffic signals, and can even disrupt travel of high-profile vehicles (i.e. commercial vehicles with large, broad sides)
- **Snow/Ice –** can limit visibility but mostly impacts road by creating slick conditions due to icy patches. Other characteristics/impacts include;
  - Longer stopping distance due to ice can increase rear-end crashes
  - Icy patches (especially black ice) increase crashes due to spin-outs
  - Bridges, ramps & overpasses are often slicker than regular roadway
- **TMC Reporting Conditions to IMAP –** When TMC receives alerts from the National Weather Service (NWS), TMC dispatch will;
  - Contact all IMAP units over the radio to report conditions
  - Broadcast the type of weather warning/watch and the timeframe
  - **IMAP ceases outdoor operations** when sustained wind speeds are 35+mph
- **IMAP Reporting Conditions to TMC –** Responders should relay the following to TMC dispatch when weather impacts are observed;
  - Location where travel conditions/poperty damage has occurred
  - WHAT is affecting travel (e.g. Fog) & HOW (e.g. causing congestion)
  - Extent of impact/lanes affected, if any (e.g. 30ft ice patch in lane #1)
  - Info on any DOT property damage (e.g. sign for Exit 17 blown over)
  - Periodic status updates – have conditions gotten worse or better?

Basic Adverse Weather Response Activities:

Objective: Become familiar with the basic adverse weather response activities performed by IMAP Responders.

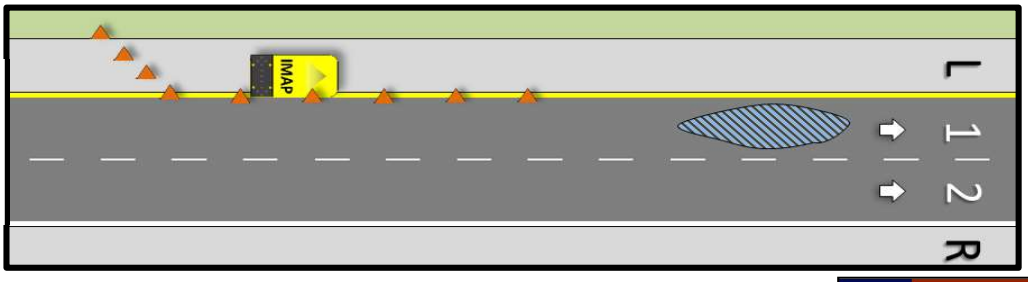
Critical Knowledge:

- **TMC Response Overview –** TMC operators/dispatch perform a variety of tasks in response to adverse weather including;
  - Coordinate with DOT Maintenance to remove, treat, or repair specific weather impacts such as icy patches or fallen trees
  - Activate DMS to warn motorists of unsafe travel conditions/closures

- **IMAP On-Scene Response** – some weather impacts can be resolved by IMAP Responders quickly rather than waiting for DOT maintenance
  - **Standing Water**: Often caused by clogged drains which IMAP Responders can unclog by using a shovel to remove the blockage
  - **Fallen/Almost Fallen Tree Limbs**: Often leaning against the guardrail and impacting travel lanes, IMAP Responders can proactively remove/pull down small to medium-sized limbs

- **Emerg. Traffic Control (ETC) Response –** Responders should use appropriate ETC measures when travel lanes are directly impacted by adverse weather
  - **When impacts PREVENT safe travel in lane(s)**: Follow same guidelines for lane closures as used for any lane-blocking incident
  - **When impacts REDUCE safe travel in lane(s)**: Position IMAP truck on shoulder upstream from impact and activate CAUTION display on arrow board to reduce traffic speeds
  - **For TREATED ice patches** (i.e. covered with salt or sand): Position on edgeline of shoulder, activate CAUTION display on arrow board, and deploy cones to narrow affected lane to reduce traffic speed – ice treatment is most effective when vehicles continue to travel over it

Example of IMAP truck in position upstream from a treated ice patch



Description:

The forms & checklists within this document are designed to provide structure to on-the-job training (OJT) activities and to assure that the trainee's OJT experience is valuable & well-rounded.

Forms & Checklists Included in this Document:

- **IMAP Ride Along**
  - **Daily Summary** – a summary of each Ride Along day including duration, routes patrolled, and lessons learned during the Ride Along
  - **Equipment Checklist** – assures that trainee has seen & used all IMAP equipment in the real world
  - **Tasks & Services Checklist** – assures that trainee gains real-world experience by observing & performing fundamental IMAP tasks alongside their instructor
- **TMC/STOC Shadow**
  - **Summary & Incident Checklist –** a summary of each day shadowing operators and a checklist to assure trainee learns how operators respond to various incidents
  - **Tools & Tasks Checklist –** assures that trainee learns about the critical tools used at the TMC/STOC and gains hands-on experience with those tools

Instructions:

1. BEFORE training begins, make sure that your instructor has provided the following.
   a. **IMAP Field Training Manual (FTM)** (only required for NEW employees)
   b. **All IMAP SOPs** (NEW employees must read all SOPs before training concludes)
   c. **OJT Checklists** (this document – to be completed by trainee during OJT)
2. Bring the checklists with you and keep them safe and up to date throughout OJT
   a. Trainees are expected to complete all checklist items for OJT assigned to them
   b. If checklists are lost or NOT completed, trainee may have to repeat some/all OJT
3. As you observe or perform the checklist items, fill in the information requested for each (including Instructor/Operator initials) to confirm that the OJT item has been completed
4. Discuss incomplete checklist items with your instructor so they can help you complete any outstanding items
5. When training is complete, submit your OJT Checklists to your instructor – make sure to receive a copy of your OJT checklist for your records

IMAP Ride Along – Daily Summary:

Daily Ride Along Summary Summarize each Ride Along day using the form below. For each day, write in at least ONE lesson learned.				
RIDE ALONG DATE:	**START TIME:**	**END TIME:**	**ROUTES PATROLLED:**	**LESSON LEARNED DURING RIDE ALONG:**

Trainee Name: _____ **Instructor Name:** _____

IMAP Ride Along – Equipment Checklist (1 of 2):

IMAP Equipment Used/Observed in Use during Ride Along Enter date when item was used/observed during OJT. Asterisk (*) indicates required number of occurrences						
EQUIPMENT:	**DATE 1:**	**DATE 2:**	**DATE 3:**	**DATE 4:**	**DATE 5:**	**OTHER EQUIPMENT USED:**
All IMAP PPE	*	*	*	*	*	
Fire Extinguisher	*					
Traffic Cones	*	*	*			
Flares	*	*				
Rolling Jack	*	*	*			
Jack Stands	*	*	*			
Impact Wrench	*	*	*			
Battery Chargers	*	*	*			
Wheel Chocks	*	*	*			
Air Compressor & Hose	*	*				
Tire Inflator & Pressure Gauge	*	*				
Jumper Cables	*	*				
Jump Box	*	*				
Fuel Cans	*	*	*	*	*	
Funnel	*	*	*	*	*	

Trainee Name: _____ **Instructor Name:** _____

IMAP Ride Along – Equipment Checklist (2 of 2):

IMAP Equipment Used/Observed in Use during Ride Along Enter date when item was used/observed during OJT. Asterisk (*) indicates required number of occurrences						
EQUIPMENT:	**DATE 1:**	**DATE 2:**	**DATE 3:**	**DATE 4:**	**DATE 5:**	**OTHER EQUIPMENT USED:**
Quick Dry	*	*				
Push Broom	*	*				
Water Cans	*	*	*			
Work Light on IMAP Truck	*	*				
VIPER Handheld Radio	*	*	*	*	*	
VIPER Radio in IMAP Truck	*	*	*	*	*	
Direct Connect / Other Radios	*	*	*			
IMAP Truck's PA System & Loud Speaker	*	*	*			
Air Horn	*	*	*	*		
All Emergency Lights on IMAP Truck	*	*	*	*	*	
Arrow Board	*	*	*	*	*	
Push Bumper	*	*				
Front / Rear Winch	*	*				
Hooks, Chains, & Tow Straps	*	*				
Clevis Shackles & Other Chain Connectors	*	*				

Trainee Name: _____ **Instructor Name:** _____

IMAP Ride Along – Tasks & Services Checklist (1 of 2):

IMAP Tasks & Services Performed/Observed during Ride Along Enter date when task was performed/observed during OJT. Asterisk (*) indicates required number of occurrences. IMAP instructor must initial tasks performed by trainee to indicate task was performed properly.					
TASKS & SERVICES:	**DATE OBSERVED:**	**DATE OBSERVED:**	**DATE PERFORMED:**	**DATE PERFORMED:**	**INSTRUCTOR INITIALS:**
Daily Vehicle & Equipment Inspection	*	*	*	*	
Refueled IMAP Truck & Refilled Fuel Cans	*	*	*	*	
Washed IMAP Truck			*		
Drove IMAP Truck on Patrol Route	*	*	*	*	
Detected an Incident while on Patrol Route	*	*	*	*	
Reported Incident to TMC/STOC on Radio	*	*	*	*	
Received Incident Report from TMC/STOC on Radio	*	*	*	*	
Communicated with Law Enforcement on Radio	*	*	*		
Positioned IMAP Truck on Highway Shoulder	*	*	*	*	
Positioned IMAP Truck in Highway Travel Lane	*	*	*		
Performed Emerg. Rolling Roadblock with Backup	*		*		
Used Traffic Cones to Close a Travel Lane	*		*		
Removed Traffic Cones to Reopen a Travel Lane	*		*		
Provided Advance Warning for a Lane Closing Incident	*		*		

Trainee Name: _____ **Instructor Name:** _____

IMAP Ride Along – Tasks & Services Checklist (2 of 2):

IMAP Tasks & Services Performed/Observed during Ride Along
Enter date when task was performed/observed during OJT. Asterisk (*) indicates required number of occurrences. IMAP instructor must initial tasks performed by trainee to indicate task was performed properly.

TASKS & SERVICES:	DATE OBSERVED:	DATE OBSERVED:	DATE PERFORMED:	DATE PERFORMED:	INSTRUCTOR INITIALS:
Tagged an Abandoned Vehicle	*	*	*	*	
Provided Fuel to a Stranded Motorist	*	*	*	*	
Dispensed Quick Dry	*		*		
Changed/Inflated a Flat Tire on a Disabled Vehicle	*	*	*	*	
Jumpstarted a Disabled Vehicle	*		*		
Assisted Motorist with an Overheated Vehicle	*		*		
Transported a Stranded Motorist	*				
Removed Debris from a Travel Lane	*	*	*		
Pushed, Pulled, Dragged or Up-Righted a Vehicle	*		*		
Met with Local Law Enforcement at Crash Scene	*	*	*		
Met with Highway Patrol at Crash Scene	*	*	*		
Met with Local Fire Department at Crash Scene	*	*	*		
Met with other DOT Responders at Crash Scene	*	*	*		
Met with Towing & Recovery at Crash Scene	*	*	*		

Trainee Name: _____ **Instructor Name:** _____

TMC/STOC Shadow – Summary & Incident Checklist:

TMC/STOC Operator Assignment & Daily Summary
Summarize each day you shadowed operators at the TMC/STOC using the form below. For each day, write in at least ONE lesson learned and ONE question to ask instructor during the next day of training.

OPERATOR NAME:	SHADOW DATE:	START TIME:	END TIME:	POSITIONS SHADOWED:	LESSON LEARNED & INSTRUCTOR QUESTIONS
ADDITIONAL NAMES:	**DATES:**	**START:**	**END:**	**POSITIONS:**	**LESSONS & QUESTIONS:**

Incidents Observed while Shadowing TMC/STOC Operators
Use the form below to record details of incidents you observe while shadowing including operator response activities.

INCIDENT TYPE:	DATE:	LOCATION:	# LANES BLOCKED:	QUEUE LENGTH:	DESCRIPTION OF TMC RESPONSE ACTIVITIES:
Minor Crash					
Major Crash					
Disabled / Abandoned Vehicle					
Debris Removal					
OTHER INCIDENTS:	**DATES:**	**LOCATIONS:**	**LANES:**	**QUEUES:**	**RESPONSE ACTIVITIES:**

Trainee Name: _____ **Instructor Name:** _____

TMC/STOC Shadow – Tools & Tasks Checklist:

TMC/STOC Tools Observed/Used while Shadowing Operators
Ask each operator to explain their duties and demonstrate the tools they use. Use the form below to describe how the tools are used. Operator must initial tasks performed by trainee to indicate task was performed properly.

NAME OF TOOL:	HOW IS TOOL USED?	IMAP HANDS-ON TASK:	OPERATOR INITIALS:
Traveler Information Management System (TIMS)		Enter & Timeout a LOW Impact TIMS Incident	
TIMS - SHP CAD Feed		Find an Incident for a Different IMAP Region	
INRIX Congestion Map		Find the Total Length of a Queue Caused by a Crash	
Google Maps (or similar)		Plan a Detour Route for an Example Interstate Closure	
National Weather Service (NWS) Website		Find any Active NWS Alerts for your Region	
VIPER Radio		Receive & Relay Incident Info to IMAP Drivers	
IMAP Dispatch Log		Enter an IMAP Stop as it is Called into TMC Dispatch	
CCTV Traffic Cameras		Use CCTV Controls to Pan, Tilt, & Zoom a Camera	
Monitor Wall		Select a Monitor & Change the Camera it is Displaying	
Dynamic Message Signs (DMS)		Activate & Deactivate a DMS Test/Safety Message	
OTHER TOOLS:	USES:	HANDS-ON TASKS:	INITIALS:

Trainee Name: _____ **Instructor Name:** _____

Trainee Notes

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Incident Management Assistance Patrol

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