1 Status

1.1 Update of existing policy, effective 11/18/11.

2 Purpose

2.1 To establish traffic control plans which provide the best protection for team members exposed to the hazards of working around vehicle traffic involving the traveling public.

3 Applicability

3.1 This policy applies to all subsidiary companies and departments of the Cianbro Companies.

3.2 All organizations are required to comply with the provisions of this policy and procedure.

4 Definitions


4.2 Attenuator: An impact attenuator, also known as a crash cushion or crash attenuator, is a device intended to absorb the energy of a crash. Types of attenuators include a plastic barrel filled with sand, usually yellow colored with a black lid or truck mounted versions which can be deployed on vehicles that are prone to being struck from behind, such as road construction or maintenance vehicles.

4.3 MUTCD (Manual of Uniform Traffic Control Devices): The MUTCD contains the national standards governing all traffic control devices. All public agencies across the nation rely on the MUTCD to bring uniformity to the roadway. The MUTCD plays a critical role in improving safety and mobility of all road users. The MUTCD is the law governing all traffic control devices. Non-compliance of the MUTCD ultimately can result in loss of federal-aid funds. The current edition is dated 2003 and is in the process of changes to be published sometime in 2009.

4.4 Temporary Traffic Control Zone (TTCZ): An area of a highway where road user conditions are changed because of a work zone or incident by the use of temporary traffic control devices, flaggers, uniformed law enforcement officers, or other authorized personnel.

4.5 Traffic Control: Traffic control is a process of advising motorist of requirements or conditions affecting road use at specific places so that proper action may be taken and accidents or delays avoided. Work site traffic control applies to maintenance and construction requirements or other special temporary conditions affecting road use at specific places and times.
4.6 Traffic Control Device (TCD): A sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or shared-use path by authority of a public agency having jurisdiction. They are used to regulate, warn, and guide motorist and pedestrians through or around the work site safely, efficiently and satisfy the following requirements:
- Fulfill a need
- Command attention
- Convey a clear and simple meaning
- Command respect of road users
- Permit adequate time for response

4.7 Traffic Control Plan (TCP): A traffic control plan is a plan for handling traffic through a specific highway, street work zone or project. These plans may range in scope from a very detailed TCP designed solely for a specific project, to a reference to standard plans, a section of the manual on uniform traffic control devices (MUTCD), or a standard highway agency manual. The degree of detail in the TCP will depend on the project complexity and traffic interference with construction activity.

4.8 Traffic Control Zone (TCZ): A traffic control zone is the entire area of the roadway which encompasses all traffic control devices used to regulate, warn or guide motorists’ behavior. Such a zone must be inspected after the traffic control plan has been implemented to insure that the zone has not unexpectedly expanded to include other streets adjacent to the zone.

4.9 Variable Message Sign (VMS) or Changeable Message Sign: A sign that is capable of displaying more than one message, change manually, by remote control, or by automatic control. Normally, these signs are trailerable, powered by either a gasoline or diesel engine or by batteries using solar panels. They are generally used to display changes in traffic conditions or for announcements.

4.10 Work Zone: The area itself that is set apart and delineated for use by workers to include the machinery and supplies needed to perform the immediate operation.

5 Policy

5.1 All work in vehicular traffic zones shall be performed behind physical barriers.

6 Responsibilities

6.1 Cianbro is responsible to provide sound principles of safety, training, inspection, maintenance, application and operations consistent with all resource data available from the manufacturer, OSHA and ANSI.

6.2 Project Management is responsible for the implementation and execution of these standards.

6.3 The safety of all personnel in and around the vehicles is dependent on safe use and operation by the operator.

6.4 The Corporate Safety Officer or designee is responsible for providing approval for deviations from this policy.

6.5 The top Cianbro manager of the job site is responsible for the implementation of this policy on the project.

6.6 The corporate safety department is responsible for maintaining this document.
7 Work Zone Traffic Control

7.1 Project Specific Traffic Control Plan

Project specific traffic control plans shall provide the best protection for the:
- Work force
- Motorist (traveling public)
- Pedestrians
- Equipment
- Facilities
- Emergency Personnel

7.2 Traffic Control Plan

- Site specific written traffic control plans shall be developed for all work activities which involve working within 15’ from the outside shoulder edge of all public and private ways where the traveling public are driving vehicles. These plans may be incorporated into Cianbro’s activity plans or on a separate attachment. The plan must be specific, to address all hazards and should include drawings which detail locations of traffic control devices, controlled access ways, team member/equipment parking, etc. Site specific traffic control plans should be owner approved, per the written contract, if applicable.
- Work zone traffic control plans developed shall at a minimum follow the guidelines developed in part VI of the Manual on Uniform Traffic Control Devices (MUTCD) and any applicable state or local standards.
- A competent individual at each work location shall be identified in all plans and be responsible to ensure plans are established, followed and maintained for the duration of the work being performed.

7.2.1 Police support - Police support, when possible, will be used to set up traffic control systems/devices and will be present during time of ongoing and/or special hazard sensitive situations if determined by the competent person responsible for plan approvals. It is especially important that police support is provided when establishing significant/major long-term traffic control pattern changes with barriers and devices.

7.2.2 Competent/Certified person – All traffic control plans shall be reviewed and approved by competent/certified person prior to the start of the activities. All plan changes will also require the review and approval by the ATSSA trained supervisor.

7.3 Work Site Vehicle Use

7.3.1 Barrier vehicles
Specially equipped Cianbro vehicles (rack truck, or other truck) will be used as a barrier between on coming traffic and workers when other solid mass type barrier devices are not feasible. Vehicles should be offset at least four feet from workers into traffic. Trucks equipped with attenuators in excessive speed zone areas, will have flashing arrow boards, traffic control checklist for reference, storage compartment for traffic vests, etc. and a supply of traffic cones in the back bed of the truck. The style type and size of the attenuators used shall be specified for the posted traffic speed. Depending on the traffic control plan (TCP) some truck mounted attenuators (TMA) require that the driver must have a CDL license. Drivers and passengers shall exit and enter the vehicle from the
opposite side of moving traffic. When possible, use trucks having a crew cab so that both doors on the opposite side of traffic is used to expedite traffic setups and pick up of traffic control (personal and work crews). Wheel chocks shall be positioned under the curbside wheels when needed. Avoid working from the rear of traffic control truck when setting out or picking up the traffic control devices.

7.3.2 Personal vehicles
- The use of team member personal vehicles must be restricted as much as possible. Off road parking areas should be identified and included in activity plans and areas located such that team members are not required to walk across traffic to access work areas. Should it be absolutely necessary to use personal vehicles as a last resort they must be pulled off the roadway as far as possible into the shoulders, put flashers on, turn vehicle off, in gear, with brakes on. Exit/enter vehicle on shoulder side when possible or skew so that no part of the open door is in the traffic lane. Immediately utilize the provided barrier protection devices in the work areas.
- Multiple lane closures may require more specific planning considerations of these issues for the safest alternatives.

7.4 Roadway Crossing for Workers (TM)s
- When no other options are feasible and team members (other workers, visitors, owner reps etc.) have to cross an active roadway, as few as necessary designated crossing points shall be identified and used. Crosswalk striping of roadway done, flashing lights placed at both sides of the road at the entry of the crosswalk with buttons/switches that can be activated as needed before crossing whenever possible. Signs posted for crosswalk. Only cross road when there is significant time to safely walk across the road. A distance marker/post can be out to estimate oncoming vehicle speed for safe crossing.
- State, federal or local jurisdiction approval may be required to establish specific crosswalks for workers.

7.5 Flaggers
The use of flaggers is prohibited unless approved by the competent/certified person in the control of slow moving traffic only, as defined in the (M.U.T.C.D). In addition, flaggers must be protected by barriers if it is feasible. All flaggers must be trained in accordance with M.U.T.C.D. standards or state required laws. Some owner/client contracts may call for the use of flaggers in those cases alternative measures should still be considered if feasible, and changed with the owner's approval. Cianbro prefers to use subcontractors who specialize in traffic control when possible rather than Cianbro team members.

7.6 Training
7.6.1 ATSSA trained supervisor
ATSSA trained supervisor shall have more than two years experience and be certified by the American Traffic Safety Services Association (ATSSA) or equivalent certifying body.

7.6.2 Project competent person
Competent person designated to develop traffic control plans, establish traffic control patterns and monitor operations may or may not be the safety specialist, but someone who has the knowledge of traffic control processes experience, training and the ability to recognize hazardous conditions and has the authority to take corrective actions.

7.6.3 Truck/vehicle drivers
- All Cianbro classified truck drivers shall receive site specific traffic control training in routing driving operations in and around traffic control zones.
- Other truck/vehicle drivers assigned to operate at a project in traffic control zones shall receive a minimum of 2 hours of job specific traffic control training.
7.6.4 Project team member training
All Cianbro team members who are required to work in and around traffic control zones shall receive site specific training. This training must be updated when conditions change and include as a minimum those hazards identified in activity plans and site specific traffic control documents.

7.6.5 Other training
- Project management shall ensure that all subcontractors and other persons working or present in a traffic control zone/work areas are given traffic control awareness training specific to their jobsite.
- General traffic control training will be incorporated into Cianbro’s regular training programs like the 30 hours OSHA outreach program.

8 Budget / Approval Process

8.1 It is the responsibility of each jobsite to procure and provide all materials and PPE required and provide necessary training.

9 Related Documents and References

9.1 See attachments for related documents

9.2 Related References
- American Association of State Highways and Transportation Officials (AASHTO)
- Institute of Transportation Engineers (ITE)
- Standard Highways Signs (SHS) 2004
  Electronic Version from FHWA on the MUTCD Web site (see 9.3)
  Hard Copy Version from ATSSA (see 9.8)
- Federal Highway Administration (FHWA)
  (Offer classes in Traffic Control Supervision Certifications and Flagger Certification)
- U.S. Road Symbol Signs; Publication No. FHWA- OP- 02- 084
- Highlights of Major Changes to the 2003 MUTCD Publication No. FHWA-HOP- 4- 042
- Quality Standards for Work Zone Traffic Control Devices – (Contact ATSSA)
### Suggested Guidelines for TMA Barrier Vehicle Placement

<table>
<thead>
<tr>
<th>Speed M.P.H.</th>
<th>Min. Distance from TMA to work area</th>
<th>Max. Distance on Tangents</th>
<th>Max. Curves</th>
<th>Max. On/Off Ramp Areas</th>
<th>Max. Traffic Back Up Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>35'</td>
<td>50'</td>
<td>45'</td>
<td>40'</td>
<td>25'</td>
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<td>80'</td>
<td>70'</td>
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<td>90'</td>
<td>80'</td>
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<td>45'</td>
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<tr>
<td>50*</td>
<td>75' *</td>
<td>100' *</td>
<td>90' *</td>
<td>90' *</td>
<td>50' *</td>
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<td>75'</td>
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<tr>
<td>80</td>
<td>100'</td>
<td>160'</td>
<td>110'</td>
<td>110'</td>
<td>80'</td>
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</tbody>
</table>

**Notes:**

1. * For Speeds 50 mph or greater it is recommended that a second traffic control vehicle is placed after the crew working in front of the TMA to keep traffic from entering the work area once they pass the TMA. The number and spacing of traffic cones or barrels between the TMA barrier vehicle thru the work area to the second traffic control vehicle should be doubled this will also help prevent vehicles from entering the work area.

2. This Guideline is for TMA Barrier Vehicles weighting 24,000 lbs. or more.

3. While working in the areas where there are On/Off Ramps special care needs to be taken. The distance from the TMA to the work area may need to shorten because of vehicles trying to cross in front of the TMA and thru the work area to reach the Off Ramp or enter from an On Ramp. Cone and Barrel spacing should be closer in the On/Off Ramp areas.

4. Traffic back ups may occur, when this happens it may be necessary to shorten the distance from the TMA to the work area and add more cones or barrels to tighten up the space between them to prevent vehicles from entering the work area.
### 9.2 Appendix B

#### Computed Roll-Ahead Distances for Protective Vehicles

<table>
<thead>
<tr>
<th>Vehicle Weight (lb)</th>
<th>Prevailing Speed (mph)</th>
<th>Weight of Impacted Vehicle to be Contained (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4,500 lb (in ft) 10,000 lb (in ft, [c]) 15000 lb(in ft) 24,000 lb(in ft)</td>
</tr>
<tr>
<td><strong>Protection Moving Vehicle</strong></td>
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<td></td>
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<tr>
<td>10,000</td>
<td>60-65</td>
<td>100</td>
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<tr>
<td></td>
<td>50-55</td>
<td>100</td>
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<tr>
<td></td>
<td>45 or less</td>
<td>75</td>
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<tr>
<td>15,000</td>
<td>60-65</td>
<td>75</td>
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<tr>
<td></td>
<td>50-55</td>
<td>75</td>
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<tr>
<td></td>
<td>45 or less</td>
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<tr>
<td>24,000</td>
<td>60-65</td>
<td>75</td>
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<tr>
<td></td>
<td>50-55</td>
<td>50</td>
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<tr>
<td></td>
<td>45 or less</td>
<td>50</td>
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<tr>
<td><strong>Barrier Vehicle (Stationary)</strong></td>
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<td></td>
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<tr>
<td>10,000</td>
<td>60-65</td>
<td>50</td>
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<td></td>
<td>60-66</td>
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<td>24,000</td>
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<td>25</td>
</tr>
<tr>
<td></td>
<td>45 or less</td>
<td>25</td>
</tr>
</tbody>
</table>

**Notes:**

[A] Weights of typical vehicles: mid-size auto, 2,250 lb; full-size auto, 3,500 lb; loaded ¾ ton pickup truck, 6,000 lb; loaded 1 ton cargo truck, 10,000 lb; loaded 4 yard dump truck 24,000 lb.

[B] Distances are appropriate for shadow vehicle speeds up to 15 mph.

[C] Values suggested as the appropriate buffer distance for vehicles equipped with TMA’s.

**Sources:**

9.3 Appendix C

Flagger Control

Qualifications for Flaggers: Most states require a flagger to be certified. Look into what is required for your project.

A flagger shall be a person who provides Temporary Traffic Control (TTC).

Guidance: Because flaggers are responsible for public safety and make the greatest number of contacts with the public of all highway workers, they should be trained in safe traffic control practices and public contact techniques. Flaggers should be able to satisfactorily demonstrate the following abilities:

A. Ability to receive and communicate specific instructions clearly, firmly, and courteously;

B. Ability to move and maneuver quickly in order to avoid danger from errant vehicles;

C. Ability to control signaling devices (such as paddles and flags) in order to provide clear and positive guidance to drivers approaching a TTC zone in frequently changing situations;

D. Ability to understand and apply safe traffic control practices, sometimes in stressful or emergency situations; and

E. Ability to recognize dangerous traffic situations and warn workers in sufficient time to avoid injury.
Use of Hand-Signaling Devices by Flaggers

Preferred Method
Stop/Slow Paddle

To stop traffic

To let traffic proceed

To alert and slow traffic

Signaling with Paddles

A. To stop road users, the flagger shall face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.

B. To direct stopped road users to proceed, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger shall motion with the free hand for road users to proceed.

C. To alert or slow traffic, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body.

   Option: To further alert or slow traffic, the flagger holding the SLOW paddle face toward road users may motion up and down with the free hand, palm down.
Note: Signaling with a Flag is not allowed by Cianbro. A stop/slow paddle must be used.

Flagger Stations: Flagger stations shall be located such that approaching road users will have sufficient distance to stop at an intended stopping point.

### Stopping Sight Distance as a Function of Speed

<table>
<thead>
<tr>
<th>Speed* (mph)</th>
<th>Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>115</td>
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<tr>
<td>25</td>
<td>155</td>
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<td>70</td>
<td>730</td>
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<tr>
<td>75</td>
<td>820</td>
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</tbody>
</table>

Standard:
* Except in emergency situations, flagger stations shall be preceded by an advance warning sign.

* Except in emergency situations, flagger stations shall be illuminated at night.

Guidance:
The flagger should stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users. Whenever feasible a barrier must be provided. A flagger should only stand in the lane being used by moving road users after road users have stopped. The flagger should be clearly visible to the first approaching road user at all times. The flagger also should be visible to other road users. The flagger should be stationed sufficiently in advance of the workers to warn them (for example, with audible warning devices such as horns or whistles) of approaching danger by out-of-control vehicles. The flagger should stand alone, never permitting a group of workers to congregate around the flagger station.

Option:
At a spot constriction, the flagger may have to take a position on the shoulder opposite the closed section in order to operate effectively.