Purpose
To control the use of emergency service vehicle pre-emption and transit vehicle priority devices used to temporarily modify the timing of traffic signals.

Policy
Emergency Vehicle Pre-emption Devices
Only vehicles designated as authorized emergency service (ES) vehicles in State Code (UCA 41-6-1) may use traffic signal pre-emption devices. ES agencies must comply with the following requirements before pre-emption will be allowed.

1. The ES Pre-Emption equipment will be capable of uniquely identifying and logging specific users, and have sufficient precision and accuracy to minimize false calls. The ES agency will regularly provide UDOT with a list of all codes used by the ES agency and the vehicle associated with each code.

2. ES Pre-Emption equipment will only be active when the ES vehicle is responding to a call. The vehicle emitter must be wired to the vehicles’ emergency lights so that they are active together. A kill switch tied to the transmission or other vehicle system is required to inactivate the emitter once on scene.

3. The ES Pre-Emption equipment used will be fully compatible with UDOT’s computer-controlled traffic signal system. Changes by UDOT to the control system may require changes to the ES Pre-Emption equipment. The cost of such changes will be paid by the ES agency. UDOT will provide technical advice in design, installation, and maintenance at no expense to the ES agency.

4. ES agencies are not allowed access to signal control systems, computer controllers, cabinets, or other associated equipment. All installation and maintenance work will be performed by UDOT staff or authorized contractors. ES agencies will be responsible for all equipment costs. Labor costs for installation, removal, upgrade or routine maintenance will be the responsibility of the ES agency as outlined in the cooperative agreement required below.

5. Use of ES Pre-Emption equipment will be formally authorized by cooperative agreement between UDOT and the ES agency. The agreement will specify the route along which ES Pre-Emption is approved, contain all of the requirements listed in this policy, and any other provisions required to identify financial responsibility, etc. Modification of the approved route will require a new cooperative agreement.
Transit Vehicle Priority Devices

Any transit company whether public or private may apply to be allowed to use transit priority devices subject to the following criteria.

1. The transit agency must have operated regular service along the route requested for transit priority for at least one year and have an established ridership.

2. The Transit Priority devices used by the transit agency must be compatible with any existing or future ES Pre-Emption equipment along the route. Any upgrade to existing ES Pre-Emption required will be paid for by the transit agency. If existing Transit Priority equipment at a signal without ES Pre-Emption interferes with the installation of ES Pre-Emption equipment at a future date, then the Transit Priority equipment will be removed at the expense of the transit agency. ES Pre-Emption will always have precedence over Transit Priority.

3. The Transit Priority equipment used will be capable of uniquely identifying and logging specific users, and have sufficient precision and accuracy to minimize false calls. The transit agency will regularly provide UDOT with a list of all codes used by the transit agency and the vehicle associated with each code.

4. Transit Priority equipment will only be active when the transit vehicle is servicing a route.

5. The Transit Priority equipment used will be fully compatible with UDOT’s computer-controlled traffic signal system. Changes by UDOT to the control system may require changes to the Transit Priority equipment. The cost of such changes will be paid by the transit agency. UDOT will provide technical advice in design, installation, and maintenance at no expense to the transit agency.

6. Transit agencies are not allowed access to signal control systems, computer controllers, cabinets, or other associated equipment. All installation and maintenance work will be performed by UDOT staff or authorized contractors. Transit agencies will be responsible for all equipment costs. The transit agency will provide UDOT with an emitter for use in periodic maintenance and range settings. Labor costs for installation, removal, upgrade or routine maintenance will be the responsibility of the transit agency as outlined in the cooperative agreement required below.
7. Use of Transit Priority equipment will be formally authorized by cooperative agreement between the Utah Department of Transportation and the transit agency. The agreement will specify the route along which Transit Priority is approved, contain all of the requirements listed in this policy, and any other provisions required to identify financial responsibility, etc. Modification of the approved route will require a new cooperative agreement.

**Signal Controller Timing for a Pre-Emption or Priority Request**

Engineering judgment is required to determine the best response of a signal controller when a pre-emption or priority signal is detected. Refer to UDOT’s “Guideline & Procedures for Timing of Traffic Signals” for assistance.

**Background**

The Utah Department of Transportation recognizes the benefit to emergency service vehicles (ES) available by using traffic signal pre-emption devices. Faster response times are enabled and safety is enhanced as other vehicles yield more easily to approaching ES vehicles.

However, the use of signal pre-emption disrupts the interconnected computer-controlled traffic signal system by demanding a green light for the ES vehicle. This interruption may take considerable time to correct and causes further delay and disruption to the normal traffic flow.

UDOT also recognizes that transit vehicles can more effectively hold to schedules when transit vehicle priority devices request slightly more green time in the direction of travel. Due to the scheduled nature of transit movement, the impact to the computer controlled traffic signal system is less and can be partly addressed in the signal timing process.

**Definitions**

**Emergency Vehicle Pre-Emption** – A system that communicates between an emergency services vehicle and a traffic signal. The system detects the direction the vehicle is approaching and changes the signal to be green in that direction only.

**Transit Vehicle Priority** – A system that communicates between a transit vehicle and a traffic signal. The system detects the direction the transit vehicle is approaching and modifies the length of the green time in that direction.

**ES Agency** – An agency providing emergency response services such as fire-fighting, paramedic, or police and typically respond where lives are in immediate risk. The agency may be part of a City or County, or may be a private contractor.
Procedures
Signal Pre-Emption

Responsibility: Emergency Service or Transit Agency

Actions

1. Submit to the appropriate Region Traffic Engineer a proposal outlining route desired for ES Pre-Emption or Transit Priority, equipment list, design plan (sketch).

2. Proposals for routes crossing UDOT region boundaries must be submitted in both applicable regions.

Responsibility: Region Traffic Engineer

3. Review the proposal and outlines requirements for the cooperative agreement. If Transit Priority is involved forward request to the Engineer for Traffic Management for review and approval. Transit Priority shall not be approved by the Region Traffic Engineer alone.

Responsibility: Region Utilities Coordinator

4. Prepares cooperative agreement containing the policy outlined above, technical requirements, and financial commitments on the part of UDOT and the ES or Transit agency.

Responsibility: Emergency Service or Transit Agency

5. Executes and returns agreement to Region Utilities Coordinator.

Responsibility: Region Utilities Coordinator

6. Forwards agreement for final execution within the Department. A copy of the finally executed is sent to the Region Traffic Engineer and the Engineer for Traffic Management.

Responsibility: Emergency Service or Transit Agency

7. Prepares final design drawings and equipment list, and submits to Region Traffic Engineer.
Responsibility: Region Traffic Engineer

8. Oversees design, installation and implementation of planned ES Pre-Emption or Transit Priority per the requirements of the cooperative agreement. Inspects (or delegates to appropriate UDOT personnel) project to verify compliance with project plans and specifications, and audits vouchers for reimbursement to local government or reimbursement from (if either applicable) the ES or Transit agency. Submits final costs or expenses to Comptroller Office and approves final payments.

9. Notifies Comptroller Office of completion of project so as to close out Authority by submitting a Termination of Authority.

10. Periodically reviews use of ES Pre-Emption or Transit Priority to confirm compliance with the cooperative agreement and UDOT signal timing policies.