

PERFORMANCE ACTIVITY 405

LIMB MANAGEMENT

405 LIMB MANAGEMENT

ACTIVITY DESCRIPTION

Cut and/or remove and/or grind tree limbs from the right-of-way.

TRAFFIC CONTROL

TWO-LANE TWO-WAY ROADWAYS

Utilize intermittent mobile operations for these work activities under the following conditions:

Condition 1 - The maximum time duration of a stop is 15 minutes if the work vehicle and/or the shadow vehicle encroach upon a travel lane more than 2 feet.

Condition 2 - The maximum time duration of a stop is 30 minutes if the work vehicle and/or the shadow vehicle encroach upon a travel lane 2 feet or less.

During intermittent mobile operations, utilize a shadow vehicle when the stopping sight distance interval between the work vehicle or road machinery and an approaching motorist is unavailable based upon the posted regulatory speed limit of the work location.

Mobilized shoulder operations may be used for work activities requiring only one (1) single equipment unit that progress along the roadway at a slow pace and require road machinery operating on the shoulder to encroach upon the roadway.

On low speed roadways with speeds of 35 mph or less, shoulder closures designed for minor encroachment are acceptable for work activities conducted within 30 feet of the near edge of an adjacent travel lane that may require encroachment upon the roadway by personnel, tools, equipment, materials, vehicles, etc. to the extent that may require a reduction of the lane width of an adjacent travel lane to no less than 10 feet.

On low speed roadways with speeds of 35 mph or less, standard shoulder closures are required for work activities that require the presence of personnel, tools, equipment, materials, vehicles, etc. beyond 1 foot but within 30 feet of the near edge of an adjacent travel lane.

On intermediate to high speed roadways, standard shoulder closures are required for work activities that require the presence of personnel, tools, equipment, materials, vehicles, etc. beyond 1 foot but within 30 feet of the near edge of an adjacent travel lane.

On intermediate to high speed roadways, flagging operations are required when the work activities require the presence of personnel, tools, equipment, materials, vehicles, etc. to encroach upon the roadway or to within 1 foot of the near edge of an adjacent travel lane.

Flagging operations are required for work activities that cannot be conducted under the conditions required for intermittent mobile operations, mobilized shoulder operations, standard shoulder closures or shoulder closures with minor encroachment.

TYPICAL DRAWING APPLICATIONS

FLAGGING OPERATIONS

- | | | |
|----------------------------|---|--|
| DRAWING 405-01-A | - | FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES |
| DRAWING 405-01-B(1) | - | FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
STOP SIGN CONTROLLED SIDE ROADS |

- DRAWING 405-01-B(2)** - FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
4-WAY STOP CONTROLLED INTERSECTION
- DRAWING 405-01-C(1)** - FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
TRAFFIC SIGNAL CONTROLLED INTERSECTION
LAW ENFORCEMENT OFFICER(S)
- DRAWING 405-01-C(2)** - FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
TRAFFIC SIGNAL CONTROLLED INTERSECTION
FLAGGERS
- DRAWING 405-01-D(1)** - FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
WORK ACTIVITY AREA
BEGINNING at an
INTERSECTION with a
TWO-LANE TWO-WAY ROADWAY
DEPARTURE LANE
- DRAWING 405-01-D(2)** - FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
WORK ACTIVITY AREA
TERMINATING at an
INTERSECTION with a
TWO-LANE TWO-WAY ROADWAY
APPROACH LANE
- DRAWING 405-01-E(1)**
DRAWING 405-01-E(2) - FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
WORK ACTIVITY AREA
INTERSECTIONS with
LOW SPEED
< / = 35 MPH
MULTILANE ROADWAYS
- DRAWING 405-01-F(1)**
DRAWING 405-01-F(2) - FLAGGING OPERATIONS
MULTIPLE FLAGGERS
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
WORK ACTIVITY AREA
INTERSECTIONS with
INTERMEDIATE SPEED to HIGH SPEED
40 MPH - 60 MPH
MULTILANE ROADWAYS

- DRAWING 405-02** - FLAGGING OPERATIONS
SINGLE FLAGGER OPERATION
LOW VOLUME
LOW SPEED TO INTERMEDIATE SPEED
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES

SHOULDER CLOSURES

- DRAWING 515-01-A** - RIGHT SHOULDER CLOSURE
CASE I / CASE II
TWO-LANE TWO-WAY ROADWAYS
PRIMARY & SECONDARY ROUTES
- DRAWING 515-01-C** - RIGHT SHOULDER CLOSURE
LOW SPEED
< / = 35 MPH
PRIMARY & SECONDARY ROUTES
(MINOR ENCROACHMENT)

MOBILIZED SHOULDER OPERATIONS

- DRAWING 525-01** - MOBILIZED SHOULDER OPERATIONS
ROAD MACHINERY – MINOR ENCROACHMENT
PRIMARY & SECONDARY ROUTES
- DRAWING 525-02** - MOBILIZED SHOULDER OPERATIONS
PEDESTRIAN WORKERS – NO ENCROACHMENT
ROAD MACHINERY – MINOR ENCROACHMENT
PRIMARY & SECONDARY ROUTES
- DRAWING 525-03** - MOBILIZED SHOULDER OPERATIONS
ROAD MACHINERY – MAJOR ENCROACHMENT
PRIMARY & SECONDARY ROUTES

MOBILE OPERATIONS – INTERMITTENT

- DRAWING 535-01-A** - MOBILE OPERATIONS – INTERMITTENT
STOPPING SIGHT DISTANCE
VEHICLE TRAIN REQUIREMENTS
VERTICAL CURVE (HILL)
- DRAWING 535-01-B** - MOBILE OPERATIONS – INTERMITTENT
STOPPING SIGHT DISTANCE
VEHICLE TRAIN REQUIREMENTS
HORIZONTAL CURVE (CURVE)
- DRAWING 535-02-A** - MOBILE OPERATIONS – INTERMITTENT
LOW VOLUME
LOW SPEED
PRIMARY & SECONDARY ROUTES
- DRAWING 535-02-B** - MOBILE OPERATIONS – INTERMITTENT
LOW VOLUME
INTERMEDIATE SPEED TO HIGH SPEED
PRIMARY & SECONDARY ROUTES
- DRAWING 535-03-A** - MOBILE OPERATIONS – INTERMITTENT
INTERMEDIATE VOLUME
LOW SPEED
PRIMARY & SECONDARY ROUTES

DRAWING 535-03-B	-	MOBILE OPERATIONS – INTERMITTENT INTERMEDIATE VOLUME INTERMEDIATE SPEED TO HIGH SPEED PRIMARY & SECONDARY ROUTES
DRAWING 535-04-A	-	MOBILE OPERATIONS – INTERMITTENT HIGH VOLUME LOW SPEED PRIMARY & SECONDARY ROUTES
DRAWING 535-04-B	-	MOBILE OPERATIONS – INTERMITTENT HIGH VOLUME LOW SPEED INTERIOR TRAVEL LANE OPERATIONS PRIMARY & SECONDARY ROUTES
DRAWING 535-04-C	-	MOBILE OPERATIONS – INTERMITTENT HIGH VOLUME INTERMEDIATE SPEED TO HIGH SPEED PRIMARY & SECONDARY ROUTES

MULTILANE SECONDARY AND PRIMARY ROADWAYS

Utilize intermittent mobile operations for these work activities under the following conditions:

Condition 1 - The maximum time duration of a stop is 15 minutes if the work vehicle and/or the shadow vehicle encroach upon a travel lane more than 2 feet.

Condition 2 - The maximum time duration of a stop is 30 minutes if the work vehicle and/or the shadow vehicle encroach upon a travel lane 2 feet or less.

During intermittent mobile operations, utilize a shadow vehicle when the stopping sight distance interval between the work vehicle or road machinery and an approaching motorist is unavailable based upon the posted regulatory speed limit of the work location.

Mobilized shoulder operations may be used for work activities requiring only one (1) single equipment unit that progress along the roadway at a slow pace and require road machinery operating on the shoulder to encroach upon the roadway.

On low speed roadways with speeds of 35 mph or less, shoulder closures designed for minor encroachment are acceptable for work activities conducted within 30 feet of the near edge of an adjacent travel lane that may require encroachment upon the roadway by personnel, tools, equipment, materials, vehicles, etc. to the extent that may require a reduction of the lane width of an adjacent travel lane to no less than 10 feet.

On low speed roadways with speeds of 35 mph or less, standard shoulder closures are required for work activities that require the presence of personnel, tools, equipment, materials, vehicles, etc. beyond 1 foot but within 30 feet of the near edge of an adjacent travel lane.

On low speed roadways, lane closures are required when encroachment of the work activities onto the roadway will reduce the lane width of the adjacent travel lane to less than 10 feet.

On intermediate to high speed roadways, standard shoulder closures are required for work activities that require the presence of personnel, tools, equipment, materials, vehicles, etc. beyond 1 foot but within 30 feet of the near edge of an adjacent travel lane.

On intermediate to high speed roadways, lane closures are required when the work activities require the presence of personnel, tools, equipment, materials, vehicles, etc. to encroach upon the roadway or to within 1 foot of the near edge of an adjacent travel lane.

Lane closures are required for work activities that cannot be conducted under the conditions required for intermittent mobile operations, mobilized shoulder operations, standard shoulder closures or shoulder closures with minor encroachment.

TYPICAL DRAWING APPLICATIONS

LANE CLOSURES

- DRAWING 505-01** - LANE CLOSURE
LOW SPEED MULTILANE
< / = 35 MPH
PRIMARY & SECONDARY ROUTES
- DRAWING 505-03-A** - LANE CLOSURE
INTERMEDIATE SPEED TO HIGH SPEED
40 MPH - 60 MPH
MULTILANE
PRIMARY & SECONDARY ROUTES

SHOULDER CLOSURES

- DRAWING 515-01-B** - RIGHT SHOULDER CLOSURE
CASE I / CASE II
MULTILANE
PRIMARY & SECONDARY ROUTES
- DRAWING 515-01-C** - RIGHT SHOULDER CLOSURE
LOW SPEED
< / = 35 MPH
PRIMARY & SECONDARY ROUTES
(MINOR ENCROACHMENT)
- DRAWING 515-01-D** - LEFT SHOULDER CLOSURE
LOW SPEED
< / = 35 MPH
MULTILANE DIVIDED HIGHWAY
w/ GRASSED EARTH MEDIAN
PRIMARY & SECONDARY ROUTES
(MINOR ENCROACHMENT)
- DRAWING 515-02** - LEFT SHOULDER CLOSURE
CASE I / CASE I
MULTILANE
PRIMARY & SECONDARY ROUTES
- DRAWING 515-03** - LEFT SHOULDER CLOSURE
CASE I / CASE II
MULTILANE
PRIMARY & SECONDARY ROUTES

MOBILIZED SHOULDER OPERATIONS

- DRAWING 525-01** - MOBILIZED SHOULDER OPERATIONS
ROAD MACHINERY – MINOR ENCROACHMENT
PRIMARY & SECONDARY ROUTES
- DRAWING 525-02** - MOBILIZED SHOULDER OPERATIONS
PEDESTRIAN WORKERS – NO ENCROACHMENT
ROAD MACHINERY – MINOR ENCROACHMENT
PRIMARY & SECONDARY ROUTES
- DRAWING 525-03** - MOBILIZED SHOULDER OPERATIONS
ROAD MACHINERY – MAJOR ENCROACHMENT
PRIMARY & SECONDARY ROUTES

MOBILE OPERATIONS – INTERMITTENT

- DRAWING 535-01-A** - MOBILE OPERATIONS – INTERMITTENT
STOPPING SIGHT DISTANCE
VEHICLE TRAIN REQUIREMENTS
VERTICAL CURVE (HILL)
- DRAWING 535-01-B** - MOBILE OPERATIONS – INTERMITTENT
STOPPING SIGHT DISTANCE
VEHICLE TRAIN REQUIREMENTS
HORIZONTAL CURVE (CURVE)
- DRAWING 535-03-A** - MOBILE OPERATIONS – INTERMITTENT
INTERMEDIATE VOLUME
LOW SPEED
PRIMARY & SECONDARY ROUTES
- DRAWING 535-03-B** - MOBILE OPERATIONS – INTERMITTENT
INTERMEDIATE VOLUME
INTERMEDIATE SPEED TO HIGH SPEED
PRIMARY & SECONDARY ROUTES
- DRAWING 535-04-A** - MOBILE OPERATIONS – INTERMITTENT
HIGH VOLUME
LOW SPEED
PRIMARY & SECONDARY ROUTES
- DRAWING 535-04-B** - MOBILE OPERATIONS – INTERMITTENT
HIGH VOLUME
LOW SPEED
INTERIOR TRAVEL LANE OPERATIONS
PRIMARY & SECONDARY ROUTES
- DRAWING 535-04-C** - MOBILE OPERATIONS – INTERMITTENT
HIGH VOLUME
INTERMEDIATE SPEED TO HIGH SPEED
PRIMARY & SECONDARY ROUTES

INTERSTATE ROADWAYS

Utilize intermittent mobile operations for these work activities under the following conditions:

Condition 1 - The maximum time duration of a stop is 5 minutes if the work vehicle and/or the shadow vehicle encroach upon an adjacent travel lane due to a shoulder area inadequate to accommodate a vehicle in its entirety due to the presence of a concrete median barrier wall or a bridge parapet wall.

Condition 2 - The maximum time duration of a stop is 30 minutes if the vehicles remain in the shoulder areas in their entirety with no encroachment upon an adjacent travel lane.

During intermittent mobile operations, utilize a shadow vehicle when the stopping sight distance interval between the work vehicle or road machinery and an approaching motorist is unavailable based upon the posted regulatory speed limit of the work location.

Mobilized shoulder operations may be used for work activities that progress along the roadway at a slow pace and require equipment, personnel, materials, or any vehicles to encroach upon the adjacent paved shoulder within the limits specified by the typical drawing applications for interstate mobilized shoulder operations.

Standard shoulder closures may be used for work activities that cannot be conducted under the conditions required for intermittent mobile operations or mobilized shoulder operations.

Lane closures are required for work activities that cannot be conducted under the conditions required for intermittent mobile operations, mobilized shoulder operations or standard shoulder closures.

(Brief periodic encroachments upon the adjacent travel lane for the equipment to relocate or bypass structures such as guardrail locations or bridge structures are acceptable.)

TYPICAL DRAWING APPLICATIONS

LANE CLOSURES

DRAWING 510-01-A - LANE CLOSURE
INTERSTATE ROUTES

DRAWING 510-01-B - LANE CLOSURE
EXIT / ENTRANCE RAMPS
INTERSTATE ROUTES

SHOULDER CLOSURES

DRAWING 520-01 - RIGHT SHOULDER CLOSURE
CASE I / CASE II
INTERSTATE ROUTES

DRAWING 520-02 - LEFT SHOULDER CLOSURE
CASE I / CASE I
NARROW MEDIAN
INTERSTATE ROUTES

DRAWING 520-03 - LEFT SHOULDER CLOSURE
CASE I / CASE I
WIDE MEDIAN
INTERSTATE ROUTES

DRAWING 520-04 - LEFT SHOULDER CLOSURE
CASE I / CASE II
WIDE MEDIAN
INTERSTATE ROUTES

DRAWING 520-05 - LEFT SHOULDER CLOSURE
CASE II / CASE II
WIDE MEDIAN
INTERSTATE ROUTES

MOBILIZED SHOULDER OPERATIONS

- DRAWING 530-01** - MOBILIZED SHOULDER OPERATIONS
ROAD MACHINERY – MAJOR ENCROACHMENT
INTERSTATE ROUTES
- DRAWING 530-02** - MOBILIZED SHOULDER OPERATIONS
PEDESTRIAN WORKERS – MINOR ENCROACHMENT
UPON PAVED SHOULDER
INTERSTATE ROUTES

MOBILE OPERATIONS – INTERMITTENT

- DRAWING 535-01-A** - MOBILE OPERATIONS – INTERMITTENT
STOPPING SIGHT DISTANCE
VEHICLE TRAIN REQUIREMENTS
VERTICAL CURVE (HILL)
- DRAWING 535-01-B** - MOBILE OPERATIONS – INTERMITTENT
STOPPING SIGHT DISTANCE
VEHICLE TRAIN REQUIREMENTS
HORIZONTAL CURVE (CURVE)
- DRAWING 535-04-D(1)** - MOBILE OPERATIONS – INTERMITTENT
HIGH VOLUME
HIGH SPEED
INTERSTATE ROUTES
- DRAWING 535-04-E** - MOBILE OPERATIONS – INTERMITTENT
HIGH VOLUME
HIGH SPEED
INTERIOR TRAVEL LANE OPERATIONS
INTERSTATE ROUTES