



CITY AND COUNTY OF DENVER

DEPARTMENT OF PARKS - RECREATION

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DENVER, COLORADO 80202-1139

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Mayor

Construction Detour Standards for Bikeways and Multi-Use Trails

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NOTE: All requirements of a traffic control plan are to be determined, and subject to change, at the sole discretion of the City and County of Denver. In all cases involving Parks & Recreation sites, notification is required three weeks before the project is to occur, in which case a separate permit may be required. In emergency situations, notification of the Parks and Recreation Dept. at **303-458-4856** and **303-698-4903** is required as soon as possible. All detours which will involve Public Works Right-Of-Way (both streets and sidewalks) must be coordinated with the City Traffic Engineer's office at **720-865-3150**.

1) User safety must be upheld at all times. Safe access and passage of trail users must be maintained continuously or an approved detour plan implemented with an absolute minimum one-week advance notice given to trail users. Advance notice shall consist of signs located at the construction limits and all accesses serving the affected area, and via press releases (as well as supplemental measures as may be deemed necessary by the City.)

The following construction operations should be considered as being reasonably foreseeable impediments to user safety:

- * Operations of heavy construction equipment on, adjacent to or working directly above bikeways;
- * Painting, spraying, welding, pavement construction and patching, excavating, saw-cutting, jack-hammering, demolition, etc. or any other construction/maintenance operations affecting the use of the bikeway;
- * Use of bikeway or adjoining area for storage of equipment, construction materials, etc.
- * Any other operation, procedure, etc. which could be reasonably foreseen as affecting the use and operation of the facility.
- * Construction work which may present overhead hazards to trail users, but which will not impact the trail surface i.e. overhead demolition, pipe installation, bridge deck or similar work shall be required to provide a pedestrian shed structure (corresponding to a sidewalk pedestrian shed structure) to protect trail users. If minimal impacts to user safety are determined by the review staff of the agency having jurisdiction on the facility, a flagger or a detour may be permitted.

* Occasionally, we get into situations where it may be necessary to "detour the detour" as a result of conflicts between construction projects. If these conflicts cannot be identified and avoided up front, then every consideration should be given to minimizing hazards for detoured trail users (including closing an adjoining motor-vehicle lane if no other trail detour option exists.) **Strong consideration should be given to (re)scheduling construction operations so that trail users will not have to deal with open trenches, stockpiled materials, operating equipment, conflicts with construction signs, etc.**

2) Motor-vehicle and Construction Equipment use of Bikeway

* Even during emergency repairs, user safety must be upheld. If an emergency shutdown is necessary, strong consideration should be given to providing an alternative route for trail users. The corresponding jurisdictional entity should always be informed of any emergency work.

* The contractor should not use equipment which could be reasonably foreseen to cause pavement failure or damage (including crawler track damage) unless replacement of the pavement has been agreed upon as part of the permit, except in an emergency.

* Use of bikeway facilities by motor-vehicles for authorized purposes should be limited to vehicles and equipment actually needed for the construction operation. Use of the bikeway area for access and parking by worker's personal motor-vehicles is **not** permitted. Use of personal vehicles may be grounds for revocation of the construction permit.

* Do **not** park motor vehicles/construction equipment on a trail, or use a trail for loading operations, stockpiling of materials, or allowing demolished or spoil materials to be deposited upon the trail surface without the express approval of the facility operating agency.

* When motor-vehicles or construction equipment are parked directly on a trail, safety cones **must** be placed in front of and to the rear of the vehicle or a flagger provided. A **CONSTRUCTION AHEAD** sign must be placed 200' (61m) away from the unit in each direction of the trail (including access routes.) Use of a flashing beacon or supplemental warning devices is highly desirable. Reasonable stopping sight distances must be provided for trail users (or supplemental warnings, including the use of flaggers, provided.) There must be a way for trail users to get around the parked vehicle with a minimum of risk and delay.

* **PREPARE TO STOP** signs and a flagger may be required when operations will cause occasional, short delays for users.

* When motor-vehicles and construction equipment are parked alongside of the trail, a minimum 3' (1m) clear zone from the trail edge **must** be maintained or the unit relocated to a suitable area (excepting emergencies.) Use of cones, beacons, etc. is highly desirable. Doors, outriggers, buckets, etc. should not be placed or operated in the clear zone (except in emergencies.)

3) Operations which will disturb the trail surface for less than one day

- * An equivalent width run-around type detour may be acceptable. An absolute minimum width of 4' (1.3m) must be maintained clear of signs, spoil piles, parked or operating equipment, etc.
- * The safety of trail users in the affected area (including staging and access areas) will be the sole responsibility of the entity doing the work. Signs, barricades, cones, etc. as specified in the Manual on Uniform Traffic Control Devices should be provided.
- * The contractor should consider occupational safety regulations applicable to his workers as a corresponding absolute minimum standard for trail users' personal safety e.g. back-up beepers, screens, trench safety, hazardous materials, etc.
- * Any trail surface affected (including access and staging) must be returned to its pre-construction condition (or better) at the end of the day. The trail surface must be swept or washed free of mud, gravel, grease, and excavated, spoil, stockpiled materials, etc.
- * The trail must allow access (or a reasonable, safe and defined run-around for users) during the operations. The operations should preclude or absolutely minimize materials falling onto the trail or run-around.
- * Users **must not** be subjected to shrapnel, sprays/overspray, welding arcs, noxious fumes, or any other condition which may lead to loss of control or personal injury, etc. Immediate removal of materials deposited upon the trail (and run-around) open to users will be required throughout the day.
- * A member of the crew should be designated to sweep, flag (including brief periods where the trail must be shut down completely) and provide courteous information and assistance to trail users affected by the operations.
- * Run-around detours that are on grass may be used for one day with "Bicyclists Dismount" signage. Hard surface run-arounds should be provided when it is foreseeable that the work will take longer than one day.

4) Trail surface disturbed for more than one day or construction necessitating a complete shutdown operation

The following requirements are based on prior knowledge of the project and should be considered as minimum. (Additions or deletions to these requirements will be handled on a case by case basis, for City approval.) :

- * When the conditions described in Sections 2 and 3 cannot be upheld (or are reasonably foreseen as being difficult to uphold) or the work will take longer than one (1) day, a shutdown of the trail and provision of a detour route should be considered as necessary. Every effort should be made to do the work on a phased basis to reduce the length of detour needed at any given time.
- * In all cases, a safe detour must be provided. A warning of trail closure must be provided a **minimum** of one week prior to the approved closure. The dates of the closure, as best as can be forecast, should be provided.

* When the detour is put in place, any or all of the following items will be required:

A) The width of the detour should be of the same width as the trail detoured. An absolute minimum width clearance of 4' must be maintained away from trenches, stockpiled equipment, operating equipment, conflicts with construction signs, etc.

B) Advance detour warning no less than 200' (61m) from each end of the detour.

C) **TRAIL CLOSED** signs and detour instructions at each end of the detour. These signs will also be required at defined, intermediate access points affected by the detour. Flashing lights shall be provided at all of these locations.

D) If the detour will be complex, a route schematic sign and/or free informational maps in boxes mounted on the barricades should be provided as well.

E) All detour route signs will be black on orange, using reflective sheeting. Sign sizes shall be as shown on the attachments. Flashing lights may be required. **Signs shall be maintained throughout the project.**

F) The detour will be delineated by fencing where necessary. Fencing will be provided at detour ends and intermediate access locations **and maintained throughout the project on a daily basis**. Temporary barricades and snow fencing may be used around construction zone operations. However chain link fencing, installed in a rigid, structural manner, may be required at the limits of the project, or at other locations within the project. Temporary fencing which becomes damaged by trespassers may need to be replaced with chain link fencing to uphold public safety and minimize conflicts with construction operations.

G) Where the detour route will cross major streets and highways, warning signs for motorists unaccustomed to trail users crossing may be required. At some locations, flashing lights may be required in lieu of red flags. (See attached warning sign detail.)

H) Manual flagging may be needed dependent on the project and its location. Corresponding **FLAGMAN AHEAD** or **PREPARE TO STOP** signage will be provided.

I) Dependent on the duration of the project, and trail use, a detour surface may be required. If a detour surface is provided, it must be hard and smooth with slopes less than 8%.

J) The contractor doing the construction work shall inspect all of the elements of the detour on a daily basis. Any deficiencies shall be rectified immediately. Regular construction inspections by the contractor or the contractor's agents should be made to confirm that the detour measures are sufficient to uphold user safety, **including conditions which may arise after the detour was implemented.**

K) Maintenance of the detour facilities shall be the sole responsibility of the entity doing the work. This includes snow removal, sweeping, filling holes, etc. on the detour route in use.

L) Use of private property for detours is strongly discouraged and will be reviewed only on a case by case basis.