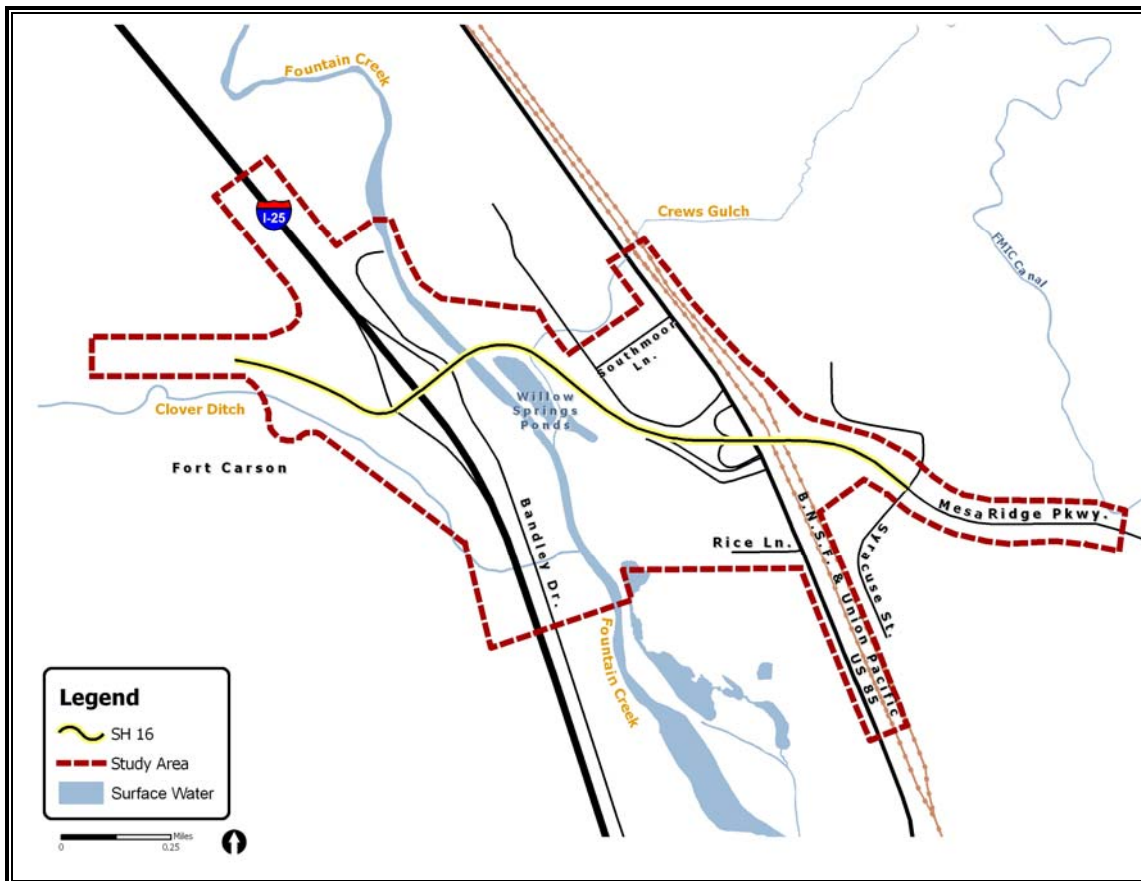


Technical Report: Vegetation and Noxious Weeds

VEGETATION

The study area is dominated by grassland species with riparian trees and shrubs adjacent to Fountain Creek, Crews Gulch, and Clover Ditch drainage (**Figure 1**). Typical grassland species include native sideoats grama and blue grama and non-native smooth brome and crested wheatgrass. Riparian trees and shrubs include native plains cottonwood and chokecherry as well as the non-native Chinese elm. The study area includes developed areas of residential and business properties with landscaped vegetation mainly in the vicinity of US 85. Wetland vegetation is discussed in the Technical Report for Wetlands.

Figure 1
Fountain Creek, Crews Gulch, and Clover Ditch



NOXIOUS WEEDS

Noxious weeds are invasive, non-native plants which were introduced to Colorado by accident or which spread after being planted for another purpose and which result in lands with decreased economic and environmental value. The Colorado Noxious Weed Act of 2003 (Colorado Revised Statutes 35-5.5-101 through 119) recognizes that, "certain undesirable plants constitute a present threat to the continued economic and environmental value of the lands of the state and if present in any area of the state must be managed." The legislation places all public and private lands in Colorado under the jurisdiction of local governments to manage noxious weeds. According to the Act, a noxious weed meets one or more of the following criteria:

- ▶ Aggressively invades or is detrimental to economic crops of native plant communities.
- ▶ Is poisonous to livestock.
- ▶ Is a carrier of detrimental insects, diseases, or parasites.
- ▶ Has direct or indirect effects that are detrimental to the environmentally sound management of natural or agricultural ecosystems.
- ▶ Areas of disturbed soil and vegetation, as well as farmland, are particularly vulnerable to infestations of noxious weeds.

Under the Act, the State of Colorado Noxious Weed lists are categorized by control priority:

- ▶ **High Priority (List A):** Rare noxious weeds and all County noxious weeds in dispersal conduits. High priority species are targeted for eradication or suppression.
- ▶ **Medium Priority (List B):** Well established weeds and all County noxious weeds with discrete statewide distributions.
- ▶ **Low Priority (List C):** Extensive, well-established infestations for which control is recommended but not required.

The Act established a Colorado Noxious Weed List, currently comprising 85 species, and requires each county to develop its own County Noxious Weed List.

When transportation projects are considered, CDOT requires surveys for the following State high-priority weed species, listed here by alphabetical order of the plant's common name:

- ▶ Canada thistle (*Cirsium arvense/Breca arvensis*)
- ▶ Dalmatian toadflax (*Linaria genistifolia* and *L. dalmatica*)
- ▶ Diffuse knapweed (*Centaurea/Acosta diffusa*)
- ▶ Field bindweed (*Convolvulus arvensis*)
- ▶ Hoary cress (*Cardaria draba*)
- ▶ Houndstongue (*Cynoglossum officinale*)
- ▶ Jointed goatgrass (*Aegilops cylindrica*)
- ▶ Leafy spurge (*Euphorbia/Tithymalus esula*)
- ▶ Musk thistle (*Carduus nutans*)
- ▶ Perennial pepperweed (*Lepidium latifolium*)
- ▶ Russian knapweed (*Centaurea/Acroptilon repens*)
- ▶ Spotted knapweed (*Centaurea/Acosta maculosa*)
- ▶ Yellow toadflax (*Linaria vulgaris*)

CDOT also requires surveys for the following species which may not yet be present or widespread in Colorado:

- ▶ African rue (*Peganum harmala*)
- ▶ Camelthorn (*Alhagi pseudalhagi*)
- ▶ Orange hawkweed (*Hieracium aurantiacum*)
- ▶ Sericea lespedeza (*Lespedeza cuneata*)
- ▶ Yellow Starthistle (*Centaurea solstitialis*)

Noxious Weeds listed by the El Paso County Noxious Weed Program include the following:

- ▶ Canada thistle (*Cirsium arvense/Breca arvensis*)
- ▶ Diffuse knapweed (*Centaurea/Acosta diffusa*)
- ▶ Leafy spurge (*Euphorbia/Tithymalus esula*)
- ▶ Musk thistle (*Carduus nutans*)
- ▶ Purple loosestrife (*Lythrum salicaria*)
- ▶ Russian knapweed (*Centaurea/Acroptilon repens*)
- ▶ Spotted knapweed (*Centaurea/Acosta maculosa*)
- ▶ Yellow toadflax (*Linaria vulgaris*)

A noxious weed field survey was conducted in July 2002. Species noted during field surveys are listed in **Table 1-1**. Salt Cedar (Tamarisk) was present within the Fountain Creek floodplain.

**Table 1-1
State of Colorado and El Paso County Listed Weed Species Observed
in the SH 16 Study Area**

Common Name	Species	County Weed List*	CDOT Weed List**	State Noxious Weed List***
Canada thistle	<i>Cirsium arvense/Breca arvensis</i>	X	X	B
Field bindweed	<i>Convolvulus arvensis</i>		X	C
Salt Cedar (Tamarisk)	<i>Tamarix ramosissima</i>			B

* Noxious weeds listed through El Paso County's Noxious Weed Program.

** From CDOT's Noxious Weed Management Plan.

*** Colorado Department of Agriculture Plant Industry Noxious Weeds Website, including 2003 Revised Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act (8 CCR 1203-19). State management plans include the following designations: A = species to be eradicated, B = stop continued spread, and C = species left to local jurisdictions and use of integrated weed management controls supported.

In the four years since the survey was taken, there is no reason to believe that the three observed species have declined. By their nature, they are likely to have spread, and it is possible that other invasive species are now present as well. This is not a critical issue inasmuch as this would not change the impacts of alternatives. As is discussed later in this report, a new weed inventory will be undertaken prior to construction. The proposed mitigation includes a comprehensive weed management approach that would address any noxious weeds present at that time.

VEGETATION IMPACTS

No-Action Alternative

As planned development continues in the study area, native vegetation would continue to be lost, with some portions being replaced by planted urban species. Development in the study area would disturb areas that are already inhabited by weeds and would disturb areas that are currently weed free, resulting in the potential for the introduction of weeds into those areas.

Proposed Action

Direct impacts to vegetation would occur from clearing, excavation, and grading for the proposed improvements. It is anticipated that 7-10 mature plains cottonwood trees (estimated to be between 8 and 14 inches diameter at the observer's chest height) immediately north of SH 16 and east of Fountain Creek would be removed prior to

construction. Impacts to wetland vegetation would be negligible, as is discussed in the Technical Report for Wetlands.

NOXIOUS WEED IMPACTS

No-Action Alternative

Within and adjacent to the study area, development is occurring now and is planned to occur in the foreseeable future. As discussed in the sections above on Land Use and Wildlife and Aquatic Resources, several hundreds of acres of short grass prairie adjacent to the proposed project are being converted to development. Much of this land is disturbed and is located along Bandlely Drive, in the vicinity of Rice Lane, or is located outside of the study area east of US 85. As development occurs, native vegetation is being replaced with parking lots, streets, buildings and non-native vegetation. As planned development continues in the study area, impacts would continue to occur to vegetation. Development in the study area would disturb areas that are already inhabited by weeds and would disturb areas that are currently weed free, resulting in the potential for the introduction of weeds into those areas.

Proposed Action

Construction of the Proposed Action would disturb areas that are already inhabited by weeds and would disturb areas that are weed free, resulting in the potential for introduction of weeds into those areas. Temporary work areas would also be susceptible to weed invasion.

VEGETATION MITIGATION

Revegetation will include planting of plains cottonwood or other riparian trees in the low terrace on the west bank of Fountain Creek. Native tree species approximately 1.5 inches in caliper, will be planted at a 1.5:1 ratio for all trees removed by construction. Sandbar willow will be planted at the edge of flows to promote bank stabilization. All CDOT revegetation BMPs and guidelines will be followed to ensure adequate revegetation with native grass and forb species of the study area. Although specific BMPs to be used in the study area will not be determined until final design, mitigation measures are anticipated to include:

- ▶ All disturbed areas will be seeded in phases throughout construction. Disturbed areas will be revegetated with native grass and forb species. Seed, mulch and mulch tackifier will be applied in phases throughout construction.

- ▶ Minimize the amount of disturbance and limit the amount of time that disturbed areas are allowed to be non-vegetated.
- ▶ Salvage weed-free topsoil for use in revegetation.
- ▶ Implement temporary and permanent erosion control measures to limit erosion and soil loss. Erosion control blankets will be used on steep, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times and concrete washout contained.
- ▶ Replace trees and shrubs as required by State regulation. The removal of vegetation/trees will be scheduled to avoid breeding season of birds from April 1 to August 31, and outside of nesting season per the Migratory Bird Treaty Act (MBTA).

NOXIOUS WEEDS MITIGATION

Since soil disturbance with accompanying invasion by noxious weed species is associated with highway construction, a management plan for noxious weeds will be incorporated into the project design and construction process by the roadway designer and/or contractor. CDOT will coordinate with the El Paso County Forestry and Noxious Weed Division regarding County weed management. All project activities will be consistent with County policies, procedures, and standards for weed management. CDOT will coordinate with Fort Carson's Directorate of Environmental Compliance and Management (DECOM) for weed management upon U.S. Army property. Specific BMPs will be required during construction to reduce the potential for introduction and spread of noxious weed species and include:

- ▶ Prior to construction, noxious weeds within the study area will be inventoried and mapped in accordance with the North American Weed Management data collection and mapping protocols. Mapping and inventory will be conducted using a Global Positioning System and CDOT Geographic Information System.
- ▶ An Integrated Weed Management Plan will be developed prior to project construction. The plan will include identification and mapping of existing noxious weeds; potential impacts from spread of invasive species into adjacent properties, wetland, riparian or other sensitive habitats; and prevention and control measures.
- ▶ Following noxious weed mapping and inventory by CDOT or its consultants, the potential for spread of identified noxious weeds due to disturbance by construction activities will be analyzed including potential for noxious weeds to spread into wetlands, riparian habitat and agricultural areas.

- ▶ Pre-construction identification and management will be undertaken for all existing noxious weeds infestations within the highway right-of-way. Among other measures, management may include topsoil removal, replanting of desirable species, hand pulling, mowing and cutting, and herbicides.
- ▶ Project right-of-way areas will periodically be inspected by CDOT or its consultants during construction and during post construction for invasion of noxious weeds. Immediate control measures will be performed and may include, among other measures, replanting of desirable species, hand-pulling, mowing and cutting, and herbicides.
- ▶ Use of herbicides will include selection of appropriate herbicides that are permitted by the Army and El Paso County, timing of herbicide spraying, and use of a backpack sprayer in and adjacent to sensitive areas such as wetlands and riparian areas.
- ▶ All Tamarisk will be removed from impacted areas of the Fountain Creek floodplain using the best available and most recent techniques.
- ▶ Certified weed-free hay and/or mulch will be used in all revegetated areas.
- ▶ No fertilizers will be allowed on project site.
- ▶ Supplemental weed control measures may be added during design and construction planning.