

# **Noxious Weeds Technical Memorandum**

## **New Pueblo Freeway**

CDOT Project No. IM 0251-156

Project Control No. 12831

**Colorado Department of Transportation**

September 2005

In some cases, information in this Environmental Technical Report may have been refined or updated as preparation of the DEIS advanced. In such cases, the information and conclusions presented in the DEIS supersede all previous background material included in this Technical Report.



# Contents

Project Description .....	1
Methods and Assumptions .....	1
Existing Conditions and Data Collection .....	2
Impacts.....	4
No Action Alternative.....	4
Existing I-25 Alternative .....	4
Modified I-25 Alternative.....	4

## Exhibits

- 1 Noxious Weeds Present in the New Pueblo Freeway Study Area
- 2 New Pueblo Freeway Noxious Weed Densities and Acreages

## Appendices

- A North Area Noxious Weeds Maps
- B Central Area Noxious Weeds Maps
- C South Area Noxious Weeds Maps
- D Noxious Weeds Atlas



## Project Description

The Federal Highway Administration (FHWA), in cooperation with the Colorado Department of Transportation (CDOT), is preparing an Environmental Impact Statement (EIS) for the New Pueblo Freeway project, a proposal to improve a 7-mile segment of Interstate 25 (I-25) through Pueblo, Colorado. Improvements are necessary to address an outdated roadway and bridges with inadequate geometrics, safety issues, and existing and future traffic demand.

Alternatives under consideration include taking no action (No Action Alternative), reconstruction of the interstate on essentially the existing alignment (Existing I-25 Alignment Alternative), and reconstruction of the interstate on existing and new alignments (Modified I-25 Alternative). The alternatives are further described as follows:

- **No Action Alternative** - This alternative provides for only minor improvements, repairs, and other maintenance actions. The existing four-lane highway will otherwise remain unchanged.
- **Existing I-25 Alternative** - This alternative consists of reconstructing I-25 to six lanes on essentially the same location, reconfiguring and eliminating access points to the interstate to improve safety, and providing other improvements to the local street system to enhance system connectivity and traffic movement near the interstate.
- **Modified I-25 Alternative** - This alternative consists of rebuilding I-25 to six lanes and providing the other improvements included in the Existing I-25 Alternative, except the alignment would be shifted to accommodate different interchange configurations.

Transportation Management strategies and design variations of grade and alignment are incorporated into the build alternatives.

## Methods and Assumptions

In October 2003, ERO Resources conducted a formal weed inventory of the project area. Weeds were mapped using the Global Positioning System (GPS) and field mapping on black and white aerial photographs at a scale of 1 inch = 200 feet. Hand mapping and GIS data were transferred to a geographic information systems (GIS) database for presentation. The weeds considered for inventory include those managed by Pueblo County (DPI, 2004a), CDOT (CDOT, 2000), and the State of Colorado (DPI, 2004b).

Several noxious weeds listed by Pueblo County, CDOT, and the state were not observed in the study area during the 2003 survey, but they may be present and have a high potential for becoming established in the future. These species include:

- **Hoary cress (*Cardaria draba*)**. Hoary cress is typically found on generally open, unshaded, disturbed ground and has been mapped in the Pueblo Area (DPI, 2004c). Hoary cress grows well on alkaline soils that are wet in late spring and generally does better in areas with moderate amounts of rainfall. It is widespread in fields, waste places, meadows, pastures, croplands, and along roadsides. Hoary cress is commonly found in saltcedar (*Tamarix* spp.) communities.

- **Diffuse knapweed (*Centaurea diffusa*).** Diffuse knapweed is found on plains, rangelands, and forested benchlands. It is generally found on light, dry, porous soils. It grows in open habitats as well as shaded areas. Diffuse knapweed is now common in the Front Range counties, including Pueblo (DPI, 2004c).
- **Russian knapweed (*Centaurea repens*).** Russian knapweed is commonly found along roadsides, riverbanks, irrigation ditches, pastures, waste places, clearcuts, and croplands. It is not restricted to any particular soil, but it does especially well in clay soil. The species has been mapped in the vicinity of Pueblo (DPI, 2004c)

## Existing Conditions and Data Collection

A list of noxious weeds observed and mapped in the New Pueblo Freeway study area is presented in Exhibit 1. Notes on their density and acres impacted are provided in Exhibit 2. Mapping is presented in Appendix A, B, and C.

EXHIBIT 1  
Noxious Weeds Present in the New Pueblo Freeway Survey Area

Common Name	Scientific Name	Pueblo County Weed List	CDOT Weed List	State of Colorado Noxious Weed List
Field bindweed	<i>Convolvulus arvensis</i>	x	x	C <sup>a</sup>
Canada thistle	<i>Cirsium arvense</i>	x	x	B <sup>b</sup>
Kochia	<i>Kochia scoparia</i>	x		
Russian olive	<i>Elaeagnus angustifolia</i>		x	B
Russian thistle	<i>Salsola collina</i>	x		
Tamarisk	<i>Tamarix ramosissima</i>	x	x	B

<sup>a</sup> List C noxious weed species are species for which the Commissioner of Agriculture, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional educational, research, and biological control resources to jurisdictions that choose to require management of List C species.

<sup>b</sup> List B noxious weed species are species for which the Commissioner of Agriculture, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to stop the continued spread of these species. Until such time as these plans are developed and implemented by rule, all persons are recommended to manage List B species but are not required to do so by these rules (although other state or local jurisdictions may require such action).

EXHIBIT 2  
New Pueblo Freeway Noxious Weed Densities and Acreages

	Density <sup>a</sup>	Acres
<b>Bindweed</b>	1	2.80
	2	0.95
	Total	3.75
<b>Canada thistle</b>	Density	Acres
	1	13.40
	2	26.37
	3	1.51
	4	1.20
	Total	42.48
<b>Kochia</b>	Density	Acres
	1	9.19
	2	42.80
	3	111.23
	4	100.28
	Total	266.27
<b>Russian olive</b>	Density	Acres
	1	9.85
	2	39.04
	3	33.26
	Total	82.27
<b>Russian thistle</b>	Density	Acres
	1	22.06
	2	129.31
	Total	157.04
<b>Tamarisk</b>	Density	Acres
	1	1.50
	2	18.75
	3	49.13
	Total	128.39

<sup>a</sup>Density Code: 1 = Scattered individuals; 2 = Scattered patches; 3 = Medium-sized patches; 4 = Large, numerous patches; 5 = Monoculture.

## Impacts

Various construction activities have the potential to increase the spread of existing weeds or to introduce new noxious weeds into the project area. These include mobilization of construction vehicles, excavation and movement of borrow materials, land clearing, other earth moving, and reclamation. Noxious weeds may be spread within the project area by transportation of topsoil that contains weed seeds and roots from one area to another during earth moving or on construction vehicles. Removal of existing vegetation and soil disturbance may encourage germination of existing seeds in soil seedbanks and allow the spread of weeds from airborne seeds. New noxious weeds may be introduced into the project area from construction vehicles.

### No Action Alternative

The No Action Alternative would have no new direct impacts on the number or distribution of noxious weeds. Noxious weeds currently present in the study area would continue to grow and spread subject to CDOT weed management practices within the interstate right-of-way.

### Existing I-25 Alternative

The Existing I-25 Alternative has the potential to support the infestation and spread of noxious weeds associated with ground-disturbing activities. Because this alternative generally follows the existing highway alignment, impact areas include primarily weed-infested (particularly kochia) vegetation or developed urban areas. The pattern of weed establishment generally reflects the previous ground disturbance in the area, as weeds frequently invade highly disturbed ground where they are easily established and out-compete native species if left unchecked.

Construction activities associated with the Existing I-25 Alternative, such as mobilization of construction vehicles, excavation and movement of borrow materials, land clearing, other earth moving, and reclamation, have the potential to increase the spread of existing weeds or to introduce new noxious weeds into the project area. Noxious weeds could also be spread within the project area by transportation of topsoil that contains weed seeds and roots from one area to another during earth moving or on construction vehicles. Removal of existing vegetation and soil disturbance may encourage germination of existing seeds in soil seedbanks, and allow the spread of weeds from airborne seeds. New noxious weeds could also be introduced into the project area from construction vehicles.

### Modified I-25 Alternative

Impacts for the Modified I-25 Alternative are similar to the Existing I-25 Alternative, as the alignments are identical at the northern and southern extents of the project area. The area of difference for the alignment is north of the Arkansas River crossing to about Indiana Avenue to the south. In this area, kochia is present in medium-sized patches throughout most of the vegetated areas. The Fountain Creek drainage is free of weeds in many areas with small patches of densely infested areas (tamarisk and kochia).

## References

CDOT, 2000. Integrated Noxious Weed Management Plan 1999-2000.

DPI, 2004a. Pueblo County Noxious Weed Program. Available from:  
<<http://www.ag.state.co.us/DPI/weeds/mapping/counties/Pueblo.html>>.  
Accessed September 21, 2004.

DPI, 2004b. 8 CCR 1203-19 Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act. Available from:  
<<http://www.ag.state.co.us/DPI/weeds/statutes/weedrules.pdf>>. Accessed  
September 21, 2004.

DPI, 2004c. 2002 Quarterquad Survey. Available from:  
<<http://www.ag.state.co.us/DPI/weeds/mapping/QuarterQuadSurvey.html>>.  
Accessed September 21, 2004.

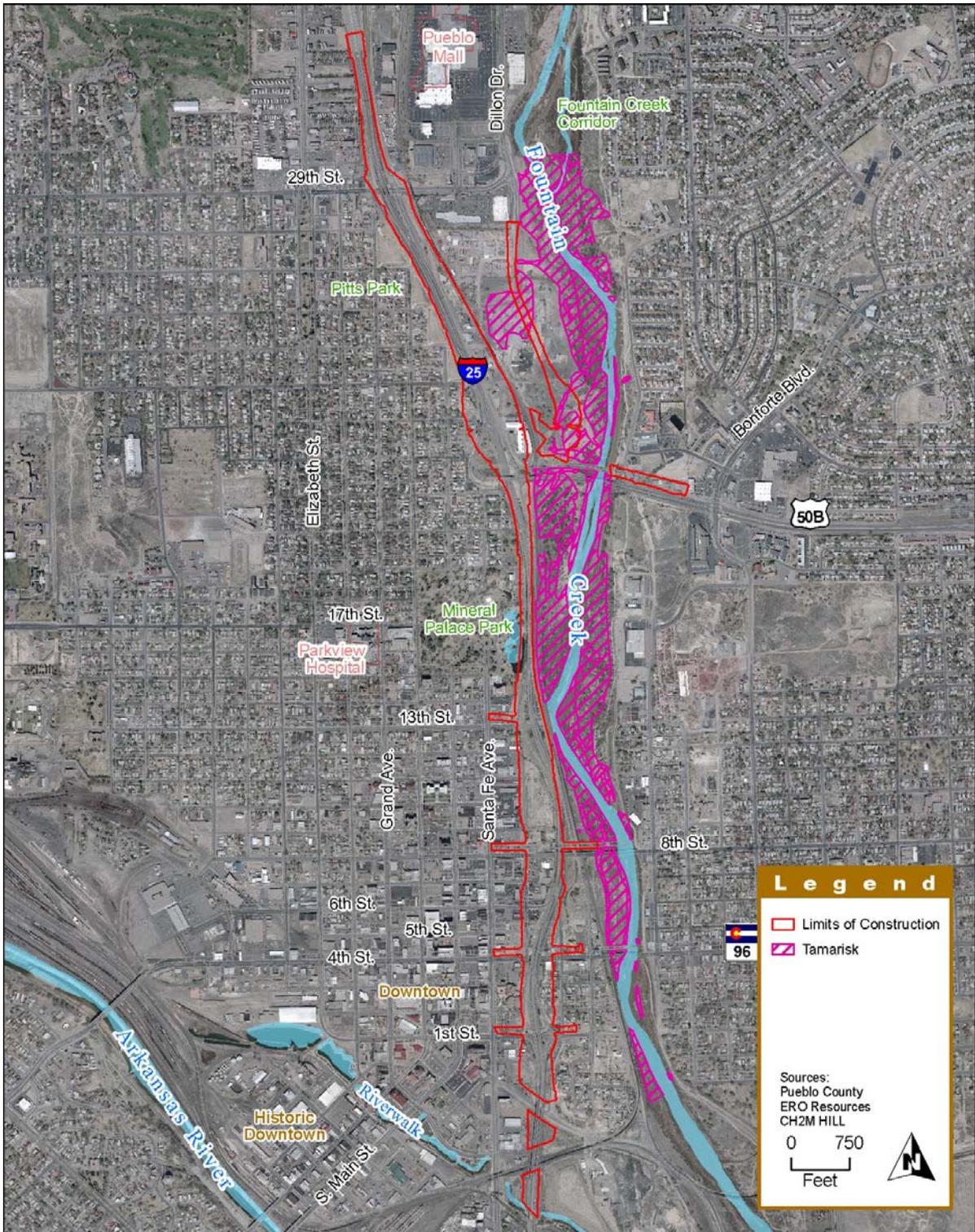


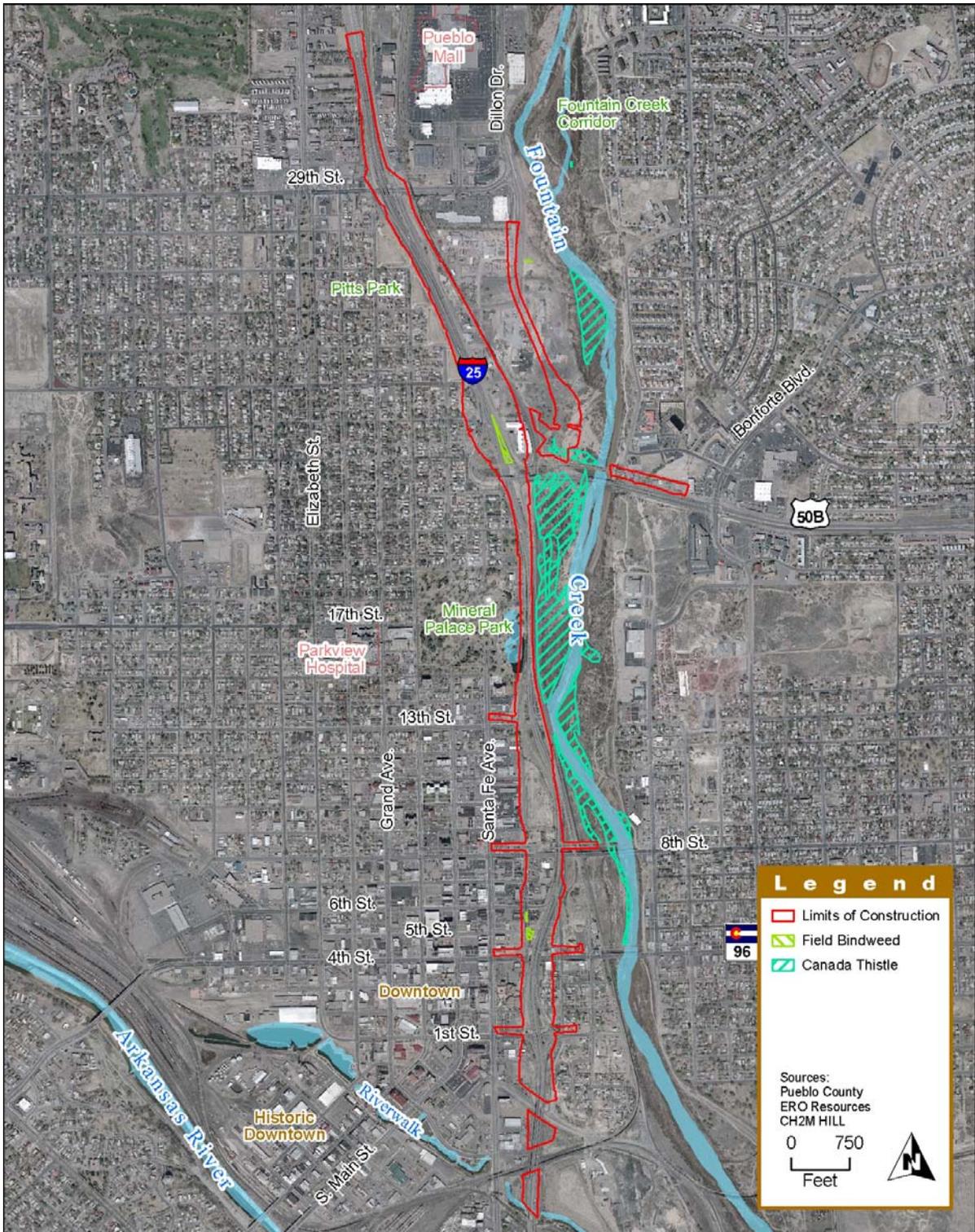
APPENDIX A

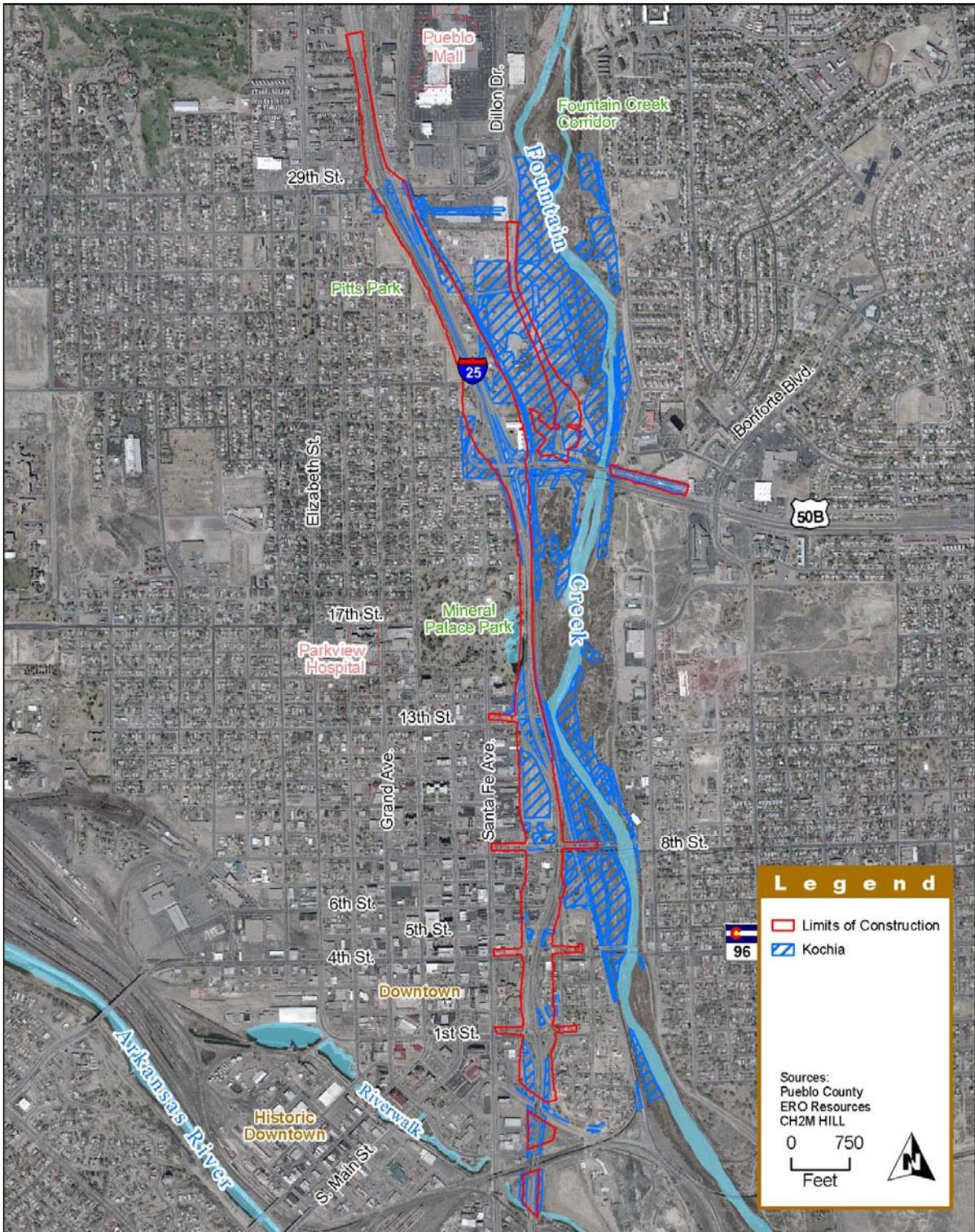
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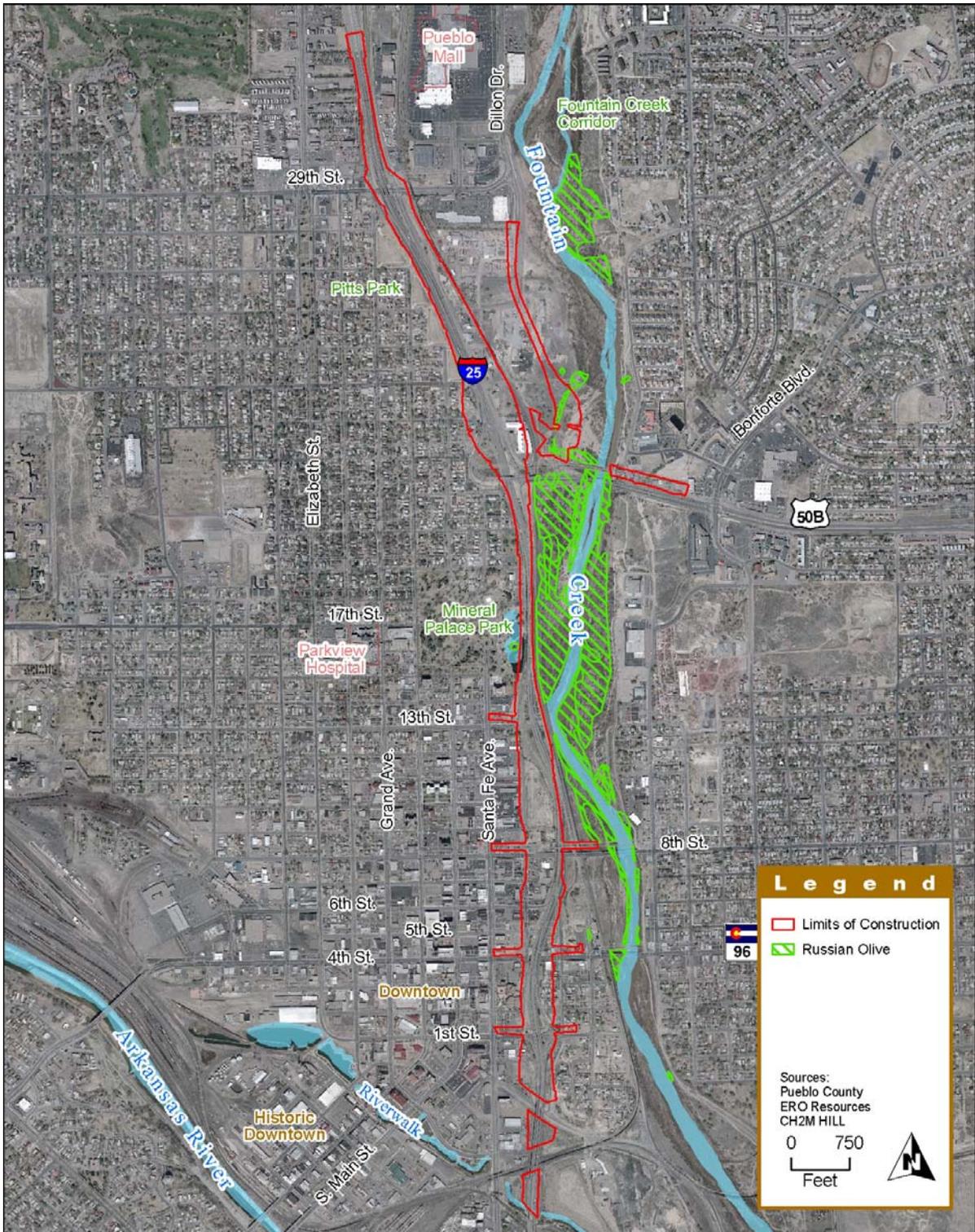
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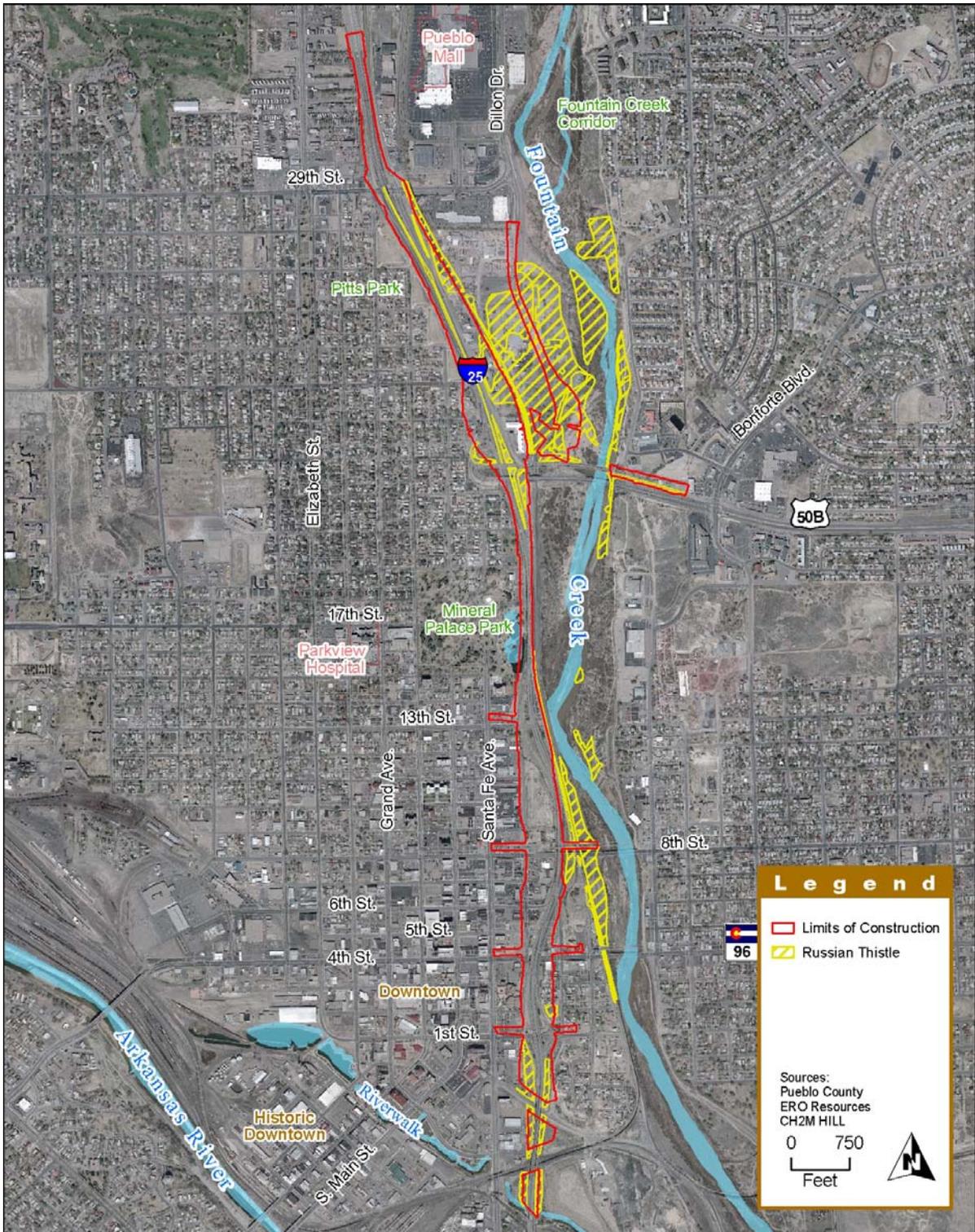












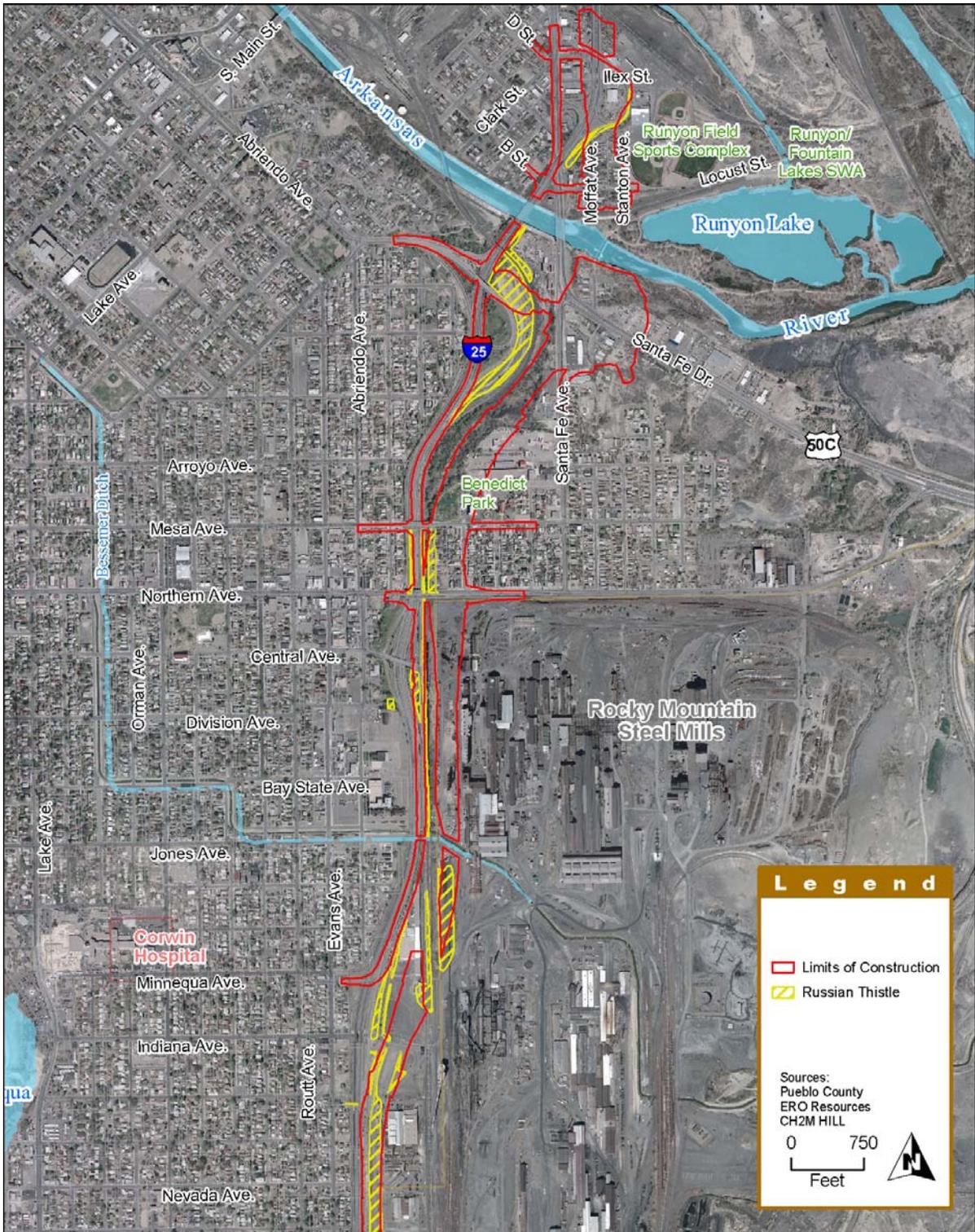


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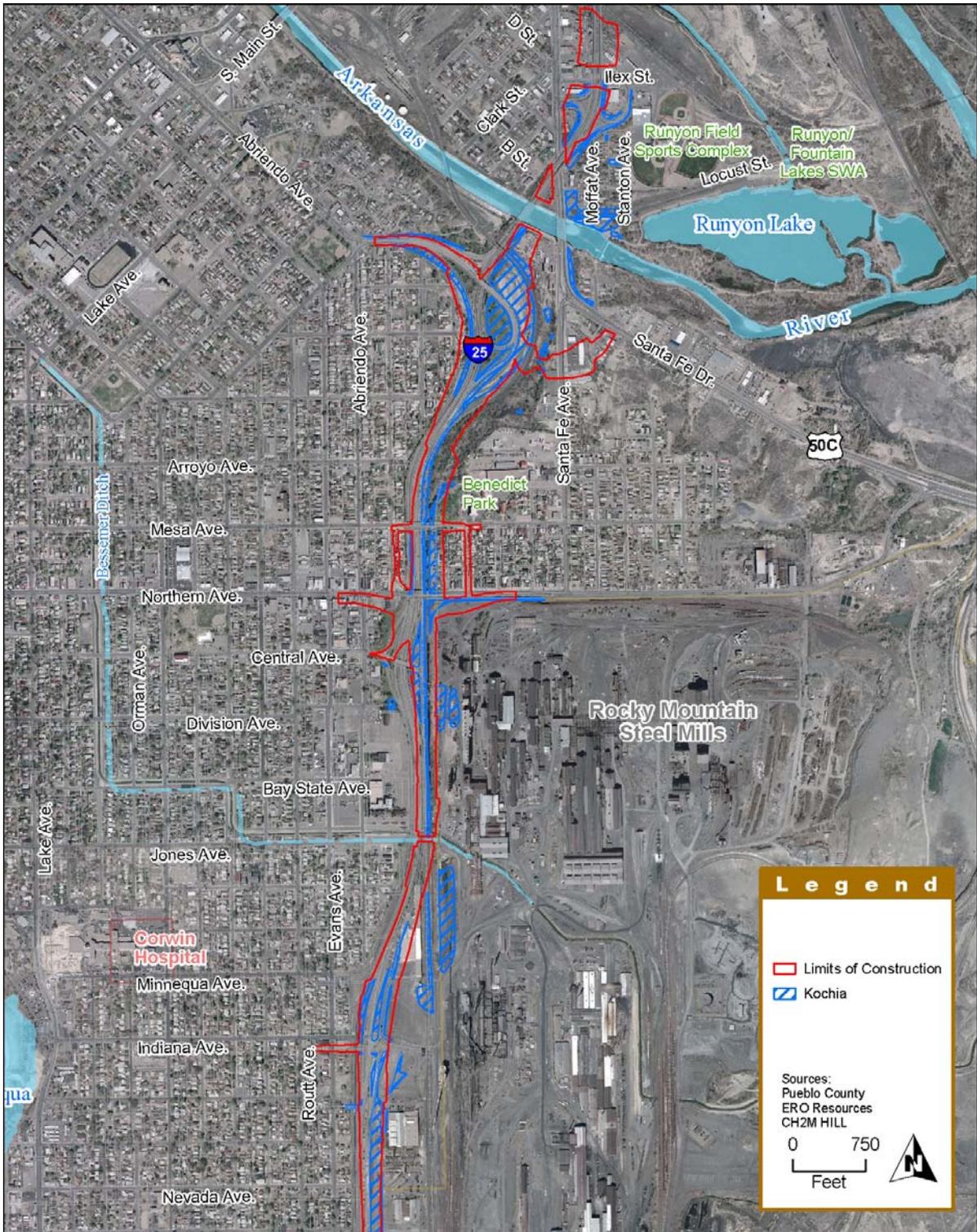
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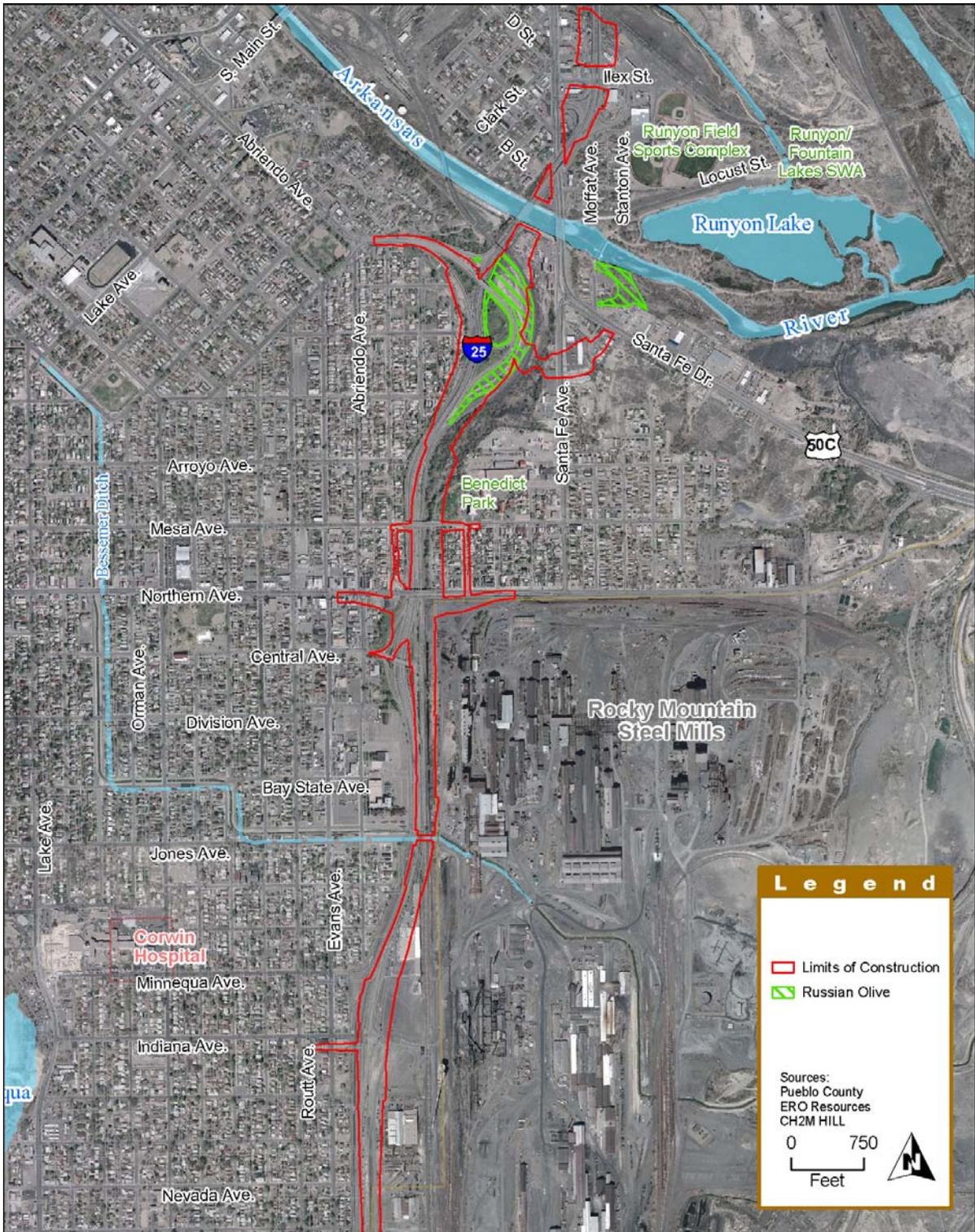
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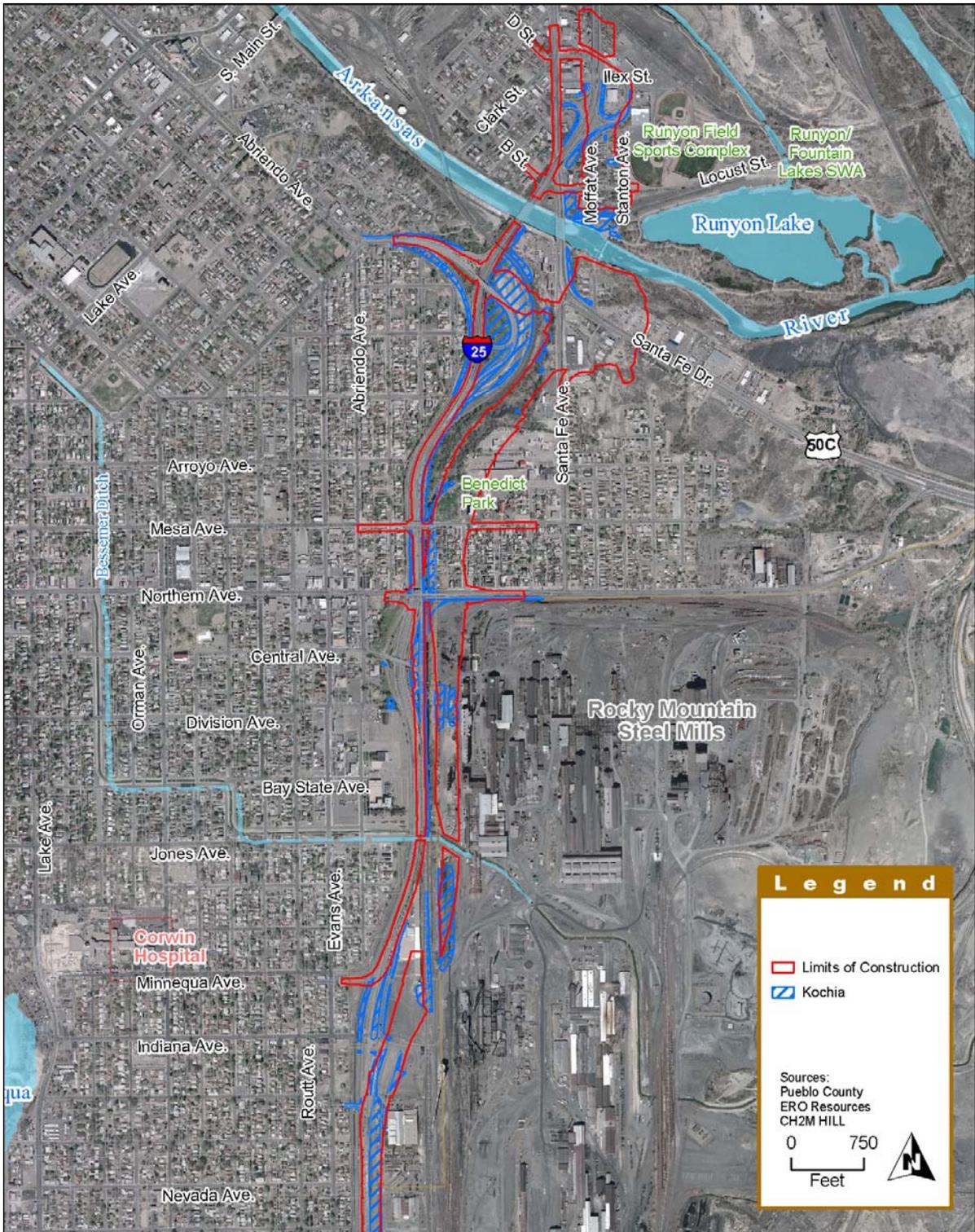














APPENDIX C

## South Area Noxious Weeds Maps

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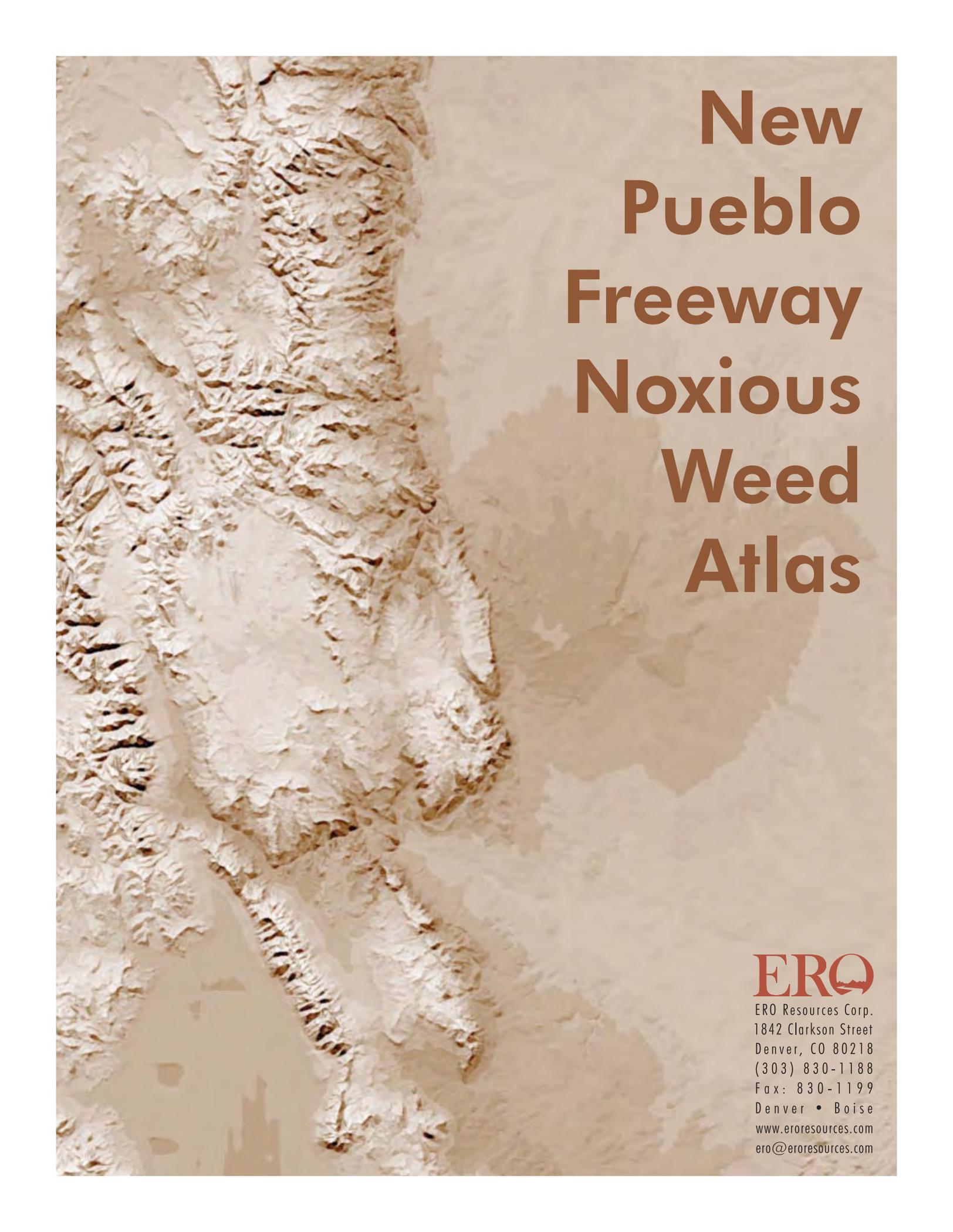




APPENDIX D

# Noxious Weeds Atlas

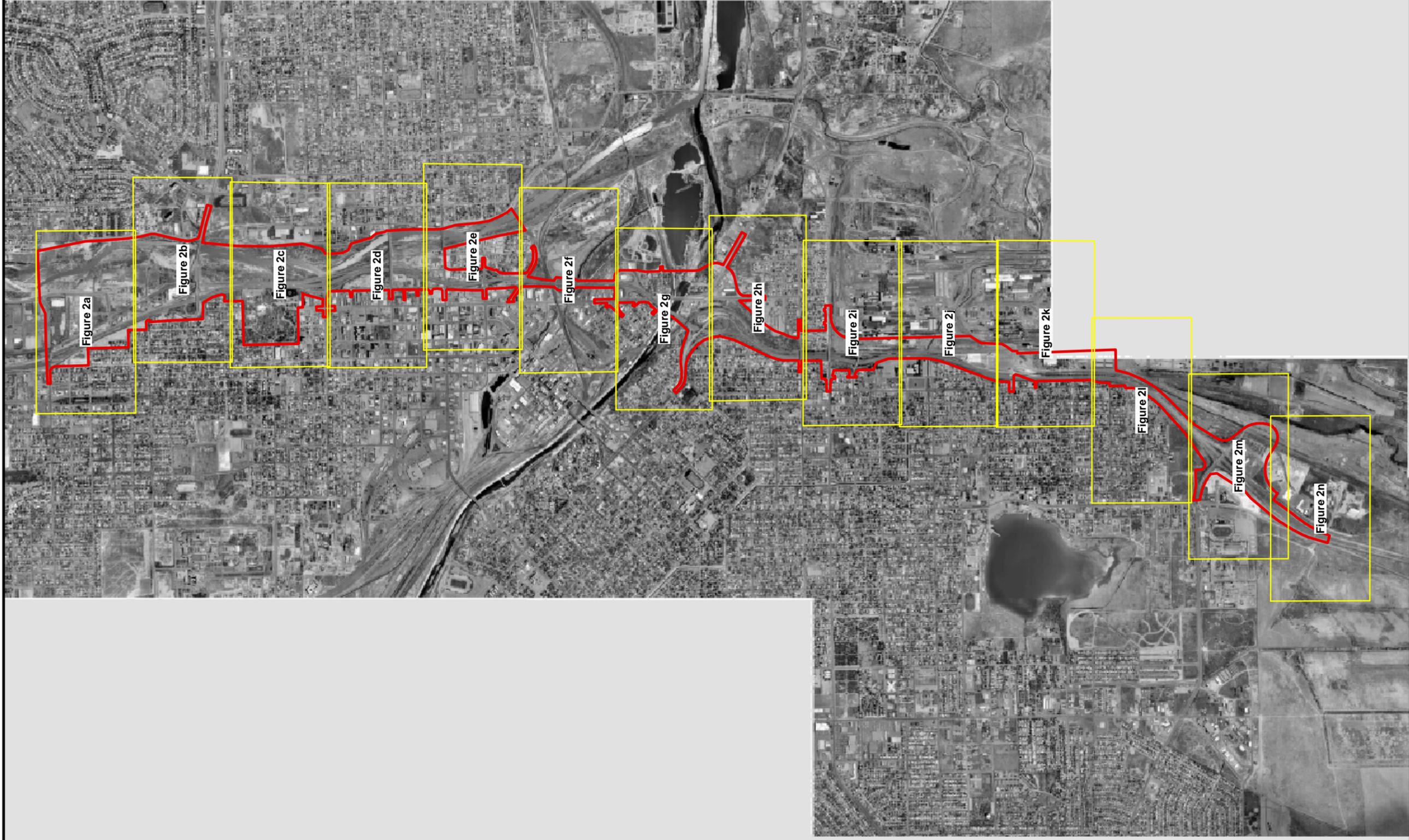
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The background of the entire page is a topographic map of the New Pueblo Freeway area. The map is rendered in shades of brown and tan, showing the terrain's elevation and contours. The freeway itself is a prominent feature, running vertically through the center of the map. The text is overlaid on the right side of the map.

# New Pueblo Freeway Noxious Weed Atlas

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Denver • Boise  
[www.eroresources.com](http://www.eroresources.com)  
[ero@eroresources.com](mailto:ero@eroresources.com)

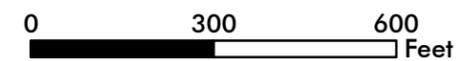


1 inch = 2,500 Feet



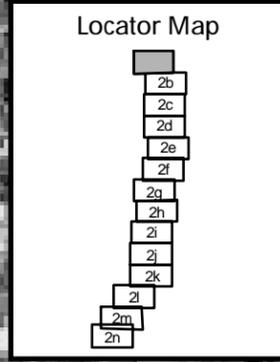
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**New Pueblo Freeway**  
**Habitat Type**

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 May 04, 2004



**ERO**

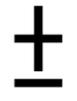
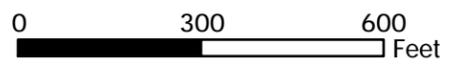
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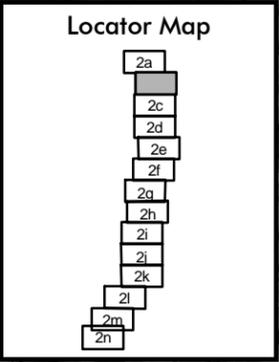
- Study Area
- Noxious Weed Population

- | Species              | Density Code                |
|----------------------|-----------------------------|
| BI - Bindweed        | 1 - Scattered individuals   |
| CT - Canada thistle  | 2 - Scattered patches       |
| KO - Kochia          | 3 - Medium-sized patches    |
| RO - Russian olive   | 4 - Large, numerous patches |
| RT - Russian thistle | 5 - Monoculture             |
| TA - Tamarisk        |                             |



**Figure 2a**  
 New Pueblo Freeway  
 Noxious Weeds

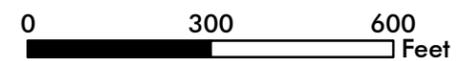
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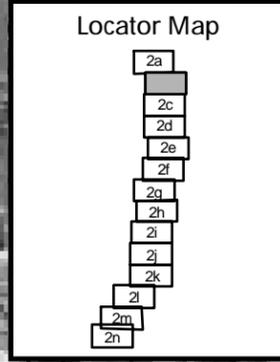
**Figure 2b**  
**New Pueblo Freeway**  
**Habitat Type**

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 May 04, 2004

- |  |   |
|--|---|
|  Study Area |  Riparian      |
| <b>Habitat Type</b>  |  Urban         |
|  Open Water |  Wooded Upland |
|  |  Wetland       |



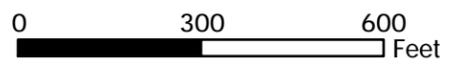
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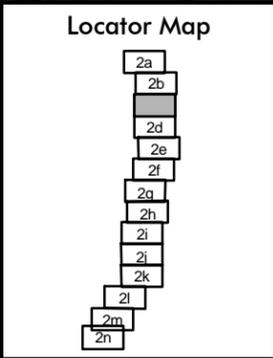
- Study Area
- Noxious Weed Population

- | Species              | Density Code                |
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| RT - Russian thistle | 5 - Monoculture             |
| TA - Tamarisk        |                             |



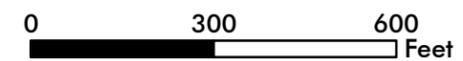
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 New Pueblo Freeway  
 Noxious Weeds

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**Figure 2c**  
**New Pueblo Freeway**  
**Habitat Type**

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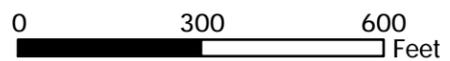
- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
- KO - Kochia
- RO - Russian olive
- RT - Russian thistle
- TA - Tamarisk

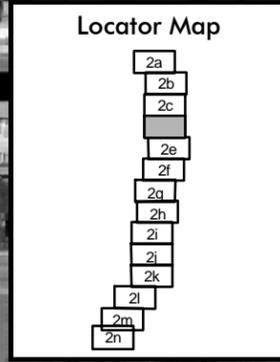
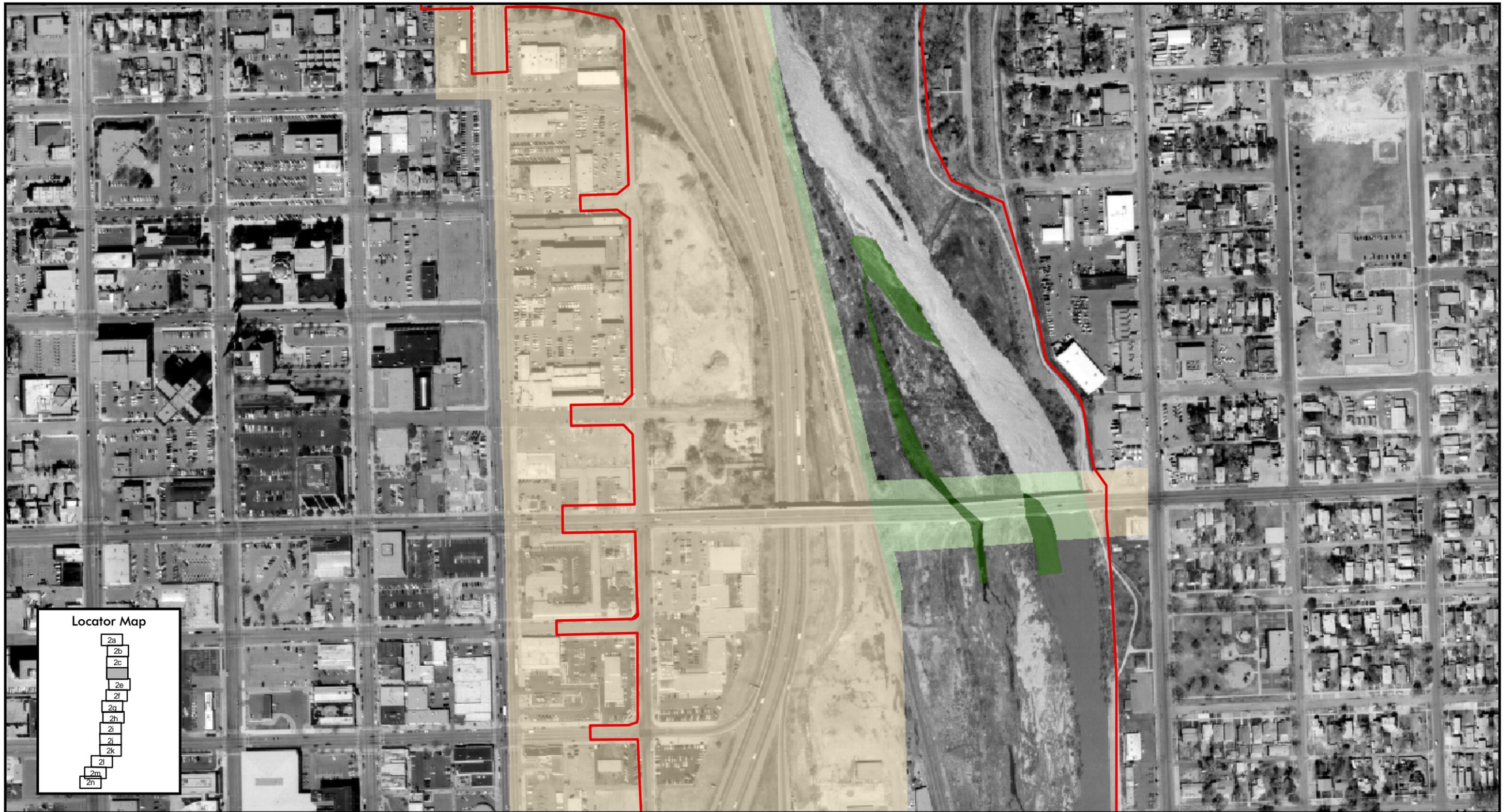
**Density Code**

- 1 - Scattered individuals
- 2 - Scattered patches
- 3 - Medium-sized patches
- 4 - Large, numerous patches
- 5 - Monoculture



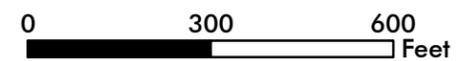
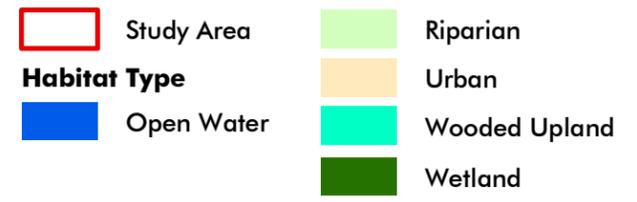
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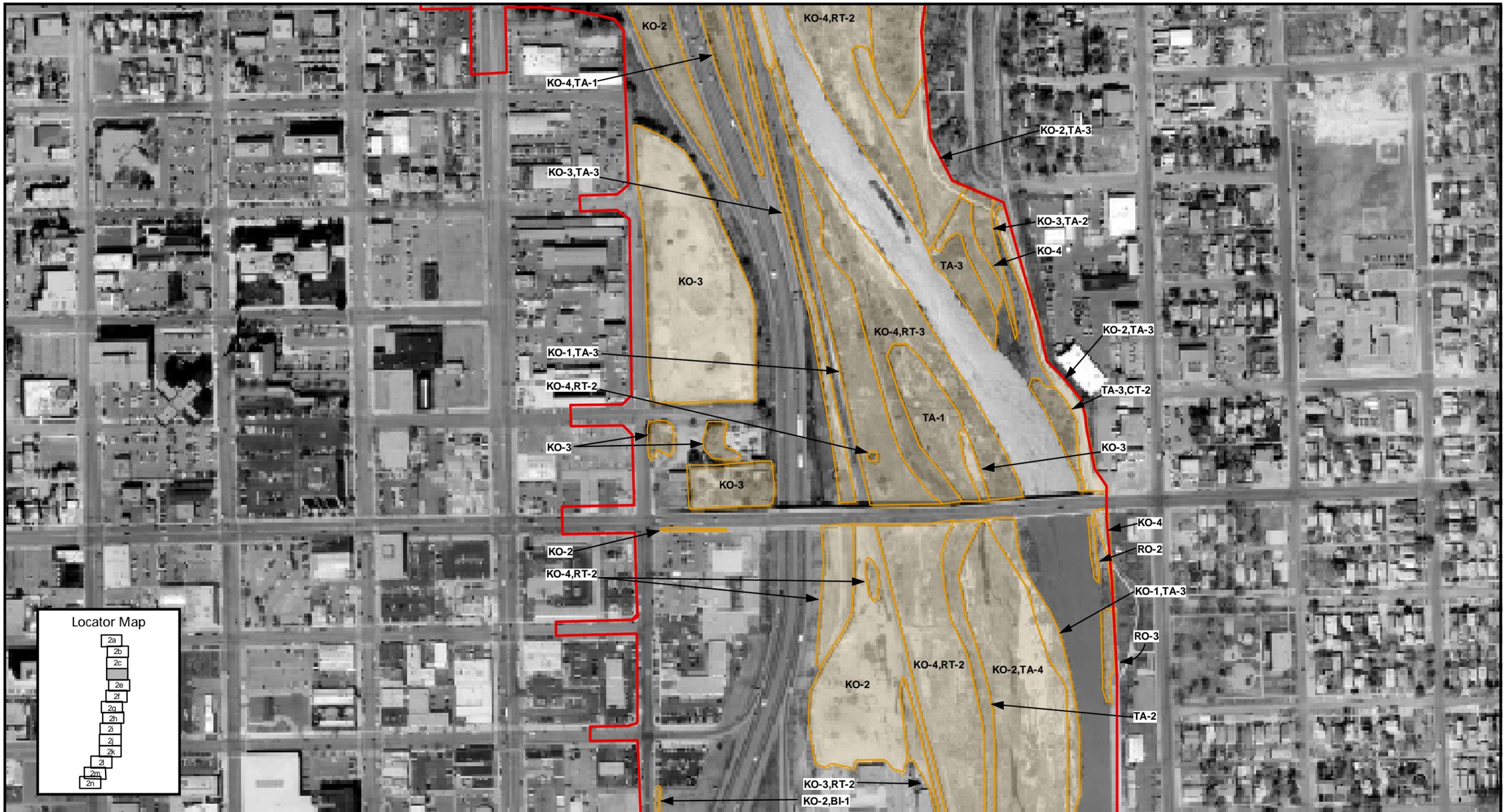


**Figure 2d**  
**New Pueblo Freeway**  
**Habitat Type**

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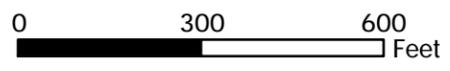
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- Study Area
- Noxious Weed Population

- | Species              | Density Code                |
|----------------------|-----------------------------|
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| RO - Russian olive   | 4 - Large, numerous patches |
| RT - Russian thistle | 5 - Monoculture             |
| TA - Tamarisk        |                             |



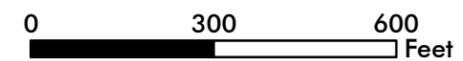
**Figure 2d**  
 New Pueblo Freeway  
 Noxious Weeds

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**Figure 2e**  
**New Pueblo Freeway**  
**Habitat Type**

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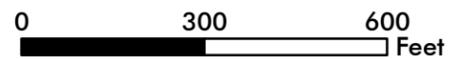


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[Red Outline] Study Area  
 [Yellow Outline] Noxious Weed Population

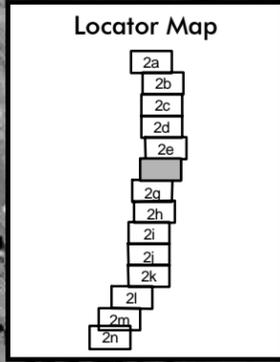
**Species**  
 BI - Bindweed  
 CT - Canada thistle  
 KO - Kochia  
 RO - Russian olive  
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**Density Code**  
 1 - Scattered individuals  
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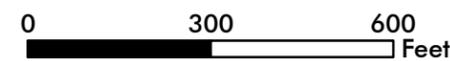
**Figure 2e**  
**New Pueblo Freeway**  
**Noxious Weeds**

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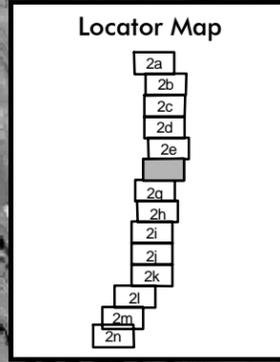
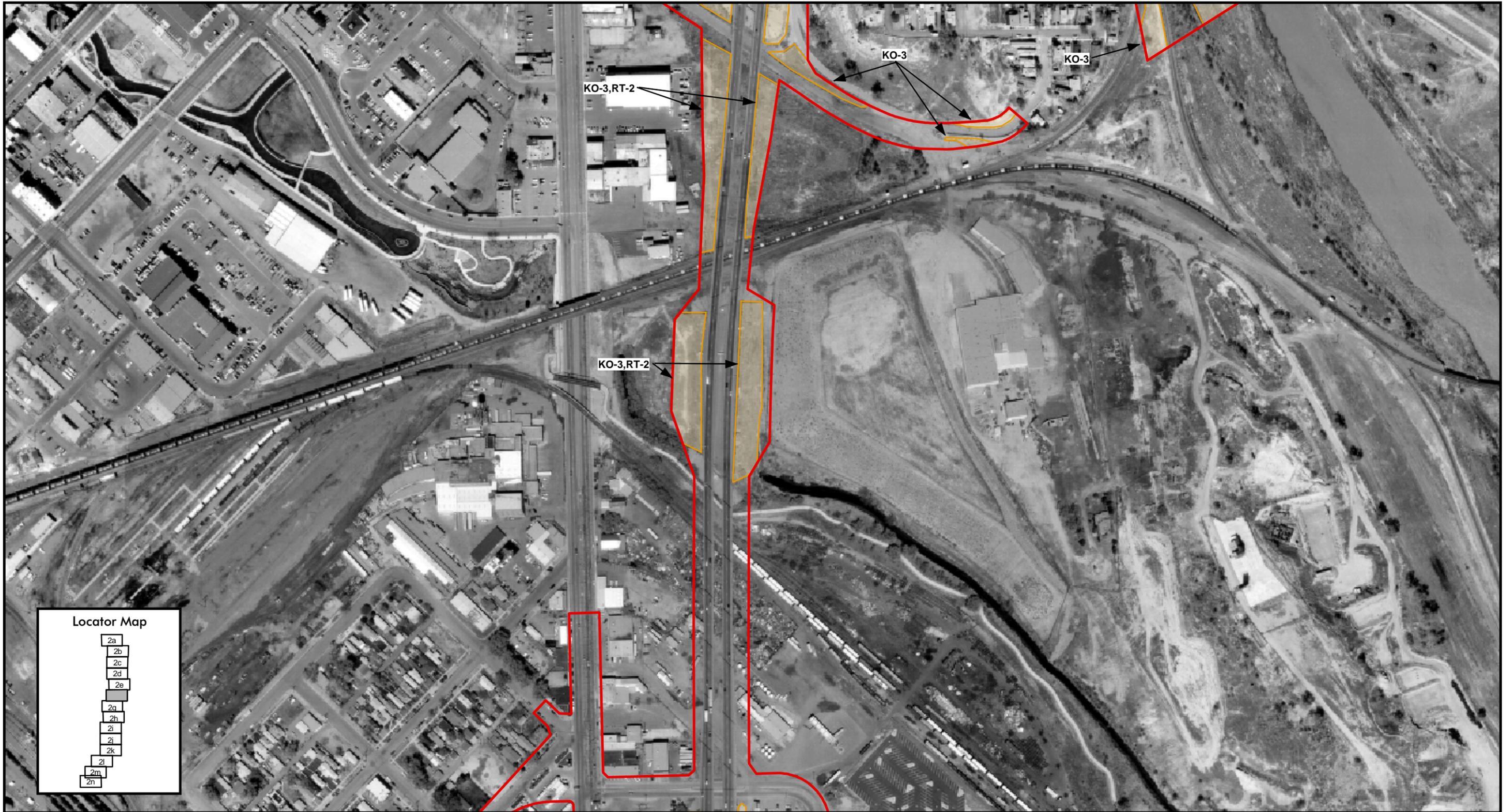


**Figure 2f**  
**New Pueblo Freeway**  
**Habitat Type**

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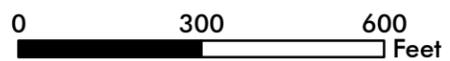
- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
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- RO - Russia olive
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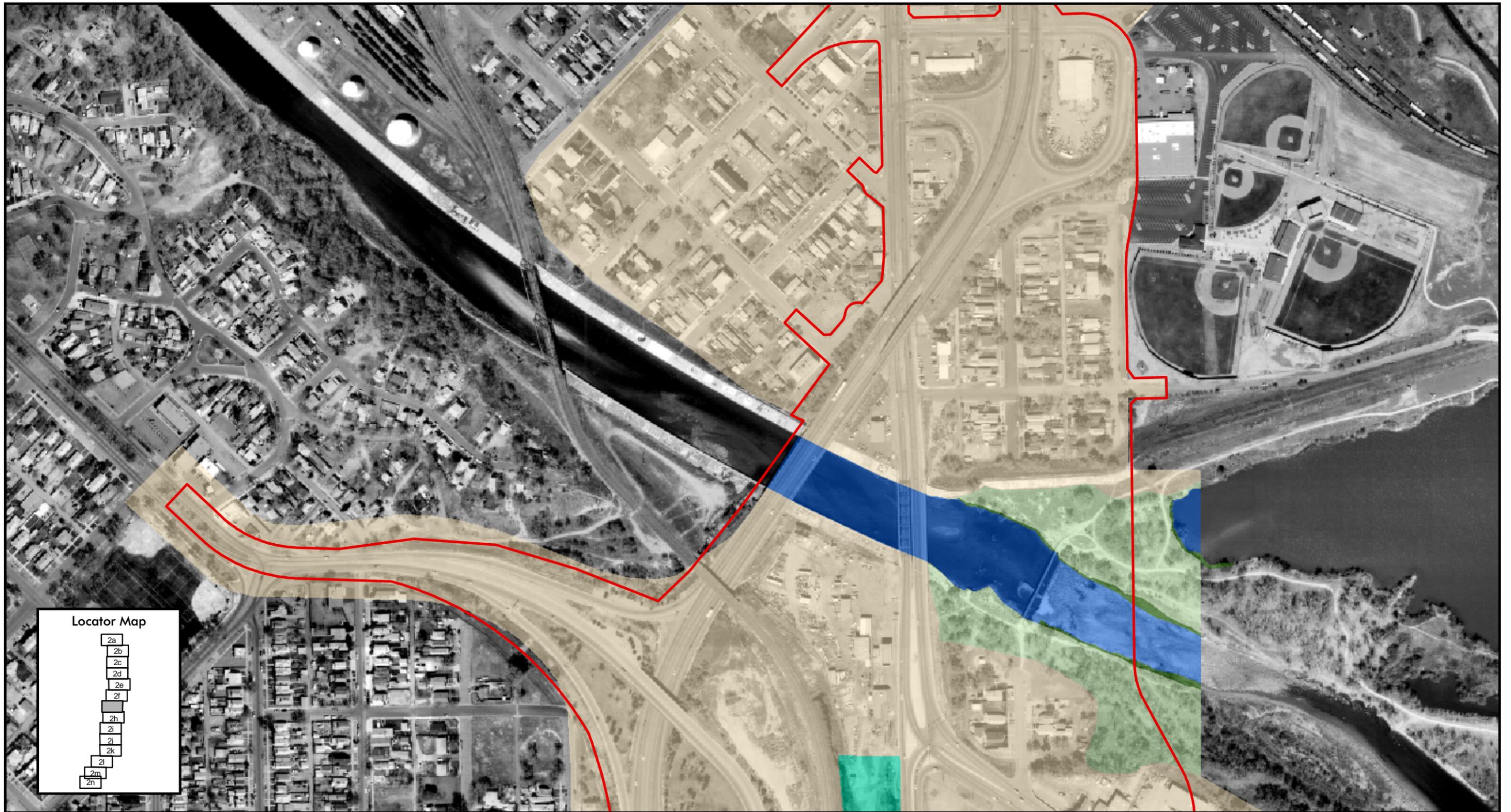
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- 4 - Large, numerous patches
- 5 - Monoculture



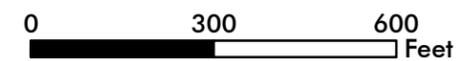
**Figure 2f**  
 New Pueblo Freeway  
 Noxious Weeds

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 February 11, 2004



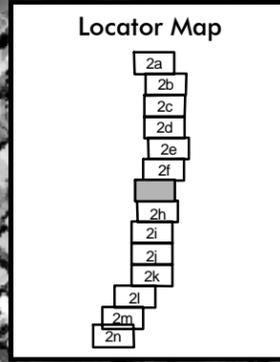
**Figure 2g**  
**New Pueblo Freeway**  
**Habitat Type**

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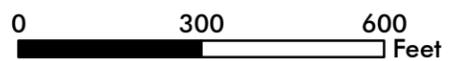


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 Study Area  
 Noxious Weed Population

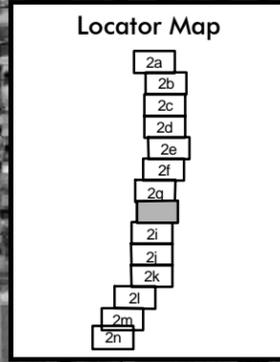
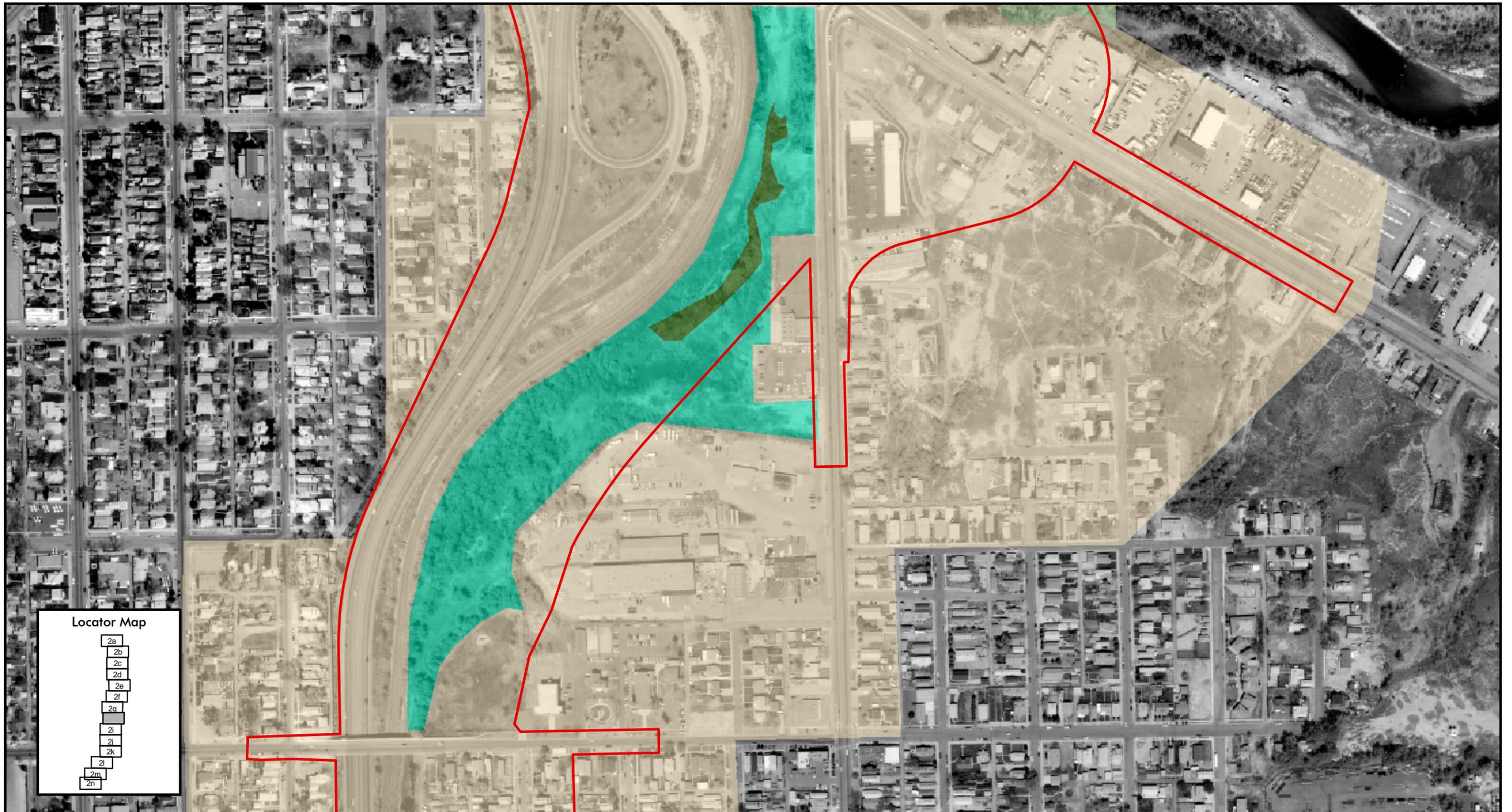
**Species**  
 BI - Bindweed  
 CT - Canada thistle  
 KO - Kochia  
 RO - Russian olive  
 RT - Russian thistle  
 TA - Tamarisk

**Density Code**  
 1 - Scattered individuals  
 2 - Scattered patches  
 3 - Medium-sized patches  
 4 - Large, numerous patches  
 5 - Monoculture



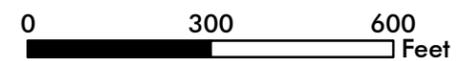
**Figure 2g**  
 New Pueblo Freeway  
 Noxious Weeds

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 File: 2456-mapbook.mxd (GS)  
 February 11, 2004

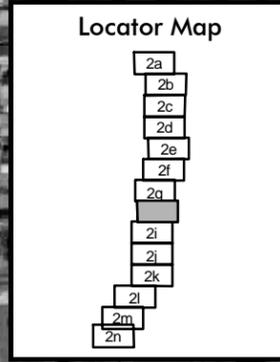


**Figure 2h**  
**New Pueblo Freeway**  
**Habitat Type**

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- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
- KO - Kochia
- RO - Russian olive
- RT - Russian thistle
- TA - Tamarisk

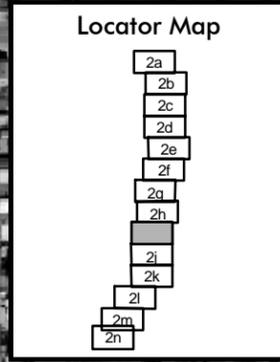
**Density Code**

- 1 - Scattered individuals
- 2 - Scattered patches
- 3 - Medium-sized patches
- 4 - Large, numerous patches
- 5 - Monoculture



**Figure 2h**  
 New Pueblo Freeway  
 Noxious Weeds

Prepared for: CH2M HILL  
 File: 2456-mapbook.mxd (GS)  
 February 11, 2004

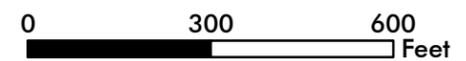


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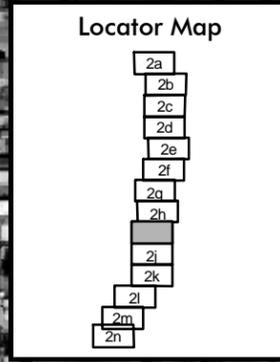
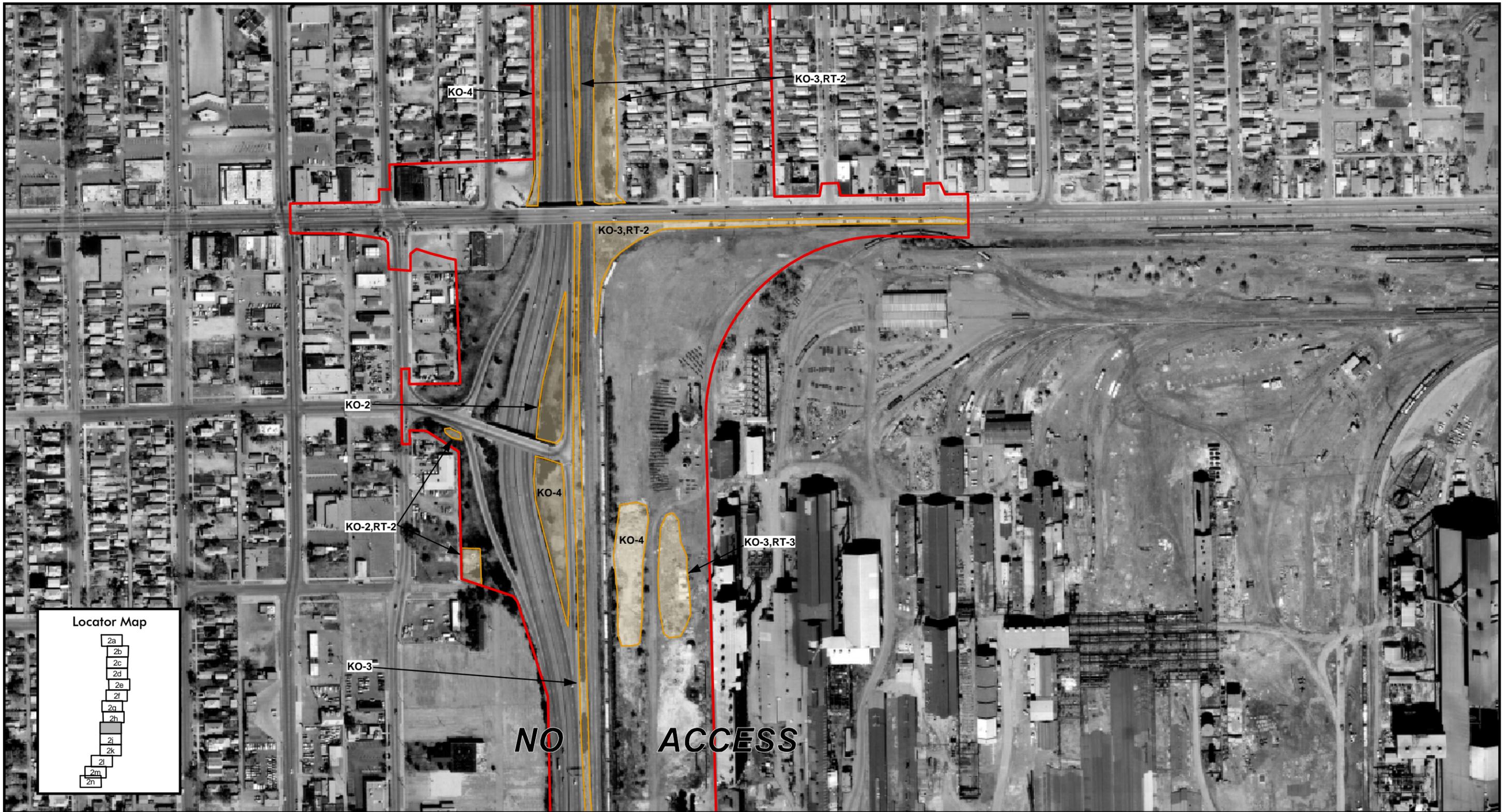
Figure 2i  
New Pueblo Freeway  
Habitat Type

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May 04, 2004

- |  |   |
|--|---|
|  Study Area |  Riparian      |
| <b>Habitat Type</b>  |  Urban         |
|  Open Water |  Wooded Upland |
|  |  Wetland       |



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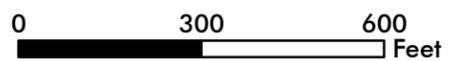
- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
- KO - Kochia
- RO - Russian olive
- RT - Russian thistle
- TA - Tamarisk

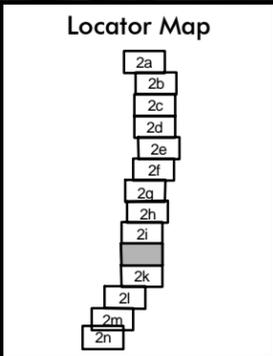
**Density Code**

- 1 - Scattered individuals
- 2 - Scattered patches
- 3 - Medium-sized patches
- 4 - Large, numerous patches
- 5 - Monoculture



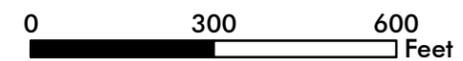
**Figure 2i**  
 New Pueblo Freeway  
 Noxious Weeds

Prepared for: CH2M HILL  
 File: 2456-mapbook.mxd (GS)  
 February 11, 2004



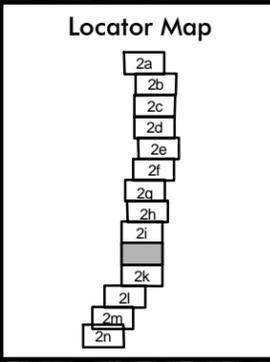
**Figure 2j**  
**New Pueblo Freeway**  
**Habitat Type**

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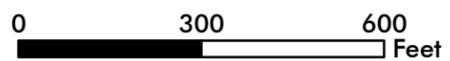
- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
- KO - Kochia
- RO - Russian olive
- RT - Russian thistle
- TA - Tamarisk

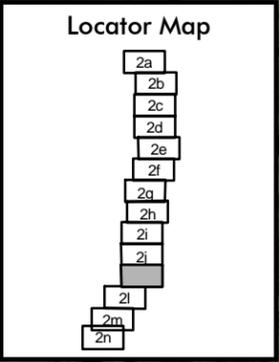
**Density Code**

- 1 - Scattered individuals
- 2 - Scattered patches
- 3 - Medium-sized patches
- 4 - Large, numerous patches
- 5 - Monoculture



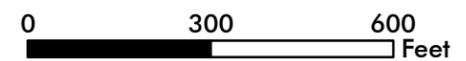
**Figure 2j**  
 New Pueblo Freeway  
 Noxious Weeds

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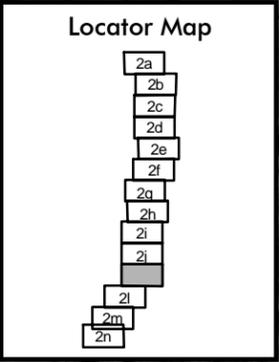


**Figure 2k**  
**New Pueblo Freeway**  
**Habitat Type**

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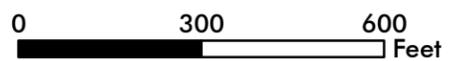


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 Study Area  
 Noxious Weed Population

**Species**  
 BI - Bindweed  
 CT - Canada thistle  
 KO - Kochia  
 RO - Russian olive  
 RT - Russian thistle  
 TA - Tamarisk

**Density Code**  
 1 - Scattered individuals  
 2 - Scattered patches  
 3 - Medium-sized patches  
 4 - Large, numerous patches  
 5 - Monoculture



**Figure 2k**  
 New Pueblo Freeway  
 Noxious Weeds

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**Figure 2l**  
**New Pueblo Freeway**  
**Habitat Type**

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 May 04, 2004

- |   |            |   |               |
|---|------------|---|---------------|
|  | Study Area |  | Riparian      |
| <b>Habitat Type</b>   |            |  | Urban         |
|  | Open Water |  | Wooded Upland |
|   |            |  | Wetland       |

0 300 600  
 Feet



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- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
- KO - Kochia
- RO - Russian olive
- RT - Russian thistle
- TA - Tamarisk

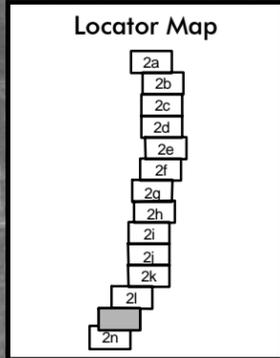
**Density Code**

- 1 - Scattered individuals
- 2 - Scattered patches
- 3 - Medium-sized patches
- 4 - Large, numerous patches
- 5 - Monoculture



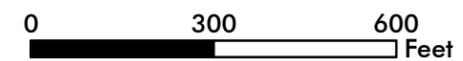
**Figure 21**  
**New Pueblo Freeway**  
**Noxious Weeds**

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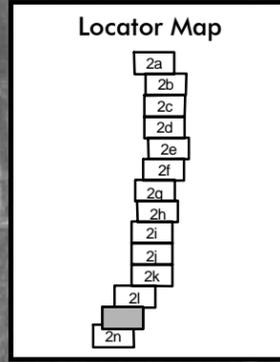
**Figure 2m**  
**New Pueblo Freeway**  
**Habitat Type**

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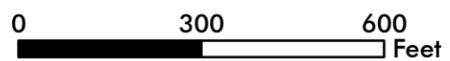
- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
- KO - Kochia
- RO - Russian olive
- RT - Russian thistle
- TA - Tamarisk

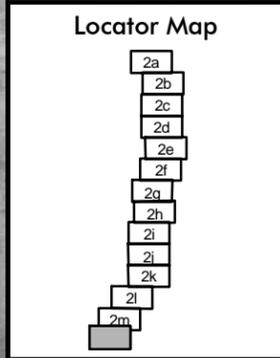
**Density Code**

- 1 - Scattered individuals
- 2 - Scattered patches
- 3 - Medium-sized patches
- 4 - Large, numerous patches
- 5 - Monoculture



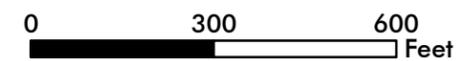
**Figure 2m**  
New Pueblo Freeway  
Noxious Weeds

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**Figure 2n**  
**New Pueblo Freeway**  
**Habitat Type**

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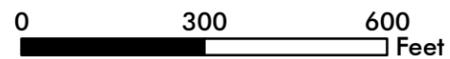
- Study Area
- Noxious Weed Population

**Species**

- BI - Bindweed
- CT - Canada thistle
- KO - Kochia
- RO - Russia olive
- RT - Russian thistle
- TA - Tamarisk

**Density Code**

- 1 - Scattered individuals
- 2 - Scattered patches
- 3 - Medium-sized patches
- 4 - Large, numerous patches
- 5 - Monoculture



**Figure 2n**  
**New Pueblo Freeway**  
**Noxious Weeds**

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