SMITH ENVIRONMENTAL, INC.
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WILDLIFE SURVEY AND HABITAT EVALUATION FOR THE TOWN OF SUPERIOR, COLORADO

Phone: 720.887.4928 • Fax: 720.887.4680 • 1001 West 120th Avenue, Suite 210, Westminster, CO 80234

WILDLIFE SURVEY AND HABITAT EVALUATION FOR THE TOWN OF SUPERIOR, COLORADO

Prepared for:

Town of Superior
124 East Coal Creek Drive
Superior, CO 80027

Prepared by:

Smith Environmental, Inc.
1001 West 120th Avenue, Suite 210
Westminster, Colorado 80234
(720) 887-4928

December 19, 2003

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1.0 INTRODUCTION

1.1 BACKGROUND AND STUDY PURPOSE

In 2001, the Town of Superior (hereafter referred to as the Town and refers to both the Town of Superior government and the geographic extent of the Town of Superior) completed its Comprehensive Plan for the community. This plan addresses the remaining areas of the town to be developed. Public meetings were held and numerous citizens expressed interest in protecting and continuing the presence of wildlife in Superior throughout the development process.

Additionally, the Town Board of Trustees appointed interested citizens as members of the Open Space Advisory Committee (OSAC). OSAC members provide recommendations to the Board for areas that should be set aside within a planned development for open space. As part of the Town's OSAC charter (2003a), wildlife habitat, hunting and feedings areas, migration corridors, and other criteria are to be considered when evaluating land for open space areas.

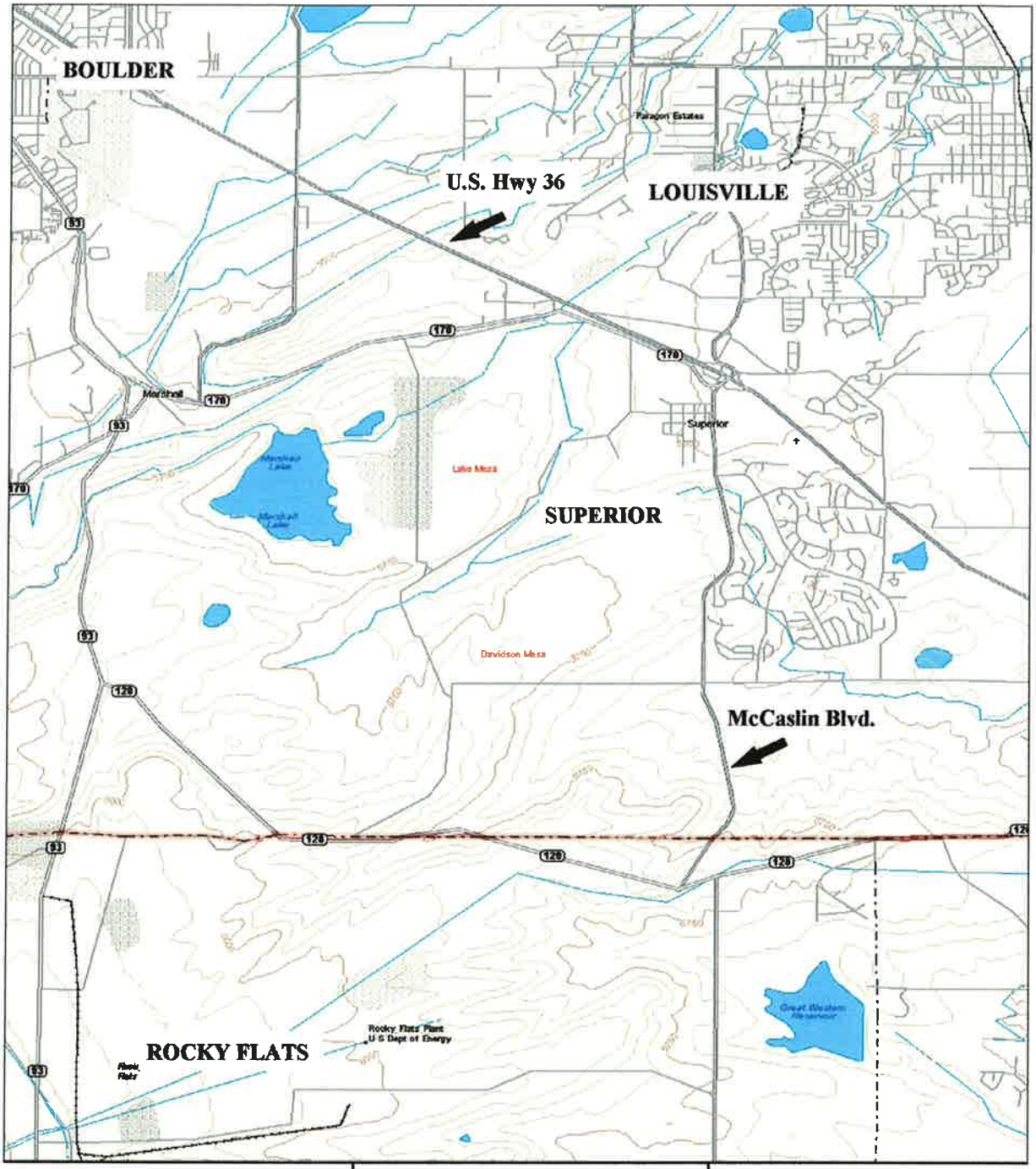
In February 2003, the Town contracted with Smith Environmental, Inc. (SEI) to perform a wildlife assessment of 18 privately owned properties (hereinafter referred to as the study area) and develop geographic information systems (GIS) mapping of wildlife data. The Town identified the properties to be studied. The goal of the project is to describe wildlife habitats, corridors, enhancement opportunities and human interaction with wildlife on each of these properties to provide a basis for: 1) making property acquisition recommendations, 2) evaluating development proposals, and 3) assisting in the development of an Open Space Management Plan.

1.2 LOCATION OF STUDY AREA

The Town is located between U.S. Highway (U.S.) 36 to the north and Colorado State Highway (SH) 128 to the south, approximately five miles southeast of the City of Boulder (see Figure 1.2-1). McCaslin Boulevard is the major north-south roadway through the Town and the study area. Most of the Town is located in southeastern Boulder County, with a small portion of land in northern Jefferson County. Downtown Denver is approximately 20 miles to the southeast. The properties are largely undeveloped and several are currently proposed for development (see Figure 1.2-2).

1.3 ENVIRONMENTAL SETTING

The study area is generally characterized by gentle to moderately rolling topography, rising from east to west. Topographic lows occur along Coal Creek and Rock Creek, the two principal drainages through the Town. These creeks drain to the northeast into Boulder Creek, a tributary of the South Platte River. Historically, native mixed-grass and tall-grass prairie dominated in the upland areas and trees, shrubs and grasses dominated in the riparian areas of the Town. Dominant wildlife species likely included typical Central Plains keystone species including: black-tailed prairie dogs (*Cynomys ludovicianus*), black-footed ferret,



SMITH ENVIRONMENTAL INC.

1001 West 120th Avenue, Suite 210
Westminster, CO 80234
720-887-4928
720-887-4680 (fax)

Town of Superior Wildlife Survey and Habitat Evaluation

Scale: 1 in. = 5,865 ft. (Approx.)

Figure 1.2-1 - Vicinity Map

Prepared for the Town of Superior

August 2003

Map from DeLorme TopoQuads 1999

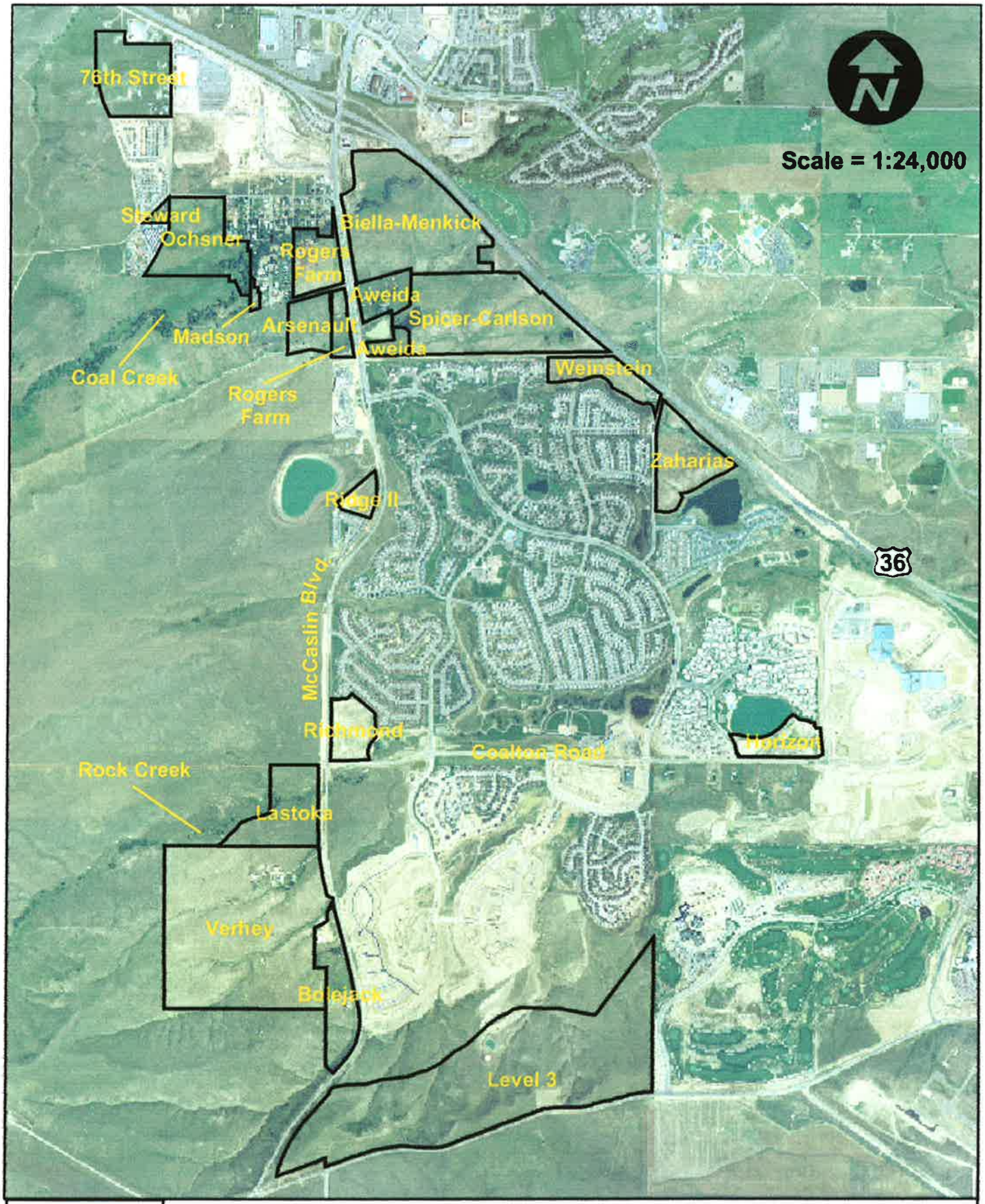


Figure 1.2-2: Location of the Study Area Properties

SMITH ENVIRONMENTAL INC. 1001 WEST 120TH AVE., SUITE 210 WESTMINSTER, CO 80234	Data Collected By: GM Drawn By: SG Date: December 18, 2003	Town of Superior Wildlife Survey and Habitat Evaluation

(*Mustela nigripes*), bison (*Bison bison*), pronghorn (*Antilocapra americana*), western rattlesnake (*Crotalus viridus*), and numerous songbird and raptor species. The introduction of large-scale human disturbances including settlement, coal-mining and conversion of prairie to agricultural use permanently changed the physical and biological features of the landscape.

The Town and surrounding vicinity contain a variety of wildlife because of its location between the foothills and the plains. The study area likely receives infrequent visits from species inhabiting plains, foothill, montane, and aquatic/riparian habitats. The Town is the edge of geographical range for numerous species. The abundance of wildlife species varies widely within and across habitats can not be obtained without detailed population studies.

The Colorado Natural Heritage Program (CNHP) identifies the Town vicinity, and more specifically, the Louisville quadrangle, as an ecologically important area. They identify four Potential Conservation Areas (PCA's) within the Louisville quadrangle (see Figure 1.3-1). These PCA's are remnants of historical (pre-disturbance) native plant and animal communities and host several biologically rare and imperiled species. Several of these species are listed and protected as Threatened under the Endangered Species Act, including the bald eagle (*Haliaeetus leucocephalus*), Ute ladies'-tresses orchid (*Spiranthes diluvialis*) and the Preble's meadow jumping mouse (*Zapus hudsonius preblei*).

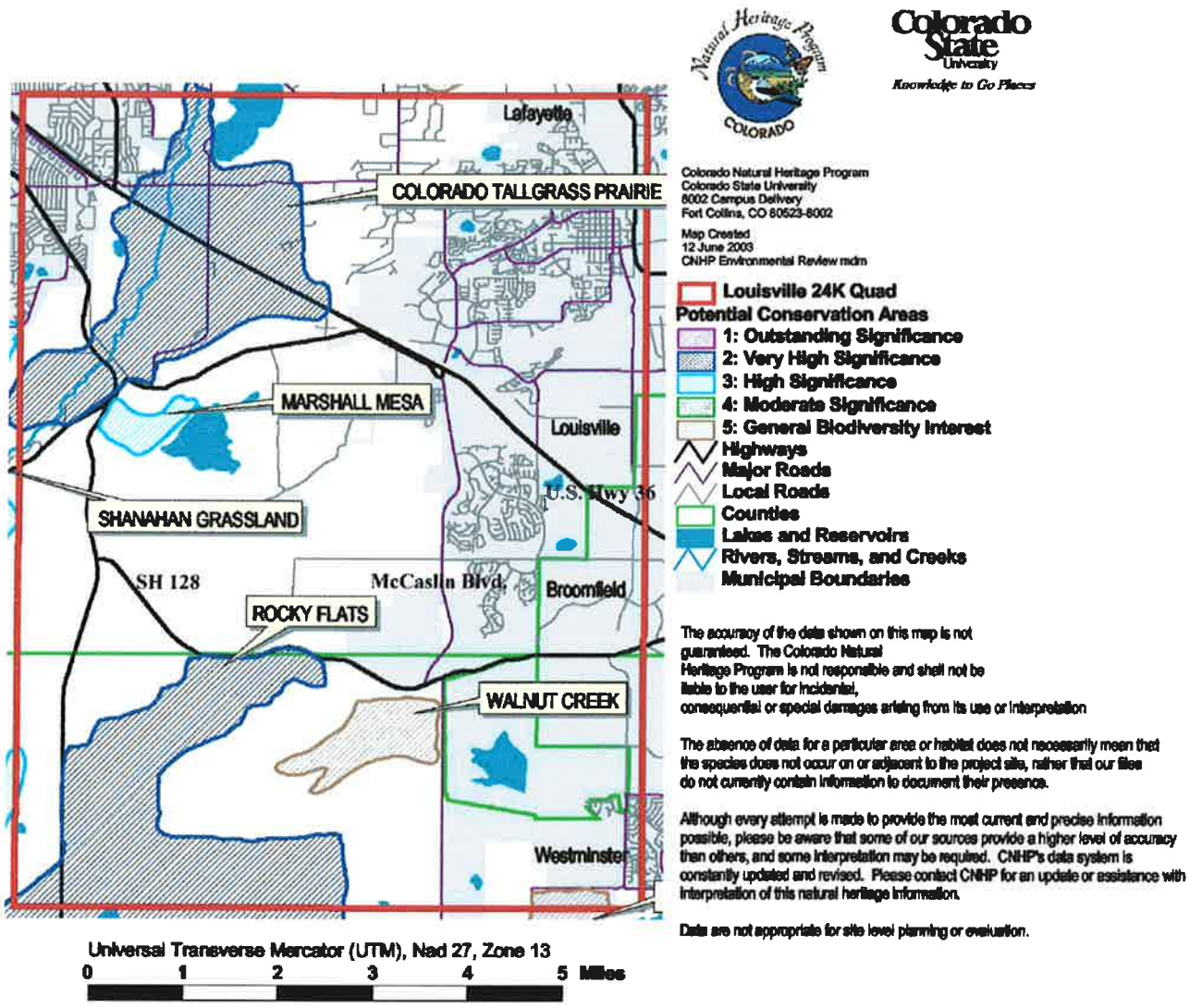
1.4 WILDLIFE ABUNDANCE TERMINOLOGY

Population estimates in this report are given in terms of relative abundance, not absolute numerical value. These relative terms are as follows: casual/accidental, very rare, rare, uncommon, sparsely common, fairly common, common and abundant. Birds are the only wildlife group for which the abundance term has a numerical value (Andrews and Righter 1992). The abundance term and associated numerical value are as follows:

- Abundant: >100/day in appropriate season and habitat
- Common: 25 – 100/day
- Fairly Common: 10 – 25/day
- Uncommon: 1 – 10/day
- Rare: 1 – 5/day
- Very Rare: 10 – 40 (for the state as a whole, or within certain areas or seasons)
- Causal: 4 – 9 records
- Accidental: 1 – 3 records

Abundance categories indicate the average number of birds that would be seen by an observer over many trips in several years in the appropriate season, area and habitat. They do not indicate the number of birds that can be seen by a specialist studying or searching for a particular species. Relative abundance for amphibians, reptiles and mammals are expressed in these aforementioned relative terms and represents the professional judgment of the author making the estimate. To generate numerical population estimates for the study area would be an improper use of the very limited data. More technical studies (small mammal trapping transects, pitfall traps, etc.) are needed to accurately develop this information.

Figure 1.3-1. CNHP (2003) Potential Conservation Areas in the Louisville Quadrangle



Source: CNHP (2003)

2.0 METHODOLOGY

2.1 LITERATURE REVIEW

Prior to the commencement of field evaluations, an initial field reconnaissance and literature review was conducted to determine types of habitats present on each property. Literature reviewed included the Colorado Division of Wildlife's Natural Diversity Information Source database (2003), Hammerson (1999) data of amphibians and reptiles, Menough (2003) data of birds, Andrews and Righter (1992), Kaempfer (1998), Kingery (1998), and Fitzgerald et al. (1994) data of mammals. The ecological types observed during the field reconnaissance are listed on Table 2.1-1. Aerial photographs were obtained of each property at a scale ranging from 1:2,500 to 1:14,750, scales suitable for aerial photo interpretation and identification of on-ground features and ecological types.

2.2 FIELD WORK

Aerial photographic features were inspected and checked in the field by an experienced field biologist. Features missed by photo-interpretation were drawn on the aerial photos. After the aerial photo feature verification was completed, the boundaries for each property and each significant habitat type present were recorded using a Trimble global positioning system (GPS) on properties for which landowner access was granted. Walking or driving the boundary with an all-terrain vehicle recorded x-y coordinate points along the boundary.

While using the GPS, the biologist also recorded and qualitatively ranked 13 pertinent habitat attributes including features present, wildlife species seen, and human disturbance elements present on a standard Habitat Quality Rating Form (HQRF) data sheet (see Figure 2.2-1). An HQRF was completed for each major habitat type present on each property.

Habitat quality data were recorded on the HQRF, not the number of species or individual animals seen. It was collected for birds (primarily songbirds and passerines), raptors (eagle, hawk, falcon, owl and vulture species), waterbirds (waterfowl, wading birds and shore birds), mammals, reptiles (snakes, lizards and turtles) and amphibians (salamanders, frogs and toads), and other wildlife (including fish and any wildlife of interest not covered by the previous categories). **Nearby Habitats** were also recorded and rated.

Pristine Quality was rated based on a subjective evaluation of how current ecological conditions resemble those assumed to be present about 150 years ago, before non-indigenous settlers arrived in Colorado. **Livestock Disturbance** was recorded and rated based on the current evidence of livestock grazing on each property (i.e., the presence of livestock, coral facilities, stock tanks, and, in certain cases, the presence or distribution of weedy plant species. **Human Disturbance and Proximity** was recorded and measured as a function of both on-site usage and disturbance resulting from adjacent land uses. **Enhancement Possibilities** were recorded and rated based on aspects of each property that could be improved for the general benefit of wildlife (i.e., the removal of weedy plants, livestock

Table 2.1-1 ECOLOGICAL TYPE AND CONDITION CLASSIFICATIONS

Habitat Type	Symbol
WETLAND	
Cattail Marsh	CM
Bulrush Marsh	BM
Sedge/Rush (meadow or shoreline)	SR
Willow Shrub	WS
AQUATIC	
Open Water	OW
Stream	ST
Ephemeral Drainage	ED
Modified Drainage	MD
GRASSLAND	
Mixed Grass Prairie (0 - 33% cover)	MG (0 – 33%)
Mixed Grass Prairie (34 - 66% cover)	MG (34 - 66%)
Mixed Grass Prairie (67 – 100% cover)	MG (67 - 100%)
Weedy/Disturbed (0 - 33% cover)	WD (0 – 33%)
Weedy/Disturbed (34 - 66% cover)	WD (34 - 66%)
Weedy/Disturbed (67 – 100% cover)	WD (67 - 100%)
Wet Meadow	WM
SHRUBLAND	
Riparian Shrubland	RS
FOREST	
Riparian Forest	RF
Cottonwood Grove	CG
Urban Forest	UF
Scattered Deciduous Trees	SD
AGRICULTURAL	
Pasture	PA
Irrigation Ditch	ID
MISCELLANEOUS TYPES	
Building	BD
Roads/Recreational Trail	RD/RT
Disturbed	Dist

Figure 2.2-1. Habitat Quality Rating Form (HQRF)

Site Name: _____ Investigator: _____ Date: _____

Site Description (Ownership/Location): _____

_____

Habitat Condition/Types: _____

_____

Property Size_____ (acres)

HABITAT RATINGS:

Very Low		Low		Moderate		High		Very High	
1	2	3	4	5	6	7	8	9	10

Overall Habitat Rating: ____

Birds: ____;

_____

_____

Raptors: ____;

_____

_____

Waterbirds: ____;

_____

_____

Mammals: ____;

_____

_____

Reptiles and Amphibians: ____;

_____

_____

Other Wildlife: ____;

_____

_____

Nearby Habitats: ____;

Pristine Quality: ____;

Livestock Disturbance: ____;

Human Disturbance and Proximity: ____;

Enhancement Possibilities: ____;

Visual Quality: ____;

Special Features: ____;

Wildlife/Human Conflict (Y/N): ___ Literature (Y/N): ___

Wildlife Corridor (Y/N): ___ Any critical INFO needed (Y/N):___

MEMO FILE COMMENTS (use reverse side if necessary).

grazing reduction, human debris removal, planting of various vegetation types, etc.). **Visual Quality** was rated based on a subjective "general citizen" analysis of each property's physical and biological appeal to potential recreational users of the property as a designated open space area. **Special Features** were recorded and rated as a function of unique biological features present on each property (streams, ponds, wetlands, etc.). **Wildlife/Human Conflict** was recorded as the potential for negative interactions between wildlife and human uses (animal-car collisions, urban pest species, etc.). Each property's status as a **Wildlife Corridor** was also recorded.

These ratings were based on the professional judgment of SEI's wildlife biologists, not on quantitative wildlife data (e.g., wildlife population density, productivity, carrying capacity, etc.). Quantitative data were neither available nor collected for this study. Between the initial reconnaissance and the data collection periods, all properties were visited at least three times by the biologist. The limited number of visits are not sufficient to witness all wildlife species that may use each property, record all human disturbance elements, or observe all types of wildlife-human conflict. All surveys were conducted during daylight hours, which serve as a bias against recording the presence of nocturnal and crepuscular (active at dawn and dusk) species.

2.3 DATA ANALYSES

After field data collection completed, HQRF data were entered into a spreadsheet. All of the ranked variables were added together to obtain a numerical total. All rankings had equal weighting except for **Human Disturbance and Proximity**, **Enhancement Possibilities**, **Wildlife/Human Conflict** and **Wildlife Corridor**. These four latter values were determined to have greater importance relative to open space designation and preservation. **Human Disturbance and Proximity** was generally viewed as a negative attribute for open space and was multiplied by a factor of three to obtain a more substantial difference (weighting) between individual properties.

The **Enhancement Possibilities** category was also viewed as a negative attribute in terms of existing habitat quality and amount of cost and effort required for improving the property. A higher recorded value for this category meant that the property was of lower biological quality, resulting in a generally higher potential for enhancement. Values in this category were adjusted from a field–collected value to an inverted rating (10 = 1, 9 = 2, . . . 1 = 10) before entering on the spreadsheet. Therefore, a property with lower field-collected value was generally viewed as better (having better enhancement possibilities).

Two variables, **Wildlife/Human Conflict** and **Wildlife Corridor**, were assigned yes/no values in the field. Numerical values were subsequently assigned to the categories as well. Values for the **Wildlife/Human Conflict** category were assigned as follows:

- 1 for properties with no or minimal potential for conflict (positive)
- 0 for properties that will likely experience wildlife conflicts (negative)

This category was weighted only slightly as most properties had some level of human-wildlife conflict and the full extent of these conflicts were unknown based on the limited number of site visits.

The final weighted habitat attribute, the presence of a **Wildlife Corridor**, was viewed as important factor. Properties with a wildlife corridor present were assigned a "yes" value of 1, while properties lacking a corridor were assigned a "no" value of 0. To reflect the weighted significance of this attribute, properties with a wildlife corridor value of 1 were multiplied by a factor of 3. Only terrestrial corridors (Coal Creek and Rock Creek) that facilitate species movement within the Town, were considered based on their benefit to multiple wildlife groups.

After all values were assigned and entered into the spreadsheet, the final values for all fifteen attributes were added together and averaged. This average was obtained for each property and entered into a spreadsheet as the Overall Habitat Quality Ranking (OHQR) (see Section 3.2). The OHQR value for each property was then ranked against the OHQR values for all other properties. This comparative ranking serves as the basis for the recommendations for open space preservation and property acquisition discussed later in this report.

2.4 GEOGRAPHIC INFORMATION SYSTEMS MAPPING PROCESS

Habitat attribute polygons were downloaded from the GPS unit onto a computer and differentially corrected. After differential correction, the polygons were imported into the ArcView geographic information system (GIS) computer-mapping program. The polygons were then overlaid onto an aerial photograph of the Town (MapMart 2003) for which the location of geographical features are verified through the collection of GPS data. All collected and acquired data were projected in North American Datum 1983. The color aerial photograph was captured in 1999 at a one-meter square pixel resolution. The photograph was taken prior to the construction of several major development features (Flatirons Crossing Mall and several residential subdivisions).

Minimal manual editing of polygons was necessary to correct floating or non-continuous lines that may have occurred during GPS data collection. Polygon acreages were calculated and compared to the property acreages provided by the Town. If discrepancies existed, properties were re-evaluated to assure that the correct boundaries were illustrated on the final maps. ArcView coverages for roads, streams were obtained from the Colorado Department of Transportation (CDOT) (2003) and floodplains were obtained from Boulder County (2003) and the Town (2003) were overlaid onto the polygons and aerial photograph. Tabular data associated with polygons were created and edited so that all polygons and their associated features were labeled correctly. Additional coverages were drawn in ArcView to illustrate various ecological conditions/types, species and wildlife group habitats and corridors, and wildlife protection and enhancement areas.

Three sets of maps were created for each property. These include maps to illustrate the various ecological conditions and types (habitats) present on each property, species and group-specific habitat, and Wildlife Protection and Enhancement Areas. ArcView GIS coverages have been submitted to the Town to provide additional information not evident on the paper maps caused by the difficulty in observing multiple or overlapping information layers.

An available ArcView coverage for the 100 year floodplain for Coal Creek and Rock Creek, have also been included on the Wildlife Protection and Enhancement maps at the Town's request to illustrate where development may not be feasible for portions of properties.

3.0 RESULTS AND DISCUSSION

A list of wildlife species (amphibians, reptiles, birds and mammals) known or potentially occurring in the Town and its vicinity, their relative abundance and any state or federal listing has been included in Appendix A.

A discussion of the ecological types, wildlife habitat, and wildlife species resources, and protection and enhancement strategies for each property are presented Section 3.1. The wildlife protection and enhancement strategies presented are designed to increase the number of wildlife species and individual animals present on each property. Discussion of available resources and protection and enhancement opportunities provides a basis for giving ratings for, and comparisons of each property and recommendations for property acquisition. This discussion is presented in Section 3.2. Section 3.3 provides recommendations for best management strategies for development once properties, or portions thereof, have been acquired by the Town.

3.1 PROPERTY - SPECIFIC EVALUATIONS

Sections 3.1.1 – 3.1.17 and Appendix B detail ecological and wildlife features present for each property. The properties are discussed in alphabetical order, beginning after the 76th Street Property. As the Level 3 property was assessed later, in December 2003, it has been included as Appendix B. Maps illustrating wildlife habitat types, species presence/usage areas, and wildlife protection and enhancement areas are presented in each subsection

3.1.1 76th Street Property (Wiehe, Sawyer, Martinez, Huntsman and Turnbull Parcels)

Five parcels that comprise the overall property, and total approximately 30 acres. For the purposes of evaluation, all five parcels have been grouped together. This property is located at the southwest corner of the intersection of 76th Street and Marshall Road, in the northwestern portion of the Town. This property is generally covered by grassy/weedy fields interspersed with private residences, debris piles (the southern half Martinez and Turnbull parcels), and a pond with accompanying wetlands (on the Weihe parcel). There is a horse pasture on the Martinez parcel. The remnants of an old railroad grade are still present adjacent to the western edge of the overall property.

There are several land uses adjacent to this property. Boulder County Open Space owns the land to the west of this property and allows limited cattle grazing on their land. The land immediately to the north of this property is owned by a private individual (as a private residence) and CDOT, which operates an equipment storage and maintenance facility. U.S. 36 and Marshall Road are within 100 yards of the northern boundary of the property. The land on the east side of 76th Street has been developed for a commercial shopping complex. The Sagamore residential subdivision is adjacent to the property along the southern boundary.

The ecological types present on the 76th Street Property and their percentage of property coverage are listed on the following table and shown in Figure 3.1-1.

Habitat Type	Acreage (approx.)	% of property covered (approx.)
Weedy/Disturbed (33 – 66% Cover)	14.63	43.5
Mixed Grass Prairie (33 – 66% Cover)	14.47	43.0
Urban Forested	2.39	7.1
Building	0.95	2.8
Sedge/Rush	0.72	2.1
Open Water	0.38	1.1
Cattail Marsh	0.06	<1
Willow Shrub	0.04	<1

Wildlife species visually evident or heard on the property during field surveys include: American Robin, Barn Swallow, Common Grackle, European Starling, House Finch, House Sparrow, Mallard, Red-tailed Hawk, Red-winged Blackbird, Rock Dove, Western Meadowlark, painted turtle, an unidentified snake skin shed and unidentified fish species. Additional species not seen also use this property. General wildlife habitat associations are shown in Figure 3.1-2.

Wildlife enhancement and protection strategies are presented in Table 3.1-1. Proposed wildlife protection areas and a range of enhancement strategies are presented in Figure 3.1-3.

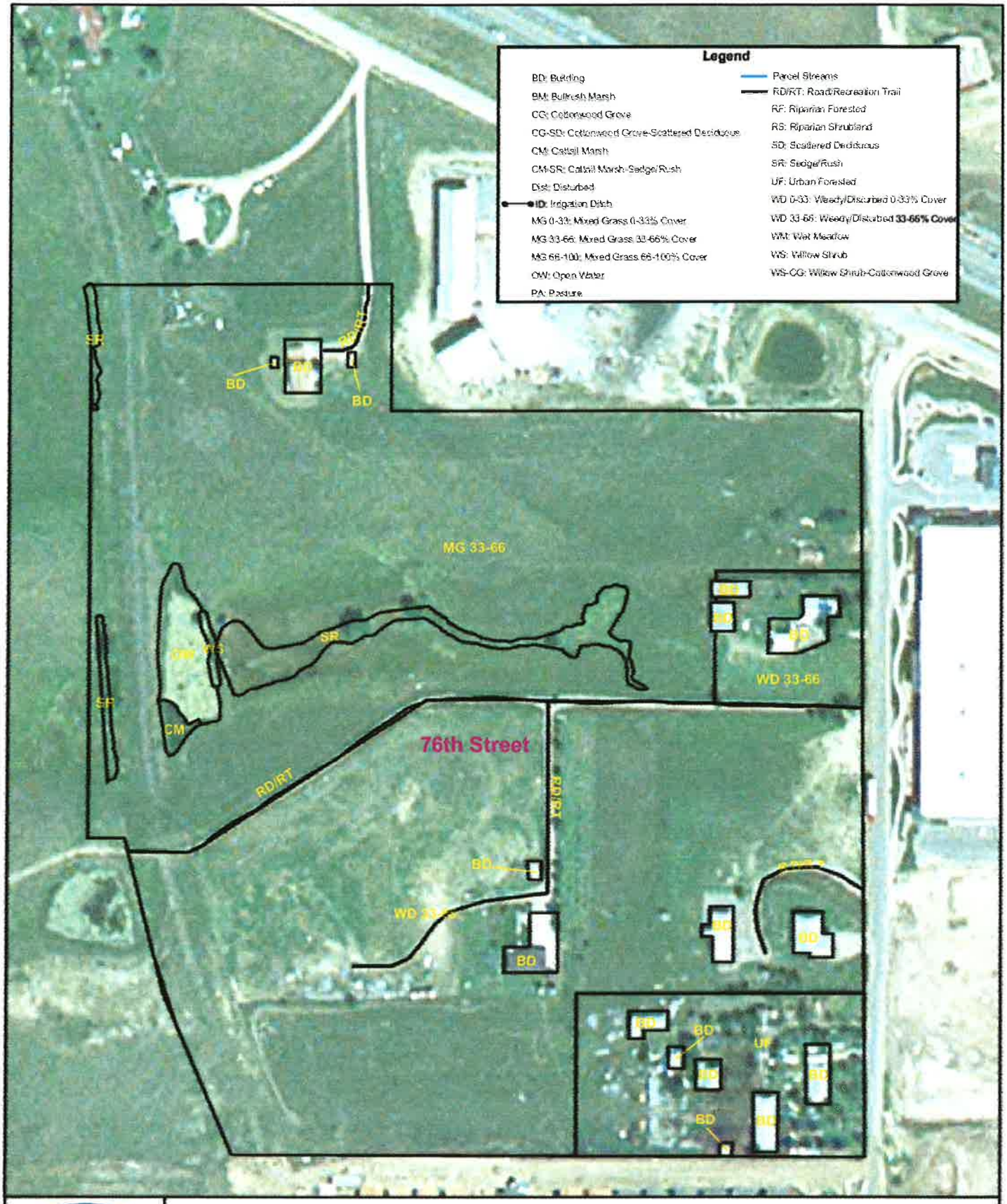


Figure 3.1-1: 76th Street Property: Ecological Type and Condition Map

SMITH ENVIRONMENTAL INC.
1001 WEST 120TH AVE., SUITE 210
WESTMINSTER, CO 80234

Data Collected By: GM
Drawn By: SG
Date: September 8, 2003

0 100 200 Feet

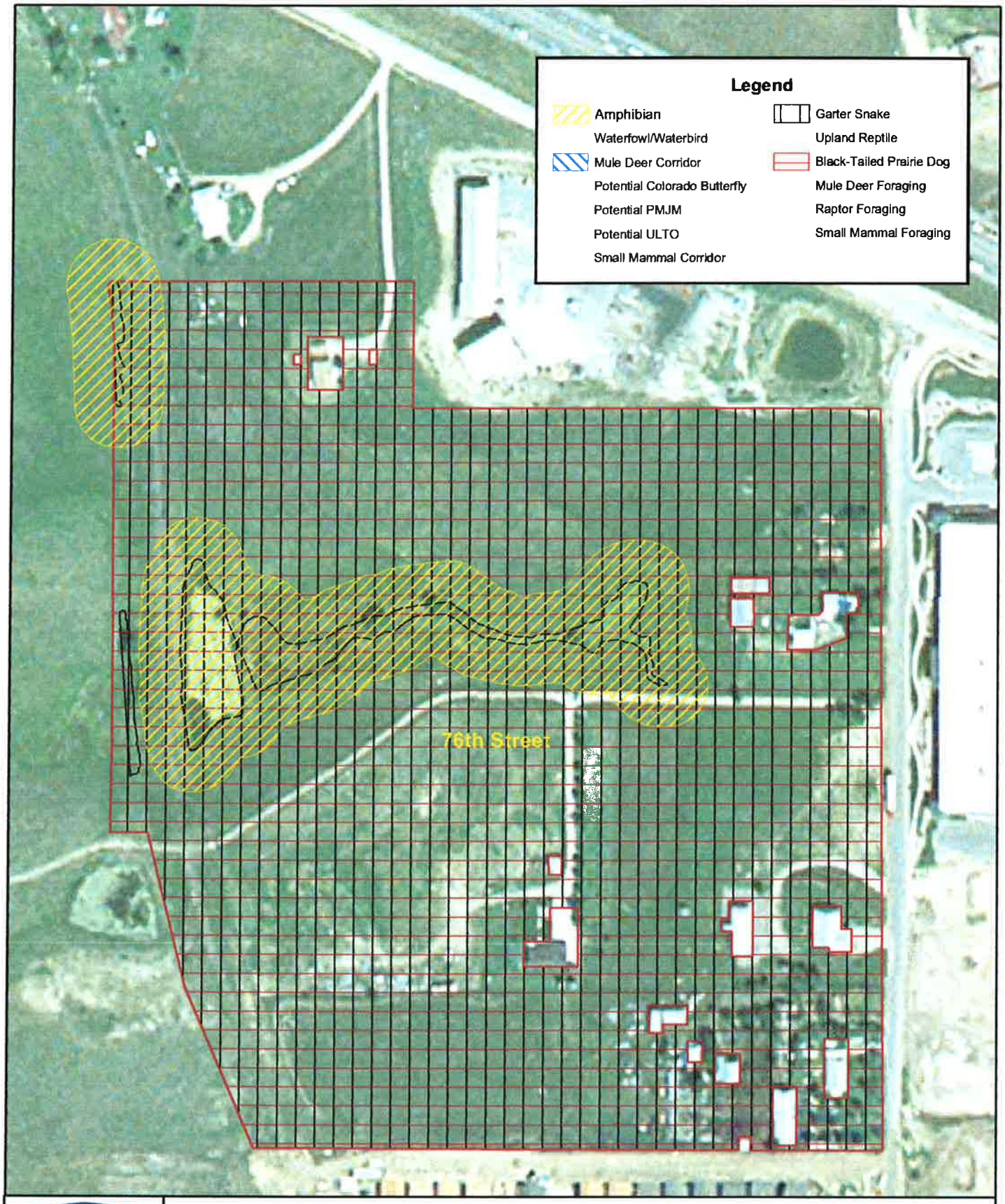


Figure 3.1-2: 76th Street Property: Habitat Type and Corridor Map

SMITH ENVIRONMENTAL INC. 1001 WEST 120TH AVE., SUITE 210 WESTMINSTER, CO 80234	Data Collected By: GM Drawn By: SG Date: September 8, 2003	0 100 200 Feet	N

Table 3.1-1 WILDLIFE PROTECTION AND ENHANCEMENT STRATEGIES AND RELATIVE COSTS FOR THE 76TH STREET PROPERTY

Wildlife Protection Strategies*	Wildlife Enhancement Strategies*	General Property Improvement*
Amphibian and Waterbird Protection Area	*Fish Enhancement Area – pond and adjacent wetland areas on Weihe parcel – Low to Moderate $$*	Exotic/noxious weed removal, re-seed weedy and disturbed areas with native plant species – Low to Moderate $$
	Remove debris from pond on Weihe parcel – Low to Moderate $$	*Remove existing trash/debris piles on Martinez and Turnbull parcels – Moderate – High $$*
	Reduce slope of walls around pond on Weihe parcel to improve wildlife access and usage, create open mudflats; promote increased usage by amphibians, waterbirds – High $$	*Connect all parcels of the property via removing fences if all parcels are acquired– Low to Moderate $$*
	Remove railroad grade west of pond on Weihe parcel, connect to wetlands on W. side of berm, allow for more natural topographic-related drainage into pond – High $$	*Remove all buildings if all parcels acquired – Very High $$*
	Excavate small pond downslope (east) of existing pond to catch water overflow runoff, would supplement/improve existing wetlands – High $$	*Build a recreational trail on top of the old railroad grade (conflicts with railroad grade removal strategy)- High $$*
	Install bat boxes and bird nest boxes on fences and near wetland areas to promote species usage and diversity, added benefit of local mosquito control – Low $$	*If feasible, connect properties to existing Boulder County Open Space property to the west (potential conflicts with livestock grazing and others) - Low $$*
	Plant cottonwood trees to benefit aesthetics, raptors, birds, and mammals) - Moderate $$	Remove or restrict livestock grazing to minimize conflict with recreational users – Low $$
	Plant upland shrubs for reptile, bird and small mammal habitat - Low $$	

* = Italicized text denotes strategy tied to geographic feature and/or shown on Protection and Enhancement Map

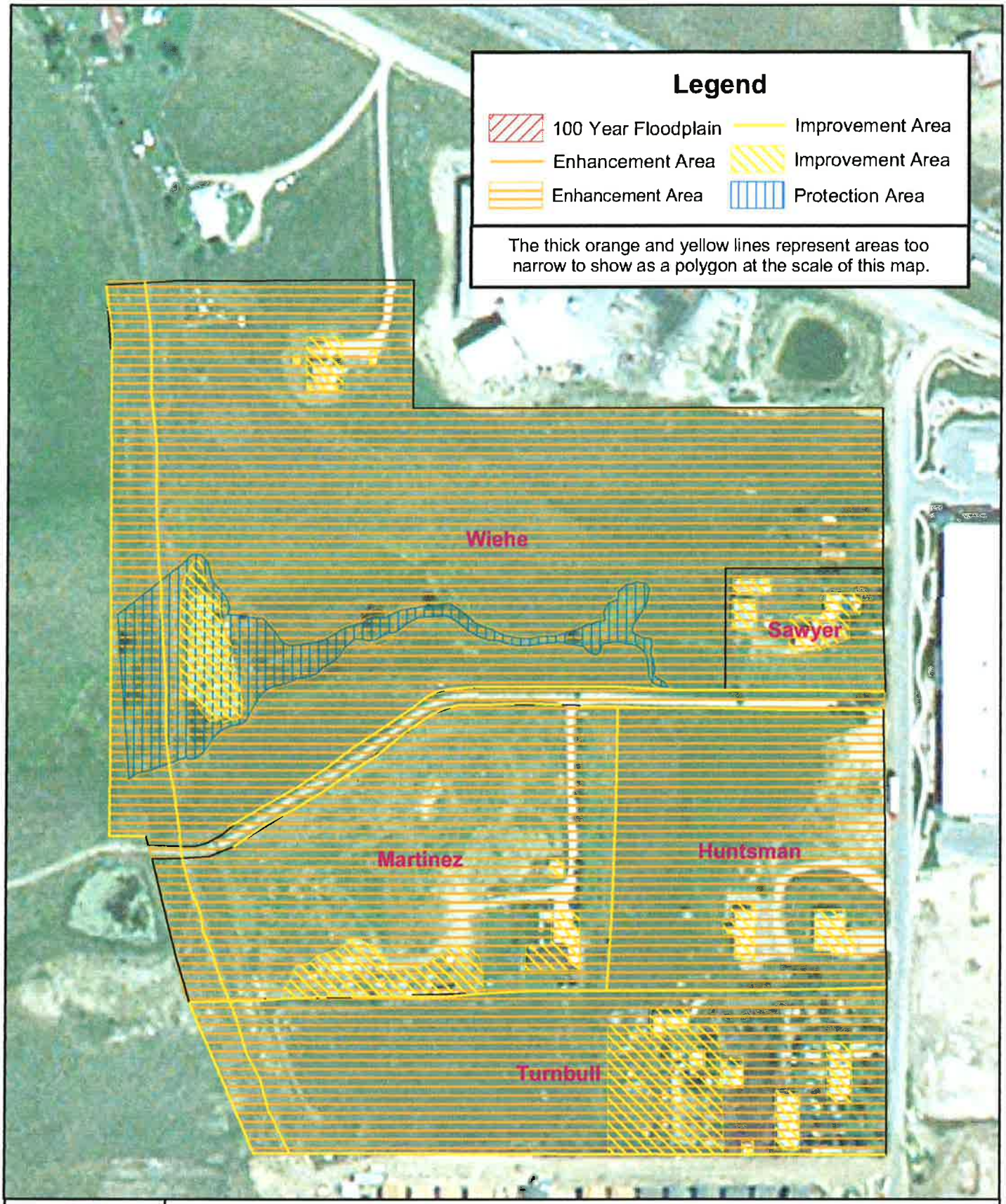


Figure 3.1-3: 76th Street Property: Wildlife Protection and Enhancement Map

SMITH ENVIRONMENTAL INC. 1001 WEST 120TH AVE., SUITE 210 WESTMINSTER, CO 80234	Data Collected By: GM Drawn By: SG Date: September 8, 2003	0 100 200 Feet	N

3.1.2 Arsenault Property

This property is located at the southern terminus of 2nd Avenue and encompasses approximately 14 acres, just south of Old Town Superior. Boulder County Parks and Open Space subleases this property and allows cattle grazing as part of a scientific study. Farmer's Reservoir Irrigation Company (FRICO) Community Ditch (a concrete-lined irrigation canal) meanders along the south boundary of the property. Prairie dog activity is prominent on the northern half of the property.

There are several land uses adjacent to this property. Rogers Farm borders the property to the north and east. An office building borders the property to the southeast. Private land borders the property to the south and west.

The ecological types present on the Arsenault property and their percentage of property coverage are listed on the following table and shown in Figure 3.1-4.

Habitat Type	Acreage (approx.)	% of property covered (approx.)
Mixed Grass Prairie (0 – 33% Cover)	9.83	69.3
Mixed Grass Prairie (33 – 66% Cover)	4.16	29.3
Scattered Deciduous	0.20	1.4

Wildlife species visually evident or heard on the property during field surveys include: American Kestrel, Black-billed Magpie, European Starling, House Sparrow, Western Meadowlark, black-tailed prairie dog and desert cottontail rabbit. Additional species not seen also use this property. General wildlife habitat associations are shown in Figure 3.1-5.

Wildlife enhancement and protection strategies are presented in Table 3.1-2. Proposed wildlife protection areas and a range of enhancement strategies are presented in Figure 3.1-6.

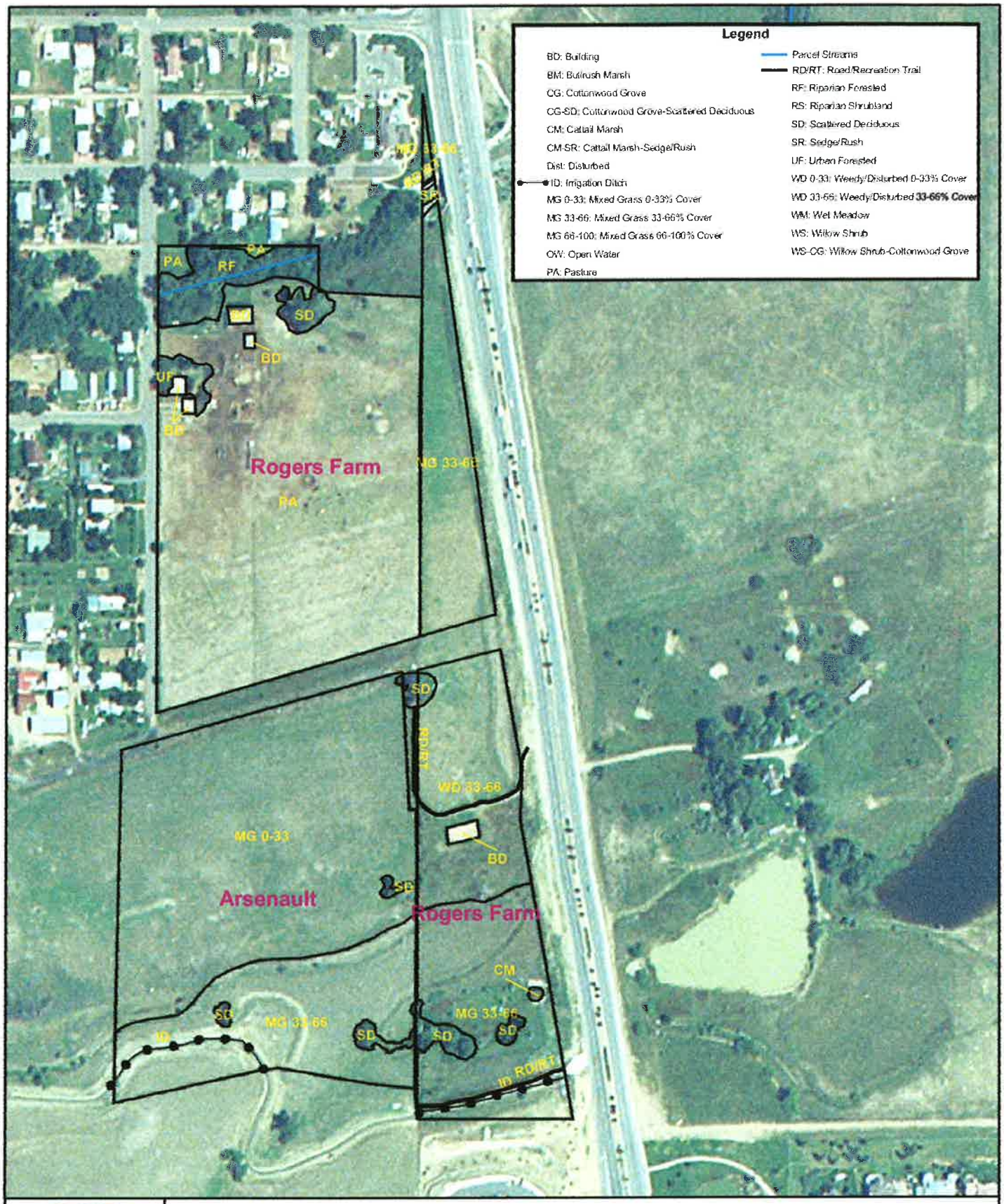


Figure 3.1-4: Arsenault and Rogers Farm Properties: Ecological Type and Condition Map

SMITH ENVIRONMENTAL INC.
1001 WEST 120TH AVE., SUITE 210
WESTMINSTER, CO 80234

Data Collected By: GM
Drawn By: SG
Date: September 8, 2003

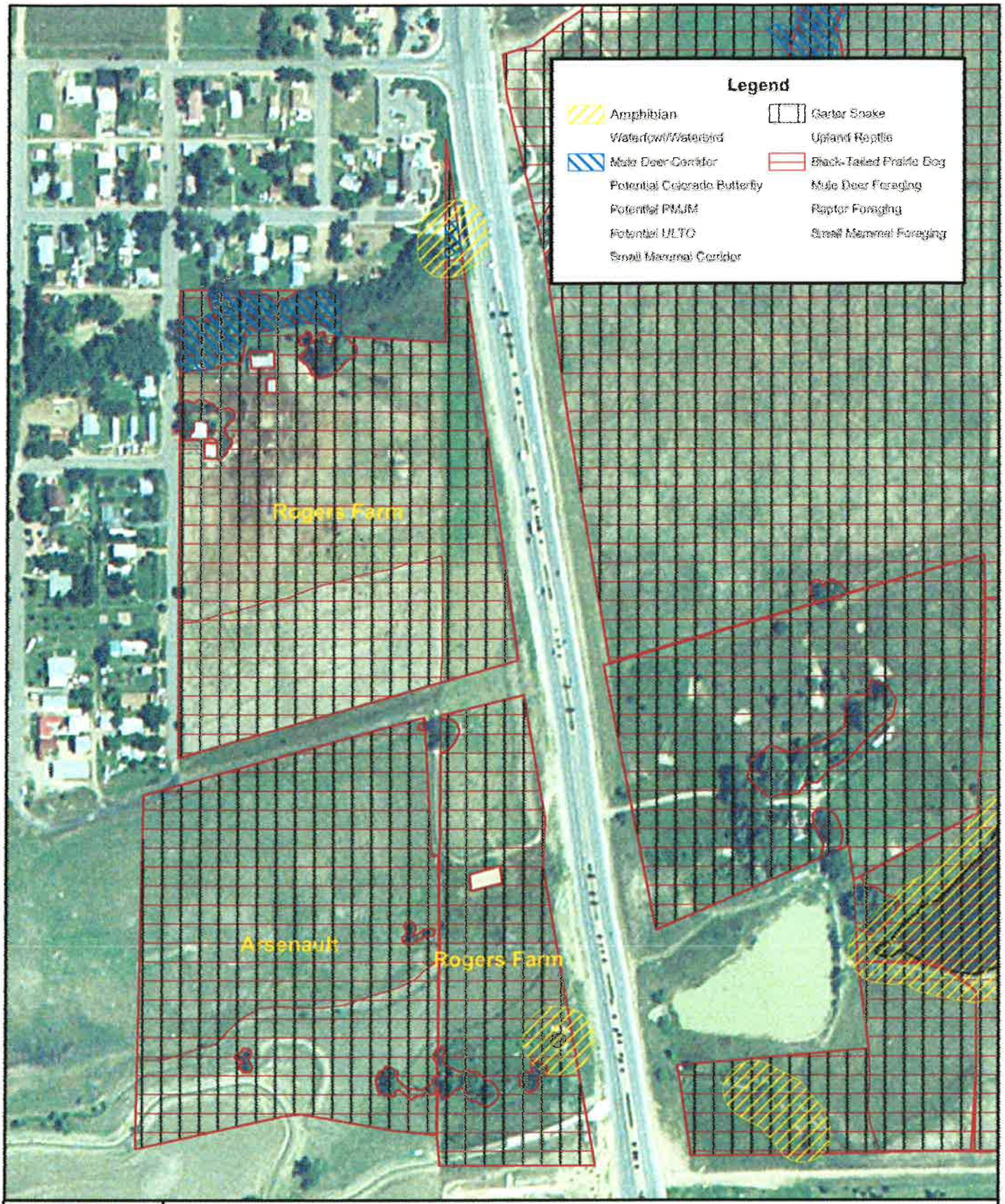


Figure 3.1-5: Arsenault and Rogers Farm Properties: Habitat Type and Corridor Map

SMITH ENVIRONMENTAL INC.
1001 WEST 120TH AVE., SUITE 210
WESTMINSTER, CO 80234

Data Collected By: GM
Drawn By: SG
Date: September 8, 2003

0 150 300 Feet

Table 3.1-2 WILDLIFE PROTECTION AND ENHANCEMENT STRATEGIES AND RELATIVE COSTS FOR THE ARSENAULT PROPERTY

Wildlife Protection Strategies*	**Wildlife Enhancement Strategies***	**General Property Improvement Strategies***
Raptor Protection Areas – mature trees and prairie dog colonies	*Install raptor perches and prairie dog predator cover on or around property to limit prairie dog movement and regulate populations by promoting predator success - Low to Moderate $$*	Exotic/noxious weed removal, re-seed weedy and disturbed areas with native plant species – Low to Moderate $$
	Divert water from irrigation canal down through property to create wetland habitat, diversify species and habitats present (costly acquisition of water rights and excavation costs) - High to Very High $$	Build a recreational trail on upslope portion of property (not immediately adjacent to irrigation canal) to utilize viewshed and increase recreational opportunities (potential conflict with Raptor Protection Areas) - High $$
	Plant upland shrubs for reptile, bird and small mammal habitat - Low $$	Remove livestock or restrict grazing allowed on property - Low $$

* = Italicized text denotes strategy tied to geographic feature and/or shown on Protection and Enhancement Map