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Land Planning • Landscape Architecture

TRANSMITTAL MEMORANDUM

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DATE 10/07/92
NSA NO. 215-A-88

ATTN: Brian Houth

RE: ROCKRIMMON DBPS

TRANSMITTED HEREWITH:

COPY	QTY	DESCRIPTION
1	1	Rockrimmon DBPS Evaluation of Drainage Alternatives (revised)
1	1	Park/Open Space/Trails Resource Inventory (revised)
1	1	Vegetation and Wildlife (revised)



SIGNED

Received By _____

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DRAINAGE ALTERNATIVES ANALYSIS

AREA 1 - DESCRIPTION AND COMMENTS

Wildlife habitat and a mixture of mature and immature riparian woodland vegetation and is limited to the area surrounding the outfall point at Monument Creek. The major vegetation type along this reach is grassland vegetation. Any construction impacts should be minimal if properly handled and if disturbed areas are revegetated. Multi-objective activities are limited along this reach. The potential for a recreational trail is very limited or nonexistent because of existing transportation corridor and land use barriers. Wildlife migration routes are also severely hampered for the same reasons.

If future improvements are made to expand the capacity of the existing channel, short term impacts such as erosion and increased sedimentation should be handled in an acceptable manner. If flows or velocities are increased along this reach, the potential for increased erosion will exist at the outfall point to Monument Creek. Acceptable methods of mitigating this impact should be considered before any improvements occur upstream.

AREA 2 - DESCRIPTION AND COMMENTS

Grassland vegetation is the dominate vegetation along this section of drainage corridor. Any future channel improvements or construction impacts to the existing vegetation system should be minimal if properly conducted. Short term environmental impacts such as increased erosion and sedimentation caused by construction activities should be carefully monitored and handled in an acceptable manner. An improved natural channel, utilizing one or more of the "state of the art" natural channel improvement techniques should be investigated and considered as an alternative to the existing situation. As it now exists, multi-objective

activities such as trail construction and wildlife migration routes/habitat are very limited or nonexistent due to existing transportation and land use barriers and the existing concrete channel.

AREA 3 - DESCRIPTION AND COMMENTS

More diversity of vegetation, wildlife habitat, and variety of wildlife species is encountered along this reach. Vegetation consists mainly of grassland vegetation with pockets of shrubs and scattered trees (woodland classification). Proposed surrounding land uses include commercial business uses along the southern portion of the corridor with higher density residential and private open space along the remaining portion. Because this channel is located on private lands, there is very limited or no potential for a coordinated trail development program along this section. To maintain and promote the environmental integrity of this area, the majority of this reach should be left in a natural or near natural condition. Any necessary spot improvements should be made to problem (erosion) areas by utilizing one of the various natural channel improvement treatments. The use of geofabrics, interlocking blocks, bio-engineering, or other "natural" bank stabilization methods should be explored as viable alternatives to a concrete or rip-rap lined channel.

AREA 4 - DESCRIPTION AND COMMENTS

The diversity of vegetation and wildlife habitat is very limited along this reach. Because of the steep side slopes and severe erosion occurring along portions of this channel, vegetation is limited to grassland vegetation and invader species of weeds. Surrounding land uses include private open space along both sides of the channel. A narrow strip of undeveloped park land exists north of this area. Because the channel is located on private property and trail

linkages to the west are nonexistent, there is very little or no potential for trail development along this reach. More natural bank stabilization techniques, rather than a total rip-rap treatment, should be explored for areas of the channel experiencing erosion problems. Because there is some area (width) to work with along here, the possibility of laying the side banks back to a more gentle slope should be investigated. This would decrease erosion potential and provide more suitable conditions for vegetation establishment, also improving the wildlife habitat. If improvements are made to the existing channel, care should be taken to handle increased erosion and sediment loads through an acceptable erosion control program.

AREA 5 - DESCRIPTION AND COMMENTS

Because of the existing concrete lined channel, vegetation and wildlife habitat is nonexistent. In its current form, the multi-objective planning concept for this channel is limited to transporting stormwater runoff. If this reach is left in its present form, it will be very unlikely that multi-objective activities such as recreational/trail experiences, improved wildlife habitat, and improved water quality will be achieved.

AREA 6 - DESCRIPTION AND COMMENTS

The existing steep banks and severe erosion conditions along this section have severely limited vegetation, wildlife and wildlife habitat abundance and diversity. This reach is buffered by private open space and undeveloped park land along and near both sides of the channel. Because of terrain conditions and private land ownership along this section the possibility of a trail linkage through here is very limited or nonexistent. Cleaning out the present rip-rap debris and laying the side slopes back to a more gentle slope with a more "natural" bank stabilization and

revegetation program should be investigated. Increased erosion and sediment load during any future improvement work should be addressed in an acceptable erosion control plan. A more "natural" treatment could greatly improve not only the aesthetics of this reach, but also the diversity of vegetation and wildlife habitat.

AREA 7 - DESCRIPTION AND COMMENTS

This reach of channel contains two diverse mature and immature riparian woodlands, wetlands or "near" wetlands environment of vegetation and wildlife, including excellent bird and small animal habitat. Riparian woodlands vegetation such as willows, cattails, and scattered cottonwoods are abundant. The area is currently acting as a large sponge to help filter out pollutants and sediments and also helps slow storm water velocities. The majority of this reach is surrounded by undeveloped, public park lands with single family residential areas in the nearby vicinity. Any construction work done along this section should be done with extreme caution and sensitivity to the existing environment. Aesthetically pleasing and more natural methods for improvements should be explored to the fullest extent. This area provides an excellent opportunity for the multi-objective concept of stormwater runoff and pollution control, wildlife and vegetation preservation and recreational/trails opportunities. Placement of a trail system through and along this reach should be done with a great deal of planning and environmental sensitivity.

AREA 8 - DESCRIPTION AND COMMENTS

This reach of channel contains a diverse and abundant environment of native grasslands with scattered clumps of woodland shrubs and pockets of immature riparian woodlands or "near" wetlands vegetation. There is also an abundance of excellent wildlife and bird habitat along this portion of

the channel. Throughout its reach, this area provides for an excellent opportunity for multi-objective activities. In many cases, because of the close proximity to single family residences, erosion problem areas should be handled in an environmentally sensitive and aesthetically pleasing manner as possible. This would include a "softer" approach to channel improvements where possible. During channel improvements, every attempt should be made to cause the least amount of disruption to the existing environment. Increased erosion and sediment loads caused by any construction activities should be mitigated by appropriate erosion control methods. Placement of the proposed trail through this reach should involve thorough planning and design with regards to visual quality and environmental sensitivity.

AREA 9 - DESCRIPTION AND COMMENTS

A diverse and abundant vegetation and wildlife community is located along this reach. The majority of the vegetation is grassland, but clumps of various woodland shrubs, including scattered ponderosa pines and scrub oaks are also present. The channel is surrounded by a relatively narrow strip of undeveloped park land with single family residences located next to this strip. Because of the close proximity to single family residences any erosion problem areas should be addressed in as sensitive and aesthetically pleasing manner as possible. To protect the environmental integrity and promote the multi-objective concept of stormwater drainage, future channel improvements should include investigation of the various alternatives to a concrete or rip-rap lined channel. Placement of the proposed trail through and along this reach should be done with a great deal of planning and environmental sensitivity.

AREA 10 - DESCRIPTION AND COMMENTS

The existing concrete lined channel along this reach severely limits an abundance or diversity of vegetation or wildlife. Near the channel, surrounding vegetation consists mainly of grassland vegetation. Wildlife, especially the larger species such as deer have difficulty crossing or migrating along this reach. Very little habitat and cover is available along this section. Increased velocities through this area have caused severe erosion problems to the reach below, especially were stormwaters discharge into the natural channel. To promote multi-objective activities and improve the situation both environmentally and aesthetically the City should consider removing the concrete section and replacing it with a more "natural" channel. This would have the overall benefit of improving the visual quality of the area, improving the water quality, increasing the potential recreational experience, reducing stormwater velocities, and improving vegetation cover and wildlife habitat. Along these lines, it is recommended that the use of in-channel gradient control structures be utilized to arrest existing erosion forces. Short term impacts such as erosion and increased sediment load during reconstruction would need to be mitigated through an acceptable erosion control program. Impacts to the vegetation system would be minimal if revegetated after construction. As it now exists, the placement of a trail system near the channel becomes a real challenge to provide a worthwhile experience.

AREA 11 - DESCRIPTION AND COMMENTS

Vegetation along this section of channel consists of a thick cover of native grassland intermixed with scattered woodlands vegetation (pines, junipers and clumps of scrub oaks). This reach provides excellent wildlife habitat for numerous wildlife and bird species. Surrounding land use consists of undeveloped parkland surrounded by single family residential to the north and south. Because this section is

highly visible from War Eagle Lane, any improvements such as the discharge point from the west or trail improvements should be conducted in an environmentally sensitive and visually pleasing manner. Any concrete or rip-rap lined channel would be inappropriate and destructive to the existing environment.

AREA 12 - DESCRIPTION AND COMMENTS

This small reach of channel includes a diverse and abundant vegetated area that supports an excellent wildlife habitat. Vegetation consists of grassland and woodlands type vegetation including pines, woodland shrubs and clumps of scrub oak. The channel is located within a small parcel of undeveloped parkland with single family residences to the south. Because of private lands and lack of trail linkages to the west, this area will most likely not contain a planned trail system. Other multi-objective activities can be met by the preservation of this area.

AREAS 13 AND 14 - DESCRIPTION AND COMMENTS

No comments.

AREA 15 - DESCRIPTION AND COMMENTS

This reach contains a mixture of mature riparian woodlands and woodlands vegetation, including a mature stand of cottonwood trees, elms, various shrubs and native grassland that should be preserved and enhanced for erosion control and wildlife and bird habitat. Better channel definition is needed but a concrete or rip-rap lined channel would be inappropriate due to disruption of the existing environment and decreased visual quality. This channel provides an excellent opportunity for a trail system that will link the Rockrimmon area with a future trail corridor along Monument Creek.

AREA 16 - DESCRIPTION AND COMMENTS

This section of channel consists of a relatively narrow channel section with steeper side slopes along the upper reaches that tends to flatten out towards the bottom. Vegetation consists of a nice stand of woodland vegetation (mature ponderosa pine) along the upper reaches and a mixture of woodland (deciduous trees, bushes, and shrubs) and native grassland vegetation near the lower end. Numerous signs of wildlife migration are present along and nearby the channel. Because of the relatively steep side slopes, the placement of a trail system will have to be accomplished with a great deal of planning and environmental sensitivity. Because of the maturity and size of the existing vegetation disruption of the existing environment should be kept to a minimum. To preserve the environmental and aesthetic integrity of this reach, erosion control to existing problem areas should include more "natural" treatments if possible.

AREA 17 - DESCRIPTION AND COMMENTS

This section of channel consists of a relatively narrow channel section with steeper side slopes along the middle and lower reaches. Recent drainage improvements, a rip-rap outfall area, have taken place along the upper reach of this section. Vegetation consists of grassland along the upper reaches and a mature stand of woodland vegetation (ponderosa pine) along the middle and lower reaches. Numerous signs of wildlife migration are present along and nearby the channel. Because of the relatively steep side slopes and the lack of erosion controlling vegetation beneath the ponderosa pines, the placement of a trail system will have to be accomplished with a great deal of planning and environmental sensitivity. Because of the maturity and size of the existing woodland vegetation disruption of the existing environment should be kept to a minimum. To preserve the environmental and

aesthetic integrity of this reach, any erosion control should include more "natural" treatments where possible. An old coal deposit near the channel should be cleaned up because of its destruction to vegetation and wildlife habitat in the vicinity.

PARKS/OPEN SPACE/TRAILS RESOURCE INVENTORY

The purpose of this inventory and analysis was to prepare an inventory of the public land along the major drainage, and to analyze this land for recreational opportunities. This property was then analyzed for the alignment of a pedestrian trail system through the northern tributary, and portions along the Golden Hills Tributary. This analysis will provide for a conceptual trail location, will point out constraints and conflicts between the proposed trail and existing and future drainage channel relationships, and provide recommendations for mitigation of these conflicts.

The main objective for the provision of a trails system through this drainage basin was to provide a trail link which will attempt to connect the future Monument Creek Trail located at the base of the Basin to the Foothills and Ute Valley Park Trail System located just beyond the upper reaches of this basin. This trail system plan is the initial step in developing a trail design through this northwest community which was planned for in the Multi-use Trails Master Plan for Colorado Springs. A trails analysis map was prepared in conjunction with this inventory and is provided within this documents appendix.

For the purpose of this report we will present this analysis based upon a reach by reach basis as the public land corridor follows the drainage system. The drainage is divided into the Golden Hills Reach of the Golden Hills Tributary, and the Tammaron Reach and Comstock Reach of the North Tributary.

GOLDEN HILLS REACH

The Golden Hills Reach is located at the lower end of the Rockrimmon North Drainage Basin and lies between Monument Creek at the low end and Delmonico Drive at the upper end. This particular drainage is not a part of the main drainage system flowing through the Rockrimmon North D. B., but is a side tributary which accumulates localized drainage mainly from the Golden Hills Neighborhood Area and empties into Monument Creek. Due to the fact that this channel has much less storm runoff flows than the main drainage, we have fewer erosion problems. The Golden Hills Reach is characteristically a very deep and steep sided channel and is densely vegetated with mature Ponderosa Pine and Gambel's Oak (Woodland Classification).

Public access points along the Golden Hills Reach are limited to accesses within Golden Hills Park (Park/Sanctuary), at Delmonico Dr. at the upper end of the reach, and at Mark Dabling Rd. and Monument Creek at the lower end of this reach.

Private access along this reach is limited to two points on the north bank, where private open space links connect the Golden Hills neighborhood to the park property. These open space connections are for use by lot owners of the Golden Hills Homeowners Assn. only. These access points allow excellent opportunities for access to the trail system for these lot owners without having to use the public access points outside of their neighborhood.

Due to steep and heavily vegetated nature of this reach of the drainage, we feel that a maintenance road would not only be ineffective, but would severely impact the native vegetation and overall aesthetics of this natural channel. The construction of this maintenance road would also increase the impervious surface within this drainage, which could ultimately cause future erosion problems due to increased storm runoff. For purposes of trail

design we recommend that the best location of the trail would be in the bed of the existing drainage channel. This location was chosen, for purposes of attempting to minimize destruction of native vegetation from excavation, as well as offering a more aesthetic trail experience. The trail base would need to remain entirely natural in order to prevent any changes to the flow characteristics of the channel, so as not to cause future erosional problems downstream.

The first trail/channel conflict encountered, as we trace the alignment from Monument Creek up the channel, is the DRGW R.R. R.O.W. crossing. The drainage flows beneath the railroad bridge and enters into a 4'x6' box culvert just east of the rails where it is routed under Mark Dabling Blvd. R.O.W.. The clearance under the Railroad Bridge is approximately 6 - 7.5' maximum, but this elevation changes with the amount of sediment in the channel at that given time of year. This clearance is not adequate for bicyclists or equestrians, but may be adequate to allow pedestrians to pass under with some caution. To lower the drainage bed at this location does not in our opinion to be a feasible solution since the drainage must enter the box culvert about 20' east to the bridge, and the drainage may not be able to flow properly into this structure if the drainage bed is lowered. If it is found in the analysis of the basin hydrology that the box culvert is not adequate to handle existing flows and has to be reconstructed, then this bed lowering may be taken into consideration at that time. Investigation will also need to be performed on the railroad bridge to determine if a lowering of the drainage bed under this structure will compromise the structural integrity of the footings and abutments. If it is assumed that the existing clearance is adequate for grade separated crossing, the fact remains that this is still Railroad Property and agreements need to be worked out with the appropriate officials for an access easement to cross this property and to address liability. The box culvert immediately

east of the rail road bridge is definitely too small to allow grade separated access under Mark Dabbling Blvd., and an at grade crossing with the street is the only alternative unless the box is reconstructed for reasons previously mentioned. This street will not be as heavily traveled, and may not present the need for grade separation.

Continuing west up this reach there are two erosional problem areas occurring along the south bank. The first area is along the north side of North Park Centre a commercial center. This erosion is being caused by storm runoff entering the channel through no facilities and is severely eroding the south bank and depositing trash and sediment into the natural channel. The second area is located just east of the property line of Golden Hills Park (Park/Sanctuary) and is located on private property. This erosion problem is being caused by a deposit of coal which is being eroded by storm runoff and is causing an alluvial fan of coal particles to be washed out over the south bank. These particles are killing all of the ground cover vegetation in its path. The killing of this protective ground cover will ultimately result in future soil erosion problems to this south bank. In both cases it is our opinion that the key to these problems lie in communications with the private property owners on whose land the drainage problems are being created. An outfall facility needs to be constructed at the point in which the drainage from North Park Centre is entering the channel. The coal bank needs to be shored up and possibly facilities put into place to convey this drainage into the main channel. Both of these problems will be destructive to any proposed trail through this area unless corrected.

Near the upper end of this reach the proposed trail needs to cross Delmonico Drive. Delmonico is a 4-lane arterial street carrying high volumes of traffic at high speeds. This is a dangerous crossing point for pedestrians. We recommend that the

ultimate solution would be to construct a pedestrian bridge or tunnel at this location. It is also our recommendation that a temporary signalized pedestrian light needs to be placed at this location immediately, since the Golden Hills Park (Park/Sanctuary) which was under construction at the time of this analysis will soon be completed and will begin to draw pedestrian traffic from the bordering Tammaron Neighborhood to the west. The proposed bridge or tunnel in this location could prove to be very expensive since there is no current drainage crossing present, for to take advantage of existing grades and structures in accomplishing a grade separated crossing.

TAMMARON REACH

Immediately after crossing Delmonico Dr. the proposed trail enters the Tammaron Reach of the North Tributary. This reach lies between Rockrimmon Blvd. on the upper end, and Delmonico Dr. and Saddlemountain Dr. on the lower end. This reach of the drainage follows along the main channel of the northern tributary which carries storm runoff from approximately half of the entire North Rockrimmon Drainage Basin. The natural characteristics of this reach are considerably different than those of the Golden Hills Reach in that the channel gradient is much flatter, which has caused more meandering of the channel. The banks are void of overstory vegetation, with the native vegetation consisting primarily of native grasses, with sparse scattered clumps of shrubs (Grassland Classification). This particular reach due to its flatter slope gradient and slower flows has more aquatic associated vegetation species (Immature Riparian Woodland Classification) within it.

Public access points along this reach are minimal. Access can be obtained from Delomonico Dr. or Saddlemountain Dr. on the lower end of the reach, from Hawkeye Cr. also near the lower end or the reach, and from Rockrimmon Blvd. at the upper end of the reach.

Private access points from private open space connections are limited to two locations off of the north bank, somewhat centrally located along the reach.

Due to the limited public access points along this reach and the flat meandering nature of the channel, which has higher tendencies of eroding private property; we would recommend the trail section through this reach be constructed for the provision for maintenance vehicles. The banks along this reach for the most part are wider with flatter slopes and less vegetated, therefore a wider trail/maintenance road section could be constructed through this reach with very little impact to the existing character of this reach. The final design of this system must take into consideration the sensitive immature riparian woodland areas within this reach so as not to disturb this sensitive ecosystem.

The first trail/channel conflict encountered as you trace the alignment of the trail corridor from the lower end to the upper is immediately upon entering the corridor from Saddlemountain Dr. or from the Delmonico Drive connection. This portion of the drainage corridor has somewhat steep side banks on both sides of the channel with some existing rip-rap in place on the south bank. The trail/road through this short 200-300 ft. section would need to be placed directly adjacent to the channel to avoid mass excavation of either bank. To accomplish this trail placement, some formal containment of the drainage may need to be considered in order to keep from having the trail/road from being washed out by storm drainage within the channel.

The meandering nature of the channel through this reach has caused erosion of private property in at least three locations. These areas need to be addressed immediately to prevent further damage. Any permanent solution within these areas will have a direct bearing on the location of the trail through this reach. The

design of channel improvements throughout this reach should be designed cooperatively with the trail/maintenance road design.

As the trail leaves the Tammaron Reach it encounters the third major alignment conflict in the basin, which is the crossing of Rockrimmon Blvd. This crossing location has been an existing problem for the community for some time, which has prompted the placement of a pedestrian signal at this location of the proposed trail crossing. Rockrimmon Blvd. is a 4-lane arterial street with heavy traffic traveling at high speeds. The crossing presently is located at the center of a curve in the street and sight distance visibility is a problem for pedestrian and motorist interaction. We would recommend that there be a grade separated crossing at this location. The drainage channel currently flows beneath Rockrimmon in box culvert, however the clearance is only approximately 4 ft. on the west side of Rockrimmon Blvd.. The drainage gradient at this location does drop from the west side of Rockrimmon about 12-15 feet vertically to the east, where the drainage outlets into natural channel. A re-construction of this bridge section and lowering the drainage bed west of Rockrimmon Blvd. would allow for a grade separated crossing and still allow for the drainage to flow properly.

COMSTOCK REACH

Immediately crossing Rockrimmon Blvd. to the west the trail corridor enters the Comstock Reach. This reach is the upper reach of the north tributary and lies within the western portion of the N. Rockrimmon Drainage Basin. This reach lies between Rockrimmon Blvd. at the lower end and the intersection of War Eagle Dr. and Allegheny Dr. on the upper end.

The Comstock Reach runs through the higher elevations of the basin and has characteristically different vegetation types along

this reach as opposed to the Tammaron Reach. The Comstock Reach is a much narrower stretch of public land and is heavily vegetated in areas with mature Gambel's Oak and Mature Ponderosa Pine (Woodland Classification) with dense stands of Mountain Mahogany brush (Grassland Classification). The drainage gradient is somewhat steeper than the Tammaron Reach therefore the meandering of the drainage is not as pronounced as the previous reach, but where meandering is occurring, private property is being damaged.

Public access points are numerous along this reach both on the north and south banks. Access can be had from several locations along Allegheny Drive and Grey Eagle Circle, both directly from the R.O.W. and indirectly from side street public R.O.W. such as Black Hawk Dr., War Eagle Place, War Eagle Lane, and War Eagle Drive. Public access is also available through the Foothills Park/School Property near the upper end of the reach.

Private access from private openspace is non-existent. Based upon the numerous public access points along this reach and the narrowness and densely vegetated nature of the reach, it is our recommendation that a small scale trail (6' in width maximum) be constructed through this reach, and that a maintenance road is not needed. Maintenance vehicles can enter and maintain the channel from these access points and do not need to have a continuous route along the channel. A maintenance road would severely impact the vegetative cover through this reach which not only would impact the wildlife populations in the basin but add to the runoff by adding more impervious surface which could increase flows and cause more erosion problems downstream.

The narrowness of the stretch of public land along the banks of the drainage through this reach creates some alignment problems with a future trail. In order to minimize re-channelization

efforts, the trail may have to cross the drainage at various points along the reach.

The public land (Park/Sanctuary) stretch ends at War Eagle Dr. at the upper end of this reach, which means that in order to make a connection the Foothills Trail and Ute Valley Park Trail systems, the trail will have to take an on-street route.

RECREATIONAL OPPORTUNITIES

Recreational opportunities along the entire public land (Park/Sanctuary) stretch adjacent to the drainage, are somewhat limited due to the narrowness and topographical character of the parcel. The implementation of a trail through this stretch of land is the best recreational use for the public owned (Park/Sanctuary) land. Some areas along the Tammaron Reach could be sufficient in size to support more active recreational uses, but the lack of public access prevents this alternative from being feasible. A more realistic alternative would be to take advantage of the private open space connections into the proposed trail corridor in order to promote a network of trails throughout the area. Possibilities of a public/private partnership to create the trail network should be investigated.