

**APPENDIX E:
HABITAT ENHANCEMENT PLAN**

HABITAT ENHANCEMENT PLAN

to satisfy Mitigation Requirements for the

Path 22 East Segment 3 & Middle Section Phase 2 Impacts
(WY State Highway 22 Right-of-Way, West of Spring Gulch Road)



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Prepared for:

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INTRODUCTION

Jackson Hole Community Pathways has plans to construct a multi-use pathway within the Wyoming State Highway 22 right-of-way (ROW) from Spring Gulch Road west for approximately 0.9 miles. As a result of building the 10' wide paved pathway with shoulders on the steep side slope of the highway, approximately 0.07 acres (3,113 sf) of *irrigation induced* scrub-shrub wetlands will be impacted. This impact is a result of fill required to achieve a structurally stable and safe shoulder. According to Teton County Land Development Regulations Section 5.2.1.E.2, *Habitat Enhancement*:

The developer provides mitigation and habitat enhancement for land impacted, either on-site or off-site, on a basis of 2 acres of mitigation/habitat enhancement for every one acre of land impact.

JH Community Pathways is proposing off-site, out-of-kind mitigation within a parcel owned by the Town of Jackson located at Karns Meadow Park and encumbered by a conservation easement held by the Jackson Hole Land Trust. On-site mitigation is not being considered for two reasons:

- 1) additional tall shrubs within the highway ROW may attract ungulates near the roadway and
- 2) the ROW is susceptible to future construction disturbances from activities such as highway maintenance and widening.

The proposed mitigation site is an expansion of the existing, but not yet constructed, mitigation site for the START Bus Maintenance and Transit Facility (Figure 1).

The following habitat enhancement plan offers details on the compensatory mitigation proposed for unavoidable impacts to irrigation induced scrub shrub wetlands associated with the future pathway construction.

GOALS & OBJECTIVES

Approximately 3,113 square feet (0.07 acres) of irrigation induced scrub-shrub wetlands will be impacted by the proposed pathway construction. Irrigation induced wetlands are not protected by setbacks (Teton County LDR 5.1.1.C.1.e, Wetlands) and therefore may be physically developed (Teton County LDR 5.1.1.D.3.b.i, *High-Intensity Use Degrades Wetland/ Wetland Agriculture-Induced*). Therefore, irrigation induced scrub shrub wetlands are classified as mesic, tall shrubs under Teton County's Land Development Regulations and have an ordinal ranking of 8 (Teton County LDRs 5.2.1.F.4.a Ordinal Ranking). Nonetheless, mitigation is required for impacts to irrigation induced wetlands based on Roby Hurley, Teton County Planning Department Principal Planner's application review memo to Gabe Klamer, Teton County Engineering Department, dated September 10, 2015 for this project. Condition #1 of this memo states:

"An impact and mitigation plan shall be required for impacts to tall shrub cover type. On-site mitigation would include areas within any segment of Path 22 project, however, off-site mitigation can be considered."

The primary goal of the mitigation therefore will be to establish 2 times the impacted vegetative cover or 6,226 sf (0.14 ac) of mesic tall shrub vegetative cover type (Teton County Ordinal Ranking 8) near the Path 22 project in Karns Meadow Park. The mesic tall shrub vegetative cover type will substitute for the wildlife habitat cover and food supply component of the irrigation induced scrub-shrub wetland cover type.

The impacted scrub-shrub wetland is a mono-culture of *Salix exigua* (narrowleaf willow). The proposed, tall shrub habitat enhancement will provide a diversity of native riparian and wetland shrubs. The wetland hydrology component will not be a focus of the mitigation site as the hydrology of the impact site is considered “artificial”. The Karns Meadow Park is a preferred location for tall shrub habitat enhancements due to its contiguous habitat component, protection from development and known ungulate use (moose and mule deer) as well as other wildlife species such as song birds, Trumpeter Swans and Bald Eagles.

Quantifiable target conditions for the vegetative cover type enhancement include:

1. plant a minimum of four different native riparian and wetland shrub species to diversify the habitat (preferably species currently present in the meadow) and
2. ensure a 90% survival rate above the ungulate browse line (7' tall) for planted shrubs.

METHODS

The proposed mitigation site will be an extension of the START Facility Mitigation Site presented in the December 21, 2012 *Teton County/Town of Jackson Transit and Maintenance Facility Environmental Analysis*. The START facility mitigation project has not yet been constructed. As part of the START Facility planning effort, the vegetative cover was mapped and wetlands delineated at this mitigation site and in the vicinity in 2012 and 2015. This mitigation site is located in an agricultural meadow vegetative cover type (Ordinal Ranking 2) adjacent to scrub-shrub wetlands and Flat Creek. The following is a description of the methods for providing mitigation and habitat enhancement.

Site and Soil Preparation

The proposed habitat enhancement site is located adjacent to Flat Creek in a low depression. Sufficient wetland and riparian hydrology should be available to plant roots at the planting level below existing grade. The site consists of a *Newfork fine sandy loam* soil with well-established native tall shrubs. These soils do not require any special amendments for native shrub establishment. Planting holes should be excavated directly into the native soil and amended with 50% compost in the backfilled material if the gravel component of the soil exceeds 50%.

Plant Species

Native trees and shrubs proposed for the habitat enhancement and present in the meadow include Booth's willow (*Salix boothii*), Geyer willow (*Salix geyerani*), thinleaf alder (*Alnus incana* spp. *tenuifolia*) and Douglas hawthorn (*Crataegus douglasii*). An alternative shrub species could include water birch (*Betula occidentalis*). The wetland status (soil moisture regime) for these species ranges from Facultative Wetland to Facultative.

Plant Material & Spacing

A total of 62 shrubs will be planted with 10' on center spacing or every 100 sf. Containerized nursery grown material in either 15 gallon size pots or 30" deep rooted containers will be used.

Exclosure Fence

A wire mesh exclosure fence a minimum 8' tall shall be erected around the perimeter of the habitat enhancement area to prevent wildlife browse for at a minimum 3 growing seasons or until shrubs grow to a height of 7' tall, above the ungulate browse line. The fence shall be constructed so the wire mesh is tight and flush with the ground with no gaps to prohibit beavers from entering the mitigation site. A gate or easily removed section for human access will be incorporated into the fence design.

MAPS

Figure 1 shows the proposed mitigation site within Karns Meadow in purple. The existing agricultural meadow vegetative cover type is shown as a yellow cross hatch and the future START Facility mitigation site (also tall shrub plantings) is shown in orange.

The following Photo 1 shows the mitigation site in October of 2014. The site has remained undisturbed since the date of the photo.



Photo 1. Looking northeast at mitigation site. Flat Creek out of view behind willow.

MAINTENANCE & WEED CONTROL PLAN

The primary maintenance tasks associated with the proposed mitigation include fence repair, irrigation, weed control and replacement of dead shrubs. The site will be inspected twice a year,

once in the spring and once in the late summer, to evaluate mitigation site success and required maintenance.

Exclosure Fence

The wire mesh fence will be inspected for sagging, gaps, and damage as well as wildlife intrusion. Repairs will be made to remedy these issues within 1 week of documentation.

Irrigation

The shrubs will require supplemental irrigation during the first two years of establishment if the site does not have sufficient natural soil moisture for shrub establishment. If needed, a temporary drip irrigation system will supply water directly to each shrub or alternatively a sprinkler system will supply water to the entire area. Water supply will either come from a permitted Flat Creek water right or the municipal water supply.

Weed Control

State listed noxious and invasive weeds will be controlled through mechanical and chemical herbicide methods before installation of enhancement shrubs and then for a minimum of 3 years following the plant material installation. Weed control will take place twice during the summer growing season to eliminate flowering periods of weeds.

Replacement of Dead Shrubs

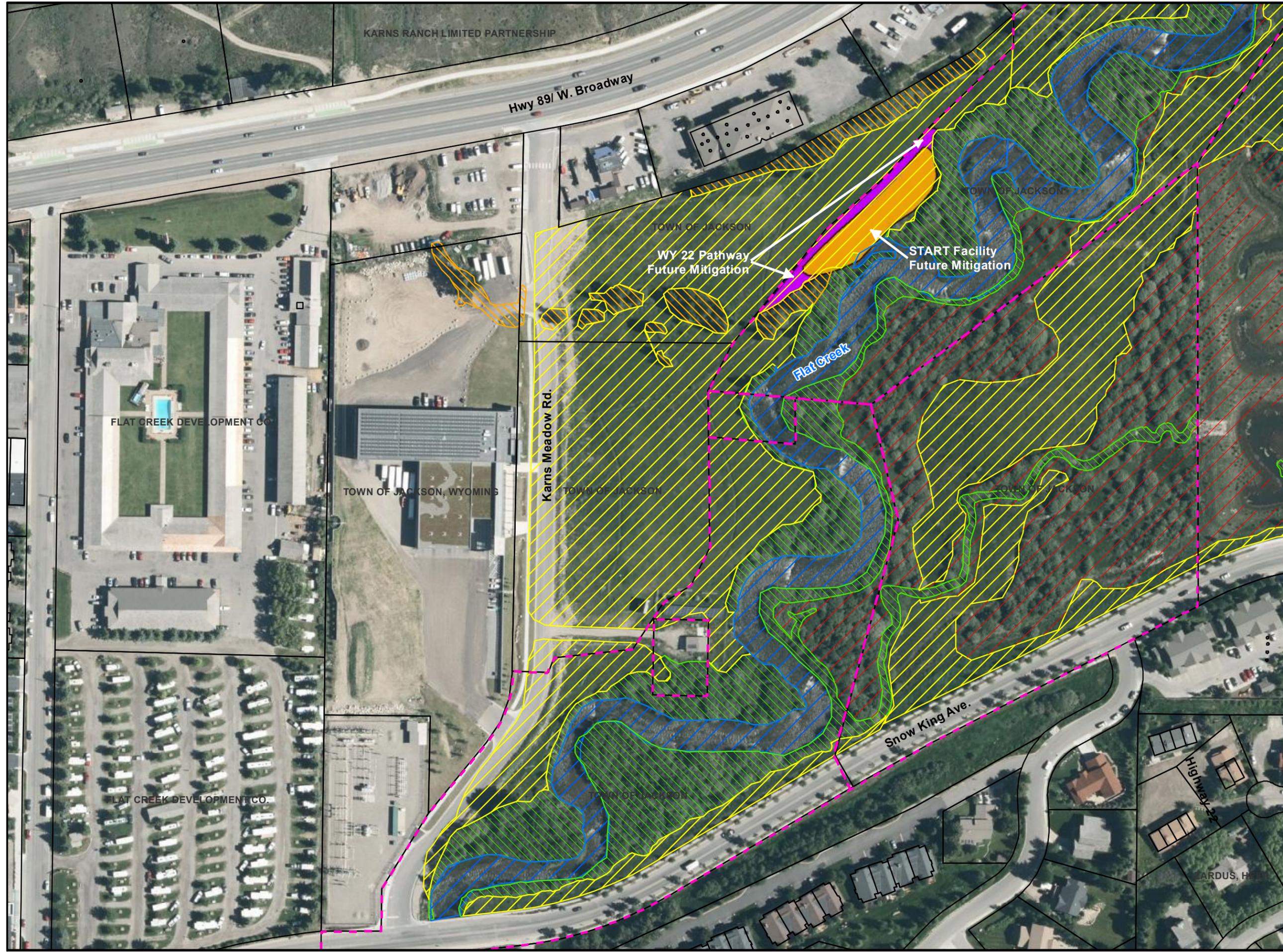
Dead shrubs observed during the bi-annual site visits will first be trimmed down to the ground to determine if the shrub will sprout new growth from the roots. If the dead shrub does not sprout the following growing season, the entire shrub will be replaced. After 3 years, 90% survival rate shall be expected and 10% dead shrubs will be considered acceptable success.

MONITORING PLAN

The mitigation site will be monitored, at a minimum, annually for three consecutive years in the late summer/fall to evaluate the success. The first monitoring event will occur the first fall after revegetation. Conditions and recommended adjustments will be recorded and maintained internally. A Final Monitoring Report will be prepared after the third year and submitted to the Teton County Planning Department. This report will include an evaluations of the project's success and a recommendation as to whether further monitoring is necessary. The recommendation will take into account plant mortality, erosion, weeds, and any other factors affecting, or likely to affect, the long-term success of the project. Acceptable plant survival rates are 90% for shrubs. A recommendation regarding exclosure fence removal will also be included in the Final Monitoring Report.

SURETY

Surety, based on cost of the shrub materials, fencing materials and labor costs will be determined at a later time.



**MITIGATION/
HABITAT
ENHANCEMENT**

JH Community
Pathways

Pathway 22 East
State Highway 22
Teton County, WY

NE1/4 Sec 31, NW1/4 Sec. 32,
& SW1/4 Sec. 29
Township 41N, Range 116W

FIGURE 1:
**Mitigation
Site**
March 14, 2016

Legend:

- Conservation Easement
- Parcel Boundary
- Vegetative Cover Types**
- Ag. Meadow/Mesic Grass
- Cottonwood - Medium
- Open Water
- Mesic Tall Shrub
- Wetland Scrub-Shrub
- Mitigation Areas**
- START Facility
- WY22 Pathway

Aerial Imagery:
June 13 & 14, 2015 Teton County GIS

Wetland Delineation:
10/15/2010

Vegetation Cover Types:
10/15/2015 and May 2015

1 inch = 150 feet

0 75 150 Feet

NORTH