ATTACHMENT:
Recommendations from
Montana Fish, Wildlife & Parks to Missoula County
for Updating and Implementing the
Missoula Area Land Use Map and *Element*

January 28, 2019

Primary Contact

Torrey Ritter, FWP Regional Nongame Wildlife Biologist, 406-542-5551, torrey.ritter@mt.gov

Secondary Contact

Sharon Rose, FWP Regional Comments Coordinator, 406-542-5540, shrose@mt.gov

Contributors

Liz Bradley, FWP Missoula Area Wildlife Biologist

Jamie Jonkel, FWP Regional Bear and Lion Specialist

Ladd Knotek, FWP Missoula Area Fisheries Biologist

Torrey Ritter, FWP Regional Nongame Wildlife Biologist

Sharon Rose, FWP Regional Comments Coordinator

Michael Thompson, FWP Regional Wildlife Manager

Randy Arnold, FWP Regional Supervisor

Kristi Dubois, FWP Regional Nongame Wildlife Biologist (retired)

Jim Brown, Five Valleys Audubon Society

Summary

In late December 2018 and early January 2019, biologists and managers with the Montana Department of Fish, Wildlife and Parks (FWP) met in Missoula to discuss the Missoula Area Land Use Map and Element. The goal of these meetings was to combine our collective knowledge of natural resources in the Missoula Valley and provide recommendations to Missoula County to accommodate fish and wildlife as the City of Missoula expands. In the accompanying comments and maps you will find recommendations for specific areas where our staff are concerned about wildlife habitat and connectivity within and between ecosystems in the Missoula Valley. However, we also want to emphasize an over-arching approach to maintaining ecological integrity in this area. Our goal throughout these recommendations is to underline three major themes that can guide development in a way that accommodates the extraordinary fish and wildlife resources in the Missoula Valley:

1. **Protection and enhancement of stream corridors and associated riparian areas that are the most ecologically important and imperiled habitats for fish and wildlife species in western Montana.**
2. **Protection of important grassland habitats that are relatively rare in western Montana but provide critical resources for game and nongame wildlife communities, many of which are declining in North America.**
3. **Accommodation of geographic funnels and terrain features (e.g., riparian corridors, ridgelines, timbered draws, passes) that naturally guide wildlife to certain areas in harsh weather conditions and during seasonal movements and migrations.**

We would like to mention Montana's State Wildlife Action Plan (SWAP; FWP 2015), which "identifies community types, Focal Areas, and species in Montana with significant issues that warrant conservation attention." It is a Plan developed not only with FWP expertise, but with the expertise of other biologists, ecologists, land managers, sportsman's groups, and conservation organizations across Montana. As stated in the SWAP, "the plan is not meant to be an FWP plan, but a plan to guide conservation throughout Montana." The SWAP is available online at: http://fwp.mt.gov/fishAndWildlife/conservationInAction/actionPlan.html

A large part of the Missoula Valley is contained within the Tier I Terrestrial Focal Area known as the *Bitterroot-Clark Fork Riparian Corridor.* This network of river corridors and associated tributaries is identified by the SWAP as one of the most important terrestrial focal areas in Montana (Pages 100-101). "This high biodiversity area is an important north-south migration corridor for songbirds and owls and part is designated as an Important Bird Area (IBA) by the National Audubon Society. It is a major breeding area for Lewis's woodpeckers and numerous great blue heron rookeries are found throughout the area. The riparian corridor is very wide in places, and mostly continuous throughout the length of the Focal Area."

In addition to the Tier I *Bitterroot-Clark Fork Riparian Corridor*, the Missoula Valley is surrounded by three Tier II Terrestrial Focal Areas that are also identified by the SWAP as worthy of significant consideration, and where resources should be directed to implement conservation actions. These Tier II Focal Areas include the *Evaro-North Hills* Focal Area, the *Lolo-Clark Fork Connectivity* Focal Area, and the *Lolo Creek-Northern Bitterroots* Focal Area. Overlapping these important terrestrial areas are a variety of Tier II Aquatic Focal Areas that

represent major creek drainages that flow into the Clark Fork, Blackfoot, and Bitterroot Rivers. We encourage you to explore the SWAP, and reflect on how these focal areas fit into the character and values of the Missoula Valley and its residents.

The designation of these focal areas in and around the Missoula Valley demonstrates the exceptional ecological value this area represents for western Montana's fish, wildlife, and recreational resources. We emphasize the three major themes outlined above as ways to help maintain and enhance those values and resources as the City of Missoula continues to expand. We have provided specific recommendations in the accompanying text and maps to help guide consideration of those major themes as on-the-ground projects are undertaken in the coming years and decades.

Wetlands, Stream and River Corridors, and Riparian Areas

Areas around streams and rivers are highly sought after for development because of the relatively flat terrain, access to roads, and desirable aesthetics. However, wetlands and riparian areas are biodiversity hotspots and provide resources for more than 75% of Montana's wildlife species at some point in their life cycle. Riparian areas form protective buffers that sustain spawning and rearing areas for our world famous native and wild trout fisheries. These habitats are especially important for nesting songbirds that take advantage of the dense vegetation and abundant insect life. Stream corridors and riparian areas also provide services to humans as they are conduits for runoff and can capture and store sediment. Stream channels and the associated riparian area and floodplain are often the last remaining movement corridors for fish and wildlife species in human-impacted areas, and with the exceptional variety and abundance of wildlife in and around the Missoula area these movement corridors are especially vital. But, as development encroaches, increases in impervious surfaces and human use leads to increased rates of erosion, introduction of environmental contaminants, wildlife-human conflict, and higher risk of flooding that can damage both human infrastructure as well as delicate stream ecosystems.

If we could only emphasize one natural resource value to protect in the Missoula Valley, we would strongly recommend Missoula County do everything in its power to protect riparian areas and wetlands as the City of Missoula expands. While investigating the Missoula Area Land Use Map, our team of FWP biologists and managers were worried that most stream corridors are currently designated as areas where significant residential development will likely take place. While we understand these areas are desirable for development, as a fish and wildlife agency we are deeply concerned about the potential impacts to ecosystems in the Missoula area that will come about if streams and floodplains are filled with houses, roads, driveways, and mowed lawns.

If development is unavoidable in stream corridors and floodplains, we strongly recommend implementing generous setbacks that protect the essential natural resource values and are based on specific site conditions, context, and topography. We encourage you to contact FWP when projects come up that involve stream corridors, riparian areas, and floodplains. We want to be an efficient resource you can use to evaluate potential impacts to our natural resources.

Even where previously developed areas have protective covenants in place (e.g., stream buffers and setbacks), these regulations are rarely enforced or effective. The logical answer for future protection is sound planning that includes undisturbed, undeveloped corridors with adequate stream buffer width and consistent subsequent enforcement.

When riparian areas are protected there is often a desire to develop trails through these areas for residents to enjoy. However, we are emphasizing the ecological sensitivity of these areas, and for them to function as intended they need as full of protection as we can offer. Therefore, if trails are to be constructed along riparian areas and wildlife movement corridors, we recommend they be located along the edge of the riparian buffer to balance resource protection with the public's desire for recreational areas and portals for human use.

We have a strong desire to see riparian buffers integrated into the Missoula Area Land Use Element so that when zoning regulations are considered for new developments there is clear guidance towards making buffers and streamside setbacks law. This may be the most important and worthwhile investment in the future of the Missoula Valley's fish and wildlife that Missoula County can make. If you have any questions about riparian buffers, or would like more information on the myriad benefits riparian areas provide to humans and wildlife, please do not hesitate to contact our regional nongame wildlife biologist and/or fisheries biologist.

Permeability and Ecosystem Connectivity

In our initial letter to Missoula County concerning the Missoula Area Land Use Map, we emphasized allowing Missoula to expand and accommodate the diversity of people that want to call this area home, while maintaining "permeability" for wildlife. We want to emphasize the over-arching idea of permeability again in these recommendations. Any action that maintains local and large-scale movement corridors, as well as protects areas for wildlife in an otherwise urban landscape, will certainly be a worthwhile investment in the future of the Missoula Valley. This is especially true given Missoula's geographic location on the fringes of the Northern Continental Divide Ecosystem (NCDE) where wildlife species such as Canada lynx, wolverines, and grizzly bears are expanding their range. Missoula is situated in one of the most important areas for connectivity between the NCDE and other major protected ecosystems like the Selway-Bitterroot National Forest lands and Wilderness areas, and the Sapphire Mountains.

We believe it is the responsibility of the City of Missoula and Missoula County to grow in such a way that these important areas of connectivity are accounted for and maintained to the best of humanity's ability, and FWP shares in that responsibility. The legacy of the City of Missoula and Missoula County will be decided based on our ability to provide for people who want to live here, while protecting those resources that make people want to come here in the first place. As an agency, FWP always emphasizes that once developments go up and connectivity within and among ecosystems is degraded, it is nearly impossible to recover without huge amounts of money and energy. Protecting these resources ahead of time is one of the most important duties of this community, and a major cost-saving option in terms of maintaining the aesthetic values and ecological services we all rely on.

Conservation Incentive Programs

We recommend that Missoula County consider developing a Conservation Incentive Program for private landowners that are looking to expand development into currently undeveloped county lands on the fringes of Missoula. A Conservation Incentive Program could use density bonuses, residential clustering, and riparian setbacks to guide growth and development away from ecologically sensitive areas. Such a program would help protect wildlife movement corridors, wetland and riparian habitats, and important big game winter ranges in areas where Missoula County and other entities may not have as much authority to implement conservation measures.

Conservation Easements

The Missoula area is lucky to have organizations such as Five Valleys Land Trust, The Nature Conservancy, Rocky Mountain Elk Foundation, The Conservation Fund, and others that have worked diligently to protect open spaces and agricultural values in the Missoula Valley through the purchase of conservation easements. We believe it is important that the value of conservations easements be adequately expressed in the Missoula Area Land Use Map. We would like to see an additional land use designation developed specifically for private lands that have significant conservation values. Conservation easements limit development and protect open space and are therefore much more consistent with a designation closer to the "Open, Resource and Recreation" category. A new land use designation for conservation easements will adequately demonstrate their value, specifically in the context of the surrounding landscape both in terms of habitat features and other land uses. When classified as such, the Missoula Area Land Use Map will be useful for highlighting areas of high conservation value and for identifying opportunities to enhance or maintain some of the ecological functions and values referred to in the Missoula Area Land Use Element and outlined in this document.

The Missoula Area Land Use Element

In the Missoula Area Land Use Element, FWP would like to see greater acknowledgement of the critical role fish and wildlife resources play in maintaining ecological services we depend on, as well as defining the values and character of the City of Missoula and the Missoula Valley. We submit the following language as suggested additions/changes to the Land Use Element that we believe will properly account for the importance of natural resources and conservation in the future growth of Missoula Valley.

1) We recommend adding another section to "Our Greatest Assets" that focuses specifically on fish and wildlife, with the following language included in some way:

Our Fish and Wildlife

"The Missoula Valley is home to an astounding diversity and abundance of fish and wildlife species. In Missoula we take our responsibilities to the land, aquifer, wildlife, and fisheries seriously. We are keenly aware that this western Montana city is surrounded by open space that is home to elk, deer, moose, bighorn sheep, bears, mountain lions, and an array of bird life, as well as nongame wildlife species and world-class fisheries. The opportunities for fishing, hunting, photography, bird-watching, and general wildlife viewing are some of the most powerful reasons people want to live in this area.

As the City of Missoula continues to grow, we can sustain these unique assets and preserve our community values while nurturing the area's natural functioning ecosystems. The river and stream riparian complexes, important winter ranges, and wildlife passage zones will provide habitat and landscape connectivity into the future. Population growth and widespread development across western Montana is putting pressure on Montana's wildlife and landscapes, but Missoula will strive to conserve a network of trail systems, riverside parkways, tracts of open lands, and undisturbed space along rivers and streams that will be attractive tourism destinations and will also accommodate the needs of fish and wildlife species. Our community seeks to ensure opportunities for growth and expansion and to provide everyone with the opportunity for a fulfilling life without damaging or eliminating the wonderous natural assets upon which our community thrives, and other species depend on.

Wildlife living on the valley floor, along the rivers and stream riparian areas, and wildlife trying to move through the valley face obstacles as the community grows. Therefore, land considered important for

wildlife as well as areas across the valley floor for recreation and some wildlife passage will be considered in land use planning decisions, and every effort will be made to allow harmonious overlap with human development and recreational plans into the future. In order to do this city and county planners will seek council with wildlife and fisheries specialists to work towards carefully maintaining important wildlife habitats, adopting appropriate housing densities in areas important for wildlife passage, and creating imaginative incentives for land developers and home owners to reduce impacts in areas deemed ecologically important."

2) On either page 2 or page 21, we recommend the following paragraph be included:

"Life in Missoula offers a deep connection with nature that most residents recognize as special. Missoula is a socially involved community that is committed to protecting unique surroundings and perpetuating the western sense of connectiveness to nature. The opportunities for a healthy, physical, and stimulating life are abundant. The surrounding mountains are a paradise for outdoor recreation, and in town residents can take advantage of numerous parks, trail systems, open space, and greenways, that also accommodate the needs of an array of wildlife and preserve important fisheries."

3) On page 3, we recommend the following paragraph be included:

"Those of us who live here know how privileged we are. Surrounded by rugged peaks from six mountain ranges and two wilderness areas, in a basin dissected by three rivers and multiple streams, Missoula is nestled in the area known as the Five Valleys. The Five Valleys is one of the most beautiful, pristine, and unique valley systems in the Rocky Mountains. The City is surrounded on all sides by hundreds of miles of wild lands and is home to an abundance of native, and vulnerable, fauna and fish. Missoula has evolved into a hub for mountain and river recreation. Tourism is a major economic driver and our community is known as a desirable place to live for outdoor enthusiasts."

4) On page 5, we strongly recommend fish and wildlife species be considered part of the "One Community" approach. We believe it is pertinent to highlight that living with and accommodating fish and wildlife in future growth policies is not only practical, it also fully aligns with the goals and values outlined in the Land Use Element and characterizing the Missoula Valley community as a whole.

5) On page 9, we recommend human-wildlife conflict be specifically mentioned as a potential hazard for public health and safety that Missoula County will address through the Land Use Map and Element. Nuisance animals, bear and lion conflicts, vehicle collisions, and introduction of invasive species all affect our ecosystems as well as our quality of life and ultimately cost money, time, and energy at the city, county, and state level.

6) On page 14, we recommend connectivity be extended to include connectivity for fish and wildlife species. Implementing riparian buffers and protecting open space along important travel corridors will sustain fish and wildlife connectivity in the Missoula Valley as the City of Missoula expands. Additionally, in the "Cluster" category we recommend the following wording (changes are in bold font):

"Cluster housing and development to preserve open space, **fish and** wildlife habitat **and movement corridors, wetlands and riparian areas**, public access and agricultural lands."

7) Suggestions for Land Use Designation Pages

- On the OPEN, RESOURCE AND RECREATION land use designation page, we suggest the following changes (changes are in bold font):
  - Under the first bullet point in the "Goals" section:
    - "Preserve the continuing function of natural landscapes and waterways, protect **fish and wildlife habitat and movement corridors, as well as** water quality and quantity **through the protection of stream channels, wetlands and riparian areas**".
    - We also suggest this change for the AGRICULTURE and WORKING LANDS land use designations.
  - Under the 3rd statement in the "Character" section:
    - "Where development is appropriate, improvements should be sited to avoid **or accommodate** sensitive areas, such as floodplains, **wetlands, riparian areas, native grasslands, wildlife movement corridors,** prime soils, steep slopes, and natural landscapes and waterways."
- On the AGRICULTURE land use designation page, we suggest the following changes (changes are in bold font):
  - Under the 1st statement in the "Character" section:
    - "Buildings are sited to preserve prime agricultural soils, sensitive natural features and waterways, **fish and** wildlife habitat **and movement corridors**, and hazards such as floodplains."
    - We also suggest this change in the WORKING LANDS and RURAL RESIDENTIAL AND SMALL AGRICULTURE land use designations.
  - Under the "Character" section, add the following statement:
    - **"Stream channels and riparian areas are preserved and enhanced through the use of riparian buffers and irrigation efficiency improvements."**
    - We also suggest this change for the WORKING LANDS, RURAL RESIDENTIAL AND SMALL AGRICULTURE, RURAL RESIDENTIAL, RESIDENTIAL, and NEIGHBORHOOD RESIDENTIAL land use designations.
  - Under the "Intensity" section, add the following statement:
    - **"Riparian buffers may be implemented and enforced if development encroaches on natural stream channels and associated riparian areas."**
    - We also suggest this change for the WORKING LANDS, RURAL RESIDENTIAL AND SMALL AGRICULTURE, RURAL RESIDENTIAL, RESIDENTIAL, NEIGHBORHOOD RESIDENTIAL, and PLANNED NEIGHBORHOOD land use designations.
- On the WORKING LANDS land use designation page, we suggest the following changes (changes are in bold font):
  - Under the 2nd statement in the "Intensity" section:
    - "The appropriate density depends on site considerations, such as the condition of the transportation network, emergency service response times, **presence of sensitive fish and wildlife habitat and movement corridors, character of**

natural landscapes and waterways, **potential for human-wildlife conflicts,** hazards and applicable area plans."

- We also suggest this change for the RURAL RESIDENTIAL AND SMALL AGRICULTURE and RURAL RESIDENTIAL land use designations.

- Under the 3rd statement in the "Intensity" section:
  - "Density bonuses may be available if development is clustered to protect important natural landscapes and waterways, agricultural lands, **fish and wildlife habitat and movement corridors,** or if providing public facilities such as public access or trails."
  - We also suggest this change for the RURAL RESIDENTIAL AND SMALL AGRICULTURE, RURAL RESIDENTIAL, and RESIDENTIAL land use designations.

- On the RURAL RESIDENTIAL AND SMALL AGRICULTURE land use designation page, we suggest the following changes (changes are in bold font):
  - Under the 3rd bullet point in the "Goals" section:
    - "Protect public health and safety in areas with identified hazards, such as floodplains and areas with elevated **potential for human-wildlife conflicts and** wildfire risk."
    - We also suggest this statement be added to the "Goals" section of the RURAL RESIDENTIAL land use designation.
  - Under the 1st statement in the "Land Uses" section:
    - "Land uses include residential, **parks and greenways,** agriculture, grazing, timber production and activities incidental to agriculture."
- On the RURAL RESIDENTIAL land use designation page, we suggest the following changes (changes are in bold font):
  - Under the "Goals" section, add the following statement:
    - **"Accommodate fish and wildlife habitat and movement corridors in areas with increased human density."**
    - We also suggest this change for the RESIDENTIAL land use designation.
  - Under the 1st statement in the "Land Uses" section:
    - "Land uses include agriculture, **parks and greenways,** grazing, and residential."
- On the INDUSTRIAL CENTER and HEAVY INDUSTRIAL CENTER land use designation pages, we suggest the following changes (changes are in bold font):
  - Under the "Intensity" section, add the following statement:
    - **"Industrial sites that may be remediated in the future will be evaluated for their potential to be reclaimed as open space to provide fish and wildlife habitat and allow for natural revegetation and recovery of the affected areas."**

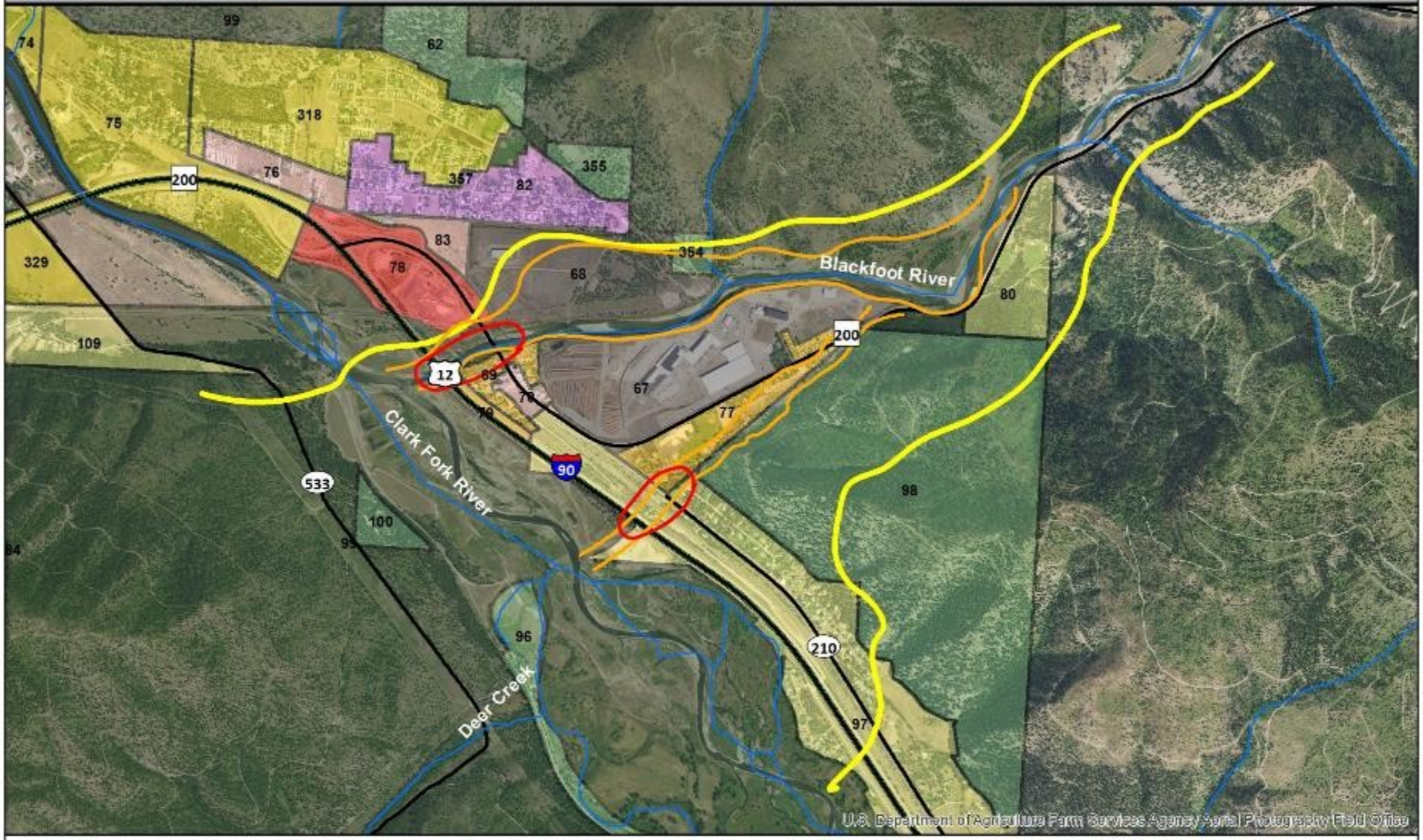
Interpretation of Maps and Land Use Designation Recommendations

The maps on the accompanying pages are meant to delineate the general extent of ecological important and sensitive areas in the Missoula Valley. The movement corridors and habitat delineations are not meant to represent hard boundaries, but meant to demonstrate the importance of these areas at a broad spatial scale. The lines drawn on the maps were created with input from members of the Five Valleys Chapter of the Audubon Society, as well as the expertise of FWP staff including the area game biologist, regional large carnivore biologist, regional wildlife manager, regional supervisor, area fisheries biologist, comment coordinator, and the current and former nongame wildlife biologists. The lines drawn on these maps are hierarchical. Yellow lines delineate the “landscape” scale of the ecological important area we are focusing on. Orange lines highlight smaller-scale locations within these important areas that are of particular concern because of the land use designation, or because they are especially important for maintaining the integrity of the ecologically important area overall. Red lines draw attention to specific development concerns or features within the ecologically important area that are critical for protection. The red lines are meant to be the “last stand” against development pressures when larger scale conservation actions are not an option. However, our intent is to emphasize the broad-scale ecologically important areas. Resorting to protections for the areas delineated by red lines would indicate a reliance on measures that will not be nearly as effective as focusing on the bigger picture.

Accompanying each map are recommendations for specific polygons (based on FID #) that are affected by the outlined ecologically important area. Each FID # is associated with a *recommended* land use designation that is different from the current land use designation. For some polygons, we are not recommending a change in the land use designation (i.e., NO CHANGE), but we want to highlight specific areas or actions within the polygon that have high conservation value.

Blackfoot River Wildlife Movement Corridor

MONTANA FWP



- OPEN, RESOURCE AND RECREATION
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- INDUSTRIAL CENTER
- HEAVY INDUSTRIAL CENTER
- AIRPORT D-PARK ANNEXATION
- Conservation Easements
- Streams
- Movement Corridor
- Movement Corridor Lvl 2
- Movement Corridor Lvl 3

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Blackfoot River Wildlife Movement Corridor

The Blackfoot and Clark Fork River corridors, Milltown State Park, and the relatively open surrounding landscape represent an ecologically important area both for watershed integrity and connectivity between three different mountain ranges. Our FWP large carnivore biologist described this area as "spokes of a wheel" where multiple travel routes for wildlife converge on a relatively small area. The current land use has created a significant barrier to wildlife connectivity in this area, and further development could cut off vital movement corridors. Development should be limited where possible to allow animals to pass between the two major river valleys. Old railroad grades along both sides of the Blackfoot River (orange lines) and a few tracts of undeveloped properties between Piltzville and Turah can provide for this connectivity, and we suggest development be held back from these routes to facilitate animal movement.

The railroad and interstate corridor easements represent major barriers to wildlife movement with little hope of restructuring. Therefore, I-90 and railroad bridge spans accommodating frontage roads, rivers, streams, and public and private access points are of utmost importance (red ovals). Bridge span sites that are still uncongested are key for enhancing wildlife passage. Additionally, any development that can be set back from the Blackfoot River will go a long way towards maintaining a connection between the Blackfoot and Clark Fork River valleys (orange lines north of the Blackfoot River).

Polygon-specific recommendations:

FID 80: WORKING LANDS

This polygon has steep terrain and does not lend itself well to residential development. Additionally, a herd of bighorn sheep winters in this area and would be directly impacted if more development occurs in this polygon. We recommend this polygon be merged with FID 98, or otherwise changed to a housing density consistent with working lands or open space.

FID 98: OPEN SPACE

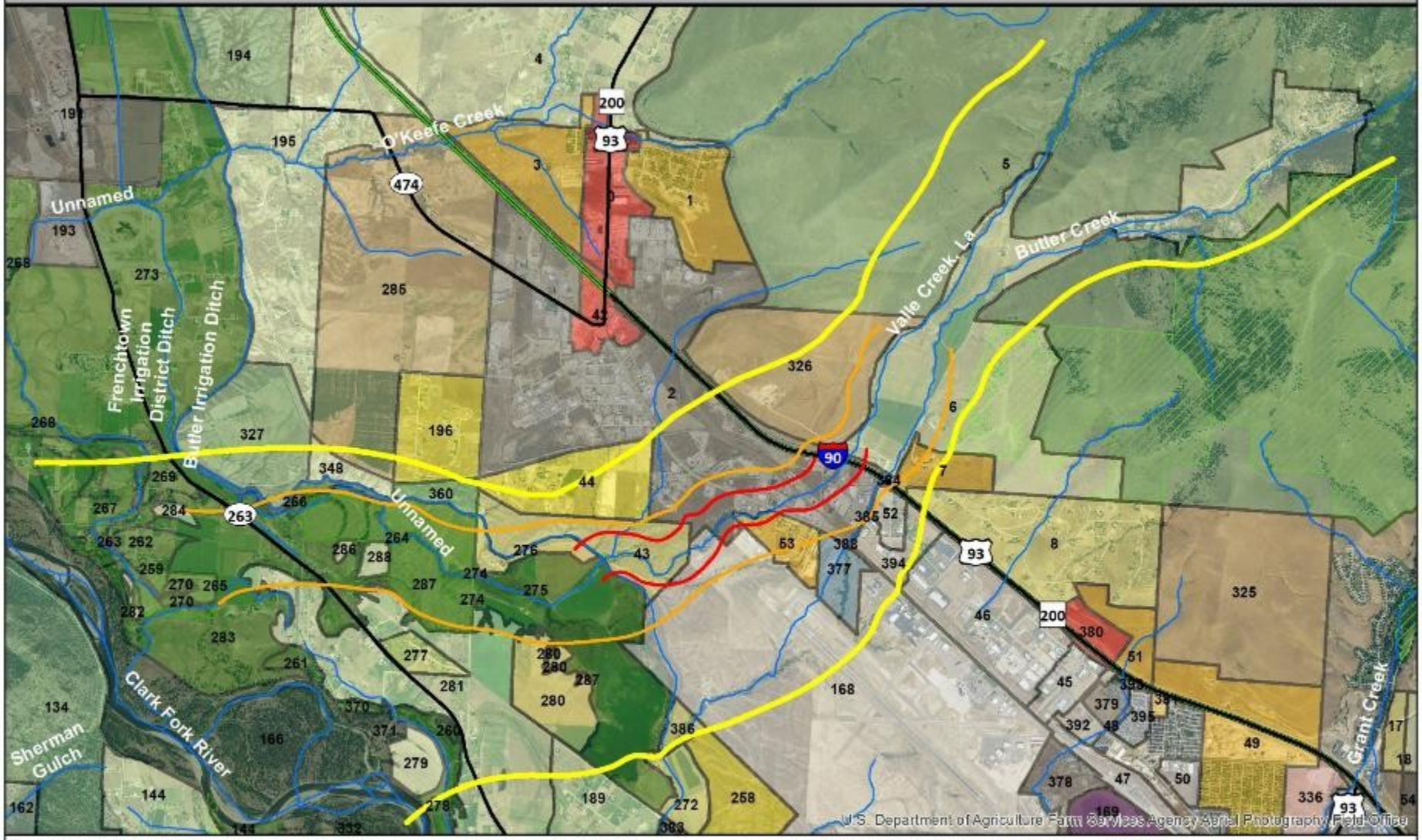
This polygon has steep terrain and should not be developed as it is a connected piece of land between the Blackfoot and Clark Fork River valleys. Additionally, wildlife conflicts are common among the housing developments along the base of the mountain near I-90, and any additional development will likely exacerbate these issues.

FID 68, 69, 70, 77, 78, 79, 83, and 97

The combination of these high-density areas is creating a wall of development that threatens linkage between the Blackfoot and Clark Fork Rivers. Although we understand the land use designations in this area are unlikely to change, we would like to see any possible measures put in place to facilitate permeability for species moving between the major river corridors. As suggested above, old railroad grades could provide permeability through the development wall (orange lines). Setting development back from the river floodplains as far as possible would also be helpful, especially if polygons 68 and 77 are ever developed. This would be a good area to pursue wildlife underpasses or overpasses for I-90, and FWP and other entities will be working in the future to explore options for facilitating wildlife movement across the interstate in this area. In particular, FID 97 still has some open space areas that offer connectivity across I-90.

La Valle and Butler Creek Wildlife Movement Corridor

MONTANA FWP



La Valle and Butler Creek Wildlife Movement Corridor

The riparian areas running along La Valle and Butler Creeks are considered some of the last viable movement corridors for many wildlife species to get from the Rattlesnake and NCDE down to the Clark Fork River corridor and into the Selway-Bitterroot. These corridors are, and will increasingly be, used by bears, bobcats, mountain lions, coyotes, foxes, and a host of other species that are likely to have trouble passing through this area and may come into conflict with humans if significant development takes places. We strongly recommend limiting development along these corridors or providing substantial buffer zones between development and the stream channels to maintain these movement corridors and allow for wildlife use of the riparian areas around the streams. La Valle and Butler Creeks are of particular importance because they are some of the last stream corridors in this area that have not already experienced significant residential development. Our large carnivore biologist identified these creeks as high-use areas for wildlife species seeking to forage in and around the wetlands near Deschamps Road on their way to the Clark Fork River corridor. The La Valle and Butler Creek movement corridor is one of the areas we want to emphasize streamside setbacks the most, as this corridor represents one of the areas most likely to be surrounded by development within the next 20 years. We would therefore like to see riparian buffers and streamside setbacks integrated into zoning regulations for developments around this critically important wildlife corridor.

Polygon-specific recommendations:

FID 53: NO CHANGE

This area is already developed, but we recommend any further development be set back from Butler and La Valle Creeks as far as possible. We recommend a riparian buffer along the stream corridor where development should not be permitted to maintain what is left of the movement corridor and riparian area.

FID 377: WORKING LANDS or AGRICULTURE

This land use designation will have a permanent impact to Butler Creek and the associated riparian area. If significant development cannot be avoided, we recommend a riparian buffer along the stream corridor where development should not be permitted to maintain what is left of the movement corridor and riparian area.

FID 2, 7, 52, and 394: NO CHANGE

We recognize these areas are already heavily impacted, but we must emphasize that any protection that can be put in place for the riparian corridor is better than no protection at all. One patch of over-zealous development in this area could effectively cut off the potential for these stream corridors to act as movement routes for a wide range of wildlife species, and could funnel wildlife that do try to travel these routes into areas where they can come into conflict with humans. As a result of the future expansion of the airport and the exclusion fence, the best stream braid to accommodate larger wildlife passage will be along LaValle Creek (red lines). We suggest no further development in the portion of FID 2 that is intercepted by La Valle and Butler Creeks, or generous riparian buffers if development does occur.

FID 43
The creek corridors running through this polygon were identified by several biologists as critical linkage zones for the entire La Valle/Butler wildlife movement corridor (red lines). We suggest

riparian buffers in this polygon be as robust as possible to protect this relatively small area that carries disproportionately large wildlife value.

FID 6: AGRICULTURE

We recommend changing this land use designation to protect this movement corridor and grassland habitats. A housing density of 1 unit per 2-10 acres would significantly impact this area.

FID 326: NO CHANGE

We do not have an issue with this area becoming a high-density development, but we would like to see the edge of FID 6 that runs along La Valle Creek retracted away from the creek to accommodate a riparian buffer.

FID 268, 267, 263, 269, 284, 259, 262, 282, 283, 265, 261, and 270: NO CHANGE

The agriculture designation is appropriate for these lands as they represent the lower extent of the La Valle and Butler Creek movement corridors. We strongly recommend any further development in the Clark Fork River floodplain be avoided, and we believe this land use designation reflects that desire.

FID 281: NO CHANGE

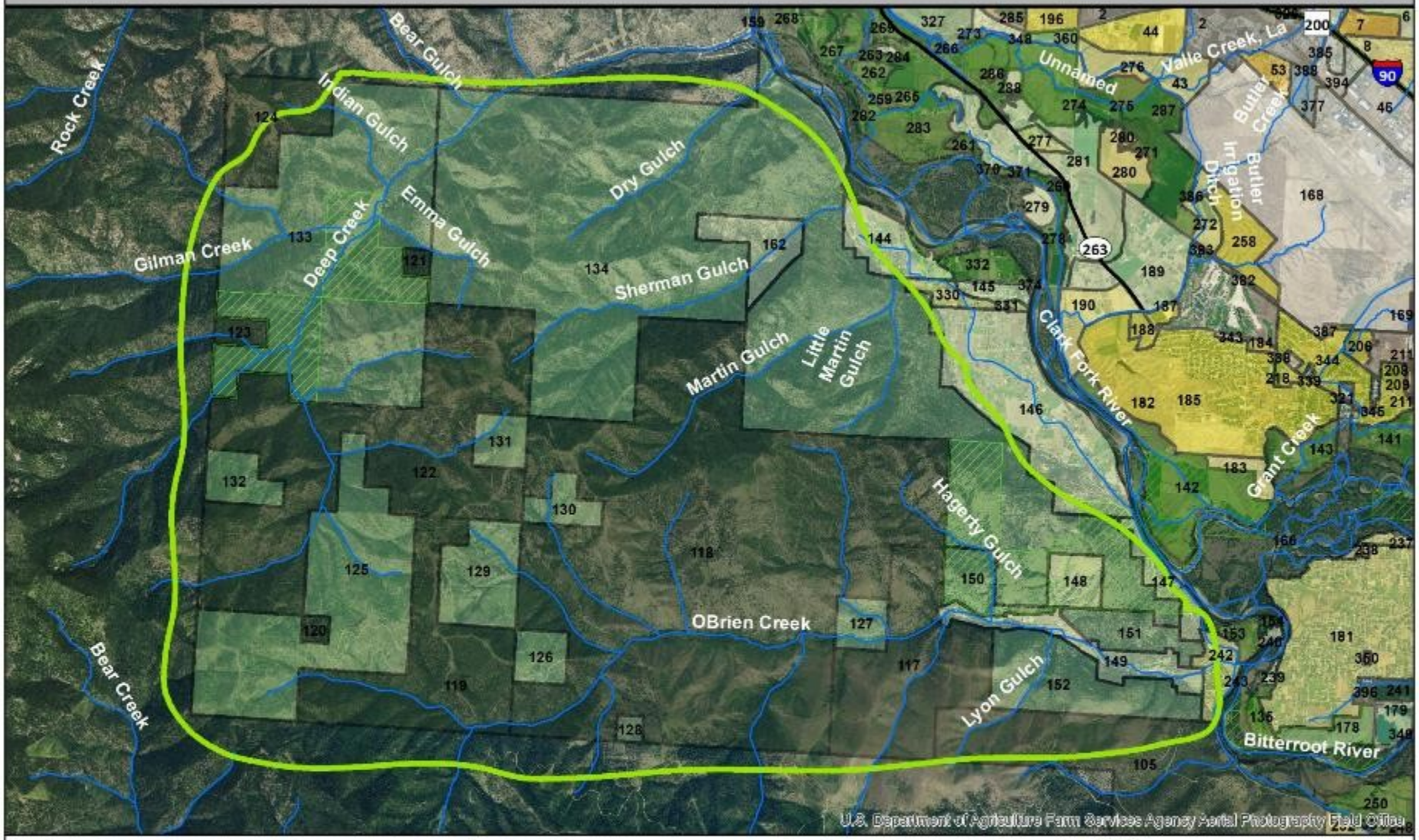
We appreciate the limited development suggested for this area by the Missoula Area Land Use Map as it is located near sensitive wetland and riparian habitats as well as the La Valle and Butler Creek corridors.

FID 274, 275, 276, 272, 258, 277, 281, 286, 287, 288, and 386

These polygons delineate highly important portions of the La Valle and Butler Creek movement corridors. However, they have additional important wildlife values, so see the “Wooded draws in the Sand Hills” and “Wetlands east of Deschamps Road” specific area recommendations for more information on these polygons.

Forested Areas West of the Lower Clark Fork River

MONTANA FWP



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- HEAVY INDUSTRIAL CENTER
- AIRPORT D-PARK ANNEXATION
- Conservation Easements
- Streams
- Area of Interest

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Miles

Forest Areas West of the Lower Clark Fork River

The forested hillsides overlooking the lower Clark Fork River were identified by FWP and Five Valleys Land Trust as important areas to target for conservation easements and other protective measures. This landscape is considered critical elk and deer winter range, and significant development would disrupt use of this landscape by big game species. The La Valle/Butler Creek movement corridors naturally funnel migrating and dispersing animals into this portion of the landscape making it an important area for linkage across the Missoula Valley. Additionally, allowing development within this area would bring about a substantial increase in human-wildlife conflicts particularly with bears and mountain lions. If development is to occur in this area, strict rules for food storage and domestic wildlife containment would need to be in place to facilitate co-existence with the wild nature of this landscape.

We appreciate the overall intent of the land use designations in this area to limit development. This will maintain the ecological link between the Kelly Island area and the Lolo National Forest, as well as facilitate the use of the La Valle/Butler Creek movement corridor. FWP fully supports limited development in this ecologically sensitive area.

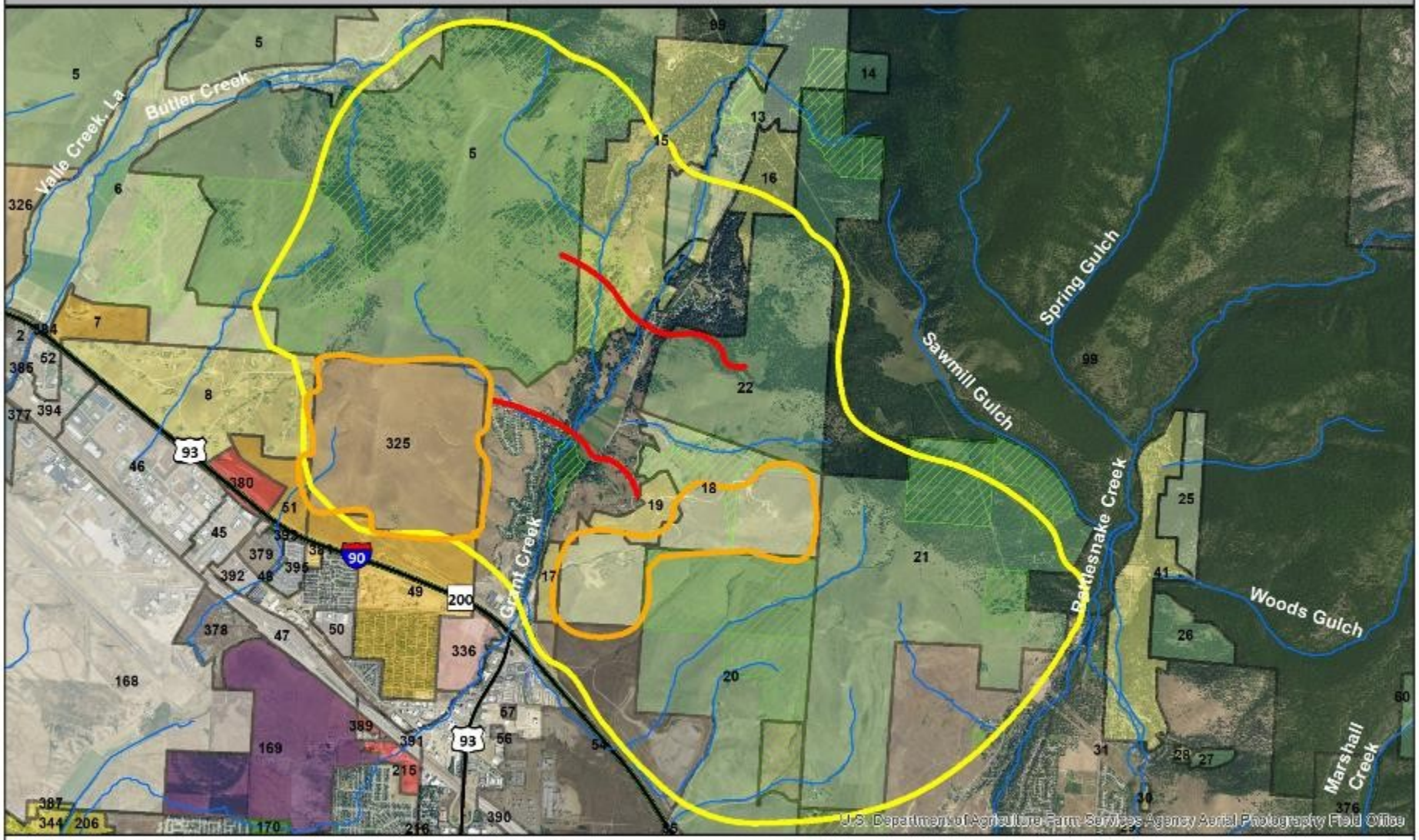
Polygon-specific recommendations:

FID 122, 125, 126, 127, 129, 130, 131, 132, 133, 134, 150, 152, and 162: NO CHANGE or OPEN SPACE

All of these polygons fall under the recommendations outlined above.

Grant Creek Elk and Deer Winter Range

MONTANA FWP



Grant Creek Elk and Deer Winter Range

The Grant Creek area is already heavily impacted by development, yet it is located in an ecologically important area for ungulate species that use the mix of grasslands and forested areas surrounding the Grant Creek valley, especially the North Hills elk herd. The area game biologist identified the grasslands surrounding Grant Creek as critical winter range that provides hunting and wildlife viewing opportunities to Missoula County residents. Additionally, these grassland habitats support a variety of grassland songbirds (the most rapidly declining bird community in the United States), raptors (including the locally imperiled Swainson's Hawk), and many small mammal species that are dependent on relatively undisturbed grassland habitats. Fortunately, a large portion of the area around Grant Creek is protected by conservation easements, but the effectiveness of those easements for protecting open space and wildlife habitat will be directly impacted by development in the Grant Creek floodplain and surrounding landscape.

Although outside the purview of the Missoula Area Land Use Map, the open space and agricultural lands located upstream of the current Grant Creek subdivisions were identified by multiple wildlife biologists as an important route for elk and deer to cross Grant Creek to move between grassland benches on either side of the creek (red lines). If heavy development continues to move up Grant Creek these animal movements could be significantly reduced or entirely cut off.

Polygon-specific recommendations:

FID 325: WORKING LANDS or AGRICULTURE

This polygon is critical winter range for the North Hills elk herd. This habitat is especially important during hard winters as it is some of the best and last lower elevation winter range in this area. Nongame wildlife impacts would be substantial as well. We strongly encourage Missoula County to pursue options to limit development as much as possible in this polygon.

FID 17, 18, and 19: AGRICULTURE OR OPEN SPACE

These polygons are also frequently used by the same suite of species outlined for FID 325, and FID 18 and 19 are heavily used by the North Hills elk herd. It is our understanding that the county recently acquired these lands, and we recommend the county pursue options to keep these areas as open space for the same reasons as outlined for FID 325. If development is to occur, we would like to see clustering of houses to preserve important grasslands in the eastern portions of these polygons.

FID 13, 15, and 16: AGRICULTURE

If development continues within the Grant Creek corridor and valley bottom, the last place for elk and deer to cross Grant Creek will be through these polygons. Therefore, residential development in this area may contribute to significant barriers to animal movement in the North Hills. Additionally, Grant Creek and the associated floodplain will continue to be degraded and impacted by human use leading to loss of ecosystem services, issues with flooding, and reduction in high value riparian wildlife habitat.

FID 5, 20, and 21: OPEN SPACE

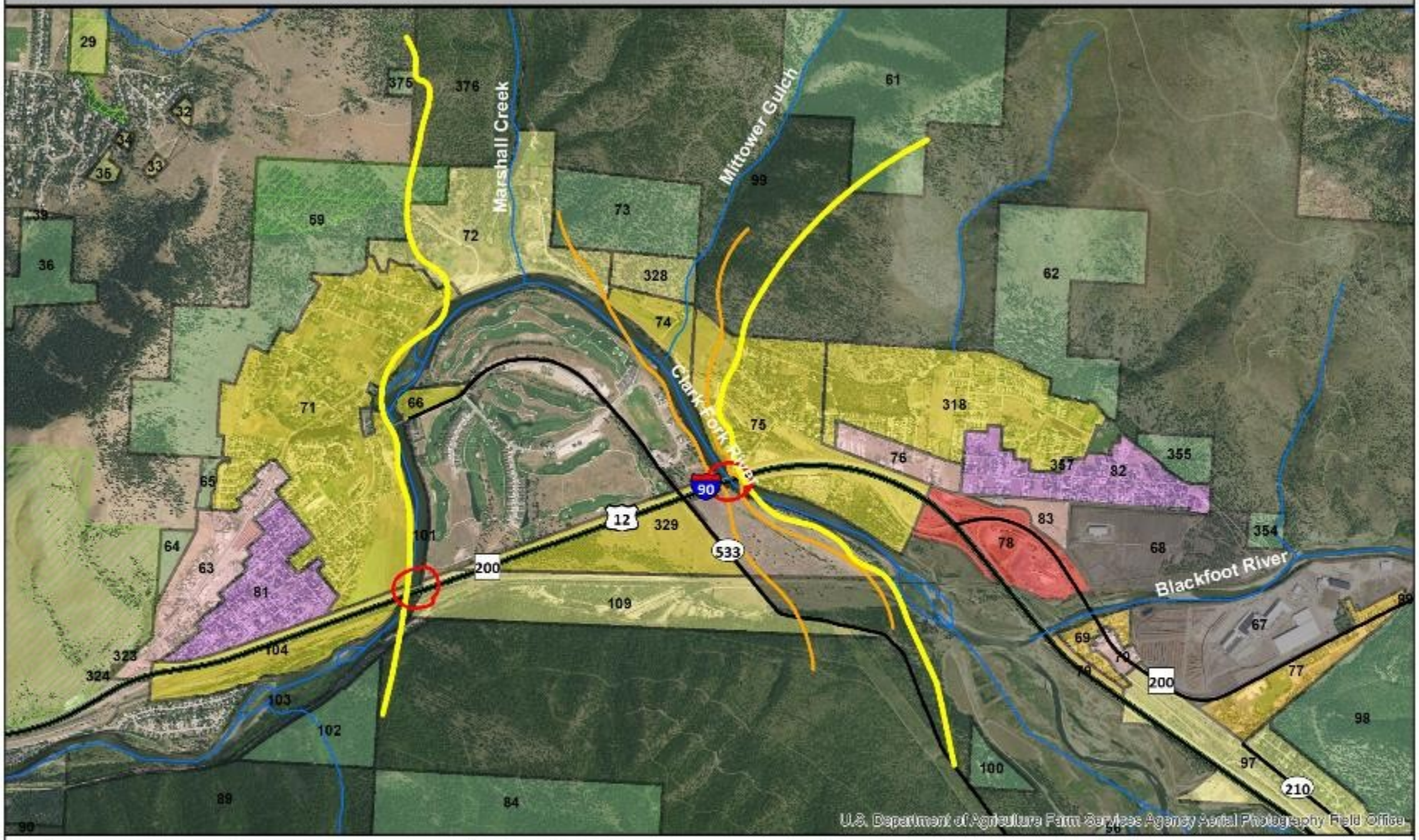
Most of the land represented by these polygons are protected under conservation easements, and FWP is working with multiple partners to try and conserve the remaining lands to protect the wintering elk and deer that depend on this landscape.

FID 22: OPEN SPACE

Properties owned by the National Wildlife Federation in this polygon are protected from development.

Marshall Creek Wildlife Movement Corridor and Stream Restoration

MONTANA FWP



Marshall Creek Movement Corridor and Stream Restoration

Because of the golf course and low-density housing area between the Clark Fork River and I-90, this area represents a potential movement corridor for species such as bears, mountain lions, wolverines, and lynx to travel between the NCDE to the north and the Sapphire Mountains to the south. Because of the river oxbow, surrounding ridgelines, and the I-90 and railroad bridge spans this area offers good opportunities to maintain some level of open space to allow wildlife to cross the otherwise highly restricted Clark Fork River corridor, and connect to Milltown State Park and the Blackfoot River corridor. As East Missoula and Bonner continue to expand, this area may be one of the last spots where facilitating wildlife movement will be possible in the next 20 years. The area along the western edge of the outlined movement corridor is especially important given the terrain and the current development patterns in the area (orange lines). The two river-spanning bridges are highly critical links along this corridor and deserve special attention (red circles).

Our area fisheries biologist identified lower Marshall Creek as stream where significant time and money have been used to restore fish passage and fish habitat. As with other stream channels and riparian areas in the greater Missoula Valley, we recommend setbacks be put in place to protect the stream corridor and the associated investments FWP and others have made.

Polygon-specific recommendations:

FID 72, 74, and 328: WORKING LANDS or RURAL RESIDENTIAL AND SMALL AGRICULTURE

Continued development in the lower portions of Marshall Creek and Mittower Gulch threatens these streams by creating more impervious surfaces, increasing traffic on the road that runs along Marshall Creek, and introducing more direct human use. Additionally, both creeks will be a major part of a potential movement corridor that would connect the NCDE and the Sapphire Mountains. We recommend a lower density of houses along the creeks than is currently designated, or the creation of new parcels along the creek corridors with lower housing densities, if not open space or working lands designations.

FID 329 and 109: WORKING LANDS or RURAL RESIDENTIAL AND SMALL AGRICULTURE

Creating low housing densities in these portions would be an essential step to maintaining a potential movement corridor in this area. We recommend much lower housing densities or open space designations for these polygons to preserve connectivity in an area that is otherwise highly restrictive to animal movements between mountain ranges
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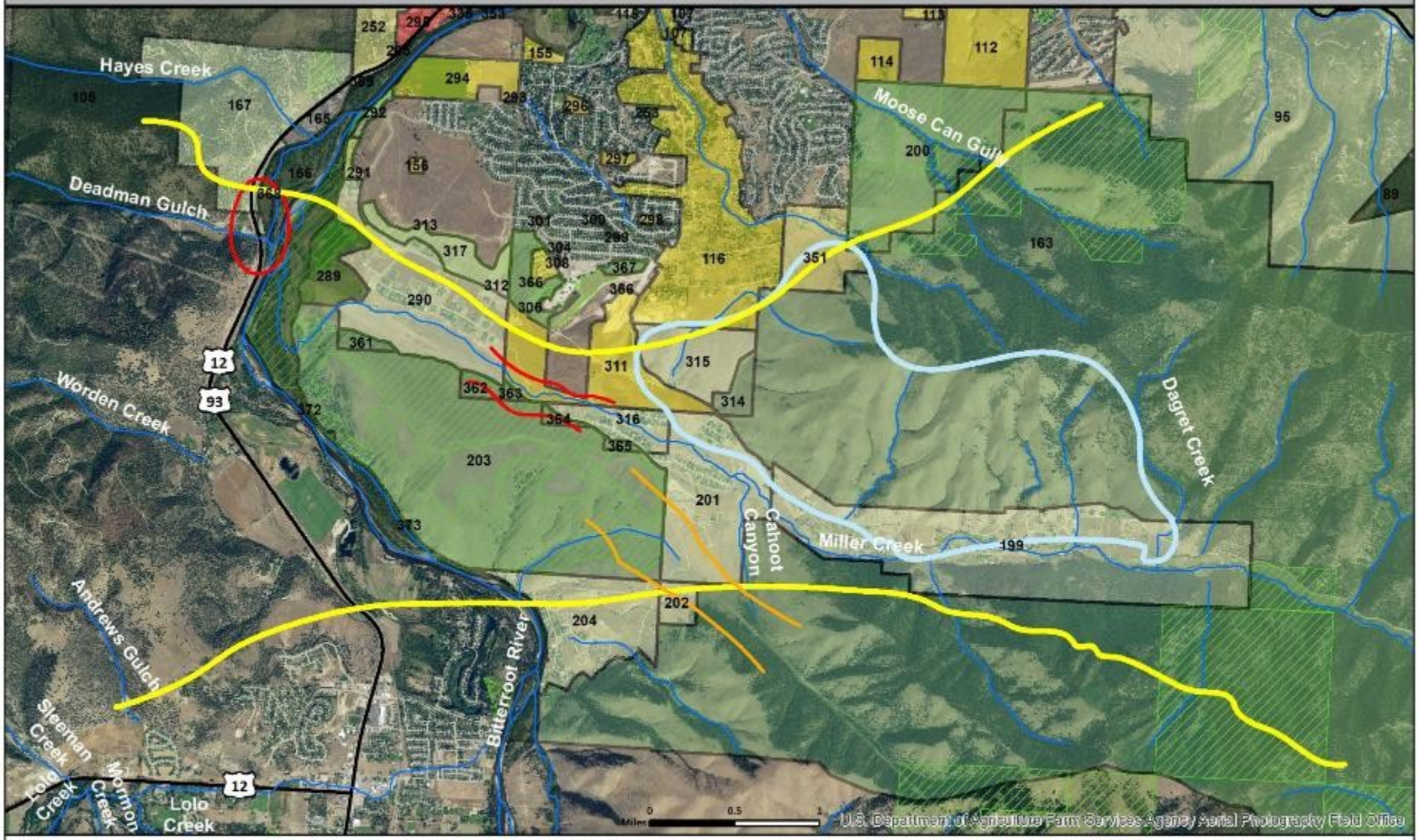
Miller Creek, South Hills Grasslands, Winter Range, and Movement Corridors

MONTANA FWP



- OPEN, RESOURCE AND RECREATION
- AGRICULTURE
- WORKING LANDS
- RURAL RESIDENTIAL AND SMALL AGRICULTURE
- RURAL RESIDENTIAL
- RESIDENTIAL
- NEIGHBORHOOD RESIDENTIAL
- PLANNED NEIGHBORHOOD
- NEIGHBORHOOD CENTER
- COMMERCIAL CENTER
- LIVE/MAKE NEIGHBORHOOD
- COMMUNITY MIXED USE
- CIVIC EMPLOYMENT CENTER
- INDUSTRIAL CENTER
- HEAVY INDUSTRIAL CENTER
- AIRPORT D-PARK ANNEXATION
- Conservation Easements
- Streams
- Important Grasslands
- Movement Corridor
- Movement Corridor Lvl 2
- Movement Corridor Lvl 3

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Miller Creek, South Hills Grasslands, Winter Range, and Movement Corridors

Miller Creek and the surrounding area represents a critical linkage between the Sapphire Mountains and the Selway-Bitterroot and Lolo National Forests. The importance of this area is demonstrated by the abnormally high number and variety of wildlife collisions that occur along some portions of Highway 93 (e.g., red oval). Widespread development in the Bitterroot and Missoula Valleys has greatly reduced the connectivity between these two large, wild landscapes. Therefore, maintaining this connectivity will be dependent on careful development and land management in the area between the current southern extent of Missoula and large, privately-owned conservations lands on the northern end of the Bitterroot Valley. The Miller Creek corridor will be an essential part of this linkage, especially as residential development continues to extend south from Missoula. Grassland habitats on the south-facing slopes above Miller Creek and wrapping around Mt. Dean Stone are important deer and elk winter range, and provide habitat for a variety of imperiled grassland songbird and raptor species (light blue line). Research and monitoring efforts undertaken by the MPG Ranch and other organizations in the area indicate this is a biodiversity hotspot in western Montana as well as an important mammalian and avian migration route. The topography and habitat types naturally funnel a large diversity and abundance of wildlife species through this area.

Polygon-specific recommendations:

FID 163 and 203: OPEN SPACE

Allowing even low-density housing to extend into these areas would increase wildfire risk, create human-wildlife conflicts, and fragment important habitat for connectivity among three different mountain ranges and National Forests. The Mount Dean Stone project shows the potential value of these lands as major recreation areas for Missoula residents, and that value combined with the ecological importance of the area should be protected.

FID 311: RURAL RESIDENTIAL AND SMALL AGRICULTURE

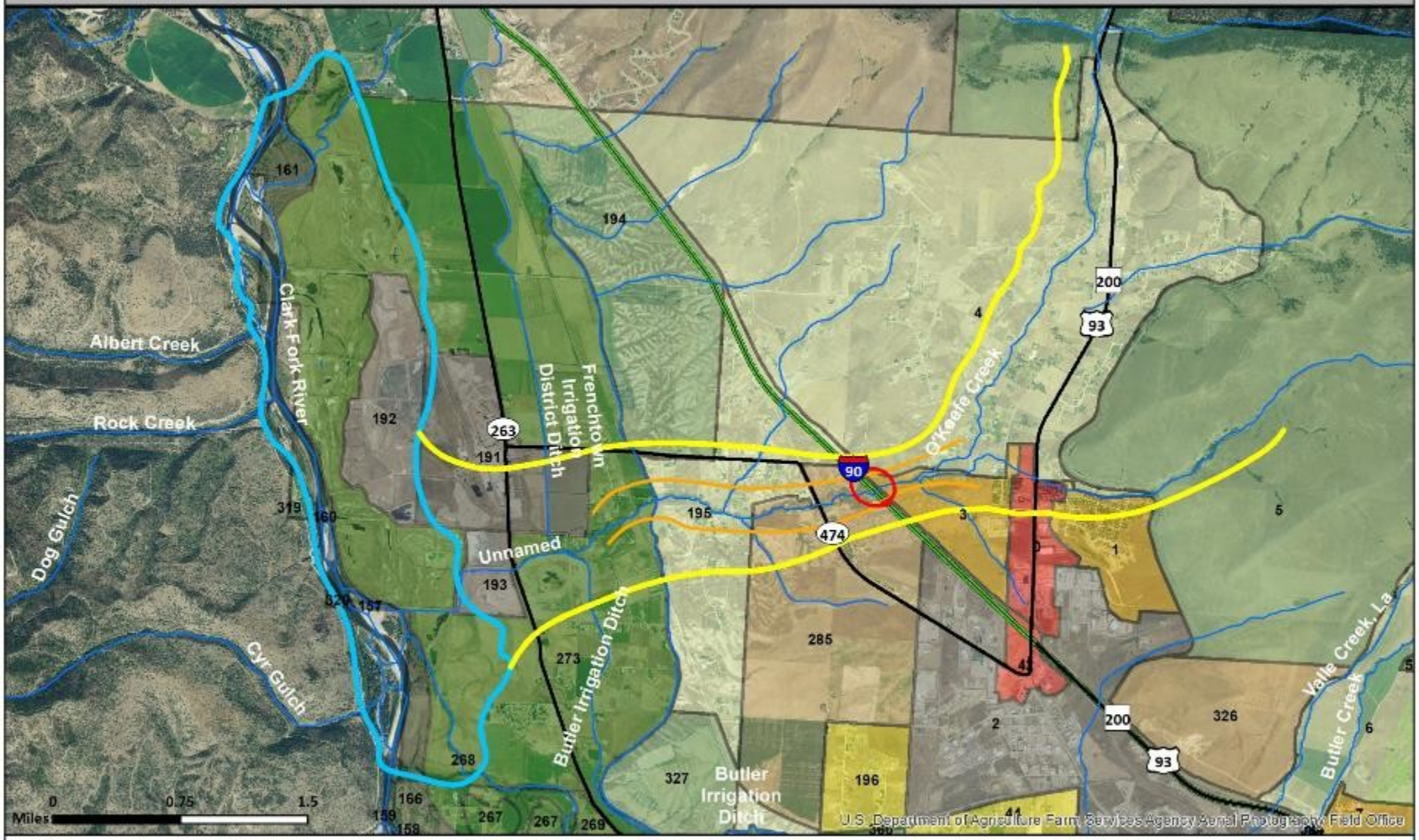
The Missoula City property that juts into the Miller Creek corridor at this location is highly concerning in terms of maintaining the integrity of this movement corridor (red lines). If the current land use designation is maintained through zoning regulations it will effectively cut off the potential for wildlife to move along the Miller Creek corridor. If significant development must occur, this will be a critical location to have streamside setback regulations strictly enforced to maintain a robust riparian buffer that is protected in perpetuity.

FID 199, 201, 202, 204, 290, and 316: NO CHANGE

These polygons represent important areas along Miller Creek that act as movement corridors for elk, deer, bears, mountain lions, and many other wildlife species. If these polygons are filled with residential housing this migration corridor will be significantly impaired. We want to emphasize restrained development in this area, and not allowing residences to impede on the stream corridor and associated riparian areas around Miller Creek. A riparian buffer around Miller Creek will be necessary to allow animals to move through the area as development expands, and the ridge south of Miller Creek is likely a high use area for large mammals crossing over to the Selway-Bitterroot (orange lines).

Smurfit-Stone Superfund Site and O'Keefe Creek Movement Corridor

MONTANA FWP



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- HEAVY INDUSTRIAL CENTER
- AIRPORT D-PARK ANNEXATION
- Conservation Easements
- Streams
- Clark Fork Historic Floodplain
- Movement Corridor
- Movement Corridor Lvl 2
- Movement Corridor Lvl 3

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Smurfit-Stone "Superfund Site" and O'Keefe Creek Movement Corridor

The Smurfit-Stone area is a potential future superfund site. The surrounding landscape is composed of old river channels and oxbow wetlands that provide highly productive wetland and riparian habitats for a diversity of wildlife species. The Clark Fork River was essentially cut off from accessing its floodplain in this area, with myriad ecological impacts including: 1) drying out of this historic floodplain that reduces its productivity and value as wildlife habitat, 2) channeling of the river which increases velocity and stream power that is then released downstream in the Frenchtown area to the detriment of local communities, and 3) loss of riparian habitat in an area with intrinsic wildlife value. This portion of the Bitterroot-Clark Fork Riparian Corridor has been identified as a Tier 1 Terrestrial Focal Area (SWAP), and the Grass Valley area including Smurfit-Stone has been designated an Important Bird Area by the Audubon Society.

Protection of this area would also complete a critical linkage to the La Valle/Butler Creek movement corridors that would allow animals moving south from the Rattlesnake to reach the Clark Fork River corridor and access National Forest lands. The corridor along O'Keefe Creek is an equally important movement route for fish and wildlife. FWP's large carnivore biologist has documented extensive use of the O'Keefe Creek corridor by a host of species. Given the current low levels of development around the corridor, there is an opportunity to protect this important passage and facilitate an unprecedented network of well-connected, wildlife-friendly areas in the Missoula Valley ahead of significant land use changes.

Polygon-specific recommendations:

FID 192: OPEN SPACE

Although this is currently classified as heavy industrial, the potential future remediation efforts of the site will provide an opportunity to reclaim this land and the important wildlife habitat it once provided. We strongly recommend Missoula County change this designation to open space to promote the idea that this area needs to be reclaimed as river floodplain, with the exceptional fish, wildlife, and recreation benefits that would come with it.

FID 273: OPEN SPACE

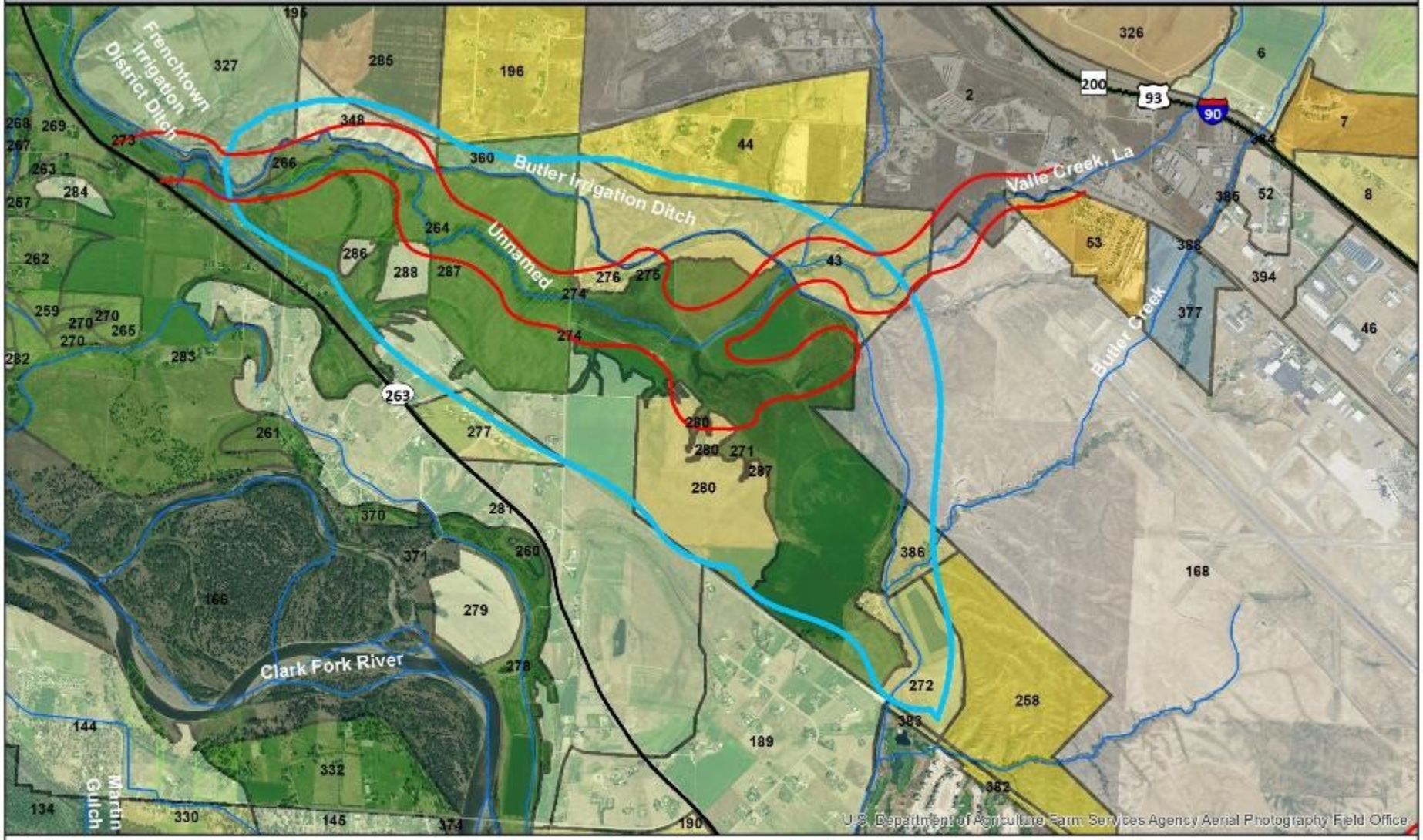
We recommend the polygon outlined in blue on the accompanying map be made into a separate polygon and classified as open space. As potential future remediation efforts are completed on the site, an extremely rare and important opportunity to rehabilitate this landscape and return it to the effective floodplain will be presented. We strongly recommend Missoula County plan for this area to return to the river and become an open space river-bottom that can provide fishing, hunting, trails, and wildlife viewing opportunities to accommodate the increase in residents that will be coming to the surrounding landscape in the next 20 years.

FID 3 and 285: RURAL RESIDENTIAL or RURAL RESIDENTIAL AND SMALL AGRICULTURE

The current land use designations in these polygons severely threaten the O'Keefe Creek movement corridor. In order to maintain this important corridor, we recommend the northwestern boundaries of FID 3 and 285 be pulled back to accommodate a riparian buffer around O'Keefe Creek (effectively pushing the boundaries of FID 4 and 195 to the southeast). Any development that does occur along O'Keefe Creek needs to accommodate a streamside setback to protect wildlife movement, nesting, and foraging activities along the stream.

Wetlands East of Deschamps Road

MONTANA FWP



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- INDUSTRIAL CENTER
- HEAVY INDUSTRIAL CENTER
- AIRPORT D-PARK ANNEXATION
- Conservation Easements
- Streams
- Deschamps Wetlands
- Core Wetland Area

N

0 0.4 0.8
Miles

Wetlands East of Deschamps Road

The wetlands in this area support an astounding diversity and abundance of bird, small mammal, and amphibian species. These wetlands and the surrounding grasslands are some of the most important nongame wildlife habitats left within the area covered by the Missoula Area Land Use Planning Map. The wetlands are unique in the Missoula Valley, and impacts from development on their fringes will certainly negatively impact these habitats to the exclusion of many plant and animal species. These portions of the Missoula Area Land Use Map are also part of the critical Butler and La Valle Creek connectivity corridors we have emphasized elsewhere in this document.

Polygon-specific recommendations:

FID 283 and 287: OPEN SPACE

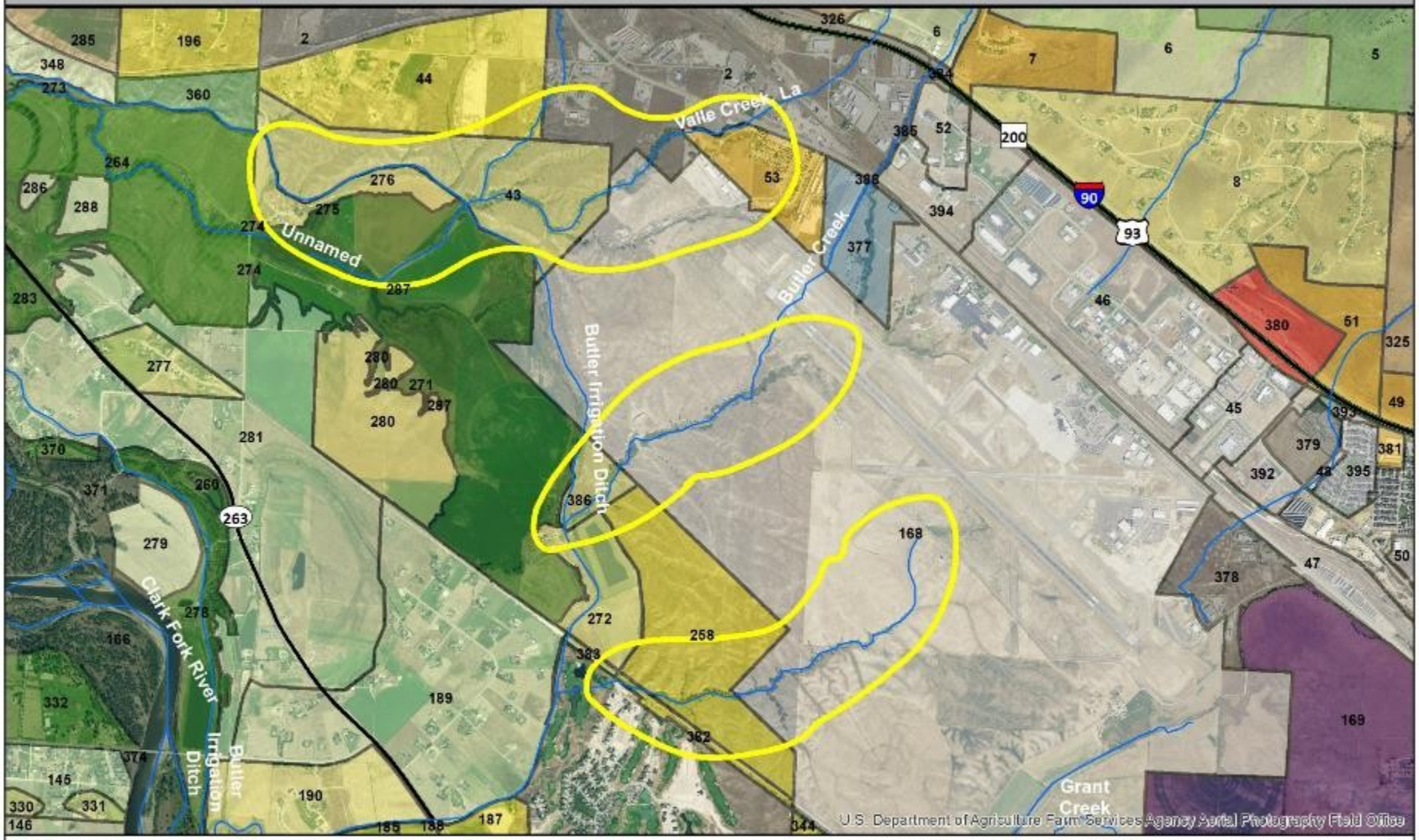
We are encouraged to see these portions designated as agriculture as they are the critical lower linkage of La Valle and Butler Creeks. These portions also contain some of the rarest and most important wetland and riparian habitats in the entire Missoula valley. While we would prefer these areas be designated as open space, we understand landowner constraints would likely prevent such a designation.

FID 43, 272, 276, 280, 386: AGRICULTURE or OPEN SPACE

While we appreciate the attempt to limit development in these portions through the rural residential land use designation, even a density of 1 unit per 1-2 acres would severely impact the La Valle and Butler Creek corridors and associated habitats. Development in these areas would also encroach on critically important wetland habitats which would have a variety of negative impacts including: 1) introduction of invasive plant and animal species; 2) harassment of wildlife by increased human presence and proximity to cats and dogs; and 3) runoff of contaminants into the wetlands from fertilizers, waste, and emissions onto impervious road surfaces. Wetland and riparian areas are sensitive to impacts from human development, and the degradation of these wetlands would be a major loss for the Missoula Valley. We recommend these polygons be changed to agriculture or open space to accommodate the wildlife habitat values this area represents. The stream corridors running through FID 43 were identified by biologists as especially critical given the uniqueness of the wetland and riparian habitats and their role in maintaining the La Valle/Butler Creek wildlife movement corridor (red lines).

Wooded Draws in the Sand Hills

MONTANA FWP



Wooded Draws in the Sand Hills

The woody riparian draws that flow through the sand hills along Butler, La Valle, and several unnamed creeks and ditches in the area extending south and west of the Missoula International Airport have high value as wildlife habitat. These are unique habitat types in the Missoula Valley and represent essential roosting and hunting grounds for declining populations of long-eared owls, Swainson's hawks, and many other bird and small mammal species. Considering the level of impact this area will likely experience in the next 20 years it is critical these woody draws and associated grasslands be protected in some way.

Polygon-specific recommendations:

FID 168: NO CHANGE

This polygon is part of the Missoula International Airport which means there is currently at least minimal protection for the grasslands and woody draws from major development. We realize this polygon is not part of the Missoula Area Land Use Map, but we want to emphasize it as an important area because its location increases the significance of the surrounding landscape as described below.

FID 43 and 276: AGRICULTURE or OPEN SPACE

La Valle Creek runs right through this polygon and the area has many of the grasslands and woody draws that are important and unique habitats. The proposed residential density would significantly negatively impact these natural resources. We would like to see riparian buffers integrated into zoning regulations in these polygons.

FID 44: RURAL RESIDENTIAL AND SMALL AGRICULTURE

We recommend a much lower density of development in this polygon to help maintain the integrity of the grasslands and woody draws. This polygon can also be considered part of the La Valle and Butler Creek movement corridors. The combination of heavy development in this polygon as well as those portions represented by FID 2, 53, and 377 could effectively cut off this movement corridor and facilitate increased human-wildlife conflict issues.

FID 258: AGRICULTURE or OPEN SPACE

A residential density of 1 unit per 1-2 acres in this polygon would heavily impact grasslands and the woody draws, potentially to the exclusion of those relatively rare species identified above.