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Tonto National Forest
Arizona

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Process Memorandum to File - Final

A Mitigation Effectiveness Evaluation of the

Superior, Arizona Recreation Project Conceptual Plan (March 2019)

Submitted by the Recreation User Group (RUG), a subcommittee of the Community Working Group (CWG) of Superior, Arizona

This document is deliberative and is prepared by the third-party contractor in compliance with the National Environmental Policy Act and other laws, regulations, and policies to document ongoing process and analysis steps. This document does not take the place of any Line Officer's decision space related to this project.

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1 Introduction

Land managers and resource specialists from the Tonto National Forest, a unit of the U.S. Department of Agriculture Forest Service (Forest Service), have evaluated several proposed measures intended to mitigate recreation impacts on the Tonto National Forest resulting from actions associated with the proposed Resolution Copper Project and Land Exchange (Resolution Copper Project). The mitigation measures evaluated include the "Superior, Arizona Recreation Project Conceptual Plan" (WestLand Resources 2019) along with other relevant project mitigation suggestions gleaned from the public between March 2016 and November 2019.

In this memorandum, we describe our mitigation evaluation process and identify those measures that we consider to be legitimate, practicable, and effective at reducing the impacts to recreation resources resulting from the proposed actions of the Resolution Copper Project.

A preliminary evaluation was completed in June 2019 by SWCA Environmental Consultants (SWCA) for inclusion in the Resolution Copper Project and Land Exchange Draft Environmental Impact Statement (DEIS) (SWCA 2019). Tonto National Forest staff reviewed the preliminary evaluation along with new information during discussions held in April and May 2020. This revised memorandum reflects the outcomes of both the preliminary evaluation and the subsequent discussions and analysis performed by the Forest Service during summer 2020. The set of measures found to be legitimate, practicable, and effective as a result of this evaluation process will be recommended for inclusion in the Final EIS (FEIS) and decision document for the Resolution Copper Project.

This document is organized as five sections: Section 1: Introduction, Section 2: Methods, Section 3: Results, Section 4: Recommendations, Section 5: References. The Forest Service is grateful for the technical assistance provided by our third-party contractor, SWCA, for guiding the mitigation evaluation process and preparing this document for the project record.

1.1 Background on Resolution Copper Project Recreation Impacts

Resolution Copper Mining, LLC (Resolution Copper), is proposing to develop an underground copper mine at a site in Pinal County, about 60 miles east of Phoenix near Superior, Arizona. The proposed action involves new mining facilities, existing mining facilities, and existing facilities that are proposed for expansion. The project would progress through three distinct phases: construction (10 years), operations, also referred to as the production phase (40–50 years), and reclamation (5–10 years). At the end of operations, facilities would be closed and reclaimed in compliance with permit conditions. Operational projections are removal of 1.4 billion tons of ore and production of 40 billion pounds of copper using a mining technique known as panel caving.

Some of the proposed mine infrastructure would be constructed and operated across the southern portion of the Tonto National Forest within the Mesa and Globe Ranger Districts (Figure 1). Key project locations and infrastructure include the following:

- The East Plant Site, which includes the underground mining operations, reroute of access road and associated surface subsidence;
- The West Plant Site, which includes mine facilities and reroute of Forest Service and private access roads;
- Underground ore conveyor/infrastructure corridor;
- Existing upgraded and new power line corridors to convey power to the East Plant Site and West Plant Site;
- The Skunk Camp tailings storage facility, including the pipeline corridor needed to convey tailings to the facility and the power line corridor needed to convey power to the facility.
- The filter plant and loadout facility;
- The Magma Arizona Railroad Company (MARRCO) corridor, an existing right-of-way that will contain pipelines to convey copper concentrate to the filter plant and loadout facility, will contain rail lines to convey copper concentrate to market, and will be the location of water supply wells and other water and power lines.

While all mining would be conducted underground, removing the ore would cause the ground surface to collapse, creating a subsidence area in the vicinity of the East Plant Site on lands currently managed by the Tonto National Forest. The crater would start to appear in year 6 of active mining. The crater ultimately would be between 800 and 1,115 feet deep by roughly 1.8 miles wide.

Through the Southeastern Arizona Land Exchange and Conservation Act (Public Law 113-291, Section 3003), Congress has directed the Forest Service (through delegated authority by the Secretary of Agriculture) to convey to Resolution Copper a tract of land known as the “Oak Flat Federal Parcel” which is above the copper deposit location. This 2,422-acre parcel located south of U.S. Route 60 (U.S. 60) includes the Oak Flat Campground and about 5.5 miles of National Forest System (NFS) roads that provide access to a variety of dispersed recreation settings and opportunities.

We published the DEIS for the Resolution Copper Project and Land Exchange in August 2019, disclosing the impacts to the natural, cultural, and social resources in the project area that would occur from implementing the no action alternative, the proposed action, and action alternatives. Two sections of the DEIS are directly relevant to informing the effectiveness evaluation of the proposed recreation mitigation measures: Section 3.5, Transportation and Access, and Section 3.9, Recreation.

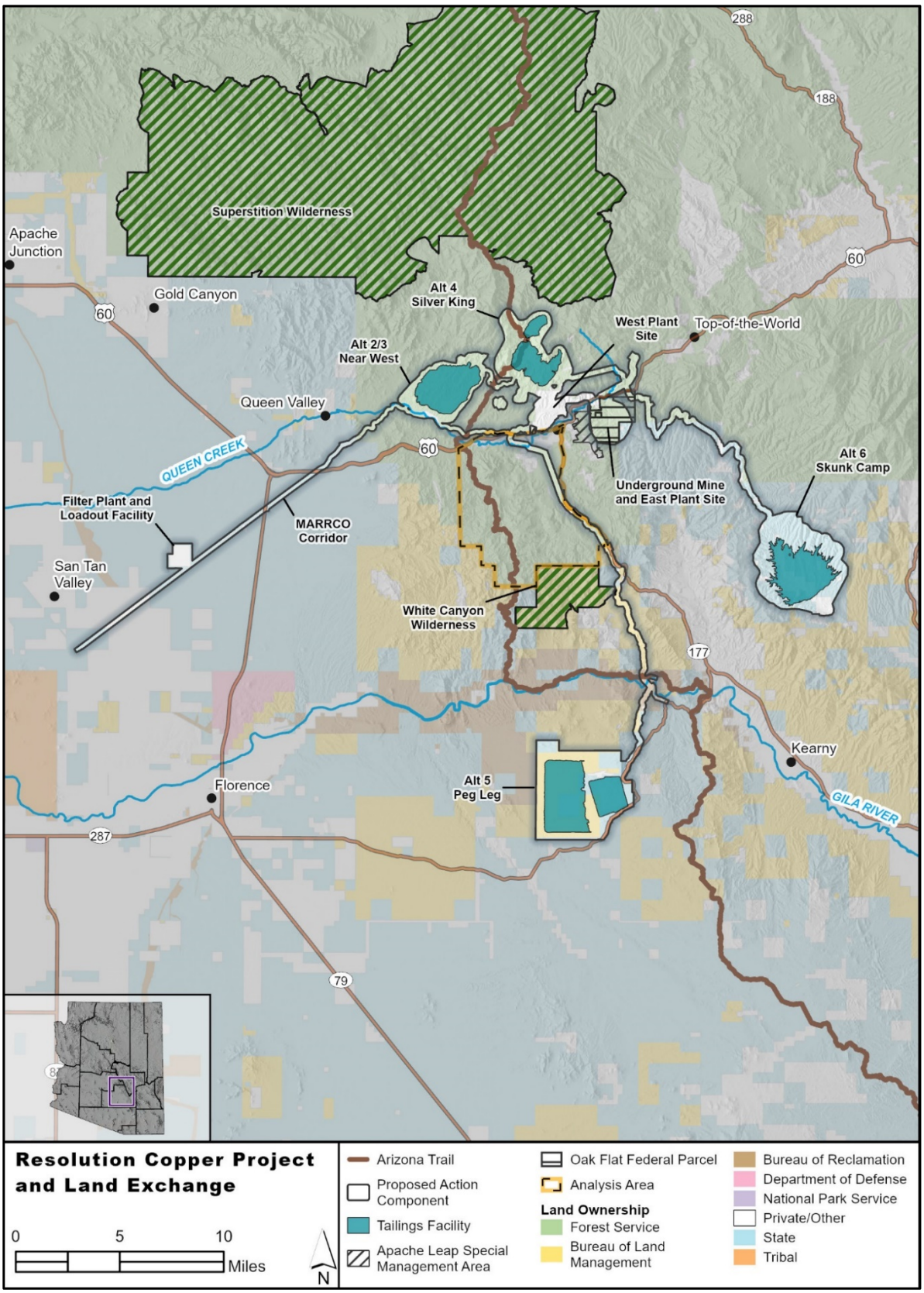

Figure 1. The Resolution Copper Project area and components.

DEIS Section 3.5, Transportation and Access, identifies the NFS roads that would be adversely impacted by the various project components. In aggregate, 10 NFS roads totaling about 8 miles are expected to be impacted by the project as follows:

- For the West Plant Site facility, two roads (NFS Roads [NFSRs] 1010 and 229) totaling 2.54 miles would be impacted. Under all alternatives, Resolution Copper has proposed to reroute approximately 2.17 miles of the Silver King Mine Road (NFSR 229) to maintain through access to the highlands north of the West Plant Site.
- For the East Plant Site and Subsidence Area there are eight NFS roads (NFSRs 2432, 2433, 2434, 2435, 2438, 3153, 3791, and 315) totaling about 5.5 miles that would no longer provide national forest visitor access.

DEIS Section 3.9, Recreation, states that the proposed mine and land exchange would have significant effects on recreation opportunities, including camping and day use in the vicinity of the Oak Flat Campground, as well as loss of access to or use of the Euro Dog Valley and Oak Flat East/West climbing and bouldering areas.

The DEIS identifies Alternative 6 – Skunk Camp North Tailings Corridor Option as the agency's preferred alternative. This preferred alternative would include about 14,931 acres of ground disturbance, of which 2,467 acres is NFS land, 8,207 acres is managed by the Arizona State Land Department, and 4,257 acres is private land.

The loss of recreation opportunities on 2,422 acres of NFS land via the land exchange, along with the loss of forest access along 5.5 miles of NFS roads and an additional disturbance to 2,467 acres of NFS lands from mine infrastructure development, forms the comparative basis for evaluating the impacts of the Resolution Copper Project on dispersed recreation opportunities on the Tonto National Forest.

1.2 Background on the Recreation Project Conceptual Plan

The "Superior, Arizona Recreation Project Conceptual Plan" (hereafter RUG Trail Plan) was prepared in March 2019 by WestLand Resources on behalf of Resolution Copper for the Recreation User Group (RUG); (See Appendix A). RUG, a subcommittee of the Community Working Group (CWG) of Superior, Arizona, engaged volunteers in a multi-year effort to design recreational trail systems in and adjacent to the town of Superior that would meet the needs and interests of different stakeholders. RUG's vision was to not only replace the recreation opportunities lost due to the proposed copper mine, but to also identify recreation opportunities in the adjacent landscape that would promote the local area as a premier outdoor recreation destination (CWG 2020).

RUG identified the following goals for its trail network design:

(a) Consolidate the existing trail network to reduce unauthorized disturbance;

(b) Allow for a diverse range of trail types for both motorized and non-motorized uses;

(c) Maximize and preserve views of the outstanding natural scenery of the area;

(d) Segregate use types as necessary to minimize conflicts and facilitate public safety;

(e) Be sustainable and require minimal maintenance;

(f) Be able to be constructed in phases.

This community landscape vision statement and goals for a local, sustainable trails network are compatible with the multiple-use management philosophy held by the Forest Service and is consistent with the desired conditions for dispersed recreation resources on the Tonto National Forest Plan (Forest Service 1985) and as described in the Draft Land and Resource Management Plan, commonly referred to as the Draft Forest Plan (Forest Service 2019a).

The RUG Trail Plan (Appendix A) identifies approximately 69 miles of motorized and non-motorized trails, and trailhead/parking lots comprising an additional 3 acres located within the Globe Ranger District on NFS lands generally south of the town of Superior, Arizona, west of State Route (SR) 177 and north of the White Canyon Wilderness Area (administered by the Bureau of Land Management). The plan contains specific trail design and layout concepts that include suggestions for construction and maintenance that are based on terrain and vegetation, existing and projected uses of the area, and land surface ownership patterns.

The RUG Trail Plan (funded by Resolution Copper) was submitted to the Forest Service for consideration in the DEIS as mitigation for potential resource impacts resultant of the proposed action.

1.3 Other Recreation Mitigation Measures Considered

The DEIS for the Resolution Copper Project includes two other recreation-related mitigation measures that are relevant for consideration alongside this evaluation of the RUG Trail Plan. We included these measures (described below) because they would occur within the same geographic area contemplated in the RUG Trail Plan. In the DEIS, the RUG Trail Plan is identified as mitigation measure **RC-214**.

RC-213: Mitigate loss of bouldering at Oak Flat by improving access to the 'Inconceivables.'
To mitigate impacts on recreation through the loss of bouldering areas at Oak Flat, Resolution Copper has proposed to improve the existing but difficult access to an alternative rock climbing area known as the Inconceivables. This area extends along cliffs for approximately 3 miles on Tonto National Forest land and is located off SR 177 via NFSRs 319 and 2259.

The entire length of NFSR 2259 (approximately 0.8 mile) is currently identified for decommissioning and closure as part of the TNF Travel Management Plan draft decision (Forest Service 2019b). Beyond the end of NFSR 2259, there is an unauthorized two-track route that extends about 1.4 miles in a northwesterly direction to the Inconceivables climbing area. To be effective, NFSR 2259 would need to be designated as open to the public, and the unauthorized 1.4-mile two-track route would need to be improved for motorized access and designated open to the public.

RC-215: Provide a replacement campground. Resolution Copper has proposed to establish an alternative campground site, known as Castleberry, to mitigate the possible loss of access to and use of the Oak Flat Campground. The Castleberry parcel is located along the banks of Queen Creek, about 1 mile south of U.S. 60 using NFSR 989. Resolution Copper estimates that the improved access to the property and development of the new campground may involve additional ground disturbance of about 41 acres. Conceptual design plans for the campground are under development.

2 Evaluation Methods

In this section, we identify the regulatory framework and describe the data sources and methods used in our evaluations to determine the legitimacy, practicability, and effectiveness of the proposed mitigation measures (RC-213, RC-214, and RC-215) in alleviating impacts to recreation resources on the Tonto National Forest resulting from the project actions.

2.1 Regulatory Framework

The Land and Resource Management Plan for the Tonto National Forest (1985 Forest Plan) (Forest Service 1985), including amendments, is the primary document currently guiding the forest in meeting the mission of the Forest Service and managing public lands to provide for healthy, resilient ecosystems that meet the diverse needs of the American people.

The 1985 Forest Plan is remarkably outdated and is under revision to comply with the NFS Land Management Planning Rule (36 Code of Federal Regulations 219) and associated planning directives (Forest Service Handbook 1909.12). In November 2019, the Tonto National Forest released a proposed revised plan and DEIS for public review and comment. When finalized, the revised plan will provide strategic, program-level guidance for management of the forest's resources and uses over the next 10 to 15 years.

Before a decision affecting NFS lands and resources can be rendered, project proposals must undergo a consistency review with existing laws, regulations, agency policies and procedures, forest plan standards and guidelines, and any relevant agency decisions in effect at the time of a project proposal. This breadth and depth of review ultimately establishes the legitimacy of a project proposal and its associated mitigation actions.

For our evaluation of legitimacy, we reviewed the RUG Trail Plan and related recreation mitigation measures for consistency and compatibility with the following land and resource management direction:

- 1985 Tonto National Forest Plan (as amended; Forest Service 1985: forest-wide and management area standards and guidelines; Recreation Opportunity Spectrum (ROS) Settings Map, Wildland Fire Management Zones
- Draft Forest Plan (Forest Service 2019a):
    - Developed and Dispersed Recreation

  - Designated and Recommended Research Natural Areas (RNAs) (e.g., Picket Post Mountain)
  - Eligible Wild and Scenic River (WSR) Segments (e.g., Telegraph and Arnett Creeks)
  - National Trails (e.g., Arizona National Scenic Trail)
- Final Supplemental EIS (SEIS) and Draft Record of Decision (ROD) for Travel Management on the Tonto National Forest (Forest Service 2019b):
  - Review of the system of roads, trails, and areas designated for motor vehicle use by class of vehicle and time of year on the Tonto National Forest.
  - Review of routes designated for closure/decommission.
- Other reasonably foreseeable actions within or adjacent to the recreation mitigation analysis area (i.e., community plans and ranger district project proposals)

2.2 Data Sources and Methods

For data, we relied on a variety of spatial and non-spatial data, published references, and the professional judgement and operational knowledge of Forest Service resource specialists and project consultants. We met as a group on three occasions in April and May 2020 to evaluate the mitigation proposals and also individually as needed to track down specific information.

For methods, we used a geographic information system (GIS) to gather, manage, and analyze relevant data including imagery, geospatial features, and natural and cultural resource base maps and linked these to spreadsheets, tables, and maps for display purposes.

Separately and cumulatively, these data were useful for evaluating the legitimacy, practicability, and effectiveness of the proposed routes, trail segments and recreation opportunities within the analysis area. The outcome of these analyses are discussed in more detail in the Results Section.

2.2.1 Analysis Area Description

The analysis area consists of NFS lands within the Globe Ranger District located generally south of the town of Superior, Arizona, west of SR 177 and north of the White Canyon Wilderness Area (administered by the Bureau of Land Management). The area includes private inholdings. The total analysis area (including both public and private lands) comprises approximately 2,454 acres as shown in Figure 2. The analysis area includes portions of an Arizona Important Birding Area (Audubon Society 2020) located along Arnett and Queen Creeks adjacent to the Boyce Thompson Arboretum.

The analysis area includes a system of roads, trails, and areas designated for motor vehicle use by class of vehicle and time of year as described in the 2019 Final SEIS and Draft ROD for Travel Management on the Tonto National Forest. This system of roads and their disposition (open/closed) for this portion of the Globe Ranger District is depicted in Figure 2.

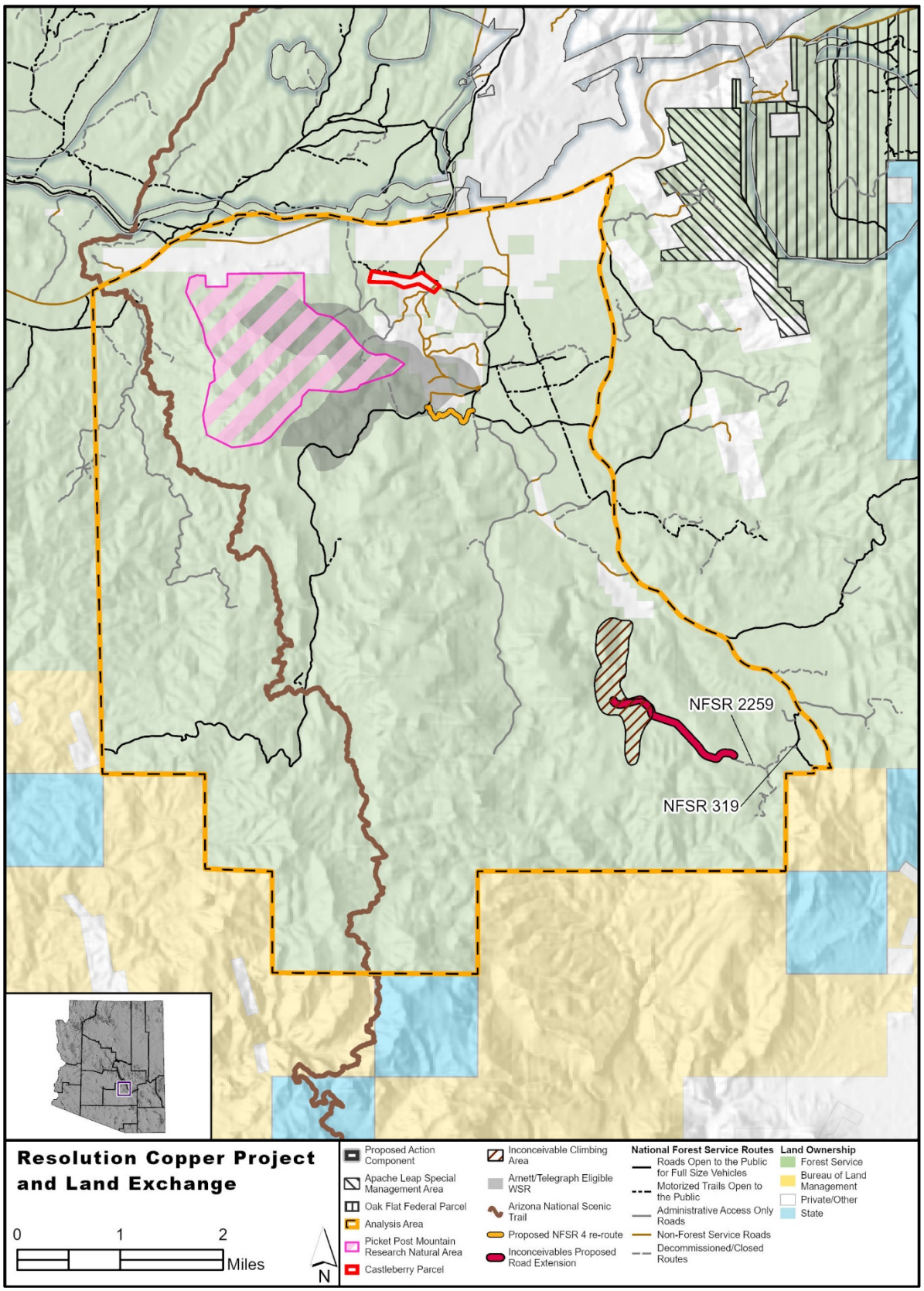

Figure 2. Recreation mitigation analysis area.

In May 2019, NFSR 4, which is used to access an existing trail along Arnett Creek, was blocked at the private inholding boundary of the perlite mine to allow the owners to safely engage in minerals exploratory work. The Forest Service does not have an easement or ROW for the road across the private parcel. During the spring of 2020, Forest Service road engineers identified and surveyed an alternate route that avoids this private property. This reroute is designed to provide safe and continuously open access to public lands along NFSR 4.

The analysis area also includes two areas proposed for special management as identified in the revised forest plan (2019): the Picket Post Mountain RNA and the eligible WSR segments of Telegraph and Arnett Creeks.

Picket Post Mountain Research Natural Area (1,261 acres) contains excellent examples of the Sonoran desert in many of its varied plant community associations on foothill and piedmont topography. The eastern piedmont, bounded by cliffs along Telegraph Canyon and Arnett Creek, represents the Sonoran Desert on gentle upland slopes. Stretches of Arnett Creek are included in the area and have perennial flow that supports a riparian gallery forest (which is rare in the State and on the Tonto National Forest). The varied topography and soils around Picket Post Mountain display a number of unique plant communities within a small area and also represents the limiting cold temperature boundary of the Saguaro cactus distribution. Arnett Creek and the adjacent uplands serve as excellent benchmark examples for Sonoran Desert plant communities and deciduous riparian forests. The area also serves as an important gene pool for Sonoran flora (especially cacti) and fauna, and as a control to study the effects of grazing management (at areas excluded from livestock grazing).

A 3.5-mile stretch along each of Telegraph and Arnett Creeks contain remarkable scenery and fisheries values. The distinctive gorges and broad canyons with solid rock vertical walls provide many novel rock forms. Bare soil, desert pavement, and barren rock textures with unique strings of riparian deciduous trees along the creeks and nearby botanical gardens creates a unique area juxtaposed with the vast surrounding undistinguished desert. The creeks provide high-quality perennial stream habitat for native fishes. Currently, longfin dace occur in the creek and multiple threatened or endangered fish species have been reintroduced to the area. Arnett Creek has an extant population of native aquatic biota, including Sonoran mud turtle and lowland leopard frogs. There is a fish barrier downstream from Arnett and Telegraph Creeks that inhibits upstream non-native species migrations. The segment has been deemed eligible for inclusion in the WSR System and will be managed to protect its outstandingly remarkable values under a “recreational” classification due to the existing levels of shoreline development and evidence of human activity.

As described in the RUG Trail Plan, current land uses within the analysis area consist predominantly of livestock grazing, mining, and outdoor recreation, including hiking, birding, horseback riding, mountain biking, and off-roading. There are seasonal hunting opportunities for javelina, big horn sheep and mule deer (within Game Unit 37B) as permitted by the Arizona Game and Fish Department. There are a number of areas devoid of vegetation that appear to be dispersed camp sites or staging areas. Several isolated illegal trash dumps are also scattered around the analysis area. Where the terrain is rocky and steep, and access is more challenging,

the landscape remains relatively undisturbed. With the exception of the portion of the Arizona National Scenic Trail (AZNST) that bisects the western portion of the analysis area, existing recreation trails on Tonto National Forest lands are primarily unauthorized motorized and non-motorized trails. The Town of Superior's Legends of Superior Trails (LOST) system is located adjacent and directly north of the analysis area; indeed, several of the proposed trails discussed below are intended to connect to LOST.

2.2.2 RUG Trail Plan Data

As stated previously, the RUG Trail Plan proposes a 69-mile network of motorized and non-motorized trails. We made two initial adjustments to the RUG Trail Plan data for our analysis. First, we determined which, if any, routes and trail segments in the proposal already exist as part of the national forest road or trail systems. These existing, authorized routes and trails were dismissed from further analysis. Secondly, we assigned a unique identifier to each of the remaining proposed routes and trail segments as shown in Table 1. Figure 3 displays the locations of each segment of this modified 54-mile network that formed the basis of our evaluations.

Table 1. RUG Trail Plan – List of Proposed Trails and Routes Evaluated

Route ID#	Route Type	Length (miles)	Route ID#	Route Type	Length (miles)	Route ID#	Route Type	Length (miles)
101	Proposed Trail, Non-motorized	2.663	**201**	Proposed Trail, Motorized	0.316	**300**	Proposed Road, Motorized	3.603
102	Proposed Trail, Non-motorized	0.677	**202**	Proposed Trail, Motorized	3.360	**301**	Proposed Road, Motorized	3.198
103	Proposed Trail, Non-motorized	0.589	**203**	Proposed Trail, Motorized	3.731	**302**	Proposed Road, Motorized	0.909
104	Proposed Trail, Non-motorized	0.676	**204**	Proposed Trail, Motorized	3.092	**303**	Proposed Road, Motorized	0.634
105	Proposed Trail, Non-motorized	6.304	**205**	Proposed Trail, Motorized	1.108	**304**	Proposed Road, Motorized	0.384
106	Proposed Trail, Non-motorized	0.119	**206**	Proposed Trail, Motorized	0.714	**305**	Proposed Road, Motorized	1.007
107	Proposed Trail, Non-motorized	0.947	**207**	Proposed Trail, Motorized	0.373	**306**	Proposed Road, Motorized	0.225
108	Proposed Trail, Non-motorized	0.346	**208**	Proposed Trail, Motorized	6.152	**307**	Proposed Road, Motorized	0.421
109	Proposed Trail, Non-motorized	0.487	**209**	Proposed Trail, Motorized	1.401	**308**	Proposed Road, Motorized	1.195
110	Proposed Trail, Non-motorized	5.746	**210**	Proposed Trail, Motorized	1.732	**309**	Proposed Road, Motorized	0.480
111	Proposed Trail, Non-motorized	0.224				**310**	Proposed Road, Motorized	0.135

Route ID#	Route Type	Length (miles)	Route ID#	Route Type	Length (miles)	Route ID#	Route Type	Length (miles)
						311	Proposed Road, Motorized	0.607
Total Non-motorized Trails: 18.778			**Total Motorized Trails: 21.979**			**Total Motorized Roads: 12.798**		
Total Length, All Routes: 53.555								

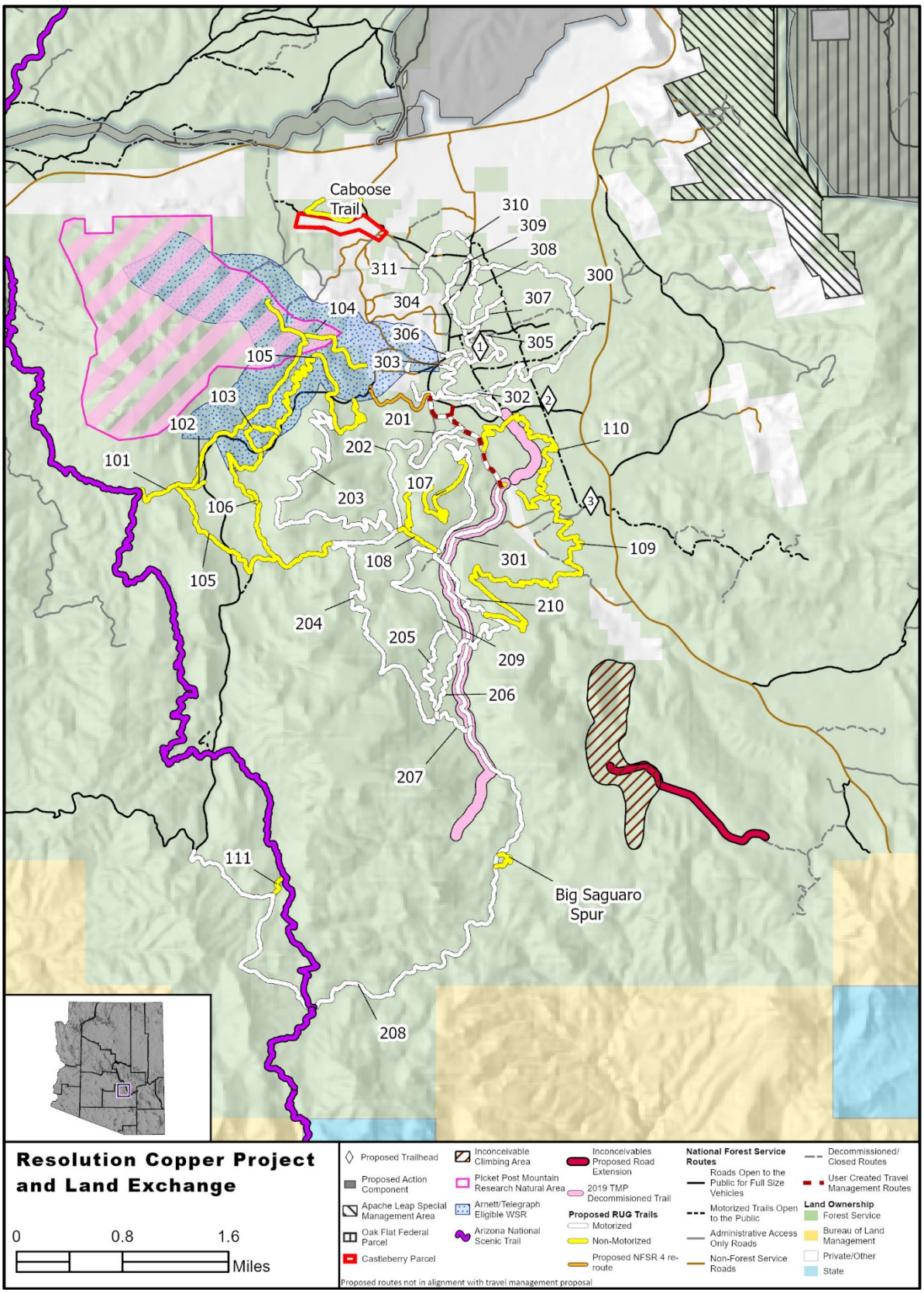

Figure 3. RUG Trail Plan – map of proposed trails and routes by type.

3 Results

We present the results of our analyses in the sections that follow. In addition to the geospatial data, which offered us strong footing for our evaluations, we also identified several working assumptions, management biases, and other factors that would likely influence our deliberations. We attempted to capture those below. We also provide a summary impacts table below based on the preliminary evaluations completed in June 2019. We updated the table to reflect the findings from our 2020 review effort.

3.1 Analysis Assumptions/Considerations

The following is a list of assumptions and considerations that influenced our evaluations and ultimately guided our determinations regarding which set of routes and trails would effectively alleviate impacts to recreation resources resulting from the Resolution Copper Project.

3.1.1 Overall Strategy

- We sought to consolidate the individual segments of the original RUG Trail Plan into complete trails, with consideration of trail intent, destination, and location.
- We reviewed each of the proposed trails and routes for legitimacy with respect to special management area direction available in the proposed revised forest plan 2019 and the 2019 draft decision for travel management on the Tonto National Forest, neither of which was available to the RUG when RUG was developing its proposal.
- We focused on what was practicable and reasonable to implement, given expected Forest Service and private funding opportunities and limitations and the staffing levels needed to manage recreational use in the area and to maintain recreation infrastructure over a long time horizon.
- We identified, to the best of our ability, the current environmental and social conditions within the analysis area, recognizing that some site-specific conditions have changed since March 2019 when the RUG Trail Plan was submitted.
- We recognized that these recreation mitigation measures represent a unique opportunity on the Globe Ranger District to establish collaborative partnerships using a phased approach where volunteers plan, lead, and execute a majority of motorized and non-motorized trail maintenance.
- As an agency, we remain committed to developing partnerships and collaborating with others to:
    - increase forest stewardship, ecological awareness, volunteerism, and user satisfaction;
    - promote a sustainable recreation program; and
    - support local recreation-based economic development.

3.1.2 Recreation Opportunity Spectrum Constraints

We sought to minimize conflicts with the ROS settings established in the 1985 Forest Plan. The ROS settings within the analysis area were overlaid with the proposed routes by type. Several of the motorized routes and trails overlapped with a Semi-primitive Non-Motorized (SPNM) area. Recommending motorized trails in SPNM could trigger the need for a forest plan amendment and change expectations for the recreation settings in the area. ROS provided a good first filter for identifying potential conflicts.

3.1.3 Travel Management Topics

We evaluated the proposed routes and trails for proximity and dependence on NFS roads that are likely to be closed to the public (decommissioned or administrative access only roads) and that are worthy of suggesting a change to the pending travel management decision.

We removed all motorized single-track routes; all motorized trails are recommended as "two-track" to accommodate both:

- All-terrain vehicles which often have a wheelbase width of 50 inches or less, and riders straddle the vehicle, with riders sitting one in front of the other; and
- Utility-terrain vehicles which allow riders to sit side-by-side and may have a wheelbase width greater than 50 inches, but not more than 60 inches.

Taking advantage of a state parks grant, we identified a different set of parking/staging areas and trail head (Perlite Pits and Arnett), in areas having less surface disturbance and already used for off-highway vehicle (OHV) trailer unloading and staging vehicles.

3.1.4 Special Management Areas

We considered the type of route proposed (e.g., motorized, non-motorized) for compatibility with areas that have special management direction. For example, motorized recreation is not a legitimate, compatible use within the Picketpost Mountain RNA and the eligible WSR segments of Telegraph and Arnett Creeks.

We also considered the purpose and nature of the AZNST. The AZNST is a well-defined trail that provides high-quality, primitive hiking and equestrian opportunities, and other compatible non-motorized trail activities, in a highly scenic setting that crosses the State of Arizona. The Alamo Canyon segment provides opportunities for solitude, immersion in natural landscapes, and primitive outdoor recreation. Backcountry skills, self-support, and extended "no-service" areas abound in Segment 17 of the AZNST, Alamo Canyon. Wood Canyon provides unique access to this Segment of the AZNST.

3.2 Summary Impacts

Table 2 displays the determinations of legitimacy, practicability, and effectiveness for each of the motorized roads and motorized and non-motorized trails that we evaluated.

Table 2. Evaluation Summary of RUG Trail Plan – Proposed Trails and Routes

RUG Trail Plan Component			Legitimate? Y/N*	Practicable? Y/N**	Effective? Y/N***	Remarks	Drop or Keep?
Route ID#	Route Type	Length (miles)					
101	Proposed Trail, Non-Motorized	2.663	Y	Y	Y	Compatible with RNA and WSR classification; Connects w/AZNST	Keep
102	Proposed Trail, Non-Motorized	0.677	Y	Y	Y	Access to AZNST and Telegraph Creek from NFSR 4	Keep
103	Proposed Trail, Non-Motorized	0.589	Y	N	N	Short loop off of NFSR 4; consider w/partners in future	Drop
104	Proposed Trail, Non-Motorized	0.676	Y	N	N	Follows Arnett Creek upstream from Telegraph trail; dead ends at private property	Drop
105	Proposed Trail, Non-Motorized	6.304	Y	N	N	Multiple trail segments off of NFSR 4 in Telegraph Canyon; consider w/partners in future	Drop
106	Proposed Trail, Non-Motorized	0.119	Y	N	N	Short segment off of #105	Drop
107	Proposed Trail, Non-Motorized	0.947	Y	N	N	Limited access when NFSR 1039 is Admin Use Only	Drop
108	Proposed Trail, Non-Motorized	0.346	Y	N	N	Limited access when NFSR 1039 is Admin Use Only	Drop
109	Proposed Trail, Non-Motorized	0.487	Y	N	N	Limited access when NFSR 1039 is Admin Use Only	Drop
110	Proposed Trail, Non-Motorized	5.746	Y	N	N	Limited access when NFSR 1039 is Admin Use Only	Drop
111	Proposed Trail, Non-Motorized	0.224	Y	Y	Y	Provides access to AZNST from 208 Wood Canyon Trail	Drop
201	Proposed Trail, Motorized	0.316	N	N	N	Trail type conflicts with ROS SPNM	Drop
202	Proposed Trail, Motorized	3.360	N	N	N	Trail type conflicts with ROS SPNM	Drop
203	Proposed Trail, Motorized	3.731	N	N	N	Trail type conflicts with ROS SPNM	Drop
204	Proposed Trail, Motorized	3.092	N	N	N	Trail type conflicts with ROS SPNM	Drop
205	Proposed Trail, Motorized	1.108	N	N	N	Trail type conflicts with ROS SPNM	Drop
206	Proposed Trail, Motorized	0.714	N	N	N	Only accessible from NFSR 1039 which is Admin Use Only	Drop

RUG Trail Plan Component			Legitimate? Y/N*	Practicable? Y/N**	Effective? Y/N***	Remarks	Drop or Keep?
Route ID#	**Route Type**	**Length (miles)**					
207	Proposed Trail, Motorized	0.373	N	N	N	Only accessible from NFSR 1039 which is Admin Use Only	Drop
208^	Proposed Trail, Motorized	6.152	N	Y	Y	Conflicts with ROS SPNM. Creates motorized access to the AZNST; **Change to non-motorized trail**	Keep w/ type change
209	Proposed Trail, Motorized	1.401	N	N	N	Only accessible from NFSR 1039 which is Admin Use Only	Drop
210	Proposed Trail, Motorized	1.732	N	N	N	Only accessible from NFSR 1039 which is Admin Use Only	Drop
300	Proposed Road, Motorized	3.603	Y	Y	Y	Motorized loop – Arnett Hills Trail; connects with Golf Course routes	Keep
301	Proposed Road, Motorized	3.198	N	N	N	Same as NFSR 1039; Admin use only; Access for Wood Canyon Trail	Drop
302	Proposed Road, Motorized	0.909	Y	N	Y	Drop portions that cross private property north of NFSR 4	Keep most
303	Proposed Road, Motorized	0.634	Y	Y	Y	Motorized routes east of NFSR 230 and west of SR 177 are preferable	Keep
304	Proposed Road, Motorized	0.384	Y	Y	Y	Motorized routes east of NFSR 230 and west of SR 177 are preferable	Keep
305	Proposed Road, Motorized	1.007	Y	Y	Y	Motorized routes east of NFSR 230 and west of SR 177 are preferable	Keep
306	Proposed Road, Motorized	0.225	Y	Y	Y	Motorized routes east of NFSR 230 and west of SR 177 are preferable	Keep
307	Proposed Road, Motorized	0.421	Y	Y	Y	Motorized routes east of NFSR 230 and west of SR 177 are preferable	Keep
308	Proposed Road, Motorized	1.195	Y	Y	Y	Motorized routes east of NFSR 230 and west of SR 177 are preferable	Keep
309	Proposed Road, Motorized	0.480	N	N	N	Route crosses private property; access not guaranteed	Drop
310	Proposed Road, Motorized	0.135	N	N	N	Route crosses private property; access not guaranteed	Drop
311	Proposed Road, Motorized	0.607	N	N	N	Route crosses private property; access not guaranteed	Drop

*Legitimate – Proposed route is consistent and compatible with the land and resource management direction

**Practicable – Proposed route is able to be constructed and maintained, and has no logistical concerns

***Effective – Proposed route offsets an impact to recreational resources of NFS Roads caused by the Resolution Copper Project and Land Exchange

^ Under current Travel Management, only a portion of route ID# 208 is proposed as non-motorized trail. The remaining portion is not included.

Table 3 lists the subset of trails from Table 2, along with a few additional trail segments associated with the Castleberry Campground parcel that we determined to be most appropriate and effective as a mitigation package going forward with the FEIS. This results in about a 2:1 replacement ratio for the expected loss of 5.5 miles of NFS roads at the East Plant Site and subsidence area.

Table 3. List of Trails and Routes Meeting Forest Service Criteria

Route ID#	Route Name	Type	Length (miles)	WSR	RNA	ROS
NA	Arnett Drive	Motorized	0.052	0.02	–	0.052 Roaded Natural (RN)
300	Arnett Hills Trail	Motorized	3.827	–	–	3.52 RN 0.30 SPM 0.01 SPNM
302	Arnett Hills Trail – Cutoff	Motorized	0.227	–	–	0.227 RN
NA	Caboose Trail	Non-motorized	0.269	–	–	0.268 Urban
303 - 308	Perlite Pits Area Trails	Motorized	3.76	–	–	3.76 RN
NA	NFSR 4 Reroute	Motorized	0.711	0.12	–	0.711 SPM
101, 102	Telegraph Trail	Non-motorized	2.892	1.69	0.62	2.892 SPM
208	Wood Canyon Trail	Non-motorized	7.217	–	–	1.0 RN 3.71 SPM 2.51 SPNM
NA	Wood Canyon Trail – Big Saguaro Spur	Non-motorized	0.167	–	–	0.167 SPM
NA	Inconceivables Road	Motorized	1.45	–	–	0.80 SPM 0.65 SPNM
	Total Motorized		**9.317**			
	Total Non-motorized		**11.255**			
	Total		**20.572**			

4 Recommendations

Table 4 lists the routes and trail segments that the Forest Service recommends as mitigation to alleviate impacts to recreation resources resultant of the Resolution Copper Project. This network of trails and motorized routes will be carried forward and disclosed as part of the FEIS and included as required mitigation actions (i.e., Resolution Copper to provide funds for design and construction) as part of the Forest Service decision regarding the Resolution Copper Project. Figure 4 illustrates the Final recommended network, along with the revised parking/staging area locations and their relationship to the proposed Castleberry Campground and proposed access road to the Inconceivables climbing area.

Table 4. List of Tonto National Forest–Final Recommended Trails and Motorized Routes

Route Name ***(old Route ID#)***	**Type**	**Length (miles)**
Caboose Trail *(NA)*	Non-motorized	0.268
Telegraph Trail *(101, 102)*	Non-motorized	2.892
Wood Canyon Trail *(208)*	Non-motorized	7.217
Wood Canyon Trail – Big Saguaro Spur *(NA)*	Non-motorized	0.167
Arnett Drive *(NA)*	Motorized	0.052
Arnett Hills Trail *(300)*	Motorized	3.827
Arnett Hills Trail – Cutoff *(302)*	Motorized	0.227
Perlite Pits Area Trails *(303-308)*	Motorized	3.76
NFSR 4 Reroute *(NA)*	Motorized	0.711
Inconceivables Road *(NA)*	Motorized	1.45
Total Motorized		**9.317**
Total Non-motorized		**11.25**
Total		**20.572**

4.1 Descriptions of Recommended Trails and Motorized Routes

4.1.1 Recommended Non-motorized Trails

Telegraph Trail

The Telegraph Trail represents a key non-motorized trail that would be a part of a series of trails that can be pieced together to loop around Picketpost Mountain. Highly desired by both the public and the Forest Service, the Telegraph Trail also provides sweeping views of the eastern slopes of Picketpost Mountain and Arnett Creek Canyon. It is currently being used although is not designated.

Wood Canyon Trail and Big Saguaro Spur

The Wood Canyon Trail follows an old road, now closed to public motorized use, designated by the 2019 Travel Management ROD as "administrative use only." This trail is highly used by equestrians, and is a popular equestrian route used to access the White Canyon Wilderness and Segment 17 of the Arizona National Scenic Trail: "Alamo Canyon," south of the RUG planning area. The Spur Trail provides a safe route to observe an exceptionally large saguaro cactus.

Caboose Trail

The Caboose Trail's name is derived from the red caboose railcar along U.S. 60 in Superior. This landmark provides information and nearby access to the LOST segments through Queen Creek and into Forest Service lands.

4.1.2 Recommended Motorized Trails (two-track full-size)

Arnett Hills Trail and Arnett Hills Trail – Cut-off

This trail provides a loop opportunity for motorized vehicles in an area already heavily used by OHVs and other motorized vehicles. It connects to the popular NFSR 230/Arnett Drive road, accessible from U.S. 60 in Superior and along SR 177. The trail traces the top of a hilly mesa, with excellent views afforded at numerous escarpments, including several with views of Arnett Creek. The Cut-off provides a convenient yet adventurous short cut for a long switchback on Arnett Hills Trail.

Arnett Drive

This short spur provides a connection from the Perlite Pits Area Trails to NFSR 3790/Arnett Drive; it occurs on an existing route across private lands

Perlite Pits Area Trails

These motorized trails occur within the loop that would be created by the Arnett Hills Trail and offer key connectivity to existing NFSRs 998 and 2476 in an area that is already heavily used by OHVs and other motorized vehicles. These trails are also purposefully located nearby the two proposed staging areas, Arnett and Perlite Pits Staging Areas, to provide convenient access to a wide variety of users and, in some cases, room for their haul vehicles and trailers.

NFSR FSR 4 Reroute

The Reroute for NFSR 4 was precipitated by mineral development and the need for public safety. This reroute provides legal and safe public use; whereas the old route was on private lands.

Inconceivables Road

Located at the end of NFSR 2259, this unauthorized route provides key recreation opportunity and access to climbing areas (crags and boulders). This motorized road, if constructed, is tied to the Resolution Copper EIS Mitigation proposal RC-213 (Forest Service 2019c).

4.2 Descriptions of Recommended Staging Areas

The Arnett Trail Head at the corner of NFSR 4 and NFSR 230 is well suited for access by equestrian users and other non-motorized users. Likewise, the Perlite Pits Staging Area has been historically used by motorized users for parking/trailering and using as departure area for OHV trips.

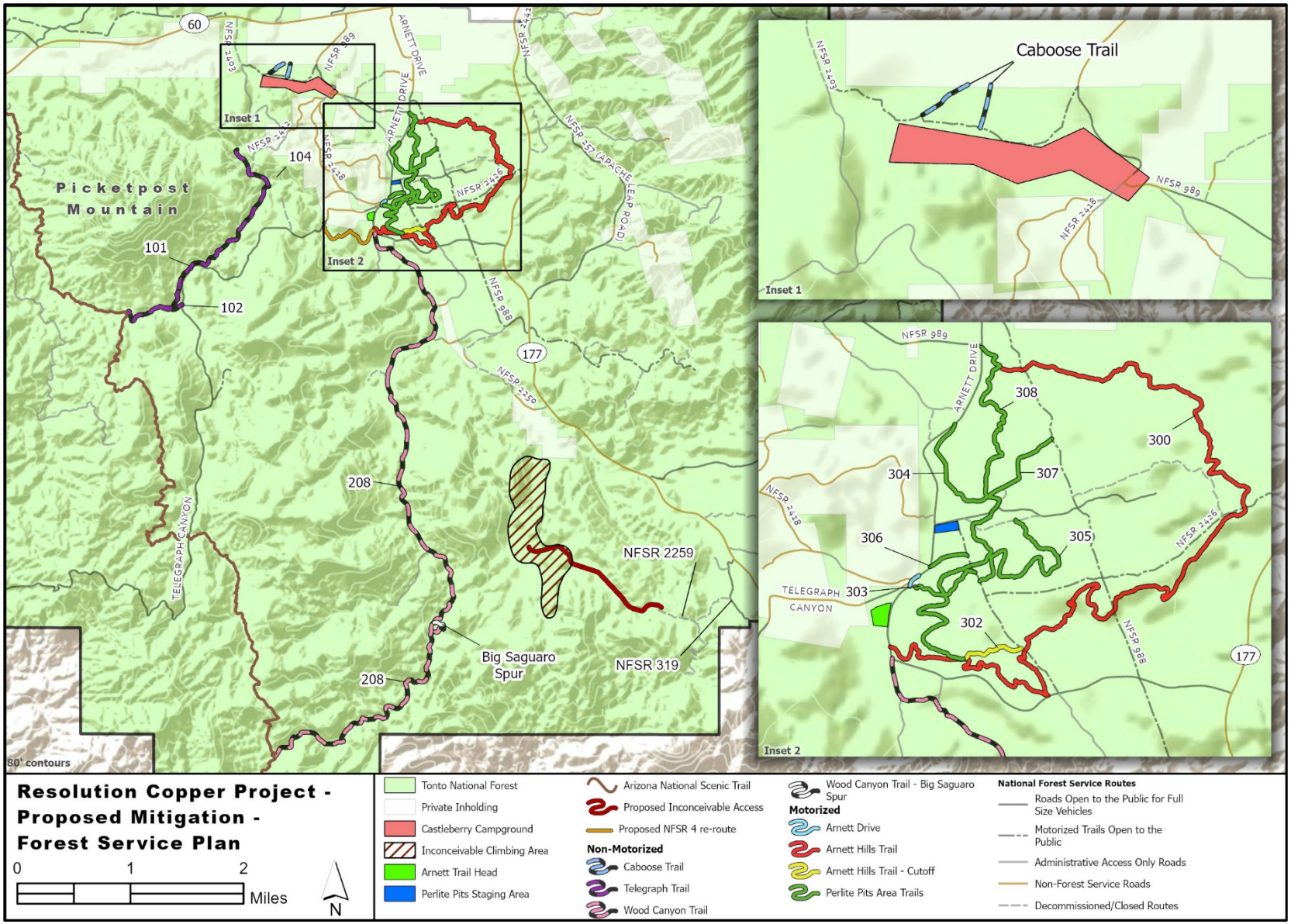

Figure 4. Forest Service–Final recommended trails and motorized routes.

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APPENDIX A

Superior, Arizona Recreation Project Conceptual Plan
March 2019

SUPERIOR, ARIZONA
RECREATION PROJECT CONCEPTUAL PLAN
Recreation User Group

Prepared for:

Recreation User Group

Project Number: 807.135

March 2019

WestLand Resources

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1. INTRODUCTION

In 2016, the Recreation User Group (the Group) was formed to develop a recreational trail design within the vicinity of Superior, in Pinal County, Arizona (the Project Area; **Figure 1**). The Group was charged with developing a conceptual plan for a trail system on the Tonto National Forest (TNF) that will meet the needs and interests of different stakeholder groups while also meeting the management priorities of the U.S. Forest Service (USFS). The proposed trail network occurs on a mixture of public lands or public rights-of-way and private land within portions of Township 2 South, Range 11-13 East, and Township 3 South, Range 12 East (**Figure 2**). The majority occur on the Globe Range District of the TNF, and a small portion occurs on private land owned or managed by Resolution Copper (Resolution).

A network of unpaved roads and trails, many of which are user-created alignments that are not authorized by the USFS, currently exists within the Project Area. These trails and roads have resulted in ongoing resource degradation. The Group, which is comprised of representatives from the Town of Superior's intended recreational users, including hikers, equestrians, mountain bicyclists and off-highway vehicle (OHV) enthusiasts, was created to identify recreational resources and develop a conceptual layout for the recreational trail design (the Project). On July 25, 2018, the Group voted to move forward with the preparation of the conceptual plan for submittal to the USFS.

This report has been prepared to detail the review process used to develop the conceptual plan; the existing conditions within the Project Area; the project construction, maintenance, and funding; the members of the Group; and references cited.

2. BACKGROUND

2.1. HISTORY OF THE AREA

The proposed trail system is located on TNF lands adjacent to Superior, Arizona, a mining town that like many mining towns has been subject to the inherently cyclical nature of the mining industry. The Superior area is a one-hour drive from Phoenix, a city with a population of more than 4.73 million in the greater metropolitan area. With its proximity to Phoenix, the TNF is "one of the most-visited 'urban' forests in the United States (approximately 5.8 million visitors annually)" (TNF 2019)[1].

Superior, which serves as a gateway to the TNF, is surrounded by natural beauty and world class recreation opportunities on the TNF that are currently unrecognized, underdeveloped, and subject to misuse, including unauthorized roads and trails, wildcat dumping, and informal target practice sites.

[1] https://www.fs.usda.gov/tonto/; accessed on February 7, 2019.

2.2. PROJECT PURPOSE

There is a need for a trail system in the vicinity of Superior, Arizona, in order to reduce the haphazard development of unauthorized trails that has led to the degradation of riparian habitat and impacts to wildlife and plant species. The purpose of the Project is to provide a recreational trail system within the TNF with the following characteristics:

- Provides recreation opportunities for hikers, equestrians, mountain bicyclists and OHV enthusiasts.
- Is readily accessible to Superior and the Phoenix metropolitan area
- Offers long-term, sustainable economic benefits to the local community through recreation and ecotourism
- Protects soil resources in this area from erosion, thus preventing sediment yield into surface waters
- Provides access to uniquely beautiful viewsheds within TNF that are not currently accessible by authorized trails

3. PROJECT AREA DESCRIPTION

3.1. EXISTING LAND USES

Land uses within TNF lands near the Project Area consist predominantly of livestock grazing, mining, and outdoor recreation including hiking, birding, horseback riding, mountain biking and off-roading. Additionally, hunting regulated by Arizona Game and Fish Department occurs on TNF lands within and adjacent to the Project Area (Game Units 24A and 37B), and an informal shooting area is located near the upper reach of Arnett Canyon. There are a number of areas devoid of vegetation that appear to be dispersed camp sites or staging areas. Several isolated illegal trash dumps are also scattered around the Project Area. Where the terrain is rocky and steep, and access is more challenging, the landscape remains relatively undisturbed. With the exception of the portion of the Arizona National Scenic Trail (AZNST) that crosses through the Project Area, existing trails on TNF lands are primarily unauthorized motorized and non-motorized trails (**Table 1**).

Table 1. Existing Unauthorized Trails on USFS Lands within the Project Area

Trail Type	Existing (miles)
Motorized	24.6
Motorized (single track)	0
Non-Motorized	17.3
TOTAL	**41.9**

Land uses on private and state lands adjacent to the Project Area include rural and suburban residential neighborhoods, livestock grazing, recreation, industrial activities such as mining and an active quarry. The Boyce Thompson Arboretum State Park, an Important Bird and Biodiversity Area recognized by Audubon Arizona, is located immediately north of the northwestern extent of the proposed trail system. The northeast portion of the proposed trail system consists of private property in Superior and includes facilities such as the Town of Superior waste water treatment plant, Superior Municipal Airport, and the Superior Unified School District. The Perlite Superior Plant is located east of Picketpost Mountain, immediately north of the north central portion of the trail system. Two private inholdings are located along Arnett Creek in the central east portion of the Project Area owned by a cattle company and a living trust.

In general, more extensive human disturbance occurs within the eastern portion of the Project Area, while the western portion remains relatively undisturbed.

3.2. PHYSICAL FEATURES

The Project Area is located in the Central Highlands Physiographic Province, a transitional area between the Colorado Plateau Physiographic Province and the Basin and Range Physiographic Province (Ffolliott 1999). Elevations within the Project Area range from approximately 2,400 feet (ft) above mean sea level (amsl) in the lower reach of Arnett Creek to the summit of Picketpost Mountain at approximately 4,375 ft amsl. Topography within the Project Area is associated with the foothills of surrounding mountains and is dominated by steep to rolling terrain and includes highly scenic features such as standing boulders and other rock outcrops, dramatic rock faces, narrow rocky ridges, and sharply incised canyons.

The terrain within the Project Area can be generally divided into two areas. The eastern portion of the Project Area, between State Route 177 and the eastern ridge of Wood Canyon, is characterized by gently rolling hills. This lowland area affords extensive views of the Apache Leap formation to the east and Picketpost Mountain to the west. The portion of the Project Area located to the west, between Wood and Telephone Canyons, is characterized by more rugged terrain created by the ridges and drainages of the Canyons. These formations follow a roughly parallel course until the two canyons reach the lower slopes of Picketpost Mountain.

3.3. CLIMATE AND AIR

The regional climate in the vicinity of the Project Area is characterized as semiarid, with long periods of little or no precipitation (Western Regional Climate Center 2019)[2]. Precipitation falls in a bimodal pattern: most of the annual rainfall within the region occurs during the winter and summer months,

[2] https://wrcc.dri.edu/Climate/west_coop_summaries.php; accessed on February 7, 2019.

with dry periods characterizing spring and fall. The average annual precipitation in the Superior region is 20.22 inches, with just over half occurring between November and April (U.S. Climate Data 2019)[3].

Air quality within the vicinity of the Project Area currently meets National Ambient Air Quality Standards (NAAQS) standards for the seven "criteria pollutants": carbon monoxide (CO), sulfur dioxide (SO_2), particulates with an aerodynamic diameter less than or equal to a nominal 10 µm (PM_{10}), particulates with an aerodynamic diameter less than or equal to a nominal 2.5 µm ($PM_{2.5}$), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). The National Park Service has a long-term air quality dataset for the Tonto National Monument located to characterize the air quality in the Superstition Wilderness, located north of the Project Area, which indicates air quality is good and air pollution levels are lower than in populated areas. All of the areas within the Project Area are in attainment status. The nearest non-attainment areas include the Hayden airshed, which is in non-attainment for PM_{10} immediately east of the Project Area, and the Phoenix airshed, which is in non-attainment for O_3.

3.4. VEGETATION

Based on the broad scale biotic community mapping of Brown and Lowe (Brown and Lowe 1980), the majority of the Project Area is mapped as the Arizona Upland Subdivision of Sonoran Desertscrub (Turner and Brown 1982), with vegetation characteristic of that biotic community present, including saguaro (*Carnegiea gigantea*), paloverde (*Parkinsonia* spp.), jojoba (*Simmondsia chinensis*) and occasional crucifixion thorn (*Canotia holacantha*).

Telegraph Canyon, Arnett Creek, Queen Creek, and some of the unnamed side canyons and springs within the Project Area support relatively narrow bands or patches of riparian vegetation consistent with Interior Riparian Deciduous Forests and Woodlands (Minckley and Brown 1994). Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), Arizona sycamore (*Platanus wrightii*), Arizona walnut (*Juglans major*), netleaf hackberry (*Celtis reticulata*), seepwillow (*Baccharis salicifolia*), California buckthorn (*Rhamnus californica*), and the nonnative saltcedar (*Tamarix* sp.) are the dominant species in these areas. The other ephemeral drainages, exhibit xeroriparian vegetation, with plant species composition similar to that of the surrounding upland areas, but in higher stature and densities.

3.5. SURFACE WATER FEATURES

Intermittent and near-perennial surface waters in Arnett and Queen creeks support riparian plant communities and aquatic and wetland features within portions of the Project Area. The riparian woodlands are represented by narrow, linear stands comprised of Fremont cottonwood, Goodding's willow, Arizona walnut, and Arizona sycamore and salt cedar. The linear stands are largely contiguous with occasional breaks in the canopy.

[3] https://www.usclimatedata.com/climate/superior/arizona/united-states/usaz0228; accessed on February 7, 2019.

4. PROJECT DESCRIPTION

4.1. CONCEPTUAL PLAN DEVELOPMENT AND COMMUNITY INVOLVEMENT

The Project was first proposed by Resolution to TNF as a mitigation measure for Resolution's planned mining activities. The Group was developed as part of TNF's efforts to engage the local community throughout the planning and development process. Stakeholders were identified for the Group with the intention of creating a well-designed and well-implemented trail system that meets stakeholder needs. The Group ultimately included representatives from the Town of Superior, the local community, Resolution, and members of the outdoor recreation community (see **Table 3** for Group members). Additionally, TNF representatives attended regularly to provide input and direction for the Group.

The Project is located within Forest Plan Management Area 2F, and the proposed trail system must conform with the management priorities for this management area, which predominantly focuses on wildlife habitat improvement, water quality maintenance, livestock forage production, and dispersed recreation. The Forest plans to manage watersheds to improve them to a satisfactory or better condition and improve and manage adjacent riparian areas to benefit riparian dependent resources (USFS 1985, page 85).

The following is direction provided directly from the TNF Plan (USFS 1985) for the Project Area:

- Continue periodic inspection and maintenance of existing wildlife exclusions and restoration projects. Develop reports as needed to describe results of studies. Improve the level of protection and maintenance at these sites to ensure their continued informational value for wildlife management (USFS 1985, page 87).
- Based on Transportation Operation and Maintenance (O&M) Plans, identify alternative routes for new trails near urban centers and/or main travel routes. Gather information for cost estimating and design criteria. Includes trail location and selection, survey design and field review (USFS 1985, page 89).
- O&M of entire trail system to provide for a variety of user experience levels, resource protection and public safety. Includes trail condition surveys and maintenance plans (USFS 1985, page 89).

During the conceptual plan development for the Project Area, the Group balanced TNF management and recreation priorities with the priorities identified by the stakeholders. Ultimately, the following goals for the trail network design were identified:

(a) consolidate the existing trail network to reduce unauthorized disturbance;
(b) allow for a diverse range of trail types for both motorized and non-motorized uses;
(c) maximize and preserve views of the outstanding natural scenery of the area;

(d) segregate use types as necessary to minimize conflicts and facilitate public safety;
(e) be sustainable and require minimal maintenance;
(f) be able to be constructed in phases.

The Group has met on a regular basis since 2016 (**Table 2**). Conceptual trail routes were developed using aerial imagery, topographic information and the local expertise of Group members. The Group engaged an environmental consultant (WestLand Resources, Inc.) to review cultural and biological resources within the proposed trail routes as well as a trail design consultant (Southwest Trail Solutions) to assist with the development of the trail design and resource review process.

Table 2. Recreation User Group Meeting Dates *

Day	Year
September 24	2015
November 30	2015
February 10	2016
April 13	2016
September 14	2016
December 7	2016
February 8	2017
April 12	2017
October 10	2017
November 9	2017
December 13	2017
February 14	2018
April 11	2018
July 25	2018
November 14	2018
January 9	2019

* List of meeting dates is based on information provided on the Superior Arizona Community Working Group website: https://superiorazcwg.org/category/meeting-notes/recreation-user-group/. CWG Recreation & Access Task Force Meeting dates are excluded from this list.

The stakeholder representatives comprising the Group membership are listed in **Table 3**.

Table 3. Recreation User Group Members

Representative	Organization
John Bricker	Tonto Recreation Alliance
Rich Smith	Tonto Recreation Alliance
Kevin Patterson	Tonto Recreation Alliance
Mila Besich-Lira	Town of Superior
Todd Pryor	Town of Superior
Elizabeth Butler	Friends of Tonto National Forest & Equestrians
Jim Schenck	Superior Community Working Group
Greg Waterman	Sun City Anthem Hiking Club
Bruce Odegaard	Sun City Anthem Hiking Club
Lynn Martin	Ranching community
George Martin	Ranching community
Rick Schonfeld	WestLand Resources, Inc.
Mark Flint	WestLand Resources, Inc./Southwest Trail Solutions
Mary Morissette	Resolution Copper
Erik Filsinger	Queen Creek Coalition
Patrick Kell	International Mountain Bicycling Association
John Godec	Godec, Randall & Associates
Debra Duerr	Godec, Randall & Associates
Bill Volger	Legends of Superior Trails (LOST)
Nancy Volger	Legends of Superior Trails (LOST)

4.2. DESIGN

The preliminary trail designs were developed by the Group stakeholders and then refined based on field reconnaissance and cultural resources identified for avoidance. The trail alignments and trailhead areas were surveyed for impacts to cultural resources. For the trail alignments, a corridor width of 10 meters to either side of the proposed travel way (20 meters total) was surveyed to ensure the conceptual plan does not conflict with cultural resources that are eligible for the National Register of Historic Places. The preliminary designs were adjusted where needed to ensure each trail alignment is constructible, consistent with USFS construction standards, sustainable, and navigable.

During field reconnaissance, trail designers identified the opportunity to segregate the two major trail use categories – motorized and non-motorized – into different sections of the trail system. The ridge line extending approximately north/south separating Telegraph Canyon and Wood Canyon serves as a natural boundary between the two use areas (**Figure 2**). One portion of the trail system, north and

east of Wood Canyon, was designed primarily for operation of motorized equipment, both two-wheeled (motorcycles) and four-wheeled (small all-terrain vehicles and larger jeeps and sport-utility vehicles). The other portion of the trail, to the west of Wood Canyon, was designed primarily for non-motorized recreation (equestrian, mountain biking, and hiking).

Physically separating the two categories of trail use meets the Groups' goals of providing a diverse range of trail types in a safe and sustainable way. There are two exceptions to this segregation, however. A single new non-motorized trail has been proposed within the lowlands of the primarily-motorized section to provide a more moderate non-motorized trail with easy access from Superior and the highways. The other exception is the presence of an existing designated motorized USFS road within the portion western portion of the Project Area that is primarily non-motorized. A short segment of new motorized trail is proposed to connect the motorized trail system through the primarily non-motorized portion of the Project Area to the existing USFS road.

Potential locations for trailhead parking areas which were also segregated for motorized and non-motorized (primarily equestrian) uses. Users of both types of trails often use trailers, so the trailhead for each type of trail was designed to provide ample room for parking and unloading. All trailheads will be located within the lowlands in the northeast of the Project Area to provide easy access to the trailheads from Superior and the highways.

All trails are designed to maximize long-term sustainability and minimize erosion with consideration given to grade, angle, slope, and clearance. The trail system design also considers existing roads, unauthorized trails, and other sources of resource degradation and/or public safety concerns within the Project Area and identifies strategies for addressing these issues. The trail system is also designed to provide a variety of trail difficulty levels ranging from novice to expert. Design standards for the two user types (motorized vs. non-motorized) are identical, with the exception that sight-line distances and turning radii will be greater on motorized trails to accommodate the greater speeds and power associated with motorcycle use.

Final trail design and construction will take into consideration the local hydrology, soil types, cultural sites, and sensitive species that are listed, proposed or candidate for listing as threatened or endangered under the Endangered Species Act (ESA) within the area of the desired trail location. Known caves within the immediate vicinity of the proposed trail routes will continued to be managed by the USFS to protect culturally significant sites and follow U.S. Fish and Wildlife Service white nose syndrome protocols for bat populations that may frequent the caves. Trail designers will also identify sources of erosion, assess the potential impacts, and ensure that water and wind will not adversely affect the intended travel way.

4.3. LAYOUT

The trail system has been laid out as a standalone recreation system for both motorized and non-motorized users in the Superior region. The trail system has been designed to deliberately limit AZNST tie-ins to already-designated locations in an effort to avoid additional unplanned pressures on AZNST usage.

The trail layout is designed to encourage the use of the proposed trail system while discouraging the use of the existing unauthorized trails and the creation of new unauthorized trails. The is accomplished through two primary approaches: signage placement and route design. First, signs will be strategically placed at trail heads to indicate the authorized paths and reinforce good trail stewardship by stressing the importance of staying on designated trails. Signs will also be placed as a deterrent, along with boulders, railings, etc., at unauthorized access points to discourage off-trail usage. Second, the trail route has been located such that turns in the trail (a common point where unauthorized trail usage occurs) will be placed adjacent to features that will serve as natural deterrents to off-trail use, such as large boulders, steep inclines or drop-offs, etc.

Three staging areas are planned on TNF lands (**Figure 3**) totaling 2.9 acres of disturbance. These staging areas are strategically located to be close to desirable recreation areas while also being accessible to passenger vehicles and close enough to Superior to encourage visitor use of the town.

Table 4 provides a summary of the of trail lengths segregated by trail type. Motorized trails include two track routes appropriate for four-wheeled vehicles and single-track routes appropriate for off-highway motorcycles. Non-motorized trails are proposed single-track routes that are intended for hikers, cyclists, and equestrians.

Table 4. New Trails Proposed on TNF Lands

Trail Type	Trail Length (miles)
Motorized (two track)*	14.7
Motorized (single track)	28.7
Non-Motorized	25.6
TOTAL	**69.0**

* Existing unauthorized two-track trails

The layout of existing trails on private land with the potential to be connected to the proposed network on TNF lands are not included in the estimated trail lengths, as private trails are not included in this plan unless an easement already exists or the land owner has agreed to grant an easement for the trail.

4.4. CONSTRUCTION

Most proposed trail construction within the lowlands of the Project Area (in the northeast portion) will consist of improvements to existing unauthorized two-track roads to reduce ongoing erosion and increase public safety. Redundant existing roads will be obliterated and reclaimed to the extent possible. The construction of one new non-motorized single-track trail and three trailhead parking areas are proposed within this section (**Figure 2**).

Typical activities associated with the construction of the new trail alignments will include shaping the thin soil layer where present and moving and/or reducing the sizes of boulders where they conflict with the intended users. Where possible, boulders and rock ledges will be incorporated into the trail alignments in accordance with the skill level of the anticipated users. Vegetation along proposed new single track alignments will be pruned to an approximate height of 10 feet and an approximate width of 6 to 8 feet to allow sufficient space for users to pass in opposite directions.

The bulk of construction will be done manually by volunteer crews, including youth, veteran, and ancestral lands crews, during the cooler months of the year. Most of the new trails will be constructed in the upland areas on top of solid rock. Manual construction activities will include shaping the thin soil layer where possible, moving boulders out of the planned trail route, and breaking rock to allow for passage where necessary. Some rocks and rock ledges will be preserved to provide a more challenging terrain for bicyclists.

Where necessary, professional operators will use mechanized equipment for trail construction. This will likely be limited primarily to the lowlands along the northern extent of the Project. In these cases (and where feasible) a SWECO trail dozer and mini excavator (or equivalent) would be used to construct the trail. Construction will proceed in phases.

The majority of new motorized trails will be for single-track (motorcycle) use only.[4] Design and construction standards will be essentially the same as for non-motorized use trails. Because of the greater speed and power associated with motorcycle use, sight-line distances, turning radii and switchback construction will all be adjusted accordingly.

4.5. MAINTENANCE

Sustainable trail design and construction are being applied from the outset to minimize trail maintenance. As a result, most of the maintenance is anticipated to consist of pruning vegetation and maintaining drainage crossings. Unusually severe weather events may require more intensive maintenance and possible trail reconstruction.

[4] Approximately 3.2 miles of existing unauthorized trails are two track.

The success of numerous volunteer groups, such as the Arizona Trail Association (which maintains the AZNST), illustrates the fact that non-profit organizations can provide ongoing maintenance for recreational trails. It is anticipated that at least one such organization will be formed to recruit, train, and manage trail stewards and to raise funds for major repair projects.

4.6. FUNDING

It is anticipated that all final design and construction costs will be provided by at least one dedicated non-profit organization with additional funding provided by other entities. Construction and maintenance work will be conducted mainly by volunteers, such as youth, veteran, and ancestral lands volunteer crews. The bulk of construction expenses will come from the development of the final design and field layout by professional contractors, and the professional crews needed for more challenging trail sections. Possible funding sources include Resolution as well as grants, donations, and special organized events.

4.7. TRAIL BENEFITS

The trail is anticipated to provide benefits to the local economy in the form of long-term sustainable recreation and ecotourism, to reduce resource degradation from unauthorized trail use, and to better employ the currently underdeveloped recreational opportunities of National Forest lands located in proximity to a major metropolitan area.

The economic impacts that outdoor recreation provide to rural communities are well documented, and it is anticipated that development of the Project will be no exception for Superior, Arizona. Because the Project contains such a diverse range of scenic terrain within a relatively small area, it has the potential to become a popular destination for the growing number of outdoor recreation enthusiasts not only from the greater Phoenix area but also from across the country. In order to encourage visitors to use the town as a starting point, the Project includes the extension of an existing trail from town to the Picketpost trailhead on the Arizona National Scenic Trail (**Figure 2**), thereby providing a direct non-motorized connection to the Project Area. It is anticipated that the local business community will promote and participate in volunteer trail construction and maintenance efforts. The phasing of Project construction will allow for existing businesses to adapt to an expanding clientele and for new businesses to take advantage of new opportunities.

Developing a planned trail with appropriate signage and design elements will reduce the impacts to soil erosion, wildlife, plant life, and riparian habitat that the area is currently experiencing from the haphazard and unauthorized trail use that is occurring due to the lack of a planned system. The plan has identified sensitive resources and designed the trail system to avoid or minimize impacts to these resources.

The Group was developed specifically to ensure the trail system plan is one that meet the interests of the current users in a sustainable way that is in line with USFS management priorities. As a result, the proposed Project provides recreation opportunities currently unavailable in this location that are of interest to potential users. Furthermore, the Project's proximity to a major metropolitan area will facilitate access to these resources to in a more deliberate and environmentally sustainable way.

The proposed plan addresses ongoing management concerns for the TNF while providing a service and recreation opportunities that are currently underdeveloped to the local and regional communities, creating long-reaching benefits to the region.

5. REFERENCES

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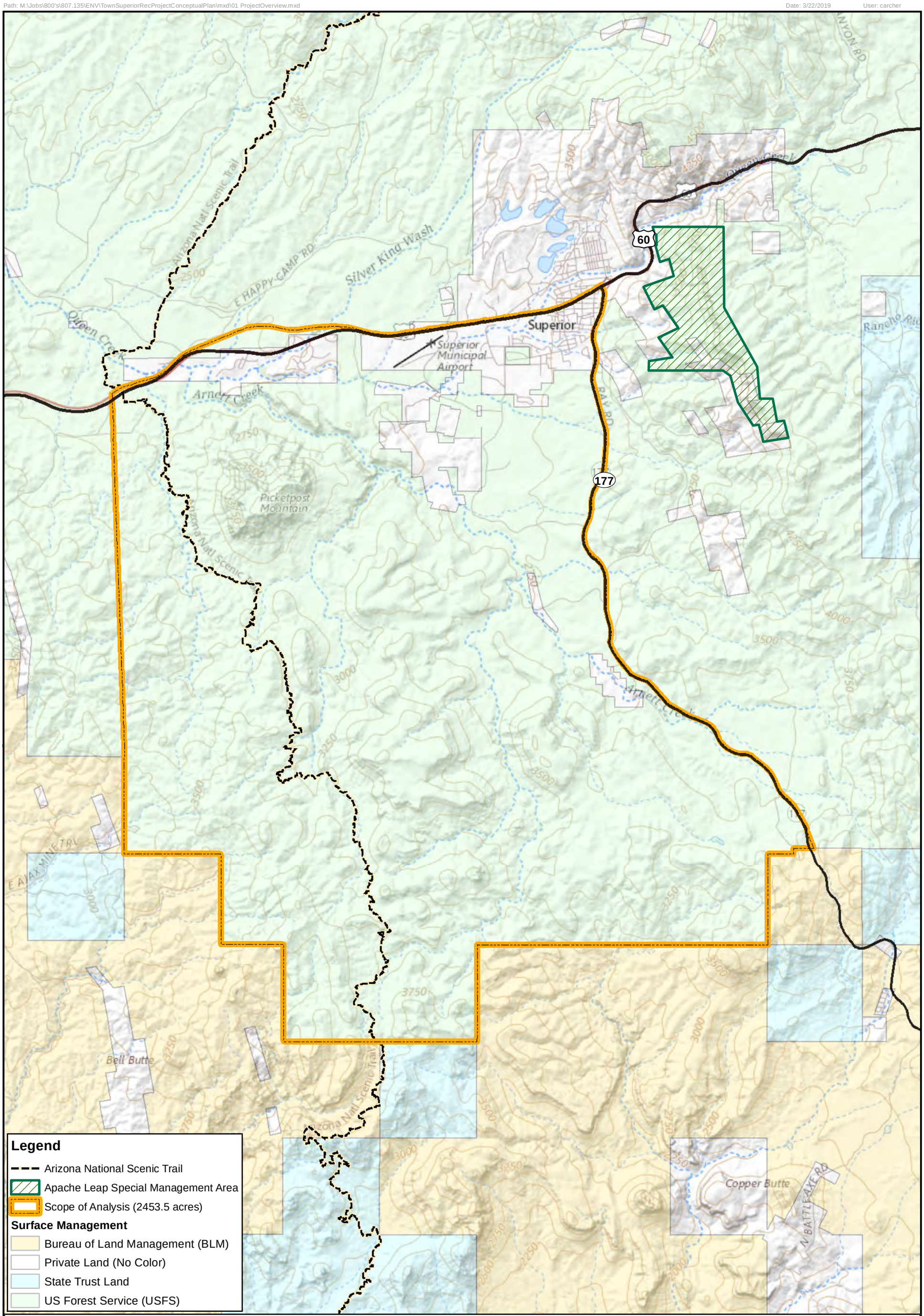
FIGURES

Path: M:\Jobs\800's\807.135\ENV\TownSuperiorRecProjectConceptualPlan\mxd\01 ProjectOverview.mxd Date: 3/22/2019 User: carcher



Scope of Analysis within:
T2S, R11-13E, and T3S, R12E,
Pinal County, Arizona,
Data Source: AZ Trail Association and
Surface Management: BLM 2018, WRI modified 2018
Image Source: ArcGIS Online USGS National Map

WestLand Resources

N

0 2,500 5,000 Feet

0 1,000 2,000 Meters

RECREATION USER GROUP
SUPERIOR, AZ
Conceptual Plan

PROJECT OVERVIEW
Figure 1

Picketpost Trailhead

Proposed Trailhead/Parking Lot 1
Off-Highway Vehicle Users

Proposed Trailhead/Parking Lot 2
Equestrians and Mountain Bicyclists

Proposed Trailhead/Parking Lot 3
Equestrians and Mountain Bicyclists

Scope of Analysis within:
T2S, R11-13E, and T3S, R12E,
Pinal County, Arizona,
Mesa USGS 1:100,000 USGS Quadrangle
Data Source: Surface Management (BLM 2018, WRI Modified 2018),
Recreation User Group (RUG)
Road Classification: ArcGIS Online, USA Major Roads

WestLand Resources

N

0 1,250 2,500 Feet

0 500 1,000 Meters

Legend

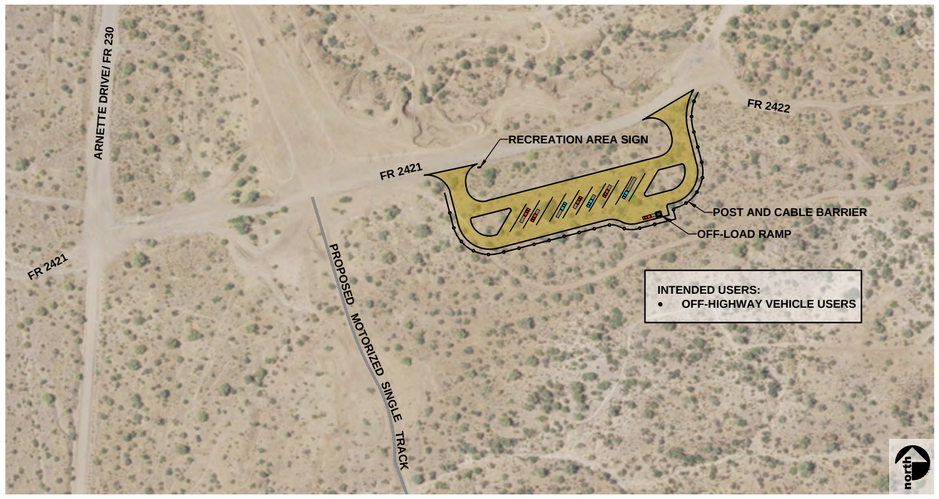
Recreation Use Trail
- Proposed Trail, Motorized (Single Track)
- Existing Forest Road, Motorized
- Proposed Road, Motorized
- Existing Trail, Non-Motorized
- Proposed Trail, Non-Motorized
- Telegraph Canyon/Wood Canyon Ridgeline

Road Classification
- Other Major Road
- Secondary Road
- Important Local Road
- Scope of Analysis (2453.5 acres)

Surface Management
- Bureau of Land Management (BLM)
- Private Land (No Color)
- State Trust Land
- US Forest Service (USFS)

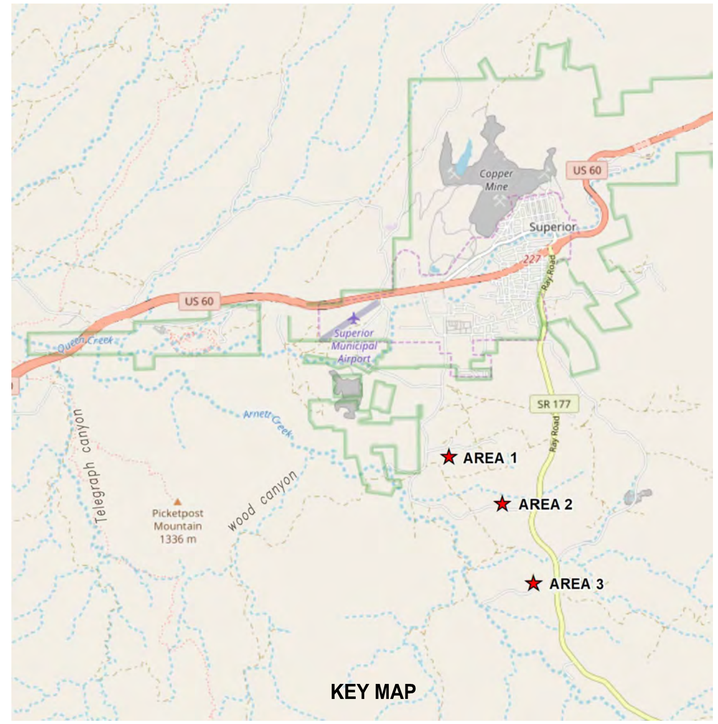
RECREATION USER GROUP
SUPERIOR, AZ
Conceptual Plan

TRAIL DESIGN
Figure 2



1 **TRAILHEAD PARKING AREA (FOREST ROADS 2421 & 2422) : OFF-HIGHWAY VEHICLES**

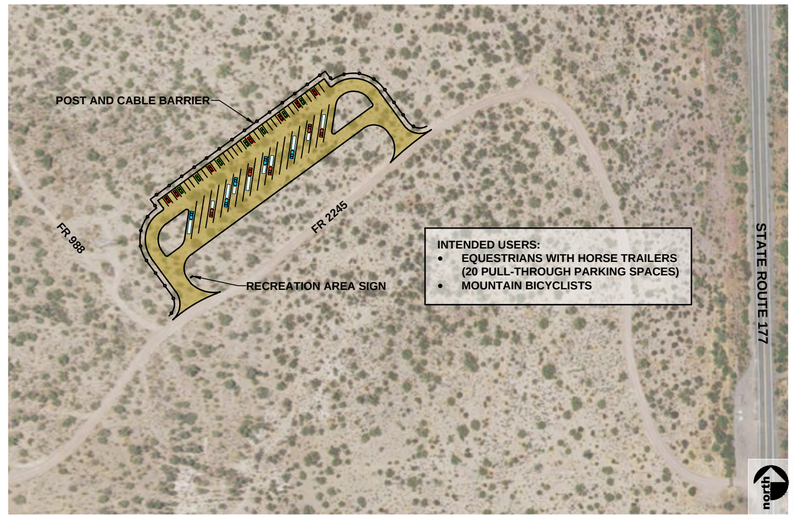
SCALE: 1" = 200'



KEY MAP

2 **TRAILHEAD PARKING AREA (ARNETT DRIVE/ FOREST ROAD 230) : EQUESTRIAN & MOUNTAIN BICYCLIST**

SCALE: 1" = 200'



3 **TRAILHEAD PARKING AREA (FOREST ROAD 2245) : EQUESTRIAN & MOUNTAIN BICYCLIST**

SCALE: 1" = 200'

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RECREATION USER GROUP
SUPERIOR, AZ
Conceptual Plan

TRAILHEAD PARKING AREAS

Figure 3

Victoria Boyne

From: ResolutionProjectRecord
Subject: FW: EXTERNAL:Recreation User Group (RUG) Superior Arizona Recreation Project Conceptual Plan - March 2019
Attachments: 20190322_RUG_RecPlan.pdf

From: Kristina Daley <KDaley@westlandresources.com>
Sent: Friday, March 22, 2019 3:54 PM
To: Chris Garrett <cgarrett@swca.com>; Donna Morey <dmorey@swca.com>; mcrasmussen@fs.fed.us
Cc: Peacey, Victoria (RC) <victoria.peacey@riotinto.com>; Morissette, Mary (RC) <Mary.Morissette@riotinto.com>; Aaron R. Graham <AGraham@westlandresources.com>
Subject: EXTERNAL:Recreation User Group (RUG) Superior Arizona Recreation Project Conceptual Plan - March 2019

Good afternoon Chris, Donna and Mary,

On behalf of Mary Morissette (Resolution Copper), in addition to this morning's map package, please find the above referenced report attached for your use.

Enjoy your weekend.

Kristina Daley | Executive Assistant for Environmental Services
WestLand Resources, Inc.
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