

APPENDIX G - ARIZONA TRAIL RELOCATION ANALYSIS

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1.0 INTRODUCTION

Over 800 miles in length, the Arizona National Scenic Trail (Arizona Trail) stretches from Mexico to Utah, showcasing the state's mountain ranges, canyons, forests, wilderness areas, historic sites, points of interest, communities, and people. Designated a national scenic trail by the United States Congress in 2009 and completed in 2011, the Arizona Trail provides hikers, equestrians, and mountain bicyclists the opportunity to experience the State's diverse physical, cultural, and natural features (ATA, 2014).

This report presents the recommendations of the Arizona Trail Partner Group (ATPG) regarding alternative bypass routes for relocation of the Arizona Trail to accommodate the proposed development of a new tailings storage facility (TSF) associated with ASARCO LLC's (Asarco) Ray Mine. The Ray Mine is located in Pinal County, about 65 miles southeast of Phoenix. In March, 2013, Asarco submitted a permit application to the U.S. Army Corps of Engineers (Corps) for construction and operation of a new tailings storage facility to allow continued operation of the mine. The Corps is preparing an environmental impact statement (EIS) to comply with the National Environmental Policy Act (NEPA), which requires federal agencies to assess environmental effects prior to making decisions on permit applications.

ASARCO is proposing to construct the TSF in Ripsey Wash, located approximately three miles southeast of the mine. If approved, the proposed Ripsey Wash TSF would require relocation of a 5.8-mile section of the Tortilla Mountains Passage of the Arizona Trail, as well as the existing trailhead on the Florence/Kelvin Highway. This report describes the process used by the ATPG for identifying feasible bypass routes and developing a recommendation regarding the proposed route to be included in the EIS. It should be noted that as part of the initial scoping process, both the Forest Service and the Arizona Trail Association submitted comments opposing development of a tailings facility at Ripsey Wash and supporting the existing Arizona National Scenic Trail route as the ideal location.

2.0 MANAGEMENT FRAMEWORK

National Scenic Trails are part of the National Trails System, which is a network of scenic, historical, and recreational trails created by the National Trails System Act (NTSA) of 1968 (16 United States Code [USC] 1241–1251), as amended. National Scenic Trails are authorized and designated only by Act of Congress. They are continuous and uninterrupted extended trails more than 100 miles long, located to provide for maximum enjoyment of the nationally significant resources, qualities, values, and associated settings and for the primary use or uses of the area through which such trails may pass. The use of motorized vehicles by the general public along any National Scenic Trail is prohibited (16 USC 1246). The Arizona Trail is one of only eleven National Scenic Trails in the nation.

The ATPG was formed in 2011 to coordinate management activities along the portion of the Arizona Trail within Pinal County. As part of this mission, the group has been working with Asarco to identify a feasible route that bypasses the proposed Ripsey Wash TSF and meets federal requirements for the trail for inclusion in the EIS. The group consists of representatives of the two agencies that manage the Ripsey Wash portion of the trail, Pinal County and the BLM, as well as the Arizona Trail Association (ATA), the US Forest Service (USFS), and Asarco.

The ATA is a non-profit, membership organization founded in 1994 to promote development of the Arizona Trail. Their mission is to build, maintain, promote, protect, and sustain the Arizona Trail as a unique encounter with the land. The group coordinates volunteers; develops public awareness,

education, and support for the trail; encourages and coordinates management of the trail; and raises funds on behalf of the trail (ATA, 2014).

Administration of the Arizona Trail was assigned by Congress to the Secretary of Agriculture and has been subsequently delegated to the USFS. The USFS is responsible for establishment of an advisory council, the development of a trail-wide comprehensive management plan (CMP) and the selection of the Arizona national trail right-of-way. The national trail right-of-way includes the area of land of sufficient width to encompass national trail resources, qualities, values, and associated settings. The nature and purposes of the trail are established through the CMP, which is developed in coordination with the national trail managing agencies and includes goals and objectives designed to safeguard the trail's nature and purposes. A public engagement process conducted in 2012 provided preliminary input towards the development of the CMP. Agency meetings will be conducted in 2014 to further the process of collaboration and completion of a CMP (White, 2014). The USFS has also initiated the process of forming the advisory council.

Once the CMP is completed and the national trail right-of-way and the nature and purpose of the trail are established, the trail managers are tasked with designating the national trail management corridor, which in many cases may be the same as the national trail right-of-way. The trail managers consist of the agencies or landowners with the authority and/or responsibility for decision-making for lands under its jurisdiction and/or the official responsible for land and water management of trail-related resources. The 6.8-mile Ripsey Wash section of trail to be replaced by the new alignment is managed by the BLM and Pinal County. Most of the existing Arizona Trail potentially affected by the Ripsey Wash TSF is located on state land, within a trail right-of-way. Pinal County purchased and manages 3.6 miles of this section of trail. The BLM is in the process of acquiring the right-of-way on the remaining 1.5 miles of trail on state land. The remaining 1.7 miles of potentially affected trail is on BLM-managed public land, as is much of the land through which the alternative trail routes pass.

The BLM, as one of the managing agencies, must approve any plan and/or activity that has the potential to substantially interfere with the nature and purposes of the segments of the Arizona Trail under their management (BLM 2012b, p. 5-2). The proposed Ripsey Wash TSF would be located on ASLD land in the process of being transferred to Asarco, and thus the BLM would not be approving the construction of the TSF. But the BLM and Pinal County would need to approve relocation of the trail due to their right-of-way ownership and relocation on BLM-managed lands. The USFS assists in the review of proposals that would have the potential to cause substantial interference with the national trail and provides recommendations to the trail managers regarding actions to prohibit, minimize, or mitigate impacts in order to prevent substantial interference with the nature and purposes of the trail.

The BLM manages the portions of trail within BLM lands through its Resource Management Plan (RMP) process. The RMP delineates the national trail management corridor and establishes allocation decisions, management actions, and necessary restrictions for resource uses within the national trail management corridor (BLM, 2012c). This can be accomplished through amendment of an existing RMP or incorporated into an updated RMP. The existing RMP covering the Ripsey Wash TSF study area dates from 1989, and thus the BLM has initiated the public scoping process for updating the RMP (BLM 1989).

As part of the RMP process, BLM-administered lands are assigned Visual Resource Inventory (VRI) classes based on an inventory of scenic quality, viewer sensitivity, and distance of views. VRI Classes represent the relative value of existing visual resources, ranging from Class I, representing the highest value scenery, to Class IV, representing the lowest. Class I VRI designations are reserved for special areas, defined as areas where the current management requires maintaining a natural environment

essentially unaltered by man, such as wilderness areas (BLM, 2014). The VRI inventory process is described in greater detail in Section 3.14, Visual Resources, of the Ray Mine tailings storage facility (TSF) Draft Environmental Impact Statement (EIS).

Once visual resources are inventoried and VRI classes assigned, the VRI classes are considered with other resource values in the RMP process, which designates visual resource management (VRM) objectives for each area. Areas with no assigned VRI or VRM class, which is the case in the Ripsey Wash project area, are managed as a Class III VRM. BLM guidelines, however, also call for trails to have the highest possible scenic value (BLM 2012b, p. 1-9). Thus views from the relocated trail would ideally be of areas meeting the Class I or Class II VRM (See Section 4.0, Evaluation Process and Criteria). **Table G-1, BLM Visual Resource Management Classes**, provides definitions of the four VRM classes.

Pinal County's management of the trail is guided by the Pinal County Comprehensive Plan and the Pinal County Open Space and Trails Master Plan (Pinal County, 2007, and Pinal County, 2009). Goals and objectives regarding all types of trails in the Master Plan call for a safe, multi-use trail system that provides connectivity throughout the county and to adjacent recreational areas. The trail system should provide for a wide range of non-motorized uses, incorporate national trail corridors into the county-wide system, provide for a safe separation of non-motorized and motorized corridors, and ensure compatibility with the natural environment and existing land uses.

Table G-1, BLM Visual Resource Management Classes

Class I Objective	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
Class II Objective	Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Class III Objective	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Class IV Objective	The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.
Source: (BLM, 2014)	

3.0 EXISTING TRAIL DESCRIPTION

The portion of the Arizona Trail potentially affected by the proposed Ripsey Wash TSF is located within the northern portion of the trail's 24-mile Tortilla Mountains Passage, referred to in this report as the Ripsey Wash Segment (**Figure 1**). The Ripsey Wash Segment represents an important and unique part of the overall trail experience, marking the transition from open desert landscape to the mountainous terrain that continues north of the Gila River. This section of trail provides travelers a distinct change

from the 50 miles of flat to rolling desert terrain south of Ripsey Wash (Redfield, 2014). The vegetation also changes upon reaching Ripsey Wash, from desertscrub to the upland desertscrub and ephemeral riparian vegetation of Ripsey Wash and the Tortilla Mountains.

Although the Ripsey Wash TSF would directly affect the 5.1 miles of the trail with the state land parcel, another 8.2 miles south of the state land boundary may be affected by the relocation, depending on the bypass route selected. Thus approximately 14 miles of trail could potentially be replaced as a result of the Ripsey Wash TSF project. This 14-mile stretch of trail starts at elevation 3300 feet amsl, making a gradual descent down to Ripsey Wash, where it intersects with the Ripsey Wash 4WD trail. After following the wash for a short way, it turns into a side canyon and begins climbing up onto the “Big Hill” at 3400 feet. It switchbacks around the hill, following the east-facing side of the ridge, then crosses to the west side and starts a long descent towards Ripsey Wash. It crosses several side washes, following the base of the ridge until it reaches the Florence/Kelvin Highway trailhead. After crossing the highway, it heads to the northeast above the highway and then curves around and down to the Kelvin Bridge and the Gila River (ATA, 2014).

This section of trail is considered relatively scenic with its varied topography, including the climb up the “Big Hill,” panoramic views over the Tortilla Mountains towards the east, and views down into Ripsey Wash. The northern four miles have continuous views of portions of the existing Ray Mine. Views of the open pit mine, its equipment, and associated development rock stockpiles, leach facilities, and the Elder Gulch TSF indicate the past and present land use in the mineral-rich “Copper Corridor”. The Ray Mine is also considered an integral feature of the Arizona Copper Corridor Scenic Road (State Route 177) (ADOT, 2014).

Most of the existing ANST corridor within BLM-managed portion of the Ripsey Wash trail segment would be considered a Level B Scenic Quality Rating (SQR) and a Class II Visual Resource Inventory Class, the highest VRI Class outside of Special Areas (BLM, 2014). The upland desert vegetation types combined with the topographic diversity found in the Tortilla Mountains relative to the less distinctive and more uniform, open landscapes to the south of Ripsey Wash and east of the Tortilla Mountains contribute to the Level B SQR classification. The relatively high sensitivity of the ANST in terms of its national trail designation combined with the Level B VRI and foreground views from the trail combine to establish the Class II VRI designation. Appendix F, Visual Resources and Contrast Analysis, and Section 3.14, Visual Resources of the Draft EIS provide more information on the VRI classification for the ANST.

4.0 EVALUATION PROCESS AND CRITERIA

Before identifying alternative bypass routes for the Ripsey Wash segment of the Arizona Trail, the ATPG evaluated the extent of the trail re-route and its potential for being considered a “major relocation” as defined by the U.S. Congress. Trail modifications considered a major relocation from the route designated by Congress would need to be approved by an act of Congress. The term “major relocation” is defined as “a significant change in the location of the designated National Trail that would substantially depart from the Congressional route, established National Trail Right-of-Way, or Management Corridor...” (BLM 2012b). The NTSA amendment approved by Congress designating the Arizona Trail refers to its route as “...generally as depicted on the map entitled ‘Arizona National Scenic Trail’ and dated December 5, 2007’....” Although the current route of the Arizona Trail, as currently constructed, has several deviations from the approved map, none are considered “major” and thus the existing trail is considered to be consistent with the congressional route in general terms. Given the fact that minor deviations to the congressional route already exist and that neither the national trail

right-of-way nor the management corridor have been defined to date, the ATPG recommended that the proposed bypass would not be considered a “major relocation” of the trail, as long as overall guidance provided by the National Trails System Act is met.

Since the nature and purposes of the trail and the CMP have not been completed to date, the ATPG relied on legislative history, the NTSA, and BLM Manuals 6250 and 6280 to develop goals and evaluation criteria for identifying alternative trail routes (BLM 2012b, pp 1.8-1.9, and 2012c, pp. 4-4 and 5-10). The legislative history speaks of a primitive, long distance trail that highlights the state’s topographic, biologic, historic, and cultural diversity. The primary uses intended for the trail are hiking, equestrian use, and mountain bicycling. In addition, John McCain mentioned other uses in his support of the legislation, such as cross country skiing, snowshoeing, and eco-tourism. The NTSA describes national scenic trails as “...extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass.” (USC, 2009). In addition, the mission of the ATA describes the trail as a “unique encounter with the land.”

Based on the above guidance, the ATPG established the following goals for relocating the Ripsey Wash segment of the Arizona Trail:

1. **Quality of Trail Experience and Conservation:** Meet statute and policies regarding location, maximize outdoor recreation potential, and provide for the conservation and enjoyment of the Arizona Trail’s nationally significant resources, qualities, values, associated settings, and primary uses.
2. **Corridor Management:** Maximize potential for development and protection of the trail management corridor from the standpoint of land ownership, foreseeable future threats, incompatible uses, and valid existing rights.
3. **Sustainability and Cost:** Ensure a trail location that meets agency sustainability specifications and maintenance requirements and blends with the environment in a cost-effective and environmentally responsible manner.

Based on the above goals, the ATPG identified two corridors for potential bypass routes, one on the east side of the proposed Ripsey Wash TSF and one to the west (**Figure 1**). Locating an alternative site to cross the Gila River was a key factor in identifying the bypass routes, presenting a major distinction between the two corridors. The eastern route would connect to the existing Florence/Kelvin Highway crossing, which currently exists via a historic, one-lane bridge. The county is currently in the process of adding a new vehicular bridge, with the intent of preserving the historic bridge for non-motorized uses. The western route would require construction of a new pedestrian bridge connecting to the existing Arizona Trail north of the river. BLM engineers visited the site to find the most feasible location for the new bridge, which determined the location of the northernmost section of the western route.

Table G-2, Arizona Trail Alternatives Assessment, Proposed Ripsey Wash TSF, lists the specific criteria developed by the ATPG for each of the three major goals. After each criterion is an assessment of the two alternatives’ compatibility with the goals and criteria, discussed in Section 5.0. BLM inventories of the area’s environmental resources and site features were used in part to evaluate the alternatives, including GIS layers with existing roads, power lines, ranch improvements, land use, mines, trailheads, trails, and dispersed campsites.

Table G-2, Arizona Trail Alternatives Assessment, Proposed Ripsey Wash TSF

Goals	Evaluation Criteria	Western Route	Eastern Route
Resource Conservation and Trail Experience	Seek a highly scenic, predominantly natural setting.	Northern third of route yes, southern two-thirds no.	Yes
	Use natural topography to reduce visual impacts by manmade features where possible.	TSF visible for 17% of route, Ray Mine visible for 22%. Power lines and roads would be visible.	TSF visible for 18% of route, Ray Mine visible for 63%.
	Accommodate primary uses (hiking, equestrian and mountain bicycle) on a single route.	Yes	Yes
	Provide a non-motorized setting with minimal interface with motorized traffic and noise from motorized use, as well as with other conflicting uses.	Route utilizes 3.5 miles of 4WD trails and .36 miles of Florence-Kelvin Highway.	No segments on 4WD trails. Follows Riverside Road for 0.25 miles
	Avoid paralleling roads, utility corridors or other man-made features. Minimize road and railroad crossings.	Parallels Florence/Kelvin Highway and 4WD trails. Crosses and parallels two transmission lines. Crosses railroad and several 4WD trails.	Parallels Riverside Road. Intersects with 1 4WD road.
	Consider opportunities for connector/side trails to enhance the trail experience.	No	Yes
	Maximize scenic value from Trail - where possible use visual resource management Class I or Class II, avoid Class IV, and consider background views.	17% of route would have views of Ripsey Wash TSF and thus would not meet Class I or II VRM.	18% of route would have views of Ripsey Wash TSF and thus would not meet Class I or II VRM.
	Avoids conflict with riparian corridors, except at designated access points or crossing sites.	Yes	Yes
	Minimize impacts on vegetation, wildlife, and cultural resources.	Yes	Yes
Corridor Management	Minimize easement acquisition needs and potential land use conflicts (valid existing rights).	Potential conflicts with ranch operations. Would require RR crossing easement. Easement would be required on 0.5 mile section within private lands.	Northern segment on private lands to be purchased by Asarco. Easement would be required on this segment.
	Consider concerns about water facilities owned and/or maintained by grazing permittees/lessees by staying a reasonable distance away from livestock water improvements.	Yes	Yes
	Consider potential for managing adjoining land uses within the trail corridor.	Potential for conflicts on state lands.	Northern segment crosses patented mining claim.
Sustainability and Cost	Avoid or mitigate potentially unsafe trail building conditions.	Yes	Yes
	Consider benefits of maximizing use of existing trail in the development of the new alignment.	8.2 miles of existing Arizona Trail (in addition to 5.8-mile trail section within project boundary) would not be utilized, unless maintained as a spur trail.	Utilizes all but 1.0 miles of existing trail outside project boundary.

Goals	Evaluation Criteria	Western Route	Eastern Route
	Consider the use of the old Florence-Kelvin Highway bridge to cross the Gila River.	No	Yes
	Consider the potential relocation sites for Florence Kelvin Hwy trailhead.	0.33 mile from trail on Florence/Kelvin Highway.	0.25 mile from trail on Riverside Drive.
	Maximize cost effectiveness and trail sustainability.	More costly due to longer length (20.4 mi), more switchbacks (52-60) and new bridge. Less sustainable.	Less costly due to shorter length (6.4 mi) and fewer switchbacks (20-25). More sustainable.

Three viewshed analyses were also developed, one indicating areas visible from the trail, the other two indicating visibility of the proposed Ripsey Wash TSF and the existing Ray Mine from the trail. Although the BLM manages the study area as Class III VRM, this pertains to the allowed level of contrast generated by proposed development on BLM-managed lands, including realignment of trail. Consistency of the selected trail alignment with the Class III VRM is to be discussed in the Ray Mine Storage Facility EIS.

In order to select a proposed route for the new trail bypass, however, it was important to seek routes with the highest scenic quality as seen from the trail (BLM 2012b). Views from the trail should conform to the Class I or Class II VRM where feasible, which would consist of landscapes where the level of change to the characteristic landscape is low and does not attract attention (Class 1) or landscapes where management activities are visible but do not attract the attention of the casual observer (Class 2). Views of the existing Ray Mine or proposed Ripsey TSF would not be consistent with Class 1 or Class 2 VRM objectives and thus these views should be minimized to the extent practical from the selected route.

Table G-3, Design Standards for Alternative Ripsey Wash TSF Bypass Routes, provides the detailed design standards developed to ensure selection of feasible and sustainable routes. The standards were based on specifications developed by the ATA and the BLM for use in constructing the Gila River Canyon Passage of the Arizona Trail.

Table G-3, Design Standards for Alternative Ripsey Wash TSF Bypass Routes

Requirements	Side Slope Conditions			
	0-30%	30-50%	50-100%	100%+
Trail Bench Width (full bench)				
• Width (Full Bench)	36 in.	36 in.	42 in.	60 in.
• Outslope	2 – 4 in	2 – 4 in.	2 – 4 in	2 – 4 in.
• Cut Slope	1½ :1	1:1	½ :1 Hard pan ¼ :1 Hard rock	½ :1 Hard pan ¼ :1 Hard rock
• Embankment	Angle of Repose			
Vegetation Clearance Limits (Minimum)				
• Side	5 ft.	5 ft.	5 ft.	5 ft.
• Overhead	10 ft.	10 ft.	10 ft.	10 ft.
Grade Alignment, Horizontal	Following easiest path in local topography. Locate switchbacks and climbing turns where required.			
Grade Alignment, Vertical	Average grade: 8% Maximum grade: 12% short climbing grades (<200-300 ft.) Ramp grade: 18% (<100 ft.); Avoid these grades, use only when absolutely required. Roll the vertical alignment for drainage, with sags at natural drainage crossings; short grade reversals on long grades to control drainage.			
Drainage crossings	Descending grade on both approaches, avoid intercepting side drainages with trail			

5.0 ALTERNATIVE BYPASS ROUTES

Once selection criteria and design specifications were developed, field surveys were conducted to locate feasible trail alignments within each corridor that met the design standard. GPS tracks and survey notes were recorded for each route. The survey team included a resource specialist to ensure key archeological and biological resources were avoided.

Both routes were located to avoid sensitive biological and cultural resources and thus would meet this criterion (Westland 2012). Both alignments also met the slope and other design standards in Table G-3, with grades of generally 3-7 percent and some level sections to add trail variety, as well as some short steeper sections. The steep sections do not exceed 10 percent for more than 200 feet or 14 percent for more than 50 feet. The following sections describe the two alternative trail alignments and their compatibility with the trail selection objectives, based primarily on the feasibility report presented by STS (STS, 2014).

5.1 WESTERN BYPASS ROUTE

5.1.1 Trail Description

A total of 20.4 miles long, the west bypass route would utilize a combination of existing 4WD roads, new trail construction, and existing right-of-way along the Florence/Kelvin Highway. It departs the Arizona Trail about three miles south of the proposed Ripsey Wash TSF site boundary in order to avoid an area of highly dissected topography. The first 2.5 miles of trail follows an existing 4WD road, which connects the existing Arizona Trail with the Florence/Kelvin Highway. Upon reaching the highway, the route follows the highway right-of-way for about 1700 feet to avoid cultural sites. The trail would then head

east, descending into a wash near the western boundary of the proposed Ripsey Wash TSF site. The route follows the wash to connect to the highway again, following the highway for another 200 feet. It then crosses the highway to follow another 4WD road for about one mile. After crossing under a transmission line the trail route departs the 4WD road, requiring new construction across relatively steep terrain until its descent toward the railroad and Gila River.

After arriving at the railroad, and assuming crossing rights can be acquired over the privately-owned rail right-of-way, trail users would have to step over the tracks, as there are no passable culverts running under the tracks. After the rail corridor, the trail would require construction of a new bridge over the Gila River suitable for pedestrian, bicycle, and equestrian use. The existing Florence/Kelvin Highway trailhead would be relocated to a point approximately one-third mile east of the trail/highway crossing (**Figure 1**). Siting the trailhead at the highway crossing was considered to have safety issues due to limited sight distances. Moving the trail to the east, through the proposed trailhead site, however, was also considered infeasible because it would require that the trail cross the highway in two additional places, and thus trail users would have to walk or ride the approximate 0.3 miles along the highway to access the new trail route.

Under the western bypass alternative, the existing 9.0-mile section of trail north of the Gila River, between the trail access near the Florence/Kelvin Highway and the northern end of the bypass, would continue to be maintained as a link to the Arizona Trail to provide additional trail access and to preserve this particularly scenic stretch of trail along the Gila River. The 8.2-mile section of existing trail between the southern end of the west bypass and the TSF property boundary could also potentially be maintained as a dead-end spur trail. This would enable continued access down into Ripsey Wash and up the steeper terrain of the “Big Hill”.

5.1.2 Trail Experience

The character of the west bypass trail would be described as relatively open, flat to rolling terrain for about 16 miles and very steep terrain for about 4 miles. Trail users would have intermittent, partial views of the proposed Ripsey Wash TSF for about 17 percent of the route and views of the existing Ray Mine for about 22 percent of the route (**Figures 2 and 3**). The portion of trail replaced by the western route has views of the Ray Mine for 28% of its length. Just south of the trail’s Florence/Kelvin Highway crossing, views open up to a more expansive and continuous view of the proposed TSF site in the foreground/ middleground and the mine facilities in the background for a distance of just over one mile, with several shorter views occurring as one continues north. In those places where the western route has views of the proposed Ripsey Wash TSF site or existing Ray Mine, the view would not meet the BLM VRM Class I or Class II criteria for views from the trail, but the remaining views would meet this criteria. Along portions of the trail outside the TSF or Ray Mine viewshed, the Class I to Class II VRM criteria would be met. The western route traverses an area rated as Level C SQR and Class II VRI since much of it is typical of the open desert scrub landscape found in the physiographic region.

Over 3.5 miles of the western route would follow existing 4WD trails, with an additional 1,900 feet (approximately 0.4 miles) following the Florence/Kelvin Highway. Trail users accessing the trail from the relocated trailhead would also have to follow the highway for about one-third mile to reach the trail, which would affect the quality of the experience and pose safety issues. The western route would require users to cross fence lines/gates in about five locations and parallel a 500 kV transmission line in several places. The trail would also cross under the San Carlos Irrigation Project (SCIP) 69 kV electric transmission line.

5.1.3 Management

The western bypass would cross 5.5 miles of state trust lands, 7.1 miles of public lands managed by the BLM, 2.34 miles of land under Bureau of Reclamation (BOR) withdrawal, and 1.0 mile of private land. A trail Right of Way would have to be purchased for all portions crossing state trust or private lands. As mentioned above, permission to cross the railroad easement would have to be acquired under this alternative, which may not be possible. The bypass route borders and slightly overlaps the boundary of the property that Asarco plans to purchase from the Arizona State Land Department for the proposed Ripsey Wash TSF, but access to this area could likely be managed via an easement with Asarco. Managing motorized use would be relatively difficult under this alternative due to the multiple 4WD roads. Potential conflicts between ranchers and trail users are also a concern due to the western route's close proximity to livestock corrals and water facilities.

5.1.4 Sustainability/Cost

Although much of the western route traverses flatter terrain than the eastern route, it would be more expensive to build than the eastern route due to the route's substantially longer length and the need for a new pedestrian bridge across the Gila River. The areas of steep terrain that do exist on this route would require switchbacks stacked on top of each other, also adding to the cost. Two areas contain 8 switchbacks each, the third has 10, and the fourth has 14. There are four other areas with between 3-5 switchbacks each, for a total of 52-60 switchbacks. In addition, the sections of trail on 4WD roads do not currently meet sustainability standard due to erosion issues.

5.2 EASTERN BYPASS ROUTE

5.2.1 Trail Description

Consisting of 6.35 miles of new construction, the eastern bypass trail would depart from the existing Arizona Trail southeast of the proposed Ripsey Wash TSF, making a gradual descent towards the Gila River. The trail terminates at Riverside Drive at a small drainage and abandoned roadbed, providing an open level area for hikers to stop before crossing the river. Trail users would then follow Riverside Road for approximately one-quarter mile to reach the Florence-Kelvin Highway. The proposed site for the relocated Florence/Kelvin Highway trailhead would be on Riverside Drive at its intersection with the Florence/Kelvin Highway. From the proposed trailhead, travelers would have a short walk along the highway, crossing the river on the historic highway bridge, to continue on the trail north of the river. An alternative site for the new trailhead was considered at the existing Pinal County Maintenance Building, located about 400 feet north of the river crossing. The Riverside Road site was selected as the preferred trailhead site due to its proximity to the trail and its undeveloped land status. Additional evaluation of potential trailhead sites near the Kelvin Bridge crossing will be conducted during the Draft EIS process once the new bridge design is completed to ensure adequate space for vehicles and safety considerations.

5.2.2 Trail Experience

The relatively steep terrain of the eastern route is an important element of the user experience. Selection of the eastern route would allow hikers continued access to the "Big Hill" as part of the Arizona Trail, which provides panoramic views across the Tortilla Mountains to the east. It would also allow continued use of the scenic stretch of trail north of the Gila River as an integral part of the Arizona Trail. Since the eastern route follows primarily east-facing slopes, much of it lies outside the viewshed for the proposed Ripsey Wash TSF site.

The proposed Ripsey Wash TSF would be visible from about 18 percent of the eastern route, while the existing Ray Mine would be visible in the background from about 63 percent of the route. The portion of the existing trail replaced by the eastern route has views of the Ray Mine for 67 percent of its length. These portions of trail would not meet the VRM Class I or Class II criteria for views from the trail. Along portions of the trail outside the TSF or Ray Mine viewshed, the Class II to Class III VRM criteria would be met. The BLM-managed lands along the eastern route are classified as Level B SQR and Class II VRI due primarily to the topographic diversity provided by the Tortilla Mountains. The eastern route would intersect only one dirt road. This route also provides more options for side trails out to viewpoints/overlooks than the western route.

5.2.3 Management

Most of the eastern route traverses BLM-managed lands (4.6 miles) or BOR withdrawal lands (0.9 miles), except for a 1.2 mile section through a patented mining claim in the northern section. Asarco is currently in the process of acquiring the patented mining claim and is planning to work with the managing agencies to provide a trail easement across this property. The potential for future mining activity occurring in the vicinity of the relocated eastern route of the trail is low, but if it happened, the trail would have to be relocated again. Permit conditions could potentially stipulate that Asarco be responsible for any future relocation that may be required or provide a wider trail easement than is typically granted. The proposed trailhead site for the eastern bypass, depending on its final configuration, lies partly on private land and partly on BLM-managed land, and thus an easement or acquisition may be necessary. In terms of managing vehicular access, the eastern route's steep and rocky terrain would make it relatively easy to construct "quad filters" at key points to prevent ATV access.

5.2.4 Sustainability/Cost

Although much of the eastern route traverses steep terrain, it would be less expensive than the western route due to its shorter length and because there is no need to construct a new footbridge across the Gila River. The eastern route has fewer switchbacks, reducing costs and maintenance. Potential erosion issues would be minimized by avoiding use of 4WD roads and use of sustainable construction practices (STS 2014).

6.0 RECOMMENDED ROUTE

The ATPG met on March 5, 2014, to review the results of the trail survey and select the preferred bypass route to recommend to the Corps for inclusion as a mitigation measure and connected action in the EIS should the Ripsey Wash TSF be selected as the preferred alternative. The group voted unanimously to recommend the eastern route because it best fulfilled the goals and evaluation criteria.

The goal of maximizing the trail's outdoor recreation potential would be best met by the eastern route, as it provides expansive views across relatively steep terrain along its entire length, compared to the western route, much of which occupies relatively flat, open terrain. The eastern alternative would offer a change from the desert landscape of the previous 50 miles of trail, climbing into a more upland environment. The western route, in contrast, would continue the desert landscape for another 10-15 miles before reaching steeper terrain. Selection of the east route would also maintain access to the "Big Hill," which provides a challenging climb, as well as panoramic views, although this section of trail could potentially be maintained as a spur trail under the western scenario. Under the eastern alternative, the section of trail north of the Gila River would also continue as an integral part of the trail experience,

rather than a spur trail contemplated as part of the western alternative. Direct access to the Gateway Community of Kelvin for water and resupply would be maintained under this alternative.

The proportion of the eastern and western routes with views of the proposed Ripsey Wash TSF would be similar, but a much larger percentage of the eastern route (63%) would have views of the existing Ray Mine compared to the western route (22%). The Ray Mine, however, is considered an acceptable part of the landscape according to the ATPG. Although the Ray Mine might be considered a visual impact to some users, the eastern route's more interesting foreground views, relative to the western route, could be considered a benefit over perceived visual impacts of the Ray Mine. According to the trail surveyors and the Arizona Trail Director, the eastern bypass has a higher level of scenic quality than not only the western bypass, but also the portion of Arizona Trail being replaced (STS 2014 and Redfield, 2014). The eastern route provides users a more continuous trail experience in a natural setting than the western route, which has numerous man-made features, such as road crossings, a railroad crossing, transmission lines, and ranch improvements. The western route's use of the Florence/Kelvin Highway right-of-way for over one third mile was also of major concern and considered unacceptable to Pinal County for aesthetic and safety reasons, particularly if the highway is eventually paved. Trail users would have to walk along roads from the proposed trailheads to reach the trail under both scenarios, but the east route would utilize Riverside Road, which has considerably less traffic than the Florence/Kelvin Highway.

In terms of corridor management, feasibility of the eastern bypass would depend on the acquisition of an easement from the current owner or the completion of Asarco's purchase of the patented mining claim in the northern section. The potential for future mine activity in this relocated section would be low, but the potential for mining or other land use development would be a concern for any part of the trail crossing state lands. With the western bypass, conflicts with ranch operations would probably occur due to the existence of additional gates (or the possibility of gates being left open) and other livestock improvements. The western route would also require an easement or additional structure for trail users to cross the railroad tracks, which the railroad may not be willing to grant.

In terms of sustainability and cost, the eastern route is more cost effective because it maximizes use of the existing Arizona Trail, is substantially shorter than the western route, and has fewer switchbacks. Although the steep topography would make construction of the eastern route more challenging, it would be less costly overall due to its shorter length. The cost of building a footbridge over the Gila River and acquiring a railroad crossing easement would also contribute to the cost of the western route. Maintenance and control of vehicular access would also be more difficult on the western route due to potential use of 4WD vehicles on portions of the route.

7.0 NEXT STEPS

As part of the NEPA process, the Corps will incorporate the recommended trail alignment into the Draft EIS as part of the project description for the Ripsey Wash Alternative TSF. Upon release of the Draft EIS, the public will have the opportunity to provide comments on the EIS, including the proposed bypass route for the Arizona Trail. The Corps will consider these comments in selection of the TSF alternative. If the proposed Ripsey Wash TSF is selected, the Corps would issue a Final EIS and their Record of Decision regarding the selected ANST realignment alternative. The BLM and Pinal County would also need to approve the final route and trailhead location for the relocated trail.

If the Corps approves the Ripsey Wash TSF and the eastern bypass route, the new trail would be developed to realign the Arizona Trail as part of the TSF development. Asarco would fund additional trail survey and design, trail construction, trail easement or land acquisition needed for the realignment,

and any necessary environmental surveys. To prepare for trail construction, a grade stake alignment would be conducted of the selected route. The grade staking would include detailed construction notes, such as side slope, drainages and other information for each 100-foot trail segment. Interagency agreements would be developed regarding ownership of trail easements thru private property, as well as ownership and maintenance of the new trailhead on Riverside Drive.

A construction schedule for the new trail and trailhead, as well as decommissioning of the existing trail and trailhead, will be coordinated with development of the TSF to avoid safety and use conflicts with trail use. Construction of the new trail segment could potentially begin once the grade staking is complete, necessary permits are obtained for the Ripsey Wash TSF, and engineering is complete. If the eastern route is selected as the final bypass route, the Arizona Trail Partner Group has requested that Asarco construct the bypass as soon as possible to create a loop trail with the existing Ripsey Wash Segment until the tailings facility fills up enough to require closure of the existing trail. This process could take up to 5 or 6 years according to Asarco. Allowing continued use of the existing alignment as part of a loop trail would need to be approved by Asarco and would depend on operational and safety considerations. In addition, construction of the new Florence/Kelvin Highway trailhead would need to be completed before the existing trailhead is closed to ensure continuous access to the Tortilla Mountains Passage. A schedule will need to be developed and agreed upon by Asarco and the ATPG for constructing the new trail and trailhead and abandonment of the existing trail and trailhead. Asarco's current plans are to begin construction after completion of the Florence-Kelvin Highway realignment.

8.0 LIST OF ABBREVIATIONS

Arizona Trail	Arizona National Scenic Trail
ATA	Arizona Trail Association
ATPG	Arizona Trail Partner Group
BLM	U.S. Bureau of Land Management
CMP	Comprehensive Management Plan
Corps	U.S. Army Corps of Engineers
EIS	Environmental Impact Statement
NEPA	National Environmental Policy Act
NTSA	National Trail System Act
RMP	Regional Management Plan
STS	Southwest Trail Solutions
TSF	Tailings Storage Facility
USFS	U.S.D.A. Forest Service
VRM	Visual Resource Management

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