SOUTHWEST TRAFFIC ENGINEERING, LLC

TRAFFIC IMPACT ANALYSIS – ADDENDUM #2

RESOLUTION COPPER MINE

SUPERIOR, ARIZONA

19 AUGUST 2020

PREPARED FOR

RESOLUTION COPPER
402 W MAIN STREET
SUPERIOR, ARIZONA 85173

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TRAFFIC IMPACT ANALYIS - ADDENDUM #2
RESOLUTION COPPER MINE PROJECT
SUPERIOR, ARIZONA

Project Description

Resolution Copper Mining is proposing an underground mine, ore processing operation with associated facilities, and infrastructure. West Plant Site (WPS) will be located just north of Superior, Arizona. East Plant Site (EPS) is located approximately six miles east of the WPS. Additionally, a new Filter Plant and Loadout Facility will be constructed east of San Tan Valley, Arizona, seven miles northeast of Magma Junction. A Tailings Storage Facility (TSF) will also be constructed at Skunk Camp south of Superior (the preferred alternative identified in the draft Environmental Impact Statement, near the Ray open pit mining complex). The proposed project facilities will be connected via a series of transmission lines, conveyors and pipelines. The vicinity of the project is shown in **Figure 1**.

The impacts of the proposed mine expansion were previously analyzed in the *Resolution Copper Mine Traffic Impact Analysis* (Original TIA) completed by Southwest Traffic Engineering on 13 April 2017. The Original TIA evaluated traffic impacts to the surrounding roadway network based on two scenarios; peak construction activities and typical operations after construction is completed. Traffic volumes related to the expansion will be higher during peak construction activities than during normal operations.

Subsequently, the Resolution Copper Mine Traffic Impact Analysis Addendum #1 (TIA Addendum #1) was completed by Southwest Traffic Engineering on 19 August 2020 in response to Town of Superior (Superior) comments on the Original TIA.

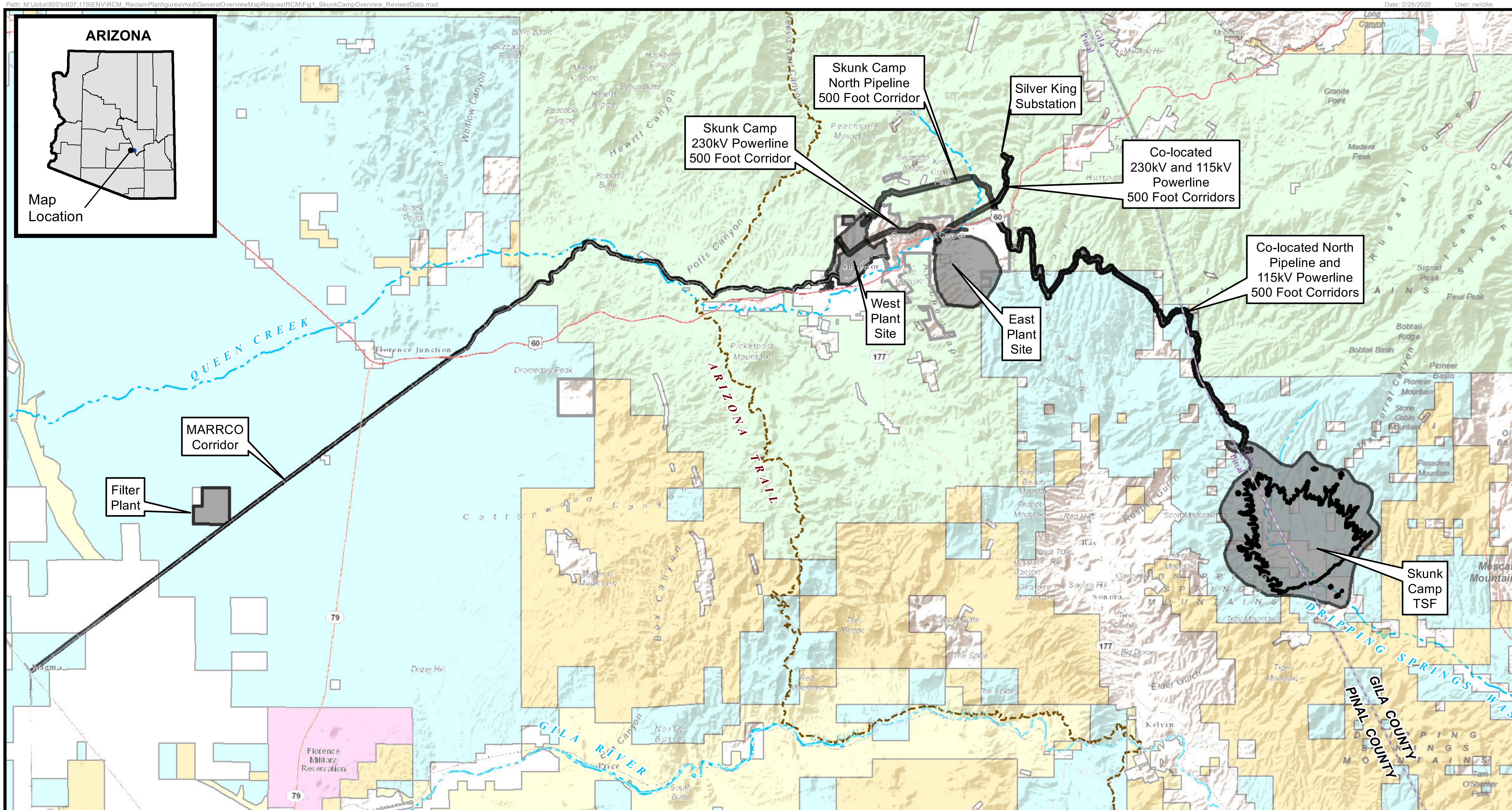
This document, TIA Addendum #2, has been prepared in response to additional discussions and comments from USFS (United States Forest Service). While the information provided in this report are direct responses to USFS comments; they also provide information pertinent to the overall discussions in the TIA and TIA Addendum #1.

USFS Comment Responses and Responses

TR-1. Highway Segment Analysis

The Draft EIS focused the quantitative traffic analysis solely on the intersections. Based on public comments received, we request that a number of highway segments between intersections also be analyzed for directional impacts. The following segments should be included:

- U.S. 60 between the Phoenix/Mesa metropolitan area and Superior
- State Route 79 between Florence and U.S. 60
- U.S. 60 between Superior and Globe
- State Route 177 between Superior and Winkelman
- State Route 77 between Winkelman and Globe



Pinal and Gila Counties, Arizona
Surface Management: BLM, WRI modified 2017
Data Source: SWCA DEIS
Image Source: World Terrain Base

Legend

- ArizonaTrail
- Preferred Alternative

Post Land Exchange Surface Management

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

N

0 3 6 Miles

WestLand Resources

RESOLUTION COPPER

GENERAL ARRANGEMENT WITH POST LAND EXCHANGE SURFACE MANAGEMENT

Figure 1

The trips expected to be generated by the mine expansion are insignificant from a regional and freeway capacity perspective. The greatest number of trips expected to be generated by the mine expansion during peak construction or operations (approximately 1,600 daily trips) are in line with any relatively small 'strip-mall', shopping center or gas station: developments that are routinely analyzed and discussed with no expectation of statewide, regional freeway implications. For context, a 10-pump gas station and convenience store would be expected to generate approximately 2,300 daily trips (43% more than the peak mine construction traffic).

To illustrate this point, an analysis of six roadway segments was completed:

- (2) locations on US-60 between the Phoenix/Mesa metropolitan area and Superior
- (1) location on SR-79 between Florence and US-60
- (1) location on US-60 and between Superior and Globe
- (1) location on SR-177 between Superior and Winkelman
- (1) location on SR-77 between Winkelman and Globe

This segment analysis is shown in **Figure 2**. **Figure 2** shows:

- 2018 daily traffic volumes on the analyzed segments (the most recent data obtainable from ADOT's Traffic Data Management System).
- Federal Highway Administration (FHWA) criterion for calculating roadway segment level of service (LOS) based on truck traffic percentage, daily traffic volumes, and the number of through lanes.
- The expected LOS of the analyzed segments with traffic from the Resolution Mine Expansion project based on FHWA criterion.
- The excess capacity of the roadway remaining until LOS D is reached.

It should also be mentioned that the following assumptions were made to complete the roadway segment capacity analysis provided in **Figure 2**.

- For segments with more than two lanes, it was conservatively assumed that there would be 20% truck traffic.
    - Truck classification data collected for the Original TIA, and presented in Figure 2 of the Original TIA, was utilized to develop this assumption. The average of the truck percentages from this classification data was less than 20%.
- For segments with two-lanes, it was assumed that there would be 10% truck traffic (the highest percentage provided in the FHWA LOS criteria).
- ADOT's Traffic Data Management System provides 2018 daily traffic volumes. It was assumed that current 2020 traffic volumes would be similar to 2018 traffic volumes.
    - For the purposes of this comment response, future years were not analyzed. Mine related traffic was added to the current data provided by ADOT.

- The mine is expected to generate 1,618 daily trips during peak construction. To ensure a conservative analysis, it was assumed that all these trips would be added to the roadway segment that was being analyzed. In reality, these trips will be spread out across the various roadways.
- Peak construction will generate the highest number of trips and was the only scenario analyzed.

Figure 2 shows that five of the six segments analyzed are expected to operate at an adequate LOS A with traffic from the Resolution Mine Expansion. The remaining segment is expected to exceed the threshold for LOS A by less than 500 vehicles and operate at LOS B with traffic from the Resolution Mine Expansion.

The traffic generated by the Resolution Copper mine expansion, in peak construction and normal operations, is insignificant from a freeway segment capacity analysis perspective.

TR-2. Background traffic volume.

As described in the DEIS, we recognize it is necessary to use actual calendar years in the traffic modeling, to account for annual growth in traffic. The years 2022 and 2027 were used, respectively, for construction and operational scenarios. The DEIS (p.246) identifies that the peak construction year represents the greatest impact on traffic, as it would include concurrent construction of the East Plant Site, the West Plant site, the tailings storage facility, and the filter impacts, we need to ensure that the peak construction year modeling uses appropriate background traffic volumes (in order to prevent underestimating impacts). We request updated traffic modeling using revised background traffic volumes, and suggest:

1. If possible, rely on the most recent ADOT traffic counts and projections

2. If the ADOT data are not sufficient (in detail or location), suggest using ADOT's road-aggregated annual growth rates to adjust appropriate site-specific data.

3. Given the ongoing regulatory process, we recognize the impossibility of predicting the exact calendar when peak construction might occur; however, we suggest selection of a calendar year for peak construction that better reflects a current understanding of schedule, at least advancing peak construction several years into the future to avoid underestimating impacts.

With limited planned developments in the TIA study area, and a relatively 'rural' study area, the results of the analysis are not expected to change with a shift in study years as described below:

1. ADOT does not provide turning movement counts at the study intersections.

2. ADOT's road-aggregated annual growth rates are below the 2% annual growth utilized in the Original TIA. To provide a conservative estimate, a 2% growth rate was chosen for the Original TIA to account for uncertainty in the development plan (i.e. shifting study years). For example, ADOT data estimates 1.6% growth at US-60/SR-79 and 1.6% growth at US-60/SR-177. This assumption is likely even more conservative now than initially estimated due to COVID-19, the economic impacts of which will likely impact development and growth throughout the state for several years.

Table 13. Freeway generalized service volume table.

Area Type	Number Lanes	Truck Percent	Level of Service B Service Volume	C Service Volume	D Service Volume	E Service Volume
Rural						
	4	0	46,100	62,000	74,800	84,700
		10	43,900	59,000	71,200	80,700
		20	41,900	56,300	68,000	77,000
		30	40,100	53,900	65,000	73,700

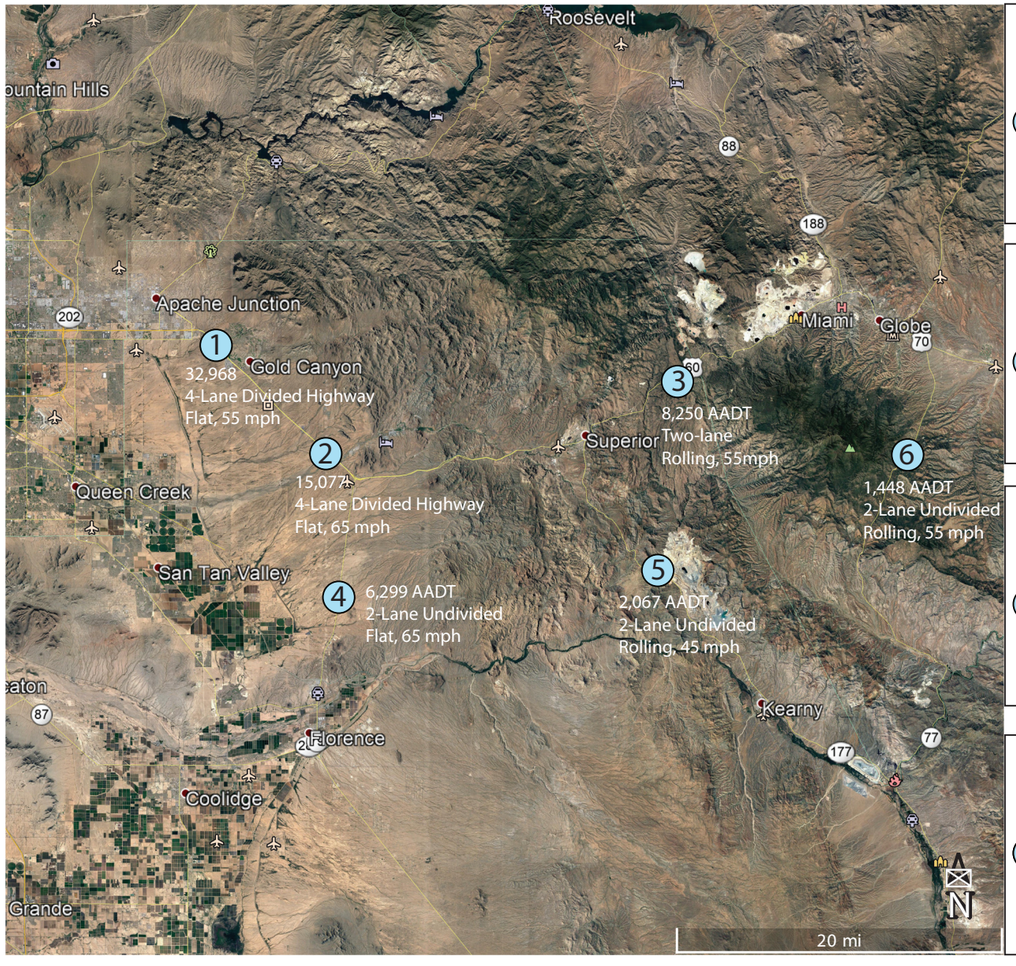
Yellow highlight indicates criterion that was utilized for these limited segment analyses.

Table 17. Rural two-lane highways generalized service volume table.

Speed Limit	Terrain	Truck Pct.	Level of Service B Service Volume	C Service Volume	D Service Volume
45	Rolling	0	3,600	8,700	13,900
		2	3,500	8,600	13,900
		4	3,400	8,500	13,900
		6	3,300	8,400	13,900
		8	3,300	8,200	13,900
		10	3,200	8,100	13,900
55	Rolling	0	13,900	19,000	24,200
		2	13,900	19,000	24,200
		4	13,900	19,000	24,200
		6	13,900	19,000	24,200
		8	13,900	19,000	24,200
		10	13,900	19,000	24,200
65	Flat	0	24,200	29,300	34,500
		2	24,200	29,300	34,500
		4	24,200	29,300	34,500
		6	24,200	29,300	34,500
		8	24,200	29,300	34,500
		10	24,200	29,300	34,500

Yellow highlight indicates criterion that was utilized for these limited segment analyses.

Figure 2 - Roadway Segment Capacity Analysis



1	Cross Section:	4-Lane (Flat, 55 mph)
	Existing AADT:	32,968 vehicles
	RC Peak Daily Traffic:	1,618 vehicles
	Total Daily Traffic:	**34,586 vehicles**
	LOS:	**LOS A**
	Additional vehicles that could be served before LOS D is reached	21,714 vehicles

2	Cross Section:	4-Lane (Flat, 65 mph)
	Existing AADT:	15,077 vehicles
	RC Peak Daily Traffic:	1,618 vehicles
	Total Daily Traffic:	**16,695 vehicles**
	LOS:	**LOS A**
	Additional vehicles that could be served before LOS D is reached	39,605 vehicles

3	Cross Section:	2-Lane (Rolling, 55 mph)
	Existing AADT:	8,250 vehicles
	RC Peak Daily Traffic:	1,618 vehicles
	Total Daily Traffic:	**9,868 vehicles**
	LOS:	**LOS A**
	Additional vehicles that could be served before LOS D is reached	9,132 vehicles

4	Cross Section:	2-Lane (Flat, 65 mph)
	Existing AADT:	6,299 vehicles
	RC Peak Daily Traffic:	1,618 vehicles
	Total Daily Traffic:	**7,917 vehicles**
	LOS:	**LOS A**
	Additional vehicles that could be served before LOS D is reached	21,383 vehicles

5	Cross Section:	2-Lane (Rolling, 45 mph)
	Existing AADT:	2,067 vehicles
	RC Peak Daily Traffic:	1,618 vehicles
	Total Daily Traffic:	**3,685 vehicles**
	LOS:	**LOS B**
	Additional vehicles that could be served before LOS D is reached	4,415 vehicles

6	Cross Section:	2-Lane (Rolling, 55 mph)
	Existing AADT:	1,448 vehicles
	RC Peak Daily Traffic:	1,618 vehicles
	Total Daily Traffic:	**3,066 vehicles**
	LOS:	**LOS A**
	Additional vehicles that could be served before LOS D is reached	15,934 vehicles

3. The project team recognized the impossibility of predicting the exact calendar dates when peak construction might occur. To this end, the calculations in the report are extraordinarily conservative. As mentioned in #2 above, a growth factor of 2% was utilized over the 1.6% estimated by ADOT (a 25% increase). An assumption that is likely even more conservative now than initially estimated due to COVID-19.

Moreover, it was assumed in the Original TIA that ALL of the traffic associated with the mine expansion would occur during the peak hour (another heavily conservative assumption).

In addition, the base traffic counts were purposefully taken to ensure peak traffic was captured. Per phone discussions with ADOT (in February 2015), all traffic counts were taken on Friday (the day of the week with historically highest traffic volumes near the mine). Moreover, although the traffic counts did incorporate seasonality by collecting data during the summer and the winter, the higher counts collected from each season were used and applied to the entire year. To ensure that the most conservative case scenario was analyzed, traffic counts were taken in August and a full analysis was completed. Traffic counts were then taken again in November and a full analysis was completed. The most conservative case of these two analyses (November 2016) was used to analyze the impacts of the Resolution Copper expansion.

This very conservative approach was completed to account for possible shifts in construction dates and development schedules. The results and recommendations of the TIA were intended to remain appropriate, and are still believed to be appropriate, despite minor shifts in the development schedule and the development plan.

TR-3. Analysis Documentation

Analysis documentation. Public comments noted a number of deficiencies in documentation. While this information is available in the traffic reports, and in some cases was discussed by specialists during technical meetings, the documentation is not clear in how it was incorporated. Please provide additional clarification on how the following aspects were documented and then used in the modeling: Peak hour factor, Seasonal variation adjustment factors, % heavy vehicle, AM/PM peaking concerns, and use of carpooling.

Peak hour factors were calculated from the collected traffic counts and incorporated into all of the capacity analyses completed in the report.

The existing heavy vehicle percentage was obtained with the traffic counts and is documented in the report. The vast majority of mine-related traffic is expected to be passenger vehicle. Heavy trucks generated by the Resolution Copper Mine Expansion will be limited to intermittent deliveries of equipment and supplies. These deliveries are expected to result in insignificant truck volumes (less than 50 trucks per day): a volume that will have a negligible impact on the overall heavy truck percentages on the adjacent roadway network.

As described in the response to comment TR-2, traffic counts were taken during peak seasonal times. As a result, no seasonal adjustments were made, resulting in a conservative approach.

As described in the response to comment TR-2, all of the mine expansion traffic was assumed to occur in a single **peak hour**. This results in a very conservative analysis: in reality this traffic will be spread throughout the day, with a majority occurring in two separate peak hours (AM/PM).

Carpooling assumptions were obtained from the Resolution Copper General Plan of Operations. These assumptions are listed under the trip generation tables in the traffic impact analysis. Personnel trips were based on the anticipated number of workers with a 1.7 divisor to account for carpooling. Data provided by Resolution Copper regarding the determination of this carpool factor can be found attached to this TIA Addendum #2. This data is based on observed carpooling behaviors at the existing Resolution Copper Mine site in Superior.

While construction equipment is expected to be moved to/from the site as needed, overweight/oversize vehicles delivering supplies are required by Arizona law to obtain permits from the ADOT. These permits outline specific criteria for the use of such transports and include engineering analysis. Typical trucks are allowed to travel on ADOT highways without these permits.

TR-4. Lane and Shoulder Widths

> We recommend that lane and shoulder widths be documented and incorporated into the analysis if not already.

Shoulder widths do not impact the calculations required for intersection analyses. Per ADOT procedures and their typical lane width design/construction, 12-foot lanes are used in capacity calculations (including the TIA) unless more narrow lanes are noted during the field review. The field review did not note such lanes.

TR-5. Baseline Monitoring and Seasonal Variation

> Public comments raise concerns about the specific monitoring time periods used, and whether these account for seasonal variation. The NEPA team finds that baseline monitoring is acceptable (August 2015, November 2016, March 2018), provided it has been properly adjusted for seasonal variation. Please clarify how seasonal adjustments were made to the baseline data, and how seasonal variation were incorporated into the modeling.

Further explanation of the traffic counts can be found in the Original TIA (Existing Operations Section) and in comment response TR-2.

ADOT seasonal adjustment factors are only reported for wide regions, making 'seasonal adjustment' for a specific area tenuous at best. ADOT daily traffic volumes in the study area were reviewed prior to the taking of new traffic counts. With concurrence from ADOT in a phone conversation in February 2015, it was decided to take traffic counts on a Friday to obtain the 'peak' traffic day for the analysis. As described in comment response #2 above, winter and summer traffic counts were obtained to cover seasonal baseline data in both August and November. However, for the analysis, the peak traffic representing the highest traffic volumes from the summer and winter seasons was used (November traffic counts) and applied to the full year, representing an extremely conservative case. The TIA presents a very conservative scenario with traffic levels in its analysis.

TR-6. Peak Hour Modeling

Peak hour modeling. Public comments note specific differences in morning and evening traffic. The current traffic analysis only uses a single daily peak hour. The NEPA team recommends both AM and PM peak hours be evaluated.

See response to comment TR-2.

The Original TIA took an extremely conservative approach for the analysis, using the highest single peak hour of the day and it was assumed that all traffic from the mine would occur within this peak hour. While this will not be the case, it does provide an extremely conservative scenario for the TIA analysis. Furthermore, breaking out AM and PM peak hours and splitting the peak traffic over two peak hours would decrease the traffic impact to the study intersections.

Based on review comments from Town of Superior and discussions with USFS (August 2020) and ADOT (January 2020), TIA Addendum #1 analyzed key intersections based on multiple peak hours for select intersections. The remaining study intersections were analyzed in the Original TIA based on a single peak hour and the recommendations and conclusions for those intersections are appropriate.

TR-7. Oversize loads

Public comments note concerns about oversize loads. The NEPA team recommends any need for oversize loads during construction be documented and pertinent bridge clearance heights, turning templates, etc. be checked for adequacy of load delivery.

At this time the exact size of 'oversize' loads is not known. However, overweight/oversize vehicles on Arizona highways are required by Arizona law to obtain permits from the Arizona Department of Transportation (ADOT). These permits outline specific criteria for the use of such transports and include engineering analysis.

TR-8. Surface Condition

Public comments note concerns about road surface condition and degradation. We recognize that this is not typical of traffic studies; however, in order to respond to public comments, we request:

1. An evaluation of pavement distress data gathered by ADOT or local agencies, if available.
2. An assessment of whether min-related traffic represents a substantial change in stress to the roadways.
3. The NEPA team suggests documentation of equivalent single axle loading (ESAL) increase from mine traffic, and assessment of surface damage.

1. This information is not available.

2. The majority of traffic from the project will be regular passenger vehicles. The primary roads used by the project (US60, SR177, SR79) to access facilities are already constructed and maintained by ADOT to handle passenger cars and trucks. It is worth noting that the majority of mine related travel that will occur outside of ADOT roadways will be on a small section of road from US60 along Main Street to the Lone Tree/Smelter Town Gate. The TIA Addendum was completed in part to remove mine expansion traffic from Magma Heights. As described in the response to socioeconomic data request for the USFS, Resolution Copper will cover the costs associated with road maintenance/repair due to Resolution Copper traffic on this small section of roadway.

3. ADOT designs and maintains their roadways to specific standards (including ESAL requirements) to carry both passenger cars and trucks; standards that are designed to handle intermittent heavy/oversize loads. When necessary, overweight/oversize vehicles on Arizona highways are required by Arizona law to obtain permits from the Arizona Department of Transportation (ADOT). As part of this permit, evaluations of pavement distress are not required due to the temporary nature of such activities. These permits do outline specific criteria for the use of such transports and include engineering analysis. Typical trucks are allowed to travel on ADOT highways without these permits.

TR-9. Safety Concerns

Public comments note concerns about safety, including crashes, fatalities, school buses, and bicyclists. In response to public comments, we request:

1. An evaluation of the most recent three years of data on crashes.
2. An assessment of whether mine-related traffic will create conflicts with pedestrians, cyclists, and other vehicles (including school buses) that substantially change the likelihood of crashes and fatalities occurring.

1. Crash data on US 60, at Silver King Mine Road and Main Street, was obtained from ADOT's Traffic Records Section and reviewed as a part of the TIA Addendum #1 to determine if any trends can be observed. Records for the most recent five-year period were reviewed (2014 to 2018).

   No crashes have been reported at the intersection of Silver King Mine Road/US 60 in the last five years for which data is available (2014-2018). One crash was reported at Main Street/US 60 in 2014 and one was reported in 2015. No crashes were reported at this intersection in 2016, 2017 or 2018. The available crash data does not reveal any crash patterns or trends at the study intersections in the TIA Addendum.

2. The mine expansion is expected to increase traffic at the study intersections during peak construction and during normal operations. Any traffic increase has the potential to increase crashes; however, the mine expansion is not expected to significantly influence crash patterns at the study intersections or elsewhere in the Town of Superior. The number of trips expected to be generated by the mine expansion are in line with any relatively small 'strip-mall' or shopping center: developments that are routinely analyzed and discussed with no expectations of town-wide, regional safety implications. US 60 is operating well below capacity and it is expected that this traffic can be accommodated within the existing roadway system.

TR-10. Rail Traffic

Public comments note concerns about rail traffic impact on at-grade crossings. We request additional analysis, including:

For Alternatives 2, 3, 5, and 6, rail traffic would only occur between the Filter Plant/Loadout Facility and the railhead. Please identify the at-grade crossings along this route, any potential improvements (suggest following FHWA's predictive method for Diagnostic Review for Rail-Highway crossings), and the anticipated impact to surface traffic (we recognize this data has been previously provided).

For Alternative 4, at this time we intend to continue to assess relocating the Filter Plant/Loadout Facility to the West Plant Site, although we recognize there are ongoing concerns with the logistical feasibility of this change. Please:

- Identify any at-grade crossings along this route, any potential improvements (same suggested method as above), and the anticipated impact to surface traffic.
- With respect to Highways 60 and 79, we recognize that specific mitigations for crossing have not been developed. Identify the most likely type of crossing and the anticipated impact to surface traffic. Clarify the amount and timing of trail traffic.

The preferred alternative does not utilize rail lines crossing US 60 or SR 79 (see Resolution Copper Response to Action Item EIS-262). Regardless, excessive delays as a result of rail traffic would be unlikely. Rail traffic is heavily regulated in Arizona to prevent these types of occurrences. Rail speeds are governed by Federal law and Arizona Revised Statute 40-845 limits gate down times to a maximum of 15 minutes. Resolution Copper intends to follow Federal and State law to prevent delays if rail use is instituted.

While rail is no longer expected to be utilized, the following text provides responses to the specific questions asked above:

Rail traffic is discussed on pages 163-164 of the General Plant Operations.

The MARRCO rail line crosses US 60 east of the SR 79/US 60 interchange. It also crosses SR 79 (south of the SR 79/US 60 interchange) and Attaway Road (at the Attaway/Judd Road intersection). All three locations are at grade crossings and are not expected to change with the project. Crossing gates with associated warning beacons are also located at each crossing. For the preferred alternative, the Attaway/Judd Rd intersection would be the only at-grade crossing along the route.

TR-11. Road Use Plan

Resolution Copper has previously identified that a comprehensive road use plan would be updated from that provided in Appendix K of the GPO. We reiterate the request for this plan.

An updated road use plan per Appendix K of the GPO has been submitted.

TR-12. Coordination with ADOT and other Jurisdictions

Public comments note concerns about what components of Resolution Copper project would require ADOT approval and review. We request information on:

- Coordination, approval, or permitting with ADOT or their jurisdictions that has already occurred.
- Anticipated coordination, approval, or permitting with ADOT or other jurisdictions.

Prior to the TIA moving forward, phone meetings with ADOT were held in February 2015 to determine the scope of the TIA and when traffic counts should be taken. This is standard operating procedure. In addition, ADOT requires TIA's for 'encroachment' purposes. Key examples of such encroachments include a development asking for a new access point onto the ADOT system, an existing access tied specifically to a development whose land use changes, or contractors working within the ADOT right of way.

None of these are the case for this project. Existing intersections are being used as access to the site, mitigation measures are not necessary for peak construction at the study intersections as noted in the TIA, and no work is being done within ADOT right of way. Anticipated coordination, approval, or permitting with ADOT could include requirements for vendors to obtain applicable commercial vehicle permits (e.g., oversize/overweight permits).

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APPENDIX

Carpool Factor Calculations

Resolution Copper
Vanpool Factor

	Avg employees	Avg Contractors	Totals		
	160	150	310		
				Avg Van/Car Capacity	Total Capacity
Vanpools	4	2	6	6	36
Ride share vehicles	20	75	95	2	190
Total Personnel					310
Total Personnel in Vans/Carpools					226
Total Vehicle Trips/Day					185
Vanpool Factor					**1.68**

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SUPERIOR, ARIZONA

APPENDIX

Comment Responses

Resolution Copper Mine Project
Traffic Impact Analysis – Addendum #1 Dated 2 July 2020
Comment Resolution

Item No.	Code	Comment	Response
TR-1	D	<u>TR-1. Highway segment analysis.</u> 1. We request additional figures to provide context to this discussion. Previous figures have focused solely on intersections. We would like figures that also show volumes for highway segments, to ensure these are interpreted properly: a. Figures depicting: I. Mine facilities, II. Existing & future background ADT [average daily traffic] volumes (without project traffic) during peak construction and normal operation years, III. Mine ADT volume during peak construction and normal operation years, IV. Mine truck ADT volume during peak construction and normal operation years, and V. Segment aggregated capacity threshold (ADT). b. Figures depicting: I. Mine facilities, II. % increase in ADT volume during peak construction and normal operation years, III. % increase in truck ADT volume during peak construction and normal operation, and IV. % reduction in available segment capacity as a threshold.	1. a. I. See Figure #1 in TIA Addendum #1. II. See figures 3, 4, 10 and 11 in TIA Addendum #1 and Figures 3, 8, and 9 in the Original TIA. III. See Figures 8 and 9 in TIA addendum #1 and figures 6 and 7 in the Original TIA. IV. See response in TIA addendum #2. V. See Figure 2 in TIA Addendum #2. b. I. See Figure #1 in TIA Addendum #1. II. A roadway capacity analysis can be found in TIA Addendum #2. III. A roadway capacity analysis can be found in TIA Addendum #2. IV. A roadway capacity analysis can be found in TIA Addendum #2.
TR-2	D	<u>TR-2. Background traffic volume</u> 1. Several responses have referenced “per discussions with ADOT”. We request that some documentation be included in the TIA Addendum #1 that documents these discussions. At a minimum, we would like to see a footnote with the date and participants of the conversation. This applies to TR-5 and TR-12 as well.	General dates have been added to TIA Addendum #2 when these discussions happened; however, every conversation was not logged.
TR-3	D	<u>TR-3. Analysis Documentation</u> 1. We have received public comments specific to the carpooling factor of 1.7. This factor has not yet been fully justified. We request a discussion in the revised TIA Addendum #1 that provides a sensitivity analysis for this factor. If the carpooling factor was 1.1 or 1.2, would the current results still be upheld? 2. There is no discussion on the expected mine heavy traffic percentages in the body of TIA Addendum #1, however, the information is available in the appendices. We request a discussion on expected heavy vehicles in the body of the TIA.	1. This carpool factor was provided by Resolution Copper based on observed carpooling behaviors at the existing Resolution Copper Mine site in Superior. The data provided has been attached to the Appendix of TIA Addendum #2. Different carpool assumptions would lead to different results. A carpool factor of 1.1 or 1.2 would make the impacts slightly worse. A carpool factor of 2.1 or 2.2 it would make the impacts slightly better. These additional ‘what if’ scenarios were not pursued or analyzed. The expected carpool factor is 1.7. 2. The following text has been added to TIA Addendum #2. *Heavy trucks generated by the Resolution Copper Mine Expansion will be limited to intermittent deliveries of equipment and supplies. These limited deliveries are expected to result in insignificant truck volumes (less than 50 trucks per day): a volume that will have a negligible impact on the overall heavy truck percentages on the adjacent roadway network.*
TR-6	D	<u>TR-6. Peak Hour Modeling</u> 1. Because all of the intersections in the original TIA are not reanalyzed in the TIA Addendum #1, we request a note or discussions be included in the revised TIA Addendum #1 stating that not all intersections analyzed in the Original TIA were reanalyzed in Addendum 1, and clarifying if the intersections that were not reanalyzed are still relevant.	The introduction to TIA Addendum #1 covers why the addendum only looked at a few intersections. The following text has been added to TIA Addendum #2. *Based on discussions with USFS and ADOT, TIA Addendum #1 analyzed several intersections based on multiple peak hours. The remaining study intersections were analyzed in the Original TIA based on a*

A - Will Revise
B - Consultant to Evaluate
C - Tonto National Forest to Evaluate
D - See Response

			single peak hour and the recommendations and conclusions for those intersections are appropriate.
TR-7	D	TR-7. Oversize loads 1. The response provided is sufficient, but we request that this be added as a discussion in the body of the revised TIA Addendum #1	Text has been added to TIA Addendum #2.
TR-8	D	TR-8. Surface Condition 1. The response provided is sufficient, but we request that this be added as a discussion in the body of the revised TIA Addendum #1	Text has been added to TIA Addendum #2.
TR-9	D	TR-9. Safety Concerns 1. The response focuses on the intersections evaluated in the TIA Addendum #1. However, public comments concerning safety focus largely on the two-lane highway segments identified in TR-1. The crash evaluation should include analysis along these corridors, identifying any High Accident Locations/High Accident Corridors along these segments. 2. The one crash identified in 2015 at US60/Main Street was a left-turn collision. Mine expansion is anticipated to heavily increase the amount of left-turning volume, conflicting with US60 thru-traffic. A discussion of this should be included in the revised TIA Addendum #1, and whether any remediation is recommended.	1. The two lane highway segments identified in TR-1 were: • U.S. 60 between the Phoenix/Mesa metropolitan area and Superior – *approximately 50 miles* • State Route 79 between Florence and U.S. 60 – *approximately 16 miles* • U.S. 60 between Superior and Globe – *approximately 16 miles* • State Route 177 between Superior and Winkelman – *approximately 32 miles* • State Route 77 between Winkelman and Globe. - *approximately 37 miles* The crash analysis of 151 miles of roadway is a huge undertaking and well outside the scope of this document and process. As illustrated in Figure #1 in TIA Addendum #2, these roadway segments are expected to operate at and LOS A/B with traffic from the mine expansion. There are no crash concerns for roadways operating under these conditions (beyond the typical concerns for every roadway). A crash analysis of these long roadway segments would not result in a significant change to the analysis. A roadway segment LOS analysis was completed and the volume of temporary construction traffic added by the Resolution Copper project is not expected to impact the LOS of the roadways in a way that would indicate an increase of crash rates. A general discussion of the safety impacts of the project are included in TIA Addendum #1 and TIA Addendum #2. 2. While one left turn crash was identified in 2015, no left turn crashes were identified in 2014, 2016, 2017, or 2018. A single left turn crash across five years does not reveal any trends or safety concerns to discuss. A general discussion of the expected safety implications for the site is included in TIA Addendum #1 and TIA Addendum #2 and in the previous comment responses. Moreover, a westbound left turn lane already exists at this intersection. See TIA Addendum #2 for further explanation.
TR-10	D	TR-10. Rail Traffic 1. Is rail speed over the listed rail crossings and anticipated train length expected to cause any issues of extended gate down time during peak hours? 2. What is the anticipated increase in gate down time at each crossing?	See TIA Addendum #2.

A - Will Revise
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C - Tonto National Forest to Evaluate
D - See Response

		3. These metrics need to be incorporated into the revised TIA Addendum #1.	
TR-11	D	<u>Editorial Comments/Clarification Questions</u> 1. Pg. 6, 1st paragraph, "PM peak hour (between 4:00 AM and 6:00 PM), should be correctly to 4:00 PM 2. Table 1 and 2, adjust right most column width, there is a text cut. 3. TIA Addendum #1, Fig.7, Node #1, westbound and eastbound through traffic were 433 and 613 vehicles per hour (vph) in the Original TIA, could you explain the discrepancy? 4. TIA Addendum #1, Fig. 8 and 9, vehicles per day volumes (shown in blue text), the way these volumes are developed, are you assuming the mine will generate "zero" traffic during off peak hours? 5. TIA Addendum #1, 1st paragraph under existing conditions. US 60 is undivided east of Superior and divided west of Superior. 6. TIA Addendum #1, pg. 23, states that more detailed crash analysis is in the Appendix, but we could not find it.	1. Revised. 2. Revised. 3. There was a typo in the previous TIA. When looking at the trip assignment and the adjacent intersections the volumes referenced are clearly too high. This was corrected in the TIA Addendum #1. 4. Yes. This results in a conservative analysis. 5. Revised. 6. The TIA Addendum #1 Appendix has been updated to include this information.
TR-12	D	<u>Mitigation Items for Consideration</u> 1. TIA Addendum #1, Table 10, at the intersection of Main Street/US 60, a westbound right-turn lane is warranted in the peak construction, but not during normal operation. SW Traffic did not make the recommendation to install a westbound right turn lane. Sensitivity testing was completed to see what volume threshold would warrant a right-turn lane, and found at an advancing westbound volume of 401-500 vph would only require the 30 vph right turning vehicles to warrant installation (assuming westbound traffic speed at or higher than 45mph). Predicted normal operation volumes for westbound advancing = 378 vph and westbound right-turn = 25 vph (Fig. 13), as you can see, a slight change in prediction would warrant this installation. Also, without mine traffic westbound right-turn lane movement only shows 2 vph (Fig. 11), so most of predicted traffic on this movement is mine related. 2. TIA Addendum #1 (Table 8 and 9), at the intersection of Main Street/US, southbound left-turn movement is predicted to operate at a LOS ranging from E to F during the a.m./p.m. peak hours during peak construction, and LOS E during p.m. peak hour during normal operation. The normal operation LOS E (delay is only 45.6 sec/veh) may not be a concern, but during construction delay is excessive, same goes for southbound right-turn movement. We should consider recommending temporary (portable or semi-permeant) signalization during the peak construction years, the signal can be set to be activated during peak hours only as well. Sensitivity testing was completed to determine what level of westbound through volume would result eastbound left-turn queue to spill over onto the eastbound through lane. If westbound through traffic volume increase from 320 (predicted, Fig. 12) to 450 vph, spill over will occur. Similarly, if eastbound left-turn and westbound through volumes would each increase by 10%, 721 and 352 vph, respectively, compared to what is currently predicted, spill over will occur.	1. As discussed in the turn lane section of TIA Addendum #1 (paragraph 1, page 20), a right turn lane is not recommended. 2. As discussed in the mitigation section of TIA Addendum #1 (paragraph 2, page 24), a temporary traffic signal is not recommended.

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