Appendix F-1

Sand Transport Corridor Review

PROJECT MEMORANDUM
ARICA AND VICTORY PASS SOLAR PROJECTS

Date: September 8, 2020
To: Aarty Joshi, Director, Environmental Permitting, Clearway Energy Group LLC
From: Hedy Koczwara and Emily Capello, Aspen Environmental Group
Subject: Sand Transport Corridor Review

Introduction

Clearway Energy Group has proposed to construct and operate the Victory Pass Solar Project and the Arica Solar Project on land administered by the U.S. Department of the Interior Bureau of Land Management (BLM). This land has been identified by the BLM as Development Focus Areas, which are areas determined to be appropriate for the development of renewable energy. The projects would be adjacent to one another in Riverside County, California approximately 5.5 miles east of the unincorporated community of Desert Center and north of Interstate 10 as shown in Figure 1. Each project (Victory Pass and Arica) would cover approximately 2,000 acres and consist of photovoltaic solar modules, tracker components, power inverters, transformers, an electrical collection system, one or two project substations, a shared switchyard, battery storage, access roads, and a shared gen-tie line to the existing Southern California Edison (SCE) Red Bluff Substation.

Eastern Riverside County is crossed by a number of sand transport corridors and has been subject to recent geomorphic studies during the permitting of several solar projects on or near the sand transport corridors. As part of the environmental review of the Victory Pass and Arica projects, the BLM has requested that Clearway complete a sand transport corridor review. The conclusions of the review will support analysis of the projects' impact under the National Environmental Policy Act (NEPA).

Geomorphology is the study of the landforms and relief patterns that make up the earth's surface. Eolian (wind-blown) dune systems are driven by the interactions of three main factors: sediment supply, sediment availability (i.e., its ability to be transported by the wind), and wind transport capacity. Sand dune transport systems form where winds are consistently strong enough to lift and push fine sand grains across the dune surface, especially where there is little or no vegetation to stabilize the loose soil. Sandy alluvium (unconsolidated sediment deposited by flowing water in streams or sheets) in dry washes and alluvial fans are examples of sources for these materials, and strong winds generally transport the sands to areas with topographic irregularity, such as at the mountain front, where decreasing winds deposit sand. Except in high-force winds, wind does not typically suspend and transport sand high into the air (BLM, 2015).

Eolian deposits are recognized as areas of higher biological value because they support specific natural communities and wildlife habitats. The California Desert Conservation Plan, as amended by the Desert Renewable Energy Conservation Plan (DRECP), identifies sand dunes and their associated processes as areas of high biological value (BLM, 2015). This review considers how the projects overlap with the sand transport corridor and the sand sources. The projects' overlap with sand habitat and species that use it, primarily the Mojave fringe-toed lizard (*Uma scoparia*; MFTL), is addressed in the Biological Resources Technical Report. MFTL is a California Department of Fish and Wildlife (CDFW) Species of Special Concern and BLM Sensitive species whose habitat is restricted to eolian sand and surrounding habitats in the deserts of Los Angeles, Riverside, and San Bernardino Counties in California and La Paz County in Arizona.

The information in this memorandum is primarily derived from the following documents, and assessed in relationship to site-specific information obtained for the Arica and Victory Pass Projects:

- California Geological Survey, Eolian System Map of the East Riverside Area (CGS, 2014);
- Desert Renewable Energy Conservation Plan (DRECP) Proposed Land Use Plan Amendment and Final Environmental Impact Statement (EIS) (BLM, 2015);
- Palen Solar Project Final Supplemental EIS (BLM, 2018);
- Desert Quartzite Solar Project Final Plan Amendment/EIS/Environmental Impact Report (EIR), Appendix O, Geomorphic, Stratigraphic and Geologic Eolian Evaluation Report (BLM, 2019a); and
- Crimson Solar Project Draft EIS/EIR/Plan Amendment, Appendix I.3, Geomorphic, Stratigraphic and Geologic Eolian Evaluation Report (BLM, 2019b).

Background and Regional Context

Eolian processes play a major role in the creation and establishment of sand dune formations and habitat in the Chuckwalla Valley and within the area of the Arica and Victory Pass Projects. The DRECP Final EIS describes eolian soil formation as a process that "proceeds by progressive infiltration of fine-grained dust, chemical deposition, and weathering within sediment deposits" (BLM, 2015). Previous regional dune studies in southeastern California have proposed the existence of numerous sand migration corridors occurring in valley axes and crossing over some mountain passes (BLM, 2019a).

Regional eolian system studies in the Chuckwalla Valley indicate that the prevailing wind responsible for sand transport is from the northwest toward the southeast and locally controlled by topography (mountain ranges) (BLM, 2018). The dominant sand migration direction within the corridors is toward the east and south. Sand delivered from upwind is deposited, replenishing sand that has been lost downwind. Three main eolian sand migration corridors occur in the Chuckwalla Valley region and are made up by the sand migration zones shown on Figure 2 in the following general directions (BLM, 2018):

- Along the Chuckwalla Valley from the Palen Dry Lake area;
- Southeast from the Palen Valley; and
- Between the Palen and McCoy Mountains, where sand is transported in a southerly direction/towards the Chuckwalla Valley.

One criterion for a dune system to be designated as an independent sand migration zone (SMZ) is that a dune system receives a significant source of sand from a local source that is independent from sources upwind associated with the regional valley axis sand migration corridor (BLM, 2019a).

Washes are large contributors of eolian sands in desert landscapes, transporting sand from upslope to the valley axis where most dune systems exist (areas of strongest prevailing winds). Dune systems appear to experience aggradation (increase in dune deposit mass) during the following times: (1) when pluvial (rainfall) and playa lakes are drying up and/or experiencing repeated lake fluctuations, (2) when alluvial fans are experiencing aggradational events (abundant fan deposition), (3) when monsoonal storms are more frequent and with higher intensity and/or (4) when older exposed sand bearing deposits upslope such as alluvial fans, lacustrine, or older river deposits are eroded, which results in washes transporting a larger volume of eolian size grains per flow and more frequently than typical washes emanating from bedrock regions of most regional mountain ranges. Dunes can experience variations in activity based on the additive nature of the parameter wavelengths when they collectively “add up” (aggradational events) or cancel each other out (times of stability). (BLM, 2019a and 2019b)

The arid/semi-arid climate conditions since the mid-Holocene across southeastern California have resulted in a geomorphic condition where slight changes in regional climate (i.e., monsoonal storm activity) is sufficient to result in local re-activation of dune systems, but not sufficient to produce a robust eolian system where sand migration corridors are continuous. Global climate affecting Pacific Storm strength and frequency and local monsoonal strength, frequency and magnitude can be reflected in changes in dune behavior on a cyclic scale. There is a strong correlation since prehistoric times between increased monsoonal extreme storm frequency and magnitude with increased alluvial fan and eolian activity (aggradational events) and/or with periods of time exhibiting a warmer global climate. Dune systems appear to react to this type of climate change on the order of less than 1,000 years. (BLM, 2019a and 2019b)

Therefore, alluvial fans and eolian systems both experience aggradational events during periods of relatively more frequent and strong extreme monsoonal storm events causing erosion and relatively large magnitudes of sand transport to valley axis, and relatively weaker Pacific Storms that result in long duration precipitation leading to increased vegetation densities. If the frequency and magnitude of cool winter Pacific storms decrease (decreases vegetation density) and warm summer monsoonal storms increase (extreme events causing erosion and abundant wash sand transport), then this can lead to an increase in eolian sand generation in the valley axis area. (BLM, 2019a and 2019b)

Maintaining dune internal moisture is critical for the stability of a dune system. Although dunes may be considered “dry” systems, it is the moisture regime in the area that plays a very critical role in their development. This is the case not only for eolian sand sources, but also dune stability. Sand dunes often develop in areas not only because there is a sufficient eolian sand source, but also because there is sufficient infiltrating moisture to allow for the internal core of the dunes to remain moist which greatly decreases the potential for sand bearing wind abrasion. In addition, dunes that remain moist have a higher likelihood of becoming stabilized via vegetation. (BLM, 2019a and 2019b)

Surface water flow is important for eolian sand sources and stabilizing moisture. Areas of flat ponding found at the end of desert washes have been identified as critically important for eolian sand systems as a sand source and stabilizing moisture for sand dune systems. Alluvial sands are deposited in these areas through stormwater erosion in the surrounding mountains. When the areas dry, the sand deposits are increasingly subject to wind erosion and transport to dune areas. Historical anthropogenic factors associated with changes to the surface of the earth (i.e., flood control berms, borrow pits, etc.) potentially could affect local dune systems. For instance, the flood control measures for construction of Interstate 10 and older roads in this area have existed for decades and have also resulted in subtle changes in the local dune systems. (BLM, 2019a and 2019b)

While few long-term comprehensive studies on the sand migration studies in the Chuckwalla Valley have been completed, a recent (2016) study using remote sensing imagery and long-term global positioning system (GPS) measurements estimated Palen sand dune migration rates as high as 50 m per year (1373 m in 27 years, 1984-2011), predominantly in the southern direction, depending on the locality (Weigand, 2016a). The overall size of active dune fields increased significantly from 1984-2011 but the edge of the sand accumulation (i.e. how close was it to the proposed sites) remained roughly the same (Weigand, 2016a). According to the report, the leading edge of the Palen sand accumulation zone has shifted by less than 0.1 Km in the southeast direction between 1995 and 2014 (Weigand, 2016a).

A separate study by Potter and Weigand (2016b) used Landsat satellite spectral data to map changes in the distribution of biological soil crusts (BSCs) across federal lands of the Lower Colorado Desert, incorporating the construction and operation of utility-scale renewable energy facilities, which disturb desert surfaces. Detectable disturbance of vegetation cover (not including BSCs) has not yet caused adverse ecological impacts to plant communities of the Lower Colorado Desert region, either within Development Focus Areas (DFAs) of eastern Riverside County or in shrubland areas outside of the DFAs. The study stated that subtle changes in vegetation cover in the period after nearly all southern California solar energy developments were initiated (post 2010) could instead be attributed largely to topographic water flow pathways through canyons and desert washes, both in and around the solar energy DFAs. That is, most changes detected in BSC cover between 1990 and 2014 were located in close proximity to known river flow channels such as the Lower McCoy Wash, implying that flash floods associated with heavily precipitation events could be the most important agents of change for BSCs in this region (Potter and Weigand, 2016b).

In addition, the density of vegetation in dune deposit areas can be an important parameter for dune stability and sand migration rates. Studies have found that a 10 percent aerial coverage of plants that are less than one-foot tall decreases eolian sand migration rates by 90 percent, indicating that minor vegetation densities essentially decrease eolian sand migration rates exponentially (BLM, 2019a and 2019b).

The presence of invasive plant species, such as Sahara mustard (*Brassica tournefortii*), can also stabilize the dunes and further hinder dune expansion. Even after the Sahara mustard plant dies, it remains "planted" in the ground for many months to possibly over a year from when the plant died. The dead plant stems break free and blow in the wind piling up on nearby dunes and coppice dunes, which means the plant continues to impede eolian sand transport after it has died and been uprooted. Hence, once there is a Sahara mustard bloom, eolian sand migration rates are greatly diminished not only for the year of the bloom, but for a minimum of the next year, and most likely into a third year. (BLM, 2019a and 2019b) Some Sahara mustard was found throughout the site during the biological surveys including within the dunes habitat along the northern border of the Arica Project; however, they were densely clustered (Arica Biological Resources Technical Report, 2020 Figure 12).

Based on previous studies, it appears that during periods of strong eolian activity (dune aggradational events), eolian sands travel large distances when the regional sand migration corridors provide a more continuous pathway, and that these sands would be able to mix with the continuously provided local eolian sources. These conditions occur when vegetation densities are low at lower elevations, more readily allowing for sand movement, and relatively frequent monsoonal storms occur during dry periods of the year, providing for increased alluvial and dune aggradation. During times of dune stability, the regional sand migration corridors become discontinuous and local sources primarily associated with playa lake beds and alluvial systems dominate. In addition, during periods of dune stability when the older dunes become relict, they begin to cannibalize the older dunes associated with wind abrasion (eolian deposits re-working) and this provides an additional source for active eolian sands. This is the current condition throughout much of Chuckwalla Valley. Within many areas in the Chuckwalla Valley, erosion of older relict dune deposits is a primary source for the minimal active eolian sands occurring within dune systems poorly fed by a playa lake (or ponding area) and alluvial systems (BLM, 2019a).

Research conducted regarding potential climate change for the southwestern United States indicates that the region is believed to get warmer and drier during the next 100 years and that this will lead to a decrease in soil moisture. A decrease in soil moisture could lead to an increase in dune activity via decreasing vegetation densities and increase in internal dune erosion. If this occurred, it would likely lead to a moderate increase in eolian sand migration along older now stabilized sand migration zones and increase in deposition (weak aggradation) in dune depositional areas. In other words, it is not believed, based on the mapping of studies by Kenney Geosciences, that dune areas would expand beyond regions where they are mapped to have been more active during the early to mid-Holocene, when conditions were very conducive for dune development. (BLM, 2019b)

The findings of previous studies indicate that a period of dune stabilization and associated dune abrasion (cannibalization) has been occurring in many dune systems in the Chuckwalla Valley during the late Holocene (BLM, 2019a). Dune systems across the southeastern California region have been dominantly stable since the mid-Holocene and the sand migration corridors have essentially shut down since that time. Eolian sand sources during times of dune aggradational events since mid-Holocene have primarily been local sources. If there is an increase in eolian sand production due to climate change via a decrease in Pacific storms and increase in monsoonal storms frequency and magnitude, then these newly derived sands will be deposited for at least a thousand years within the existing mapped dune system area. The incursion of the invasive Sahara mustard plant that blooms relatively frequently (possibly 2 to 3 times per decade) has decreased sand migration rates by over an order of magnitude where it occurs. This will also cause newly derived eolian sands to deposit closer to their sources and within mapped eolian dune systems. Although their dune forms and thickness will be altered, these features are not expected to expand significantly. (BLM, 2019a)

Project and Property Description

Previous studies were reviewed to better understand the extent, nature and mechanisms controlling sand migration and dune systems in the Arica and Victory Pass Projects' vicinity. The Arica boundaries were designed in part to follow the sand transport corridor, reducing the direct effects to sand transport. Both projects would be designed to allow for water to pass through the site to avoid reducing water sheet flow to the extent feasible.

Recent studies performed by Miles Kenney at Kenney GeoScience (BLM, 2019a and 2019b) reviewed the sand corridor throughout the Chuckwalla Valley and conclude that the sand transport system relies on local sand systems, rather than systems that cross the entire Chuckwalla Valley (see Background and Regional Context). The Arica and Victory Pass Project sites are located within the Palen Sand Dunes system in the Chuckwalla Valley, a region of active eolian sand migration and deposition. Within this system, active eolian sand migration occurs in migration corridors, such as Palen Lake SMZ immediately north of the Arica site (see Figure 2). The sand migration appears to be driven primarily by winter/Pacific Ocean oriented winds, which generally blow from the north-northwest (BLM, 2018).

The sand corridor stretches down the Chuckwalla Valley to Blythe but the amount (if any) of Palen-Ford dune field sand, part of the Palen Lake SMZ, that reaches the Colorado River is unknown. At a macroscale, the site is part of the Clark's Pass sand ramp running from northwest to southeast from the Dale Lake playa in the southern Mojave Desert north of Joshua Tree National Park (San Bernardino County) to sediment sinks in the Palen-Ford dune field in Sonoran Desert of Riverside County. Winds enable the sand ramp to surmount topographic barriers that otherwise separate the Dale Lake Basin and the Palen-Ford Lake Basin. (BLM, 2018)

The Arica Solar Project site has some sand dune vegetation and is located closer to the active sand migration corridor than the Victory Pass Solar Project farther to the south (as shown in Figure 2). The Victory Pass site is crossed by active washes. Figures 3 and 4 show eolian geomorphic, dune, and sand sources in southeastern California and in the Projects area, respectively. The activity and location of sand transport corridors are not fixed in time or space. Some instability over time and space may be present since sand corridors can expand, contract or migrate with changing weather and climate. Additional sand is added to corridors from local wind corridors that can be thought of as “sand corridor tributaries” and by fluvial sources (BLM, 2018). A description of the soils and current eolian geomorphology at each site is described below.

Arica Solar Project

The sand migration corridor where the Project is sited can be divided into discrete zones (Zones A through C) that characterize differing rates of sand transport. Zone A has the greatest rate of sand transport and Zone C the lowest sand migration rate[1]. This mapping was completed for projects further east in the sand transport corridors but includes the Arica and Victory Pass vicinity (BLM, 2019a and BLM, 2019b). Arica is not located within zones with moderate to strong and strong migration rate (Zones A and AB). As shown in Figure 4, the northern and eastern boundaries of the site include an estimated 50 acres of areas of Zones B and BW (weak migration rate) and an estimated 40 acres of mapped eolian deposits outside the sand migration zones. It also has an estimated 100 acres of Zone BC (low to moderate sand migration), an estimated 365 acres of Zone C (fluvially dominated) eolian geomorphic zones, and approximately 220 acres of active washes that provide stabilizing moisture.

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[1] Eolian Geomorphic Zones – Relative Sand Migration Rates (BLM, 2019a and 2019b):

Zone A - Strong sand migration rate as characterized by active dunes with extensive areas (>90%) of active sand sheets, robust coppice and mounds, and across active dunes that exhibit relief over 10 to 15 feet. Avalanche faces occur exhibiting multiple-complex prevailing wind directions throughout the year (star dunes) that assist in compiling the sand in this region.

Zone AB - Moderate to strong sand migration rate as characterized by mostly active dune sands exposed on the surface (>75% of surface) involving sand sheets, coppice, low to moderate interconnected relief mounds, linear dunes with avalanche faces greater than 5 to 8 feet tall often adjacent to some “prominent” washes. Dunes are primarily stable and linear dunes likely migrate very slowly over time but are commonly eroded by washes on their immediate downslope margin.

Zone B - Moderate sand migration rate and area dominated by older stable dune deposits with active eolian sands covering generally an area greater than 50%, but less than 75%. Active dune deposits are typically thin sand sheets, coppice, and low relief interconnected mounds. In Zone B, avalanche faces are rare, of low relief (i.e. < 3 feet), and seasonal.

Zone BW - Moderate to weak sand migration rate in a region dominated by stable, and typically eroding older dune deposits and active eolian sands. However, the active surficial eolian sands exhibit approximately less than 50% of the surface and eolian deposits (young and old) dominate. Zone BW areas were more active prior to the latest Holocene.

Zone BC - Low to moderate sand migration rate identified by minor active sand sheet and coppice dunes and quite often older stabilized degraded low-profile dune mounds. Geomorphically the area exhibits a mix of eolian and fluvial and/or playa surfaces. Most Zone BC areas were more active in the past.

Zone C - Low sand migration rate identified by minor very thin and sparce sand sheets and coppice dunes. Area geomorphically dominated by either fluvial (alluvial), or playa lake deposits.

Mapping of the Arica Project site using the Lancaster Aeolian System Map of the East Riverside Area (see Figure 5) shows some active surficial deposits of dune sands (Qe) where the sand is predominantly fine- to medium- grained, along the northern boundary of Arica, roughly corresponding with Zones B and BW, and Zone BC. The majority of the project is identified as alluvium fan deposits (Qyf) with some alluvial wash deposits (Qw) that serve as sources of windblown (eolian) sediment (CGS, 2014). The Kenney Reports (2019a and 2019b) offer a critique of the Lancaster Aeolian System Map because they "inconsistently mapped regions of scattered eolian deposits across the surface of ponding areas and dry lake beds that leads the reader to believe that the dune systems are more extensive, more connected, and active than is the case."

The Kenney analysis corresponds with the biological surveys. Live Mohave fringe-toed lizards were observed during surveys on the Arica Project by Ironwood Consulting in October 2019 (Ironwood, 2019a). These observations were consistent with the distribution model for the species and also coincided with areas where active aeolian sand was observed in the northernmost portions of the proposed site and along washes.

Victory Pass Solar Project

Active eolian sand was not observed within the Victory Pass site by biological resources survey crews in October 2019 (Ironwood, 2019b), which is consistent with analyses conducted by Kenney GeoSciences shown in Figure 4 (BLM, 2019a). While the Victory Pass Project is not mapped within an eolian geomorphic zone, an estimated 170 acres of eolian sand source (desert wash) crosses the eastern part of the site (see Figure 4). As noted, active washes in this area that are important for eolian systems as a sand source, sand transport, and stabilizing moisture. The washes in the western portion of the site are farther from the SMZ and have not been mapped as an eolian sand source.

Mapping of the Victory Pass Project site using the Aeolian System Map of the East Riverside Area (see Figure 6) shows most of the site consists of soils that can be a source for eolian sand (Qyf and Qw). As noted above, Kenney disagrees with the Lancaster mapping and the Victory Pass site does not contain the fine sand that makes suitable habitat for MFTL or sensitive plants that prefer dunes. Based on past studies in the area, a majority of the site has a low sand migration rate (BLM, 2019a). Areas along the southwestern and western site boundary contain alluvial deposits of Pleistocene age (undifferentiated; Qoa). This map unit (Qoa) is comprised of alluvial fan, alluvial valley, and alluvial terrace deposits. In general, these deposits are capped by a gravel lag or desert pavement with moderately to strongly developed desert varnish.

This is consistent with the biological survey findings as no live individuals of Mohave fringe-toed lizard were observed on the Victory Pass site by Ironwood Consulting during surveys in October 2019 (Ironwood, 2019b) and it is located outside the distribution model for MFTL and no active aeolian sand was observed that would be suitable habitat for the species.

Potential Impacts and Recommendations

Most sand transport occurs close to the ground through the processes of rolling and saltation (bouncing of sand particles). Therefore, if the solar project boundary or infrastructure blocks this action, areas within the solar project boundary could potentially lose, or re-direct, their active sand dunes (dunes that have an active layer of mobile sand). The project construction and operation could result in the onsite loss of active dunes if not avoided and/or mitigated through site design and maintenance.

The primary off-site impact could be the disruption of sand being transported to the sand transport corridor. Potential indirect impacts of a solar facility could be sand shadows that extend beyond a project boundary. Sand shadows are defined as areas where the upwind supply of sand is cut off by fences and other infrastructure, and therefore, existing sand can be eroded downwind without replacement from upwind sources, resulting in the loss of the fine sand upon which dune habitats are dependent.

In addition, the sand transport corridor contains soils that have high percentages of fine sands and silt and that are low in density, and thus, are generally the most erodible. Erosion around project structures coupled with the onsite loss of active sand replenishment could affect the stability of project components. To mitigate this potential geologic hazard, Clearway would assess soil characteristics to aid in appropriate foundation design, and project structures would be built in accordance with the design-basis recommendations in the project-specific geotechnical investigation report. Structure designs for the projects must also meet the requirements of all applicable permits and building codes.

Arica Solar Project

As discussed above, the Arica Solar Project site contains small active eolian deposits along the boundaries of the migration corridors in the north, northeastern, and eastern boundaries of the site. The active areas of eolian sand contain finer sand that is suitable habitat for sensitive wildlife (such as MFTL) and plant species (such as Harwood's milkvetch).

Fencing along the project boundary where there are active eolian deposits could cause blockage of sand movement within the migration corridor. This potential impact has been reduced through the design of the solar facility, which follows the north-west to south-east trend of the mapped SMZ. Very little of the project is within eolian deposits, the majority of the sand source within the project is fluvially dominated (Zone BC, Zone C, and the washes). Design of the solar facility to avoid development in some of the washes and to allow sheet flow to continue transporting water and sand sources, would reduce effects such that the project would not significantly affect sand sources in the project area.

Victory Pass Solar Project

The Victory Pass Solar Project is located south of the active Palen Lake SMZ, and therefore, would not impact active dunes. However, the stemming of water and associated sediment that crosses the site by the project, especially in the eastern project area, may contribute to the reduction/loss of a sand source. This potential impact could be reduced with design of the solar facility to avoid development in some of the washes in the eastern portion of the site where there is a mapped eolian sand source and to continue to allow sheet flow through the project to reduce effects such that the project would not significantly affect sand sources in the project area.

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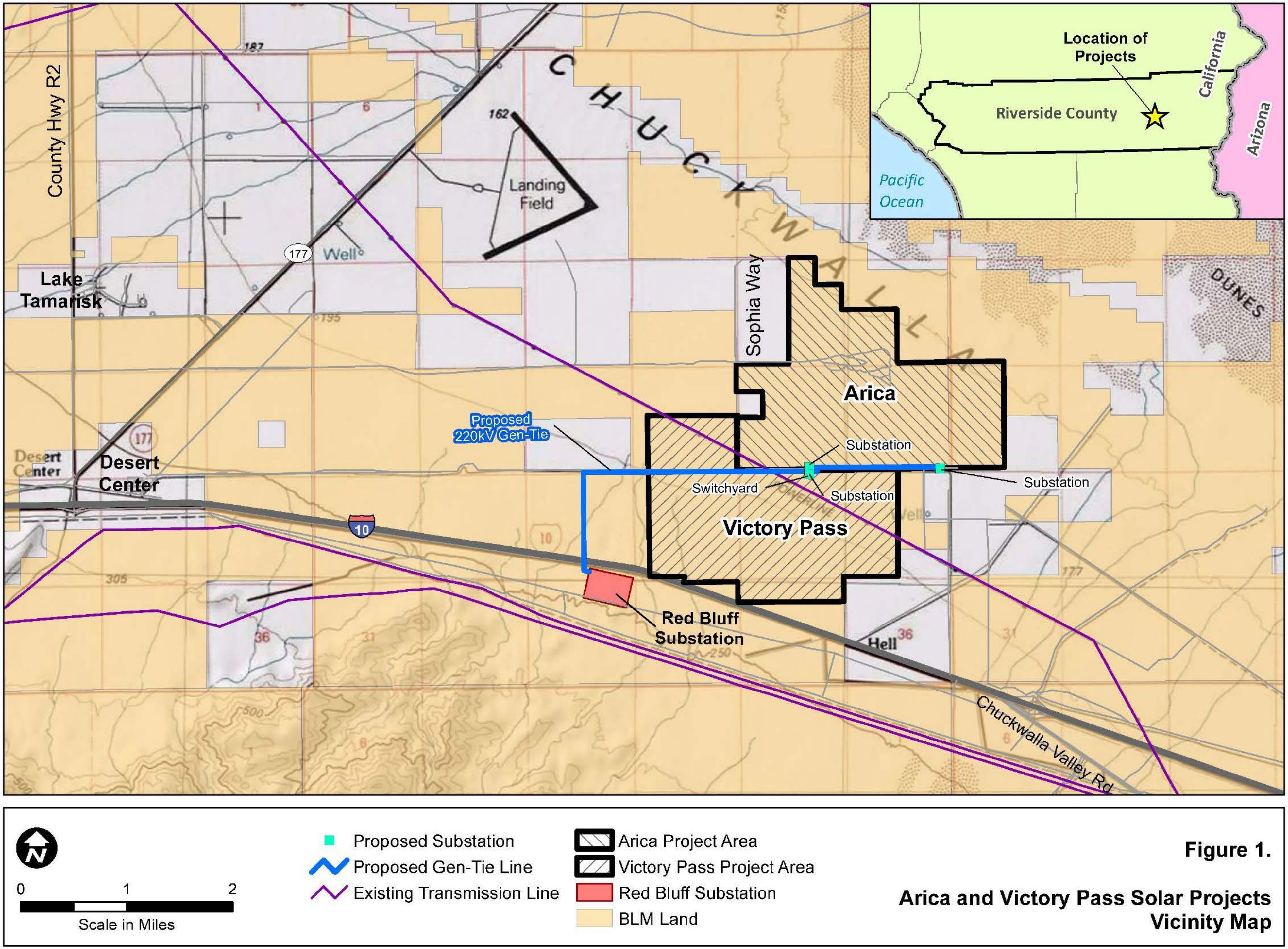
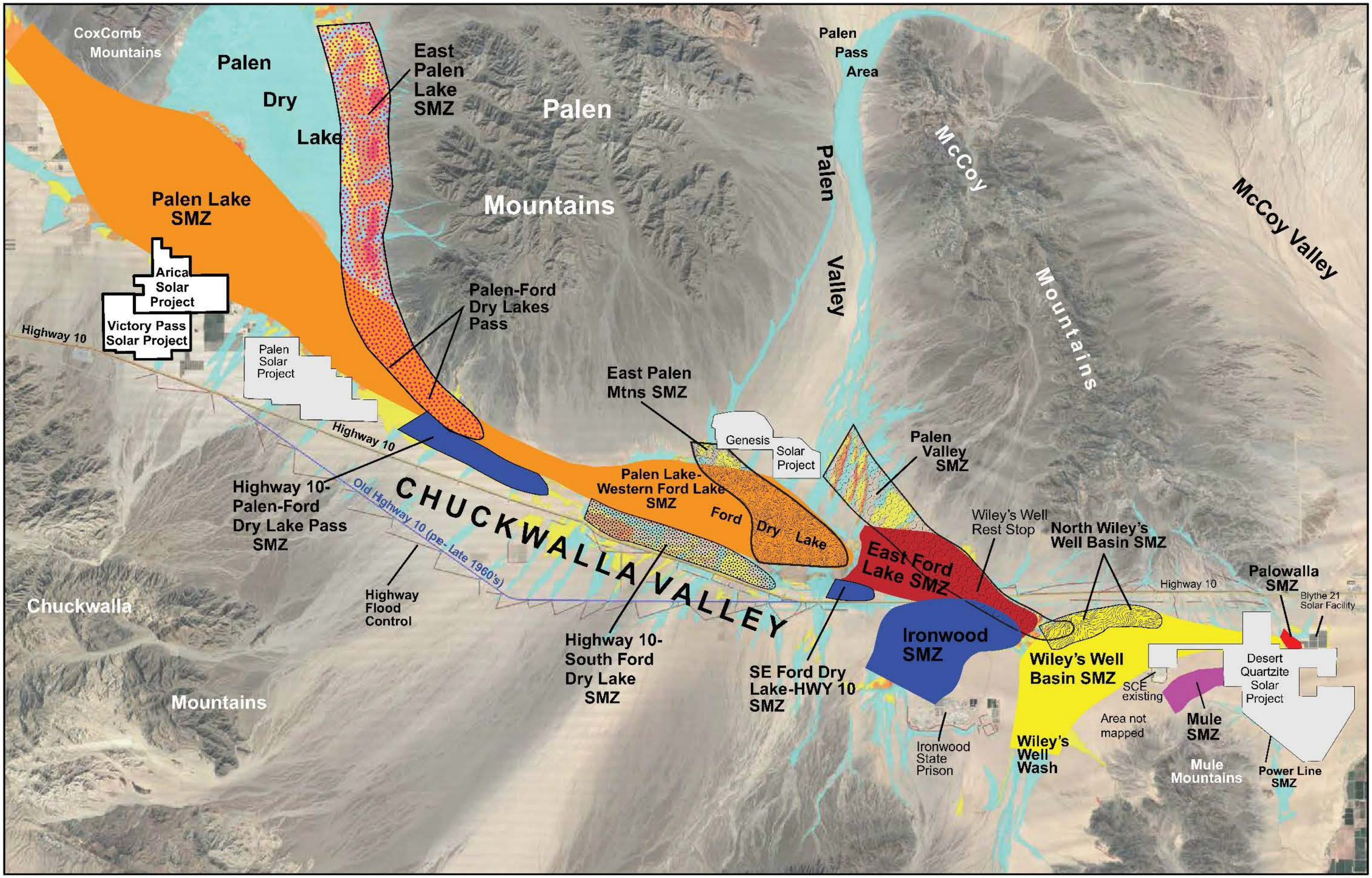


Figure 1.

Arica and Victory Pass Solar Projects Vicinity Map

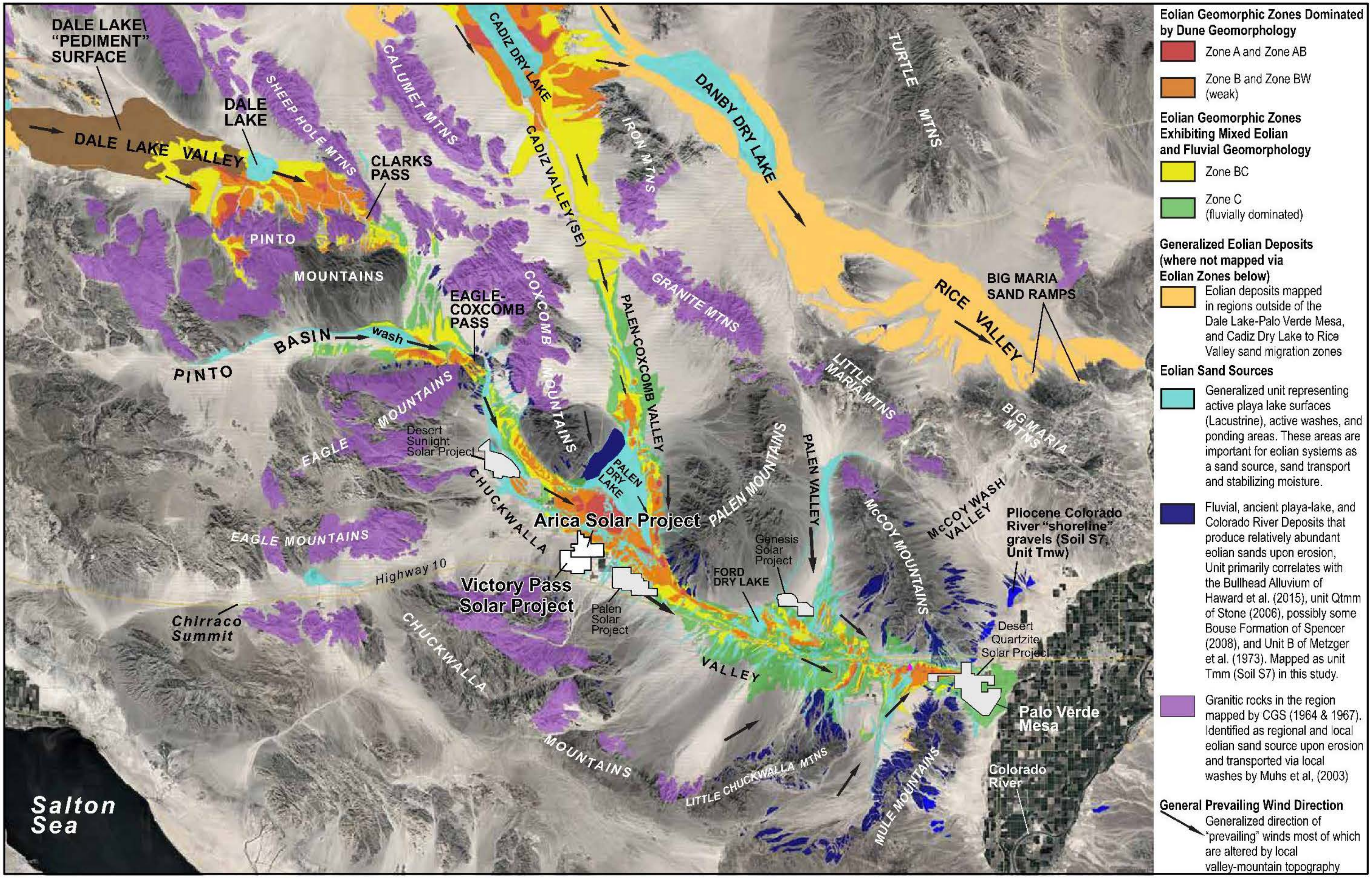


Source: Kenney GeoScience, 2017 from BLM, 2018a

0 2 4 8
Scale in Miles

Figure 2

Local Geomorphic Eolian Sand Migration Zones along the Chuckwalla Valley Eolian System



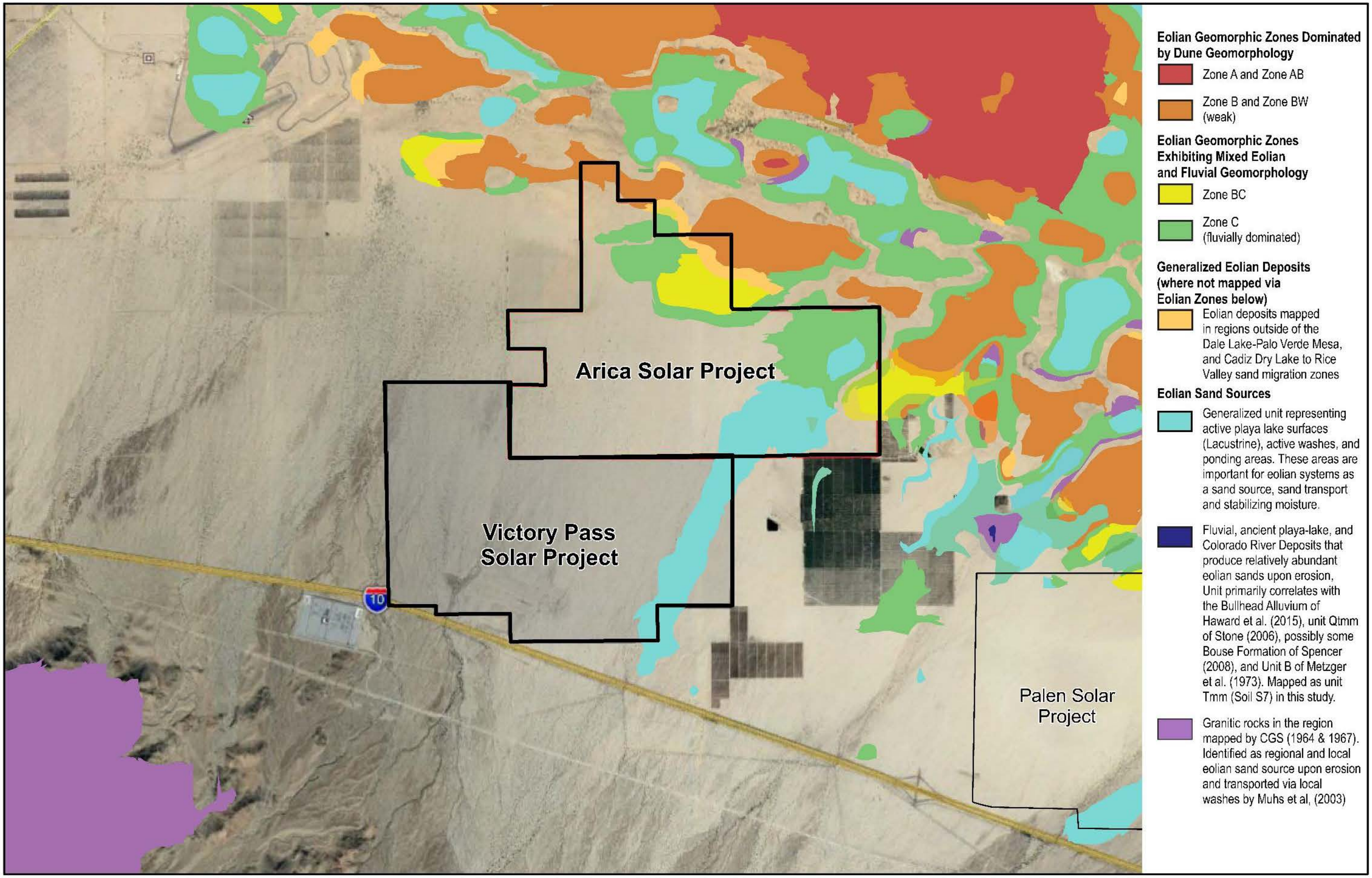
Source: Kenney GeoScience, 2017 from BLM, 2018a.

0 2.5 5 10

Scale in Miles

Figure 3

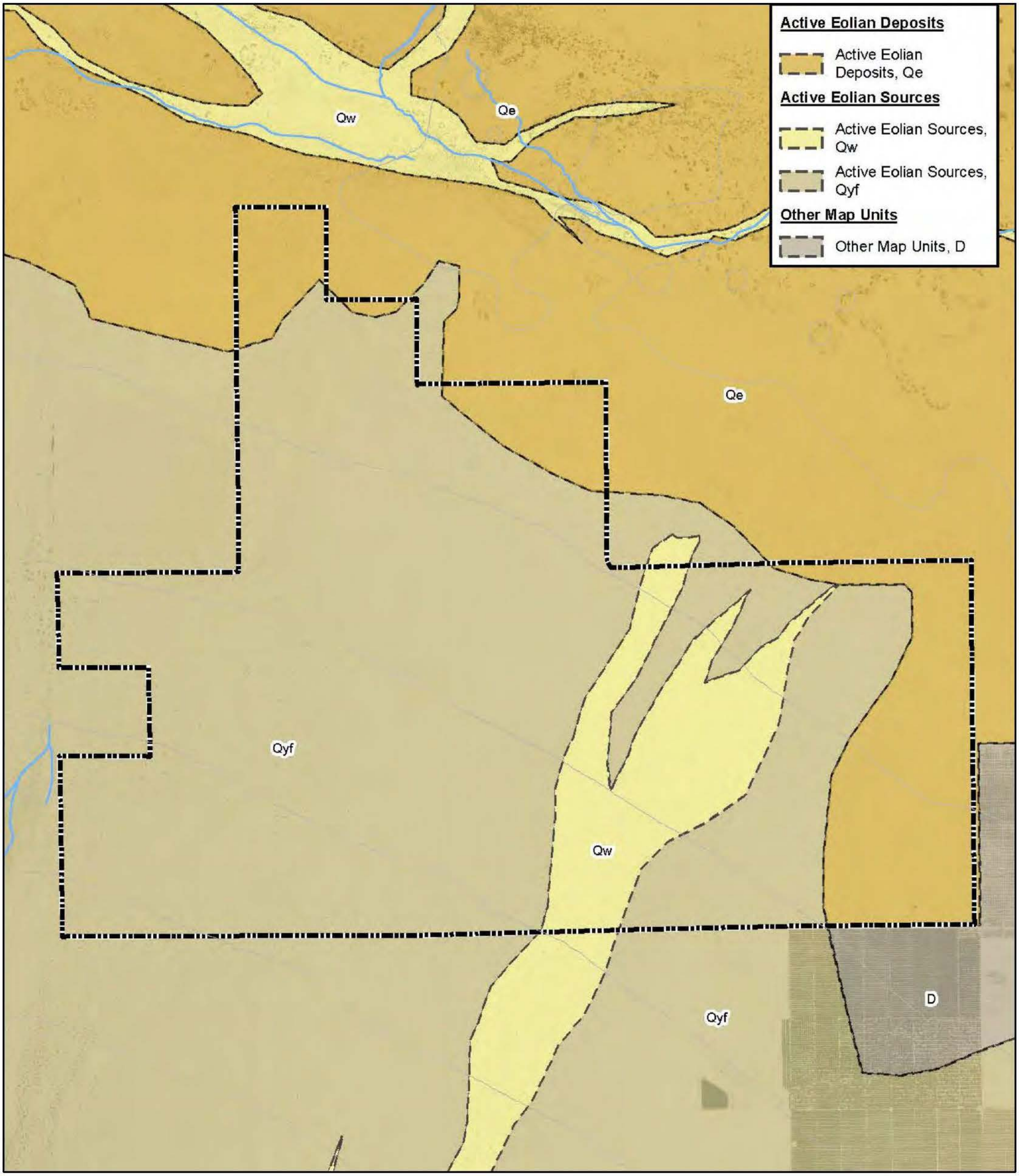
Eolian Geomorphic, Dune and Sand Source Map in Southeastern California



Source: Kenney GeoScience, 2017 from BLM, 2018a.

Figure 4

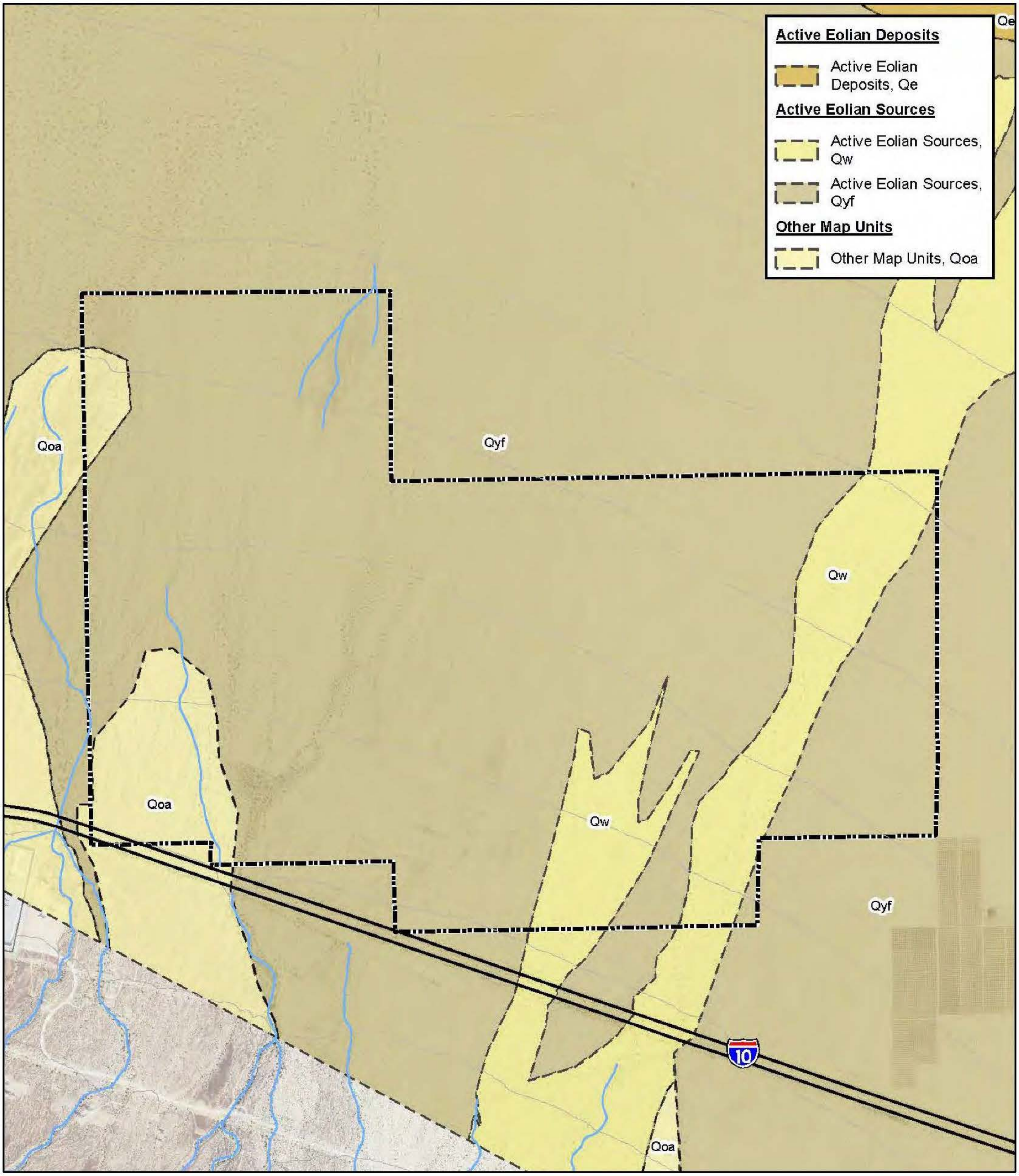
Eolian Geomorphic, Dune and Sand Source Map Around Project Sites



Source: Arica Fall 2019 Memo Report.

Figure 5

Aeolian Sand Transport
Arica Solar Project



Source: Victory Pass Fall 2019 Memo Report.

Figure 6

Aeolian Sand Transport
Victory Pass Solar Project