Supporting Data

Supporting Data

INTRODUCTION

Two types of information that serve to support and describe the foundations for the compatibility policies and criteria in Chapters 2 and 3 are included in this Supporting Data section. First is a summarization of background data regarding Cable Airport and the land uses around it. Second is a discussion of the compatibility factors—noise, overflight, safety, and airspace protection—that are the concern of this *Compatibility Plan*. This discussion highlights the airport impacts, identifies land use compatibility concerns in the surrounding area, and outlines the strategies available for addressing those concerns.

BACKGROUND DATA

Cable Airport

Built by Dewey Cable in 1945 following the end of World War II, Cable Airport has been under the private ownership of the Cable family throughout its history. It is one of only a few privately owned, public-use airports in Southern California and is said to be the busiest airport of this type in the U.S. The airport is home to approximately 350 aircraft, most of them small, single-engine airplanes. An estimated 60,000 takeoffs and landings took place annually as of the 2008 base year of this *Compatibility Plan*.

As initially constructed on the rocky floodplain of San Antonio Wash, Cable Airport consisted of two runways, one oriented east-northeast/west-southwest and the second almost north/south. Numbered 6-24, the east-northeast/west-southwest runway has been incrementally extended from its original 2,000-foot length to the present 3,864 feet. Meanwhile, the secondary runway was closed in 1973. The original 80-acre property eventually expanded to 140 acres, but some areas have since been converted to nonaviation uses, leaving the airport at approximately 105 acres.

In April 2011, Cable Airport management completed a *Cable Airport Master Plan* with financial assistance from a Federal Aviation Administration grant. As of mid 2013, the plan remains in "Draft Final" format subject to acceptance by the City of Upland in conjunction with an update to the airport's Conditional Use Permit. It indicates that the airport should focus on continuing to provide general aviation services for the surrounding communities. No changes in the role of the airport or its basic capabilities are planned. However, one change that would have some implications on off-airport land use compatibility is a proposal to shift the runway 50 feet northward and approximately 164 feet westward, with the length remaining the same. This future runway shift will allow for full compliance with FAA Runway Safety Area standards. The limited land area precludes further extension of the runway. Also indicated in the *Airport Master Plan* is construction of additional aircraft hangars. Potentially, as many as about 470 aircraft can be accommodated versus the present capacity of 380. A corresponding increase in aircraft operations can be anticipated.

A summary of information regarding Cable Airport and its aircraft activity is presented in Exhibits 1 through 4. **Exhibits 1** and **2** describe the airport features and illustrate the airport layout, respectively. Airport activity data, both current and projected, is tabulated in **Exhibit 3**. **Exhibit 4** is a radar image of aircraft flight tracks for a week-long period in November 2008. All flights during this period were landing from the east and taking off toward the west. This is the predominant (96% of the time) direction of operations, but aircraft also overfly areas to the north when wind conditions dictate an eastward flow of air traffic.

Airport Environs

In 1945, the Cable Airport site was in an unincorporated area midway between the towns of Upland and Claremont, each nearly two miles distant. Initially, the airport was known as Cable-Claremont Airport because of its proximity to that town. Even through 1966 when the property was annexed to the City of Upland, surrounding land uses consisted mostly of scrub land, gravel quarries, and orchards.

Today, the gravel quarries remain, but almost everything else is has been developed with houses, offices, and light industrial uses. The Claremont Colleges, which existed at the airport's inception but have grown since then, are situated less than a mile to the southwest. When departing to the west, most aircraft turn southward along the wash so as to avoid overflying the colleges. To the east, though, overflight of residential areas near the runway end cannot be avoided.

Exhibit 5 provides a summary description of the land uses around the airport. The map in **Exhibit 6** shows existing land use development as of 2008. Planned land uses as represented in the 1996 *Upland General Plan* are mapped in **Exhibit 7**.

LAND USE COMPATIBILITY FACTORS

California state law requires airport land use compatibility planning for all public-use and military airports in the state. Normally, this planning is done by the airport land use commission (ALUC) established in most counties in the state. Once the ALUC adopts an airport land use compatibility plan (ALUCP), the affected land use jurisdictions are required to modify their general plans and applicable specific plans to be consistent with the ALUC's plan or to take certain steps spelled out in the law to overrule the ALUC action.

San Bernardino County operates without an ALUC. Instead, it utilizes what is referred to as the "alternative process" provided for by the statutes. In San Bernardino County, compatibility planning is done by the county or an incorporated city having jurisdiction over lands around a particular airport. For Cable Airport, the City of Upland has taken on the compatibility planning responsibility as it is the jurisdiction in the county most impacted by the airport (see documentation in **Appendix F**). The City of Montclair is also affected, but only to a minor extent.

The only other city within the airport's influence area is the City of Claremont in Los Angeles County. Los Angeles County, though, has a countywide ALUC—the Regional Planning Commission functions in this capacity—which is responsible for compatibility planning around all airports in the county, as well as for the portion of an airport influence area that extends into the county from an adjacent county such as San Bernardino. The Los Angeles County ALUC thus has the responsibility for defining the limits of the portion of the Cable Airport influence area that affects the City of Claremont and for compatibility planning within that area.

In 2008, the City of Upland began the process of updating its general plan. The current *Upland General Plan* was adopted in 1982, although selected elements have been amended since then. Preparation of this *Cable Airport Land Use Compatibility Plan* is being done concurrently with the general plan update so that compatibility concerns can be appropriately considered in the broader planning process.

The emphasis in this section of the *Compatibility Plan* is on describing the impacts generated by airport activity, identifying potential compatibility concerns, and outlining strategies for addressing those concerns. Four types of impacts are discussed with respect to each of those topics: noise, overflight, safety, and airspace protection.

Airport Impacts

This section describes the noise, overflight, safety, and airspace protection impacts of Cable Airport and provides maps showing the geographic extent of each of these concerns.

Noise

In simplest terms, noise can be defined as unwanted sound. As such, noise is perhaps the most basic airport land use compatibility concern. Certainly, it is the most noticeable form of airport impact, especially when aircraft noise is disruptive to human activities.

Noise can be measured in many different ways. For compatibility planning purposes—particularly for setting compatibility policies to guide land use development—noise is usually measured in terms of cumulative noise level metrics. In California, the metric used is the Community Noise Equivalent Level (CNEL). For airports, CNEL describes the average aircraft-related sound level in decibels (dB) to which any point near an airport is exposed over the course of an average day of the year. CNEL values are typically depicted on a map as contours lines representing points of equal noise exposure.

An important fact to understand with regard to CNEL values is that, while the maximum noise levels produced by individual aircraft are major components of the calculated values, CNEL does not explicitly measure peak values. A CNEL of 65 dB does not mean that peak noise levels well above that value will not be experienced. Indeed, at CNEL 65 dB, individual aircraft noise events loud enough to be disruptive will be common.

For Cable Airport, new CNEL contours were calculated as part of the present study. **Exhibits 8** and **9** show the noise impacts of the current operational conditions and for long-term future activity levels, respectively. Calculation of the contours was based upon the activity data summarized in **Exhibit 3**. State law dictates that compatibility plans have a time horizon of at least 20 years in the future. The projected future noise contours for Cable Airport, as reflected in the 2011 *Airport Master Plan* therefore are used for the purposes of compatibility planning around the airport.

In looking at the noise contours, their inherent imprecision should be recognized. Many variables are inputs to the calculations and, especially for a non-towered general aviation airport like Cable Airport, most of the variables must be estimated or average values applied. Under these circumstances, ±3 dB is considered to be the level of precision that can be attained. The precision is best close to the runway ends, but drops farther away as the flight tracks of aircraft diverge and the number of flights along each route becomes less certain. An even greater degree of imprecision arises when looking far to the future as is essential for ALUCPs. Activity level forecasts are inherently uncertain.

Overflight

Experience at many airports has shown that noise-related concerns do not stop at the boundary of the mapped CNEL contours. As noted in the preceding discussion of noise impacts, individual noise events can be disruptive even where the cumulative noise levels are relatively low. Additionally, many people are sensitive to the frequent presence of aircraft overhead even when the events are not loud enough to be highly disruptive. The latter reactions are often described as annoyance.

No methodology exists with which to precisely define the extent of the area of overflight impacts at an airport. For general aviation airports, though, the boundary can usually be drawn by taking into account where aircraft normally fly as they approach and depart the airport or engage in closed-circuit flight training activity. Vertically, the focus is typically on where aircraft are flying roughly at the traffic pattern altitude or lower.

Exhibit 10 depicts the primary overflight area for Cable Airport. This map is derived from the radar-based flight track depiction in **Exhibit 4**. The shaded areas represent where the preponderance (at least 80%) of airplanes fly at altitudes ranging from the runway elevation up to slightly above the traffic pattern altitude as they operate at the airport. The traffic pattern altitude at Cable Airport is 800 feet above the airport elevation. A more typical traffic pattern altitude for general aviation airports is 1,000 feet. The lower altitude is necessary at Cable Airport because of conflicts with the controlled airspace at nearby Ontario International Airport. The result, though, is that when the north-side traffic pattern is in use because of winds from the east, aircraft entering the traffic pattern are flying as little as 650 feet above the ground over the rising terrain.

In addition to the airplane traffic, helicopters also operate at Cable Airport. They follow their own routes as they approach and depart and usually fly at about 500 feet above the ground except when taking off and landing. The primary helicopter routes are marked on **Exhibit 4**.

The overflight areas in **Exhibit 10** do not encompass where every airplane or helicopter flies when using the airport. Almost any location within 2 to 3 miles of the airport is potentially subject to occasional overflights at relatively low altitudes.

Finally, this assessment of aircraft overflights in the Cable Airport area would not be complete without recognizing that many aircraft not associated with the airport fly through the area. A corridor along the base of the San Gabriel Mountains is particularly popular with small aircraft as it enables them to bypass the Ontario International Airport controlled airspace. Furthermore, helicopters regularly use a low-altitude corridor along Interstate 10 on the south edge of Upland. Lastly, large aircraft departing from Ontario International Airport sometimes fly over Upland. Although at much higher altitudes than small aircraft, these planes can still be audible on the ground.

Safety

For most airports, safety is the most difficult compatibility impact to measure. The concern is primarily over the potential for damage to property and injury to people on the ground in the event of an aircraft accident, but also involves land use characteristics that can affect the chances of survival of the aircraft occupants. Clearly, locations in the vicinity of an airport are exposed to a greater risk of being the site of an aircraft accident than is the case for more distant places. The difficulty lies in measuring the magnitude of the risk and then in determining an appropriate response. Further compounding the difficulty is that perception plays as much of a role as measurement in determining the response to the risk.

From a land use compatibility planning perspective, the most important piece of information regarding aircraft accidents near airports is their spatial distribution. Where do accidents take place relative to the

runway used or intended to be used? For this type of analysis to be meaningful, a large data set is essential. However, because aircraft accidents are infrequent occurrences, the number of events at any given airport is too small to be statistically meaningful. Data gathered from many airports is needed. No attempt has been made as part of the present study to compile accident location data specifically for Cable Airport.

For general aviation airports, the broadest database of aircraft accident location information is contained in the 2011 edition of the *California Airport Land Use Planning Handbook* published by the California Division of Aeronautics. The *Handbook* database contains data on nearly 900 general aviation aircraft accidents at airports nationwide. The *Handbook* utilizes this data to define several sets of safety zones representing varying concentrations of accidents near runway ends. The zones also reflect the nature of the way aircraft typically fly—their flight path and altitude—as they approach and depart an airport.

For any given airport, the generic zones must be adjusted to take into account such factors as the runway length, types of approach procedures, actual flight paths, and volume and mix of aircraft activity. **Exhibit 11** shows the generic safety zones applicable to Cable Airport and the adjustments that should be made.

Airspace Protection

The airspace protection factor in airport land use compatibility planning is concerned with hazards to flight—that is, land use features that can cause or contribute to causing an aircraft accident. Most critical among such hazards are tall objects that penetrate the navigable airspace around an airport. However, other physical, visual, and electronic land use features can also create airspace hazards.

The navigable airspace around an airport is delineated in accordance with standards set forth in Federal Aviation Regulations (FAR) Part 77. The regulations define a set of imaginary surfaces in the air around an airport. Any object—including structures, trees, movable objects, and even the ground itself—that penetrates one of the airspace surfaces is considered to be an obstruction. California state law precludes creation of any airspace obstruction unless a permit is issued by the state or a review by the Federal Aviation Administration determines that the object would not be a hazard.

Map 3B Chapter 3 depicts the existing airspace protection surfaces for Cable Airport. Additionally, because the *Airport Master Plan* proposes a shift in the runway location, airspace protection must be provided for that configuration as well. **Map 3C** shows the airspace protection surfaces for the future runway. As indicated in Criterion 3.1.3 in Chapter 3, once the new runway is built, protection for the current configuration will no longer be necessary. Alternatively, if plans for the realignment are abandoned, then that configuration no longer needs to be considered in compatibility planning.

Among other physical hazards to flight, bird strikes represent the most widespread concern. The FAA recommends that uses known to attract birds—sanitary landfills and certain types of crops being primary examples—be kept at least 5,000 feet from runway used only by piston-powered aircraft. For runways used by turbine-powered aircraft the distance increases to 10,000 feet. The 5,000-foot distance applies to Cable Airport as it has very few operations by turbine-powered aircraft. [1]

[1] The FAA rules and regulations include, but are not limited to: Public Law 106-181 (Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, known as AIR 21), Section 503; 40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, Section 258.10, Airport Safety; Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*; Advisory Circular 150/5200-34A, *Construction or Establishment of Landfills near Public Airports*; and any subsequent applicable FAA guidance.

Additional, little recognized, physical hazards to aircraft flight are thermal plumes that generated by power plants. Invisible unless the heated air turns to steam, the plumes from large facilities can create unstable air at the altitude that airplanes or helicopters fly when near airports.

Criteria defining land use characteristics that can cause visual or electronic hazards to flight are more qualitative in nature—the FAA has not set any precise standards. In general, visual hazards to flight include sources of dust, steam, smoke, or glare that can impair pilot visibility, as well as distracting lights that can be confused for airport lights. Electronic hazards are ones that can cause interference with aircraft communications or navigation.

Land Use Compatibility Concerns at Cable Airport

The analysis in this section is primarily based upon a review of the previously described impacts relative to the existing and planned land uses around the airport. Insights obtained from the Cable Airport focus groups during the November 2008 *Upland General Plan* community workshop have also been taken into account. While these insights primarily involve existing compatibility conflicts or the lack thereof, they are helpful in identifying where issues could arise with future development.

Exhibit 12 shows areas around the airport where new development may occur. The map was created by overlaying the existing and planned land use maps (**Exhibits 6** and **7**) and graying out locations where no changes of use are indicated. The data reflects conditions in 2008. Exceptions were made for certain nonresidential land uses where the use may not change, but a potential for more intense development is apparent. The resulting map highlights locations of primary interest in preparation of the Cable ALUCP as well as in the broader general plan update process. As can be seen, much of the airport's environs are already fully developed with little potential for major changes.

Exhibit 13 simply points out the locations referred to in the remaining text of this discussion.

Noise

Cable Airport does not have a significant noise problem. This status is apparent both from review of the noise contours and from public comments made during the November 2008 community workshop for the *Upland General Plan* update. Less than a half dozen scattered residences lie within the existing CNEL 60 dB contour, but they are all within locations planned for industrial uses. Even the CNEL 55 dB contour contains relatively few residences—less than 100. All are within the runway approach corridor on the east. The airport receives few noise complaints. At the community workshop, the only negative comments were about helicopter noise. The extent to which Cable Airport noise is an issue in the City of Claremont to the west is not certain. The recommended departure route turns aircraft southward as they depart to the west, thus avoiding overflight of the Claremont Colleges and other noise-sensitive uses in Claremont (numbers 1 and 2 on **Exhibit 13**).

Looking to the future, the airport's noise contours will moderately expand to the extent that activity increases. The aircraft fleet mix is expected to stay largely the same as today, thus the noise of individual events will not get louder. The larger contours encompass only a few additional residences. Again, most of these are in the eastern approach corridor, although some multi-family residences to the south are also affected by the CNEL 55 dB impact area. Development of residential land uses within the airport's primary departure corridor to the southwest would result in noise conflicts. The northern portion of this site lies within the future CNEL 60 dB impact area. The noise level of individual aircraft operations also would sometimes be disruptive.

Overflight

Judging from information supplied by the airport owner and from comments at the community workshop, annoyance at Cable Airport aircraft overflights is limited. Nevertheless, there was consensus among those at the workshop, that some form of real estate transaction disclosure about the airport would be appropriate. Comments were made that people are sometimes unaware of the airport's proximity until after they move to the area. This situation particularly could occur if their initial visit was during a weekday or other period when aircraft activity was low or the north-side traffic pattern was not in use (number 3 on **Exhibit 13**).

The moderate increase in projected aircraft operations over the next 20 years will not appreciably affect overflight concerns. However, more residential development in the area, particularly single-family residential, could lead to increased annoyance and complaints.

Safety

Beyond the runway itself, the most critical parts of an airport's environs with respect to safety are the runway protection zones (RPZs) situated immediately beyond the runway ends. These areas are labeled as Safety Zone 1 on **Exhibit 11**. Cable Airport owns essentially none of either RPZ (number 4 on **Exhibit 13**) and the planned runway alignment shift will only slightly change this status. Fortunately, these areas have nevertheless been kept largely clear of structures. To the east, the City of Upland owns most the RPZ and maintains it as open space. On the west, the nearest property contains the San Antonio Channel and belongs to the adjacent quarry. Across the channel is an industrial park. Two of the buildings are partially in the existing RPZ, but the central strip consists of auto parking and landscaping.

Other areas having moderate risk are Safety Zones 2, 3, and 4. Dwellings should not be in Zone 2 (number 5 on **Exhibit 13**) and multi-family residential should be avoided in Zones 3 and 4. Numerous residences are in these zones on the east, although all are single-family. Non-residential uses should be low intensity in these areas, especially Zone 2. An inventory of existing building sizes and intensities has not been conducted as part of the present study. However, except perhaps within Zone 2, most of the existing uses appear to be within the intensity range typically considered compatible. The only highly risk-sensitive use within Zones 1 through 4 is the northeastern corner of the Claremont Colleges site which is slightly in Zone 4.

With regard to future land uses, so much of the area is already built out, that the potential for major new conflicts is limited. The largest vacant areas are southwest of the airport, including some properties within Safety Zones 2, 3, and 4 (number 6 on **Exhibit 13**). This area is critical as the primary route for departing aircraft. Also important to consider is that redevelopment is a possibility in some locations near the airport and should be done in a manner that recognizes safety concerns.

Airspace Protection

Nearly all of the structures in the vicinity of Cable Airport are low-rise buildings of three stories or less. No significant airspace obstructions are evident. However, none of the three cities having jurisdiction over lands beneath the airspace protection surfaces have adopted airport-related height limit zoning. This omission is a concern and especially so with respect to Upland and Claremont, the cities having jurisdiction over lands within the runway approach zones. Airport-related height limit zoning is important not just to guard against tall buildings, but also to ensure that other structures such as antennas or cell phone towers do not become airspace obstructions. Tree heights should be regulated as well.

Another airspace protection concern that could become a problem in the future is attraction of birds. Any water features that could become part of reuse plans for the quarries once gravel extraction is complete would be potential bird attractants (number 7 on **Exhibit 13**). This concern should be taken into account in future reuse planning for the quarries.

Compatibility Strategies

Airport land use compatibility plans need to address all four of the airport impacts discussed at the beginning of this paper—noise, overflight, safety, and airspace protection. The following discussion describes the basic strategies, reflected in the policies of Chapter 3, that can be employed by the City of Upland—and by the City of Montclair with regard to airspace protection and overflight—to minimize compatibility conflicts. These strategies are preventative in that they focus on avoiding new conflicts, as opposed to being remedial actions that could reduce or eliminate existing problems. Also, the strategies are all land use oriented. Most aviation-related measures are not within the city's authority to enact. The authority for regulation of aircraft in flight rests with the Federal Aviation Administration.

The chief source of the strategies described below is the previously mentioned *California Airport Land Use Planning Handbook*. ALUCs are required by state law to use the *Handbook* as a guide in their compatibility planning work. Even though San Bernardino County does not have an ALUC, preparation of the *Cable Airport Land Use Compatibility Plan* still needs to take into account the *Handbook* guidance and has done so.

Noise

A wide variety of strategies can and have been used to limit noise-related compatibility conflicts between airports and surrounding land uses. Strategies that are land use-oriented and preventative in nature fall into three basic categories:

Prohibit the Use: Where the noise exposure is sufficiently high to prevent activities associated with the land use from taking place in a normal manner, new instances of that use should not be allowed. The threshold level above which the noise exposure should be regarded as unacceptable varies depending upon multiple factors. The type of land use activity affected is the primary consideration, but the background or ambient noise level in a particular location is also a significant determinant of the intrusiveness of the noise upon the activity. The CNEL 65 dB (or the federal equivalent, DNL) standard indicated in various federal and state regulations and policies is set with respect to busy airline airports in noisy urban areas. The *Handbook* suggests that CNEL 60 dB or even 55 dB is a more appropriate as the limit for compatibility of noise-sensitive uses around airports in quieter suburban and rural locations. For Cable Airport, a CNEL 60 dB standard is defined by this *Compatibility Plan* as the maximum acceptable noise level for new residential development, schools, and other similarly noise-sensitive land uses. Setting the standard for airport-related noise lower than for highway noise is reasonable. At the same CNEL, the peak noise levels (Lmax) from aircraft operations are higher than for highway traffic and thus potentially are more disruptive.

Limit the Number of People Exposed: In some instances where the noise level is not highly disruptive to a particular land use, an alternative strategy is to limit the number of people exposed to the noise. This option is primarily relevant with regard to residential land uses because overflight annoyance can also be a factor as discussed previously.

Require Sound Attenuation: A third option is to require that structures be sufficiently insulated from the noise source to reduce the interior noise to an acceptable level. An obvious limitation of this approach

is that it is applicable only for uses that take place indoors. Where some or all of the activities associated with the use occur outside and the noise exposure would prevent or significantly disrupt that activity, then the use should be prohibited. Another consideration is that sound attenuation is most applicable in areas of moderate to high noise exposure (above CNEL 60 dB). Typical new construction provides at least 20 dB of noise level reduction (NLR). State noise standards require that multi-family residences be attenuated so at to limit the interior noise level to no more than CNEL 45 dB. At this exposure, however, individual noise events can still be loud enough to be disruptive, particularly when the events are intermittent as is the case with aircraft noise (as opposed to the more continual, but lower, sound level of road traffic). To reduce the disruptiveness, this *Compatibility Plan* sets an interior, airport-related, noise level standard of CNEL 40 dB for new residential development the Cable Airport environs.

Overflight

Ideally, new land uses should not be developed where activities could be disrupted or people annoyed by aircraft noise. Because of the wide area affected in these ways, however, this strategy is seldom practical. At best, the action that can be taken in this regard is to promote types of land uses that tend to mask or reduce the intrusiveness of aircraft noise and to discourage uses that would be adversely affected by the impacts. One of the functions of this *Compatibility Plan* is to provide information about aircraft overflight impacts so that these impacts can be considered in the on-going update of the *Upland General Plan*.

Land use planning actions, though, do not address the issues of overflight impacts on existing land uses except to the extent that redevelopment is under consideration. For existing land uses, the emphasis needs to be on improving people's awareness of the airport and its impacts so that they can take this information into account when deciding whether to buy property or to live or work nearby. Airports, ALUCs, and local land use jurisdictions have employed a variety of mechanisms by which to help ensure that the necessary information is made known.

Avigation Easement Dedication: As a condition for local approval of new development near the airport, the developer can be required to dedicate an avigation easement to the airport. (Alternatively, because Cable Airport is privately owned, the city of Upland could hold the easement. This is a legal issue which can be decided at a later time—which entity holds the easement is not a central concern in the concepts addressed here.) Avigation easements are the most certain means of ensuring buyer awareness in that they would involve a conveyance of certain property rights from the landowner to the airport or city. In addition to their buyer awareness component, avigation easements serve to provide airspace protection by limiting the heights of objects on the property. In general, avigation easements are best suited to locations where height limits are substantial or where significant constraints on the development or use of the property are necessary for noise or safety reasons. Where buyer awareness is the only objective, a recorded deed notice should be considered instead.

Recorded Overflight Notification: This type of device goes by various names including deed notice and overflight acknowledgement. The key point is that the information about airport proximity is recorded on the property deed, but a conveyance of property rights is not involved. County assessors sometimes have concerns over recording of information that does not involve the property description or property rights, but this is usually less of an issue when the notice is applied as a condition for new development approval rather than to existing development.

Airport Proximity Disclosure: Requirements for disclosure of airport proximity information as part of some residential real estate transactions are set in state law. Disclosure is required for all new subdivisions and common interest developments (such as condominiums). It also applies to transfer of existing residential property where disclosure of other hazards (flood, fire, and earthquake) is obligatory. The

disclosure language is included in the statutes. In counties with an airport land use commission, the ALUC establishes the boundary of the airport influence area within which the disclosure is to be made. Where the ALUC has not defined the airport influence area, the default is two miles from the airport boundary. For Cable Airport, the airport influence area is defined in Chapter 3 of this *Compatibility Plan*. This boundary also should be reflected in the new *Upland General Plan*. Furthermore, because state law does not require airport proximity disclosure during transfer of residential property in many locations—probably including at least part of the Cable Airport environs—disclosure provisions should be enacted as part of the general plan or in a subsequent update of the city zoning ordinance.

Safety

The relatively low numbers of deaths and injuries from aircraft accidents is sometimes cited as indicating that the risks are low. Clearly, though, the more people who occupy the critical areas around airports, the greater the risks are. Aircraft accidents may be rare occurrences, but when they occur, the consequences can be severe.

From a land use compatibility perspective, it is therefore essential to avoid conditions that can lead to catastrophic results. Basically, the question is: what land use planning measures can be taken to reduce the severity of an aircraft accident if one occurs in a particular location near an airport? Although there is a significant overlap, specific strategies must consider both components of the safety compatibility objective: protecting people and property on the ground; and, primarily for general aviation airports, enhancing safety for aircraft occupants.

In setting the safety criteria, consideration also must be given to the two different forms of aircraft accidents: those in which the aircraft is descending, but is flying and under directional control of the pilot (engine failure being the primary cause of such circumstances); and those in which the aircraft is out of control as it falls (such as would result from a stall-spin or mid-air collision). Available data documented in the *Handbook* indicates that a substantial percentage, if not the majority, of general aviation aircraft accidents fall into the former category. Moreover, these data do not include the mishaps in which the pilot made a successful emergency landing—the latter generally are categorized as "incidents" rather than as accidents and do not appear in the National Transportation Safety Board data from which the database in the *Handbook* is drawn.

Intensity and Density Limitations: The most direct method of limiting the potential severity of an aircraft accident is to limit the number of people placed in harm's way. For most land uses, this limit is measured in terms of *usage intensity*—the number of people on the site divided by the site size in acres. For residential development, the common density measure—dwelling units per acre—is used. Intensity and density limits need to take into account both the controlled and uncontrolled types of potential aircraft accidents. To the extent that accidents and incidents are of the controlled variety, then allowing high concentrations of people in a small area would be sensible, as long as intervening areas are little populated. However, concentrated populations present a greater risk for severe consequences in the event of an uncontrolled accident at that location. Limiting the average usage intensity over a site reduces the risks associated with either type of accident. In most types of land use development, though, people are not spread equally throughout the site, but tend to be concentrated in certain areas. To minimize the risks from an uncontrolled accident, policies also should limit the extent to which people can be concentrated and development can be clustered in any small area.

Avoidance of Highly Risk-Sensitive Uses: Certain critical types of land uses—particularly schools, hospitals, and other uses in which the mobility of occupants is effectively limited—should be avoided near the ends of runways regardless of the number of people involved. Critical community infrastructure also should be avoided near airports. These types of facilities include power plants, electrical substations,

public communications facilities and other facilities, the damage or destruction of which could cause significant adverse effects to public health and welfare beyond the immediate vicinity of the facility. Lastly, aboveground storage of large quantities of highly hazardous (flammable, explosive, corrosive, or toxic) materials may pose high risks if involved in an aircraft accident and therefore are generally incompatible close to runway ends.

Open Land Requirements: Creation of requirements for open land near an airport addresses the objective of enhancing safety for the occupants of an aircraft forced to make an emergency landing away from a runway. If sufficiently large and clear of obstacles, open land areas can be valuable for light aircraft emergency landings anywhere near an airport. For large and high-performance aircraft, however, open land has little value for emergency landing purposes and is useful primarily where it is an extension of the clear areas immediately adjoining a runway.

Airspace Protection

More so than with the other three compatibility factors, the strategies for addressing airspace protection concerns are largely dictated by Federal Aviation Administration standards and California state law. Buildings, antennas, other types of structures, and trees should be limited in height, in accordance with FAR Part 77 criteria, so as not to pose potential hazards to flight. Where required by Part 77, project applicant notification to the FAA should be a local permit process requirement.

With respect to other types of hazards to flight, measures based upon FAA guidance should be established to prevent creation of known types of conflicts and to enable mitigation of unanticipated problems. Particular attention should be paid to any proposed use that could create an increased attraction for birds and other wildlife. These uses include landfills and certain recreational or agricultural uses that attract large flocks of birds and may pose bird strike hazards to aircraft in flight. FAA rules and regulations concerning these hazards are found in FAA Order 5200.5A, *Waste Disposal Sites on or Near Airports*, and Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*.

GENERAL INFORMATION

- *Airport Ownership:* Private (Cable Airport, Inc.)
- *Year Opened:* 1945
- *Airport Property*
  - Fee title: 89 acres
  - Avigation easements: None
- *Airport Classification:* General Aviation
- *Airport Elevation:* 1,444 feet MSL

AIRPORT PLANNING DOCUMENTS

- *Airport Master Plan*
  - April 2011 Draft Final Report
- *Airport Layout Plan Drawing*
  - FAA Approval May 2012

RUNWAY/TAXIWAY DESIGN

Runway 6-24

- *Critical Aircraft:* Twin-engine, piston
- *Airport Reference Code:* B-I (small airplanes)
- *Existing*
  - 3,864 ft. long, 75 ft. wide
  - Runway 6: Threshold displaced 106 ft.
  - Runway 24: Threshold displaced 158 ft.
- *Future*
  - Alignment shift 50 ft. north, 164 ft. west
  - Length & width unchanged
  - Runway 6: no displaced threshold
  - Runway 24: 163 ft. displaced threshold
- *Pavement Strength (main landing gear configuration)*
  - 12,500 lbs. (single-wheel)
- *Average Gradient:* 1.3% (rising to east)
- *Runway Lighting*
  - Medium-intensity edge lights (MIRL)
- *Primary Taxiways:* Full-length parallel on north and south
- *Helipad:* Helipads H1 (lighted) and H2 located south of Runway 24 threshold

TRAFFIC PATTERNS AND APPROACH PROCEDURES

- *Airplane Traffic Patterns*
  - Runways 6 & 24: Left traffic
  - Pattern altitude: 800 ft. AGL (2,244 ft. MSL)
- *Instrument Approach and Departure Procedures*
  - Runway 6 GPS/VOR: Straight-in (1 mile visibility)
- *Visual Approach Aids*
  - Runway 6: VASI 4.0°
  - Runway 24: VASI 4.0°
- *Operational Restrictions / Noise Abatement Procedures*
  - Runway 6 & 24: Flights to/from south controlled by Ontario Airport airspace
  - Runway 24: Left turn over wash to avoid colleges

APPROACH PROTECTION

- *Runway Protection Zones (RPZ)*
  - Runway 6: 1,000 ft. long (almost all off airport property)
  - Runway 24: 1,000 ft. long (mostly off airport property)
- *Approach Obstacles*
  - Runway 6: None
  - Runway 24: Road 9 ft. above runway end, 200 ft. from runway

BUILDING AREA

- *Location:* Both sides of runway
- *Aircraft Parking Capacity*
  - Hangar spaces: 380
  - Tiedowns: 25
- *Other Major Facilities*
  - Civil Air Patrol quarters, Ontario Police Department hangar
- *Services*
  - Fuel: 100LL/ jet A (self-serve 24-hours)
  - Other: Avionics, charter flights, flight instruction, maintenance, paint shop, instrument repair, aircraft rental and sales
  - Restaurant

PLANNED FACILITY IMPROVEMENTS

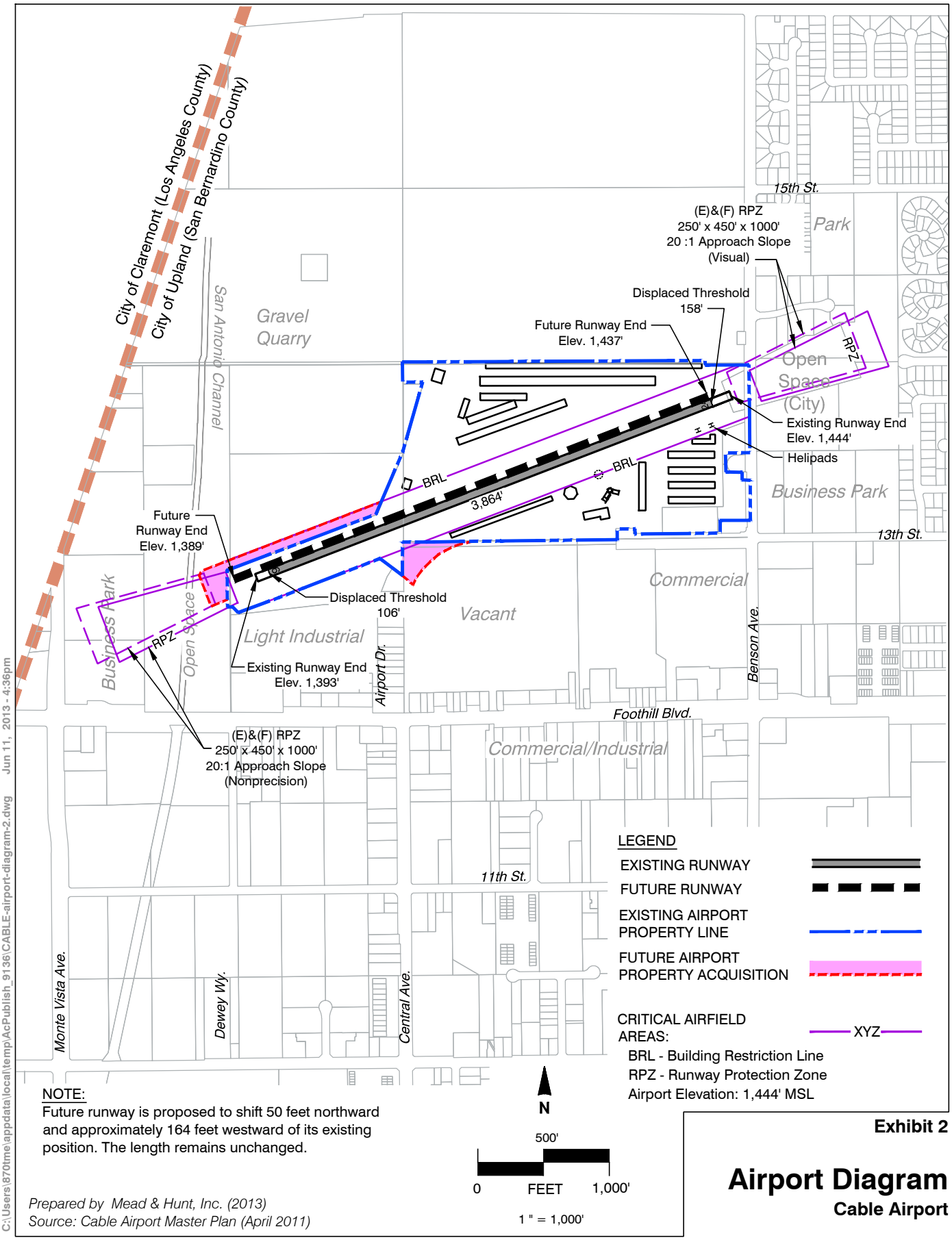
- *Airfield*
  - Runway alignment shift 50 ft. north and 164 ft. west
- *Building Area*
  - Increase aircraft hangar spaces by 100±

Prepared by Mead & Hunt, Inc. (2013)

Exhibit 1

Airport Features Summary

Cable Airport



NOTE:
Future runway is proposed to shift 50 feet northward and approximately 164 feet westward of its existing position. The length remains unchanged.

Prepared by Mead & Hunt, Inc. (2013)
Source: Cable Airport Master Plan (April 2011)

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Exhibit 2

Airport Diagram

Cable Airport

BASED AIRCRAFT

	Current [a] *2009 data*	*Future* [b] *2035*
Aircraft Type		
Single-Engine	330	363
Twin-Engine Piston & Turboprop	21	29
Business Jet	1	2
Helicopter	3	7
Sailplanes/Other	3	3
Total	*358*	*404*

AIRCRAFT OPERATIONS

	Current [a] *2009 data*	*Future* [b] *2033*
Total		
Annual	41,000	103,300
Average Day	112	283
Distribution by Aircraft Type		
Single-Engine	92%	90%
Twin-Engine Piston & Turboprop	6%	7%
Business Jet	<1%	<1%
Helicopter	1%	2%
Sailplanes/Other	1%	<1%
Distribution by Type of Operation		
Local (incl. approx 75% touch-and-goes)	80%	80%
Itinerant	20%	20%

TIME OF DAY DISTRIBUTION

	Current [c]	*Future* [d]
All Aircraft		
Day	90%	85%
Evening	7%	10%
Night	3%	5%
Single Engine		
Day		89%
Evening		10%
Night		1%
Multi Engine & Jet		
Day		89%
Evening		11%
Night		0%
Helicopter		
Day		27%
Evening		4%
Night		69%

RUNWAY USE DISTRIBUTION [d]

	Current	*Future*
All Aircraft – Day/Evening/Night		
Takeoffs & Landings		
Runway 6	15%	15%
Runway 24	85%	85%

FLIGHT TRACK USAGE [c]

Current and Future

- Approaches, Runway 6
  - Primarily left traffic
- Departures, Runway 6
  - Primarily left traffic
- Approaches, Runway 24
  - Most aircraft enter left-traffic pattern from north or south
  - Pattern 800'AGL
- Departures, Runway 24
  - Unless cleared through Ontario Airport airspace to southeast, aircraft make left turn to depart overhead
- Helicopters
  - Approaches from south parallel to Benson Ave.
  - Departures north from helipads and west along runway centerline

Notes

[a] Source: *Cable Airport Master Plan* (April 2011) base year data

[b] Source: *Cable Airport Master Plan* (April 2011) baseline forecast for 2030; for the purposes of this *Compatibility Plan*, the indicated forecast is judged to reflect potential airport activity at least 20 years in the future (2035 or beyond)

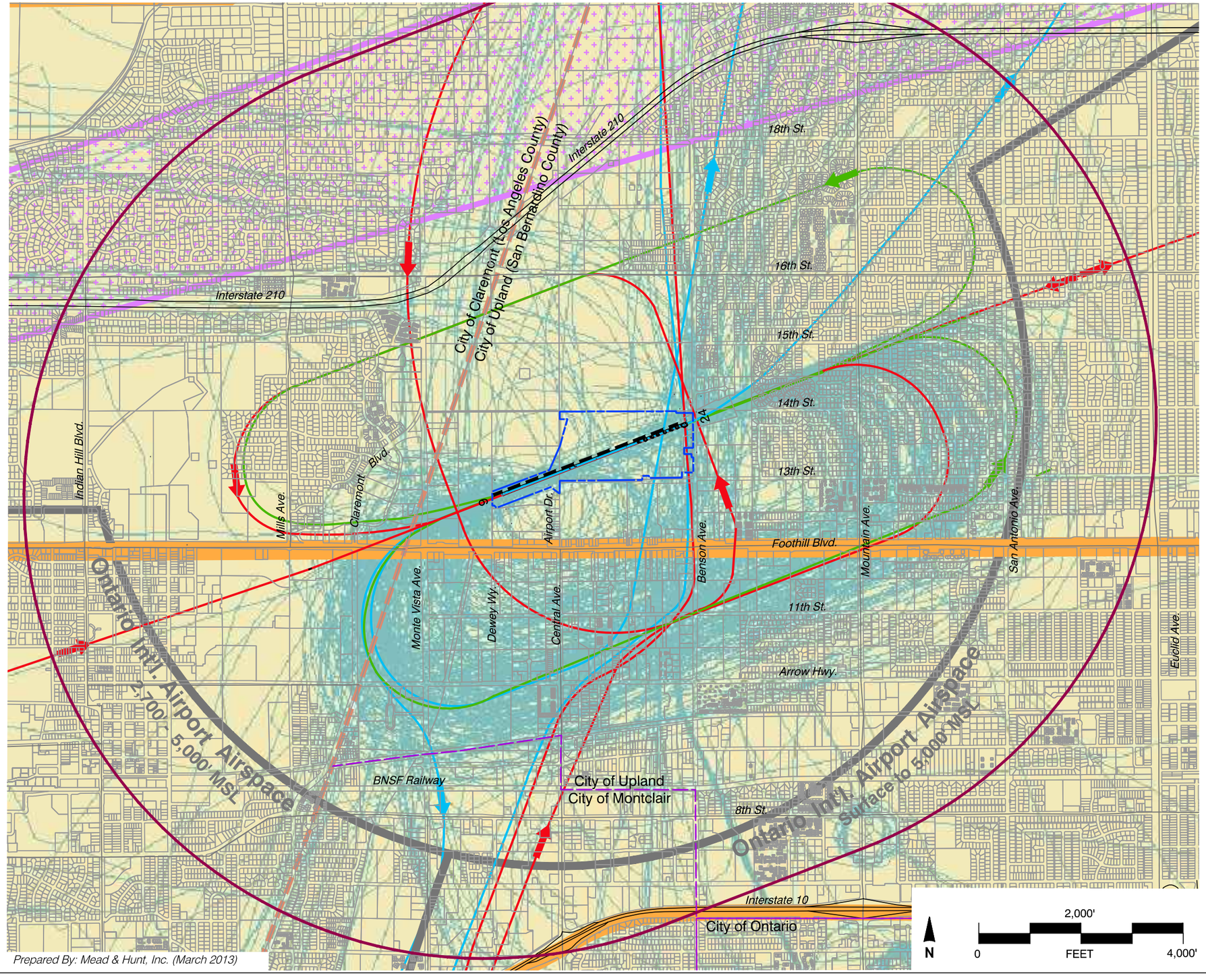
[c] Source: Airport staff (2008)

[d] Source: *Cable Airport Master Plan* (April 2011)

Exhibit 3

Airport Activity Data Summary

Cable Airport



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Legend

Boundary Lines

- Airport Property Line
- Parcel Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Flight Tracks

- Radar Flight Tracks
- Arrival Routes
- Departure Routes
- Touch & Go Pattern
- Fixed Wing VFR Route Corridor
- Helicopter Flight Corridor

Notes

1. Airport elevation is 1,444' MSL.
2. Radar flight track source: Los Angeles World Airports November 2nd - 8th, 2008.
3. Generalized flight tracks source: Mead & Hunt, Inc. (December 2008).

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 4

Aircraft Flight Tracks

Cable Airport

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AIRPORT SITE

- *Location*
  - Southwestern San Bernardino County, adjacent to Los Angeles County boundary
  - Within City of Upland, 2 miles northwest of city center
- *Nearby Terrain*
  - Base of San Gabriel Mountains 3 miles north; highest peaks 10 miles north
  - Airport site in floodplain of San Antonio Wash; San Antonio Channel just beyond west end of runway
  - Site slopes upward to north at 3-4%

AIRPORT ENVIRONS LAND USE JURISDICTIONS

- *City of Upland (San Bernardino County)*
  - Airport and immediate environs fully within city limits
- *City of Claremont (Los Angeles County)*
  - City limits and county line 0.3 miles west of runway
- *City of Montclair (San Bernardino County)*
  - City limits 1.0 mile south of runway

STATUS OF COMMUNITY PLANS

- *City of Upland*
  - General Plan adopted 1982; Land Use element updated 1996
  - General Plan Update pending adoption for September 2015
- *City of Claremont*
  - General Plan adopted 2007
- *City of Montclair*
  - General Plan adopted 1999

EXISTING AIRPORT AREA LAND USES

- *General Character*
  - Predominantly urban except to north
- *Runway Approaches*
  - West (Runway 6): San Antonio Channel; industrial park (0.2 mi.); Claremont Colleges (0.7 mi.)
  - East (Runway 24): Road; open space with light industrial adjacent; single-family residential (0.3 mi.)
- *Traffic Patterns*
  - South: Light industrial and commercial with some vacant parcels; residential, mostly multi-family and mobile home parks (0.3 mi. southeast, 0.7 mi. south)
  - North: Gravel quarries; Interstate 210 (1 mi.); residential to northwest (0.9 mi.) and northeast (0.3 mi.)

PLANNED AIRPORT AREA LAND USES

- *City of Upland—General Plan Update Land Use Element*
  - Designated uses mostly reflect existing development
  - Continuation of open space in runway protection zone on east; light industrial adjacent to RPZ; residential east of RPZ
  - Commercial/industrial infill to south
  - "Public" use shown to southwest
  - Quarry areas to north designated open space
- *City of Claremont—2007 General Plan Land Use Map*
  - Commercial and business park closest to runway end north of Foothill Blvd.
  - Institutional uses south of Foothill Blvd.
  - Multi-family residential to southwest (1.0 mi.)
- *City of Montclair—1999 General Plan Land Use Map*
  - Planned development at north end of city; mostly parking and commercial adjacent to Metrolink line

ESTABLISHED AIRPORT COMPATIBILITY MEASURES

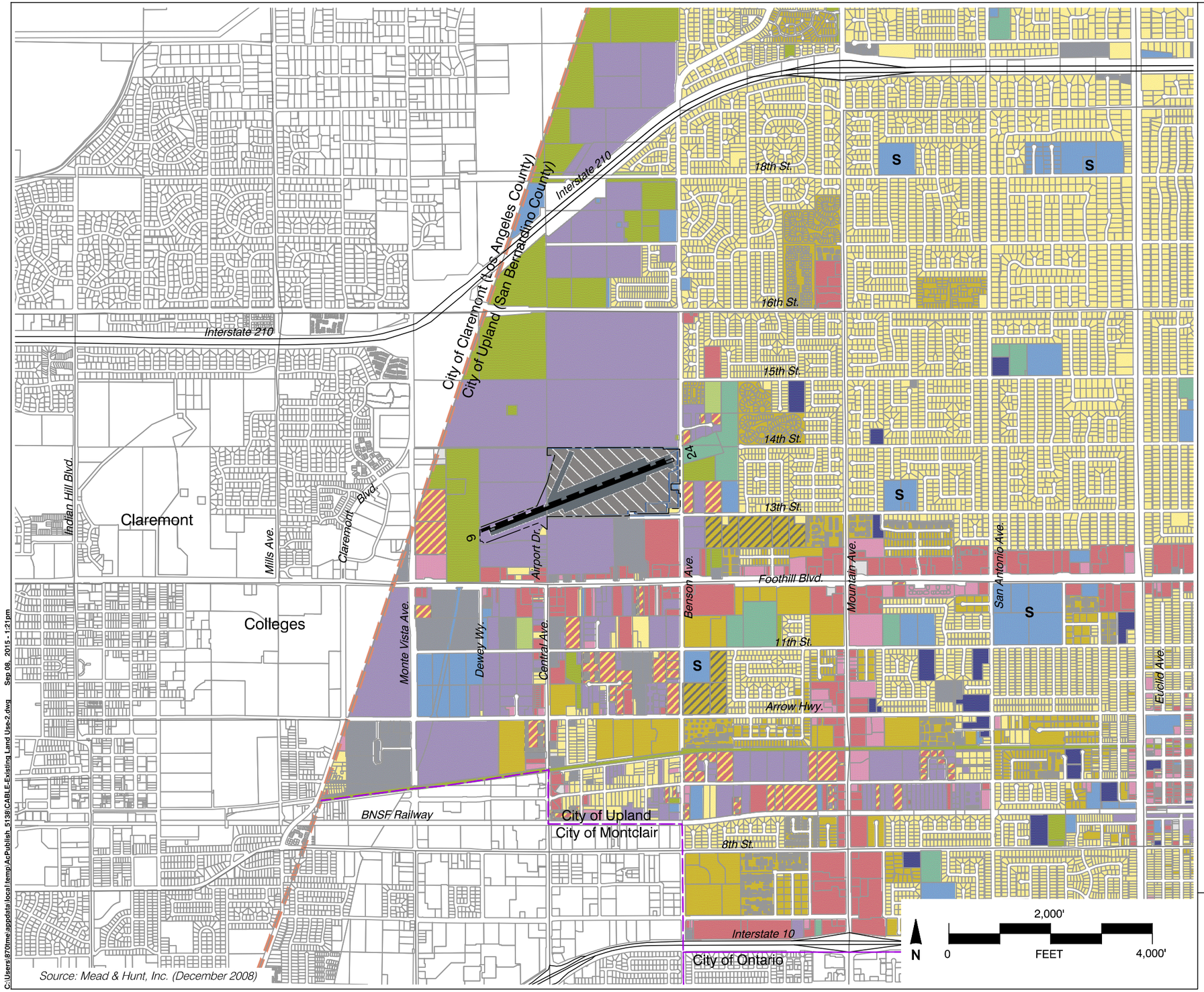
- *City of Upland—1982 General Plan as amended*
  - Limited reference to airport or airport compatibility
  - Noise Element deems residential uses compatible at exposures up CNEL 70 dB
- *City of Upland—Zoning Ordinance*
  - Airport Industrial and Airport Commercial zones established to provide compatible uses on and adjacent to airport
  - No airport-related height limit zoning
- *City of Claremont—2007 General Plan*
  - Public Safety Element policy to lower the risks of aircraft accidents by adhering to airport land use compatibility plans and FAA restrictions
  - Noise Element policy encourages Cable Airport to ensure that airport users "know and obey flight pattern requirements and altitude restrictions"
  - Maximum noise levels for new residential uses: CNEL 65 dB for single-family, 70 dB for multi-family
- *City of Claremont—Zoning Ordinance*
  - No airport-related height limit zoning
- *City of Montclair*
  - No airport compatibility references or height limits

Prepared by Mead & Hunt, Inc. (2015)

Exhibit 5

Airport Environs Information

Cable Airport



Legend

Boundary Lines

- Airport Property Line
- Parcel Line
- City Limits
- County Line

Existing Land Use (as of 2008)

- Residential Single-Family
- Residential Multi-Family
- Residential Mobile Home Park
- Mixed Use
- Commercial
- Office
- Industrial
- Public/Quasi Public
- Special/Institutional
- Airport
- Park
- Other Open Space
- Agriculture
- Parking
- Vacant
- S Children's School

Source: The Planning Center/DC&E (2008).

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 6

Existing Land Use

Cable Airport Environs

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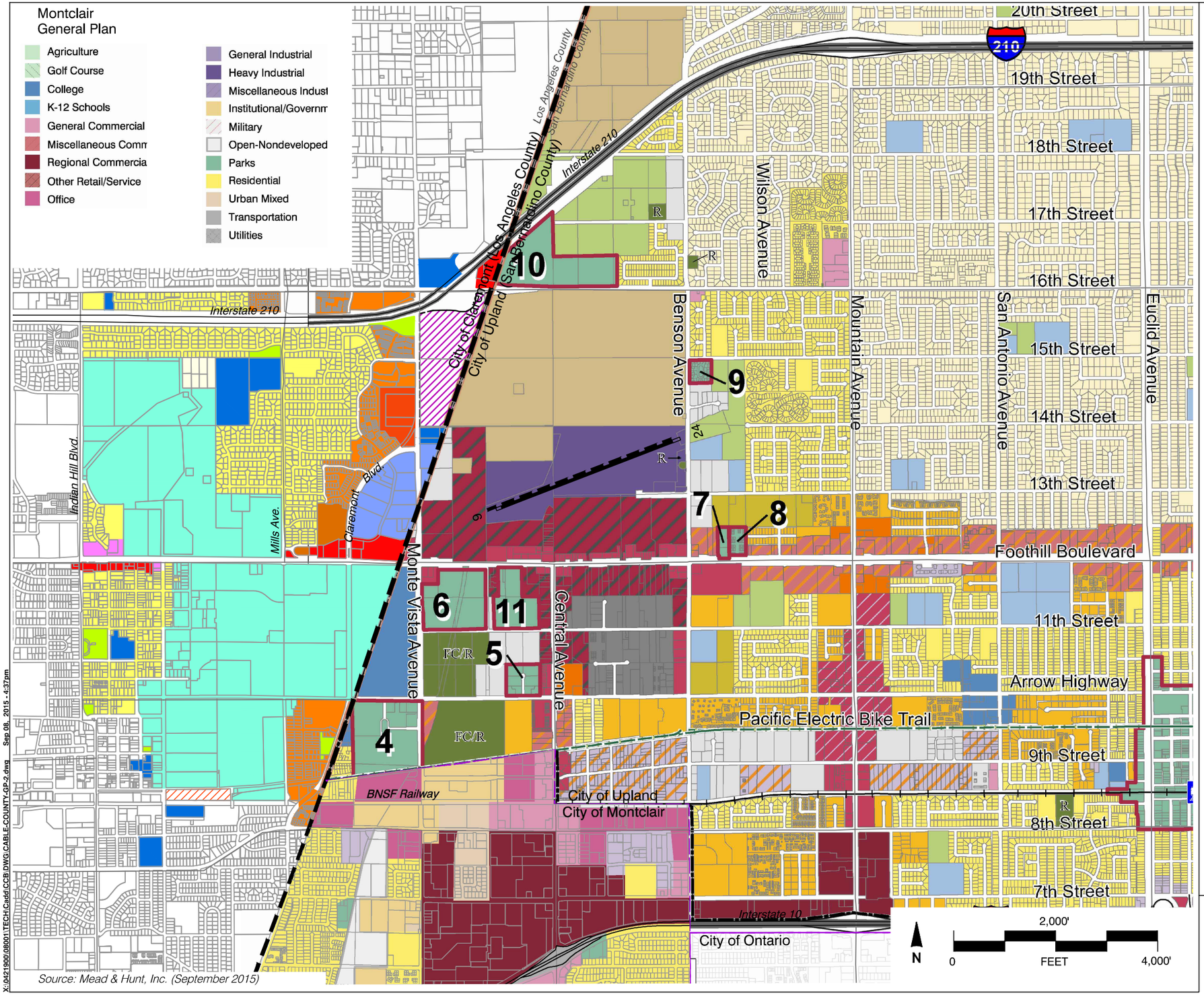

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Legend

Upland General Plan

SINGLE-FAMILY RESIDENTIAL
- LOW (0-4 du/ac; SFR-L)
- MEDIUM (4-10 du/ac; SFR-M)
- Mobile Home (8-14 du/ac; MH)

MULTI-FAMILY RESIDENTIAL
- LOW (10-20 du/ac; MFR-L)
- MEDIUM (20-30 du/ac; MFR-M)
- HIGH (30-40 du/ac; MFR-H)

COMMERCIAL
- Neighborhood Commercial (NC)
- Highway Commercial (HC)
- Regional Commercial (RC)
- Office/Professional (OP)

MIXED-USE
- Commercial/Residential Mixed-Use (C/R-MU)
- Commercial/Office
- Business/Residential Mixed-Use (B/R-MU)
- Commercial/Industrial Mixed-Use (C/IN-MU)

INDUSTRIAL
- Light Industrial/Business Park (LI-BP)
- Industrial (IN)
- Gravel Mine (GM)

SPECIAL/INSTITUTIONAL
- Cable Airport (CA)
- Institutional (I)
- Civic/School (C-P)
- Park/Open Space (P-OS)
- Public Utilities (PU)
  R- Reservoir
  L- Landfill
  EE- Edison Easement
  FC/R- Flood Control/Recharge

SPECIFIC PLAN
- Specific Plan (SP)

1. The Colonies
2. Upland Hills Country Club
3. Historic Downtown Upland
4. College Park
5. College Commerce Center
6. Upland Crossing
7. Foothill Benson Terrace
8. Foothill Walk
9. Wyeth Cove
10. Park View
11. The Enclave

Claremont General Plan
- Residential 2
- Residential 6
- Residential 15
- Residential 22
- Mixed Use
- Commercial
- Office Proffessional
- Commercial Recreation
- Business Park
- Commercial / Business Park
- Public
- Institutional
- Park / Resource Conservation

Notes

Land Use Sources:
- San Bernardino Assoc. of Governments Compilation of General Plan land use maps.
  - Upland (2015)
  - Montclair (1999)
  - Claremont General Plan Land Use Map (2007)

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 7

Planned Land Uses

Cable Airport Environs

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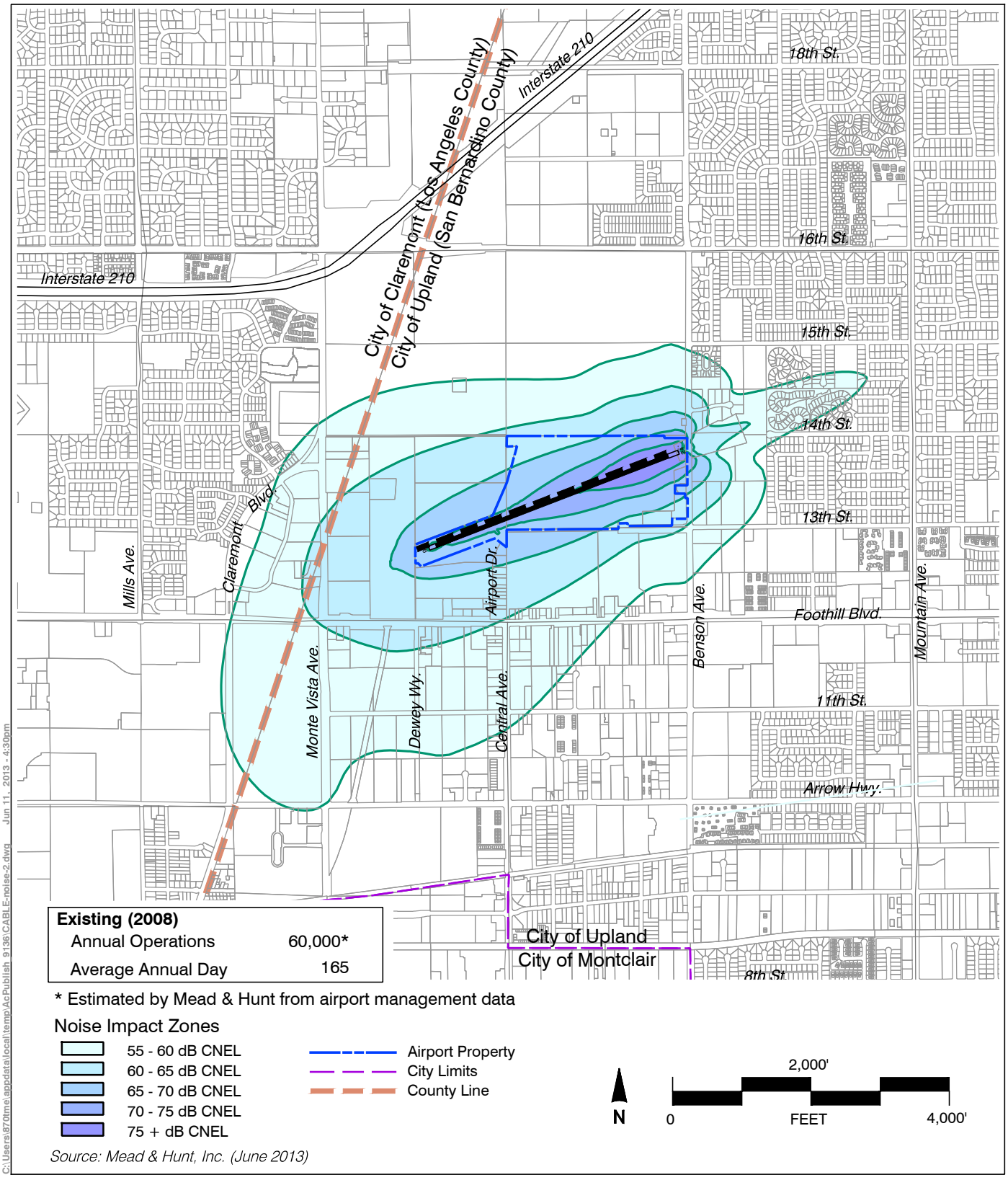
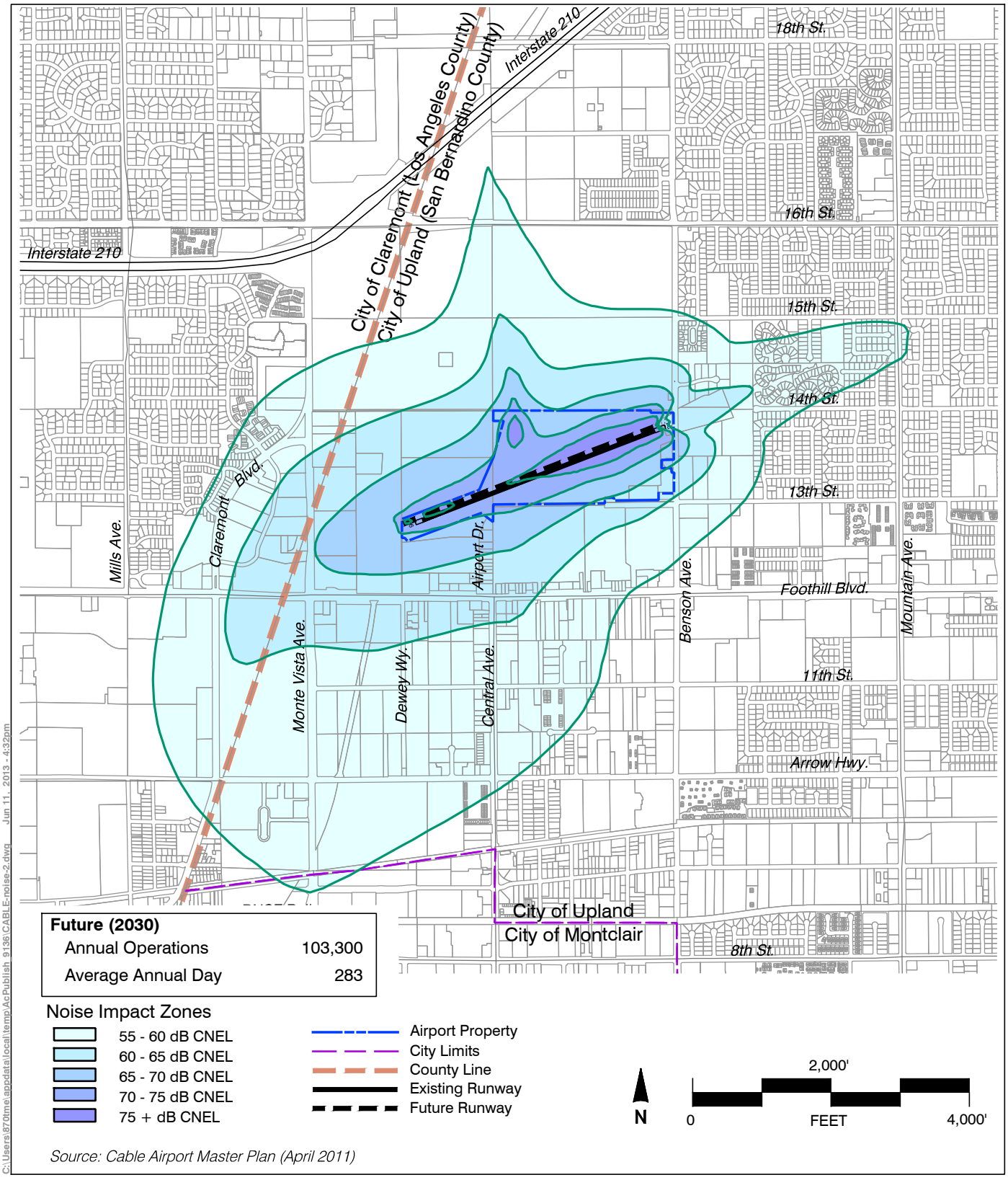


Exhibit 8

Existing Noise Impact - 2008

Cable Airport



Source: Cable Airport Master Plan (April 2011)

Exhibit 9

Future Noise Impact Area

Cable Airport

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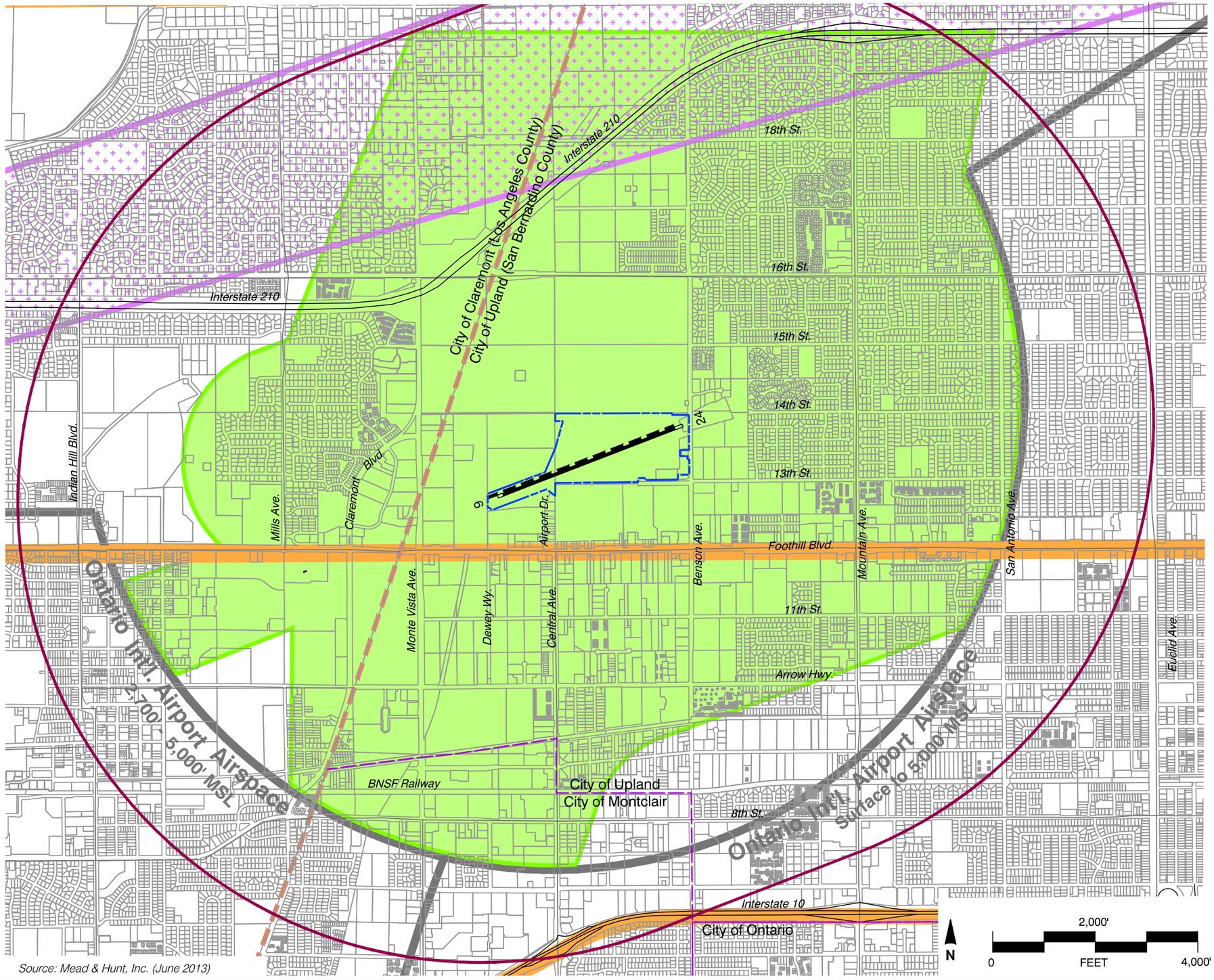

Source: Mead & Hunt, Inc. (June 2013)

Legend

Boundary Lines

- Airport Property Line
- Parcel Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Overflight Factors

- Primary Overflight Area[3]
- Secondary Overflight Area/Airport Infl. Area
- Fixed Wing VFR Route Corridor
- Helicopter Routes

Notes

1. Parcel base map source: San Bernardino Association of Governments.
2. Overflight areas defined based upon flight track data in Exhibit 4.
3. Shaded area represents where aircraft regularly fly at approximately the traffic pattern altitude or below (800 feet above airport elevation or less).

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 10

Overflight Impact Area

Cable Airport

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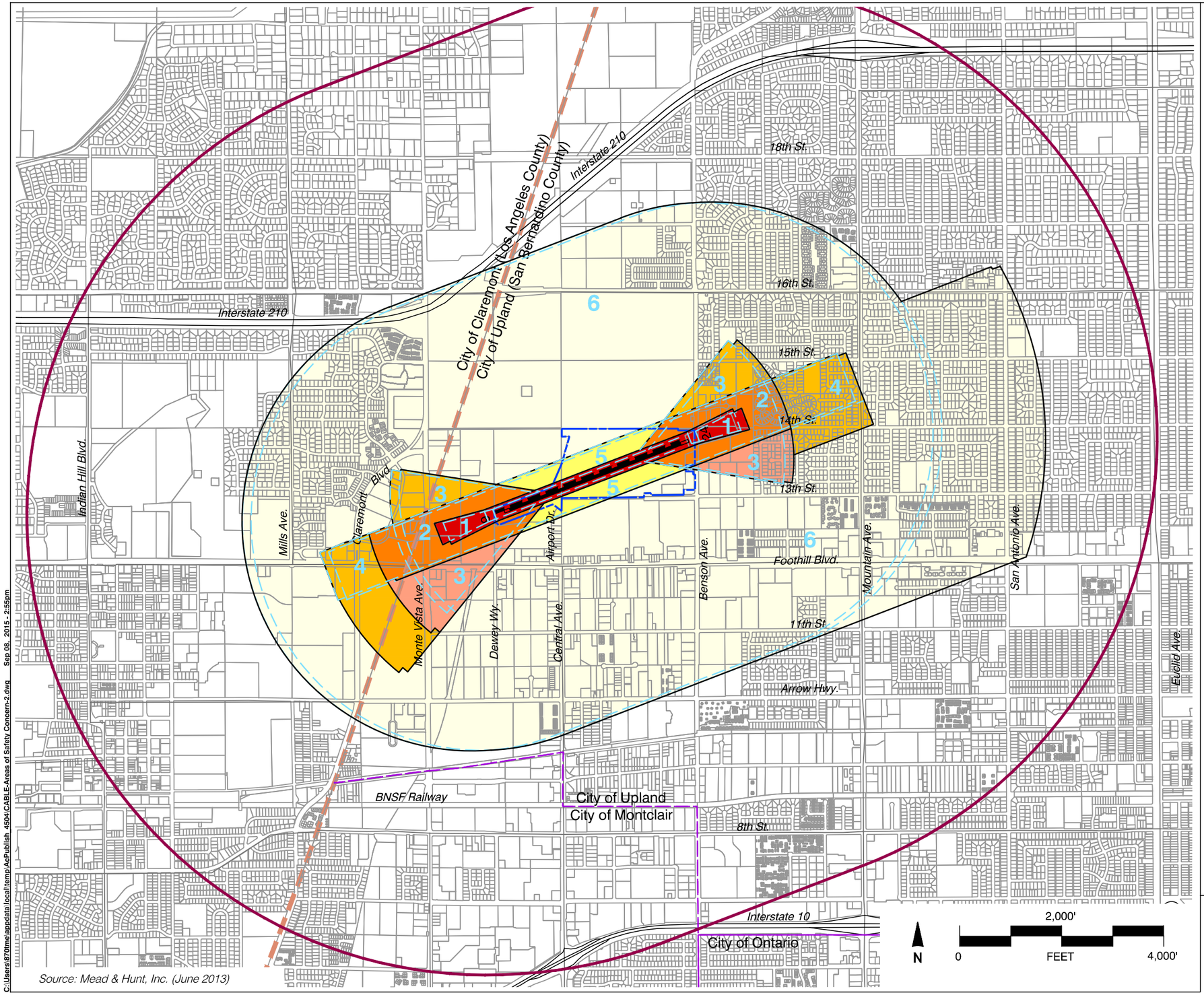

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Legend

Boundary Lines

- Airport Property Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Airport Impact Areas

- Airport Influence Area
- Generic Safety Zones (Short (<4,000') General Aviation Runway)[2]

Areas of Safety Concern

- Zone 1 - Runway Protection Zone
- Zone 2 - Inner Approach/Departure Zone
- Zone 3 - Inner Turning Zone
- Zone 4 - Outer Approach/Departure Zone
- Zone 5 - Sideline Zone
- Zone 6 - Traffic Pattern Zone

Notes

1. Future runway is proposed to shift 50 feet northward and approximately 164 feet westward of its existing position. The length remains unchanged. Runway length = 3,864'

2. Generic safety zones source: California Airport Land Use Planning Handbook (January 2002).

3. Generic safety zones adjusted for Cable Airport to reflect the following factors:
   -Runway length near upper end of short runway range.
   -Close-in noise abatement turns to south on Runway 24 departures.
   -Extended traffic pattern on East.
   -Low traffic pattern altitude (800').
   -Limited North-side traffic pattern.

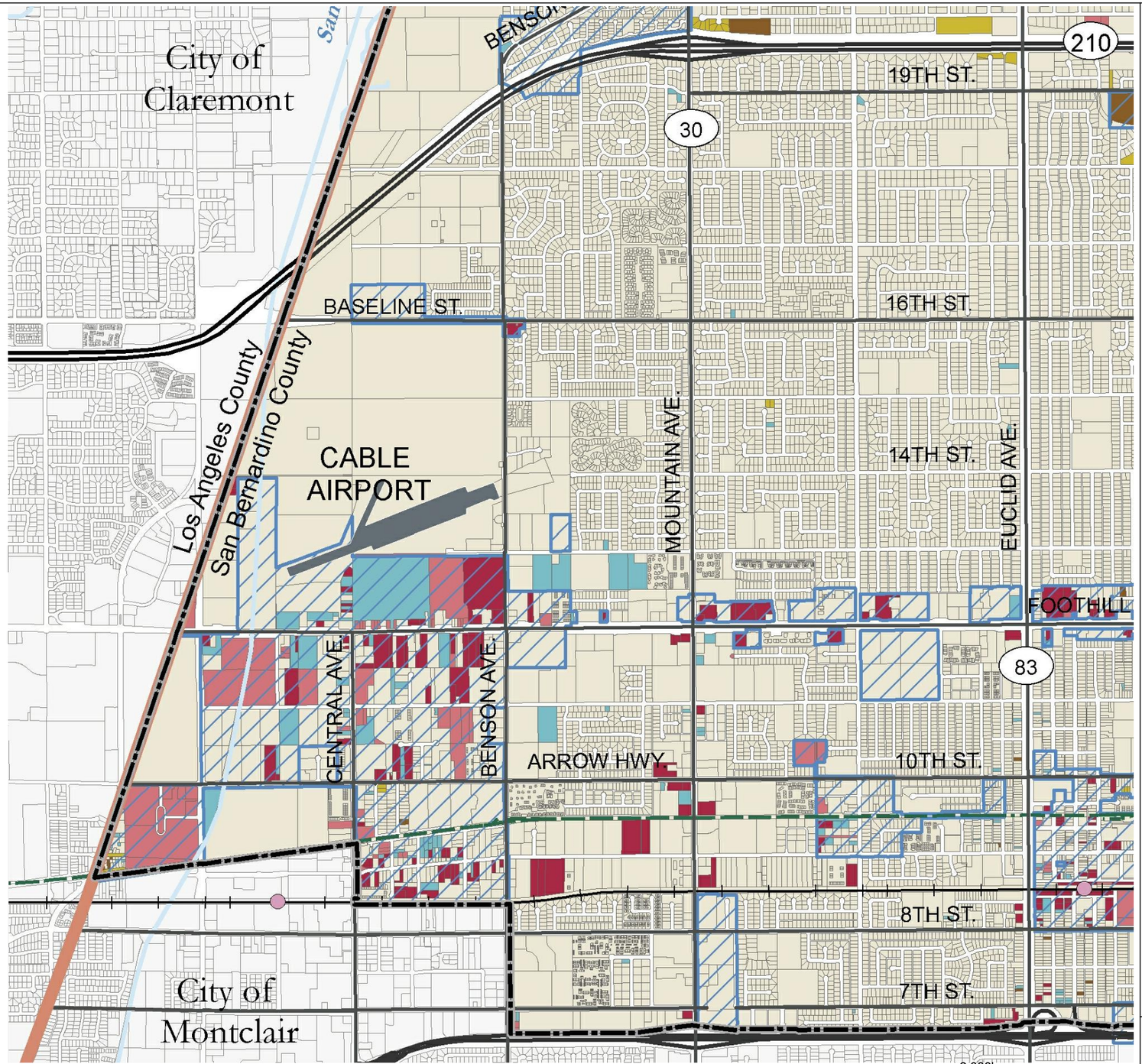
4. ALUCP protects both existing and planned runway alignments (see criterian 3.1.3)

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 11

Areas of Safety Concern

Cable Airport



Legend

- County Boundary
- City Limits
- Sphere of Influence
- Redevelopment Areas
- Water Feature
- Underutilized Residential
- Vacant Residential
- Underutilized Non-Residential
- Vacant Non-Residential
- Need to Verify

Notes

1. Source: The Planning Center/DC&E (October 2008)

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 12

Vacant and Underutilized Land

Cable Airport Environs

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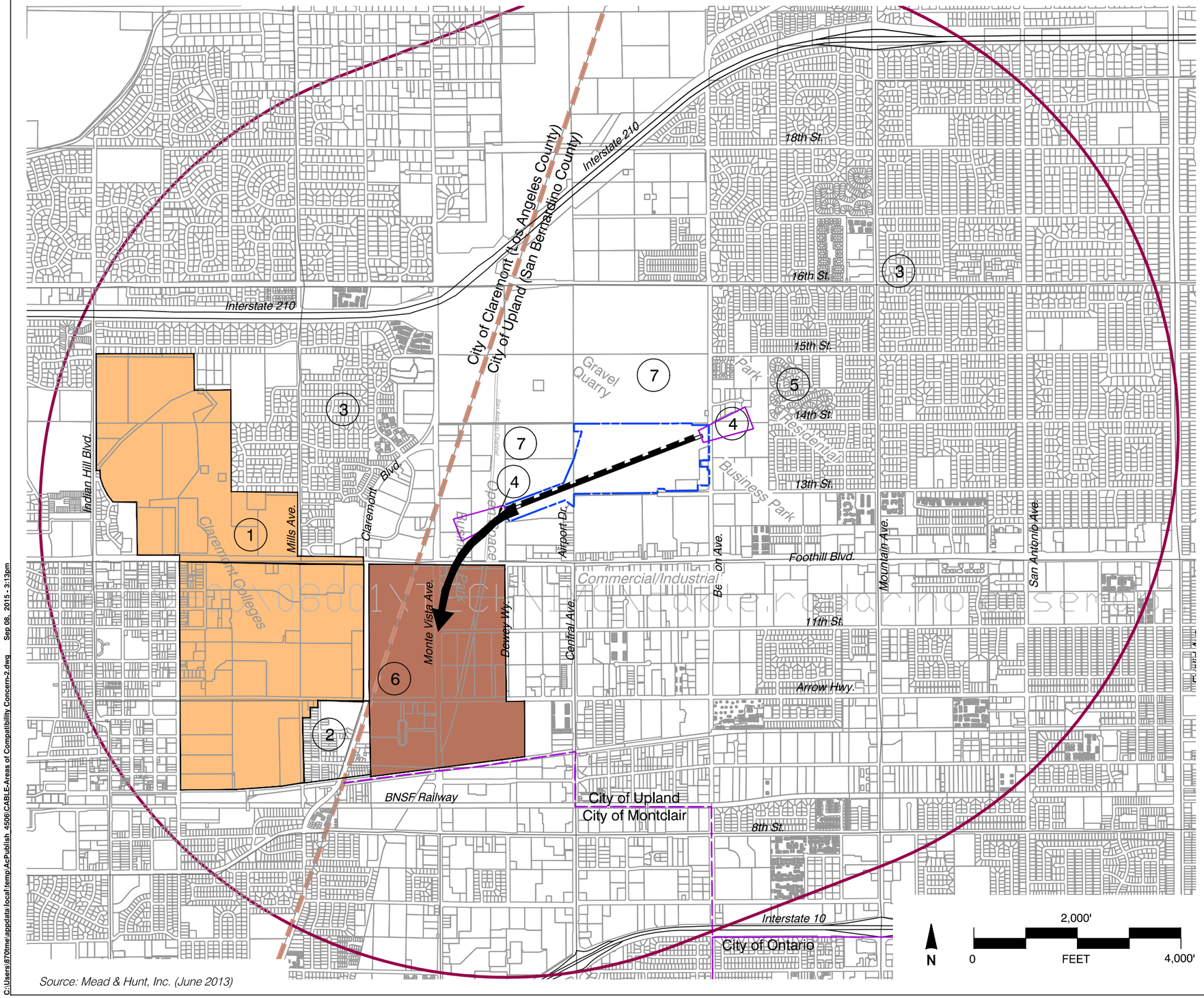

Source: Mead & Hunt, Inc. (June 2013)

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Legend

Boundary Lines

- Airport Property Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Airport Impact Areas

- Airport Influence Area
- Runway Protection Zone
- Primary Departure Route

1. Claremont Colleges (noise and risk sensitive area)
2. Residential area near primary departure route
3. Residential area affected mostly by north-side traffic pattern
4. Runway Protection Zones
5. Residential area in Safety Zone 2
6. Vacant land along primary departure route (noise and safety concern with future development)
7. Gravel Quarries (bird attraction concerns with future development)

Notes

1. See text for discussion.

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 13

Areas of Compatibility Concern

Cable Airport