PART 2
Existing Conditions
Part 2 Existing Conditions

A. Regional Context

The City of Long Beach is located in southern Los Angeles County, approximately 20 miles south of Downtown Los Angeles, bordering Orange County on its southeast edge, as shown in Figure 1, Regional Map. Long Beach is a coastal city with a vibrant downtown and the only large coastal city in Los Angeles and Orange Counties. With an estimated population of 484,958 in January 2016 (DOF 2016), Long Beach is the seventh-largest city in California and the 36th-largest city in the nation. While indicating a slower growth rate when compared to Los Angeles County as a whole, Long Beach is still seeing an influx of people, homes, and jobs.

Long Beach also boasts a unique balance of maintaining small-town character with the benefits of a big-city economy. The coastal atmosphere and quaint neighborhoods, coupled with a thriving downtown and international port, define the multifaceted nature of Long Beach, and one that can continue to be reinforced as growth continues.

The Boeing C-17 study area is located in the City of Long Beach adjacent to the City-owned Long Beach Airport, which is one of the busiest general aviation airports in the world and a hub of corporate activity. Even after greatly reducing the number of local employees in recent years, Boeing is still the second-largest private employer in the City with 3,707 employees, following Long Beach Memorial Medical Center with 5,212 employees (City of Long Beach 2015). The site is approximately 3 miles northeast of downtown Long Beach. The Port of Long Beach, the second busiest port in the U.S., is located 8 miles south and is also owned and operated by the City.

As shown in Figure 2, Vicinity Map, the study area is well-situated halfway between major business and tourist destinations of both Orange and Los Angeles Counties. Large activity centers, such as downtown Long Beach, the Port of Long Beach, and Belmont Shore, have an importance beyond the City as they provide special benefits that attract people from all over the region. For the study area, this attraction is primarily jobs and a welcoming airport that is convenient to both Los Angeles and Orange Counties. Due to the diversity that these multipurpose activity centers provide, they become candidates for regional system linkages. Importantly, the study area is afforded direct access from Interstate 405 (I-405) via Cherry Avenue, providing easy access and high visibility to the area from a regional standpoint.
The study area vicinity is an example of the balanced small town–big city lifestyle of Long Beach. Immediately to the west is a beautiful and historic single-family neighborhood, California Heights, with an eclectic small-scale art-deco commercial corridor along Wardlow Road. The Lakewood and Skylinks Golf Courses to the north and east, respectively, provide a welcoming respite and buffer between the single-family neighborhoods and industrial/airport areas. Long Beach Airport, though surrounded by aerospace and heavy industry, has maintained a small-scale historic presence that balances opportunities for regional economic growth with the sensitivity of preserving the local neighborhood quality of life. Even Douglas Park to the northeast, a growing state-of-the-art master-planned business park balances high-quality industrial, office, retail, and hotel uses with a quiet business park atmosphere planned for 9.9 acres of parks, entry features, and pedestrian spaces.

Taken together, as a center for international goods movement, high accessibility and visibility, a year-round moderate climate, a large educated and trained workforce population, stable and well-kept neighborhoods, and all the desirable amenities of a large metropolitan community, Long Beach is a complete City, and the study area in particular is well positioned for long-term economic success.

B. Local Context

The total study area is approximately 210 acres and includes the former Boeing C-17 site, which is approximately 93 acres and primarily owned by Boeing; adjacent property owned by the City for airport or former C-17-related purposes (Airport Adjacent Site), comprising approximately 57 acres; and properties on the east side of Cherry Avenue adjacent to the C-17 site (Cherry Avenue Corridor), totaling approximately 60 acres. The study area is generally bounded by the City of Lakewood and 36th Street to the north, I-405 and Long Beach Airport to the south, Long Beach Airport to the east, and a stepped boundary to the west from Cherry Avenue to Gundry Avenue where the study area meets the City of Signal Hill. The entire study area is shown in Figure 3, Study Area. Primary local access to the study area is from Cherry Avenue and Wardlow Road.

Long Beach Airport, including the airport runways and taxiways, surrounds the eastern portion of the study area to the north, south, and east. There are industrial uses within the City of Lakewood to the north. Surrounding the western portion of the study area, including the Cherry Avenue Corridor, is I-405 to the south, the Long Beach Water Department (LBWD) and industrial businesses in the City of Signal Hill to the west, and the historic California Heights single-family neighborhood and auto-oriented businesses to the northwest and along Cherry Avenue, respectively.
Figure 1. Regional Map
Figure 2. Vicinity Map
Figure 3. Study Area
C. Policy Context

Existing General Plan

The City is in the process of updating the Land Use Element of the General Plan. The existing Land Use Element was last comprehensively updated in 1989. Figure 4, Existing General Plan Designations, identifies the location of General Plan land uses in the study area. The majority of the study area is designated 9G (General Industry) in the General Plan. The eastern portion of the Airport Adjacent Site is designated 12 (Harbor/Airport), which requires special planning documents (i.e., an ALP) to govern land use development.

The existing General Plan provides policies to:

» Continue to expand high-tech research and development, manufacturing, aerospace, hotels, restaurants, and offices in the airport area;
» Retain airport orientation as much as possible;
» Prohibit local retail or services, or regional shopping uses without resolving traffic issues; and
» Require architectural and design compatibility with newer structures, visual compatibility, good design, landscaping, traffic generation and management.

Importantly, Long Beach has adopted a firm policy to limit growth of the airport area to protect surrounding residential neighborhoods from the noise and other hazards of frequent overflights. Managed growth, to ensure growth protects the quality of life and unique small-town character of Long Beach, and not come at the expense of environmental quality with regard to air and water quality, industrial hazards, and unmitigated traffic impacts, is of great concern to the City.

Draft General Plan

In the City’s draft Land Use Element and Urban Design Element, the City currently envisions maintaining the Cherry Avenue Corridor for community commercial uses, and the remainder of the study area, including the C-17 site and Airport Adjacent Site, for regional-serving facilities.

» The “Community Commercial PlaceType” is reserved for commercial activities and will serve auto-oriented needs for goods and services, promote commerce, and provide local jobs. Although auto-oriented, future developments are expected to respect neighboring developments with adequate setbacks, transitions in scale along with visual and noise buffers. This PlaceType also encourages a more pedestrian-friendly environment with widened sidewalks, landscaping, minimized curb cuts, streetscape furnishings, and amenities.

» The “Regional-Serving Facility PlaceType” is assigned to large-footprint sites whose uses serve the sub-
Existing Conditions

region and region such as the port, medical centers, colleges, airport area, etc. This PlaceType pays special attention to how these facilities will interface and connect with the surrounding and broader community. For the airport area, this PlaceType focuses on consolidating properties surrounding the airport to better integrate business parks and airport-related land uses, and to transition former manufacturing facilities to mixed-use office, light industrial, innovation, technology, and hospitality uses. This PlaceType promotes compatibility with surrounding uses, edge treatments, shade trees, better pedestrian/bike connectivity and amenities, quality architecture, transportation demand management, and more environmentally healthy and sustainable practices.

Existing Zoning

The Zoning Regulations (Title 21 of the Long Beach Municipal Code), in conformance with the General Plan, regulates land use development within the City. Within each zoning district, the Zoning Regulations specify the permitted and prohibited uses, as well as the development standards, including setbacks, height, parking, and design standards, among others.

Figure 5, Existing Zoning, identifies the current zoning in the study area. The Cherry Avenue Corridor area is located in the IG (General Industrial) zone, as is the portion of the Airport Adjacent Site north of Wardlow Road. The remaining portions of the study area are located in the Planned Development 19 (PD-19) zone. Table 1 summarizes the existing development standards for each of these zones.

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<th>IG</th>
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<td>Yards Abutting Residential District</td>
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<tr>
<td>Yards Abutting Nonresidential District</td>
<td>Refer to IG district standards</td>
<td>0 feet⁴</td>
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</tbody>
</table>

| Maximum Height                      | None except those mandated by FAA         | 65 feet                      |
| Minimum Lot Size                    | Refer to IG district standards            | 20,000 square feet           |
| Maximum Lot Coverage              | Refer to IG district standards            | 80%                          |

**Table 1**

**Existing Development Standards**

**Source:** Title 21, Zoning Regulations, of the Long Beach Municipal Code

1. This table is meant to provide an example of permitted uses in these zones. Not all permitted uses are listed here, and there are many exceptions to permitted uses. See Section 21.33.080 of the Long Beach Municipal Code.

2. Further, new development of the site shall be limited to such intensity of development as is equal to no more than 5,503 vehicle trips to and from the site in the peak hour between 4:00 p.m. and 6:00 p.m. and implementation of a Transportation Demand Management Plan that has the goal of reducing existing work trips in the evening peak hour by 20%.

3. Wherever a parking area abuts a property line adjacent to a street, a 5-foot-wide landscaped strip shall be provided between the parking area and the property line abutting the public right-of-way.

4. Separation between buildings on adjacent lots shall be provided as required by the Fire Code and Uniform Building Code, or any successor Code.
Figure 4. Existing General Plan Designations
Figure 5. Existing Zoning
D. Land Use

The study area is primarily composed of industrial land uses, occupying approximately 95% of the total study area. Portions of the Cherry Avenue Corridor area are developed with commercial land uses occupying the remaining 5% of the total study area. Existing land uses are depicted in Figure 6, Existing Land Uses. Each of the sub-areas are described in this section.

Former Boeing C-17 Site

The former Boeing C-17 site consists of multiple parcels totaling 93 acres primarily owned by Boeing. Two City-owned parcels, one near Globemaster Way and the other near E. 32nd Street at the southwest corner of the C-17 site. Another landowner, Sey Corporation, owns a 2.4-acre oddly shaped parcel that was once leased to Boeing for use as a parking lot for the C-17 facility, abutting the western border of this site; only a narrow portion of this site fronting Wardlow Road provides access. The Sey-owned lot may be removed from the C-17 site area as future planning for the C-17 site proceeds.

The C-17 site is developed with approximately 1.1 million square feet (approximately 25 acres) of enclosed C-17 production space, an adjacent building to the north about half that size, a paint hangar, and associated buildings and grounds. Specifically, the buildings located between Wardlow Road and 32nd Street are former C-17 production spaces that are now in the process of being vacated. The large building north of Wardlow Road is currently being used for the manufacturing of other planes. These buildings are large manufacturing buildings with open interior floor plans. Landscaping is very limited and mostly concentrated at the entrance to this area along Wardlow Road. Primary access to the C-17 site is provided from Wardlow Road and Cherry Avenue. While Cherry Avenue serves as the gateway to the C-17 site, the site is not very visible from Cherry Avenue; visibility improves as one travels east on Wardlow Road toward the site.
Figure 6. Existing Land Uses
**Airport Adjacent Site**

The Airport Adjacent Site is owned by the City and comprises about 57 acres. A significant portion of it is leased to flight-related operations, with occupied trailers, executive offices, the AirFlite airport terminal, and Fire Department Station 16. All buildings are single story with the exception of the four-story AirFlite terminal. East of Globemaster Way is airfield pavement used for taxiing planes to the runways. Some landscaping is provided along Wardlow Road and within the AirFlite parking lot. Access to this area is provided from Wardlow Road and AirFlite Way.

**Cherry Avenue Corridor**

The Cherry Avenue Corridor area comprises about 60 acres and is developed largely with industrial uses, with commercial uses concentrated at all four corners of Cherry Avenue and Wardlow Road and at the southwest corner of Cherry Avenue and 33rd Street. The area between the C-17 site and I-405 in this area is a no-build runway protection zone (RPZ).

Examples of industrial-type uses include machine and fabrication shop, crane services, LBWD facilities, construction equipment, alloy products, towing services, U-haul dealer, auto glass shop, aircraft supply store, and truck rentals. Industrial sites contain large single-story buildings surrounded by parking and outdoor equipment, with little-to-no landscaping.

Commercial-type establishments are single story; examples include dry cleaners, car wash, car rentals, auto sales, gas station, motorsport sales, and fast food restaurants (i.e., Subway and Fantastic Burgers). Landscaping in the Cherry Avenue Corridor area is primarily located in front of the commercial establishments.
Land Ownership/Management

Figure 7, Consolidated Parcel Ownership, illustrates the composition of existing ownership in the study area. There are 25 property owners in the study area. Boeing is the largest landowner, owning 79.7 acres, or 38%, of the study area, followed by the City at 72.2 acres, or 34%, of the study area. Other large landowners include the following:

- **Cherry Avenue LLC**, who own three large contiguous parcels on the southeast corner of Wardlow Road and Cherry Avenue occupied by the Cherry Hill Auto center (Site 1 in Figure 7), in addition to another site on the west side of Cherry Avenue, for a total of 6.54 acres;
- **Centrifugal Casting Co**, who own and occupy two large parcels on the west side of Cherry Avenue north of I-405, totaling 5.84 acres, occupied by Certified Alloy Products Inc. (Site 5);
- **Pacific Industrial Partners LLC**, who own one large 4.28-acre parcel on the southeast corner of Walnut Avenue and 32nd Street that is currently used for storage of large industrial materials (Site 20); and
- **Merlin Properties**, who own one large 7.84-acre parcel just north of the Pacific Industrial parcel that is currently occupied by PSC, Jack Doheny Supplies, 3 Chihuahas Pottery, and Hill Crane Service Inc. (Site 19).

These four parcel groupings are located at key entrance points into the study area, including gateways heading north into the study area at both Walnut Avenue and Cherry Avenue, and the main entrance into the study area at the intersection of Wardlow Road and Cherry Avenue. With few property owners and large parcel configurations, opportunities exist to work with property owners to improve street frontages and gateways into the study area.

Block Structure

The block structure of the study area is shown in Figure 8, Block Structure. Unlike the predominant grid pattern that exists in the blocks to the west of the study area, for example, the study area does not have a well-defined block typology, and very few blocks are “complete.” In other words, it is difficult to start at one point and return to that same point by traveling “around the block.” For example, traveling east on Wardlow Road from Cherry Avenue, the nearest intersection is over a half-mile away at AirFlite Way. AirFlite Way dead-ends to the south and north, requiring travelers to continue to Globemaster Way and head north to 36th Street and back to Cherry Avenue in order to round the block, a distance of over 1.5 miles. The lack of shading and discontinuous sidewalks would discourage, if not prohibit, pedestrians from traveling along this route, until arriving at the intersection of Industry Avenue and 36th Street, where a well-landscaped public realm is inviting to pedestrians.

West of Cherry Avenue there is no complete block entirely contained within the study area. This is due to 32nd Street (more alley-like than street) preventing public accessibility between Walnut Avenue and Cherry Avenue. Were this alleyway to connect, the total distance around the block would total approximately three-fourths of a mile. By comparison, in general, a comfortable walking distance to encourage pedestrians to travel by foot from one point to another is a quarter-mile.

The extensive block lengths and incomplete block loops, coupled with a lack of on-street landscaping and other amenities, are not uncommon features for industrial areas such as this; however, Douglas Park, on the other side of the airport kitty-corner from the study area, provides a good example of how incorporating a smaller block typology into large parcels of industrial land can fundamentally change the character, functionality, and economic vitality of an area.
Figure 7. Consolidated Parcel Ownership
Figure 8. Block Structure
Design and Development Characteristics

The overall study area itself currently lacks the human-scale character felt elsewhere in the City. The design and development character of the study area is largely perceived as an automobile-dominated industrial/manufacturing environment with large blocks and buildings. The study area lacks open space and recreational amenities to serve the local workforce as well as soften the intensity of the built environment. The presence of industrial and manufacturing buildings near sensitive land uses such as homes, schools, and parks, also have health-related consequences as they expose people to environmental hazards. The main commercial node at Wardlow Road and Cherry Avenue provides local commercial services; however, primarily catered to the automobile with fast-food restaurants and an auto center/car wash. The automobile-oriented character is reflected in the large parking lots and lack of streetscape amenities, such as continuous sidewalks, shade trees, pocket parks, and other features that would enhance the visual appeal of the area, improve transitions to nearby neighborhoods, and encourage walking between uses. Nevertheless, there are areas along Cherry Avenue fronting commercial centers that demonstrate an aesthetic and well-maintained streetscape that could serve as examples for future revitalization. In addition, intermittent streetscapes along 36th Street demonstrate how including landscaping and trees provide buffering and enhance the character of the industrial environment.
**Long Beach Airport Compatibility**

**Existing Conditions**

Long Beach Airport is a Part 139-certificated commercial service airport located in Long Beach, California. A Part 139 certificate is a certificate that the FAA requires airports to hold current if they receive scheduled air carrier service with planes that have 10 or more passenger seats. The FAA issues the Part 139 certificate to the airports that meet the requirements of Title 14 Code of Federal Regulations (CFR), Part 139. These requirements include items such as airfield lighting and marking standards and airport firefighting equipment for air carrier commercial operations.

Long Beach Airport is owned and operated by the City and serves the Greater Los Angeles and Orange County region of Southern California. Long Beach Airport reported 291,896 annual aircraft operations at the Long Beach Airport in 2014, reflecting a diverse aviation fleet mix. Aircraft operations include scheduled passenger air carriers, airfreight, general aviation, fixed-wing and rotocraft training, government/military flight operations, and other uses. Long Beach Airport has significant General Aviation (GA) activity, serves as the west coast focus city for JetBlue Airways, and is home to Gulfstream Aerospace finishing, delivery, and maintenance facilities.

The Long Beach Airport airfield consists of 5 runways, 10 supporting taxiways, and various aircraft parking aprons that have been incrementally constructed since Long Beach Airport opened over 90 years ago. Long Beach Airport is made up of two perpendicular sets of dual parallel runways—Runways 7R-25L and 7L-25R are aligned in a west–east direction and Runways 16R-34L and 16L-34R are aligned in a north–south direction—intersected by the primary air carrier runway (Runway 12-30), which is aligned in a northwest–southeast direction. Further, Runway 7L-25R is an alternate air carrier runway and is only normally used for air carrier operations when Runway 12-30 is not available for aircraft operations. General aviation aircraft can operate on Runway 7R-25L, Runway 7L-25R, and Runway 12-30. Appendix B presents the FAA Master Airport Record for the Long Beach Airport, which summarizes existing airport conditions.

**Future Conditions**

As described in Part 1 of this report, the City is updating the ALP to reflect the recommended changes to the airfield system. Principal improvements include closing the dual north–south runways and using them as taxiways, and shortening Runway 7R-25L from 5,421 feet to 3,899 feet and shifting the runway 25 feet to the north, closer to the Boeing C-17 site. Operationally, the north–south runways have been “temporarily closed” for approximately the last 5 years. The permanent closure of both the north–south runways is planned to occur in 2019. Figure 9, Future Airfield Configuration, presents the proposed future airfield configuration.

**Compatibility Factors**

The proximity of the Boeing C-17 site to the Long Beach Airport will require that future land uses on the property be compatible with airport operations. The compatibility criteria adopted by the ALUC for the Long Beach Airport are intended to protect the airport from encroachment by future incompatible land uses. However, since preparation of the CALUP in 1991, as amended in 2004, the Caltrans Division of Aeronautics has revised its airport land use compatibility planning guidance. Therefore, for the purposes of the C-17 Transition Master Plan, the compatibility criteria provided in both the CALUP and the Handbook should be used to guide future redevelopment of the site.
For compatibility planning purposes, four aeronautical factors are considered:

- **Noise** is the impact most directly affected by the airport activity forecasts.
- **Overflight** pertains to areas beyond the noise contours where aircraft noise can be annoying or disruptive.
- **Safety** is concerned with the risks that potential aircraft accidents pose to people and property on the ground.
- **Airspace protection** is critical to airport viability in that airspace obstructions can be hazardous to flight and can necessitate changes to aircraft flight procedures.

### Noise and Overflight

The purpose of the noise compatibility criteria is to avoid establishment of noise-sensitive land uses in the portions of the airport environs that are exposed to significant levels of aircraft noise. In California, the community noise equivalent level (CNEL) metric is used as the primary method for evaluating airport noise impacts on surrounding lands.

The City has an Airport Noise Compatibility Ordinance (Municipal Code Chapter 16.43) that establishes restrictions on airport operations in an effort to protect noise-sensitive land uses (e.g., residences) in the vicinity of the airport from aircraft-related noise levels in excess of 65 decibels (dB) CNEL. Restrictions include, for example, prohibiting aircraft flight training operations between 7 p.m. and 7 a.m. on weekdays and 3 p.m. and 8 a.m. on weekends and certain holidays.

The overflight compatibility factor addresses noise from individual aircraft operations, which can be annoying or intrusive. Sensitivity to aircraft overflights varies from one person to another. Locations underlying the airport’s typical traffic patterns are considered to be within the airport’s overflight impact area. Overflight policies are intended to inform prospective real estate buyers of the airport’s proximity. Figure 10, Factors Map: Noise and Overflight, presents the future airport noise contours for the Long Beach Airport. The map also indicates the runway utilization rates for the runways near the study area.

The 2011, the Handbook indicated that in urban settings, such as that around the Long Beach Airport, noise-sensitive land uses should not be exposed to noise levels above 65 dB CNEL. Noise-sensitive land uses include, but are not limited to, residential uses, schools, libraries, nursing homes, and outdoor theaters. CALUP Policy N-4 encourages local agencies “to adopt procedures to ensure that prospective property owners in aircraft noise exposure areas above a current or anticipated 60 dB CNEL are informed of these noise levels and of any land use restrictions associated with high noise exposure.” Figure 11, Land Use Compatibility Table, presents the land use compatibility table from the CALUP. The table identifies the compatibility of certain types of land uses within areas exposed to aircraft-related noise. CALUP Policy N-3 indicates that the compatibility table should be used to evaluate projects within the ALUC’s planning boundary, also referred to as the Airport Influence Area, as shown in Figure 12, Airport Influence Area.

### Safety

The intent of the land use safety compatibility criteria is to minimize the risks associated with an off-airport accident or emergency landing. The criteria focus on reducing the potential consequences of such events should they occur. Risks both to people and property in the vicinity of an airport and to people on board the aircraft are considered. Risk is evaluated in terms of where accidents are most likely to occur near an airport and the potential consequences if an accident occurs in one of those locations.

The Handbook provides a set of safety zones that delineate the locations where heightened risk levels may warrant restrictions on land use development. The shapes and sizes of the safety zones are based upon mathematical analyses of nationwide accident location data. Figure 13, Factors Map: Safety, shows the generic Handbook safety zones applicable to each runway at Long Beach Airport. Appendix C presents a summary of the Handbook safety criteria applicable within each safety zone.

The CALUP includes the following safety-related compatibility policies:

- Establish runway protection zones contiguous to the ends of each runway. These runway protection zones shall be identical to the FAA’s runway protection zone (formally called clear zone) (Policy S-1).
- Prohibit aboveground storage of more than 100 gallons of flammable liquids or toxic materials on any 1 net acre in a designated runway protection zone. It is recommended that these materials be stored underground (Policy S-2).
Figure 10. Factors Map: Noise and Overflight
V. STATEMENT OF LAND USE COMPATIBILITY

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<td>Agriculture</td>
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<td>Recreation</td>
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Satisfactory
Caution. Review Noise Insulation Needs
Avoid Land Use Unless Related to Airport Services

Consider FAR Part 150 for commercial and recreational uses above the 75 CNEL.
Figure 12. Airport Influence Area
Figure 13. Factors Map: Safety

Legend
Boundary Lines
- Airport Property Line
- City Limits
- Future Runway (7R-25L)
- Future Closed Runway (19R-334)
- Airport Influence Area

Study Areas
- Boeing C-17 Study Area (93 acres)
- West Study Area (97 acres)
- East Study Area (90 acres)

Generic Safety Zones
- Long General Aviation Runway (7R-25L)
- Long General Aviation Runway (13-31)
- Medium General Aviation Runway (Existing, 7R-25L)
- Short General Aviation Runway (Future 7R-25L)

- Runway Protection Zone
- Inner Approach/Departure Zone
- Outer Turning Zone
- Outer Approach/Departure Zone
- Sideline Zone
- Traffic Pattern Zone

Notes
1. Source: Approved Airport Layout Plan (June 2015).
2. Source: Los Angeles County Airport Land Use Commission, 06/18/03.
Airspace Protection

Airspace protection is critical to airport viability in that airspace obstructions can be hazardous to flight and can necessitate changes to the flight procedures followed by arriving and departing aircraft. Airspace protection policies seek to prevent creation of land use features that can pose hazards to the airspace required by aircraft inflight and have the potential for causing an aircraft accident. Hazards to airspace fall under three general categories:

- **Physical** hazards include tall structures that have the potential to intrude upon protected airspace, as well as land use features that have the potential to attract birds or other potentially hazardous wildlife to the airport area. Thermal plumes, such as from power plants, are also in this category.
- **Visual** hazards include certain types of lights, sources of glare, and sources of dust, steam, or smoke.
- **Electronic** hazards are ones that may cause interference with aircraft communications or navigation.

The Handbook guidance relies upon the regulations and standards enacted by the FAA and State of California. The FAA has well-defined standards by which potential hazards to flight, especially airspace obstructions, can be assessed. The following FAA regulations and documents, and any later versions of these documents, are specifically relevant:

- **Federal Aviation Regulations** (FAR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace provides standards regarding FAA notification of proposed objects and height limits of objects near airports;
- **FAA Advisory Circular 150/5300-13**, Airport Design provides standards regarding safety-related areas in the immediate vicinity of runways; and
- **Advisory Circular 70/7460-1K**, Obstruction Marking and Lighting sets standards for how essential marking and lighting should be designed.

The CALUP includes the following safety-related policies pertaining to airspace protection:

- Prohibit, within a runway protection zone, any use that would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a final approach toward landing at an airport (Policy S-3).
- Prohibit, within a runway protection zone, the erection or growth of objects that rise above an approach surface unless supported by evidence that it does not create a safety hazard and is approved by the FAA (Policy S-4).

The current airspace plan for Long Beach Airport reflecting a five-runway system is presented in Figure 14, Factors Map: Existing Airspace. The Federal Aviation Regulation Part 77 airspace surfaces overlying the Boeing C-17 study area are also depicted. The Federal Aviation Regulation Part 77 criteria establish the appropriate limitations on the heights of structures and other objects on the Boeing C-17 site.

E. Circulation and Mobility

The City’s Mobility Element was updated in October 2013 with the goal of providing the framework to help improve the movement of people and goods throughout the City. Hundreds of thousands of people live, work, play, and travel through the City every day. To improve the circulation and mobility, the City tries to create a safe, efficient, balanced, and multimodal network to accommodate all residents.

Street Network

The City designates each street in a way that accommodates specific multiple modes of travel through an extensive existing street network. The specific modes of travel consist of walking, bicycling, riding transit, and driving an automobile or truck. Figure 15, Existing Street Classification, illustrates the existing street network within the City, as well as the road classifications.

As illustrated on Figure 15, the existing circulation network is essentially a grid system of roadways generally oriented in the north–south and east–west directions, with Cherry Avenue, Wardlow Road, and Spring Street being primary streets that service the project and provide connectivity to local and regional areas.

Streets are classified according to their respective functions based upon the type of service they provide. Streets that have a relatively greater mobility function and/or regional purpose will have more lanes, higher speed limits, and fewer access points/driveways. Streets serving more localized functions will have fewer lanes, slower speeds, and frequent side streets and driveways serving adjoining land use.

Figure 15 further illustrates the functional classifications of the streets within the City.
Figure 14. Factors Map: Existing Airspace
Figure 15. Existing Street Classification
Existing Conditions

Functional Classifications

- **Regional Corridor** – Designed for intraregional and intercommunity mobility, these corridors emphasize traffic movement and include signalized pedestrian crossings. The adjacent land uses should provide continuous mixed-use and commercial land uses with adequate off-street parking to minimize dependency on on-street parking.

- **Boulevards** – Characterized by a long-distance, medium-speed corridor that traverses an urbanized area, boulevards consist of four or fewer vehicle travel lanes, a balanced multimodal function, landscaped medians, on-street parking, narrower travel lanes, more intensive land use oriented to the street, and wide sidewalks. Buildings uniformly line the edges. Multiway boulevards, a variation of the boulevard characteristic of post-war neighborhoods, contain a central roadway for through traffic and parallel roadways for access to abutting property parking, and pedestrian and bicycle facilities. Parallel roadways are separated from the through-lane by curbed, landscaped islands that may also provide transit stops and pedestrian facilities.

- **Major Avenue** – A major avenue serves as the major route for the movement of traffic within the City as well as a connector to neighboring cities. Most traffic using a major avenue will end the trip within the City (as opposed to through-traffic). As such, design treatment and traffic operation should give preference to this type of traffic. Long corridors with typically four or more lanes, avenues may be high transit ridership corridors. Goods movement is typically limited to local routes and deliveries.

- **Minor Avenue** – A minor avenue provides for the movement of traffic to neighborhood activity centers and serves as a route between neighborhoods. Avenues serve as a primary bicycle route and may serve local transit routes as well.

- **Neighborhood Connector** – A neighborhood connector street serves trips generated in surrounding or adjacent neighborhoods, and should discourage through-trips that do not end within the neighborhood. Goods movement is restricted to local deliveries only.

- **Local Collector** – Local streets primarily provide access to individual residential parcels. The streets are generally two lanes with on-street parking, tree planting strips, and sidewalks. Traffic on a local street should have a trip end on that street, or on a connecting local street, or to a connector.

Roadway Connections

As described above, major connectivity to and from the site is provided via Cherry Avenue, Wardlow Road, and Spring Street. In addition, I-405 can be accessed via the interchange south of the project along Cherry Avenue, which allows for regional connectivity to and from the site. Furthermore, major and minor gateways to/from the project site and the airport area consist of the intersections of Carson Street at Cherry Avenue, Cover Street at Cherry Avenue, Wardlow Road at Cherry Avenue, Spring Street at Cherry Avenue, Carson Street at Lakewood Boulevard, Cover Street at Lakewood Boulevard, Wardlow Road at Lakewood Boulevard, and Spring Street at Lakewood Boulevard. The main users for these facilities are commuters with major destinations occurring to/from the freeways and airport facilities. The City’s Mobility Element identifies Cherry Avenue and Carson Street as tending to have higher congestion than most other streets in the vicinity. Figure 16, Major and Minor Gateways, highlights these major and minor gateways to/from the project site and the airport area. The following presents a brief synopsis of the key roadways within the direct vicinity of the site.

Cherry Avenue is generally a four-lane, divided roadway separated by a two-way left-turn lane, oriented in the north-south direction that traverses through the middle of the project site. On-street parking is permitted on both sides of the street. Multiple driveways are located along Cherry Avenue, which provide full access to the existing businesses. Sidewalks are generally provided and are adequate north of Wardlow Road. However, south of Wardlow Road, sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates Cherry Avenue as a Major Avenue.
**Figure 16. Major and Minor Gateways**
Lakewood Boulevard is generally an eight-lane roadway south of Conant Street and a six-lane roadway north of Conant Street oriented in the north–south direction and is located east of the project site and airport. On-street parking is not permitted on both sides of the street. Sidewalks are generally provided on both sides of the roadway within the project vicinity. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates Lakewood Boulevard as a Regional Corridor.

Walnut Avenue is oriented in the north–south direction and provides access to the site via multiple full-access driveways. On-street parking is permitted on both sides of the street. Sidewalks are generally provided and are adequate north of 33rd Street. However, south of 33rd Street, sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates Walnut Avenue as a Local Street.

Cover Street is oriented in the east–west direction and provides connectivity between Cherry Avenue and Lakewood Boulevard. On-street parking is not permitted on both sides of the street. Sidewalks are generally provided on both sides of the roadway within the project vicinity. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates Cover Street as a Neighborhood Connector.

Wardlow Road provides east–west connectivity between Cherry Avenue and Walnut Avenue. Wardlow Road also extends to the eastern portion of the project site and terminates at the airport. However, Wardlow Road continues just east of the Lakewood Boulevard. On-street parking is generally permitted on both sides of the street west of Cherry Avenue. Sidewalks are generally provided on both sides of the roadway within the project vicinity. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates Wardlow Road as a Minor Avenue.
36th Street provides east–west connectivity between Cherry Avenue and Walnut Avenue. 36th Street also extends to the eastern portion of the project site and terminates at the airport. On-street parking is generally permitted on both sides of the street. Sidewalks are generally provided on both sides of the roadway within the project vicinity. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates 36th Street as a Local Street.

33rd Street is oriented in the east–west direction and provides access to the site via multiple full-access driveways. 33rd Street terminates at Cherry Avenue and does not provide any access to the eastern portion of the site. On-street parking is permitted on both sides of the street. Sidewalks are generally provided on both sides of the roadway within the project vicinity. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates 33rd Street as a Local Street.

32nd Street is oriented in the east–west direction. In direct proximity to the site, 32nd Street consists of an alleyway that traverses the project. Along this alleyway, multiple gated areas restrict through-traffic to some users. Sidewalks are generally provided and are adequate west of Orange Avenue. However, east of Orange Avenue sidewalks are generally located on one side of the road or missing altogether. Crosswalks are generally provided at all signalized intersections. The City’s Mobility Element designates 32nd Street as a Local Street.

Truck Routes

Figure 17, Existing Truck Routes, shows the designated truck routes in the City. Designated truck routes provide for the regulated movement of truck traffic through the City, and minimizes intrusion of truck traffic in sensitive areas, such as residential neighborhoods. The designation of truck routes are intended to direct truck traffic to those streets where they would cause the least amount of neighborhood intrusion and where noise, vibration, and other factors would have the least impact. Primary truck routes in close proximity to the project site are provided via Cherry Avenue, Lakewood Boulevard, Carson Street, and Spring Street. Regional freeway access is provided at the Cherry Avenue/I-405 interchange.

Transit Service

Figure 18, Existing Local Transit Routes, illustrates the transit routes in the City. This consists of both metro rail and bus routes. The bus lines servicing the City consist of Long Beach Transit (LB Transit), Metro, and Orange County Transit Authority (OCTA). LB Transit provides service throughout Long Beach, Lakewood, and Signal Hill. LB Transit has 34 bus routes and nearly 2,000 bus stops throughout the City. Most LB Transit routes run seven days a week and all routes are wheelchair accessible. There are four routes that travel to and from the Long Beach Airport, providing connections with the Metro light rail service to Los Angeles, El Segundo, and Norwalk, as well as to all Long Beach neighboring cities: Carson, Compton, Paramount, Bellflower, Artesia, Cerritos, Hawaiian Gardens, and Norwalk.

The project site is serviced via LB Transit Lines 21, 22, and 131, which travel along Cherry Avenue in close proximity to the site. A brief description of each of the three LB Transit lines is provided as follows. Figure 19, LB Transit Routes Servicing Study Area, presents the detailed transit routes for LB Transit Lines 21, 22, and 131.
Figure 17. Existing Truck Routes
Figure 18. Existing Local Transit Routes
Figure 19. LB Transit Routes Servicing Study Area
LB Transit Line 22 operates between the northern and southern limits of the City. A major destination along Line 22 includes downtown Long Beach. Service is provided Monday through Friday from approximately 5:20 a.m. to 7:05 p.m. and on Saturdays/Sundays from 6:00 a.m. to 8:05 p.m. In general, travel times from the project to downtown Long Beach would take around 30 minutes. Headways between buses vary throughout the day, but they typically arrive on 30-minute intervals.

LB Transit Line 131 operates between Redondo and Seal Beach. Major destinations along Line 131 include Wardlow Metro Blue Line Station, Belmont Shore, and Alamitos Bay. Service is provided Monday through Friday from approximately 6:39 a.m. to 9:06 p.m. and on Saturdays/Sundays from 6:38 a.m. to 8:40 p.m. In general, travel times from the project to Wardlow Metro Blue Line Station, Belmont Shore, and Alamitos Bay would take around 10 minutes, 15 minutes, and 50 minutes, respectively. Headways between buses vary throughout the day, but they typically arrive on 30-minute intervals.

Bicycle Network

Figure 20, Existing Bicycle Network, illustrates the existing bicycle network in the City. In early 2010, the City earned an innovation award from the Institute of Transportation Engineers (ITE) for the installation of the City’s green lane project in Belmont Shore, which installed sharrows, bike boxes, and green bike lanes. In addition, the City has implemented wayfinding information for cyclists. The City has over 60 miles of off-street bike and pedestrian paths. Significant paths include Shoreline Pedestrian/Bicycle Path, Los Angeles River Bike Trail, San Gabriel River Bike Trail, El Dorado Park Bike Path, and Heartwell Park Bike Path.

Review of Figure 20 illustrates the local bicycle facilities within close proximity to the site, which are located along Spring Street to the west, Bixby Road to the north, and Orange Avenue to the northwest. Each of these facilities is designated as follows:

» Spring Street – Class II Bike Lane
» Bixby Road – Class III Bike Route/Sharrows
» Orange Avenue – Class II Bike Lane

Each of these bike lanes is part of a larger proposed interconnected bicycle network in the City. As part of the updated Mobility Element, the Bixby Road bike route will ultimately connect to the Los Angeles River Bike Trail to the west, the Spring Street bike route will connect through to the Santa Fe Trail, and the Orange Avenue bike route will extend south from Wardlow all the way to Pacific Coast Highway.

F. Infrastructure

Presented in this section is a breakdown of the existing public utility infrastructure for the C-17 site study area within the City and immediately adjacent surroundings. Also identified are any known issues related to the current condition of the existing utility infrastructure that may influence future land use planning scenarios. The public utility purveyors servicing the study area and surrounding area include water, wastewater, stormwater, gas, and electric utilities. All servicing agencies were contacted directly and any available public records were obtained accordingly. Any available initial utility data for the study area, including infrastructure maps, as-built plans, and urban water management plans have all been reviewed and a discussion regarding any planned system upgrades or known existing constraints near the study area are provided in the following breakdowns.

Water

The study area is locally serviced by the LBWD, which serves as the retail water purveyor. An LBWD service area map is shown in Figure 21, LBWD Service Area Map.
Figure 20. Existing Bicycle Network

Legend
Existing Bikeways
- Bike Boulevard
- Class I Bike Path/Protected Lanes
- Class II Bike Lane
- Class III Bike Route/Sharrows

- LOS ANGELES RIVER BIKEWAY
- SEE ENLARGED STUDY AREA
- HEARTWELL PARK BIKE PATH
- EL DORADO PARK BIKE PATH
- SHORELINE PEDESTRIAN/BICYCLE PATH
- SAN GABRIEL RIVER BIKE TRAIL

ENLARGED STUDY AREA
Figure 21. LBWD Service Area Map
LBWD acquires its drinking water from two main sources: groundwater pumped and treated from a large underground aquifer below the City, known as the Central Basin, and imported water purchased wholesale and delivered by the Metropolitan Water District of Southern California (MWDSC) as part of the California State Water Project. Approximately 42% of LBWD’s total water supply is provided by groundwater with a small portion of their supply coming from reclaimed and recycled water that is used primarily to irrigate municipal landscapes. LBWD is also looking at plans to incorporate desalinated seawater as a future water source.

According to the 2010 Urban Water Management Plan (UWMP), LBWD has approximately 90,000 service connections currently installed and maintains over 900 miles of water mains. Water system facility maps have been obtained for the water network directly servicing the study area within the LBWD service area and have been incorporated into Figure 22, Composite Utility Map. Currently, a water master plan has not been obtained at this time and a detailed assessment of the existing infrastructure can only be postulated from the available data. In addition, the 2010 UWMP provides a forecast for future water supply and demand within the district boundary based on population projections. According to the analyses presented in the 2010 UWMP, LBWD has adequate supplies to meet projected demands throughout the 20-year planning period (through the year 2035) using the following supply portfolio: 36% groundwater, 12% imported water from MWDSC, 10% desalinated seawater, 14% recycled water, and 27% through conservation methods.

Within the study area and immediately adjacent service area, several large transmission water mains ranging from 20 to 36 inches exist along Cherry Avenue, Wardlow Road, Saint Louis Avenue, and 32nd Street. Smaller tributary water mains ranging from 8 to 12 inches exist along Globemaster Way, Gardenia Ave, 33rd Street, and Walnut Ave. Based on a general assessment of these facility maps, the current water infrastructure appears acceptable to meet the demands of the current land use while future land use scenarios will need to be evaluated accordingly. The existing water pipe delivery network does appear to be older in age based on the utilized pipe materials, including ductile iron (DI), asbestos concrete, cast iron, cement mortar lined, and cement. Ultimately, future PVC water improvements intended to service the study area will likely connect into the larger transmission water mains, as described above.

Wastewater

The LBWD also services the study area for wastewater collection and treatment. The LBWD operates and maintains approximately 765 miles of sanitary sewer lines and ultimately delivers over 40 million gallons per day (MGD) to Los Angeles County Sanitation District (LACSD) facilities. Tertiary treated sewage from these facilities is used to irrigate public landscaping through the recycled water program and recharge the groundwater basin.

Currently, a majority of the City’s wastewater is delivered to the Joint Water Pollution Control Plant (JWPCP) of the LACSD. The remaining portion of the City’s wastewater is delivered to the Long Beach Water Reclamation Plant of the LACSD. JWPCP is located in Carson, California, and is the largest of the LACSD wastewater treatment plants. It provides advanced primary and partial secondary treatment for 350 MGD of wastewater. The plant serves a population of approximately 3.5 million people, including most of the 460,000 residents of the City. At JWPCP, the treated wastewater is ultimately released in the Pacific Ocean through networks of outfalls that extend 2 miles off the coast near the Palos Verdes peninsula.

The Long Beach Water Reclamation Plant, located in the City, provides primary, secondary, and tertiary treatment for 25 MGD with the plant currently operating at a daily average of about 19 MGD. The plant serves a population of approximately 250,000 people, including a portion of the resident population of the City and all influent is treated to tertiary wastewater treatment standards. This plant services many communities in addition to the City, including the adjacent Cities of Lakewood and Cerritos. Approximately 10% of the plant’s influent is from the City.

The wastewater infrastructure for the immediate project vicinity primarily consists of vitrified clay pipe (VCP) and includes 18-inch VCP sewer trunk main lines along Cherry Avenue south of Wardlow Road, 15-inch-diameter VCP sewer lines along 32nd Street east of Cherry Avenue, 12- to 18-inch-diameter sewer lines along Wardlow Road west of Cherry Avenue, 12-inch sewer lines along Walnut Avenue, and 10-inch-diameter sewer lines along Air Flite Way. In addition, 8-inch-diameter VCP sewer mains exist on Wardlow Road east of Cherry Avenue, Globemaster Way, and various other locations locally. Based on a general assessment of these facility maps, the current wastewater infrastructure appears acceptable to meet the demands of the current land use while future land use scenarios will need to be evaluated accordingly. Future sewer mains to service the project site will more than likely connect into the existing larger sewer trunk mains, as described previously. Sewer system atlas maps covering the study area have been provided by the LBWD and are included in Figure 22, Composite Utility Map.
Figure 22. Composite Utility Map
**Storm Drain**

The Los Angeles County Flood Control District (LACFCD) has jurisdiction over the study area and provides stormwater collection and conveyance for a majority of the City. In the immediate project vicinity, as-built storm drain plans show a collection system commencing near the intersection of Spring Street and Lakewood Boulevard that traverses northwest to Wardlow Road and ultimately terminates near Orange Avenue. Pipe sizes for this particular section of storm drain system range from 66- to 96-inch-diameter reinforced concrete pipe (RCP) and includes a 9- by 7-inch-diameter reinforced concrete box (RCB) for a small portion. An adjacent storm drain collection system running north and south along Cherry Avenue between 33rd Street and 36th Street contributes to the larger storm drain system described previously, which has pipe sizes ranging from 33- to 48-inch RCP. The entire storm drain system appears to have enough capacity to handle current stormwater demands and seems to be in relatively good condition. Future storm drain laterals to service the study area will more than likely connect into the existing storm drain system, as described above. For reference purposes, storm drain as-built plans provided by the LACFCD are included in Figure 22, Composite Utility Map.

**Gas**

Gas utilities are currently being serviced by the Long Beach Gas and Oil Department (LBGO), which provides gas services to the project site along with the majority of the City. Some portions outside of the specific study area are being serviced by the Southern California Gas Company (SCGC). Based on atlas maps provided by LBGO, existing gas mains ranging from 10 to 20 inches are located in Cherry Avenue with 4-inch-diameter gas mains also available along the study area perimeter. Based on a general assessment of these facility maps, the current gas infrastructure appears acceptable to meet the demands of the current land use, while future land use scenarios will need to be evaluated accordingly. Maps showing the existing infrastructure, as well as LBGO service territory, are included in Figure 22, Composite Utility Map.

**Electric**

Electric utilities are currently being serviced by Southern California Edison (SCE), which provides energy services to the study area, the City, and the greater Southern California area. Based on an SCE interactive distribution map last updated September 14, 2012, three substations (5738, 5753, and 5785) service the study area with overlapping coverage. According to the data, substation 5738 has a maximum available capacity of 7.75 megavolt amperes (MVA) but no current available capacity (0 MVA), substation 5753 has a maximum available capacity of 4.37 MVA but also no current available capacity (0 MVA), and substation 5785 has a maximum available capacity of 10.0 MVA and a currently available capacity of 0.9 MVA. Although all of the substations servicing the area appear to be at or near capacity, the existing system is sufficient to meet the existing demands of the current land use scenarios. Coordination with SCE will be required to evaluate future land use scenarios in regards to energy demand. Maps showing the existing SCE energy distribution maps and current capacities are included in Figures 23a and 23b, SCE Coverage Maps.
Figure 23a. SCE Coverage Maps
Figure 23b. SCE Coverage Maps

- **5753**
  - Voltage: 12.0kV
  - Allocated Generation: 5.73MVA
  - Queued Generation: 0.0MVA
  - Max Available Capacity: 29.77MVA

- **5738**
  - Voltage: 12.0kV
  - Allocated Generation: 2.33MVA
  - Queued Generation: 0.01MVA
  - Max Available Capacity: 52.75MVA

- **5785**
  - Voltage: 12.0kV
  - Allocated Generation: 1.9MVA
  - Queued Generation: 0.02MVA
  - Max Available Capacity: 75.38MVA