E

Supporting Documentation

E

Supporting Documentation

Contents

E1
Civil

E1. Civil

Civil Constraints Mapping

North Campus

Introduction

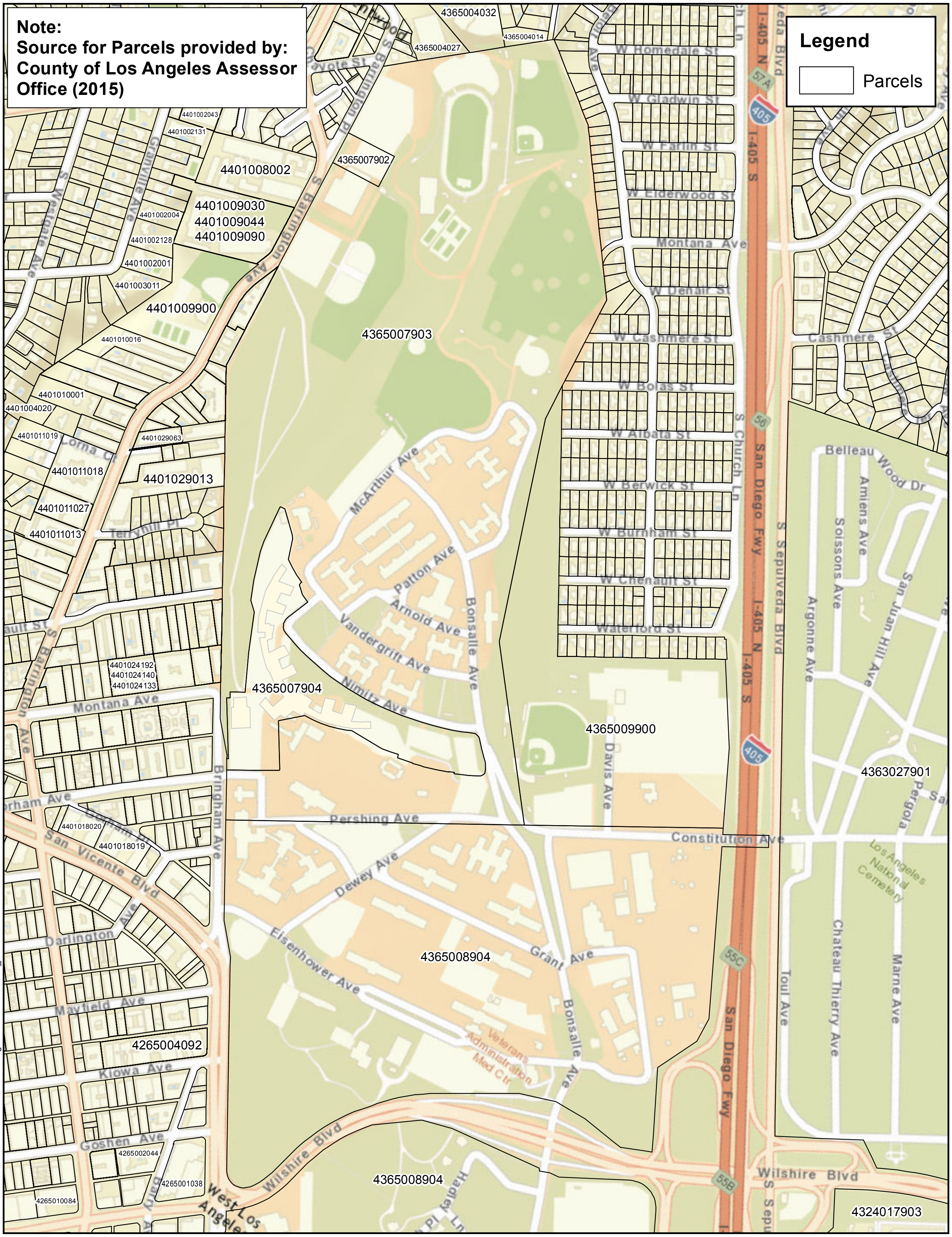
The site assessment for the existing VA WLA north campus summarizes the existing available record data information for the surrounding areas. This includes the following:

- Parcel Data
- Zoning
- Land Use
- Sensitive Species
- Bus Lines and Bikeways
- Aircraft Flight Patterns
- Topography
- Rainfall
- FEMA
- Earthquake Faults
- Liquefaction Zones
- Soil Types

The information provided for the site is based on record data provided by VA Hospital, local agency records, and public GIS data base for the West LA region.

Site Definition

The existing north campus is located within the 388 acres of the West LA Healthcare Center (WLAHC). The north campus is located west of the Interstate 405 freeway (I-405) and north of Wilshire Boulevard. The northern and westerly property borders Brentwood and West Los Angeles. The east is bordered by Westwood and Century City, directly east of the I-405.



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-PCL-XHBT_8x11P.mxd

Michael Baker INTERNATIONAL

Background Source: Esri

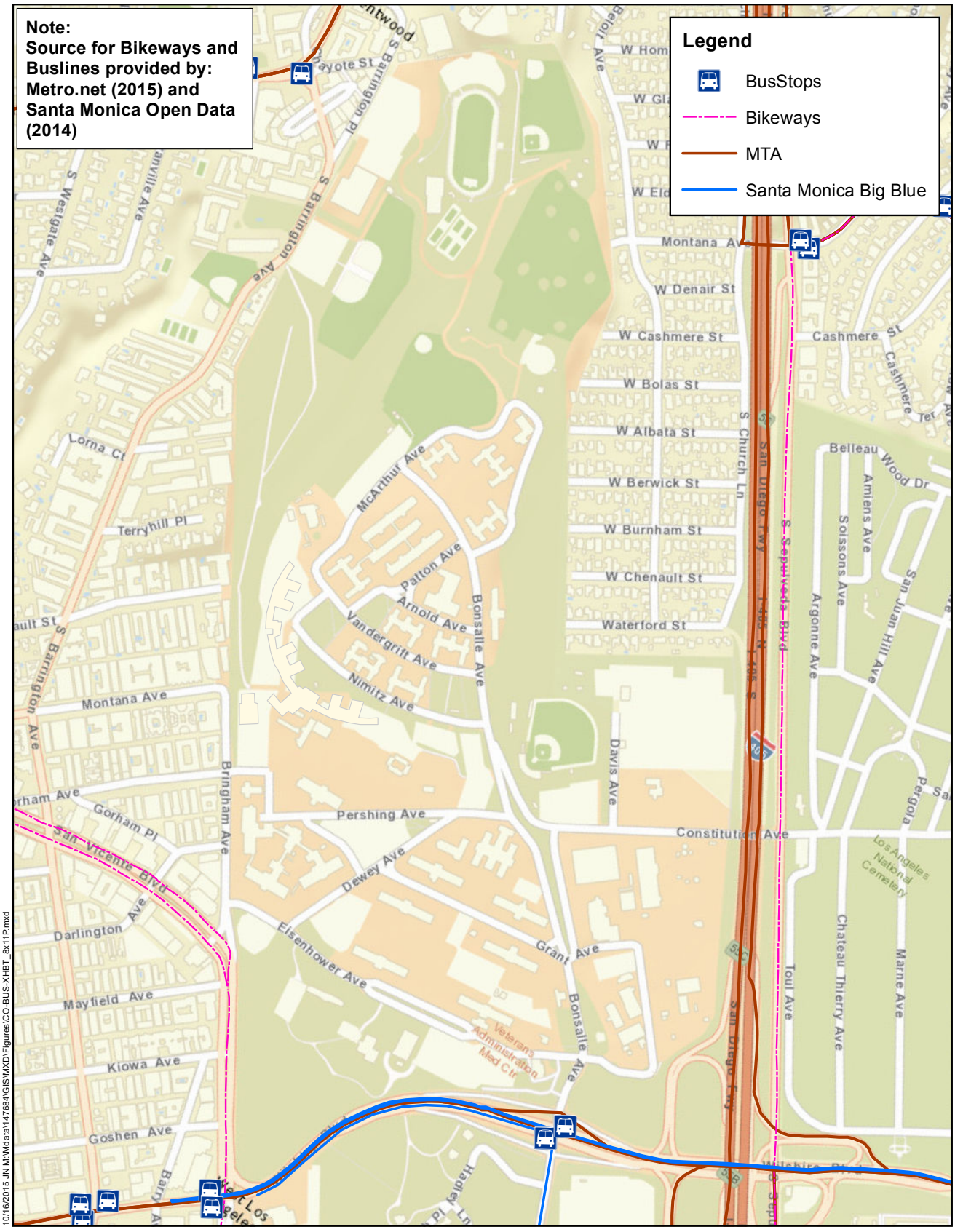
VETERANS HOSPITAL - NORTH CAMPUS

Parcels

CO-PCL-XHBT

Mass Transit Routes

The north campus is currently served by two bus systems: The "MTA" along Wilshire Boulevard, and the "Santa Monica Big Blue", which travels through the south campus from Wilshire Boulevard to Ohio Avenue. A future Metro Rail Station, including a parking structure, is conceptually planned near the intersection of Wilshire Boulevard and Bonsall Avenue.



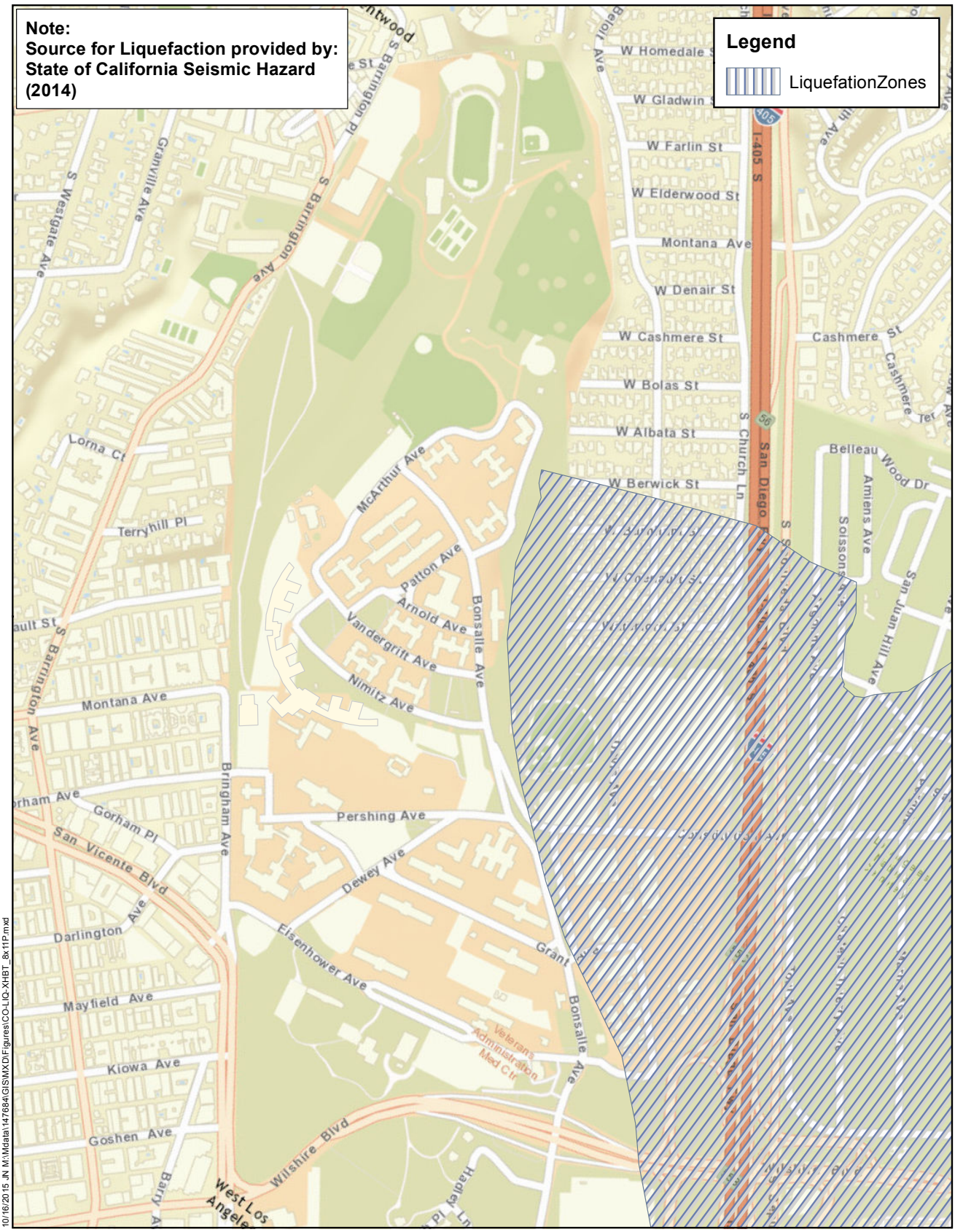
VETERANS HOSPITAL - NORTH CAMPUS

Bus Lines and Bikeways

CO-BUS-XHBT

Liquefaction Zones

The Liquefaction Zone is primarily located in the southeastern portion of the north campus and east of Bonsall Avenue.



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-LIQ-XHBT_8x11P.mxd

Michael Baker INTERNATIONAL

0 350 700 Feet

Background Source: Esri

VETERANS HOSPITAL - NORTH CAMPUS

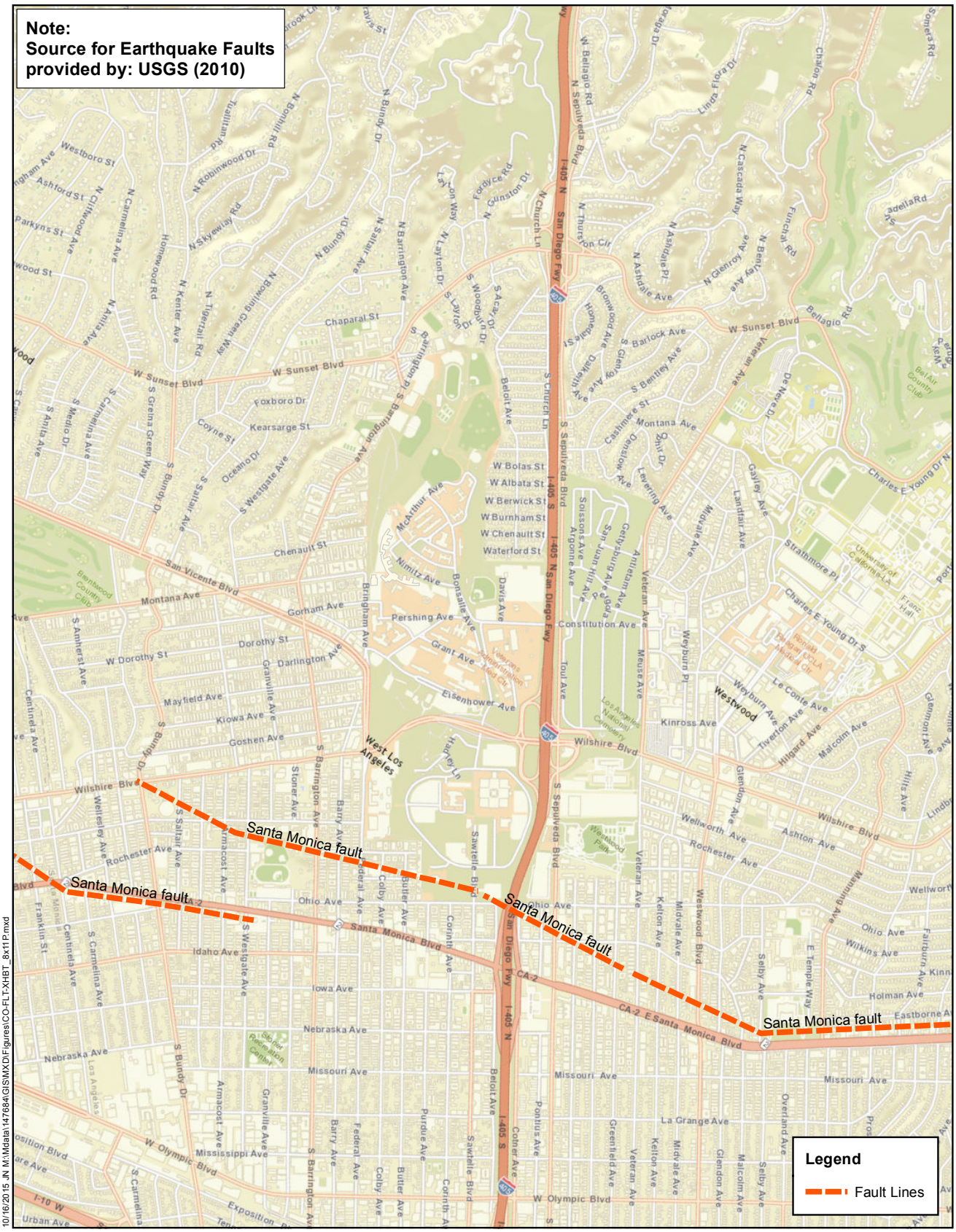
Liquefaction Zones

CO-LIQ-XHBT

E1. Civil

Earthquake Faults

The site is north of the Santa Monica fault. The Santa Monica fault runs through the southernmost portion of the south campus.



Michael Baker INTERNATIONAL

VETERANS HOSPITAL - NORTH CAMPUS

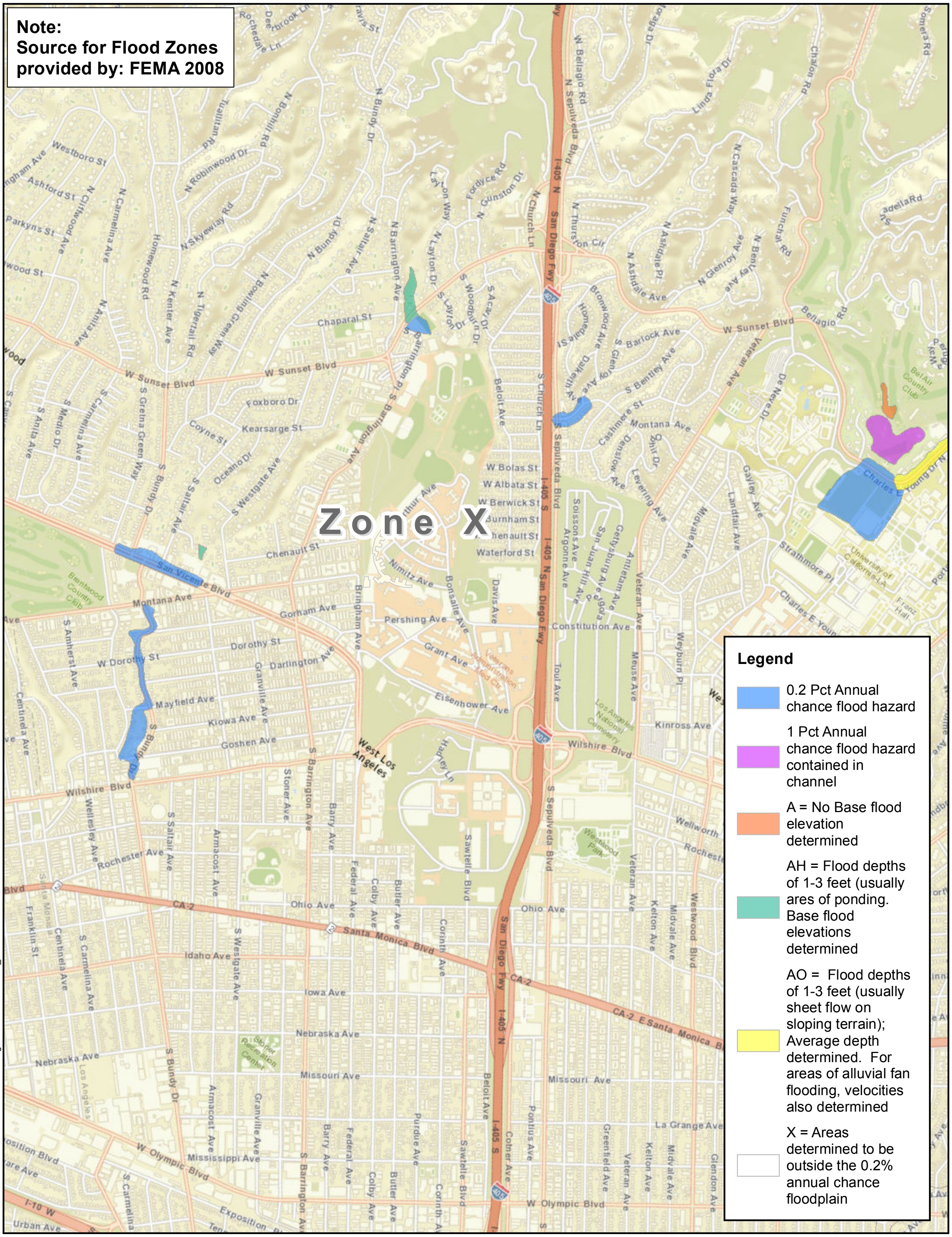
Earthquake Faults

CO-FLT-XHBT

E1. Civil

Flood Hazards and FEMA

According to FEMA floodplain maps, the north campus is outside of the flood hazard 100-year floodplain. The rainfall amount within a 24-hours period for a 50-year storm event is approximately 6.8 inches.



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-FEM-XHBT_8x11P.mxd

Michael Baker INTERNATIONAL

0 1,000 2,000 Feet

Background Source: Esri

VETERANS HOSPITAL - NORTH CAMPUS

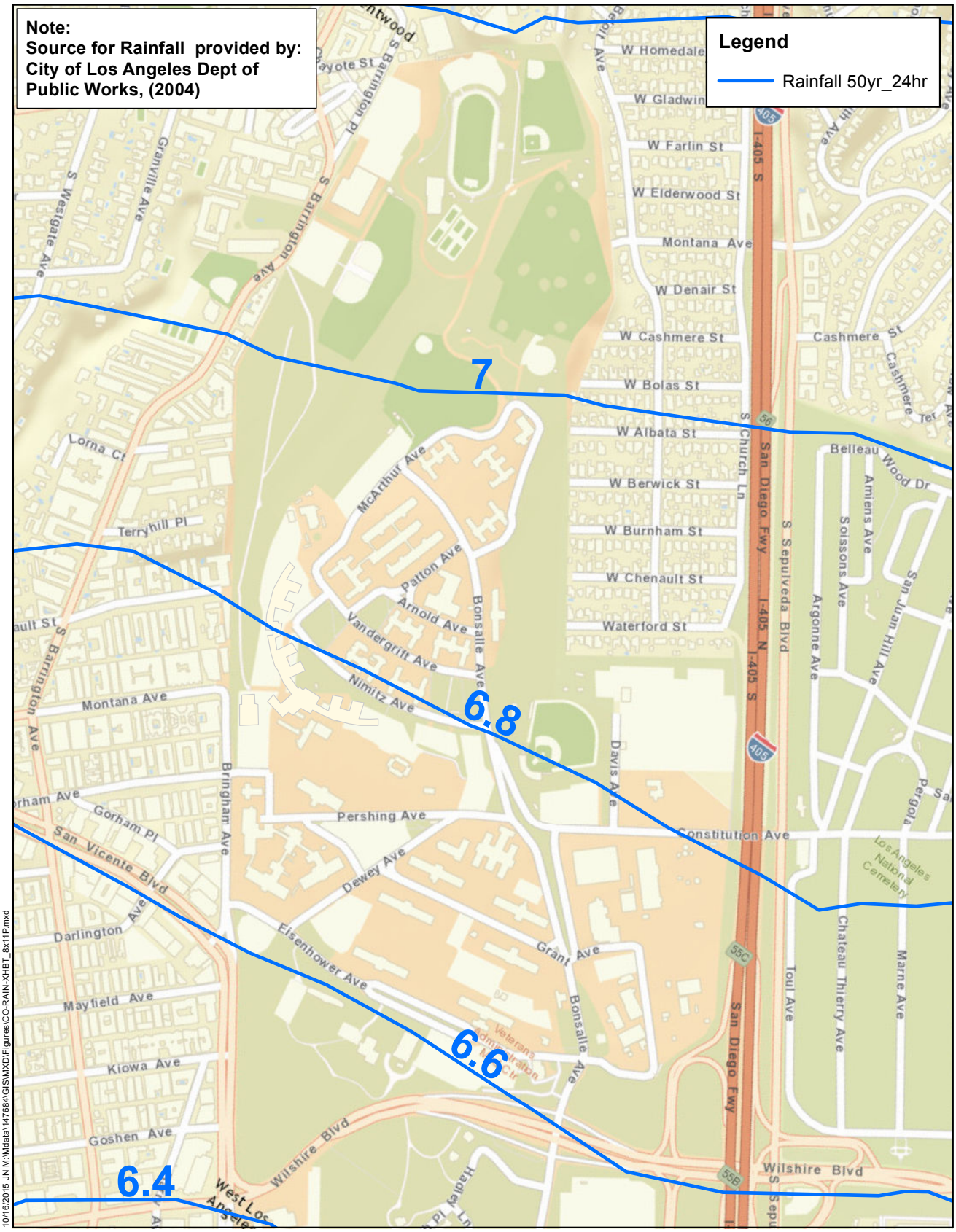
FEMA

CO-FEM-XHBT

E1. Civil

Rainfall

The rainfall amount within a 24-hours period for a 50-year storm event is approximately 6.8 inches.



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-RAIN-XHBT_8x11P.mxd

Michael Baker INTERNATIONAL

0 350 700 Feet

Source: Esri, Los Angeles County

VETERANS HOSPITAL - NORTH CAMPUS

Rainfall

CO-RAIN-XHBT

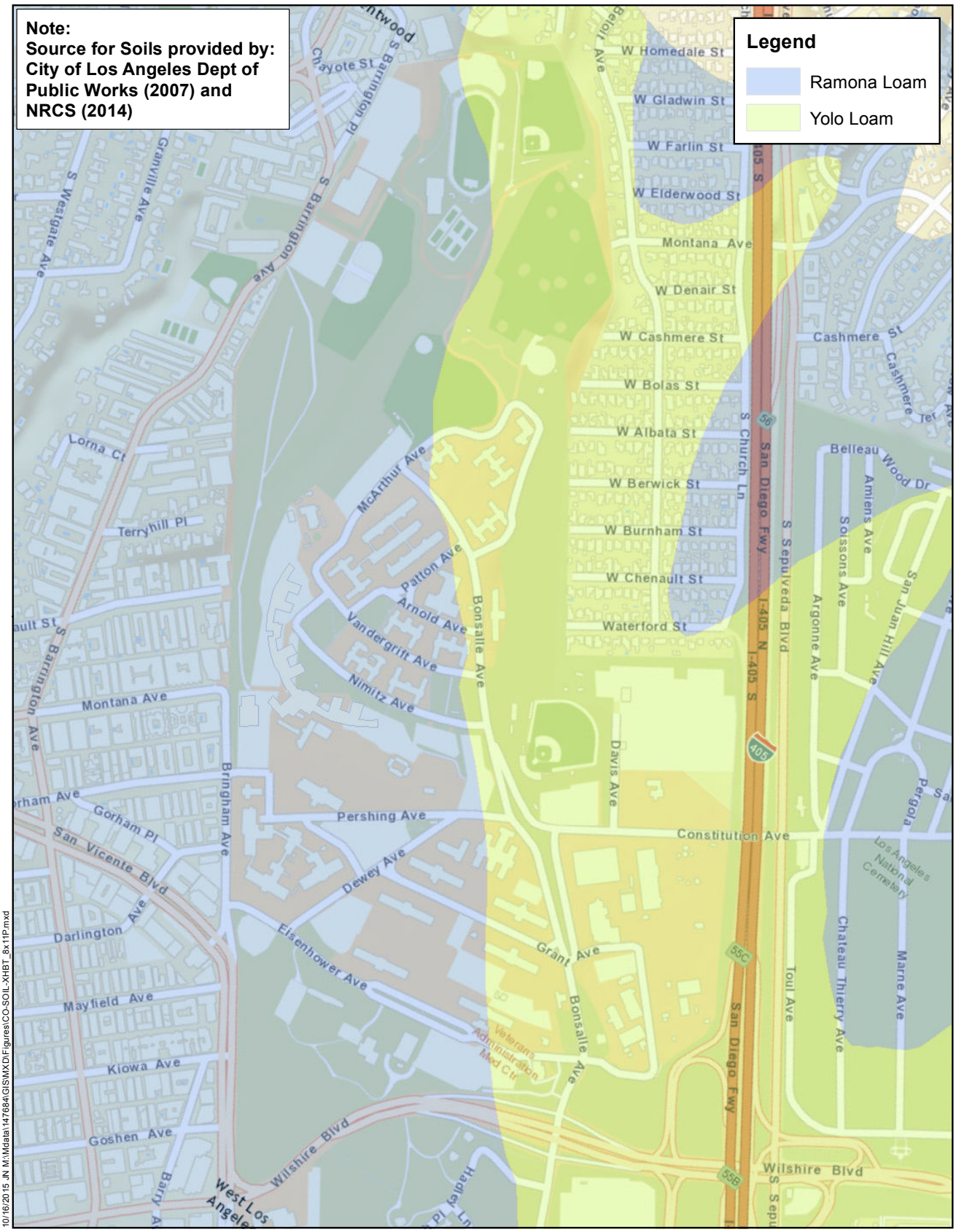
E1. Civil

Soil Type

Two types of soil have been identified on the site. Ramona Loam along the west, and Yolo Loam along the east. Both soil types continue north and south of VA campus.

Drainage Fields and Water Table Elevation

Groundwater was not encountered at depths up to 70 feet. Storm water and general drainage from the northern portion of the site and surrounding neighborhoods is accommodated in the zone nearest South Barrington Avenue.



Michael Baker INTERNATIONAL

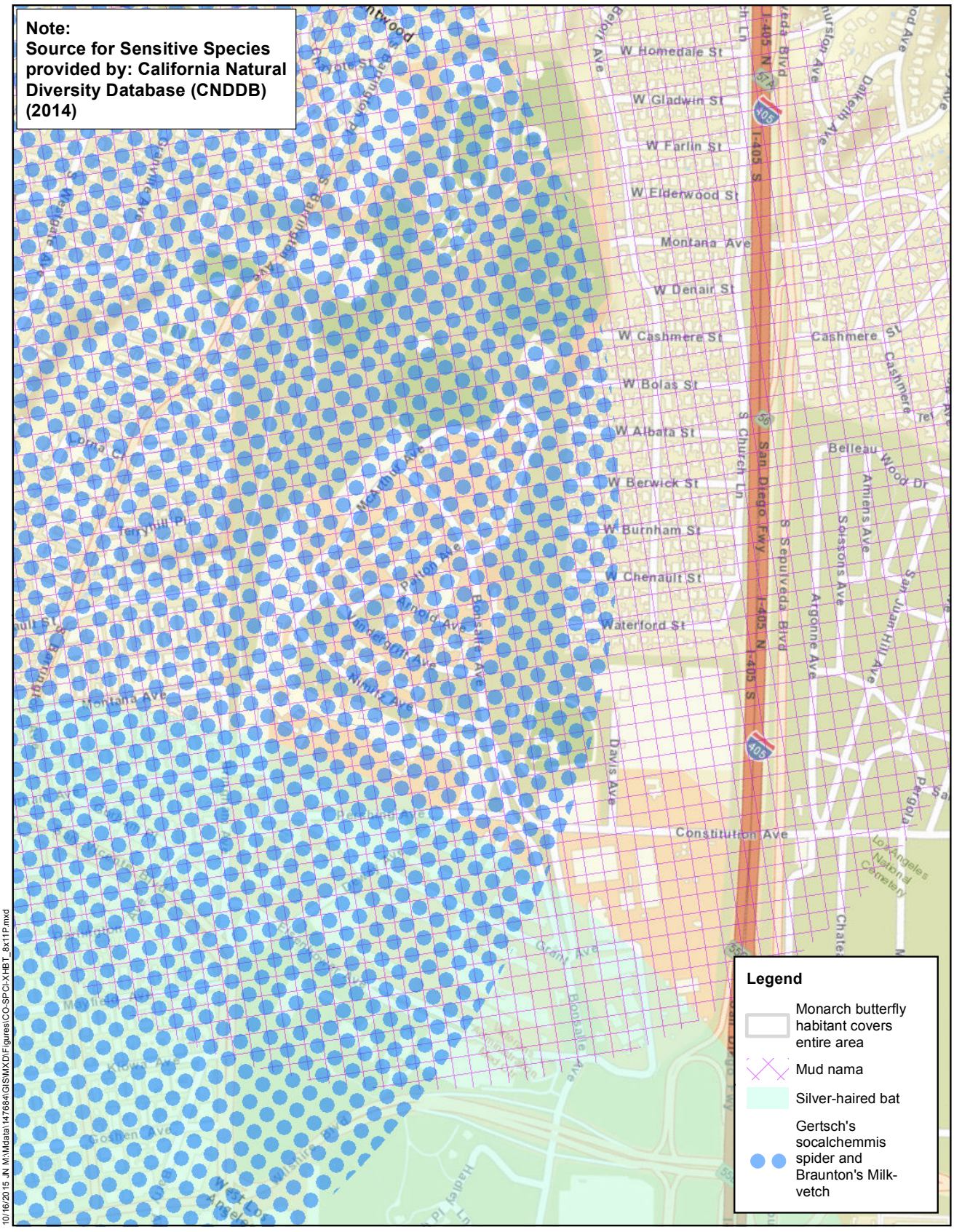
VETERANS HOSPITAL - NORTH CAMPUS

Soils

CO-SOIL-XHBT

Ecological Considerations

The north campus is within the sensitive species area for the Monarch Butterfly, Silver Haired Bat, Gertsch's Socalchemmis Spider, Mud Nama (plant), and Braunton's milk-vetch (plant).



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-SPCI-XHBT_8x11P.mxd

Michael Baker INTERNATIONAL

0 350 700 Feet

Background Source: Esri

VETERANS HOSPITAL - NORTH CAMPUS

Sensitive Species

CO-SPCI-XHBT

A B C D E F G

E1. Civil

Topography

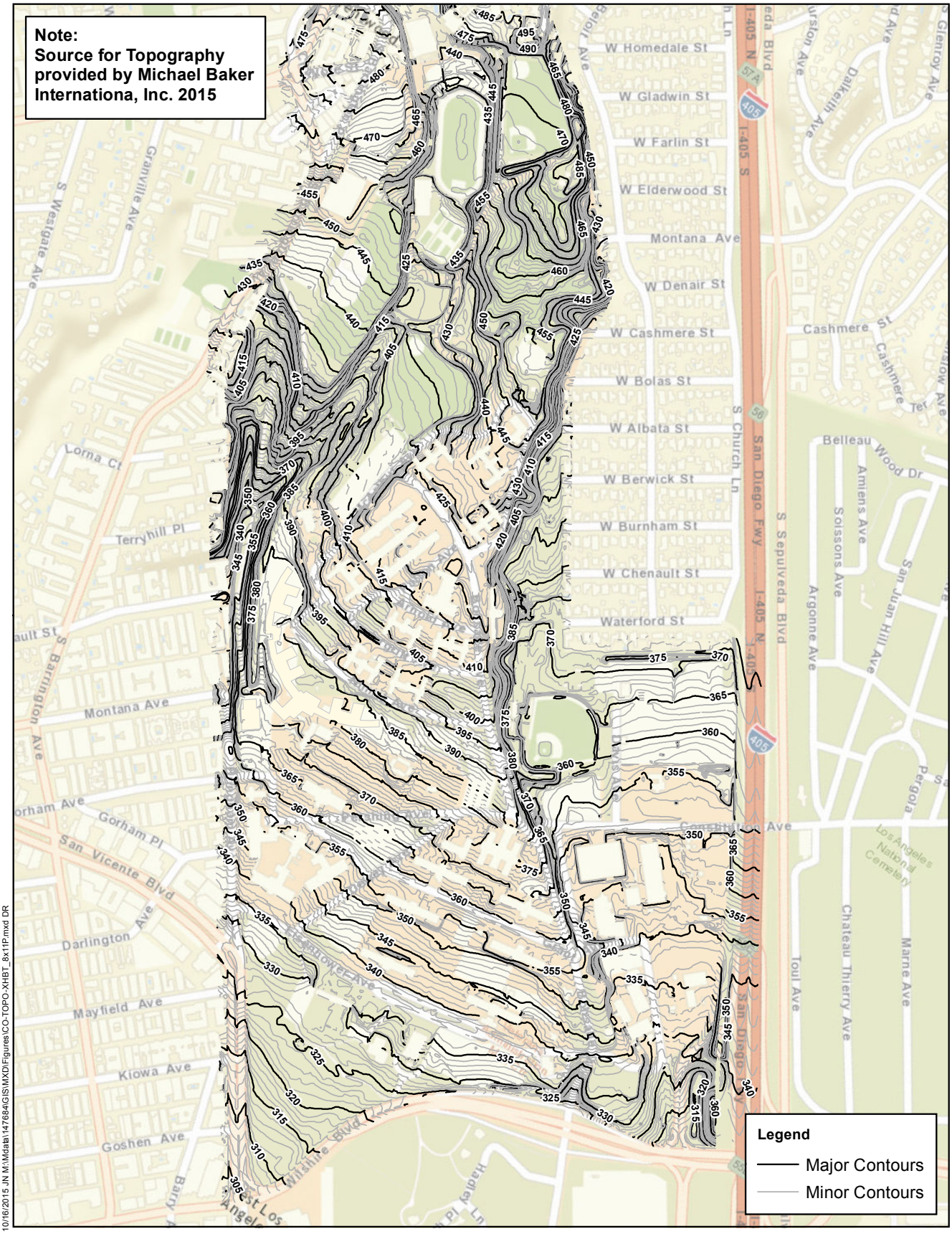
An aerial topographic map for the north campus was prepared in July 2015. It is included as exhibit Topographic Map (CO-TOPO-XHBT). As a side note, in January 2014 an aerial topographic map was also prepared for the south campus.

The site topography generally slopes primarily from the north to south as well as westerly from Bonsall Avenue to San Vicente Boulevard/Bringham Avenue. Along the east side of Bonsall Avenue, the existing topography slopes south to Wilshire Boulevard. See also the storm drain section of this document for drainage patterns.

The northern portion of the property (approx. 22 acres) is currently being used by the Brentwood School and is at an elevation of approximately 480 feet. The southern portion of the site is at an elevation of approximately 310 feet. The change in elevation is approximately 170 vertical feet from the Brentwood School site to Wilshire Boulevard.

The northern half of the property has more variation in the topography with existing site improvements that include large flat pad areas and graded side slopes to fit the existing terrain. The area is mostly used for recreational purposes and includes the following site improvements: a football and track field, baseball fields, golf course, dog park, soccer field, tennis courts, gardens, and the Arroyo drainage area. With these amenities, the density and paved areas are less than the southern portion and primarily used for parking and access drives.

The southern half of the property is the majority of the campus infrastructure and provides services for longterm care and housing. The southeast portion of the site has the least amount of elevation change and is primarily industrial. A few of the uses for this area include: laundry facilities, engineering shops, oil lease area, and a supply warehouse.



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-TOPO-XHBT_8x11P.mxd DR

Michael Baker INTERNATIONAL

0 350 700 Feet

Background Source: Esri

VETERAN'S HOSPITAL - NORTH CAMPUS

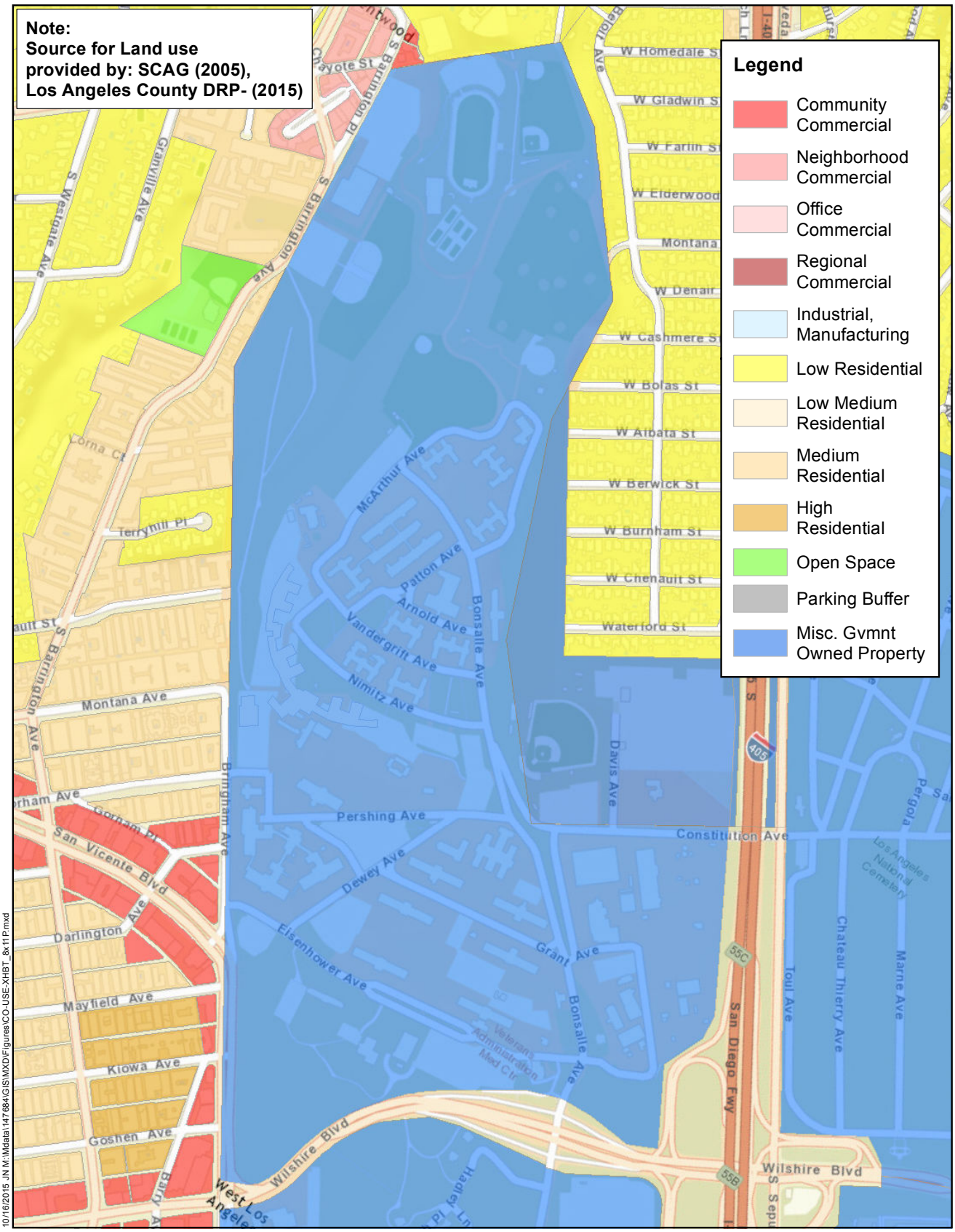
Topographic Map

CO-TOPO-XHBT

E1. Civil

Surrounding Land Uses and Parcel Information

The north campus surrounding land use includes multi-unit residential, commercial, and retail buildings along the westerly and northern boundary. The southeast side of the property is bordered by the I-405, and the northeast is bordered by single-family homes (Brentwood Glen). The southern boundary is bordered by Wilshire Boulevard.



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-USE-XHBT_8x11P.mxd

Michael Baker INTERNATIONAL

0 350 700 Feet

Background Source: Esri

VETERANS HOSPITAL - NORTH CAMPUS

Land Use

CO-USE-XHBT

A B C D E F G

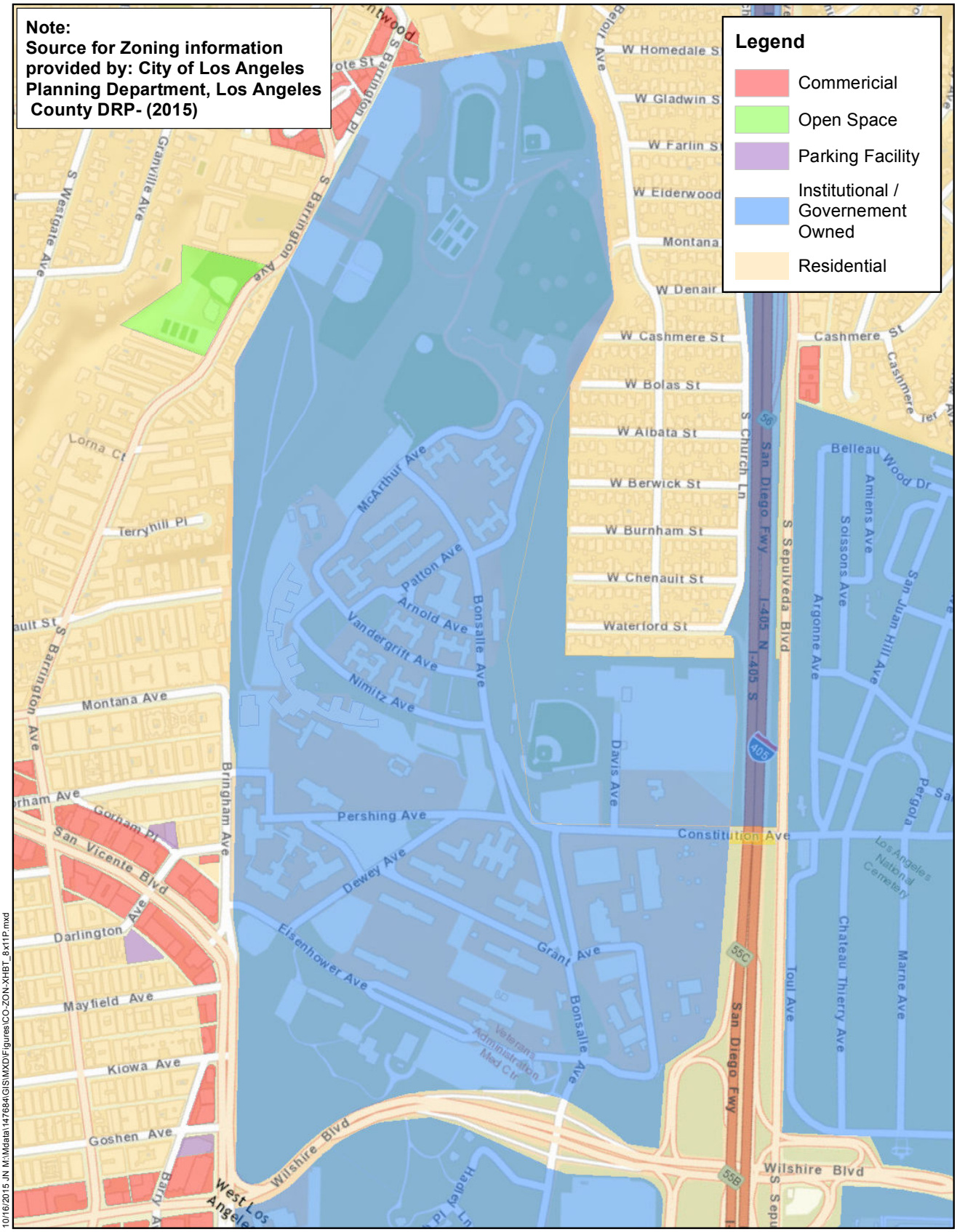
E1. Civil

Surrounding Zoning

The north campus is part of the West LA Healthcare Center Campus for the Greater LA Healthcare System and is zoned as Institutional/Government Owned. Portions of the site have existing lease agreements in place. The parcel exhibit identifies the California Veterans Home, U.S. Post Office, and the Brentwood School. A title report for the property will need to be provided to identify all existing easements, deeds, and other recorded information for the site.

Aircraft Flight Patterns

The Santa Monica Airport south of the Santa Monica (10) freeway is the closest airport to the north campus. The site is approximately 2 miles north of the Santa Monica Airport. The airport runway is from the east to west direction. Based on the airport runway layout and proximity to VA campus, it does not appear that VA campus is in the flight path of the airports arrivals or departures



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\CO-ZON-XHBT_8x11P.mxd

Michael Baker INTERNATIONAL

0 350 700 Feet

Background Source: Esri

VETERANS HOSPITAL - NORTH CAMPUS

Zoning

CO-ZON-XHBT

A B C D E F G

E1. Civil

Civil Utilities

North Campus Site Utility Infrastructure

Master Plan Assessment of Sewer, Water, and Storm Drain Systems.

The common recommendation for the existing sewer, water and storm drain systems are to document the entire campus with an underground utility survey. Existing record information for the site is extremely limited given the age of each system. Portions of each system were constructed prior to 1930. A complete underground survey should include a report on the water, sewer and storm drain system for the north and south campus. Documentation will be necessary of abandoned buildings that are not in use and determining the domestic water demand for each of the buildings still in use (including lease areas). The report should also provide pipe depths at each access point both in and out of manholes, pipe age and condition, pipe size, material type and mapped horizontal location using the most current 2014/2015 aerial topographic map (prepared by Michael Baker International, formerly RBF Consulting). This information will assist VA over the next several years as it continues to consider site improvement opportunities to expand the services provided at the West LA campus.

The existing north campus sewer, water and storm drain infrastructure are identified in this section. For information on gas, telecommunication, electrical, steam and oil, please refer to the Mechanical, Electrical, and Plumbing (MEP) section for a summary on those specific site utilities. Exhibits have been prepared and are included for the following utilities based on digital information provided by VA facilities staff:

- Telecommunication
- Steam Lines
- Electrical
- Gas and Oil

The scope of this Master Plan assessment did not require following the guidelines of PG18-15. As such, the scope of this assessment includes high-level inventory and analysis of the campus systems and determining how the proposed north campus Master Plan would generally affect these systems. More in-depth analysis will be required under the PG18-15 guidelines when the project advances to the Pre-Design phase.

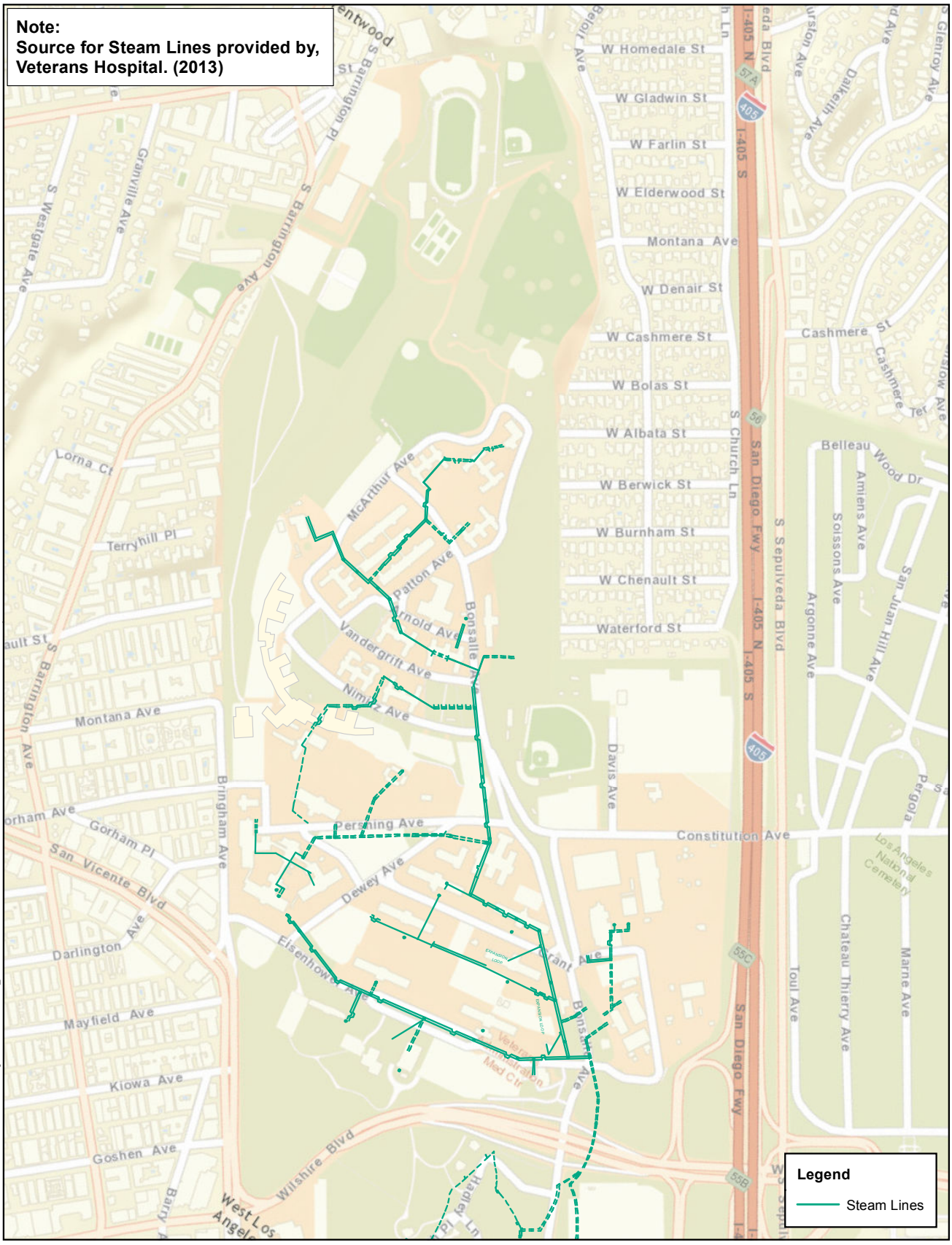
Methodology

The process to compile record information for these three utilities begins with coordination with VA West LA facilities staff. The members of the master planning team promptly began data collection with VA and distributed information as it was received. Information received has been reviewed and has been included in the BOD document and exhibits.

A continued effort over the last two months has been made to coordinate with VA facilities staff on the priority of information being requested. HOK and Michael Baker International met with VA facilities staff on July 28, 2015, to coordinate on remaining record information needed. There are some outstanding items that have not yet been provided. These items need to be addressed as to whether or not the information is available. Outstanding items are included in the narrative below, specific to each utility.

Local agencies have been contacted and have provided as-built plans on the adjacent facilities surround VA north campus. These agencies include:

- LA City Public Works Department
- LA County Flood Control District
- Caltrans
- Metro
- LA Department of Water and Power
- Navigate LA GIS website.

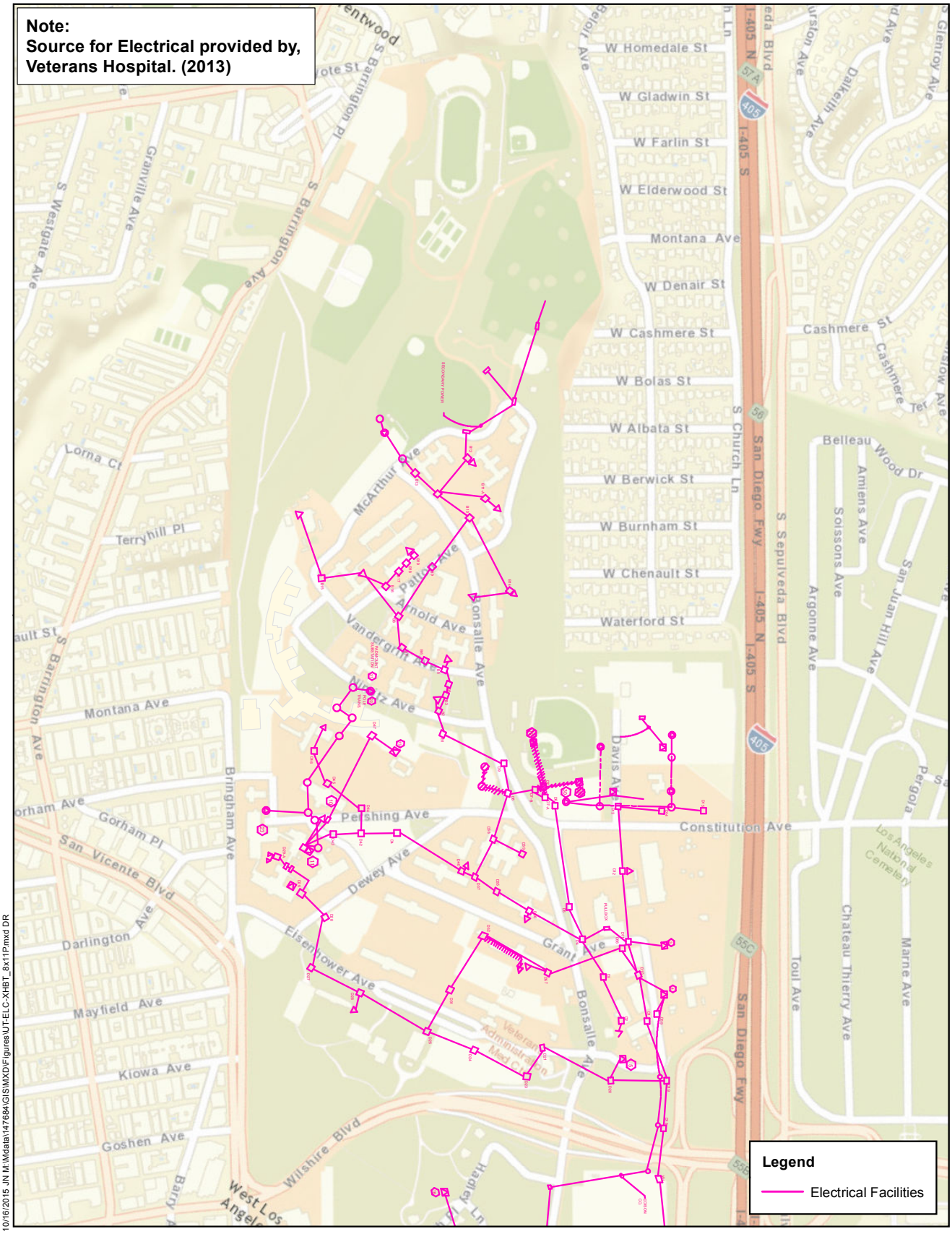


Michael Baker INTERNATIONAL

VETERAN'S HOSPITAL - NORTH CAMPUS

Steam Lines

UT-STM-XHBT



10/16/2015 JN M:\Mdata\147694\GIS\MXD\Figures\UT-ELC-XHBT_8x11P.mxd DR

Michael Baker INTERNATIONAL

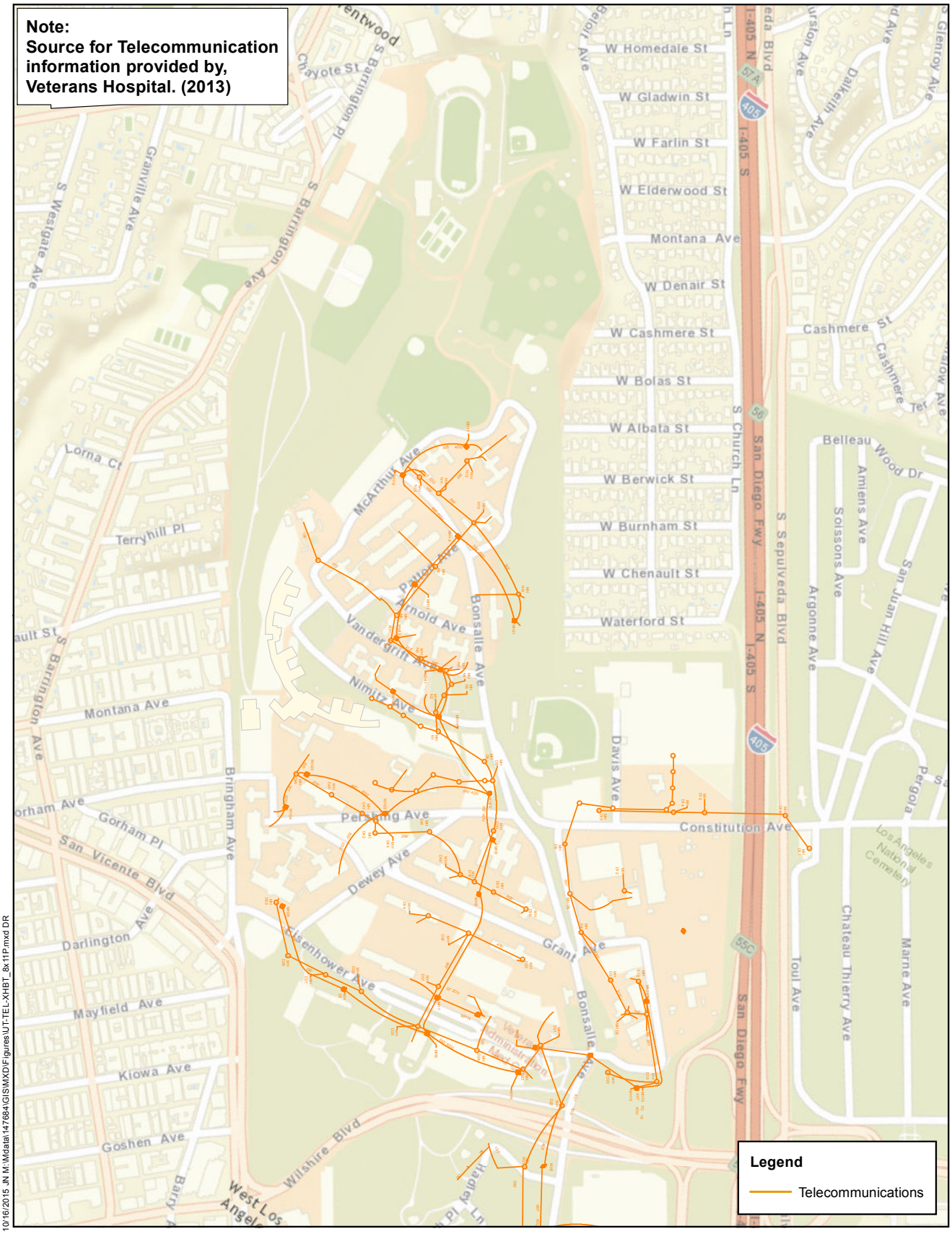
0 350 700 Feet

Background Source: Esri

VETERAN'S HOSPITAL - NORTH CAMPUS

Electrical

UT-ELC-XHBT



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\UT-TEL-XHBT_8x11P.mxd DR

Michael Baker INTERNATIONAL

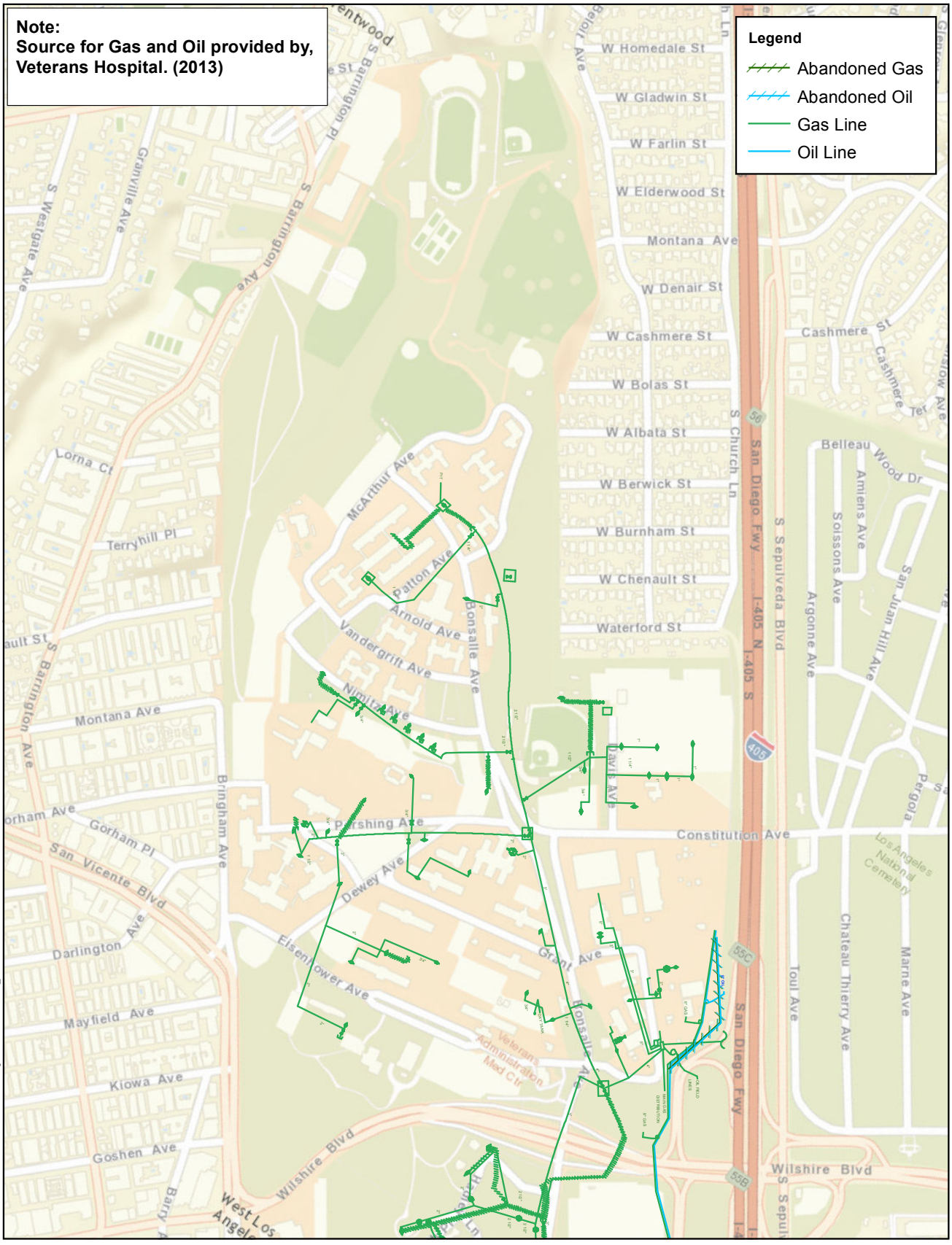
0 350 700 Feet

Background Source: Esri

VETERAN'S HOSPITAL - NORTH CAMPUS

Telecommunications

UT-TEL-XHBT



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\UT-GAS-XHBT_8x11P.mxd DR

Michael Baker INTERNATIONAL

0 350 700 Feet

Background Source: Esri

VETERAN'S HOSPITAL - NORTH CAMPUS

Gas and Oil

Exhibit

This page is intentionally left blank.

E1. Civil

Civil Utilities

North Campus Site Utility Infrastructure

Sanitary Sewer

Findings/Analysis

The existing sanitary sewer for the campus generally flows from north to south and from west to east. There are three main trunk collection sewers that gravity flow through the north campus, cross Wilshire Boulevard and continue to serve the south campus. Ultimately all three sewer main lines connect to the public sewer system at the intersection of Sawtelle Boulevard and Ohio Avenue. According to record drawings, one 8-inch sewer crosses Wilshire Boulevard in the southwest portion of the north campus. Additionally, separate 18-inch and 24-inch sewers cross Wilshire Boulevard at the southeast area near the I-405 freeway. These two sewer mains have recently been relocated to the west as part of the I-405 interchange improvements at Wilshire Boulevard. METRO has provided utility improvement plans for these two locations.

Most of the existing sewer main lines that serve the existing structures were built in the early 1900s. The existing 8" and 12" lines were constructed prior to 1937 (except for the recently relocated portion). Very limited record data is available for most of the existing pipe in the north campus. There are existing abandoned sewer lines in various locations throughout the site. More recent construction has provided some data on the State Facility Veterans Home (a.k.a. Cal Vet) property. This facility does not connect into the campus sewer system. It is served by the public sewer system along the west side of the north campus within Bingham Avenue.

Record information on the history of the sewer system has been requested form VA facilities staff to document the existing conditions. While some information has been received to provide a general understanding of the campus layout, only one sewer report has been provided that was completed in 2012. It is currently unknown what additional studies have been completed in the last 10 years. It is also unknown where replacements have been made and what are the current concerns with the existing system. In order to analyze the existing system to determine the capacity, additional record information is needed. This includes sewer depth and slope, pipe sizes and condition of pipe (including approximate age of pipe). In addition, receiving record information regarding what type of maintenance issues have been remedied, including recent clogging and blockages restricting flow in the pipe would benefit the Final Draft Master Plan. It was noted in the 2012 sewer report that there were areas within the campus that had clogged and blockage in the pipe. Some areas were impacted by root intrusion. It is unknown if these issues were corrected and what the limits were of the sewer report.

Sanitary Sewer exhibit on the following page (UT-SWR-XHBT) includes on-site information provided by VA facilities staff. Adjacent information offsite depicted on the exhibit has been provided by the City of LA, Public Works, GIS database.

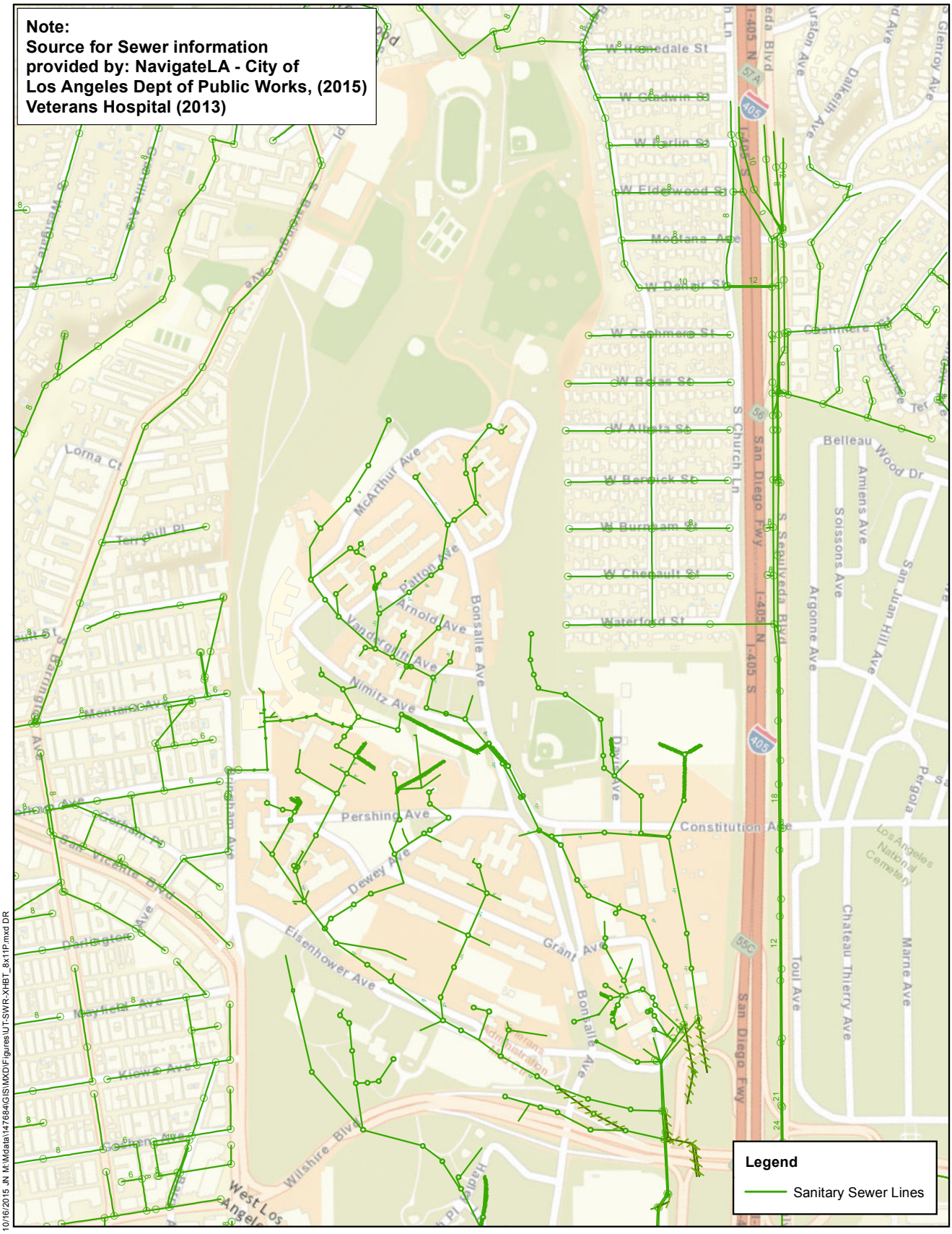
Conclusion

The existing sanitary sewer for the campus is over 80 years old and in some areas over 95 years old. With the future layout and expansion of the campus, sewer replacement, relocations and upsizing of pipe will be required to accommodate the added growth. Sewer flow monitoring will be needed to confirm existing additional capacity and if the system will need additional main lines or replacement of main lines to serve future growth on the campus.

Recommendation

It is recommended that a full underground utility survey be completed for the existing sewer system to correlate existing and future sewer demands. It is recommended that sewer flow monitoring be completed in various locations throughout the site. A 14-day minimum monitoring is recommended at each location. Based on the age of the existing system, it is recommended that new construction in the beginning phases be placed near the south and west portions of the north campus to reduce replacement costs to the older main lines. It may be feasible to add service connections to the west along Bringham Avenue/San Vicente Boulevard. Further study will need to be completed to determine the feasibility of these service connections to the public system. Existing public system capacity and potential additional demand will need to be determined. For the repurposing of existing buildings in early phases of the Master Plan, the existing adjacent sewer system should be analyzed further (including video) to verify pipe condition.

With the ultimate build out of the Master Plan, the need for sewer infrastructure replacement will need to be determined based on future studies. Interim connections to the west into the public system may be possible and then later re-connected into the campus system once later phases are implemented.



10/16/2015 JN M:\Mdata\147684\GIS\MXD\Figures\UT-SWR-XHBT_8x11P.mxd DR

Michael Baker INTERNATIONAL

0 350 700 Feet

Background Source: Esri

VETERAN'S HOSPITAL - NORTH CAMPUS

Sanitary Sewer

UT-SWR-XHBT

E1. Civil

Civil Utilities

North Campus Site Utility Infrastructure

Water Service

Findings/Analysis

The existing water system serves VA West LA campus via LADWP connections from the north and the south. There is a third connection from San Vicente Boulevard. near Wilshire Boulevard. This seems to indicate that a 'true' circulating system serves the campus demands. According to available record drawings, the north campus makes a service connection to an existing 36-inch LADWP aqueduct that runs in the east-west direction through the site along the northernmost portion of the site. The north service connection fills two VA owned and maintained water storage tanks, which then serve the entire VA West LA campus. The water system provides domestic service, fire service to fire hydrants and building sprinkler systems for the existing structures and irrigation service for the north and south campus. As of the 1990s VA cemetery east of the I-405 is on a separate system. According to VA staff, the cemetery now gets its water from a separate service connection.

Further research is needed from VA campus facilities staff to determine the existing water demands of the site as well as to obtain recent fire flow tests for campus fire hydrants.

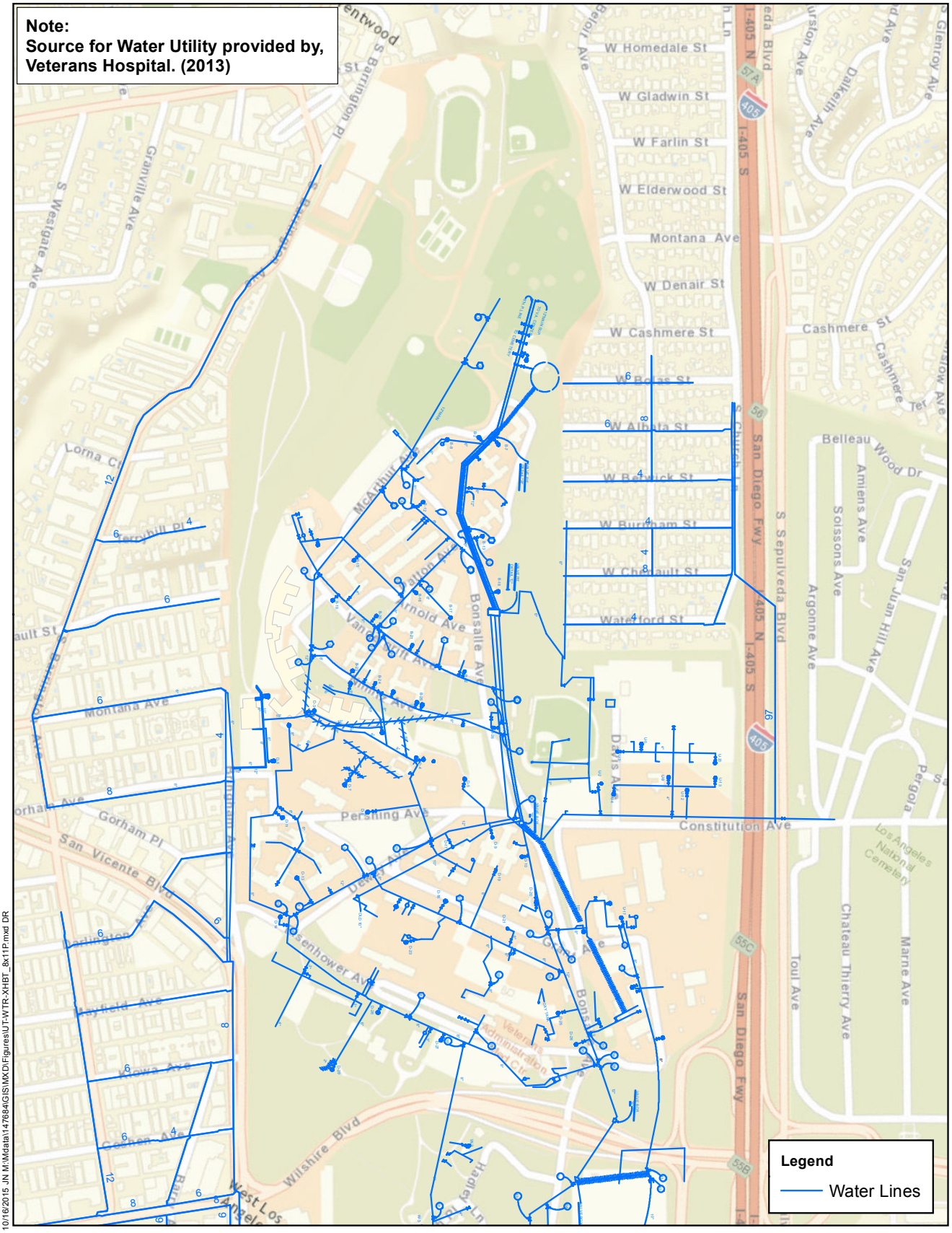
Water Service exhibit (UT-WTR-XHBT) includes on-site information provided by VA facilities staff. Adjacent information off site depicted on the exhibit has been provided by the Los Angeles Department of Water and Power (LADWP).

Conclusion

Future development within the north campus will require the relocation of main lines and upsizing pipe. It is unknown what the current age of the system is or where the system has been replaced, updated and abandoned. Recent fire flow test data will be required to confirm existing capacity of the system.

Recommendation

It is recommended that future construction be placed near the south and west end of the north campus to reduce replacement costs and to provide opportunities for service connections to the west along Bringham Avenue / San Vicente Boulevard. Further study will need to be completed to determine the feasibility of these connections to the public system. Existing public system capacity and potential additional demand will need to be determined. For the repurposing of existing buildings, the existing water system should be inspected to verify pipe condition. According to VA staff, the northern portion of the campus above Buildings. 257 and 256 require booster pumps at buildings to increase water pressure. Modification to the existing connection to LADWP may be required or additional pumps/storage tanks may be needed to serve future buildings in this location.



Michael Baker INTERNATIONAL

VETERAN'S HOSPITAL - NORTH CAMPUS

Water Service

UT-WTR-XHBT

E1. Civil

Storm Drain System

Findings/Analysis

The existing storm drain system within the north campus consists of several separate drainage areas. The majority of the site slopes from north to south. The northern portion of the site drains into the existing Arroyo (open channel) and then into an existing 7′ x 7′ concrete box structure that continues south under Bringham Avenue. Upstream from the Arroyo is an existing 51″ pipe that outlets into the Arroyo from the Brentwood school campus site. The middle and southwest portion of the north campus, west of Bonsall Avenue, surface flows toward the southwest corner of Wilshire Boulevard and San Vicente Boulevard. The storm water runoff is collected into various storm drain inlets on-site and conveyed in storm drain pipes across Wilshire Boulevard and continues through the south campus where is then drains into an open channel and into the LA County Flood Control system. The east side of the north campus, east of Bonsall Avenue, generally surface flows to the south east corner of the site near Wilshire and the I-405, it is not clear, based on available record data, where existing storm drain pipes are located. There are existing inlets along Bonsall Avenue and the I-405 south-bound off-ramp that continue south under Wilshire Boulevard and through the south campus. There are also two open channel concrete drainage structures that appear to collect the surface runoff for the east side of the campus. These channels are then also piped under Wilshire through the south campus.

In addition to the 51″ outlet pipe from the Brentwood school site, existing storm water runoff comes on-site from the Brentwood Glen Residential Tract northeast of the north campus. There is an existing 21-inch storm drain pipe that collects drainage from the existing residential streets and outlets on-site near Waterford Street.

Record information has not been provided for the Brentwood School site. This information is important to provide recommendations based the existing utility infrastructure in this area. Ideally this record information would include hydrology and hydraulic reports previously prepared for the Brentwood Campus.

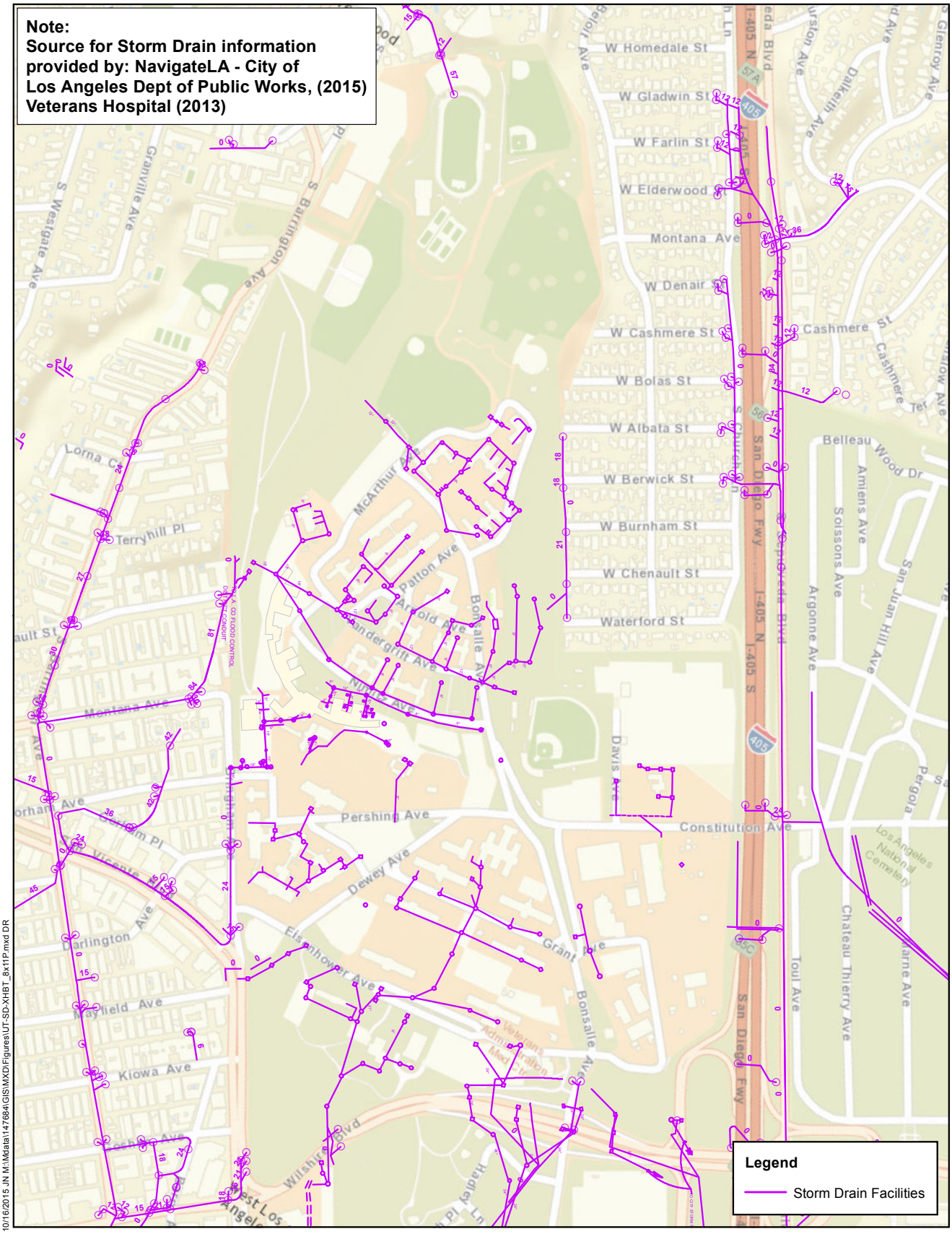
Storm Drain Exhibit (UT-SD-XHBT) includes on-site information provided by VA facilities staff. Adjacent information off site depicted on the exhibit has been provided by the City of LA, Public Works, GIS database.

Conclusion

The existing storm drain system for the campus is over 80 years old and in some areas over 95 years old. With the future layout and expansion of the campus, storm drain system improvements (replacement, relocation and upsizing of pipe) will be required to accommodate the new expansion. With the increase in impervious surfaces to the overall site, storm water quality and storm water run-off will need to be studied where future improvements are planned. The age of the existing system is unknown. Conveyance of runoff in the earlier systems (1937 map) appears to have been a combination of sanitary sewer and storm drain but at some point they were separated into separate systems. It is likely that portions of existing storm drain will need to be replaced. It is unknown if there are any issues with the existing storm drain system, storm water run-off or ponding areas during storm events on-site. A preliminary assessment of Water Quality Best Management Practice Options has been included in this scope of work.

Recommendation

It is recommended that the existing storm drain system be surveyed in predetermined areas where drainage areas will potentially be changing, including impervious areas. Further study will need to be completed to determine the feasibility of future connections (or increase in flow) to the public system. Existing public system capacity and potential additional runoff will need to be determined. For the repurposing of existing buildings, the existing adjacent storm drain system should be inspected (including video) to verify pipe condition, size, depth and slope. It is anticipated that all storm water treatment will occur immediately adjacent to the proposed improvements prior to discharge into a storm drain system or open channel.



Michael Baker INTERNATIONAL

VETERAN'S HOSPITAL - NORTH CAMPUS

Storm Drain

UT-SD-XHBT

A B C D E F G

E2
Safety

Civil E1

Safety E2

E2. Safety

Physical Security

VA West LA Master Planning Physical Security Narrative

This narrative summarizes the physical security concepts to be included in the Master Plan for development of the north campus at the West Los Angeles VA Medical Center consistent with the requirements of VA Physical Security Design Manual (January 2015). The intent of VA criteria is to minimize injuries, protect critical infrastructure, and limit catastrophic damage to the building structure.

The Physical Security Design Manual (PSDM) generally classifies individual facilities as "Mission Critical" (MC) or "Life-Safety" (LS) based on occupancy and planned program and identifies applicable physical security requirements to mitigate credible design basis threat (DBT) scenarios. The proposed Urban Master Plan concept proposes a program arrangement that groups facilities carrying Mission Critical (MC) and Life-Safety (LS) security designations into respective zones and neighborhoods. The "Permanent Supportive Housing" and "Permanent Independent Housing" zones, which include all proposed neighborhoods except the Grant Neighborhood, are intended to house LS facilities. The "Transitional & Bridge Housing" zone, which includes the Grant Neighborhood, is intended to house all MC facilities. The planned mixture of LS and MC program triggers requirements that the north campus, as a whole, comply with more stringent MC requirements. The sections that follow recommend variance waivers, in some instances, where strict adherence to the associated physical security criteria may not be feasible due to the constraints of the existing site conditions or other project objectives.

The Urban Master Plan generally considers the West Los Angeles VA Medical Center to be physically divided into north and south portions by Wilshire Boulevard and assumes each portion to operate as an independent campus. The south campus is dubbed the "Healthcare & Research Campus" and will house MC facilities. The north campus is generally the focus of the Urban Master Plan and the narrative that follows. However, in some instances, discussion is provided to recommend relocation of all MC program to the south campus to support re-classification of the north campus as LS campus.

Building Classification

Based on the 2015 PSDM, examples of Mission Critical facilities include ambulatory care, domiciliary, drug/alcohol rehabilitation, hazardous material storage, hospital, medical equipment storage, medical gas storage, medical research, mental health inpatient, outpatient clinic, psychiatric care facility, rehabilitation medicine, and rehabilitation and prosthetics.

Based on surveys of current occupancy and function, the following existing north campus buildings incorporate mental health program that is considered to be classified as MC facilities:

- Building 208 (Mental Health/Rehab Medicine)
- Building 214 & 217 (Domiciliary)
- Building 250 (Rehab Medicine)
- Building 259 (Work Therapy)

Additionally, the following existing north campus buildings house medical research and medical storage functions and are considered to carry MC classifications - Building 113, 114, 115, 117, 210, 212, 220, 256, 258, 337, 340, 342 and 346.

The recommendation to establish zones/neighborhoods characterized by a single security classifications will require functions currently housed in Building 208, 250, 256, 257, 258, 259 and 337 to be relocated to facilities within the north campus "Transitional & Bridge Housing" zone (i.e., Grant Neighborhood) or moved to the south campus. All existing north campus program pertaining to medical research and medical storage is recommended to be relocated to the "Healthcare & Research Campus" zone at the south campus.

Examples of the Life-Safety Protected facilities include community living centers, community-based outpatient clinics, general administration offices, greenhouses, laundry facilities, maintenance facilities, residential quarters, recreational buildings, temporary buildings, Veterans services buildings, and warehouses. Existing north campus buildings not identified above, as housing MC program, fall under the umbrella of the LS security designation. Existing north campus mental health buildings are generally considered to house outpatient medical services that are assumed to be classified as LS facilities.

Any future individual design and construction

E2. Safety

projects stemming from the Urban Master Plan are recommended to verify the security classification (MC or LS) of affected new and existing buildings so that applicable physical security requirements are used accordingly.

Methodology

The basic philosophy of the PSDM is that successive rings of security or lines of defense are an effective way to protect a facility and mitigate credible explosive threats. The first line of defense, which is the focus of Master Planning efforts that are currently underway, consists of solutions to control vehicle and pedestrian movement at the campus and building perimeters. The resulting site design integrates impact-rated systems, placed at critical locations, alongside landscaping and other non-rated deterrent systems to control circulation at the building perimeter and enhance operational security efforts. Subsequent layers in the protective design strategy emphasize - engineered solutions to withstand design-basis explosive events; operational security schemes to minimize vulnerabilities inherent to the site and building; and space planning solutions to best isolate occupied and critical spaces from high-risk areas.

The sub-sections that follow discuss minimum physical security requirements pertaining to specific components of the site design. This is followed by a summary of conclusions and recommendations to direct forthcoming development of the north campus Master Plan. The presented "conclusions" are based on a review of existing site plans and observations compiled during a site visit.

Building Standoff

PSDM Requirement

No vehicle shall be parked closer than 50-ft to a MC facility. Unscreened and screened vehicles are not permitted to travel closer than 50-ft and 5-ft, respectively, to a MC facility. In all instances, standoff distance is to be measured from the building exterior to the edge of the curb line at applicable roadways and parking.

No vehicle shall be parked closer than 25-ft to a LS facility. Unscreened and screened vehicles are not permitted to travel closer than 25-ft and 5-ft, respectively, to a LS facility.

Findings / Conclusions

The standoff requirements are consistent with blast industry standard of practice to physically separate occupied and other critical program from high-risk areas. This approach supplants the need for costly structural hardening by providing adequate distance to attenuate extreme loads resulting from an explosion.

General site observations of the existing north campus buildings indicate that some MC and LS facilities do not appear to be setback the required distances from roadways and parking. Buildings not protected by the minimum standoff have a greater exposure to extreme loads resulting from DBT scenarios. Where possible it is recommended to remedy this deficiency and provide a consistent level of protection across all north campus buildings.

Recommendations

Conducting a thorough survey and measurements of standoff distances around all buildings in the north campus is recommended. A scaled site plan with the standoffs to each building is recommended for future planning and design phases. It is recommended to consider the following options where individual buildings fail to comply with standoff requirements:

1. Reconfigure internal roadways and parking, where possible, to comply with building standoff requirements.
2. Submit a request for review and approval by VA to waive the setback requirement on a building-by-building basis where a practical site solution does not exist to achieve the required setback.

The latter option is recommended to include proposed design of the building envelope and critical structural system components to withstand a higher blast load requirement than would otherwise be required. The intent of the building envelope design is to provide a comparable level of protection for the facilities when standoff requirements are not met.

Perimeter Fences

PSDM Requirement

The PSDM criteria for MC and LS facilities requires the establishment of a site perimeter barrier consisting of fences, walls and gates as needed for access. The perimeter barrier is to be contiguous around the campus within which the facility is located. The barriers shall resist forced or surreptitious entry using hand tools and shall be located as close to the property line as possible. Chain link fences and gates shall not be used. Walls can be of reinforced masonry or concrete construction. Access gates do not have to be anti-ram rated and shall be located to direct pedestrians and vehicles in ways that enhance the operational environment of the security force.

The same requirements are applicable to sites that house only LS facilities.

Findings / Conclusions

The establishment of a continuous protected perimeter is consistent with VA objectives to manage vehicle and pedestrian circulation and direct staff, patients, and visitors to designated entry points where security monitoring and/or screening can occur. The prescriptive construction noted in the PSDM is intended to deter, rather than prevent, unauthorized access to the site and complement operational security efforts to monitor the campus.

The north campus does not have a continuous perimeter barrier compliant with the PSDM. Existing perimeter fences along a limited extent of the campus perimeter (bordering Wilshire Boulevard) consist of heavy-grade metal construction and can be considered compliant with VA security criteria. Remaining perimeter fences, if they exist, are chain link fences.

Recommendations

It is recommended to replace/upgrade the campus perimeter to incorporate perimeter fences, walls, and gates that are compliant with the PSDM requirements. If installation of campus perimeter will segregate the Veteran community and prevent the establishment of an open campus environment, it is recommended to submit a variance waiver to VA to consider alternative requirements.

Site Entry / Exit Points (Vehicle & Pedestrian Screening)

PSDM Requirement

Sites with MC facilities are required to incorporate enclosed guard houses for guard personnel, gate operation, and vehicle inspection at all pedestrian and vehicle entrances to the campus.

No requirement is applicable to a site that houses only LS facilities.

Findings / Conclusions

The PSDM requirements are intended to support operational security protocol focused on creating a safe and secure campus for staff and Veterans and are generally considered to be an extension of perimeter fence requirements. The presence of MC buildings is understood to elevate the asset value of the site and trigger the need for enhanced operational security capabilities to limit site access.

The presence of MC buildings within the north campus triggers design enhancements to construct guard booths at points of vehicle and pedestrian site access, which are currently not provided

Recommendations

The configuration of site entry/exit points must balance security needs against other campus-wide objectives related to vehicle and pedestrian traffic circulation. The following options are proposed to meet the intent of the PSDM:

1. Submit a waiver for approval by VA to comply with applicable LS requirements despite the presence of MC facilities at the north campus. This approach imposes less stringent requirements and is considered to be consistent with the determination

of most north campus building to be classified as LS.

2. Relocate MC facilities to the south campus and develop the north campus Master Plan considering LS requirements. The resulting design of the north campus will be bounded by requirements applicable to sites with LS facilities.
3. Upgrade the existing points of vehicle and pedestrian access at the north campus perimeter to comply with MC requirements. This is likely to be the most costly design strategy but provides the greatest opportunity to maintain existing north campus MC facilities and potentially construct new buildings with MC program.

Option #2 is recommended to include a further assessment of the configuration of existing points of entry at the south campus relative to MC requirements. Preliminary site observations indicate that a main gate is provided but remains open on a day-to-day basis. This provides the opportunity to regulate site access during periods with an elevated security risk. However, no guard booths or other infrastructure is provided to control access and screen vehicles and pedestrians.

Anti-Ram Rated Vehicle Barriers

PSDM Requirement

The protected campus perimeter and interior roadways are to incorporate active and passive barriers to deter vehicle encroachment at the site and building perimeters. Barriers are to be rated to resist the impact of a 4000-lb vehicle traveling at 30 mph and provide a maximum penetration distance of 3.3 feet. PSDM criteria applicable to MC facilities requires active barriers, such as retractable bollards to be provided at the following locations:

- Access points (internal roadways) that permit vehicles within the 50-ft standoff zone around the building.
- Vehicle entrances to the site that where the 50-ft standoff zone coincides with that site perimeter fence.

PSDM criteria applicable to both MC and LS facilities require passive barriers to be natural or manmade systems, such as bollards and walls. Passive barriers are required to be provided at the following locations:

- Portions of the perimeter fence where there is a perpendicular roadways length equal to or greater than 200-ft, on which a vehicle can achieve a high approach speed
- Externally located site utility equipment
- Building entrances
- Vehicle or ambulance drop-offs
- Cafeterias and gathering areas
- Other areas requiring additional protection from vehicles

Findings / Conclusions

The existing site and building perimeters generally do not incorporate required anti-ram protection for MC and LS facilities.

Recommendations

It is recommended to develop north campus Master Plans to include passive barriers systems at critical locations at a minimum. This recommendation is independent of the security designation for facilities within the north campus. Placement of anti-ram barriers is recommended to focus on exterior locations where bystanders are most vulnerable to accidental or intentional vehicle ramming such as building entrances and areas of outdoor public congregation.

The following options are proposed to address active barrier requirements that may be applicable to the north campus:

1. Submit a waiver for approval by VA to comply with applicable LS requirements despite the presence of MC facilities at the north campus.
2. Relocate MC facilities to the south campus and develop the north campus Master Plan considering LS requirements, which do not require active barriers to be provided.
3. Upgrade the north campus as needed to comply with active barrier requirements that are triggered by the presence of MC facilities.

E2. Safety

Physical Security

Parking

PSDM Requirement

Surface/above-ground vehicle parking for passenger vehicles is to be located at least 50-ft and 25-ft from MC and LS buildings, respectively. Existing parking within these standoff distances shall be eliminated where possible. Where existing surface parking must remain, the affected building must be hardened to achieve the applicable comparable performance requirements (MC or LS) for the corresponding increase in blast loads. Similar requirements apply to parking structures located on or off site. Emergency vehicles are permitted to approach the building directly and not subjected to the standoff requirements.

Findings / Conclusions

At some on-site locations, existing parking encroaches on the standoff zone around MC and LS buildings. No parking restriction or enforcement occur on site to ensure proper standoffs are provided to the existing buildings.

VA encourages parking below an existing MC facility to be eliminated. Where parking must remain, it must be restricted by requiring all vehicles to be screened. This operational measure is required to be complemented by hardening of structural elements within the garage. The PSDM prohibits below-building parking for new facilities regardless of security designation (MC or LS).

Recommendations

It is recommended to reconfigure parking where possible to comply with security requirements. However, Master Planning efforts have indicated that it may not be possible to provide the required parking to service the north campus population and meet all applicable PSDM requirements. Based on the specific scheme pursued, it may be necessary to submit a variance request to VA to authorize any deviations from the PSDM requirements.

Surveys of the existing site indicate that current surface parking may be insufficient to accommodate the full population of VA West LA north campus. One proposed solution has been to construct new basement parking areas under select buildings. This scheme is recommended to consider the following contingencies to meet the intent of the PSDM

- New below-grade parking is to be limited to existing LS buildings; however, this may not be feasible. Variance will be required to provide new below-grade parking to new LS buildings
- New below-grade parking is to be limited to staff only, where possible
- Electronic security devices are to be provided to restrict access to below-grade parking
- Screening of vehicles is to be required at entries
- Critical structural system components of affected buildings are to be evaluated and hardened as needed to mitigate blast loads occurring within the confined parking area

If pursued, details of this parking option and recommended physical security approach will be required to submitted to VA for approval.

This page is intentionally left blank.