



# **FINAL**

## **FORMER MARINE CORPS AIR STATION (MCAS) TUSTIN**

### **83<sup>rd</sup> Restoration Advisory Board (RAB) Meeting Minutes**

**Meeting Location:** Tustin Senior Center, Tustin, California

**Meeting Date/Time:** 19 November 2008/7:00 pm – 9:08 pm

**Minutes Prepared by:** Tony Guiang, CDM

#### **Attachment:**

1. MCAS Tustin Environmental Program Status
2. Presentation Slides: "Tustin Legacy Redevelopment Update"
3. Presentation Slides: "Status Update Operable Unit (OU)-1A and -1B Remedial Action"

#### **WELCOME/INTRODUCTIONS/AGENDA REVIEW:**

Mr. Don Zweifel, RAB Community Co-Chair, welcomed everyone and asked for self-introductions. Self-introductions by all those in attendance followed. A total of 28 attendees were present. Ms. Debra Theroux, Interim Base Realignment and Closure (BRAC) Environmental Coordinator (BEC) and Interim Navy RAB Co-Chair, introduced herself and thanked everyone for coming. She noted that Sue Reynolds, RAB member, was unable to attend the evening's meeting. Ms. Theroux then reviewed the RAB meeting agenda; no changes to the agenda were suggested by the RAB.

#### **APPROVAL OF 8/6/08 RAB MEETING MINUTES**

Ms. Theroux opened the floor for discussion on any questions or corrections on the August 6, 2008 RAB meeting minutes. No comments were provided. Ms. Theroux asked for a show of hands for approval of the minutes. The meeting minutes were approved by the RAB.

#### **FUTURE RAB FORMATS**

Ms. Theroux proposed modifying the format of RAB meeting minutes to be more condensed. She suggested the minutes not include the detailed information provided in the presentation slides, but focus more on capturing the main points of the presentations and detailing the questions and dialog exchanged at the meetings. Ms. Theroux asked for concurrence on the proposed format. Ms. Mary Lynn Norby, RAB member, raised concerns that important information would be missed if the presentation slides were not summarized in the minutes, pointing out that the slides are not posted with the final meeting minutes on the Navy website. Ms. Norby also requested that copies of the meeting handouts be distributed to RAB members not in attendance at the meeting. Concurrence was reached that the minutes for the November 19, 2008 RAB meeting would follow the new condensed format and further discussion and concurrence would be addressed at the next RAB meeting. The Navy agreed to consider posting presentation slides on the Navy website and/or distributing handouts to RAB members not in attendance.

Ms. Norby asked whether the RAB meetings were recorded and whether digital tapes of the meetings were available for public record. The Navy explained the purpose of the tape recording was to serve as a backup to the notes. The Navy will consider making the digital recordings available for public record.

Ms. Theroux reviewed ways for the public to review information on the former MCAS Tustin environmental program. She provided Navy, Department of Defense, and regulatory agency websites and she explained that the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Administrative Record (AR) library is maintained at Building 307 at former MCAS El Toro and the CERCLA Information Repository (IR) is located at the University of California at Irvine library. She further noted that Ms. Sue Rawal is the new administrator for the CERCLA AR and the business hours are 9am to 1pm Monday through Thursday.

## **IRP ENVIRONMENTAL STATUS UPDATE**

Referencing the MCAS Tustin Environmental Program Status handout (see Attachment 1), Ms. Theroux provided a summary of the environmental program and noted that the program was moving along rapidly. She stated OU-1A and OU-1B would be discussed in detail later during the RAB meeting and OU-4B and the methyl-tert butyl ether (MTBE) plume (underground storage tank [UST] 222) were discussed in detail during the last RAB meeting. She noted that UST 222 is moving into the operations and maintenance (O&M) stage. A summary of the current Finding of Suitability to Transfer (FOST) and Finding of Suitability to Lease (FOSL) documents was also provided; however, it was noted there have been no recent submittals.

Mr. Robert Kopecky, RAB member representing the South Orange County Community College District, expressed interest in having some type of mechanism available for the public to track the dates of completed transfers and the estimated schedule for upcoming transfers. He noted that it was difficult for the public to estimate the transfer dates for specific parcels because the transfers are dependent on Navy and Regulatory Agency review periods for documents. Ms. Theroux responded that the Navy would look into the possibility of developing some type of aerial map or table identifying the transfer status of parcels. Ms. Content Arnold, Navy Lead Remedial Project Manager (RPM), explained that regulatory agencies typically have 60 days to review Draft documents and 30 days to review Draft Final documents.

Mr. Kopecky asked where and how documents are made available to the public for review. Ms. Arnold explained the RAB meetings are held for the purpose of keeping the public informed of the environmental program status. She also stated the RAB Community Co-Chair (Mr. Don Zweifel) is an excellent source for information on what documents are available for review because he is provided with copies of documents under review and he can provide the public with copies as requested. In addition, Ms. Arnold noted all CERCLA documents are available for public viewing at the CERCLA AR maintained in Building 307 at former MCAS El Toro under the care of Ms. Rawal, and can be viewed by appointment. Mr. Don Zweifel encouraged the group to contact him via email ([dzweifel@sbcglobal.net](mailto:dzweifel@sbcglobal.net)) or cell phone (714-203-4576).

Mr. Zweifel requested that a briefing on the 3<sup>rd</sup> Quarter Groundwater Monitoring Report for OU-1A and the Final Interim Remedial Action Completion Report (I-RACR) be provided by the Navy at the next RAB meeting scheduled for February 11, 2009. In addition, Ms. Norby asked whether a sub-committee for the I-RACR may be needed. Ms. Arnold explained that the Draft

I-RACR (which documents the implemented remedy) has gone out for review and she suggested the RAB hold additional questions on OU-1A and OU-1B until after the evening's presentation was heard because many of their questions would likely be addressed.

## **REGULATORY AGENCY UPDATE**

Before introducing the regulatory agency representatives, Ms. Theroux referred the RAB to a handout that included all regulatory agency correspondences provided to the Navy since the last RAB meeting held in August 2008.

### **Mr. Ram Peddada, Project Manager, Department of Toxic Substances Control (DTSC)**

Mr. Peddada provided the following summary of documents currently being reviewed:

- Technical Memorandum IRP 6 Remedial Plume Area - The Navy has incorporated all comments to DTSC's satisfaction and the Final report has been submitted.
- OU-4B Feasibility Study - The Navy has satisfied all DTSC comments and the Final report has been submitted.
- OU-4B Proposed Plan - DTSC has provided comments on the Draft Proposed Plan. The Navy will respond to DTSC comments by December 12, 2008 and once agreement is reached on the responses to comments, the report will progress to a Draft Final, then a Final, and will then be submitted for 30-day public comment (estimated for January to February 2009).
- OU-1A and OU-1B Draft I-RACR - DTSC has submitted comments on the Draft report and is waiting for the Navy's responses to comments.

Mr. Zweifel asked whether the State of California's budget crisis had an impact on California Environmental Protection Agency's (EPA's) and DTSC's participation in environmental programs. In response, Mr. Peddada and Ms. Hannon stated that their work schedule may be modified to accommodate the current budget crunch but overall, it will not affect agency support. According to Ms. Hannon, the Regional Water Quality Control Board (RWQCB) may be required to take 1 day per month furlough for the next 18 months to alleviate some of the budget cutbacks.

### **Ms. Patricia Hannon, Project Manager, RWQCB**

Ms. Hannon explained that she has reviewed the same documents as Mr. Peddada and provided the following summary:

- OU-4B Feasibility Study (FS) - RWQCB had no additional comments on the Draft Final FS.
- OU-4B Proposed Plan - RWQCB provided combined comments with DTSC on the Draft Proposed Plan.
- OU-1A and OU-1B I-RACR - RWQCB had no comments on the Draft I-RACR and noted that the document was well done.
- 2007 Draft Annual Report for UST 222 - RWQCB provided comments noting one table was missing, asking for additional clarification on tables and graphs that did not show historical

MTBE detections in 8 wells, and requesting graphs showing MTBE concentrations over time.

Ms. Norby asked whether RWQCB or DTSC had recommended implementing ICs at any of the sites and if so who would be responsible for implementing the ICs. Mr. Peddada stated that for the OU-4B Proposed Plan, ICs are recommended. He and Ms. Hannon further explained that the Navy puts ICs in the deed so they will continue to be implemented after property transfer. Ms. Arnold added that ICs are described in detail in the FS and noted that ICs were included in all remedial alternatives (except the No Action alternative). She explained ICs are transferred with the property through deed restrictions and a covenant with DTSC that is recorded with the County. The restrictions stay with the land until the cleanup is complete. Ms. Arnold offered to send the specific FS sections that explain the ICs to Ms. Norby.

Mr. Zweifel acknowledged and thanked Ms. Christina Fu, DTSC Public Participation Specialist, for her initiative and special interest demonstrated in her editing and proof-reading of agency correspondence letters.

## **TUSTIN REUSE UPDATE**

Mr. Matt West, City of Tustin Redevelopment Agency, provided a presentation on the land re-use and redevelopment of former MCAS Tustin entitled "Tustin Legacy Redevelopment Update" (Attachment 2). He noted that a similar update was conducted in November 2007 and the purpose of this presentation was to provide an update on development projects and provide a general overview. He noted that owing to the current market conditions the City has had to re-think some of their proposed development plans and have had to cut back. The slides showed various developments that were either completed, proposed, or currently being developed within former MCAS Tustin. The estimated time for completion of developments along with follow up steps for completion were noted for each land re-use.

Mr. West explained that sites proposed for re-use as parks (i.e., 85 acre regional park site) would require the approval of the National Park Service, since the intended re-use of the site is to be an Urban and Regional Park pending their review on how much revenue is generated as a result of the re-use. Similarly, it was noted that sites proposed for re-use as educational facilities would require the approval of the Division State Architect (DSA) and Tustin Unified School District (TUSD). Planned developments included several areas proposed for residential use (dwellings, transitional housing), commercial use (retail, schools, campus and training facilities), residential (community parks) and planned re-use of existing facilities. The slide presentation concluded with an aerial shot of MCAS Tustin taken July 2008 showing several roads under construction and providing a general view and condition of the area.

Mr. Zweifel requested further clarification on estimated completion percentages presented in the slides as they relate to planned residential developments. Mr. West reiterated that estimated completion dates are dependent on current market conditions and explained that this applies to developments currently being constructed. Mr. Zweifel also inquired about the status of the Northern and Southern hangars located on site, in particular the proposed demolition of the Southern hangar. Mr. West stated the City and the County were going through the required mitigation process for the hangars and explained the process involved preparing a written history, video documentary and mobile exhibit of the hangars. Upon

completion of these measures, further action, which may include demolition, will take place. Mr. West reiterated that the developer and not the City would make decisions regarding any demolition. Ms. Norby inquired whether the City would institute the appropriate processes and whether a “public hearing” would take place prior to any proposed demolition of the hangars. In addition a question about the re-use of the hangars was asked. Mr. West and Mr. Dana Ogdon, City of Tustin, responded that the appropriate processes would be followed prior to any demolition and that a public hearing may occur if required by the proposed project. The hangar site may be re-used as either general or commercial space.

Mr. Jerry Kirchgessner, RAB member, inquired about the ownership of property adjacent to the railroad track fence (approximately 15 to 20 feet from the tracks), south of Harvard Avenue, continuing down to Peters Canyon wash. Mr. West stated he was not certain but the property is most likely public access that will be developed in the future. He further noted that in order to maintain some level of development, the Developer has the obligation to widen the area around the channel. Although further investigation may be needed to confirm ownership, Mr. West believes it is under County jurisdiction.

Ms. Theroux asked that in the interest of time, any additional questions on the subject could be addressed directly to Mr. West at the conclusion of the RAB meeting.

## **OU-1A/1B REMEDIAL ACTION UPDATE**

Mr. Louie Cardinale, Navy RPM, provided a presentation on OU-1A and OU-1B entitled “Status Update OU-1A and -1B Remedial Action” (Attachment 3). The presentation provided an overview of the remedy (hydraulic containment with hotspot removal), the chemicals of concern (COCs), a summary of the Remedial Action (RA) implementation, the operational status of the treatment system, a summary of the O&M activities associated with the treatment system, an evaluation of the remedy performance and upcoming activities and milestones. The O&M portion of the presentation was given in part by Mr. Doug Bielskis of ERRG, the Navy contractor responsible for the construction and design of the groundwater treatment system.

Maps showing the four plumes: 1,2,3-trichloropropane (TCP) at OU-1A, trichloroethene (TCE) at OU-1A, TCE at OU-1B North, and TCE at OU-1B South were provided and discussed during the presentation. Mr. Cardinale explained that a total of 21 flush-mounted, extraction wells were installed as part of the RA at the sites. Extraction wells were constructed to pump between 0.5 to 3.5 gallons of TCP and TCE impacted water per minute to the treatment plants. The treated water is then discharged to the Orange County Sanitation District (OCSD) sanitary sewer system. Through October 2008, over 14,000,000 gallons and over 7,000,000 gallons of water have been treated at OU-1A/1B North and OU-1B South, respectively. Extraction wells are screened within the first and second water bearing zones (WBZs) at all sites and throughout each site are categorized as either “hot spot” wells which are wells located in the area of the plume with the highest contaminant concentrations or “containment wells” located downgradient of the plume for the purpose of stabilizing, containing and/or capturing the contaminant. The RA for OU-1A and OU-1B was started in June 2007 with plant construction (and well installation) and the system startup took place on November 16, 2007 and December 26, 2007 for OU-1A/-1B North and OU-1B South, respectively. At startup, water was being run through the system while being monitored by the system alarms. Once system operation met

the time-frame criteria of 5 days for 8 hours/day, the systems were put on a 24 hour 7 day/week operation.

Ms. Norby asked for further clarification regarding the term “double containment” construction. Mr. Cardinale explained that double-walled piping was used in areas where high concentrations of contaminant were expected for the purpose of providing protection if a leak in the piping were to occur.

Mr. Zweifel asked whether the same monitoring wells were sampled during each monitoring event or if the wells are chosen randomly. Mr. Bielskis explained that all groundwater sampling and O&M activities (including which wells were to be sampled) are specifically outlined in the approved RA Workplan for the sites, which was finalized in June 2007. The same monitoring wells are sampled during each monitoring event as outlined in the RA Workplan.

Mr. Nicholas Steenhaut, from Environ on behalf of South Orange County Community College District (SOCCCD), asked which wells were included in determining groundwater flow direction at the OU-1A and OU-1B North plumes. He noted that not all the existing monitoring wells are shown on the map in the OU-1A and OU-1B report or in the presentation slides; he specifically noted there are extraction wells at the UST 222 site that influence the groundwater flow at the OU-1A. In support of this observation, Mr. George Linkletter, from Environ on behalf of SOCCCD, added that the contours showing groundwater flow in the direction of the TCP plume would not show nearly as much deflection if it were not for the extraction wells installed for the UST 222 site. Mr. Bielski acknowledged and concurred with the comment by stating that not all the wells are shown on the map; however, it includes data from the wells within the measureable influence of what the maps are to trying to depict. He explained that the map was derived from data obtained during the 2<sup>nd</sup> quarterly report which is a good indication of current conditions. He further stated that both the OU-1A and UST 222 sites have been monitored simultaneously over many years and they have always been reported separately because they are separate sites and under separate programs. Historical data obtained from years of monitoring from both sites (including contours affected by both sites) was evaluated and taken into consideration when designing the system for maximum optimization. Mr. Cardinale added that he is the Navy RPM for both UST 222 and OU-1A and the Navy now uses the same contractor (ECS) for both sites; therefore, they are able to monitor the sites simultaneously and use the data from both sites, as necessary.

Mr. Linkletter asked whether the map provided in the presentation included all wells the Navy used to develop the contour lines. Mr. Cardinale and Mr. Bielskis explained that no, all the wells were not shown on the map and this plume map is a simplified version developed for presentation purposes only. They noted that several maps are available with varying degrees and layers showing additional detail (including all the wells) that could be provided upon request.

Citing the OU-1B TCE plume along the upper most portion (“hot spot”) edge as an example, Mr. Zweifel commented that it is important to know the exact contaminant concentrations in these wells. He noted there are not enough wells to interpret the width of the upper most plume as shown on the figure. He requested the exact contaminant concentrations be labeled at each well to precisely delineate the plumes on these maps. Mr. Bielskis explained these wells

have been monitored since 1997 and there is enough historical data to support the plume's lateral extent. In addition, historical data used in the characterization of the site was used as part of the design and helped define the lateral extent of the plume depicted on these maps. The Navy is using all current and historical data available in order to meet specific remedial action objectives (RAOs).

Mr. Cardinale concluded his presentation by providing information on the treatment system performance evaluation and the schedule for upcoming submittals and milestones; he noted that the Draft Operating Properly and Successfully Report is scheduled for submittal in May 2009 and the Draft Final in July 2009. This first year of data has allowed the Navy to observe how the system is operating and incorporate changes as necessary to optimize system operation. Mr. Cardinale noted that he expects to cycle down the number of hot spot extraction wells at OU-1A and OU-1B North as hot spot concentrations decrease.

Mr. Linkletter expressed his concern of not having enough time to raise questions and address items not specifically included in the meeting agenda. He requested that additional time be given for an open forum to which the public can raise questions without having the attendees stay past the meeting deadline to discuss topics of interest. Ms. Theroux concurred that the RAB meetings typically have very full agendas and little time for long discussions on other items. She recommended that Mr. Linkletter (and other RAB meeting attendees) provide requests for agenda topics and discussion in advance to the Navy or Community Co-Chairs. She noted that Mr. Zweifel or herself would be receptive to any requests made in advance of the RAB meetings and noted that a 2 week lead-time is ideal.

Mr. Linkletter asked how the public was notified by the Navy when documents were available for viewing and the time frames for comments. He noted that he recently received a document after the review time for comments had expired. He requested the Navy create a process for notifying the public and cited an example of an email notification system that would notify people when documents have been submitted for public viewing and comment. He added that it was not practical to contact the RAB Community Co-Chair once a week to get a report on documents that are currently out for review. In response, Ms. Theroux explained there are already several resources available for this type of information and that the Navy would consider whether increasing the degree of communication with the public was appropriate. Mr. Zweifel reiterated that the RAB meetings are an open forum and the public's comments are welcome at any time while the meeting is in session. He encouraged members and attendees to ask questions any time during the meeting. Mr. Linkletter concurred and appreciated the Navy's response and hoped that a more pro-active notification system would receive serious Navy consideration.

Ms. Arnold added that the Navy tries to keep the public informed using the Environmental Status Update and if comments or specific subject matters are submitted prior to the meeting, the Navy will have enough time to prepare and provide the public with the most accurate responses to comments and discussions that may also be of interest to other RAB members. In addition, Ms. Arnold reminded the RAB that time is provided at the end of every RAB meeting for the public to provide ideas and input for agenda topics to be covered at the next RAB. Mr. Linkletter was appreciative of the Navy's response and noted he will take advantage of the opportunity to provide agenda item suggestions 2 weeks prior to the next RAB meeting.

## **FUTURE TOPICS/SCHEDULE NEXT RAB AND SUBCOMITTEE MEETINGS/MEETING EVALUATION AND CLOSING**

Mr. Zweifel requested the I-RACR and the 3<sup>rd</sup> Quarter Groundwater Monitoring Report for OU-1A be included in the next RAB meeting agenda.

As a follow up to a discussion from the August RAB meeting, Mr. Chris Crompton, asked if the RAB would like him to provide a slide show presentation of the Selenium demonstration project plant. Mr. Zweifel expressed interest in viewing the slide show; however, upon further discussion, the RAB agreed that the water discharge issues are not specific environmental restoration program issues related to the MCAS Tustin program and are therefore, not appropriate RAB meeting agenda items.

Mr. Zweifel requested further clarification on the effects of selenium on egg shells of endangered species. In response, Ms. Hannon clarified that selenium affects the embryo and not the egg shells. Selenium affects the ability of eggs to hatch and depending on the dose and the susceptibility of an organism; selenium can affect the genes of an organism. Ms. Hannon reiterated the RWQCB's concern with selenium was in regard to discharge into Peters Canyon Wash which the Navy was not doing. That said, selenium levels are not part of the cleanup levels at MCAS Tustin, they are naturally occurring.

Mr. Steenhaut requested further discussion of the Draft 2007 Petroleum Corrective Action Plan (PCAP) report, specifically the rationale used to draw contour lines and what consideration was taken for the presence of paleo channels present at these sites. Mr. Linkletter further clarified that the shallow hydrogeology in this part of Orange County is influenced by paleo channels, (old stream channels of coarser grain sediment) and these channels affect contaminant migration. He went on to request further discussion on this topic.

Ms. Theroux stated that all suggested agenda topics will be taken into consideration for the next RAB meeting which is scheduled for Wednesday, February 11, 2009, at the Tustin Senior Center in the Margaret Thompson Boardroom at 7 pm. Mr. Zweifel concluded the meeting by thanking everyone for attending, and asked for a show of hands of how many people enjoyed the meeting; the response was positive. The November 19, 2008 RAB meeting adjourned at 9:08 pm.

### **LIST OF HANDOUTS PROVIDED AT THE MEETING**

- November 19, 2008 Former MCAS Tustin RAB Meeting Agenda
- Former MCAS Tustin November 2008 Environmental Program Status
- Regulatory Agency correspondence from August 2008 through November 2008
- Presentation Slides: "Tustin Legacy Redevelopment Update"
- Presentation Slides: "Status Update OU-1A and -1B Remedial Action"
- Former MCAS Tustin - Where to Get More Information
- Former MCAS Tustin RAB Fact Sheet/Membership Application
- Former MCAS Tustin RAB Mission Statement
- Former MCAS Tustin Mailing List Coupon

Copies of the meeting minutes and handouts provided at the November 19, 2008 RAB meeting are available at the CERCLA IR for former MCAS Tustin located at the University of California, Irvine, Main Library, Government Publications Section. Library hours are 8am to 7pm Monday through Thursday; 8am to 5pm Friday and Saturday; and 1pm to 5pm on Sunday. It is recommended, however, that people call the library for confirmation of these hours as they may be modified during final exam and holiday periods. The Government Publications Section may be reached at (949) 824-7362. In addition, copies of the meeting minutes and handouts are also available at the CERCLA AR library maintained at Building 307 at former MCAS El Toro by Ms. Rawal. Documents can be viewed by appointment (call Ms. Rawal at (949) 726-5398) between 9am and 1pm Monday through Thursday.

Final minutes from previous RAB meetings can be found on the internet at the Navy BRAC website: [www.bracpmo.navy.mil](http://www.bracpmo.navy.mil)

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## **INTERNET SITES**

### ***Navy and Marine Corps Internet Access***

BRAC PMO Web Site (includes RAB meeting minutes): <http://www.bracpmo.navy.mil/>

For Tustin RAB information:

[http://www.bracpmo.navy.mil/bracbases/california/tustin/rab\\_information.aspx](http://www.bracpmo.navy.mil/bracbases/california/tustin/rab_information.aspx)

### ***Department of Defense - Environmental Cleanup Home Page Web Site:***

<http://www.dtic.mil/envirodod/>

### **U.S. EPA:**

Homepage: [www.epa.gov](http://www.epa.gov)

Superfund information: [www.epa.gov/superfund](http://www.epa.gov/superfund)

National Center for Environmental Assessment: [www.epa.gov/ncea](http://www.epa.gov/ncea)

Federal Register Environmental Documents: [www.epa.gov/federalregister](http://www.epa.gov/federalregister)

### **Cal/EPA:**

Homepage: [www.calepa.ca.gov](http://www.calepa.ca.gov)

Department of Toxic Substances Control: [www.dtsc.ca.gov](http://www.dtsc.ca.gov)

Department of Health Services, reorganized into the Department of Health Care Services and the Department of Public Health: [www.dhs.ca.gov](http://www.dhs.ca.gov)

Santa Ana Regional Water Quality Control Board: [www.waterboards.ca.gov/santaana](http://www.waterboards.ca.gov/santaana)

Environmental data for regulated facilities in California: [www.geotracker.waterboards.ca.gov](http://www.geotracker.waterboards.ca.gov)

## MCAS TUSTIN ENVIRONMENTAL PROGRAM STATUS

### **Operable Unit 1A (Site 13South – 1,2,3-TCP plume)**

Carve-Out: CO-5

Brief Project History:

- 2002: Time Critical Removal Action (hydraulic containment).
- 2004: Final Record of Decision (ROD): Selected remedy includes:
  - Hydraulic containment of contaminated groundwater;
  - Construction, operation, and maintenance of hydraulic containment system;
  - Hot-spot soil removal to enhance groundwater remedy and;
  - Implementation of institutional controls.
- 2007: Final Remedial Design and Remedial Action Implementation.
- December 2007: North treatment system operational.
- July 2008: Issued 1<sup>st</sup> Quarter Groundwater Progress Monitoring Report.
- July 2008: Issued Draft Interim-Remedial Action Completion Report (I-RACR). The main purpose of the I-RACR is to document that the remedy has been constructed.
- October 2008: Issued 2<sup>nd</sup> Quarter Groundwater Progress Monitoring Report.

Next steps:

- On-going operation and maintenance activities.
  - Biweekly, monthly and quarterly inspections;
  - Quarterly effluent sampling for compliance with Orange County Sanitation District discharge requirements; and
  - Quarterly groundwater monitoring.
    - Data used to track system performance and optimize system.
- January 2009: 3<sup>rd</sup> Quarter Groundwater Progress Monitoring Report.
- March 2009: Draft Long Term Operation and Maintenance Plan (OMP).
- May 2009: Draft Operating Properly and Successfully (OPS) Report.
- **January 2009: Final I-RACR.**

### **Operable Unit 1B (Sites 3 and 12 --TCE plumes)**

Carve-Outs: CO-5 and CO-6

Brief Project History:

- 2004: Final Record of Decision (ROD): Selected remedy includes:
  - Hydraulic containment of contaminated groundwater;
  - Construction, operation, and maintenance of a hydraulic containment system;
  - Hot-spot soil removal to enhance groundwater remedy and;
  - Implementation of institutional controls.
- 2007: Final Remedial Design and Remedial Action Implementation.
- December 2007: North treatment system operational.
- January 2008: South treatment system operational.
- July 2008: Issued 1<sup>st</sup> Quarter Groundwater Progress Monitoring Report.
- July 2008: Issued Draft I-RACR.
- October 2008: Issued 2<sup>nd</sup> Quarter Groundwater Progress Monitoring Report.

## MCAS TUSTIN ENVIRONMENTAL PROGRAM STATUS

### **Operable Unit 1B (Sites 3 and 12 --TCE plumes) Continued:**

#### **Next steps:**

- On-going operation and maintenance activities.
  - Biweekly, monthly, and quarterly inspections;
  - Quarterly effluent sampling for compliance with Orange County Sanitation District discharge requirements; and
  - Quarterly groundwater monitoring.
    - Data used to track system performance and optimize system.
- January 2009: 3<sup>rd</sup> Quarter Groundwater Progress Monitoring Report.
- March 2009: Draft Long Term Operation and Maintenance Plan (OMP).
- May 2009: Draft Operating Properly and Successfully (OPS) Report.
- **January 2009: Final I-RACR.**

### **Operable Unit 4B (IRP-5S[a], IRP-6, IRP-11, IRP-13W, MMS-04, and Mingled Plumes Area [MPA])**

#### **Carve-Outs: CO-5 and CO-6**

#### **Brief Project History:**

- 2000: Draft OU-4 Focused Feasibility Study (FS).
- 2003: OU-4 Shallow Groundwater Investigation.
- 2004: OU-4 Technical Memorandum presents results of shallow groundwater investigation.
- 2005-2006: Groundwater Monitoring.
- 2007: IRP-6 and MPA Supplemental Investigation.
- September 2008: Final Technical Memorandum Supplemental Investigation at IRP-6 and MPA.
- October 2008: Final FS Report.

#### **Next steps:**

- February 2009: Proposed Plan.
- June 2009: Draft ROD.

### **MTBE Plume (UST Site 222)**

#### **Carve-Outs: CO-5**

#### **Brief Project History:**

- 2001: Interim-Petroleum Corrective Action Program (PCAP) plan implemented.
- 2006: Final Soil Closure Report.
- 2006: Interim PCAP Addendum No. 2 – Revised Cleanup Goals: 1<sup>st</sup> WBZ: 300 micrograms per liter (ug/L), 2<sup>nd</sup> WBZ: 44 ug/L, and 3<sup>rd</sup> WBZ: 13 ug/L.
- 2007: Final PCAP.
- 2007/2008: Implement Final PCAP; Additional monitoring and extraction wells installed. Air Sparging/Soil Vapor Extraction (AS/SVE) initiated in March 2008.
- September 2008: AS/SVE system shut down for rebound monitoring per the Final PCAP requirements.

## MCAS TUSTIN ENVIRONMENTAL PROGRAM STATUS

### MTBE Plume (UST Site 222) Continued:

#### Next steps:

- On-going operation and maintenance activities.
  - Quarterly groundwater monitoring.
  - Data used to track system performance, optimize system, and support Final PCAP Closure Report.
- Quarterly effluent sampling for compliance with Orange County Sanitation District discharge permit requirements.
- December 2008 – Issue 1<sup>st</sup> and 2<sup>nd</sup> Quarter Groundwater Progress Monitoring Report

### FOST Summary

FOST #1 signed August 29, 2001	Parcels 3, 21, 38, 39 and portions of 40
FOST #2 signed September 28, 2001	Parcels 4-8, 10-12, 14, 25, 26, 30-33, 37, 42, and portions of 40 and 41
FOST #3 signed April 22, 2002	Parcels 23, 29, 34, 35 and 36, and portions of 1, 16, 17, 24, 27, 28, 40 and 41
FOST #4 signed September 26, 2002	Portions of 24 (PS clean areas in CO-5)
FOST #5 signed December 17, 2002	COs 8 and 11
FOST #6 signed September 29, 2004	CO-10 and portion of CO-5
FOST #7 signed May 20, 2005	COs 3 and 7 and portion of CO-5
FOST #8 February 2006	COs 1 and 4

### FOSL Summary

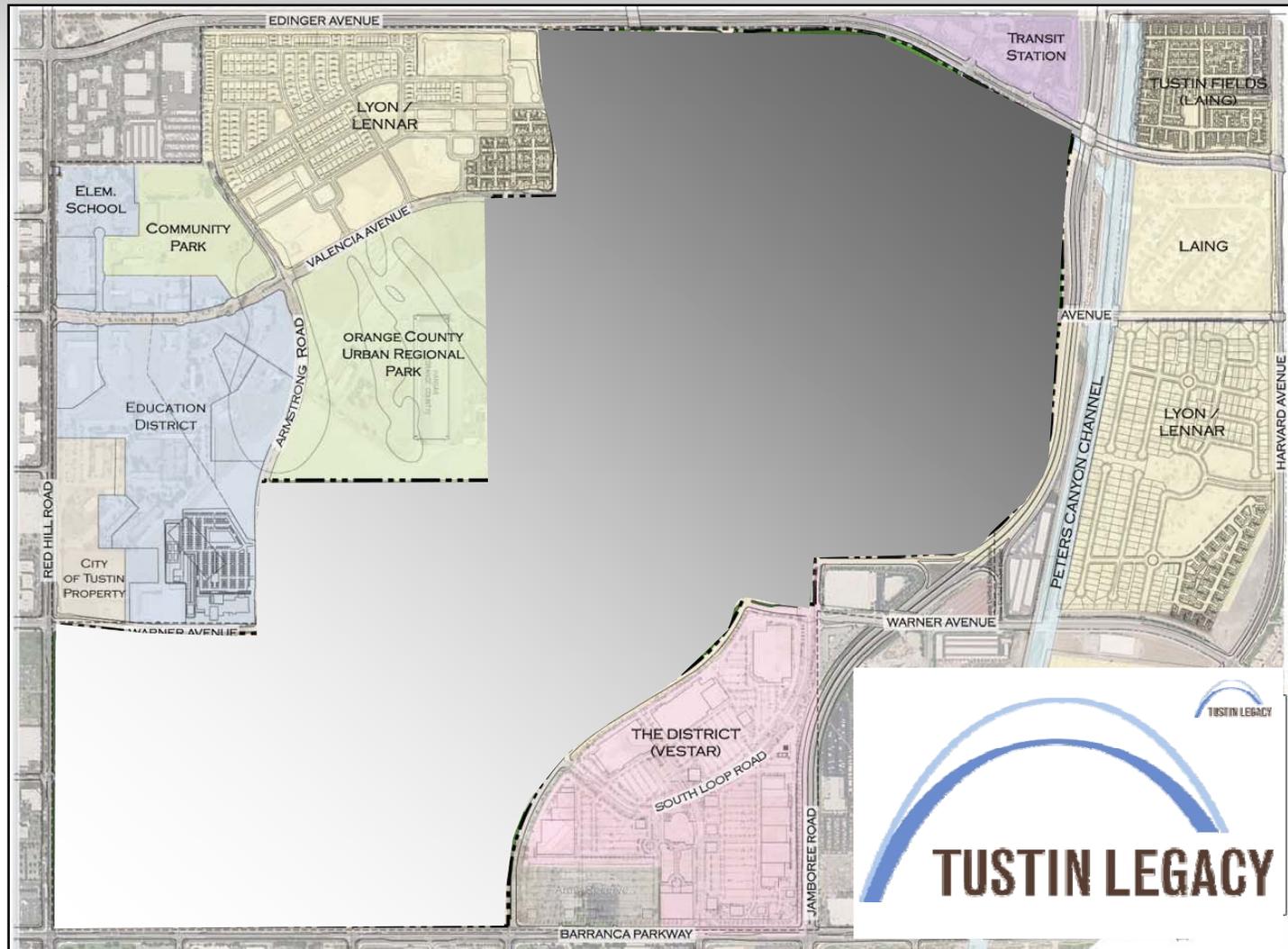
FOSL #2 signed February 28, 2002	COs 1 thru 4
FOSL #3 signed April 26, 2002	COs 5 thru 11

<b>Acronyms</b>					
AST	Aboveground Storage Tank	MNA	Monitored Natural Attenuation	PS	Public Sale Parcel
AOC	Area of Concern	MPA	Mingled Plumes Area	RCRA	Resource Conservation and Recovery Act
BCT	BRAC Cleanup Team (Navy, EPA, Cal EPA)	MMS	Miscellaneous Major Spill	ROD	Record of Decision
CO	Carve-Out area	NFA	No Further Action	TCE	Trichloroethene
EE/CA	Engineering Evaluation/ Cost Analysis	OMP	Operations and Maintenance Plan	TCP	1,2,3-Trichloropropane
FOSL	Finding of Suitability to Lease	OPS	Operating Properly and Successfully	ug/L	Micrograms per liter
FOST	Finding of Suitability to Transfer	OU	Operable Unit	UST	Underground Storage Tank
FS	Feasibility Study	PCAP	Petroleum Corrective Action Program	WBZ	Water-Bearing Zone
		MTBE	Methyl tert butyl ether		

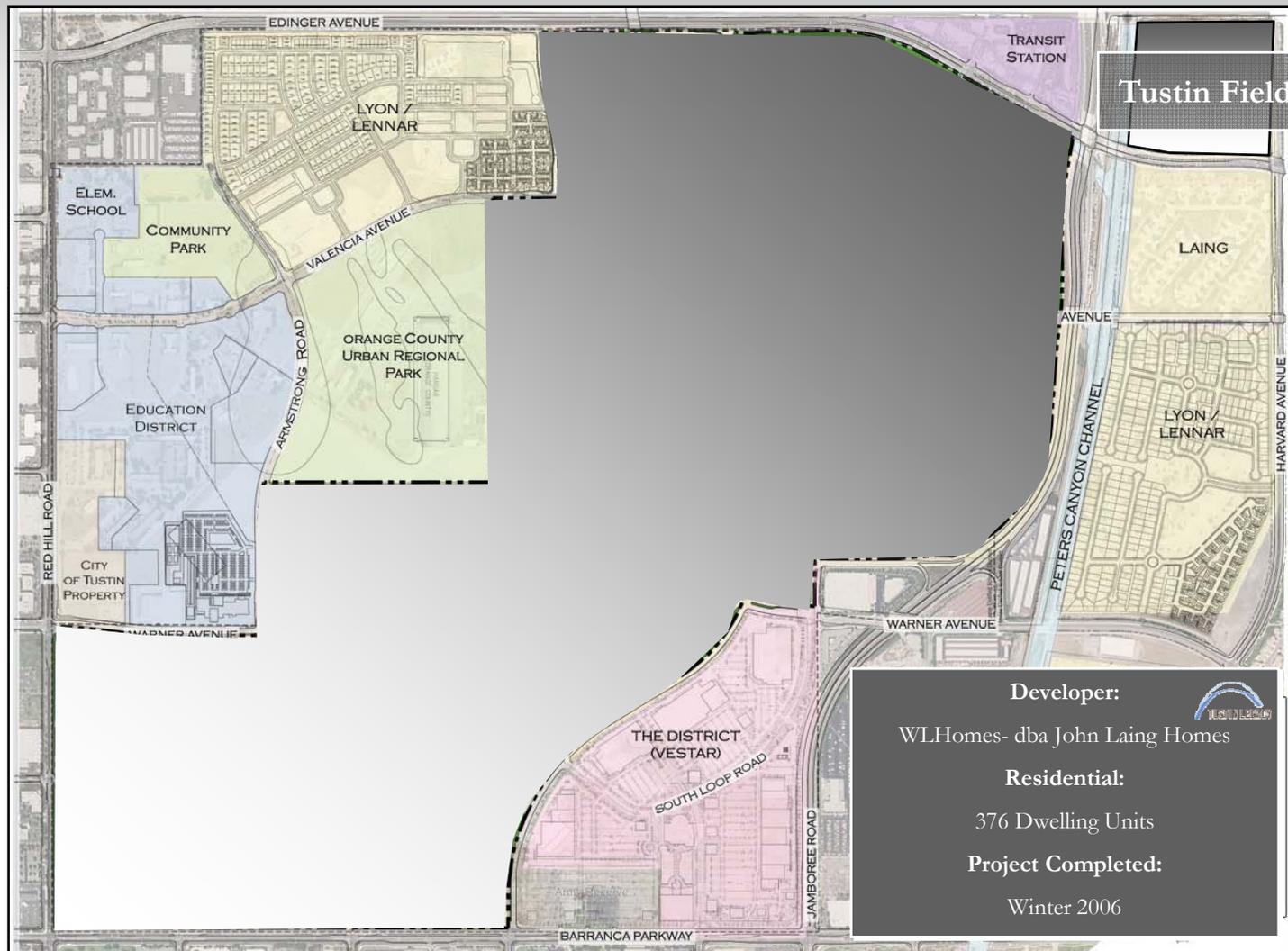
**Tustin Legacy**  
**Redevelopment Update**  
**(Former MCAS Tustin)**

November 19, 2008

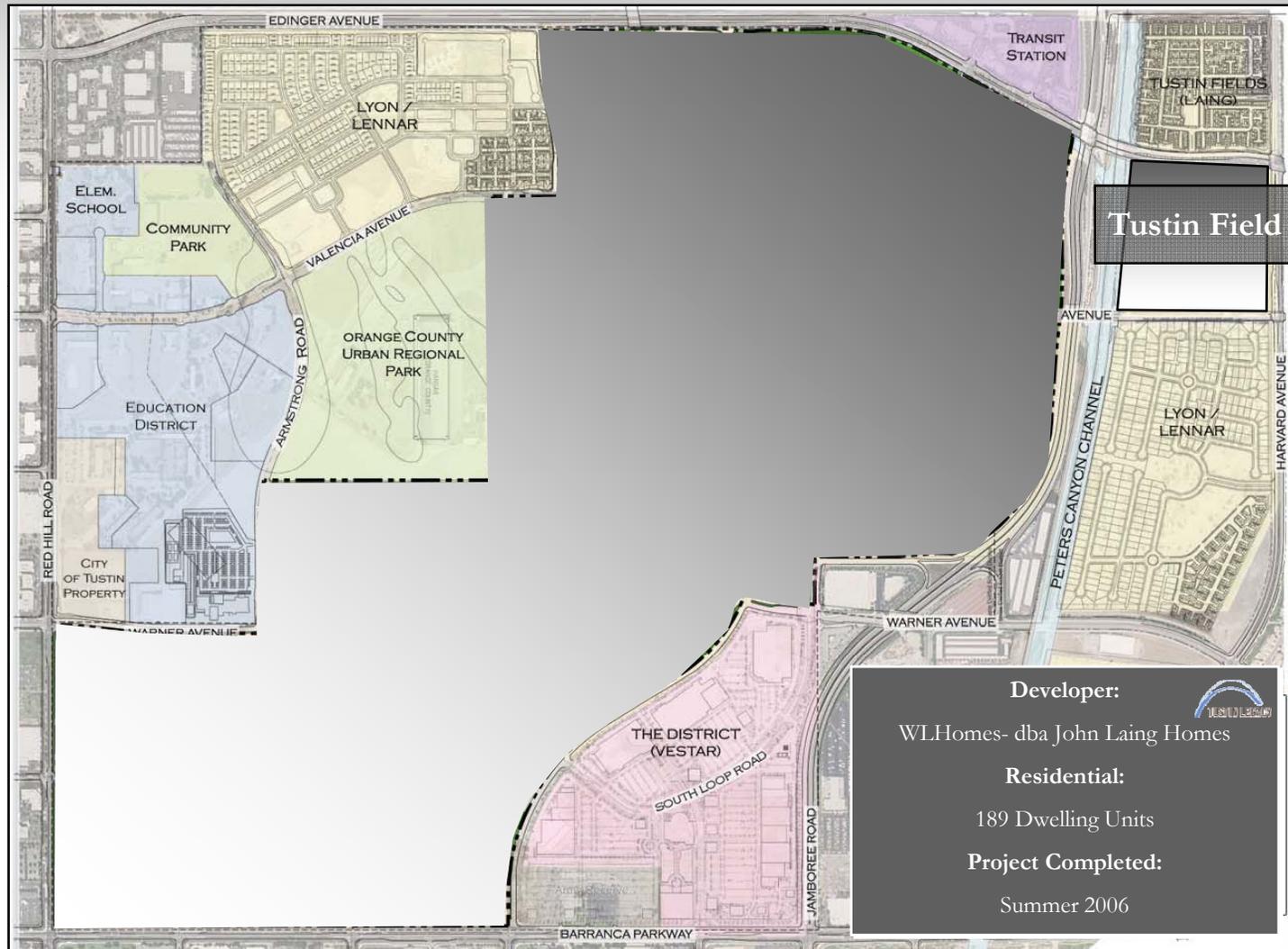
# Tustin Legacy



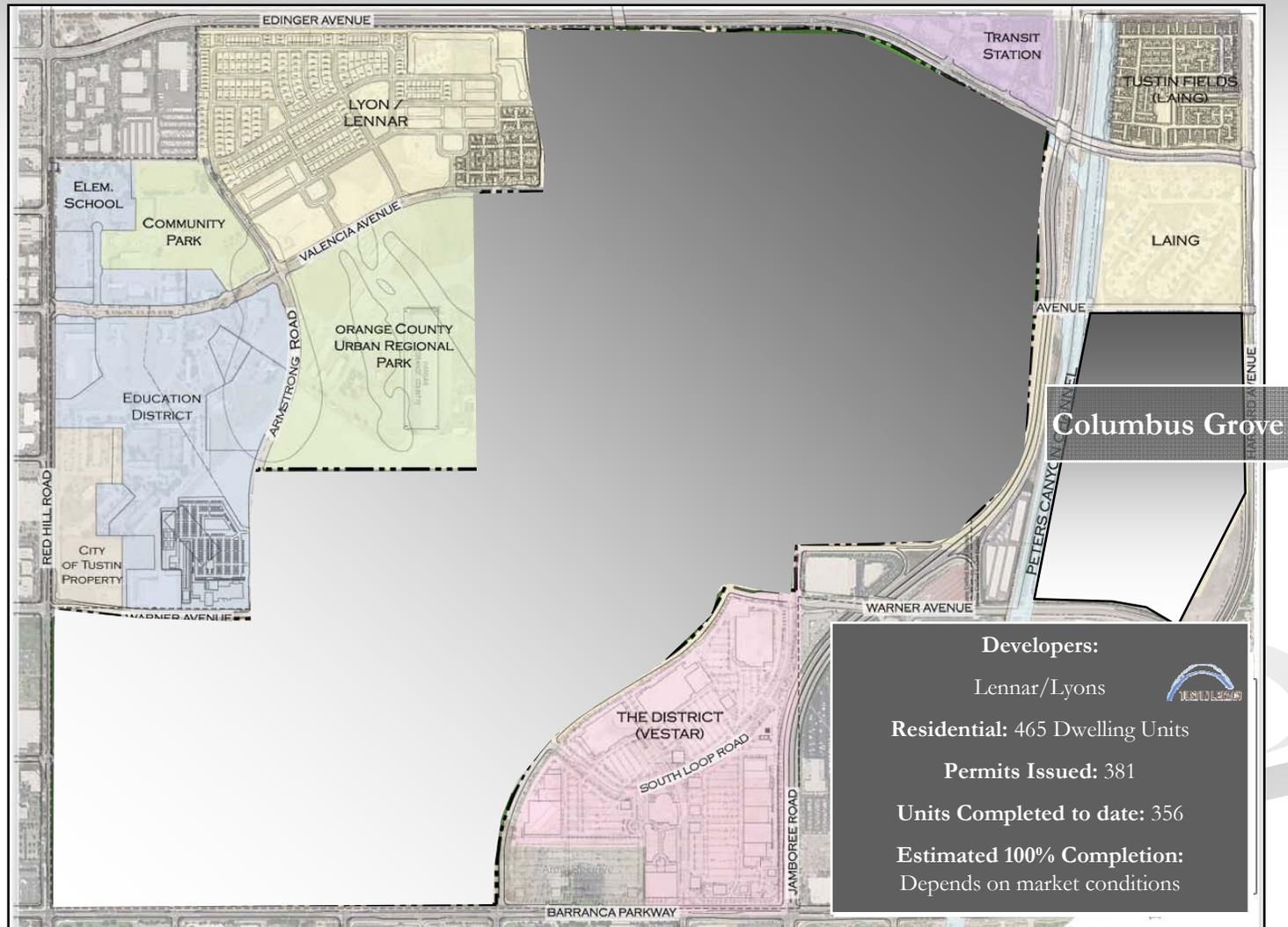
# Tustin Legacy



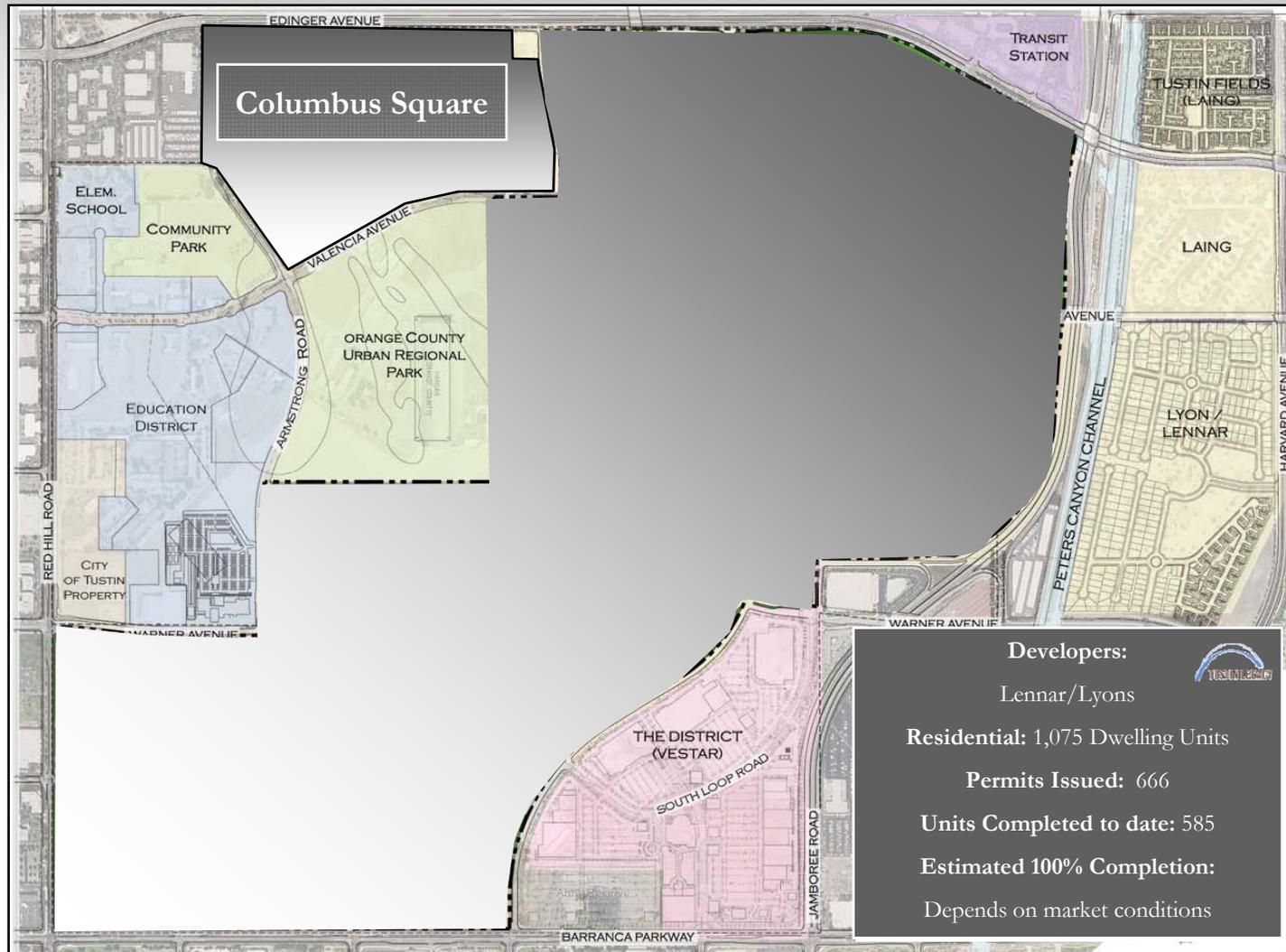
# Tustin Legacy



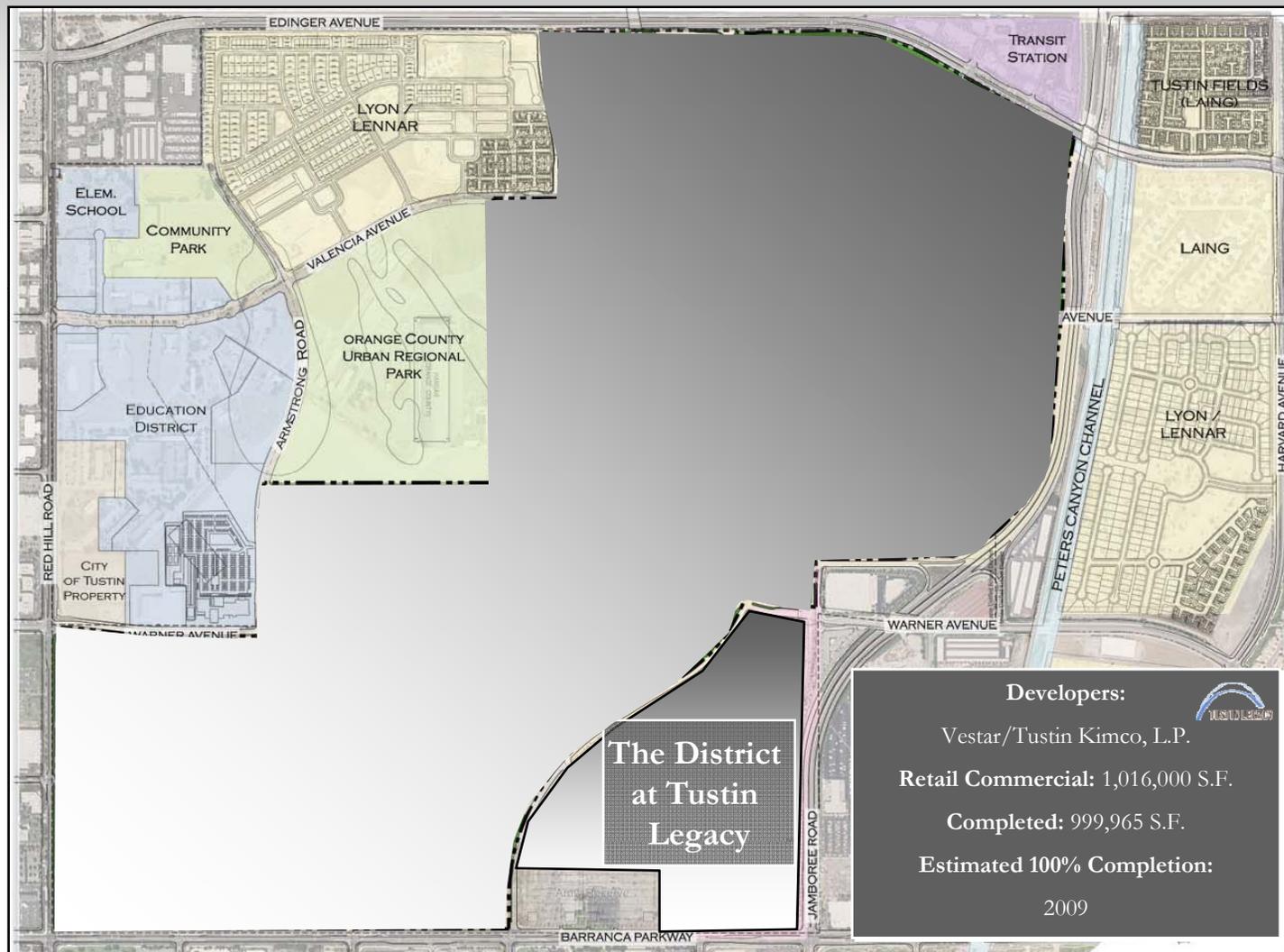
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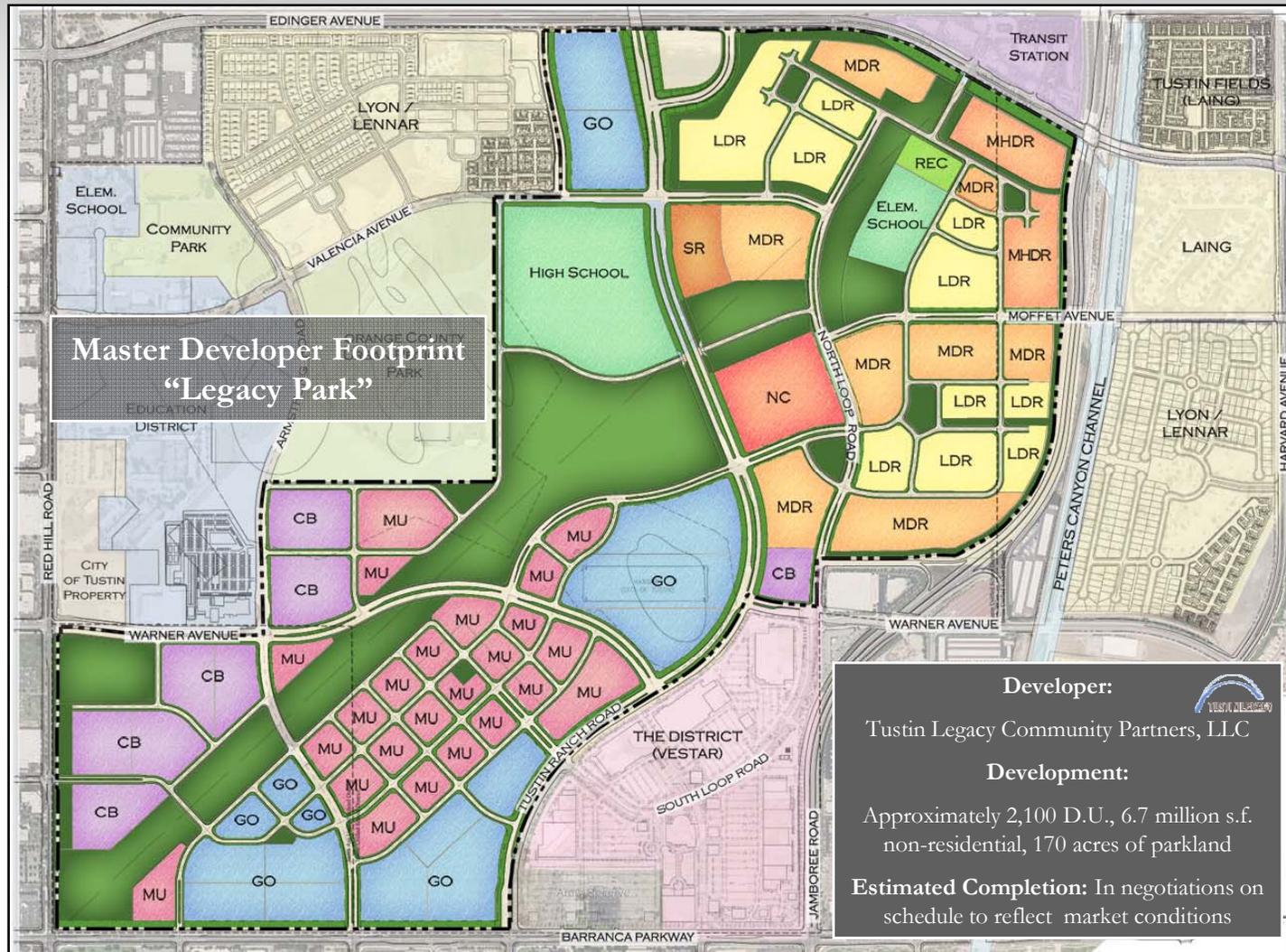
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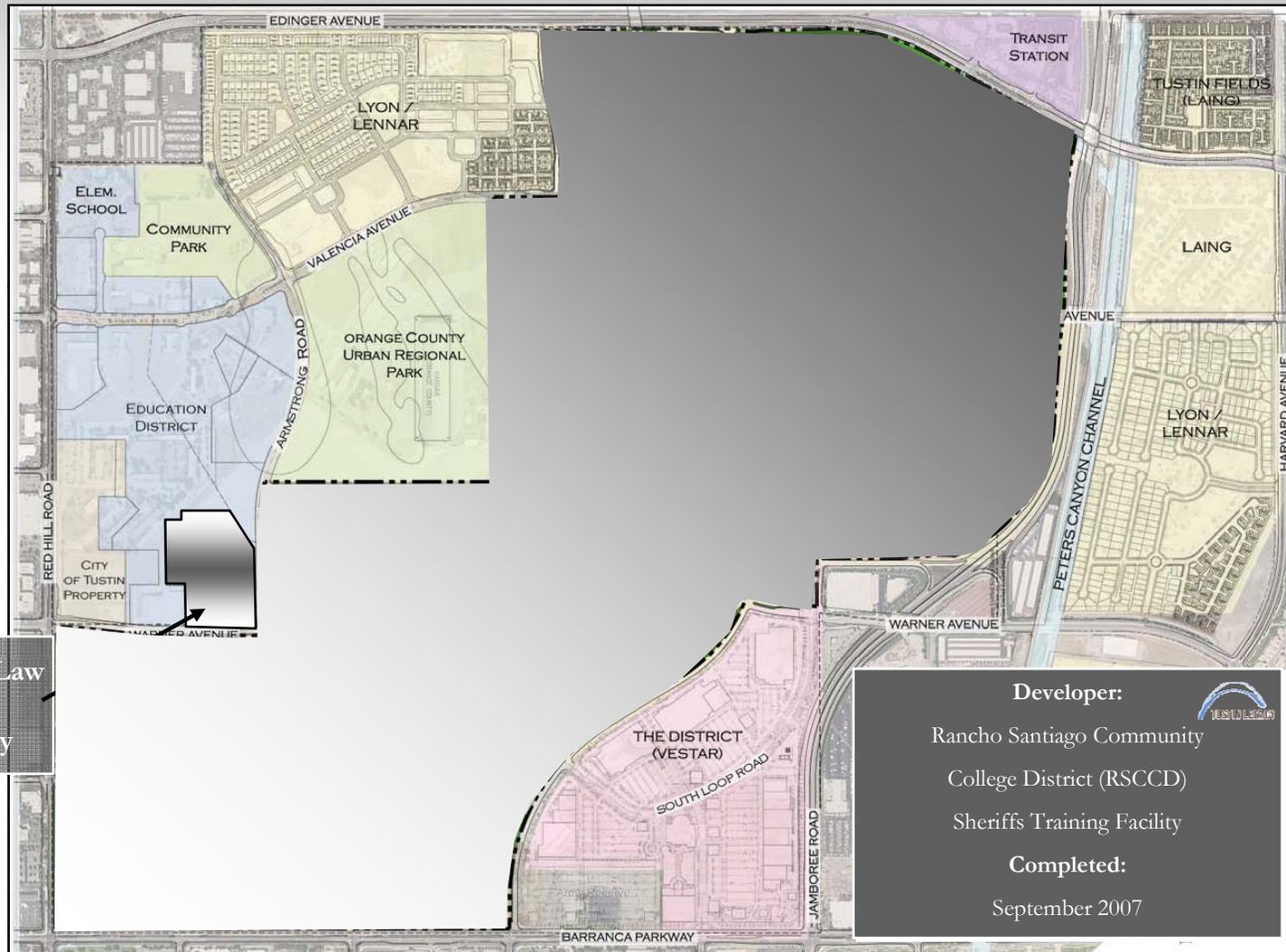
# Tustin Legacy



# Tustin Legacy



# Tustin Legacy



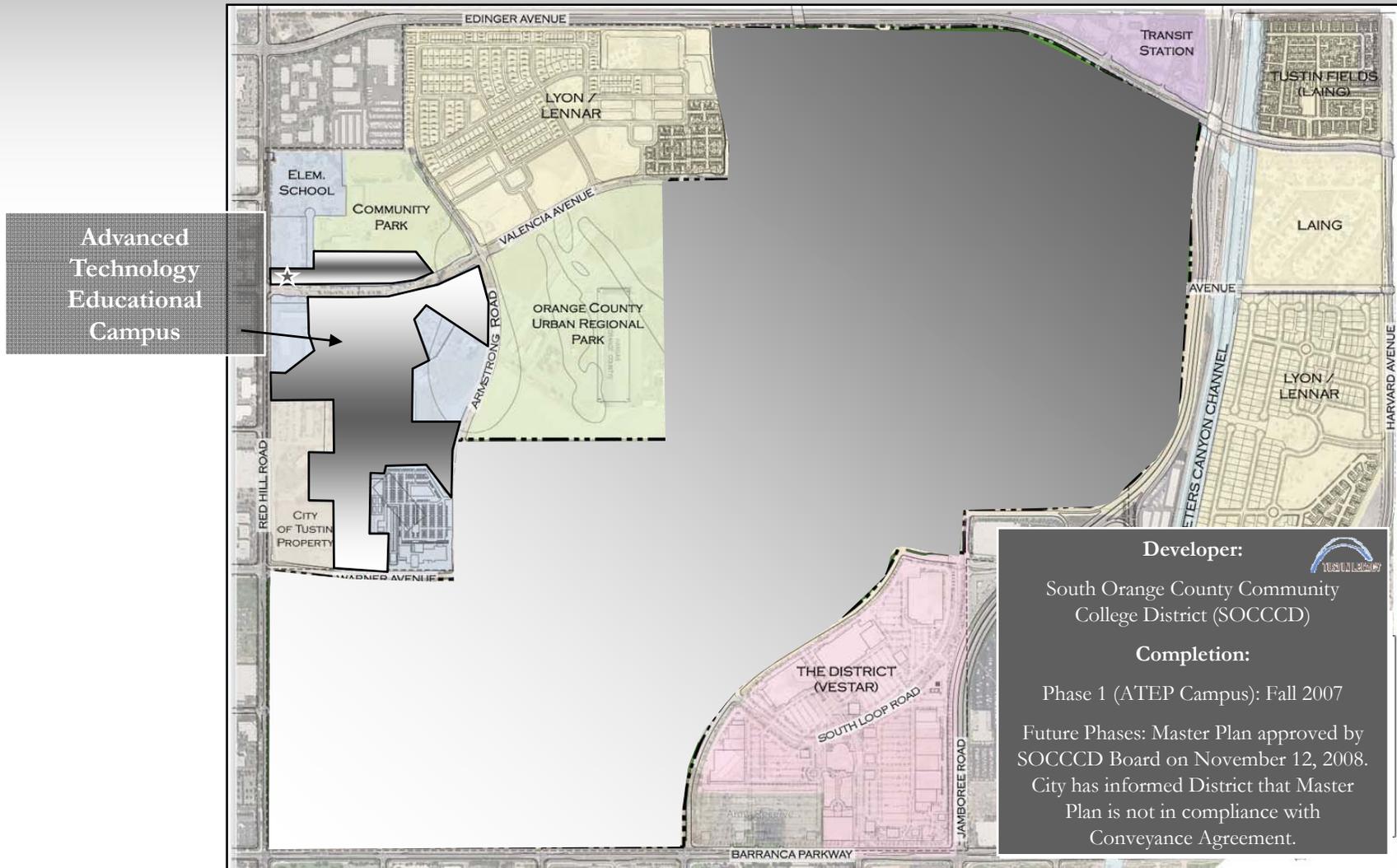
RSCCD Regional Law Enforcement Training Facility

**Developer:**  
Rancho Santiago Community College District (RSCCD)  
Sheriffs Training Facility

**Completed:**  
September 2007



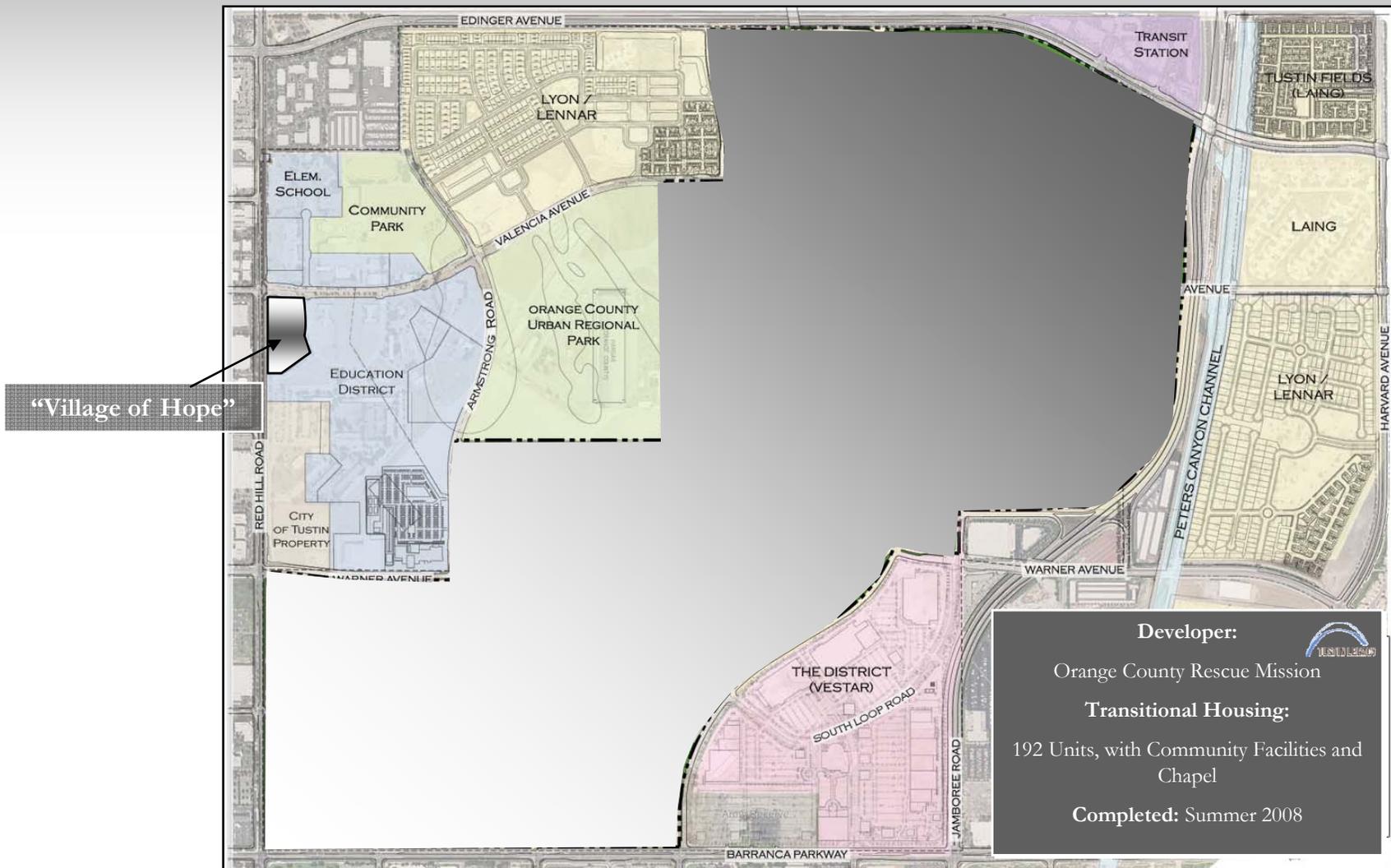
# Tustin Legacy



**Developer:**  
South Orange County Community College District (SOCCCD)

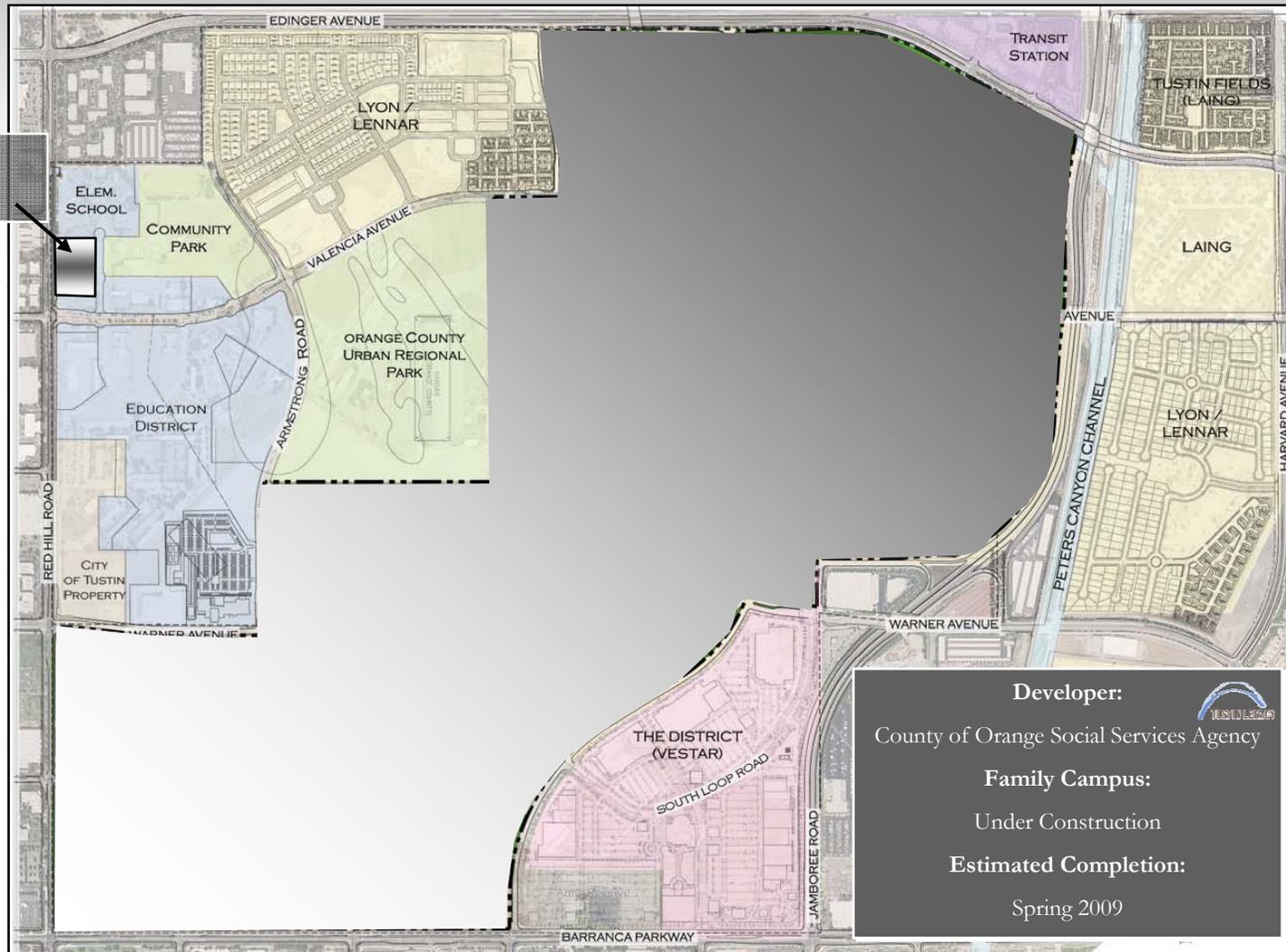
**Completion:**  
Phase 1 (ATEP Campus): Fall 2007  
Future Phases: Master Plan approved by SOCCCD Board on November 12, 2008. City has informed District that Master Plan is not in compliance with Conveyance Agreement.

# Tustin Legacy

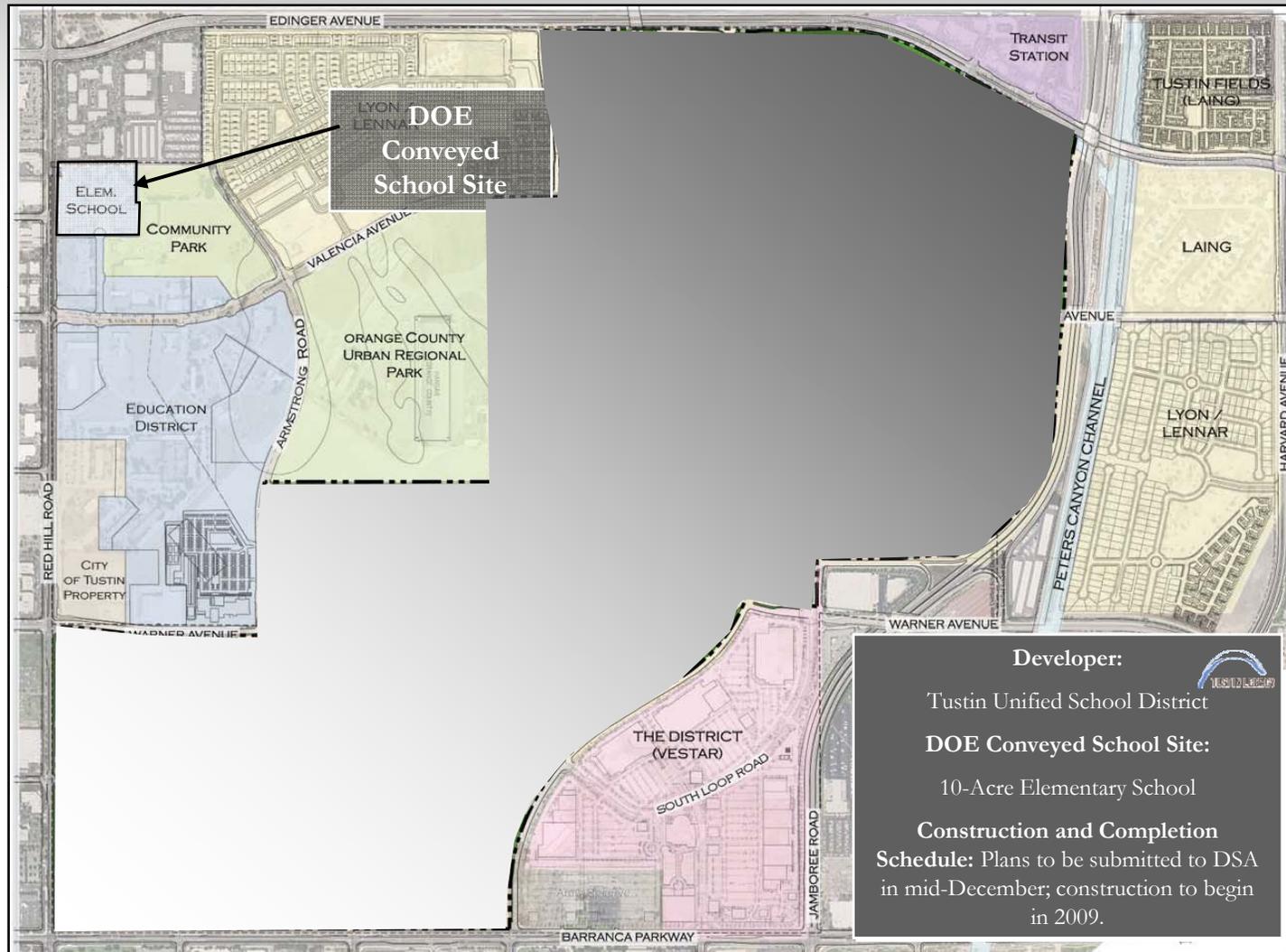


# Tustin Legacy

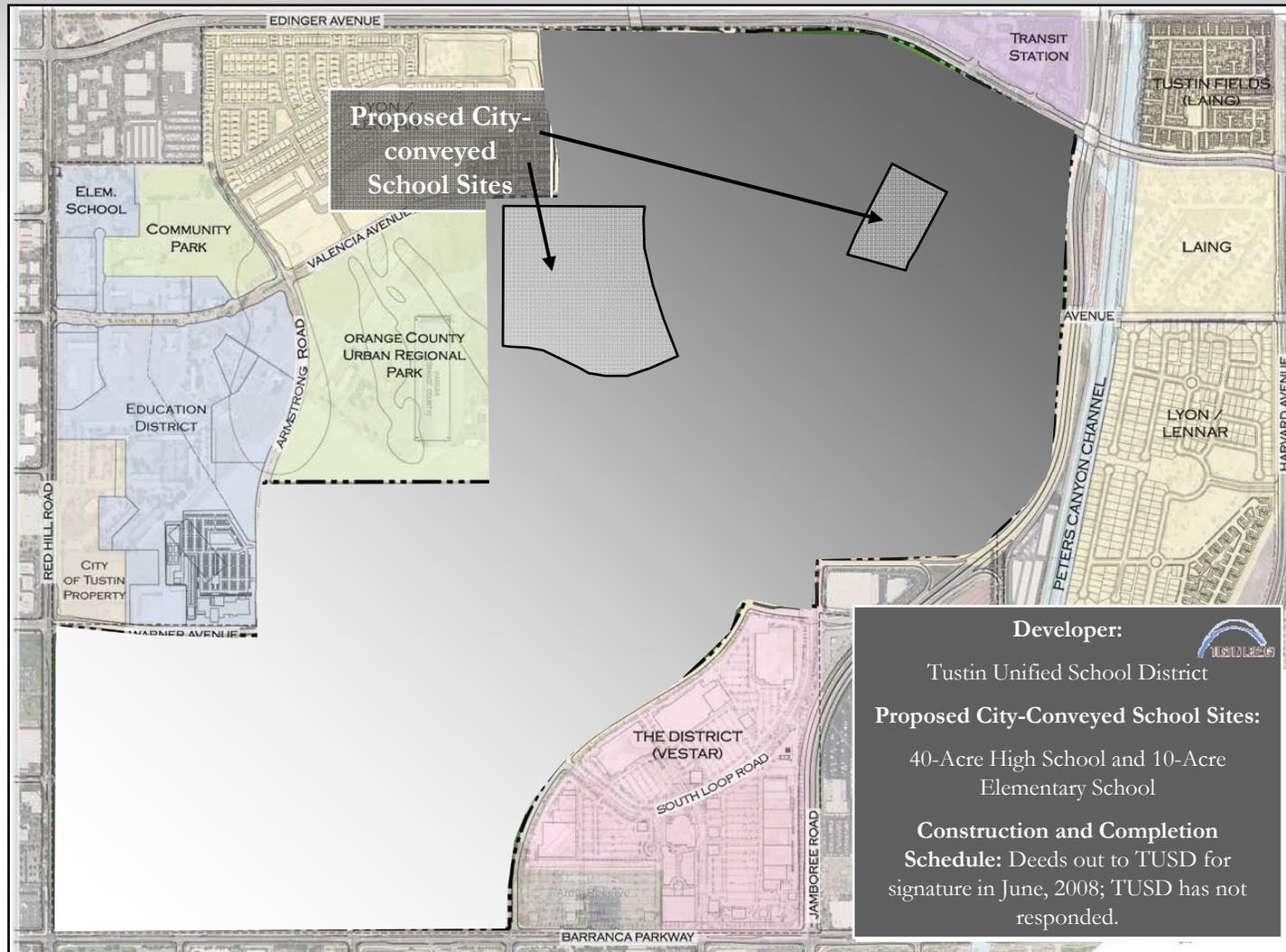
Tustin Family Campus



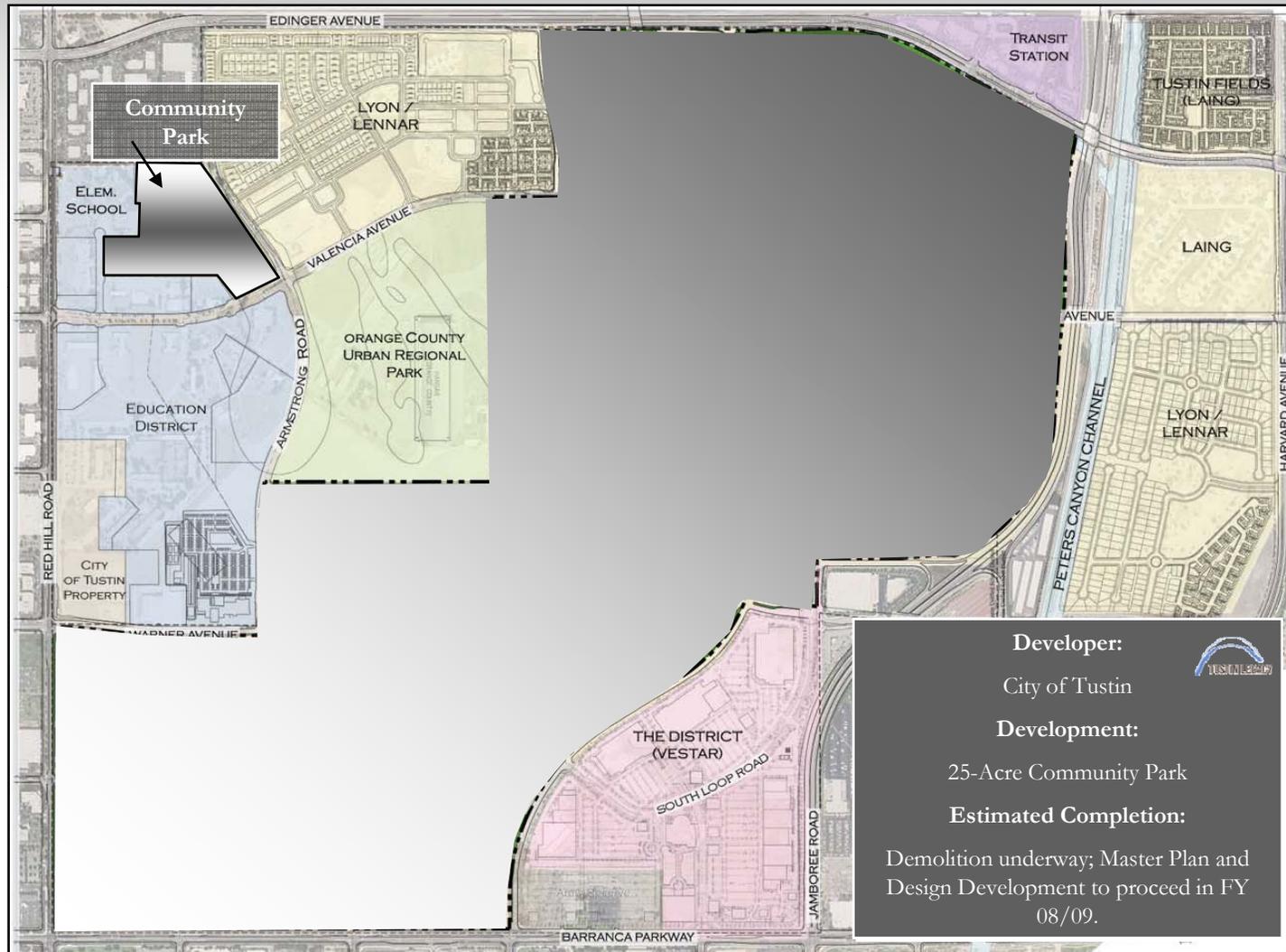
# Tustin Legacy



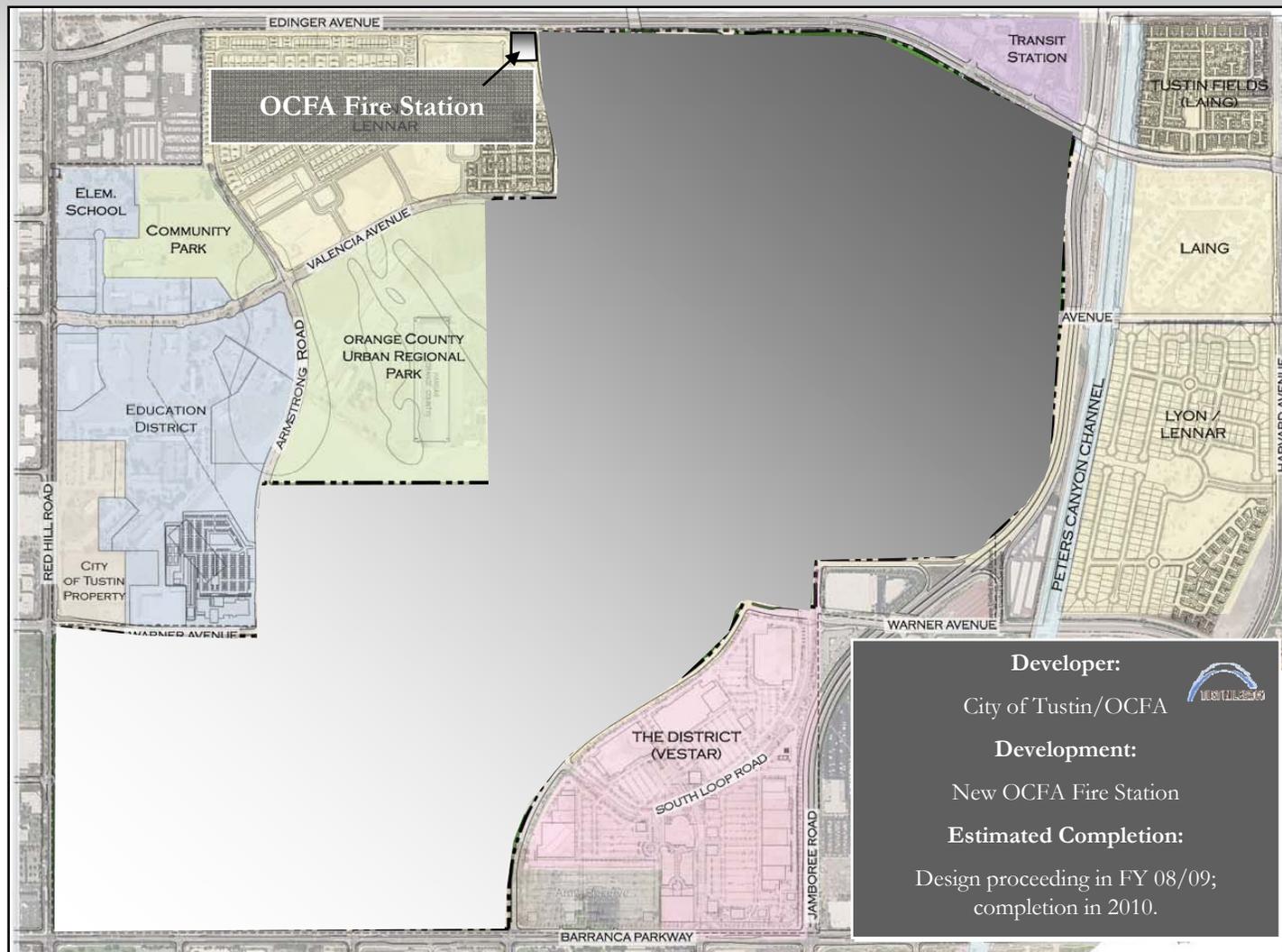
# Tustin Legacy



# Tustin Legacy



# Tustin Legacy

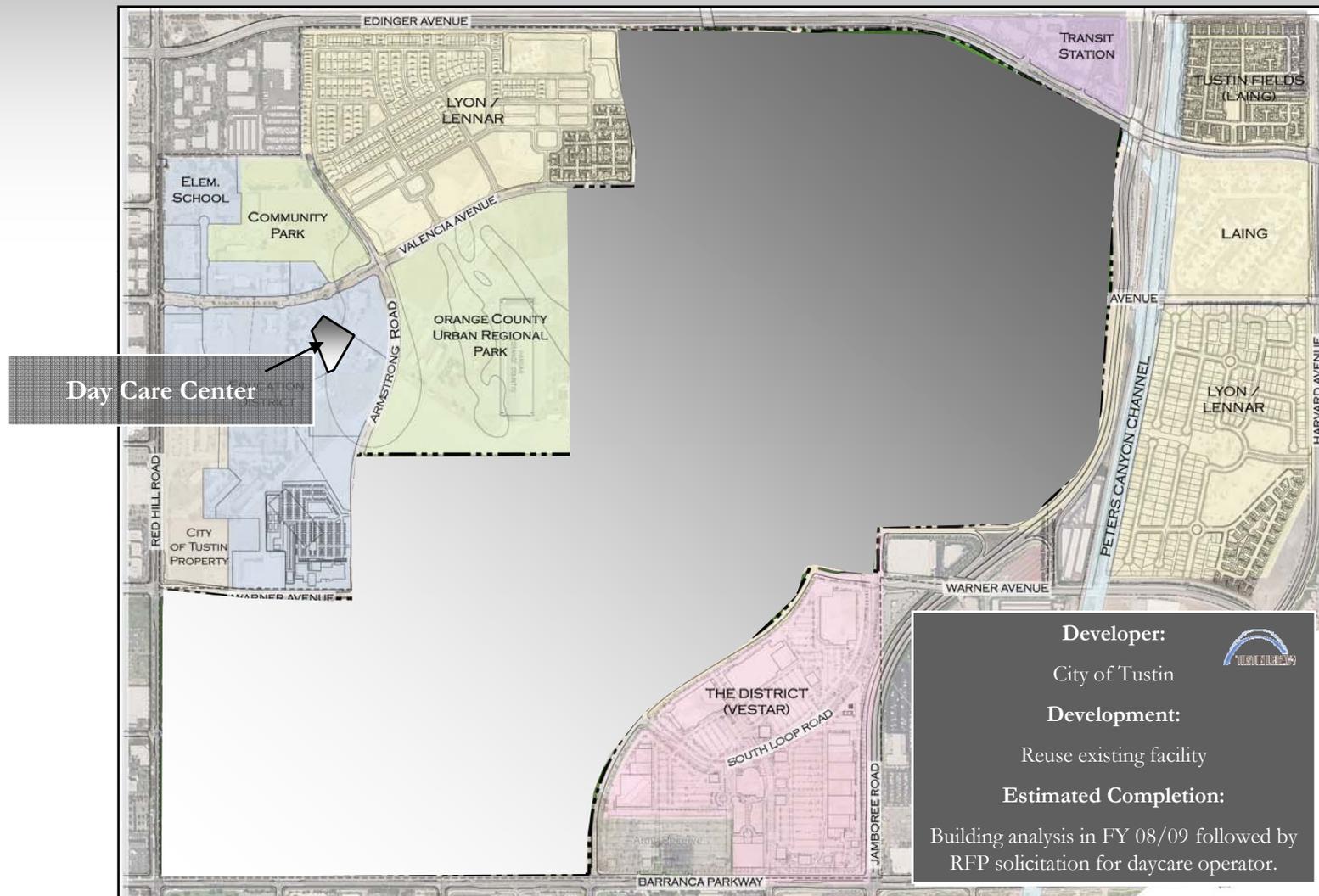


**Developer:**  
City of Tustin/OCFA 

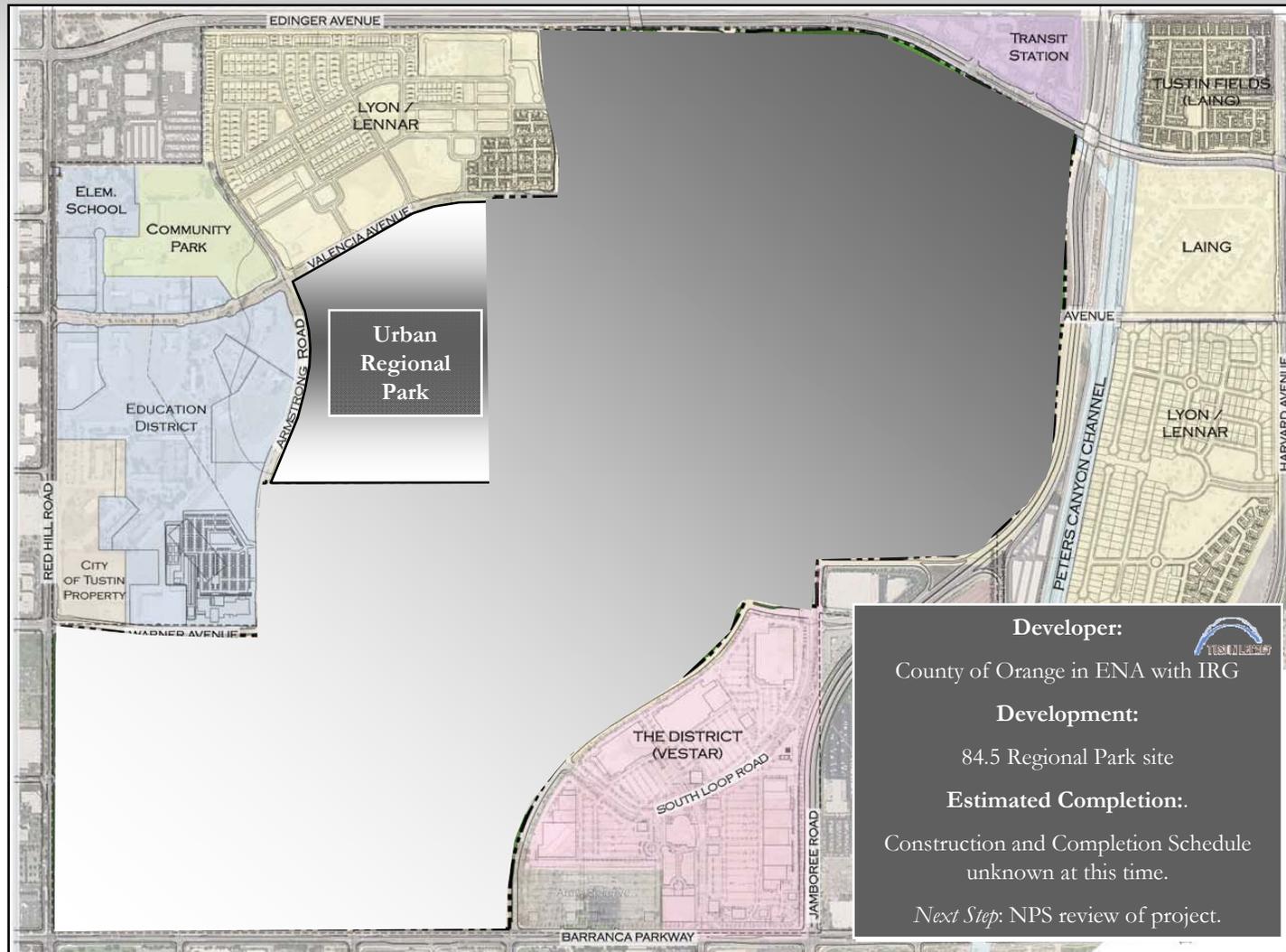
**Development:**  
New OCEFA Fire Station

**Estimated Completion:**  
Design proceeding in FY 08/09;  
completion in 2010.

# Tustin Legacy



# Tustin Legacy







# **Status Update Operable Unit (OU) -1A and -1B Remedial Action**

**Former Marine Corps Air Station Tustin  
Restoration Advisory Board Meeting  
19 November 2008**

Louie Cardinale, P.E., Navy BRAC Project Manager  
Doug Bielskis, P.E., ERRC Project Manager



# Presentation Overview



- **OU-1A/-1B Remedy Overview**
- **Remedial Action (RA) Implementation**
- **Operational Status**
- **Operation and Maintenance (O&M) and Monitoring**
- **Upcoming Activities and Milestones**



## OU-1A/-1B Remedy



- **Final Records of Decision (RODs) for OU-1A/-1B (Dec. 2004): Hydraulic Containment with Hot Spot Removal**
- **Remedy Components:**
  - **Construction, operation, and maintenance of a groundwater extraction, treatment, and monitoring system**
  - **Soil removal to optimize the groundwater remedy**
  - **Institutional Controls to prevent extraction and use of shallow contaminated groundwater**



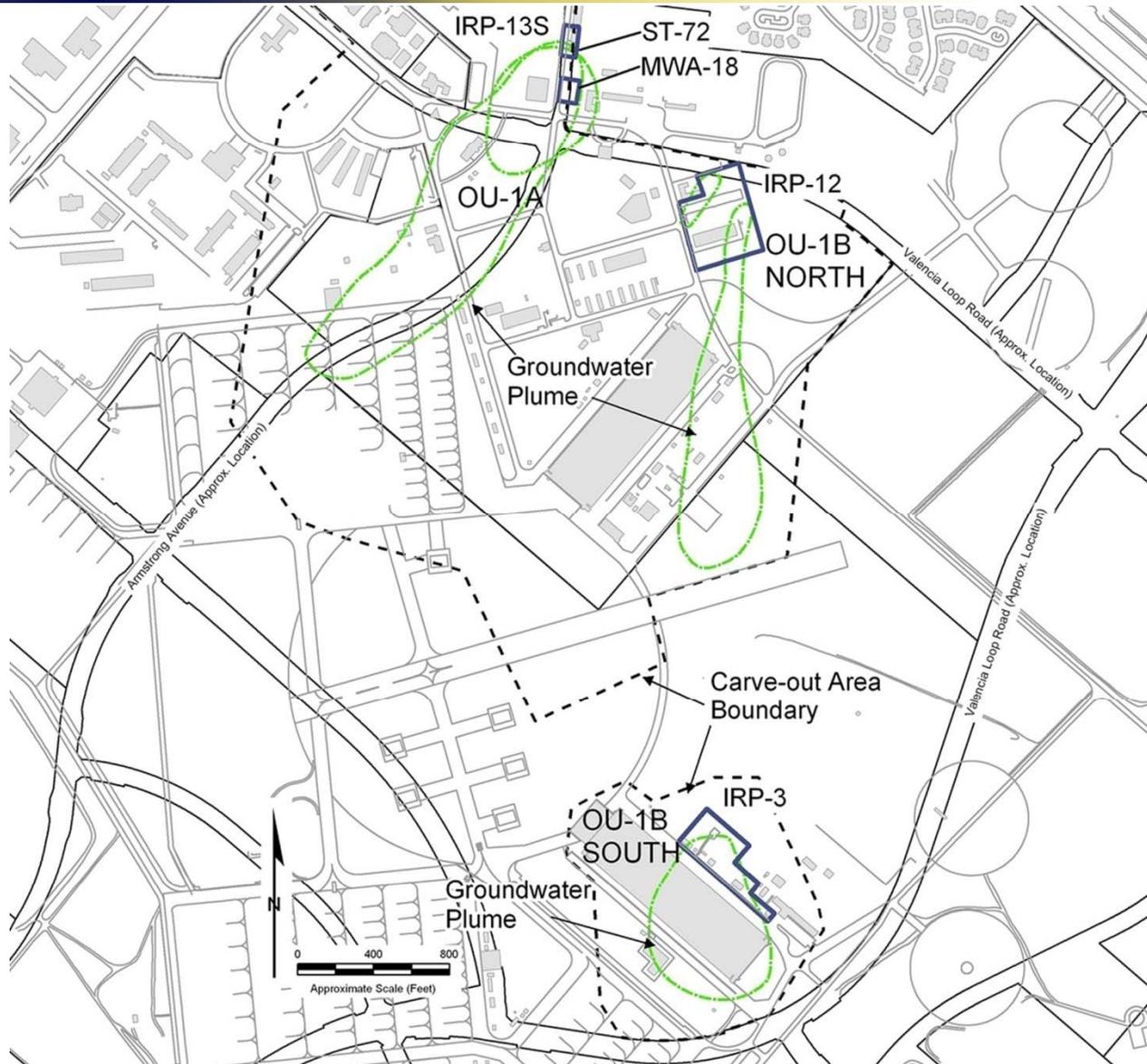
## OU-1A/-1B Chemicals of Concern



- **Chemicals of concern (COC)**
  - **OU-1A – IRP-13S;**  
1,2,3-trichloropropane (TCP) and trichloroethene (TCE) are the COCs
  - **OU-1B North – IRP-12; TCE is the COC**
  - **OU-1B South – IRP-3; TCE is the COC**
  - **1,2,3-TCP remediation goal = 0.5 micrograms per liters ( $\mu\text{g}/\text{L}$ )**
  - **TCE remediation goal = 5  $\mu\text{g}/\text{L}$**



# Plumes at OU-1A/-1B





## Remedial Action



- **RA implemented from June to November 2007**
  - **OU-1A/-1B North treatment system was started on November 16, 2007**
  - **OU-1B South treatment system was started on December 26, 2007**
- **Each treatment system includes**
  - **Process equipment: holding tank, feed pump, 3 granulated activated carbon (GAC) vessels**
  - **Control equipment: level sensors, pressure gauges, master control panel, and communication system**



# Treatment System Buildings



**Treatment Building at OU-1A/-1B North**



**Treatment Building at OU-1B South**



# Treatment Building Interior



**Carbon Filter Units and Manifold**



**Electrical and Control System Panels**



## Remedial Action (continued)



- **Total of 21 extraction wells (EWs)**
  - **9 EWs at OU-1A System**
  - **4 EWs at OU-1B North System**
  - **8 EWs at OU-1B South System**
- **Extraction well vaults constructed below ground surface**
  - **Each vault contains mechanical and electrical components which control pump operation**



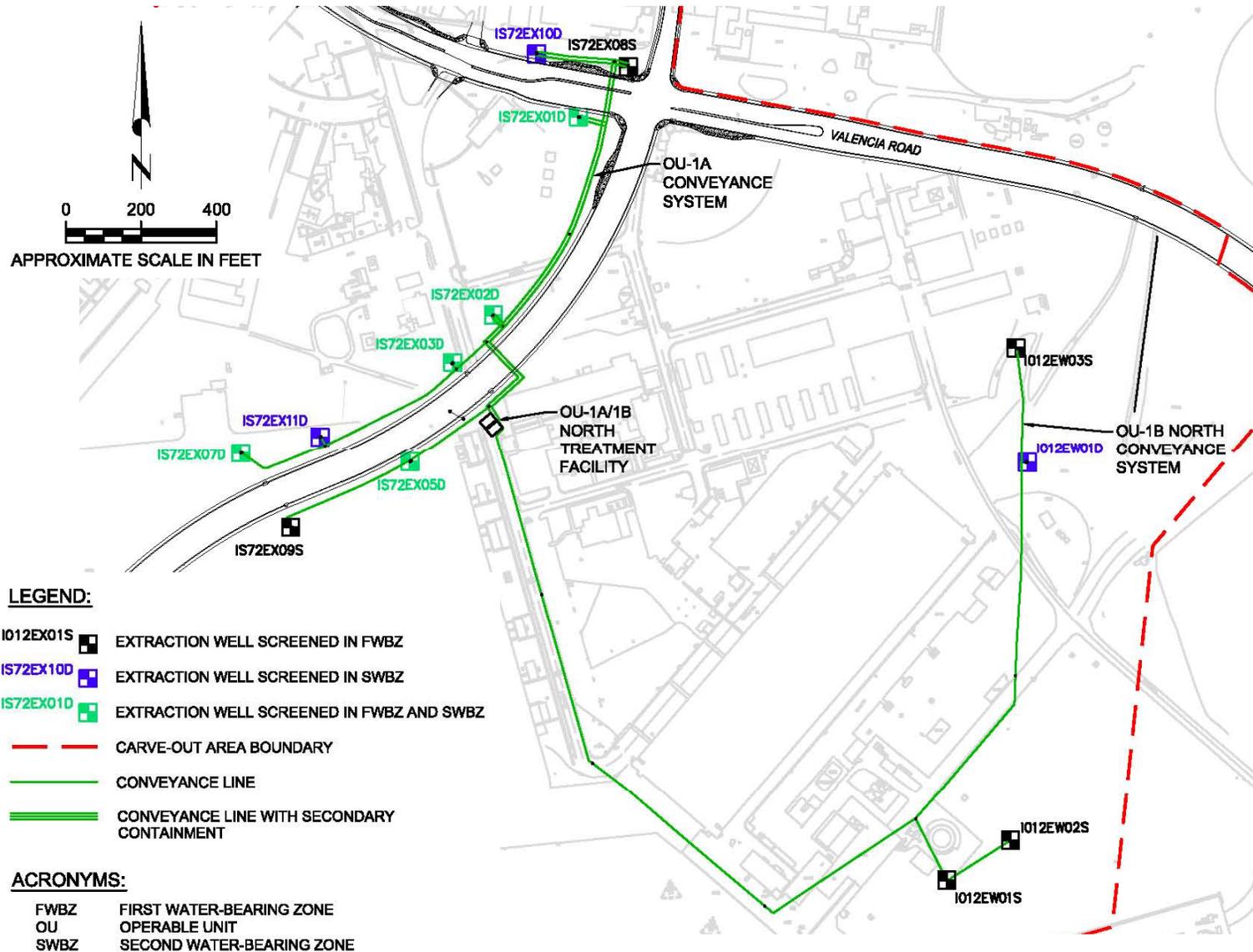
## Operational Status



- **EWs presently pump groundwater between 0.5 and 3.5 gallons per minute**
- **Groundwater conveyed to treatment plants**
  - **1,2,3-TCP and TCE are treated in GAC vessels**
- **Treated groundwater discharged to Orange County Sanitation District (OCSD) sanitary sewer system**
- **Treatment volume (through October 2008)**
  - **14,822,840 gallons (OU-1A/-1B North)**
  - **7,028,154 gallons (OU-1B South)**



# OU-1A and OU-1B North System





# OU-1B South System

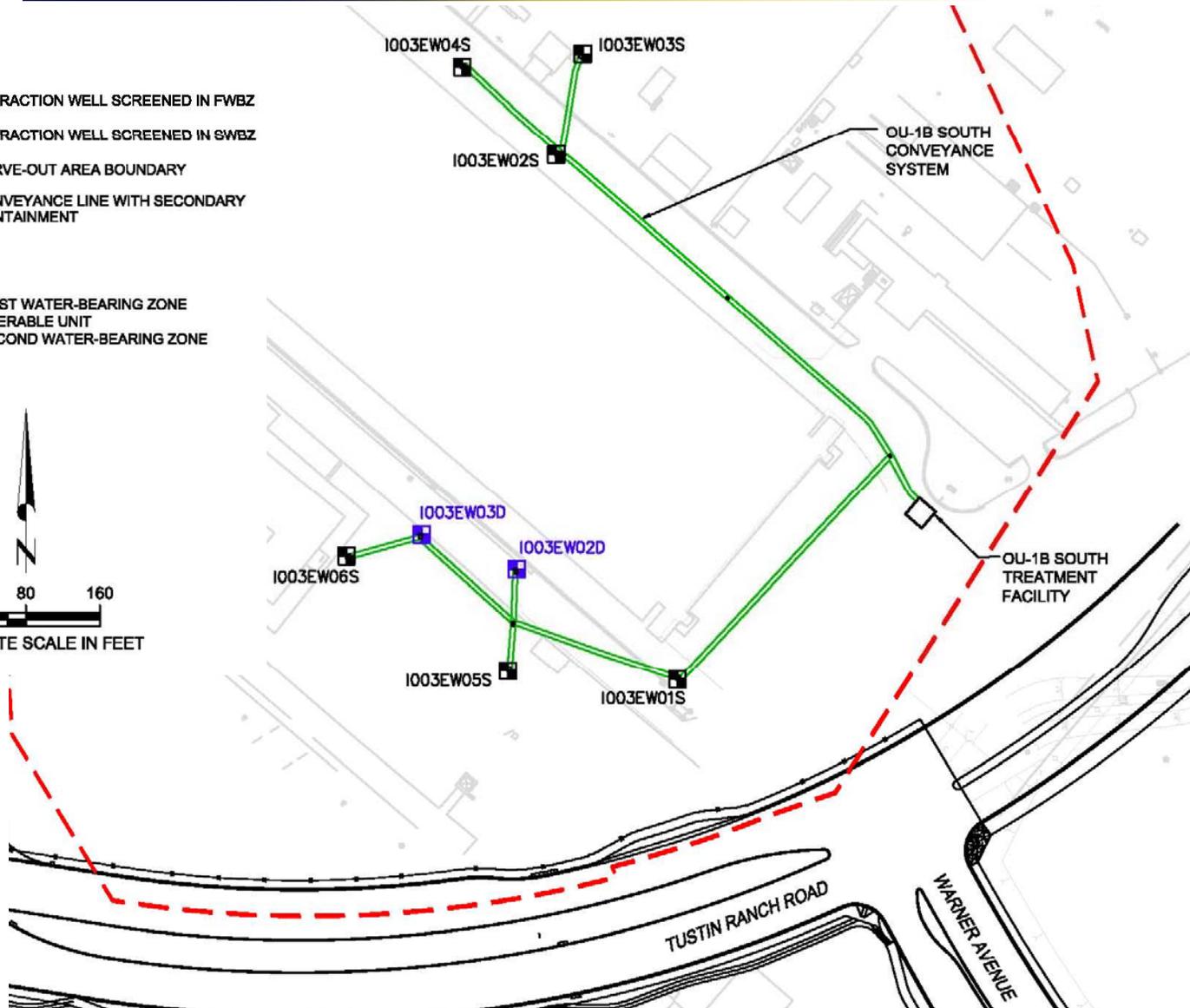
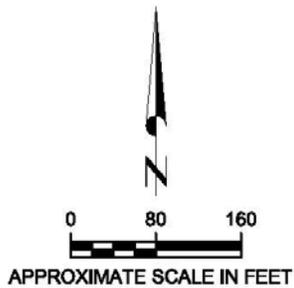


## LEGEND:

- 1003EW08S ■ EXTRACTION WELL SCREENED IN FWBZ
- 1003EW03D ■ EXTRACTION WELL SCREENED IN SWBZ
- - - CARVE-OUT AREA BOUNDARY
- CONVEYANCE LINE WITH SECONDARY CONTAINMENT

## ACRONYMS:

- FWBZ FIRST WATER-BEARING ZONE
- OU OPERABLE UNIT
- SWBZ SECOND WATER-BEARING ZONE





## O&M Activities



- **Regular inspections and maintenance**
  - **Biweekly inspections (treatment plants)**
  - **Monthly inspections and maintenance (treatment plants); sampling to verify effectiveness of GAC treatment**
  - **Quarterly inspections and maintenance (treatment plants and extraction wells); sampling to comply with OCSD discharge requirements**



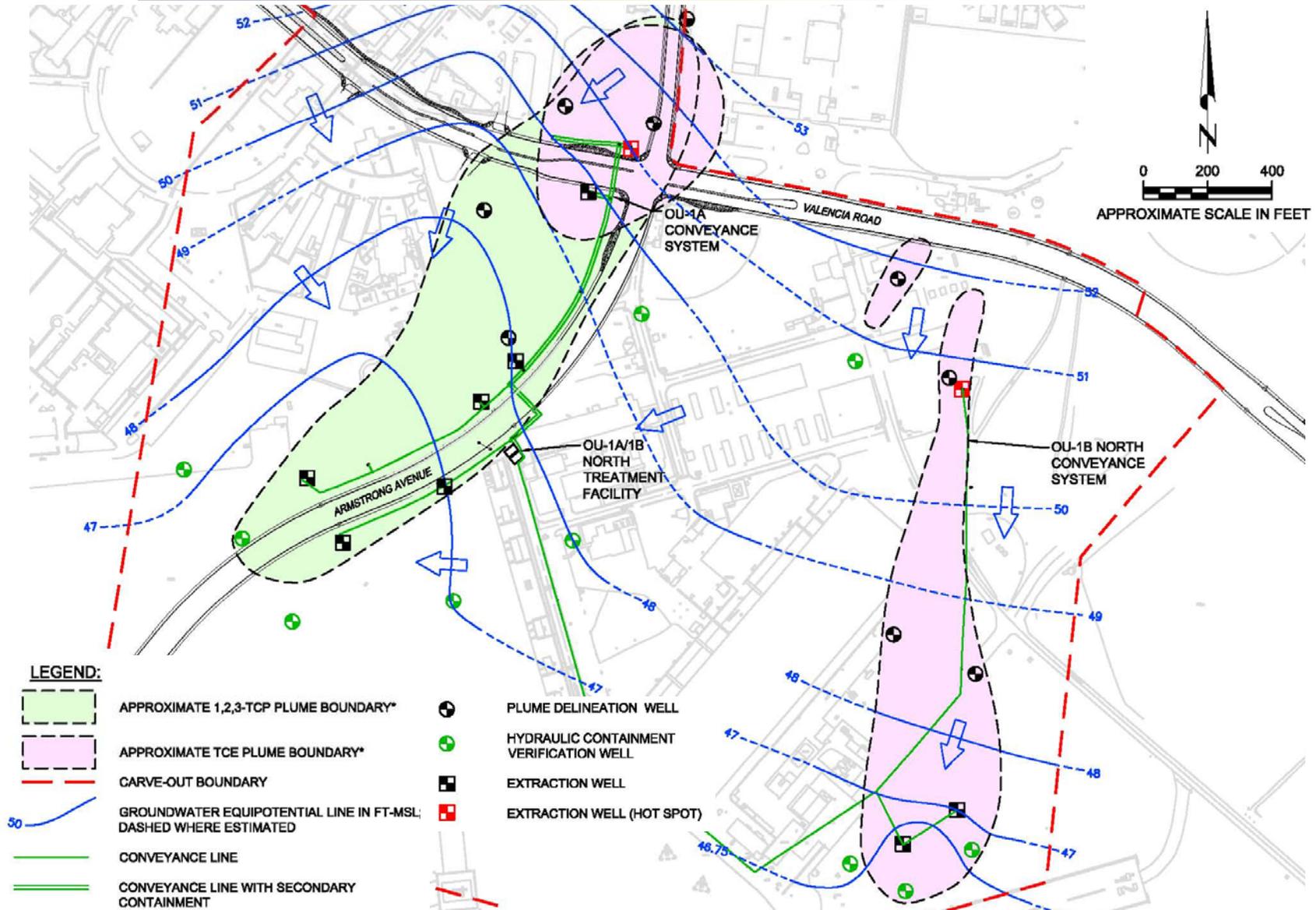
# Monitoring Activities



- **Quarterly groundwater monitoring**
  - **Water level measurements (130 wells) to evaluate groundwater flow directions**
  - **Groundwater sampling (50 wells) to evaluate the plume**
  - **Groundwater sampling at 21 EWs to evaluate system performance**
- **All of the above information is used to optimize the extraction systems**



# OU-1A/OU-1B North – June 2008





## OU-1A Performance Evaluation



- **OU-1A System is functioning as designed**
  - **Groundwater flow directions in FWBZ and SWBZ appear to indicate hydraulic control**
  - **Extraction rates at hot spot EWs are maximized to increase TCE/TCP mass removal**
  - **Extraction rates at hydraulic containment wells are optimized to capture leading edge of FWBZ and SWBZ plumes**
  - **FWBZ TCP concentrations in 5 of 6 containment verification wells are below remediation goals**
    - **Concentration in 6<sup>th</sup> containment verification well is stable**



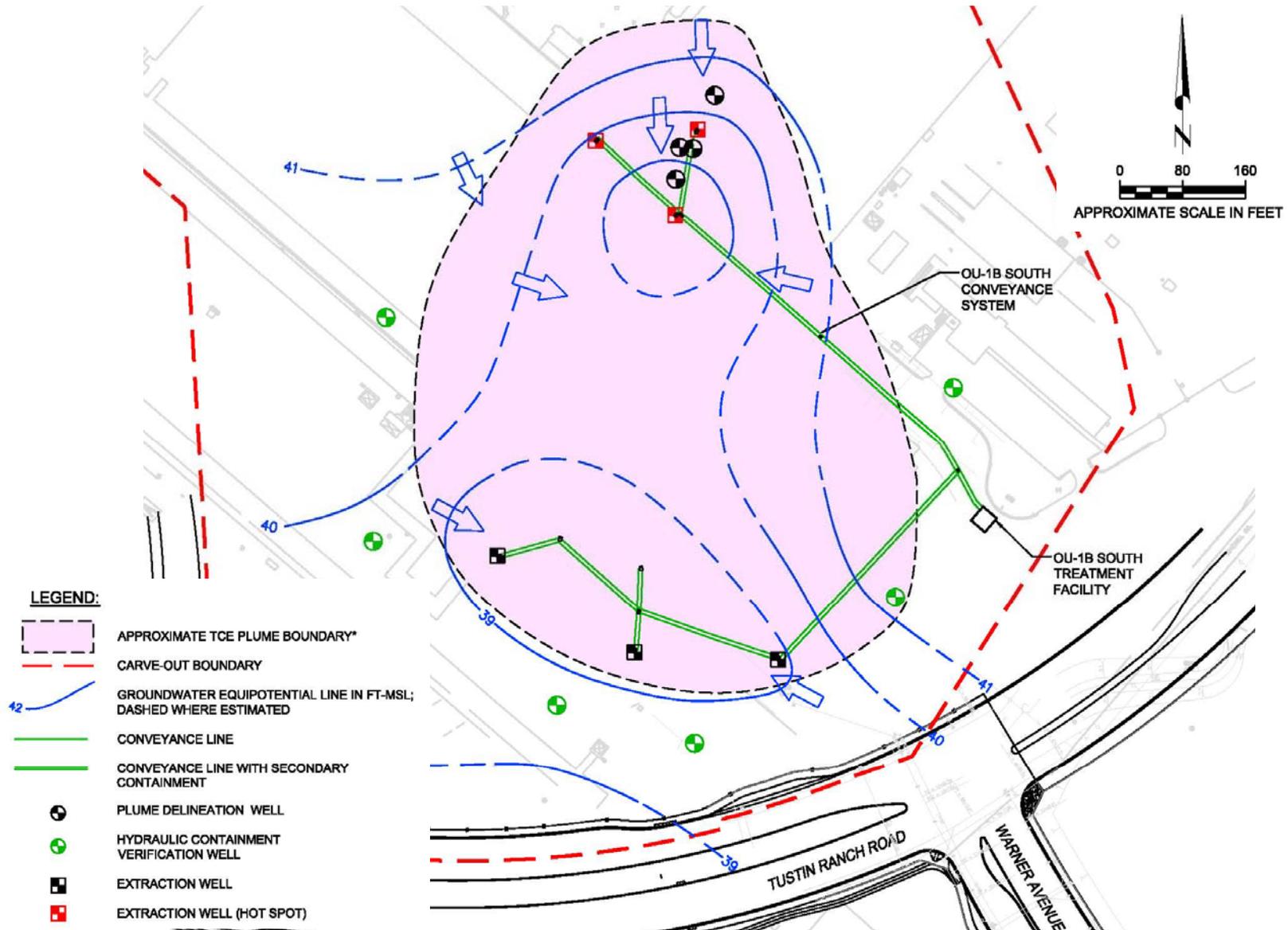
# OU-1B North Performance Evaluation



- **OU-1B North System is functioning as designed**
  - **Groundwater flow directions appear to indicate hydraulic control**
  - **TCE concentrations at leading edges of FWBZ and SWBZ plumes are stable**
    - **TCE in 2 of 3 FWBZ containment verification wells slightly exceed remediation goals**
  - **Extraction rates at all EWs are optimized**



# OU-1B South – June 2008





## OU-1B South Performance Evaluation



- **OU-1B South System is functioning as designed**
  - **Groundwater flow directions in FWBZ and SWBZ appear to indicate hydraulic control**
  - **Extraction rates in hot spot EWs are maximized to increase TCE mass removal**
  - **FWBZ TCE concentrations in 5 of 6 containment verification wells are below remediation goals**
    - **Concentration in 6<sup>th</sup> containment verification well is decreasing**



## Upcoming Activities and Milestones



- **Final Interim RA Completion Report (Jan. 2009)**
- **Draft Operation and Maintenance Plan (Mar. 2009)**
  - **Outline long-term O&M, monitoring, and optimization procedures**
- **Draft Annual Groundwater Remedy Status Report (May 2009)**
  - **Present results from O&M and monitoring**
- **Draft Operating Properly and Successfully (OPS) Report (Draft July 2009)**
  - **Determination that systems are OPS**



# List of Acronyms



BCT	Base Realignment and Closure (BRAC) Cleanup Team
COC	chemical of concern
GAC	granulated activated carbon
IRP	Installation Restoration Program
OCSD	Orange County Sanitation District
OPS	operating properly and successfully
OU	operable unit
RA	remedial action
RD	remedial design
RI	remedial investigation
ROD	record of decision
TCE	trichloroethene
TCP	trichloropropane
TCRA	time-critical removal action
µg/L	micrograms per liter
VOC	volatile organic compound



Questions?

