AGENDA

18700 Ward St.
Fountain Valley, CA 92708
(714) 378-3200

PROPERTY MANAGEMENT COMMITTEE MEETING
WITH BOARD OF DIRECTORS *
ORANGE COUNTY WATER DISTRICT
Friday, December 19, 2025 – 12:00 p.m. – Conference Room C-2

*The OCWD Property Management Committee meeting is noticed as a joint meeting with the Board of Directors for the purpose of strict compliance with the Brown Act and it provides an opportunity for all Directors to hear presentations and participate in discussions. Directors receive no additional compensation or stipend as a result of simultaneously convening this meeting. Items recommended for approval at this meeting will be placed on **January 7, 2026** Board meeting Agenda for approval.

This meeting will be held in person. As a convenience for the public, the meeting may also be accessed by Zoom Webinar and will be available by either computer or telephone audio as indicated below. Because this is an in-person meeting and the Zoom component is not required, but rather is being offered as a convenience, if there are any technical issues during the meeting, this meeting will continue and will not be suspended.

Computer Audio: You can join the Zoom meeting by clicking on the following link:
https://ocwd.zoom.us/j/81364630427

Meeting ID: 813 6463 0427

Telephone Audio: (213) 338 8477

Teleconference Sites:
10382 Bonnie Drive, Garden Grove
1037 Sherwood Lane, Santa Ana
6148 E Baja Dr, Anaheim
19 Cannery, Buena Park
303 W. Commonwealth Ave, Fullerton
1502 North Broadway, Santa Ana
* Members of the public may attend and participate at all locations.

ROLL CALL

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

RECOMMENDATION: Adopt resolution determining need to take immediate action on item(s) and that the need for action came to the attention of the District subsequent to the posting of the Agenda (requires two-thirds vote of the Board members present, or, if less than two-thirds of the members are present, a unanimous vote of those members present.)

VISITOR PARTICIPATION

Time has been reserved at this point in the agenda for persons wishing to comment for up to three minutes to the Board of Directors on any item that is not listed on the agenda, but within the subject matter jurisdiction of the District. By law, the Board of Directors is prohibited from taking action on such public comments. As appropriate, matters raised in these public comments will be referred to District staff or placed on the agenda of an upcoming Board meeting.

At this time, members of the public may also offer public comment for up to three minutes on any item on the Consent Calendar. While members of the public may not remove an item from the Consent Calendar for separate discussion, a Director may do so at the request of a member of the public.

CONSENT CALENDAR (ITEM NO. 1)

All matters on the Consent Calendar are to be approved by one motion, without separate discussion on these items, unless a Board member or District staff request that specific items be removed from the Consent Calendar for separate consideration.

1. MINUTES OF PROPERTY MANAGEMENT COMMITTEE MEETING HELD OCTOBER 24, 2025

   RECOMMENDATION: Approve minutes as presented

MATTER FOR CONSIDERATION

2. AMENDMENT TO AGREEMENT WITH AECOM TO COMPLETE PLANNING AND REMEDIAL DESIGN FOR THE PRADO LEAD REMEDIATION PROJECT

   RECOMMENDATION: Agendize for the January 7 Board meeting: Authorize execution of Amendment 10 to Agreement No. 1321 with AECOM in the amount of $157,389 to complete the Remedial Action Plan, Initial Study/Mitigated Negative Declaration (IS/MND) for CEQA compliance and conduct the remedial design for In-Place Remediation.

INFORMATIONAL ITEMS

3. CORONA RECREATION, INC. LEASE UPDATE

4. STATUS UPDATE REGARDING THE DISTRICT'S IMPERIAL HIGHWAY PROPERTY

CHAIR DIRECTION AS TO ITEMS TO AGENDIZE AS MATTERS FOR CONSIDERATION AT THE JANUARY 7 BOARD MEETING

DIRECTORS' COMMENTS/REPORTS

GENERAL MANAGER'S COMMENTS/REPORTS

ADJOURNMENT

PROPERTY MANAGEMENT COMMITTEE

Committee Members

Steve Sheldon - Chair
Natalie Meeks - Vice Chair
Fred Jung
Roger Yoh
Cathy Green

Alternates

Dina Nguyen - Alternate 1
Valerie Amezcua - Alternate 2
Van Tran - Alternate 3
Erik Weigand - Alternate 4
Denis Bilodeau - Alternate 5

In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted at the guard shack entrance and in the main lobby of the Orange County Water District, 18700 Ward Street, Fountain Valley, CA and on the OCWD website not less than 72 hours prior to the meeting date and time above. All written materials relating to each agenda item are available for public inspection in the office of the District Secretary. Backup material for the Agenda is available at the District offices for public review and can be viewed online at the District's website: www.ocwd.com

Pursuant to the Americans with Disabilities Act, persons with a disability who require a disability-related modification or accommodation in order to participate in a meeting, including auxiliary aids or services, may request such modification or accommodation from the District Secretary at (714) 378-3234, by email at cfuller@ocwd.com, by fax at (714) 378-3373. Notification 24 hours prior to the meeting will enable District staff to make reasonable arrangements to assure accessibility to the meeting.

As a general rule, agenda reports or other written documentation has been prepared or organized with respect to each item of business listed on the agenda, and can be reviewed at www.ocwd.com. Copies of these materials and other disclosable public records distributed to all or a majority of the members of the Board of Directors in connection with an open session agenda item are also on file with and available for inspection at the Office of the District Secretary, 18700 Ward Street, Fountain Valley, California, during regular business hours, 8:00 am to 5:00 pm, Monday through Friday. If such writings are distributed to members of the Board of Directors on the day of a Board meeting, the writings will be available at the entrance to the Board of Directors meeting room at the Orange County Water District office.

MINUTES OF THE PROPERTY MANAGEMENT COMMITTEE MEETING
WITH BOARD OF DIRECTORS
ORANGE COUNTY WATER DISTRICT
October 24, 2025 @ 12:00 p.m.

Director Sheldon called the Property Management Committee meeting to order in Conference Room C-2. Members of the public also participated via Zoom. The Secretary called the roll and reported a quorum as follows:

Committee		OCWD Staff
Steve Sheldon		John Kennedy, General Manager
Natalie Meeks		Daniel Park, Property Manager
Fred Jung	(arrived 12:02 p.m.)	Jeremy Jungreis, General Counsel
Roger Yoh		Christina Fuller, District Secretary
Cathy Green		

Alternates
Dina Nguyen
Valerie Amezcua
Van Tran
Erik Weigand
Denis Bilodeau

CONSENT CALENDAR (ITEMS NO. 1-2)

The Consent Calendar was approved upon motion by Director Green, seconded by Director Meeks, and carried [5-0] as follows:

Ayes: Sheldon, Meeks, Yoh, Green, Nguyen

1. Meeting Minutes

The Minutes of the Property Management Committee meeting held September 26, 2025 were approved as presented.

2. Orange County Transit Authority Temporary Construction Easement Request for State Route 91 Improvements

Recommended for approval at November 5 Board meeting: Approve the Right-of-Way Contract and Temporary Construction Easements requested by the Orange County Transportation Authority in connection with the SR-91 improvement project.

INFORMATIONAL ITEMS

3. Anaheim Lake House Potential Options

Property Manager Daniel Park reported that the District owns a vacant house located at 3435 E. Miraloma Avenue in Anaheim CA, adjacent to the southerly portion of the District's Anaheim Lake Recharge Basin. He stated that the property is approximately 1,400 square feet and construction was authorized by the Board in 1958 to be used originally as a single-family residence by the District caretaker of Crill Basin (now Anaheim Lake). He advised that the property was leased to Corona Recreation, Inc. from 2006-2020 for use as a business office. He reported that in anticipation of potentially leasing out the property, staff had it inspected for damage, mold and asbestos as it had been vacant for a number of years and was in a state of disrepair. Mr. Park stated that the inspection identified extensive repairs needed, including mitigating high levels of mold. He advised that staff was

provided with a high-level repair estimate of approximately $130,000, however staff thinks this figure may be understated based on the severity of damage noted in the inspection. Mr. Park reviewed potential options including repair and lease, demolish and landscape and variance/zoning changes. Staff was directed to contact Voit Real Estate regarding the value of the property and to provide more information at the next Committee meeting.

4. Quarterly Report on Leases and Permits/Licenses for the Period Ending September 30, 2025

Mr. Park reported that the District had a 20% decrease year over year in the third quarter that was primarily due to Anaheim Adventure Park's early payment of its full 2025 annual rent during quarter three of last year, a drop in admissions revenue ($57,591), and early October 2024 payments from Mike Raahauge Shooting Enterprises for the shooting range ($19,613) and duck hunting leases ($43,277). He advised that all Lessees and Permittees/Licensees are in full compliance with the terms of their lease/permit/license and all are current with their rent.

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ADJOURNMENT

There being no further business to come before the Committee, the meeting was adjourned at 12:20 p.m.

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Steve Sheldon, Chair

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AGENDA ITEM SUBMITTAL

Meeting Date: December 19, 2025

To: Property Management Committee
Board of Directors

From: John Kennedy

Staff Contact: K. O'Toole/L. Haney

Budgeted: Yes
Budget Amount: $525,000
Cost Estimate: $157,389
Funding Source: C18001
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: AMENDMENT TO AGREEMENT WITH AECOM TO COMPLETE PLANNING AND REMEDIAL DESIGN FOR THE PRADO LEAD REMEDIATION PROJECT

SUMMARY

The District is working with the Department of Toxic Substances Control (DTSC) to address soil contamination at former shooting areas at Pigeon Hill and the Former Clay Target Range (FCTR) in Prado Basin. An Amendment to the Agreement with AECOM in the amount of $157,389 is required to respond to DTSC comments on the draft CEQA document and draft Remedial Action Plan (RAP), cover the costs of additional vertical sampling requested by staff, and to complete the planning and design phases of the project.

Attachment: AECOM December 11, 2025 scope of work and cost estimate for additional work, to support In-Place Remediation – Proposed Amendment No.10 to Agreement 1321

RECOMMENDATION

Agendize for the January 7 Board meeting: Authorize execution of Amendment 10 to Agreement No.1321 with AECOM in the amount of $157,389 to complete the Remedial Action Plan, Initial Study/Mitigated Negative Declaration (IS/MND) for CEQA compliance and conduct the remedial design for In-Place Remediation.

DISCUSSION/ANALYSIS

OCWD leases property in Prado Basin for hunting and shooting related activities. Areas formerly used for shotgun shooting-related activities are known to be contaminated with residual lead shot, lead in soil and polyaromatic hydrocarbons (PAHs) contained in clay targets. At the Property Committee in April of 2024, the Board directed staff to pursue In-Place Remediation with a Corrective Action Management Unit (CAMU) to encapsulate excavated contaminated soil at the FCTR and place a clean sediment cap over contaminated soils at Pigeon Hill.

In July 2024, the Committee approved a scope of work and budget with AECOM to complete the planning phase of the project for In-Place Remediation. This includes the development of a remedial action plan, CEQA documentation, geotechnical studies and CAMU designs along with additional vertical profile sampling to refine the quantity of soil requiring remediation and inform the size and design of the CAMU.

Geotechnical studies and vertical profile sampling were conducted in early 2025. While Geotechnical studies supported the on-site placement of the CAMU at the FCTR, the vertical profile samples determined that original estimates of the vertical extent and volume of contaminated soil were underestimated. Additional vertical profile sampling by AECOM was requested by staff and completed in spring 2025. Results of the vertical sampling resulted in increased soil volume requiring excavation which expanded the size of the CAMU. This critical information resulted in updates and revisions to the conceptual CAMU designs, CEQA technical studies and draft Remedial Action Plan. The additional vertical profiles sampling and resulting modification to the preliminary design and various reports were not anticipated in the existing budget for AECOM. AECOM's Scope of Work for Amendment 10 (attached) contains a more detailed explanation of these project deviations and their budget impacts.

In July 2025, OCWD submitted the draft IS/MND, as required by CEQA and the draft RAP to DTSC for review and comment. In October, OCWD received written comments from DTSC on the RAP. Staff have been working with DTSC and AECOM to resolute these comments and has tentatively identified responses and solutions. DTSC had minor non-substantive verbal comments on the CEQA and IS/MND. However, additional budget is required to revise the draft RAP to address DTSC comments.

Both the IS/MND and RAP will undergo separate public review periods, and responses to comments will be required before each planning document can be finalized and approved. Each of these processes will also require Consultant support. The level of effort will depend on the nature and extent of public comments received.

Draft and Final remedial design drawings and specifications for both the sediment cap at Pigeon Hill and CAMU at FCTR will need to be developed and reviewed by DTSC.

Table 1 is summary of the proposed costs estimate to complete the remaining Project planning tasks. Additional scope and cost details are provided in the attached December 11, 2025 scope of work and cost estimate prepared by AECOM.

Table 1: Cost estimate by Task and Amendment 10 Budget

Project Task	AECOM Costs Estimates to complete remaining tasks
Project Management	$21,135
CEQA (IS/MND)	$15,412
Remedial Action Plan	$24,802
Remedial Design	$97,786
Total Remaining Cost Estimate	$159,127
Funds remaining in the Agreement	$1,738
Amendment 10 Budget	**$157,389**

Note: Costs rounded to nearest dollar

A design budget of $525,000 was established for the Lead Remediation Project for FY2025/26. Approximately $45,000 has been charged to the existing agreement with AECOM this fiscal year. Per the existing voluntary oversight agreement with DTSC, OCWD is responsible for all costs incurred by DTSC on the project. DTSC estimates that it will incur approximately $123,000 to review, oversee and approve the planning portions of the Prado Lead Remediation Project. No additional design-related costs are anticipated at this time.

Staff recommend authorizing execution of Amendment 10 to Agreement No.1321 with AECOM in the amount of $157,389 to complete the Remedial Action Plan, IS/MND for CEQA compliance and conduct the remedial design for In-Place Remediation.

PRIOR RELEVANT BOARD ACTIONS

8/7/2024, R24-8-92 Authorize execution of Amendment #9 to Agreement No.1321 with AECOM in the amount of $445,989 to complete the Remedial Action Plan, Initial Study and Mitigated Negative Declaration (IS/MND) for CEQA compliance and conduct the remedial design for the In-Place Remediation, including conducting a supporting geotechnical study and vertical profile soil sampling.

9/7/2022,R22-9-123 - 1) Authorize the General Manager to negotiate and execute Amendment No. 1 to the District's agreement with the Department of Toxic Substances Control Authorize to update the scope of work for preparation of the Remedial Action Plan, DTSC's Community Participation process, and revise the boundaries of the site; Authorize preparation of a Remedial Action Plan for the remediation of the Former Clay Target Range and Pigeon Hills area; and Approve and authorize execution of Amendment No. 7 to Agreement No. 1321 with AECOM to prepare a Remedial Action Plan for the Former Clay Target Range and Pigeon Hill area for an amount not to exceed $155,048

6/1/2022, R22-6-67 - 1) Identify Alternative 4 (waste consolidation at Pigeon Hill site) with Land Use Scenario C (unrestricted land use at entire Former Clay Target Range site) as the tentatively identified preferred remedy, subject to completion of

environmental documentation; and 2) Approve and authorize execution of Amendment No. 6 to Agreement No. 1321 with AECOM to prepare an Initial Study/Mitigated Negative Declaration for the former Prado shooting areas Pigeon Hill and Former Clay Target Range for an amount not to exceed $94,128

9/15/2021, R21-9-143 - Approve and authorize execution of Amendment No. 5 to Agreement No. 1321 with AECOM to prepare an updated RI/FS for the former Prado shooting areas for an amount not to exceed $87,998.

12/16/2020, R20-12-165 - Authorize approval of Amendment No.4 to Agreement No. 1321 with AECOM to conduct additional field sampling for an amount not to exceed $74,411; authorize reimbursement for Department of Toxic Substances Control oversight expenses for the period from July 1, 2020 to June 30, 2021 for an amount not to exceed $62,752

5/6/2020, R20-5-55 - Approving Amendment No. 3 to Agreement No. 1321 with AECOM to support a Supplemental Remedial Investigation, Focused Remedial Investigation/Feasibility Study and Remedial Action Plan for the Prado Shooting Areas for an amount not to exceed $215,937.

9/18/19, M19-122 - Authorize $67,068 additional funding for finalization of the risk assessment and waste consolidation plan at the Prado Shooting Range to be paid as follows: DTSC $42,268 and AECOM $24,800.

10/7/2015, R15-10-141 - Authorize the General Manager to finalize negotiations and execute an Agreement with AECOM Technical Services Inc. for an amount not to exceed $222,938 for a focused remedial investigation and feasibility study of the Prado shooting areas.

7/1/15, M15-104 - Authorize issuance of a revised Request for Proposals for a Focused Remedial Investigation & Feasibility Study of the Prado Shooting Areas (to include a 20-year and 30-year study period).

02/04/15, M15-22, Authorizing Board President to appoint Property ad hoc Committee to review issues related to Elaine Raahauge d.b.a. Mike Raahauge’s Shooting Enterprises.

AECOM
999 Town & Country Road
Orange, CA 92868
www.aecom.com

714.567.2400 tel
714.567.2409 fax

December 11, 2025

Kevin O'Toole
Senior Planner
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Subject: Amendment No. 10 to Agreement No. 1321 – Budget Realignment, Scope of Work and Fee for Remaining Scope for the OCWD Former Prado Range Remediation, Revised

Dear Mr. O'Toole:

AECOM Technical Services, Inc. (AECOM) provides the Orange County Water District (OCWD) with an updated scope of work, cost estimate and budget realignment for the Former Prado Range Remediation Project (proposed project) as Amendment 10 to the existing Agreement Number 1321. The following scope, cost estimate and budget realignments are submitted for your review and consideration. This scope and cost estimate are based on information provided by the OCWD, DTSC comments on draft documents earlier this year, as well as our knowledge of the proposed project. In addition, this amendment addresses proposed changes to existing Tasks 1, 4, 5, and 6. This amendment addresses remaining costs to complete the ongoing project and provides information and justification for increased efforts to complete remaining tasks as requested by OCWD. Much of the additional level of effort has been related to the acquisition of new data on the vertical extent of soil contamination at the Former Clay Target Range (FCTR) which significantly increased the design volume for remediation and added additional areas of impact requiring additional direct observation and analysis. These previously unknown conditions drove the need to expand the areas evaluated by the vertical profiling and the technical studies. With the direct involvement of the OCWD PM, we used funding from other tasks to complete this necessary additional work, as approved/requested by the OCWD PM. These changes in the proposed project were not anticipated and resulted in multiple iterative updates and review cycles as well as added field work and analysis which were not budgeted for in Amendment 9. Evaluation of total contaminated soil volume and the revisions to the project description and approach are considered critical to success of the Former Prado Range Remediation and to maintain project impacts below a level requiring a much more intensive environmental permitting process.

The overall intent of this amendment is to 1) present the deviations from the project scope through Amendment 9, 2) outline the reasons for these changes and how they impacted both budget and project scope, and 3) to respectfully request the additional funding needed to complete the remaining scope of work.

This is a revision to the Amendment 10 scope and cost estimate previously submitted to you on August 18, 2025. This revision incorporates the recently received DTSC comments on the Draft Initial Study/Mitigated Negative Declaration (IS/MND), and Draft Remedial Action Plan (RAP). Review of the DTSC comments have reduced the overall unknowns relating to effort needed to finalize both the Draft IS/MND and Draft RAP. Additionally, this recent information has resulted in some modifications to the proposed Remedial Design documents (under Task 6.3).

I. Project Assumptions/Status

The proposed project includes remediation of the Pigeon Hill and FCTR areas of concern (AOCs), also known as the Former Prado Shooting Areas, which were formerly operated for shooting related activities by Raahauge Shooting Enterprises on land leased from OCWD. The AOCs are located adjacent to the Prado Flood Control Basin, northwest of Corona, California. The Prado Flood Control Basin includes restored wetlands and wildlife habitat. Some of the water entering the basin ultimately supplies municipal water within OCWD's jurisdiction. Chemicals of concern (COCs) include lead in soil and lead shot at both AOCs and polycyclic aromatic hydrocarbons (PAHs) at the FCTR.

The cleanup at the Former Prado Shooting Areas (Pigeon Hill and the FCTR) is being conducted as a voluntary action overseen by the Department of Toxic Substances Control (DTSC). A Draft RAP has been prepared and submitted to DTSC for their review (AECOM, July 25, 2025). The RAP includes the following elements: description of the site, ownership, history, and environmental conditions; basis for cleanup; remedial goals for each impacted medium; list of remedial alternatives evaluated; selected remedy (considered using the nine Comprehensive Environmental Restoration, Compensation, and Liability Act [CERCLA] criteria); and a process for implementation. Included in the RAP is a conceptual design of the Corrective Management Action Unit (CAMU) and sediment cap at Pigeon Hill.

Additionally, a Draft IS/MND, for CEQA coverage, has been prepared (by AECOM) and submitted to DTSC for their review, also on July 25, 2025.

II. Adjustments to Scope of Work

Work to be conducted under this Amendment are specifically for existing tasks that remain to be completed. The Scope of Work presented below includes current status of completed and remaining tasks. The descriptions of the remaining task elements include descriptions of the overall task details and those assumptions used to develop the cost estimates for completing these tasks. This includes adjustments and updates to the remaining previously defined and funded scope for Tasks 1, 4, 5 and 6. No new tasks are added and those existing tasks which are completed are identified and closed. Existing tasks 4, 5, and 6 have funding amounts realigned to better reflect the remaining scope of work and efforts, and Task 5.60000 is being merged with Task 1 as requested by the OCWD PM.

Basis of Change: The activities undertaken as part of Task 6.2 revealed that the depths of impacted soils within the FCTR were significantly greater than was previously assumed. The original assumptions for depths of impacts were based on the conceptual site model (CSM) for aerially deposited lead shot and clay targets, assuming these would then be limited to surficial deposition (upper 0.5 foot of soil). The vertical profile sampling (Task 6.2) was initially conducted to evaluate those assumptions and limit the potential for unexpected increases in remedial volume once the Remedial Action was started. The additional investigation revealed that soil impacts within the FCTR extended significantly deeper in some areas, reaching depths of 5 feet below ground surface. This significantly increased the total volume of soil requiring remediation by excavation and increased the size of the CAMU needed to contain contaminated soils. The estimated volume of contaminated soils within the FCTR increased from approximately 14,000 cubic yards to 38,000 cubic yards. This increase resulted in a series of large-scale revisions to the proposed remedial action, including changes in the anticipated location and size of the CAMU, revisions to the staging, stockpiling and soil processing flow, and a reassessment of equipment use and construction procedures and approach. These changes required revisions to the project description, and revisions to the ongoing technical studies, including multiple document revisions, additional field work and observations, and multiple modeling runs. Collectively this drove budgetary increases on several tasks and the use of funding on other tasks to offset the increased costs as discussed with the OCWD PM, which included the CEQA Technical Studies, Preparation of the Draft IS/MND, and Vertical Profiling.

Task 1 – Project Management and Meetings – Task Ongoing

AECOM's Project Manager will manage the scope, schedule, budget, and quality for each task within this scope of work and will be the management liaison between the project team and OCWD staff.

The funding for this task was used to conduct additional soil profiling and revisions to the RAP and IS/MND as requested by the OCWD PM. AECOM requests replenishment of the project management budget, and that budget is based on the project schedule extending twelve (12) months. This assumes up to 116 hours for PM oversight and management, progress meetings, Project Controls support and CEQA Manager oversite.

Task 4 – Remedial Action Plan (RAP) – Task Ongoing

This task includes activities associated with the continued preparation of the RAP. The draft RAP was submitted to DTSC and comments were received on October 27, 2025. The RAP will be updated based on DTSC comments and then issued as a Final Document. A portion of the funding for this task was used to conduct additional soil profiling and revisions to the RAP and IS/MND as requested by the OCWD PM. AECOM requests replenishment of the RAP task funding to complete the following activities to complete the Final RAP.

The Final RAP will be submitted after DTSC comments are addressed, and CEQA documents are competed. AECOM will prepare responses to public comments on the RAP; however, no document revision will be included in responding to public comments. For budgeting purposes, AECOM has budgeted up to 152 hours to address comments from DTSC, on the Draft RAP, address comments from OCWD on the Response to Comments (RTCs), prepare the Final RAP for submittal to DTSC, and prepare responses to public comments on Final RAP. It should be noted that this task (through the preparation and submittal of the Draft RAP) significantly underran the existing task level budget.

Assumptions on level of effort to address comments, revise Draft RAP text, figures, tables, and appendices includes the following:

- Respond to DTSC comments on the Draft RAP (includes up to 12 hours).
- Prepare RTCs to DTSC comments and public comments,
- Prepare Final RAP with redline version of text.
- Update the existing cost estimates for the remedial alternatives' comparison to reflect final projected soil volumes.
- Revisions to Figures 2, 4, 5, 6, and 10 and minor revisions to plates 1, 2, 3, and 4 . No new figures/plates will be prepared.
- Minor revisions to Tables 1, 2 and 3.
- Prepare 3 new summary tables as directed in the DTSC comment letter,
- Prepare new LeadSpread 9.1 output and include in RAP as additional appendix.
- Add RTC table for the final conditional approval of the RI/FS to the RAP appendix.
- Revise report text as requested in the DTSC comment letter (note that no rework of alternatives analysis, additional alternatives or additional technology screening will be done). Text revisions will include adding a subsection for Noise Mitigation, revised text describing Pigeon Hill, revision of the risk assessment section to include additional discussion of risk (note this discussion will come exclusively from the 2022 HHRA and no new risk assessment work is included), and other minor revisions as required in the DTSC comment letter.
- Assumes up to 10 public comments. Responses to public comments will be limited to clarifying the purpose and intent of the RAP.
- No changes to the conceptual CAMU design other than limited minor edits to notes.
- Assumes internal OCWD review cycles will be conducted on RTC (for both DTSC comments and public comments) and on the revised document.

Task 5 – CEQA Studies and Preparation of IS/MND – Task Ongoing

This task includes activities associated with the preparation of an IS/MND and associated Technical Studies. The task and sub task budgetary assumptions for this scope of work were defined in previous amendments to the Agreement and were based on typical level of effort to produce the project description, conduct Technical Studies, and complete the IS/MND. These assumptions did not account for changes to the overall proposed project occurring after the technical studies were started or increased collaborative discussions during OCWD document review cycles.

Due to site condition changes, the Draft IS/MND required additional work due to significantly increased soil contamination volumes discovered at the FCTR and expansion of site impact areas. This necessitated revised and expanded study areas, additional analysis and field work, and Project Description revisions. The larger contamination footprint increased project complexity and potential environmental impacts, requiring careful reevaluation of the CEQA approach and mitigation strategies.

Technical Studies (Sub Task 20000) – *Task Complete*

The following CEQA Technical Studies were conducted, revised and conducted for new areas, and completed under this task:

- Biological Resources Analysis
- Cultural/Tribal/Paleo Resources
- Air Quality/GHG/Energy Analysis
- Noise/Vibration Study

This task was completed and above technical studies were incorporated into the Draft IS/MND submitted to DTSC. However, due to the extensive rework and additional review cycles resulting from the progressive redefining elements of the proposed project, this task exceeded the budgetary costing assumptions. This task is now complete, and no additional effort is included.

Preparation of IS/MND Document (Sub Task 30000) – *Task Complete*

Under this task, AECOM produced preliminary draft and draft versions of the IS/MND CEQA document following the assumptions described in Contract Amendment No. 6. However, due to unanticipated additional levels of effort based on the new volumes of contaminated soil and the resulting progressive redefining of the elements of the Project, multiple revisions and review cycles were required. Therefore, this task exceeded the budgetary costing assumptions. This task is now complete, and no additional effort is included.

Preparation/ Circulation of Draft IS/MND (Sub Task 40000) – Task Ongoing

AECOM will prepare the NOI and NOC. This acknowledges that DTSC's comments on the IS/MND are minor. No new rework or analysis due to comments provided by DTSC is included in the budgetary costing assumptions for this task. Note that our existing scope does not include reproduction, distribution, or filing (including fees) of the IS/MND. The budgetary costing assumptions for the remaining effort for this task include a total of 24 labor hours for the preparation of the NOI and NOC and addressing DTSC comments on the IS/MND.

Preparation of Final IS/MND & RTC (Sub Task 50000) – Task Ongoing

Per our existing scope, AECOM will prepare an Admin Final IS/MND, MMRP, and NOD. This task also includes review from DTSC. Per OCWD's request, we assume receipt of no more than ten (10) comment letters of 1 to 3 pages each. The budgetary costing assumptions for the remaining effort for this task include a total of 80 labor hours for the preparation of the Admin Final IS/MND, MMRP, and NOD.

CEQA Project Management/Coordination (Sub Task 60000) – Task Merging into Task 1

This task has been merged with the general project management task (Task 1).

Task 6 - Design of CAMU and Sediment Cap

In response to direction of OCWD's Board to relocate the CAMU to FCTR, AECOM gathered available published information on the local geology and geologic hazards in the area of the FCTR. The initial review of these reports and information identify moderate to high deep-seated landslide susceptibility along the FCTR as well as nearby faulting and seismic concerns. The initial desktop review was conducted at the direction of the OCWD PM and captured under the RAP Task 4. To properly manage risk and potential liabilities, these conditions needed to be considered prior to design and construction of a CAMU at the FCTR. For this reason, a geotechnical investigation of FTCR was performed to support siting, stability analysis, and design of the CAMU. The geotechnical investigation task was added under Amendment 9 to Agreement 1321, executed August 20, 2024. The data collected during the geotechnical investigation will be utilized to support the engineering design of the CAMU.

Additionally, the available area that can be utilized for the CAMU at FCTR is limited. This means, for successful design, it is critical to accurately estimate the total volume of impacted soils placed into the CAMU while minimizing the footprint area. To achieve this, AECOM conducted vertical profiling of potential contaminants exceeding cleanup levels within the removal area. The vertical profiling task was added under Amendment 9 to Agreement 1321, executed August 20, 2024. The scope of the vertical profiling task was developed to evaluate site conditions and total volume of contaminated soil at the FCTR based on the CSM. The understanding was the extend of the soil contamination was present in surficial soil, but not at depth. After review of the initial vertical profiling data was completed, it became apparent that the vertical extent of contamination was more extensive than previously understood. When this was identified, the OCWD PM directed AECOM to expand the investigation as needed to more thoroughly understand the estimated volume of contaminated soil. To expand the investigation, AECOM utilized the existing budget under Task 6 with the understanding that budget repurposed on Sub Task 6.2 would be replenished with a future budget amendment,

With the completion of the geotechnical survey and extensive vertical profiling of contaminants, conceptual level design of the FCTR CAMU and Pigeon Hill sediment cap was able to be completed during the preparation of the draft RAP. Due to the expanded vertical profiling and updates to the design, to complete the original scope of work, AECOM requests replenishment of the task funding to complete the remaining design sub task. The remaining sub task under this effort involves completion of the remedial design documents which includes detailed design at 60% draft deliverable and 100% final deliverable to OCWD.

The following sections describe the effort completed to date under this task and remaining effort requested to complete design:

- **Geotechnical Survey (Sub Task 6.1) – *Task Complete***
  This task was completed to support the engineering design of the CAMU and was completed in late 2024. The budgetary costing assumptions for this task were generally consistent with the actual costs to perform the work. This task is complete.

- **Vertical Profiling of Contaminants (Sub Task 6.2) – *Task Complete***
  AECOM conducted vertical profiling to evaluate the depth of contamination of lead and PAHs prior to the CAMU design to optimize the location and sizing of the management unit. The data and results from the vertical profiling were used to develop a revised estimate of total volume of impacted soils present within the FCTR included in the RAP along with references to prior work plans. AECOM's total level of scope and effort increased from the initially defined scope due to unanticipated conditions discovered during the initial phase of the vertical profiling effort.
    - The defined level of effort exceeded the initial budgetary assumptions due to increases in the field mobilizations, number for field days, additional sample locations and stepouts, additional laboratory analysis and rental costs for the X-ray fluorescence

(XRF) instrument, added data review and verification, and the increase in the effort required to process and evaluate the significant larger amount of data collected, This was driven by the larger than expected contaminant depths and distribution identified during the vertical profiling work.

- Initial budget accounted for no more than 10 sample locations to a maximum of 2.5 feet. The total effort needed to sufficiently define and characterize the larger than expected volume of contaminated soil in the FCTR required a total of 54 locations with depths of the hand borings extending to 5 feet deep in many of those locations. This level of effort was not part of the budgetary assumptions for the sub task, but were necessary to properly define the limits and extent of the soil contaminants, and the additional work was directed and approved by the OCWD PM.
- Laboratory analysis increased by more than 150% and was necessary to properly define the limits and extents of the soil contaminants and validate the results of the XRF field analysis.
- Daily field data results summaries and updates were prepared during the entire process to assist in the decision process in selecting the additional sample locations and stepout samples to achieve a sufficiently detailed contaminant extents definition to support the optimize the sizing of the CAMU, and keep the OCWD PM informed of the daily data and get his concurrence on the proposed next days sample locations. This level of effort exceeded the initial budgetary assumptions due to the two additional field mobilizations, increasing the total field days from two days to a total of 9 field days.
- Prepared depth of contamination maps and volume calculations for the remedial soil excavation, summary tables of results and preparation of an additional figure to graphically define the volume and limits of the excavation of contaminated soils. Although not originally budgeted, this effort was necessary to properly define the vertical extents of the soil contamination to inform design of the CAMU.

- **Remedial Design Document for CAMU and Sediment Cap (Sub Task 6.3) – Task Ongoing**

  AECOM completed conceptual level design for the FCTR CAMU and Pigeon Hill Sediment Cap during preparation of the draft RAP which was included in DTSC's review of the draft submittal. Based on DTSC comments, no revisions to the conceptual design will be made. Detailed design (i.e., 60% and 100% design) will be based on comments provided by DTSC. Note that although DTSC recommends installing lysimeters, these will not be included into the detailed design. The other DTSC recommendations for the CAMU will be integrated into the detailed design as appropriate. The design for the Pigeon Hill cap will be limited to design and earthwork specifications to install a soil cap on top of existing grade.

  The prior task level budgeting assumptions placed the effort for the conceptual design under the RAP (Task 4); however, the latest iteration of the conceptual design included evaluation of the data collected under sub tasks 6.1 and 6.2. The effort for which was inadvertently placed under sub task 6.3. A portion of the remaining Task 4 budget is being realigned to subtask 6.3.

  The remaining effort for this subtask is to prepare the Draft and Final Design Documents to be submitted to OCWD. The documents will consist of engineering drawings and technical specifications incorporating results of the geotechnical and vertical profile studies and will generally follow the previously prepared conceptual design and descriptions contained within the RAP that are relevant to the selected remedial alternative. The Draft document will contain 60% Design drawings and specifications for both the CAMU and sediment cap. Final Document will contain 100% drawings for the CAMU and sediment cap. The budgetary costing assumptions for the remaining effort for this task include a total of 568 labor hours for the preparation of the Draft and Final Design Documents.

  The following are assumptions for the completion of this effort:

  - The Draft document will be submitted to OCWD for their review and comment. Revisions will be made based on comments.

- The Draft and Final document will be provided in electronic format only.
- It is AECOM understanding that the Final Design Documents will be provided to DTSC, however we should not expect regulatory comments on the remedial design document, nor will we need to revise the final design once submitted to OCWD.
- The design effort will not include the costs for any additional land survey of the FCTR or Pigeon Hill, nor are any additional field measurements, testing, or direct observations included in the design costs.
- The design drawings include up to 14 sheets covering the following elements:
    - General project information including title sheet, legend, notes, abbreviations, symbols, and existing site plan
    - Development of the FCTR CAMU including existing topographic plan and proposed excavation, grading, and lining plan and soil handling, storage and processing plan with all accompanying sections and details as required
    - Closure of the FCTR CAMU including proposed final grading plan with all accompanying sections and details as required
    - Development of Pigeon Hill soil cap including existing topographic plan and proposed grading plan with accompanying sections and details as required
- The principal specifications related to the FCTR CAMU are anticipated to include the following, however other minor specifications will be included as the design effort proceeds:
    - Geomembrane
    - Geocomposite
    - Geotextile
    - Geosynthetic Clay Liner (GCL)
    - Leachate Collection System
    - Earthworks
    - Monitoring wells
- The principal specifications related to Pigeon Hill include the following:
    - Earthworks

III. PROJECT SCHEDULE

It is estimated that the project as currently scoped may take up to 12 months to complete from the date of authorization to proceed, thus extending the project end date to December 31, 2026.

IV. COST ESTIMATE

AECOM proposes to complete the above remaining project tasks on a time and materials basis for an estimated fee of $159,127, in accordance with OCWD Agreement 1321. Given there is remaining budget as depicted in Attachment 2, AECOM requests an Amendment to Agreement 1321 in the amount of $157,389.

V. ASSUMPTIONS

The cost and schedule were prepared based on the following additional assumptions:

- OCWD recognizes that in any project it is not always possible to locate or identify all hazardous materials, substances, or wastes within or surrounding a subject property. OCWD agrees that AECOM shall be required to use only reasonable efforts, consistent with the practice of other professionals engaged in similar activity, in the course of fulfilling AECOM's duties under this proposal. AECOM is not responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the project was performed.
- Modifications to the project description, new data, new environmental regulations or requirements, new DTSC requests or directives, or other material changes are not included

that may impact AECOM's ability to address DTSC comments or finalize the design, RAP, or IS/MND.

- AECOM will address the DTSC comments received on 10/27/2025 on the RAP and one set of consolidated comments on the IS/MND. AECOM will submit response to comments (RTCs) and redline text to OCWD for review and comment. Upon receipt of one set of consolidated comments from OCWD, AECOM will incorporate OCWD comments and finalize both documents. AECOM has included up to 12 hours to address OCWD comments. The RAP and IS/MND will be submitted to OCWD in PDF and Word format for subsequent submittal to DTSC. No hard copies will be prepared.
- No field work and no additional site visits are included.

A cost and/or schedule adjustment may be necessary if changes to these assumptions occur during the course of the project.

VI. LIMITATIONS

OCWD recognizes that in any project it is not always possible to locate or identify all hazardous materials, substances, or wastes within or surrounding the subject property. OCWD agrees that AECOM shall be required to use only reasonable efforts, consistent with the practice of other professionals engaged in similar activity, in the course of fulfilling AECOM's duties under this proposal. AECOM is not responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the project was performed.

VII. CLOSING

We appreciate the opportunity to continue providing our services and support to the OCWD. Should you have any questions, please feel free to contact Paul Peterson at 714-567-2400 or paul.peterson@aecom.com. Thank you.

Sincerely,

AECOM Technical Services, Inc.

Paul Peterson
Project Manager

Mike Arvidson
Associate Vice President

Attachments

Attachmemt 1 – Cost Estimate
Attachment 2 – Budget History
Attachment 3 – 2026 Labor Billing Rates

ATTACHMENT 1
COST ESTIMATE

Pardo Mod 9			Project Management	RAP	RTCs and Preparation of Draft IS/MND	RTCs and Preparation of Final IS/MND	CAMU Remedial Design (Report and Design Drawings)	
Labor	**2026**	**Total**	**1**	**4**	**5-40000**	**5-50000**	**6.3**	**Labor**
Billing Title	**Billing Rate**	**(hr)**	**(hr)**	**(hr)**	**(hr)**	**(hr)**	**(hr)**	**Revenue**
Project Manager	$271.93	4.0	**4.0**	**0.0**	0.0	0.0	0.0	$1,087.72
Senior Professional II (Scientist)	$233.25	106.0	**64.0**	**31.0**	**4.0**	**7.0**	0.0	$24,724.45
Senior Professional I (Scientist)	$199.10	0.0						$0.00
Project Professional II (Scientist)	$189.52	8.0	0.0	**8.0**	0.0	0.0	0.0	$1,516.14
Project Professional I (Scientist)	$176.65	12.0	0.0	**12.0**	0.0	0.0	0.0	$2,119.78
Staff Professional II (Scientist)	$164.10	3.0	0.0	0.0	0.0	**3.0**	0.0	$492.29
Staff I Professional (Scientist)	$145.06	72.0	0.0	0.0	**18.0**	**54.0**	0.0	$10,444.50
Senior Professional II (Sr Engineer)	$233.25	167.0	0.0	**7.0**	0.0	0.0	**160.0**	$38,952.67
Senior Professional I (Engineer)	$199.10	16.0	0.0	0.0			**16.0**	$3,185.61
Project Professional II (Engineer)	$189.88	24.0	0.0	0.0	0.0	0.0	**24.0**	$4,557.16
Project Professional I (Engineer)	$176.65	0.0			0.0	0.0		$0.00
Staff Professional II (Engineer)	$145.34	319.0	0.0	**49.0**	0.0	0.0	**270.0**	$46,363.92
Staff Professional I (Engineer)	$163.78	0.0	0.0	0.0	0.0	0.0	0.0	$0.00
Field Technician	$100.61	14.0			0.0	**14.0**		$1,408.51
CADD/Graphics II	$139.48	12.0	0.0	**2.0**	**2.0**	0.0	**8.0**	$1,673.77
CADD/Graphics I	$120.73	120.0	0.0	**30.0**	0.0	0.0	**90.0**	$14,487.26
Support Tech Editor	$106.66	12.0	0.0	**12.0**	0.0	0.0	0.0	$1,279.94
Support (PC)	$106.66	50.0	**48.0**	0.0	0.0	**2.0**	**0.0**	$5,333.09
Total Hours		**939.0**	**116.0**	**151.0**	**24.0**	**80.0**	**568.0**	
Total Loaded Labor			**$21,135.46**	**$24,801.85**	**$3,823.08**	**$11,580.24**	**$96,286.18**	**$157,626.81**
Subcontractors		**Ind Sub Markup2**	**1**	**4**	**5-40000**	**5-50000**	**6.3**	**Sub Cost**
		10.00%	$0.00					$0.00
Total Subcontractors			**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Other Direct Costs		**Ind ODC Markup3**	**1**	**4**	**5-40000**	**5-50000**	**6.3**	**ODC Cost**
Miscellaneous Supplies		**0.00%**	$0.00				$1,500.00	$1,500.00
Total ODCs			**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$1,500.00**	**$1,500.00**
Task Total			$21,135.46	$24,801.85	$3,823.08	$11,580.24	$97,786.18	**$159,126.81**

ATTACHMENT 2
BUDGET HISTORY

60585192 - Prado Range Planning Percent Complete through 5 December 2025

Task	Currently Approved Budget Active Tasks (includes Mod 9)	Total Billed and Pending	Remaining Budget (as of December 5, 2025)	Estimate to Complete
1 - Project Management	$ 66,044.23	$ 88,763.08	$ (22,718.85)	$ 21,135.46
4- RAP	$ 295,773.58	$ 222,457.30	$ 73,316.28	$ 24,801.85
5 - CEQA				
10000 -Project Kick-Off Meeting	$ 1,498.40	$ 1,498.40	$ 0.00	$ -
20000 -Technical Studies	$ 53,049.41	$ 121,561.04	$ (68,511.63)	$ -
30000- Preparation of IS/MND	$ 31,494.60	$ 56,255.67	$ (24,761.07)	$ -
40000 - Preparation/ Circulation of Draft IS/MND	$ 12,218.52	$ 957.20	$ 11,261.32	$ 3,823.08
50000 - Preparation of Final IS/MND & RTC	$ 12,600.05	$ -	$ 12,600.05	$ 11,580.24
60000 - Project Management/ Coordination	$ 9,908.00	$ 6,701.74	$ 3,206.26	$ -
6- CAMU Remediatl Design				
6.1 - Geotechnical Survey	$ 82,141.54	$ 88,056.52	$ (5,914.98)	
6.2 Lead and PAH Vertical Profile	$ 19,496.84	$ 57,355.37	$ (37,858.53)	$ -
6.3 - Report and Design Drawings	$ 110,939.66	$ 49,822.18	$ 61,117.48	$ 97,786.18
Total (Mod 10)				$ 159,126.81
Total (Contract)	$ 1,118,011.00	$ 1,116,273.36	$ 1,737.64	$ 157,389.17
Requested Amendment to Contract Value	$ 1,275,400.17			

ATTACHMENT 3
2026 LABOR BILLING RATES

Labor	FY2026
Billing Title	Billing Rate
Project Manager	$ 271.93
Senior Professional II (Scientist)	$ 233.25
Senior Professional I (Scientist)	$ 199.10
Project Professional II (Scientist)	$ 189.52
Project Professional I (Scientist)	$ 176.65
Staff Professional II (Scientist)	$ 164.10
Staff I Professional (Scientist)	$ 145.06
Senior Professional II (Sr Engineer)	$ 233.25
Senior Professional I (Engineer)	$ 199.10
Project Professional II (Engineer)	$ 189.88
Project Professional I (Engineer)	$ 176.65
Staff Professional II (Engineer)	$ 145.34
Staff Professional I (Engineer)	$ 163.78
Field Technician	$ 100.61
CADD/Graphics II	$ 139.48
CADD/Graphics I	$ 120.73
Support Tech Editor	$ 106.66
Support (PC)	$ 106.66

AGENDA ITEM SUBMITTAL

Meeting Date: December 19, 2025

To: Property Management Committee
Board of Directors

From: John Kennedy

Staff Contact: C. Olsen/D. Park

Budgeted: N/A
Budgeted Amount: N/A
Estimated Revenue: N/A
Funding Source: N/A
Program/ Line Item No. N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: CORONA RECREATION, INC. LEASE UPDATE

SUMMARY

The District leases property at Warner Basin to Corona Recreation, Inc. for operation of a fishing concession, with the current lease expiring September 30, 2026. Under the agreement, Anaheim Lake may be used as an alternate location during periodic cleanings of Warner Basin, and from 2006 through 2020 Corona Recreation also held a separate lease for the Anaheim Lake House for storage. Mr. Douglas Elliott has expressed interest in renewing the Warner Basin lease and is evaluating whether to re-lease the Anaheim Lake House for storage use as part of his proposal.

RECOMMENDATION

Informational

BACKGROUND/ANALYSIS

On September 20, 2006, the District entered into a lease with Corona Recreation for operation of a fishing concession at Warner Basin. The concession includes food services, boat and motor rentals, bait and tackle sales, RC track, and overnight camping. Under this lease, Corona Recreation may also use Anaheim Lake as an alternate location when Warner Basin is periodically cleaned by the District. From 2006 through 2020, Corona Recreation also held a separate lease for the Anaheim Lake House, which was used for storage.

Corona Recreation currently pays Base Rent of $9,981 per month or 5% of Gross Receipts, whichever is greater. Percentage Rent is adjusted annually on the Lease anniversary based on Gross Receipts growth, capped at 10% per year, and does not decrease if receipts decline. The Base Rent was last adjusted October 1, 2024. Separately, rent for the Anaheim Lake House was $670 per month with annual CPI increases.

The lease is scheduled to expire on September 30, 2026. Mr. Elliott has expressed interest in renewal and is evaluating whether to re-lease the Anaheim Lake House for storage use as part of his proposal.

Staff will update the committee.

PRIOR RELEVANT BOARD ACTIONS

10/15/2025, R25-10-178, Approve Rent Credit for tree trimming at Warner Basin not to exceed $27,000 as reimbursement for tree trimming services retained by Corona Recreation; and Authorize the General Manager to approve future tree trimming requests at their discretion.

5/15/2024, R24-5-58, Authorizing Amendment Ten to Lease Agreement with Corona Recreation, Inc. to expand radio control electric car track at Warner Basin

11/15/2023, R23-113, Approve Rent Credit to Corona Recreation, Inc. for tree trimming at Warner Basin not to exceed $27,000 as reimbursement for tree trimming services retained by Corona Recreation

2/16/22, R22-2-14**,** Approve Rent Credit to Corona Recreation, Inc. for tree trimming at Warner Basin not to exceed $19,000 as reimbursement for tree trimming services retained by Corona Recreation;

9/15/21, R21-9-136, Authorizing Amendment Nine to Lease Agreement with Corona Recreation, Inc. to extend the term of the Lease for an additional five years;

2/3/21, R21-2-14, Authorizing Amendment Eight to Lease Agreement with Corona Recreation, Inc. to include operation of a radio control electric car dirt track at Warner Basin

2/3/21, R21-2-12, Approving parking sublease by Corona Recreation with Asplundh, Inc. at Anaheim Lake

8/5/20, R20-8-99, Approve Rent Credit to Corona Recreation, Inc. for tree trimming at Warner Basin;

10/3/18, R18-10-133, Approve Amendment Seven to Lease with Corona Recreation revising Premises to exclude the additional land for parking spaces, removing the sublease for parking as a Use of Premises and eliminating the La Palma Parking Lot Rent;

10/4/17, R17-10-125, Approve Amendment Six to Lease with Corona Recreation consenting to Amendment One of Parking Agreement with D.G. Performance Specialties, Inc. reducing parking spaces from 14 to 7 spaces and reducing the parking premises from 14 to 7 spaces;

7/20/16, R16-7-95, Consent to Second Amendment to Parking Sublease with Manheim Auctions, Inc. at Anaheim Lake on Wednesdays at a rental rate of $1,100 for each day of parking, with 50% of the rent to be paid to OCWD;

2/3/16, R16-2-12, Approving Amendment Five to Lease with Corona Recreation to exclude the sale of goods sold at Lessee's cost to Lessee's employees from Gross Receipts

5/20/15, R15-5-58 Approved Amendment Four to Lease with Corona Recreation for consent to Parking Sublease that amends the Lease Premises to include an additional

area for the parking of 14 vehicles at Warner Basin by Sublessee D. G. Performance Specialties, Inc.

10/1/14, R14-10-130 Approve Amendment Three to Lease Agreement with Corona Recreation, Inc. for operations at Warner Basin and Anaheim Lake to revise monthly rent to $6,200 or 5%of Gross Receipts, whichever is greater.

9/3/14, R14-9-00, Direct staff to negotiate a revised lease with Corona Recreation, Inc.

6/4/14, R14-6-77, Approve Amendment Two to Lease to Corona Recreation Inc. for Parking Lot Sublease with Manheim Auctions Inc. at Anaheim Lake to increase days of parking from Wednesday only to Tuesday, Wednesday, and Thursday of each week.

4/17/13, R13-4-42, Approve Amendment to Lease with Corona Recreation providing for a reduction of the rent to 5% of the gross revenues for the fishing concession through September 2014.

9/5/12, R12-9-107, Approve Consent to Parking Lease with Corona Recreation and Manheim Auctions Incorporated for rental of parking lot at Anaheim Lake.

1/16/08, R08-1-20, Approve Amendment One to Lease and consent to Parking Sublease with Corona Recreation, Inc. for sublease of existing and additional parking areas at Anaheim Lake (*Note: Lessee opted out of Amendment*).

9/20/06, R06-09-123, Approve lease to operate a fishing concession at Warner Basin and Anaheim Lake; approving lease of house at Anaheim Lake; and consent to parking lot sublease with California Automobile Dealers Association at Anaheim Lake.

4/6/05, R05-4-38, Approve Amendment Eight to reduce rent to $2,500 per month for five consecutive month period when Lessee relocates fishing operation to Anaheim Lake due to District operations.

8/4/04, R04-8-101, Approve Amendment Seven to allow night fishing on Thursday, Friday, Saturday, and holidays that falls on Monday from 5:00 p.m. to 4:00 p.m. the flowing day.

5/19/04, R04-5-59, Approve and Authorize Amendment Six to Lease to Refurbish and Maintain the Concession Buildings at Lessee’s Cost and Expense.

2/4/04, R04-2-18, Approve Consent to Parking Lease with Corona Recreation and CADE for rental of parking lot at Anaheim Lake.

1/17/01, R01-1-12, Approve and Authorize execution of Amendment No. 5 consenting to rental by Lessee of existing Miraloma Avenue parking lot on an occasional basis and not to exceed a three-month period, at a rental rate of 50 percent of all rent received by Lessee.

4/19/01, R01-1-11, Authorizing Execution of Amendment Four to Lease with Corona Recreation, Inc. consenting to a sublease with Gourmet Catering Enterprises LLC at a rental rate of 20 percent of all rent received by Corona Recreation.

4/19/00, R2000-4-53, Approve and authorize Amendment Three to provide a rent credit of $22,153 and reinstatement of a prior rent credit of $10,000 for construction of a new restroom, electrical work, and improvements to the catch-out pond.

3/18/98, R98-3-51A, Approving and authorizing Execution of Amendment Two to Lease for Warner Basin Fishing Concession to Provide a $10,000 Rent Credit to Corona Recreation, Inc. for Construction of a Restroom.

1/21/98, R98-1-16, Approving and authorizing Execution of Assignment and Assumption of Lease Agreement and Consent to Assignment of Lease Agreement for Warner Basin Complex and Anaheim Lake Fishing Concession;

10/29/96, R96-11-181, Approved Amendment One to Outdoor Safaris Lease at Anaheim Lake/Warner Basin for Catch-Out Pond.

6/19/96, R96-6-107, Approved 10-Year Lease with Outdoor Safaris for fishing Concession at Warner Basin and Anaheim Lake.

LOCATION MAP- WARNER BASIN

LOCATION MAP- ANAHEIM LAKE

AGENDA ITEM SUBMITTAL

Meeting Date: December 19, 2025

To: Property Management Committee
Board of Directors

From: John Kennedy

Staff Contact: C. Olsen/D. Park

Budgeted: N/A
Budget Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: STATUS UPDATE REGARDING THE DISTRICT'S IMPERIAL HIGHWAY PROPERTY

SUMMARY

The District owns a vacant 19-acre property (Property) in the City of Anaheim, located west of Imperial Highway and south of the Santa Ana River (SAR). To maintain the Property and generate interim revenue, the District re-engaged Voit Real Estate Services in October to continue marketing leasing efforts under previously approved terms. Dudek was contracted to provide traffic engineering services for the Property and will present its analysis and conceptual access alternatives to the Committee.

Attachment: Technical Memorandum from Dudek

RECOMMENDATION

Informational

DISCUSSION/ANALYSIS

The District owns a 19-acre parcel in Anaheim (APN 358-291-01) located west of Imperial Highway and south of the Property. The Property has access through a gate entrance on the southbound side of Imperial Highway, which passes over a portion of the SAR Trail. This trail and gate are maintained by the County of Orange, and the District has limited access to the Property for maintenance purposes. Staff has contacted Caltrans regarding site access and the approval process for a potential tenant to obtain access rights from Imperial Highway to the Property, however this has been inconclusive.

The Property was previously leased by Sunny Slope for about 40 years to operate a wholesale container tree nursery and is currently vacant. Sunny Slope terminated its lease in 2022. Shortly thereafter, the District hired Voit Real Estate for six months to market the Property for lease. Voit received a number of inquiries; however, site access was and continues to be an issue for potential tenants. Although site access remains a challenge, in October the Board authorized staff to re-engage Voit Real Estate Services to continue marketing the leasing of the Property under the same Commission Schedule and Leasing Terms, with the intent of ensuring site upkeep and generating an additional revenue source while longer-term options are evaluated.

In July, Dudek was contracted to provide traffic engineering services focusing on the segment of Imperial Highway between the SAR and the intersection with the SR-91 eastbound ramps. The Dudek–Wood Rodgers team developed conceptual site access plans, with Wood Rodgers designing access options to Imperial Highway following Caltrans standards and Dudek using Synchro software to analyze vehicle intersection delays and approach queues. The goal is to identify appropriate site access and land uses (residential, commercial, or mixed-use), with further coordination anticipated with Caltrans and the City of Anaheim if a viable option is identified.

Traffic engineering efforts by Dudek and Wood Rodgers have already highlighted significant challenges in identifying viable access routes to the Property. Analyses completed to date revealed that certain access configurations could lead to substantial queuing and congestion on Imperial Highway, raising concerns about obtaining Caltrans approval. As a result, Dudek has advanced the evaluation of alternative access options to determine whether a solution can balance development potential with transportation standards and regulatory requirements.

Dudek will provide a presentation summarizing the scope of work completed to date on access alternatives, including upgrading the existing driveway, constructing a new full-access signalized intersection, providing right-turn inbound/outbound access, and evaluating roundabout options. They will also review the feasibility of each design and its anticipated operational performance. The presentation will include level-of-service analysis and queuing conditions along Imperial Highway associated with potential overpass/underpass improvements and additional turn-lane options. In addition, Dudek will introduce the concept of a diverging diamond interchange and illustrate the design using a case study example from Manteca, California.

Summary of Prior Steps Taken:

October 2022	Sunnyslope Trees notifies the District that it will vacate property December 1, 2022
November	Voit hired to market the property for lease
December	Sunnyslope vacated the property
May 2023	Agreement approved with Adams Streeter for Site Development analysis.
	Agreement with Voit terminated May 31
June	Adams Streeter began work on boundaries and aerial survey of the property.
July	Adams Streeter continues working on boundaries – seeking clarification from Title Company
October	Title Company revises Preliminary Title Report (PTR) – provides update to boundary and ownership

November	Adams Streeter revising aerial survey of property Title Company revises Preliminary Title Report (PTR) – provide another update to boundary and ownership (clarified overlapping boundaries) Meeting with City of Anaheim staff to discuss potential access options
January 2024	Letter sent to Interim Caltrans Director requesting a meeting to discuss Property access.
February	Reached out to Assemblyperson Chen and State Senator Chin's offices for assistance in meeting with Caltrans.
March	Letter received from Caltrans Director Lan Zhou
April	Staff met with Caltrans to discuss the letter received from Caltrans Director Lan Zhou and specifically about conceptual ideas for accessing the property
May	Staff review roundabout option with Adams Streeter and traffic engineer Pirzadeh and Associates
July	Draft Site Development Analysis from Adams Streeter
August	Final Site Development Analysis from Adams Streeter
September	Proposal from Voit to evaluate potential access options
October	Board approval to execute agreement with Voit to evaluate potential access options
November	Agreement executed with Voit
February 2025	Board approval to hire a traffic engineer Solicited proposals from traffic engineers
March & April	Received proposals from Pirzadeh and Associates, and Dudek
July	Agreement executed with Dudek
November	Agreement executed with Voit

PRIOR RELEVANT BOARD ACTIONS

10/15/2025, R25-10-177**:** Authorize re-engagement of Voit Real Estate Services to market and lease the Imperial Highway Property under the same Commission Schedule and Leasing Terms previously approved in November 2022.

02/05/2025, R25-02-6: Authorize the General Manager to hire a consultant for traffic engineering services pertaining to potential development of access to the Imperial Highway

property in an amount not to exceed $20,000.

10/02/2024, R24-10-124: Approve and authorize execution of an Agreement with Voit Real Estate Services, exploring bridge access options to the Imperial Highway Property for 6-month term, at a rate of $450 per hour, with a total cost not to exceed $7,500.

5/17/2023, R23-05-61: Authorize the General Manager to negotiate and execute an agreement with Adams Streeter to prepare a Site Development Analysis of the District's Imperial Highway property to include 1) development of key information about the Property, and 2) development of high-level conceptual access options to the Property, meet with Caltrans and City of Anaheim staff to review and solicit feedback regarding the Property access concepts; at a cost not to exceed $73,550

3/15/2023, M23-33: Authorize staff to engage an engineering firm to provide conceptual cost estimates for the access options and to develop key information about the Property

11/16/2022, M22-116: Authorize staff to engage the services of Voit Real Estate Services to market the property being vacated by Sunny Slope Tree Farm for Lease

LOCATION MAP

OCWD Owned Parcel (APN 358-291-01)

Sunny Slope Tree Farm Leased Area

Sunny Slope Tree Farm Co.
OCWD Lease APN 358-291-01

SOURCE: OCWD (05/2022); OCPW (2021)

DUDEK
MAIN OFFICE
687 S. COAST HIGHWAY 101, SUITE 110
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Daniel Park, Property Manager, OCWD
	Chris Olsen, PE, Executive Director of Engineering and Water Resources, OCWD
From:	Dennis Pascua, Transportation Services Manager
Subject:	OCWD Imperial Highway Site Access Alternatives Analysis
Date:	December 11, 2025
cc:	Dylan Tran, Wood Rodgers
	Jason Lemons, Wood Rodgers
Attachment(s):	A – Project Site Land Use Analysis
	B – Existing Raw Traffic Counts
	C – Synchro LOS Analysis Worksheets
	D – SimTraffic Queuing Analysis Worksheets

The following technical memorandum contains an analysis of conceptual site access options for the Orange County Water District's (OCWD) Imperial Highway Site located on the northwest corner of the State Route 90 (SR-90) – Imperial Highway/State Route 91 (SR-91) interchange. Figure 1 shows the location of the project site. Wood Rodgers, roadway design engineers, is supporting Dudek in this effort with the development of roadway concept plans that would meet Caltrans design criteria (and Dudek is conducting the traffic analysis of these concepts).

This analysis evaluates the traffic operations of the site access options and the adjacent Caltrans ramp intersections of Imperial Highway/SR-91 westbound ramps and Imperial Highway/SR-91 eastbound ramps in terms of levels of service (LOS) and vehicular queues. The Synchro/SimTraffic (version 12) software was used and is consistent with the Highway Capacity Manual (HCM), 7th Edition (2022), which is the required analysis methodology by Caltrans. The 95th percentile (design) vehicular queues were assessed at the study area intersections' approaches and off-ramps to determine potential queuing deficiencies at those locations.

Project Understanding

It is our understanding that OCWD would like to determine whether vehicular access can be provided to/from the project site, which is currently vacant and was a former tree/plant nursery, with a larger proposed development such as multifamily residential and/or retail/commercial uses with upgraded vehicular access from Imperial Highway, between the Santa River and the SR-91 westbound ramps.

The primary vehicular access constraints to/from the project site are its proximity to SR-91 and the Santa River. Previously, OCWD explored two primary access options: 1) access on to Imperial Highway on the east end of the site; and 2) access on to La Palma Avenue via a new bridge over the Santa Ana River and through a land easement. Neither of those previous access options were determined to be viable. The intent of the new access is to determine

SOURCE: Bing Maps 2025

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FIGURE 1

Project Location

OCWD Imperial Highway Site Access Alternatives Analysis

whether traffic from a potential new land use and its access on to Imperial Highway would result in acceptable traffic operations with the immediate freeway ramp intersections to SR-91. Should this be determined, further discussions with OCWD, Caltrans, and the City of Anaheim would be required to determine feasibility and the extent of further detailed traffic analyses.

Access Design Concepts

Dudek and Wood Rodgers developed and analyzed the following conceptual access designs for potential vehicular access to/from the project site based on Caltrans design and operational criteria.

Access Alternative 1

Figure 2 illustrates Access Alternative 1. This alternative would only upgrade the existing driveway to the Santa Ana River Trail, located at the northeast corner of the site, to a public roadway standard and the existing right turn in/out configuration and unsignalized traffic control would remain. This existing driveway is gated and does not allow for public vehicular access. Only pedestrians, bicyclists, and emergency vehicles are permitted on this short access road. Due to the short distance of that access point to the existing two-lane on-ramp to westbound SR-91, vehicles exiting the (developed) site would be required to "weave" with southbound vehicles on Imperial Highway heading to the westbound on-ramp. This short distance would not meet Caltrans design requirements and was not analyzed further.

Access Alternative 2 (full access)

Figure 3 illustrates Access Alternative 2. This alternative would also upgrade the existing driveway to the Santa Ana River Trail, located at the northeast corner of the site, to a public roadway standard and add a traffic signal to allow for full inbound and outbound access from both directions of Imperial Highway. However, as noted above, due to the relatively short distance of that access point to the existing two-lane on-ramp to westbound SR-91, vehicles exiting the site would be required to "weave" with southbound vehicles on Imperial Highway heading to the westbound on-ramp, thus requiring the Imperial Highway/SR-91 westbound ramp intersection to be reconfigured to a "tight-diamond" configuration (half diamond since the eastbound ramps would not be modified) to provide adequate weaving distance between the new project access and the westbound on-ramp. The (half) tight diamond configuration would remove the free on-ramp movements from the northbound and southbound directions of Imperial Highway.

Modified Access Alternative 2 (right turn in/out only)

This alternative is similar to Access Alternative 2 above, but with access restrictions at the project access intersection. Instead of a new full access, signalized intersection, only (southbound) right turn inbound movements to the project site, and (eastbound) right turn outbound movements from the project will be permitted, without traffic signal control. This alternative restricts access to/from the northbound lanes on Imperial Highway, and therefore vehicles destined to/from the northbound lanes on Imperial Highway would need to use other (longer) routes to access the project site.

SOURCE: Wood Rodgers 2025

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FIGURE 2

Access Alternative 1 (Right Turn In/Out Only)

OCWD Imperial Highway Site Access Alternatives Analysis

SOURCE: Wood Rodgers 2025

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FIGURE 3

Access Alternative 2 (Full Access)

OCWD Imperial Highway Site Access Alternatives Analysis

Roundabout Alternative

A roundabout alternative was analyzed which consisted of a two-circulating-lane roundabout at the Imperial Highway/SR-91 westbound off-ramp intersection. While this alternative was not fully vetted for Caltrans design requirements and no conceptual drawing was prepared, the concept of non-stop vehicle movements circulating the intersection was analyzed to see if there were any operational advantages with a roundabout design and operation at the new project access and westbound off-ramp intersection.

Project Site Land Use

Dudek's land use planners conducted a project site land use analysis based on the City of Anaheim's development criteria (parcel size, General Plan, and Zoning standards) and is provided in Attachment A. Based on the land use analysis, approximately 380,000 to 425,000 square feet (SF) of retail/commercial uses, or approximately 527 to 703 multi-family homes (and a mixed-use combination of residential and retail uses) could be built on the site. For purposes of this analysis, the lowest traffic generating land use was assumed: 527 low-rise multifamily units.

Trip Generation

Trip generation estimates for the 527 low-rise multifamily units were based on trip rates from the Institute of Transportation Engineers Trip Generation, 11th Edition (2021) and are shown below in Table 1. Based on the ITE trip rates, a 527 DU multifamily residential development on the project site would generate approximately 3,273 daily trips, 211 AM peak hour trips (51 inbound and 160 outbound), and 269 PM peak hour trips (169 inbound and 100 outbound).

Table 1. Project Land Use Trip Generation

Land Use	ITE[1] Code	Size/ Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates									
Multifamily Housing (Low-Rise)	220	DU	6.21	24%	76%	0.40	63%	37%	0.51
Trip Generation									
Multifamily Housing (Low-Rise)	220	527 DU	3,273	51	160	211	169	100	269
Total Trip Generation			**3,273**	**51**	**160**	**211**	**169**	**100**	**269**

Notes:
DU = Dwelling Unit
[1] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021

Trip Distribution and Assignment

Project trip distribution percentages were based on logical travel paths to commute corridors in the study area; since the assumed project is a residential development, project traffic was distributed by reviewing the surrounding land uses and availability of regional and local roadway network. Project traffic was distributed as follows: 25% to the north towards the Imperial Highway/La Palma Avenue intersection; 10% to the south towards the Imperial Highway/Santa Ana Canyon Road intersection; 30% to the east on SR-91; and 35% to the west on SR-91. Project

trips were assigned to the study area intersections by applying the project trip generation estimates to the trip distribution percentages at the study area intersections and proposed project access driveway.

Traffic Analysis

The following traffic analysis evaluates the traffic operations of the adjacent Caltrans ramp intersections of Imperial Highway/SR-91 westbound ramps and Imperial Highway/SR-91 eastbound ramps in terms of approach levels of service (LOS) and vehicular queues. Attachments C and D contain the Synchro LOS analysis and SimTraffic queuing analysis worksheets, respectively.

Peak Hour Traffic Volumes

Typical existing weekday AM and PM peak hour intersection turn volumes were obtained for the two study ramp intersections and were collected on Tuesday, October 3, 2023. The raw traffic volumes are provided in Attachment B. Review of more recent peak hour traffic volumes from 2024 and 2025 indicate that the peak hour traffic volumes at both ramp intersections have remained consistent with the 2023 traffic volumes. Additionally, the AM peak hour volumes at both ramp intersections were 8% to 10% higher than the PM peak hour volumes. Notable high AM peak hour turn volumes (other than through volumes) were counted at the following movements:

- Imperial Highway/SR-91 westbound ramp intersection
    - Southbound right turn (on-ramp volumes to westbound SR-91) at 883 vehicles
    - Westbound right turn (off-ramp volumes to northbound Imperial Highway) at 717 vehicles
- Imperial Highway/SR-91 eastbound ramp intersection
    - Southbound right turn (on-ramp volumes to eastbound SR-91) at 773 vehicles
    - Eastbound left turn (off-ramp volumes to northbound Imperial Highway) at 793 vehicles

Therefore, the traffic analysis focused on the AM peak hour operations as it contained the highest concentration of traffic volumes.

Existing Condition

As noted above, the existing condition traffic volumes are from October 2023 (2024 and 2025 volumes were found to be similar) and the existing lane geometrics and traffic controls (traffic signal timing and phasing) were analyzed under the existing condition.

Table 2 shows the results of the LOS and queuing analyses, while Figure 4 shows the AM peak hour queues for the existing condition. Based on the existing condition analysis, approach levels of service at both ramp intersections were at LOS D or better, and intersection and ramp queues at both intersections were contained within existing lane storage lengths.

Table 2. Existing AM Peak Hour LOS and Queues

Intersection	Approach Movement	Approach Level of Service	Available Stacking Distance (feet)	Existing AM Peak Hour	
				95th Percentile Queue (feet)[a]	Within Stacking Distance?[b]
Imperial Highway/ SR-91 westbound off-ramp	northbound	LOS B	860	260	Yes
	southbound	LOS C	1,300	292	Yes
	westbound	LOS C	1,650[c]	346	Yes
Imperial Highway/ SR-91 eastbound off-ramp	northbound	LOS D	570	435	Yes
	southbound	LOS D	866	151	Yes
	eastbound	LOS C	2,660[c]	437	Yes

Notes:
[a] 95th percentile queue analyzed; car length is equivalent to 25 feet.
[b] Stacking distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.
[c] Stacking distance includes all lanes up until the next intersection or mainline of the freeway.

Access Alternative 2 (full access)

Access Alternative 2 would upgrade the existing driveway to the Santa Ana River Trail to a public roadway standard and add a traffic signal to allow for full inbound and outbound access from both directions of Imperial Highway. The Imperial Highway/SR-91 westbound ramp intersection to be reconfigured to a tight-diamond configuration to provide adequate weaving distance between the new project access and the westbound on-ramp. This configuration would remove the free on-ramp movements from the northbound and southbound directions of Imperial Highway. Additionally, traffic from the 527 multifamily units on the project site was added to the study area street network.

Table 3 shows the results of the LOS and queuing analyses for Access Alternative 2, while Figure 5 shows the AM peak hour queues for Access Alternative 2. Based on the analysis, LOS F was found on the westbound (off-ramp) approach at the Imperial Highway/SR-91 westbound ramp intersection. Significant vehicular queues were also found at the following approaches:

- Imperial Highway/Project Access: southbound approach where queues extend past La Palma Avenue.
- Imperial Highway/SR-91 westbound off-ramp: southbound approach where queues extend past the new project access intersection.
- Imperial Highway/SR-91 eastbound off-ramp: northbound approach where queues extend past Santa Ana Canyon Road.

SOURCE: Wood Rodgers 2025

FIGURE 4

Existing Queues

OCWD Imperial Highway Site Access Alternatives Analysis

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Dec 10, 2025 - 4:01pm tmathews \\dudek.int\data\Projects\300 Environmental\18033 OCWD Imperial Highway Site\Graphics\OCWD_TRAF.dwg Layout: Fig4-Existing Queues

SOURCE: Wood Rodgers 2025

FIGURE 5

Access Alternative 2 Queues

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Table 3. Access Alternative 2 AM Peak Hour LOS and Queues

Intersection	Approach Movement	Approach Level of Service	Available Stacking Distance (feet)	Existing	
				AM Peak Hour	
				95th Percentile Queue (feet)[a]	Within Stacking Distance?[b]
Imperial Highway/Project Access	northbound	LOS A	490	93	Yes
	southbound	LOS B	1,100	**1,323[d]**	**No**
	eastbound	LOS E	200	162	Yes
Imperial Highway/ SR-91 westbound off-ramp	northbound	LOS A	585	129	Yes
	southbound	LOS B	490	**589[d]**	**No**
	westbound	**LOS F**	1,700[c]	549	Yes
Imperial Highway/ SR-91 eastbound off-ramp	northbound	LOS C	570	**594[d]**	**No**
	southbound	LOS C	590	125	Yes
	eastbound	LOS C	2,660[c]	798	Yes

Notes:
[a] 95th percentile queue analyzed; car length is equivalent to 25 feet.
[b] Stacking distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.
[c] Stacking distance includes all lanes up until the next intersection or mainline of the freeway.
[d] Queue extends beyond intersection.

Modified Access Alternative 2 (right turn in/out only)

This alternative is similar to Access Alternative 2 above, but with right turn in/out only access restrictions at the project access intersection. Table 4 shows the results of the LOS and queuing analyses, while Figure 6 shows the AM peak hour queues for the Modified Access Alternative 2.

Based on the analysis, and similar to the results of Access Alternative 2, LOS F was found on the westbound (off-ramp) approach at the Imperial Highway/SR-91 westbound ramp intersection. Significant vehicular queues were also found at the following approaches:

- Imperial Highway/Project Access: southbound approach where queues extend past La Palma Avenue.
- Imperial Highway/SR-91 westbound off-ramp: southbound approach where queues extend past the new project access intersection.
- Imperial Highway/SR-91 eastbound off-ramp: northbound approach where queues extend past Santa Ana Canyon Road.

Based on the LOS and queuing results of Access Alternative 2 and Modified Access Alternative 2, with the relocation/reconfiguration of the westbound ramps to provide weaving distance for outbound project vehicles on southbound Imperial Highway, and the removal of the free movement northbound loop off-ramp (to westbound SR-91), significant queues would occur on the southbound and northbound approaches of Imperial Highway's ramp intersections.

SOURCE: Wood Rodgers 2025

FIGURE 6

Modified Access Alternative 2 (Right Turn In/Out Only) Queues

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Table 4. Modified Access Alternative 2 AM Peak Hour LOS and Queues

Intersection	Approach Movement	Approach Level of Service	Available Stacking Distance (feet)	Existing AM Peak Hour 95th Percentile Queue (feet)[a]	Existing AM Peak Hour Within Stacking Distance?[b]
Imperial Highway/Project Access	southbound	--	1,100	**1,347[d]**	**No**
	eastbound	--	200	49	Yes
Imperial Highway/ SR-91 westbound off-ramp	northbound	LOS C	585	161	Yes
	southbound	LOS C	490	**633[d]**	**No**
	westbound	**LOS F**	1,700[c]	522	Yes
Imperial Highway/ SR-91 eastbound off-ramp	northbound	LOS C	570	**586[d]**	**No**
	southbound	LOS D	590	137	Yes
	eastbound	LOS C	2,660[c]	755	Yes

Notes:
[a] 95th percentile queue analyzed; car length is equivalent to 25 feet.
[b] Stacking distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.
[c] Stacking distance includes all lanes up until the next intersection or mainline of the freeway.
[d] Queue extends beyond intersection.

Roundabout Alternative

A roundabout alternative was analyzed which consisted of a two-circulating-lane roundabout at the Imperial Highway/SR-91 westbound off-ramp intersection. Table 5 shows the results of the queuing analysis, while Figure 7 shows the AM peak hour queues for the Roundabout Alternative.

Table 5. Roundabout Alternative AM Peak Hour Queues

Intersection	Approach Movement	Approach Level of Service	Available Stacking Distance (feet)	Existing AM Peak Hour 95th Percentile Queue (feet)[a]	Existing AM Peak Hour Within Stacking Distance?[b]
Imperial Highway/ SR-91 westbound off-ramp	northbound	*not applicable per HCM*	860	60	Yes
	southbound		1,300	**1,480[d]**	**No**
	eastbound		200	**621[e]**	**No**
	westbound		1,650[c]	**2,030[d]**	**No**
Imperial Highway/ SR-91 eastbound off-ramp	northbound		570	**653[d]**	**No**
	southbound		866	136	Yes
	eastbound		2,660[c]	420	Yes

Notes:
[a] 95th percentile queue analyzed; car length is equivalent to 25 feet.
[b] Stacking distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.
[c] Stacking distance includes all lanes up until the next intersection or mainline of the freeway.
[d] Queue extends beyond intersection.
[e] Queue extends into the project site.

SOURCE: Wood Rodgers 2025

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FIGURE 7

Roundabout Alternative Queues

OCWD Imperial Highway Site Access Alternatives Analysis

Based on the analysis, significant vehicular queues were found at the following approaches:

- Imperial Highway/SR-91 westbound off-ramp
    - Southbound approach where queues extend past La Palma Avenue.
    - Eastbound approach where queues would extend into the project site.
    - Westbound approach where queues extend into the SR-91 mainline lanes.
- Imperial Highway/SR-91 eastbound off-ramp: northbound approach where queues extend past Santa Ana Canyon Road.

Conclusions

Based on the traffic operations analysis of the three proposed conceptual access designs outlined above, with the addition of 527 multifamily residential units on the project site, both options of the (half) tight-diamond reconfigured interchange with signalized, full-access to/from the project site; and, unsignalized, right-turn in/out only access to/from the project site, resulted in significant vehicle queues (queues that would extend beyond the lengths of queue storage capacity) on the northbound and southbound directions of Imperial Highway at both eastbound and westbound ramp intersections. Similarly, under the two-lane circulating roundabout configuration, significant queues also resulted in both directions of Imperial Highway, plus significant queues would occur on the westbound off-ramp with queues spilling to the SR-91 mainline lanes.

Therefore, due to the need to relocate and reconfigure the westbound ramps (tight-diamond configuration with loss of free on-ramp lanes) to accommodate access to/from the project site, significant queues would occur on Imperial Highway which would not be an acceptable operational condition for Caltrans.

Recommendations

If OCWD would like to continue to pursue options to provide access to their Imperial Highway site to accommodate larger land use developments, grade-separated access across Imperial Highway via bridge or tunnel should be considered as it would provide project access to/from the northbound lanes of Imperial Highway and reduce the additional of project trips on the southbound lanes of Imperial Highway. An example of this type of access would include a grade-separated bridge or tunnel over Imperial Highway with right turn in/out access points on both sides of the highway.

Furthermore, in addition to grade-separated project site access, a reconfiguration of the existing Imperial Highway/SR-91 Diamond (configuration) Interchange to a Diverging Diamond Interchange. A Diverging Diamond Interchange (DDI) is a modern highway design that temporarily shifts traffic to the left side of the road between freeway ramps, allowing for smoother, safer left turns without conflicting with oncoming traffic, reducing signal phases, and often fitting into existing bridge footprints, making them cost-effective for improving mobility at busy junctions. Drivers briefly cross over, make their turns (like turning left onto a freeway ramp), and then switch back to the right side, all managed with clear signage, striping, and signalization.

These options were not included within the scope of this traffic analysis but can be further analyzed for design and traffic operations with specialized traffic simulation software (e.g., Vissim).

Attachment A

Project Site Land Use Analysis

Original Parcel Size:	2,251,558.68	acres
Redrawn boundary size:	850,452.00	square feet
	19.52369146	acres

General Plan Information:	Currently designated as "park"
Surrounding Uses:	Area to the south designated as residential; Commercial Recreation and Office-Low
	Nearby intersection (orangethrope and imperial) is designated as Mixed-Use Medium Density and is Zoned RM-4
	To the west on La Palma and Tustin Avenue (similarly abuts freeway/river) is designated as Mixed-use High Density as well as intersection of N lakeview Avenue south of La Palma Ave (zoned CG)
Zoning:	Zoned SP 2015-1 Anaheim Canyon
SP Zoning:	"Open space/water" zone
Potential Zones:	Nearby nodes are zoned as D5 General Commercial and D4 Local Commerical. SP allows these zones for residential and mixed-use if permitted by the base GP land use designation.

SP Development Standards:

Zone	D4	D5
FAR	0.45	0.5
Height	60 feet	60 feet

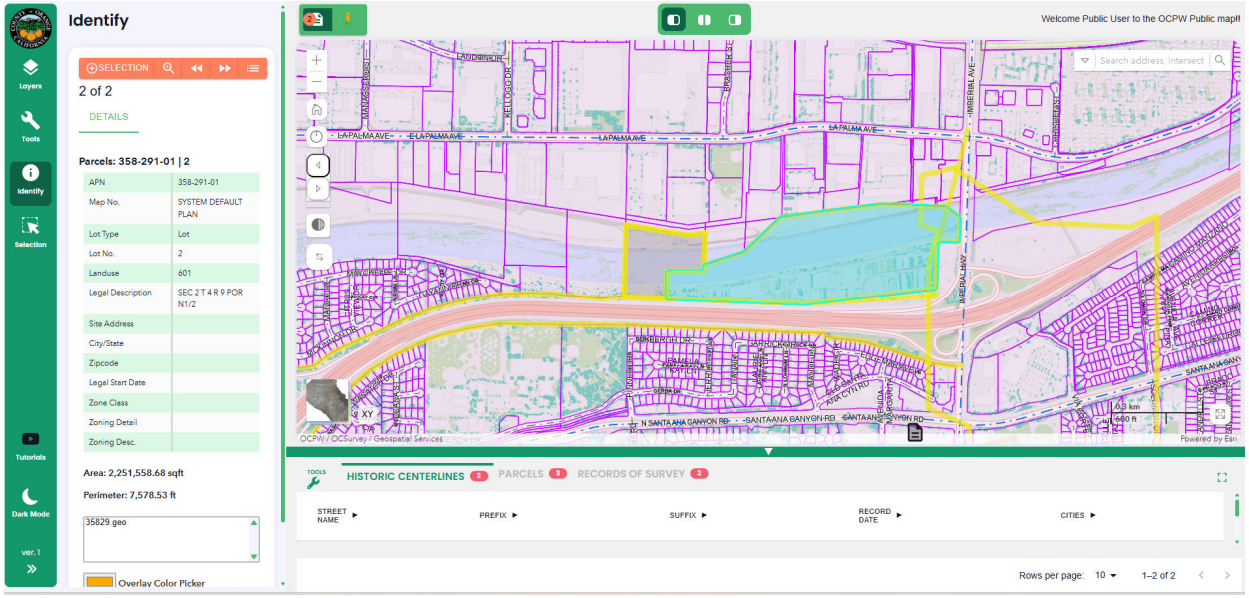
GP/Zoning Development Standards (based on potential land use designations):

	GP Mixed Use*			GP Residential	
Designation	Mixed-Use Medium		Mixed-Use High	Mid Density	Medium Density
Min./Max Density	18–36 du/ac 0–0.35 FAR		30–60 du/ac 0–0.35 FAR	0.27 du/ac	0.36 du/acre
Implementing Zone	MU-MED	PTMU*	MU-H	R3 through R4	R3 through R4
Height	40 feet or 3 stories		75 feet	40 feet	40 feet

*FAR only applies to the nonresidential portion of a mixed-use development

Buildout scenarios:

Zone/Designation	D4 (SP Zoning)	D5 (SP Zoning)	MU-M (GP LU Designation)	MU-H (GP LU Designation)	Mid Density (GP LU Designation)	Medium Density (GP LU Designation)
Gross FAR of commercial	382,703.40	425,226.00	297,658.20	297,658.20	n/a	n/a
Max Density	n/a	n/a	702.85	1,171.42	527.14	702.85



OC Parcel Accessor Map

Google Earth Calculations

Attachment B

Existing Raw Traffic Counts

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	OC	PROJECT #:	SC4226
Tue, Oct 3, 23	NORTH & SOUTH:	Imperial Hwy	LOCATION #:	8
	EAST & WEST:	SR-91 WB Ramps	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND Imperial Hwy			SOUTHBOUND Imperial Hwy			EASTBOUND SR-91 WB Ramps			WESTBOUND SR-91 WB Ramps			
LANES:	NL X	NT 4	NR 2	SL X	ST 3	SR 2	EL X	ET X	ER X	WL 1.5	WT X	WR 1.5	TOTAL
6:00 AM	0	109	84	0	116	179	0	0	0	36	0	81	605
6:15 AM	0	146	51	0	123	182	0	0	0	66	0	85	653
6:30 AM	0	176	47	0	188	187	0	0	0	112	0	151	861
6:45 AM	0	290	51	0	285	178	0	0	0	132	0	169	1,105
7:00 AM	0	274	69	0	338	192	0	0	0	136	0	137	1,146
7:15 AM	0	321	67	0	456	200	0	0	0	181	0	181	1,406
7:30 AM	0	390	82	0	506	217	0	0	0	143	0	183	1,521
7:45 AM	0	444	122	0	477	230	0	0	0	124	0	182	1,579
8:00 AM	0	434	117	0	462	231	0	0	0	111	0	177	1,532
8:15 AM	0	462	92	0	438	205	0	0	0	73	0	175	1,445
8:30 AM	0	377	67	0	356	198	0	0	0	82	0	179	1,259
8:45 AM	0	375	72	0	319	181	0	0	0	75	0	135	1,157
9:00 AM	0	324	76	0	305	149	0	0	0	91	0	160	1,105
9:15 AM	0	320	93	0	299	152	0	0	0	76	0	130	1,070
9:30 AM	0	327	75	0	263	186	0	0	0	71	0	133	1,055
9:45 AM	0	276	72	0	255	156	0	0	0	92	0	160	1,011
VOLUMES	0	5,045	1,237	0	5,186	3,023	0	0	0	1,601	0	2,418	18,510
APPROACH %	0%	80%	20%	0%	63%	37%	0%	0%	0%	40%	0%	60%	
APP/DEPART	6,282	/	7,463	8,209	/	6,787	0	/	1,237	4,019	/	3,023	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	0	1,730	413	0	1,883	883	0	0	0	451	0	717	6,077
APPROACH %	0%	81%	19%	0%	68%	32%	0%	0%	0%	39%	0%	61%	
PEAK HR FACTOR		0.947			0.956			0.000			0.896		0.962
APP/DEPART	2,143	/	2,447	2,766	/	2,334	0	/	413	1,168	/	883	0
03:00 PM	0	527	94	0	301	156	0	0	0	86	0	171	1,335
3:15 PM	0	535	56	0	286	137	0	0	0	72	0	147	1,233
3:30 PM	0	449	51	0	326	192	0	0	0	85	0	184	1,287
3:45 PM	0	497	53	0	329	113	0	0	0	133	0	149	1,274
4:00 PM	0	438	72	0	342	153	0	0	0	121	0	182	1,308
4:15 PM	0	420	43	0	361	129	0	0	0	118	0	160	1,231
4:30 PM	0	550	49	0	341	147	0	0	0	138	0	156	1,381
4:45 PM	0	585	54	0	350	123	0	0	0	113	0	152	1,377
5:00 PM	0	535	57	0	433	184	0	0	0	98	0	176	1,483
5:15 PM	0	567	53	0	357	130	0	0	0	70	0	134	1,311
5:30 PM	0	543	66	0	408	155	0	0	0	79	0	140	1,391
5:45 PM	0	550	74	0	343	132	0	0	0	57	0	101	1,257
6:00 PM	0	531	111	0	259	152	0	0	0	63	0	129	1,245
6:15 PM	0	556	107	0	266	148	0	0	0	60	0	95	1,232
6:30 PM	0	510	106	0	244	148	0	0	0	53	0	95	1,156
6:45 PM	0	451	87	0	267	163	0	0	0	40	0	67	1,075
VOLUMES	0	8,244	1,133	0	5,213	2,362	0	0	0	1,386	0	2,238	20,576
APPROACH %	0%	88%	12%	0%	69%	31%	0%	0%	0%	38%	0%	62%	
APP/DEPART	9,377	/	10,482	7,575	/	6,599	0	/	1,133	3,624	/	2,362	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	0	2,230	230	0	1,548	592	0	0	0	360	0	602	5,562
APPROACH %	0%	91%	9%	0%	72%	28%	0%	0%	0%	37%	0%	63%	
PEAK HR FACTOR		0.962			0.867			0.000			0.878		0.938
APP/DEPART	2,460	/	2,832	2,140	/	1,908	0	/	230	962	/	592	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	OC	PROJECT #:	SC4226
Tue, Oct 3, 23	NORTH & SOUTH:	Imperial Hwy	LOCATION #:	50
	EAST & WEST:	SR-91 EB Ramps	CONTROL:	SIGNAL

NOTES:

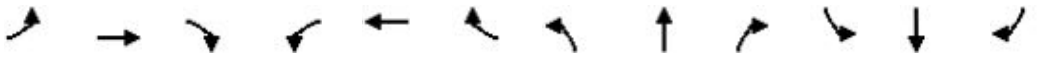
Queue SB AM

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND Imperial Hwy			SOUTHBOUND Imperial Hwy			EASTBOUND SR-91 EB Ramps			WESTBOUND SR-91 EB Ramps			
LANES:	NL X	NT 4	NR 1	SL X	ST 4	SR 2	EL 1.5	ET X	ER 1.5	WL X	WT X	WR X	TOTAL
6:00 AM	0	133	29	0	96	56	60	0	42	0	0	0	416
6:15 AM	0	112	45	0	125	64	88	0	44	0	0	0	478
6:30 AM	0	131	32	0	220	80	92	0	60	0	0	0	615
6:45 AM	0	156	49	0	314	103	185	0	71	0	0	0	878
7:00 AM	0	194	59	0	336	135	152	0	95	0	0	0	971
7:15 AM	0	220	62	0	473	164	168	0	114	0	0	0	1,201
7:30 AM	0	283	79	0	445	204	189	0	167	0	0	0	1,367
7:45 AM	0	362	84	0	383	218	204	0	160	0	0	0	1,411
8:00 AM	0	367	91	0	391	182	184	0	158	0	0	0	1,373
8:15 AM	0	338	91	0	339	169	216	0	150	0	0	0	1,303
8:30 AM	0	274	68	0	255	183	173	0	120	0	0	0	1,073
8:45 AM	0	276	47	0	283	111	171	0	139	0	0	0	1,027
9:00 AM	0	216	51	0	267	129	184	0	132	0	0	0	979
9:15 AM	0	266	60	0	284	87	150	0	127	0	0	0	974
9:30 AM	0	264	52	0	252	82	138	0	118	0	0	0	906
9:45 AM	0	208	47	0	273	74	140	0	133	0	0	0	875
VOLUMES	0	3,800	946	0	4,736	2,041	2,494	0	1,830	0	0	0	15,847
APPROACH %	0%	80%	20%	0%	70%	30%	58%	0%	42%	0%	0%	0%	
APP/DEPART	4,746	/	6,294	6,777	/	6,566	4,324	/	946	0	/	2,041	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	0	1,350	345	0	1,558	773	793	0	635	0	0	0	5,454
APPROACH %	0%	80%	20%	0%	67%	33%	56%	0%	44%	0%	0%	0%	
PEAK HR FACTOR		0.925			0.898			0.975			0.000		0.966
APP/DEPART	1,695	/	2,143	2,331	/	2,193	1,428	/	345	0	/	773	0
03:00 PM	0	360	23	0	359	28	261	0	136	0	0	0	1,167
3:15 PM	0	342	18	0	323	35	249	0	182	0	0	0	1,149
3:30 PM	0	270	28	0	360	47	234	0	143	0	0	0	1,082
3:45 PM	0	352	28	0	429	33	198	0	119	0	0	0	1,159
4:00 PM	0	354	16	0	416	47	156	0	105	0	0	0	1,094
4:15 PM	0	314	25	0	430	49	149	0	106	0	0	0	1,073
4:30 PM	0	396	27	0	437	38	206	0	94	0	0	0	1,198
4:45 PM	0	442	31	0	430	33	197	0	98	0	0	0	1,231
5:00 PM	0	397	41	0	469	62	195	0	87	0	0	0	1,251
5:15 PM	0	419	30	0	379	48	201	0	113	0	0	0	1,190
5:30 PM	0	409	22	0	440	47	200	0	131	0	0	0	1,249
5:45 PM	0	442	14	0	364	36	182	0	105	0	0	0	1,143
6:00 PM	0	449	23	0	293	29	193	0	93	0	0	0	1,080
6:15 PM	0	444	16	0	288	34	219	0	114	0	0	0	1,115
6:30 PM	0	381	25	0	266	31	235	0	108	0	0	0	1,046
6:45 PM	0	346	28	0	258	49	195	0	119	0	0	0	995
VOLUMES	0	6,117	395	0	5,941	646	3,270	0	1,853	0	0	0	18,222
APPROACH %	0%	94%	6%	0%	90%	10%	64%	0%	36%	0%	0%	0%	
APP/DEPART	6,512	/	9,387	6,587	/	7,794	5,123	/	395	0	/	646	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	0	1,667	124	0	1,718	190	793	0	429	0	0	0	4,921
APPROACH %	0%	93%	7%	0%	90%	10%	65%	0%	35%	0%	0%	0%	
PEAK HR FACTOR		0.947			0.898			0.923			0.000		0.983
APP/DEPART	1,791	/	2,460	1,908	/	2,147	1,222	/	124	0	/	190	0

Attachment C

Synchro LOS Analysis Worksheets

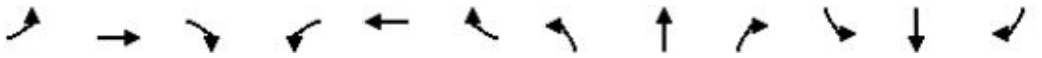


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	501	0	787	0	1848	0	0	2015	0
Future Volume (veh/h)	0	0	0	501	0	787	0	1848	0	0	2015	0
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	0	1870	0	0	1870	0
Adj Flow Rate, veh/h				344	0	995	0	1905	0	0	2077	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				632	0	1125	0	3004	0	0	2384	0
Arrive On Green				0.35	0.00	0.35	0.00	0.47	0.00	0.00	0.47	0.00
Sat Flow, veh/h				1781	0	3170	0	6958	0	0	5443	0
Grp Volume(v), veh/h				344	0	995	0	1905	0	0	2077	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	0	1609	0	0	1702	0
Q Serve(g_s), s				12.3	0.0	23.5	0.0	17.9	0.0	0.0	29.1	0.0
Cycle Q Clear(g_c), s				12.3	0.0	23.5	0.0	17.9	0.0	0.0	29.1	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				632	0	1125	0	3004	0	0	2384	0
V/C Ratio(X)				0.54	0.00	0.88	0.00	0.63	0.00	0.00	0.87	0.00
Avail Cap(c_a), veh/h				632	0	1125	0	3026	0	0	2402	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				20.6	0.0	24.2	0.0	16.1	0.0	0.0	19.1	0.0
Incr Delay (d2), s/veh				3.3	0.0	10.2	0.0	0.6	0.0	0.0	4.1	0.0
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.2	0.0	9.4	0.0	5.7	0.0	0.0	10.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				23.9	0.0	34.4	0.0	16.7	0.0	0.0	23.2	0.0
LnGrp LOS				C		C		B			C	
Approach Vol, veh/h					1339			1905			2077	
Approach Delay, s/veh					31.7			16.7			23.2	
Approach LOS					C			B			C	

Timer - Assigned Phs	2			6		8						
Phs Duration (G+Y+Rc), s	46.5			46.5		33.2						
Change Period (Y+Rc), s	9.3			9.3		4.9						
Max Green Setting (Gmax), s	37.5			37.5		28.3						
Max Q Clear Time (g_c+I1), s	19.9			31.1		25.5						
Green Ext Time (p_c), s	15.6			6.1		1.8						

Intersection Summary	
HCM 7th Control Delay, s/veh	23.0
HCM 7th LOS	C

Notes
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	873	0	682	0	0	0	0	1407	361	0	1652	0
Future Volume (veh/h)	873	0	682	0	0	0	0	1407	361	0	1652	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	0	1870	0
Adj Flow Rate, veh/h	1119	0	469				0	1451	0	0	1703	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	0
Cap, veh/h	1913	0	851				0	2164		0	2164	0
Arrive On Green	0.54	0.00	0.54				0.00	0.34	0.00	0.00	0.34	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1585	0	6958	0
Grp Volume(v), veh/h	1119	0	469				0	1451	0	0	1703	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1585	0	1609	0
Q Serve(g_s), s	25.4	0.0	23.4				0.0	23.2	0.0	0.0	28.7	0.0
Cycle Q Clear(g_c), s	25.4	0.0	23.4				0.0	23.2	0.0	0.0	28.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	1913	0	851				0	2164		0	2164	0
V/C Ratio(X)	0.58	0.00	0.55				0.00	0.67		0.00	0.79	0.00
Avail Cap(c_a), veh/h	1913	0	851				0	2236		0	2236	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	18.8	0.0	18.3				0.0	34.1	0.0	0.0	35.9	0.0
Incr Delay (d2), s/veh	1.3	0.0	2.6				0.0	1.0	0.0	0.0	2.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	0.0	8.5				0.0	8.9	0.0	0.0	11.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.1	0.0	20.8				0.0	35.2	0.0	0.0	38.2	0.0
LnGrp LOS	C		C					D			D	
Approach Vol, veh/h		1588						1451			1703	
Approach Delay, s/veh		20.3						35.2			38.2	
Approach LOS		C						D			D	

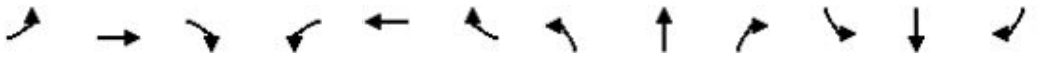
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		49.7		70.3		49.7						
Change Period (Y+Rc), s		9.3		5.9		9.3						
Max Green Setting (Gmax), s		41.7		63.1		41.7						
Max Q Clear Time (g_c+I1), s		25.2		27.4		30.7						
Green Ext Time (p_c), s		12.7		9.9		9.7						

Intersection Summary												
HCM 7th Control Delay, s/veh			31.3									
HCM 7th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	501	0	802	431	1871	0	0	2079	1002
Future Volume (veh/h)	0	0	0	501	0	802	431	1871	0	0	2079	1002
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				344	0	1011	444	1929	0	0	2005	1125
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				473	0	842	1478	4713	0	0	2305	1303
Arrive On Green				0.27	0.00	0.27	0.43	0.92	0.00	0.00	0.82	0.82
Sat Flow, veh/h				1781	0	3170	3456	5274	0	0	5611	3170
Grp Volume(v), veh/h				344	0	1011	444	1929	0	0	2005	1125
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1702	0	0	1870	1585
Q Serve(g_s), s				19.3	0.0	29.2	9.3	5.1	0.0	0.0	24.6	24.0
Cycle Q Clear(g_c), s				19.3	0.0	29.2	9.3	5.1	0.0	0.0	24.6	24.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				473	0	842	1478	4713	0	0	2305	1303
V/C Ratio(X)				0.73	0.00	1.20	0.30	0.41	0.00	0.00	0.87	0.86
Avail Cap(c_a), veh/h				473	0	842	1478	4713	0	0	2326	1314
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh				36.8	0.0	40.4	20.7	0.5	0.0	0.0	8.0	7.9
Incr Delay (d2), s/veh				9.4	0.0	102.0	0.1	0.3	0.0	0.0	3.5	5.8
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.3	0.0	22.7	3.6	0.1	0.0	0.0	4.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				46.2	0.0	142.4	20.8	0.8	0.0	0.0	11.5	13.7
LnGrp LOS				D		F	C	A			B	B
Approach Vol, veh/h					1355			2373			3130	
Approach Delay, s/veh					118.0			4.5			12.3	
Approach LOS					F			A			B	

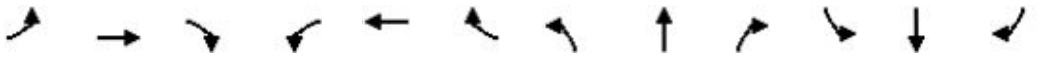
Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	110.8		56.3	54.5		34.1						
Change Period (Y+Rc), s	9.3		9.3	* 9.3		4.9						
Max Green Setting (Gmax), s	66.6		17.0	* 46		29.2						
Max Q Clear Time (g_c+I1), s	7.1		11.3	26.6		31.2						
Green Ext Time (p_c), s	43.7		0.8	18.6		0.0						

Intersection Summary	
HCM 7th Control Delay, s/veh	30.5
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	891	0	682	0	0	0	0	1412	361	0	1668	0
Future Volume (veh/h)	891	0	682	0	0	0	0	1412	361	0	1668	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	0	1870	0
Adj Flow Rate, veh/h	1138	0	469				0	1456	0	0	1720	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	0
Cap, veh/h	1854	0	825				0	2196		0	2196	0
Arrive On Green	0.52	0.00	0.52				0.00	0.34	0.00	0.00	0.34	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1585	0	6958	0
Grp Volume(v), veh/h	1138	0	469				0	1456	0	0	1720	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1585	0	1609	0
Q Serve(g_s), s	24.8	0.0	22.2				0.0	21.2	0.0	0.0	26.4	0.0
Cycle Q Clear(g_c), s	24.8	0.0	22.2				0.0	21.2	0.0	0.0	26.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	1854	0	825				0	2196		0	2196	0
V/C Ratio(X)	0.61	0.00	0.57				0.00	0.66		0.00	0.78	0.00
Avail Cap(c_a), veh/h	1854	0	825				0	2264		0	2264	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	18.6	0.0	18.0				0.0	30.8	0.0	0.0	32.6	0.0
Incr Delay (d2), s/veh	1.5	0.0	2.8				0.0	1.0	0.0	0.0	2.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	0.0	8.0				0.0	7.9	0.0	0.0	10.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.1	0.0	20.8				0.0	31.8	0.0	0.0	34.7	0.0
LnGrp LOS	C		C					C			C	
Approach Vol, veh/h		1607						1456			1720	
Approach Delay, s/veh		20.3						31.8			34.7	
Approach LOS		C						C			C	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		46.8		63.2		46.8						
Change Period (Y+Rc), s		9.3		5.9		9.3						
Max Green Setting (Gmax), s		38.7		56.1		38.7						
Max Q Clear Time (g_c+I1), s		23.2		26.8		28.4						
Green Ext Time (p_c), s		12.1		9.6		9.1						

Intersection Summary		
HCM 7th Control Delay, s/veh		29.0
HCM 7th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	120	38	2635	2961	13
Future Volume (veh/h)	40	120	38	2635	2961	13
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	130	41	2864	3218	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	179	159	210	5320	4482	19
Arrive On Green	0.10	0.10	0.24	1.00	0.67	0.67
Sat Flow, veh/h	1781	1585	1781	6696	6924	29
Grp Volume(v), veh/h	43	130	41	2864	2330	902
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1609	1609	1865
Q Serve(g_s), s	2.4	8.8	2.0	0.0	33.6	33.7
Cycle Q Clear(g_c), s	2.4	8.8	2.0	0.0	33.6	33.7
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	179	159	210	5320	3246	1255
V/C Ratio(X)	0.24	0.82	0.20	0.54	0.72	0.72
Avail Cap(c_a), veh/h	291	259	210	5320	3246	1255
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.69	0.69	1.00	1.00
Uniform Delay (d), s/veh	45.6	48.5	37.9	0.0	11.4	11.4
Incr Delay (d2), s/veh	0.7	9.8	0.3	0.3	1.4	3.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.0	0.9	0.1	10.1	12.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	46.3	58.3	38.2	0.3	12.8	15.0
LnGrp LOS	D	E	D	A	B	B
Approach Vol, veh/h	173			2905	3232	
Approach Delay, s/veh	55.3			0.8	13.4	
Approach LOS	E			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		15.0	17.0	78.0
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		84.0		18.0	6.0	74.0
Max Q Clear Time (g_c+I1), s		2.0		10.8	4.0	35.7
Green Ext Time (p_c), s		58.2		0.3	0.0	33.1

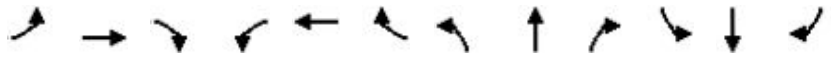
Intersection Summary	
HCM 7th Control Delay, s/veh	8.8
HCM 7th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	501	0	802	431	1911	0	0	2119	1002
Future Volume (veh/h)	0	0	0	501	0	802	431	1911	0	0	2119	1002
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Lane Width Adj.				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				344	0	1011	444	1970	0	0	2028	1138
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				495	0	881	490	3083	0	0	2405	1358
Arrive On Green				0.28	0.00	0.28	0.14	0.60	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1781	0	3170	3456	5274	0	0	5611	3170
Grp Volume(v), veh/h				344	0	1011	444	1970	0	0	2028	1138
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1702	0	0	1870	1585
Q Serve(g_s), s				20.7	0.0	33.3	15.2	29.8	0.0	0.0	38.8	38.4
Cycle Q Clear(g_c), s				20.7	0.0	33.3	15.2	29.8	0.0	0.0	38.8	38.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				495	0	881	490	3083	0	0	2405	1358
V/C Ratio(X)				0.70	0.00	1.15	0.91	0.64	0.00	0.00	0.84	0.84
Avail Cap(c_a), veh/h				495	0	881	490	3088	0	0	2411	1362
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.7	0.0	43.3	50.6	15.3	0.0	0.0	30.7	30.5
Incr Delay (d2), s/veh				7.8	0.0	79.8	20.4	0.6	0.0	0.0	3.2	5.3
Initial Q Delay(d3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.8	0.0	22.2	7.7	10.4	0.0	0.0	17.1	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh				46.6	0.0	123.1	71.0	16.0	0.0	0.0	33.8	35.8
LnGrp LOS				D		F	E	B			C	D
Approach Vol, veh/h					1355			2414			3166	
Approach Delay, s/veh					103.7			26.1			34.5	
Approach LOS					F			C			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	81.7		21.0	60.7		38.2						
Change Period (Y+Rc), s	9.3		4.0	9.3		4.9						
Max Green Setting (Gmax), s	72.5		17.0	51.5		33.3						
Max Q Clear Time (g_c+I1), s	31.8		17.2	40.8		35.3						
Green Ext Time (p_c), s	33.1		0.0	10.6		0.0						

Intersection Summary	
HCM 7th Control Delay, s/veh	45.1
HCM 7th LOS	D

Notes
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	891	0	682	0	0	0	0	1452	361	0	1708	0
Future Volume (veh/h)	891	0	682	0	0	0	0	1452	361	0	1708	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	0	1870	0
Adj Flow Rate, veh/h	1138	0	469				0	1497	0	0	1761	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	0	2	0
Cap, veh/h	1880	0	836				0	2225		0	2225	0
Arrive On Green	0.53	0.00	0.53				0.00	0.35	0.00	0.00	0.35	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1585	0	6958	0
Grp Volume(v), veh/h	1138	0	469				0	1497	0	0	1761	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1585	0	1609	0
Q Serve(g_s), s	26.6	0.0	23.8				0.0	23.8	0.0	0.0	29.6	0.0
Cycle Q Clear(g_c), s	26.6	0.0	23.8				0.0	23.8	0.0	0.0	29.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	1880	0	836				0	2225		0	2225	0
V/C Ratio(X)	0.61	0.00	0.56				0.00	0.67		0.00	0.79	0.00
Avail Cap(c_a), veh/h	1880	0	836				0	2289		0	2289	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	19.7	0.0	19.0				0.0	33.5	0.0	0.0	35.4	0.0
Incr Delay (d2), s/veh	1.5	0.0	2.7				0.0	1.0	0.0	0.0	2.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	0.0	8.7				0.0	9.1	0.0	0.0	11.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.1	0.0	21.7				0.0	34.5	0.0	0.0	37.6	0.0
LnGrp LOS	C		C					C			D	
Approach Vol, veh/h		1607						1497			1761	
Approach Delay, s/veh		21.3						34.5			37.6	
Approach LOS		C						C			D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	50.8	69.2	50.8
Change Period (Y+Rc), s	9.3	5.9	9.3
Max Green Setting (Gmax), s	42.7	62.1	42.7
Max Q Clear Time (g_c+I1), s	25.8	28.6	31.6
Green Ext Time (p_c), s	13.2	9.9	9.9

Intersection Summary	
HCM 7th Control Delay, s/veh	31.3
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Attachment D

SimTraffic Queuing Analysis Worksheets

Intersection: 1: Imperial Highway & SR-91 W Off Ramps

Movement	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	R	T	T	T	T	T	T	T
Maximum Queue (ft)	393	404	357	256	238	207	138	263	267	278
Average Queue (ft)	210	251	210	198	194	126	79	197	167	243
95th Queue (ft)	343	346	309	262	260	188	151	282	250	292
Link Distance (ft)	1637	1637		136	136	136	136	170	170	170
Upstream Blk Time (%)				16	14	3	0	12	7	32
Queuing Penalty (veh)				74	67	12	2	84	48	213
Storage Bay Dist (ft)			465							
Storage Blk Time (%)		0								
Queuing Penalty (veh)		0								

Intersection: 2: Imperial Highway & SR-91 E Off Ramps

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	T	T	R	T	T	T	T
Maximum Queue (ft)	489	482	432	485	415	329	401	180	139	139	131	84
Average Queue (ft)	285	304	244	334	279	173	171	107	124	124	102	36
95th Queue (ft)	437	433	386	435	376	278	319	204	130	131	151	67
Link Distance (ft)	1212	1212		539	539	539	539		41	41	41	41
Upstream Blk Time (%)				0			0		51	49	25	5
Queuing Penalty (veh)				0			0		209	204	103	21
Storage Bay Dist (ft)			480					50				
Storage Blk Time (%)		0	0				54	12				
Queuing Penalty (veh)		1	0				194	41				

Intersection: 9: Imperial Highway

Movement	NB	SB	SB	SB	SB	SB	SB
Directions Served	T	T	T	T	T	R	R
Maximum Queue (ft)	6	287	269	236	96	5	8
Average Queue (ft)	0	168	149	91	6	0	0
95th Queue (ft)	4	256	237	194	42	3	6
Link Distance (ft)	41	546	546	546	546		
Upstream Blk Time (%)	0						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)						50	50
Storage Blk Time (%)					0		0
Queuing Penalty (veh)					0		0

Intersection: 1: Imperial Highway & SR-91 W Off Ramps

Movement	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	L	L	T	T	T	T	T	T	TR
Maximum Queue (ft)	519	581	550	202	219	157	133	130	249	337	492	526
Average Queue (ft)	300	399	356	109	122	87	88	84	127	136	272	436
95th Queue (ft)	474	549	510	181	203	129	121	126	217	269	504	589
Link Distance (ft)		1435	1435		417	417	417	417	489	489	489	489
Upstream Blk Time (%)											1	6
Queuing Penalty (veh)											5	49
Storage Bay Dist (ft)	650			285								
Storage Blk Time (%)					0							29
Queuing Penalty (veh)					0							145

Intersection: 1: Imperial Highway & SR-91 W Off Ramps

Movement	SB
Directions Served	R
Maximum Queue (ft)	275
Average Queue (ft)	267
95th Queue (ft)	307
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	1
Queuing Penalty (veh)	12

Intersection: 2: Imperial Highway & SR-91 E Off Ramps

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	T	T	R	T	T	T	T
Maximum Queue (ft)	856	929	505	588	590	576	592	180	116	113	39	7
Average Queue (ft)	426	539	432	550	552	539	557	179	78	52	9	0
95th Queue (ft)	741	798	574	588	584	594	584	203	125	111	31	4
Link Distance (ft)	1212	1212		539	539	539	539		31	31	31	31
Upstream Blk Time (%)	0	0		62	61	30	75		18	11	1	0
Queuing Penalty (veh)	0	0		0	0	0	0		76	47	3	0
Storage Bay Dist (ft)			480					50				
Storage Blk Time (%)		13	1				100	19				
Queuing Penalty (veh)		45	5				360	68				

Intersection: 3: Imperial Highway & Project Access

Movement	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	T	T	T	TR
Maximum Queue (ft)	85	199	84	55	49	75	98	925	1114	1152	1158
Average Queue (ft)	30	90	32	7	8	23	43	309	966	1121	1124
95th Queue (ft)	65	162	71	31	29	62	93	832	1323	1154	1142
Link Distance (ft)	371	371		489	489	489	489	1103	1103	1103	1103
Upstream Blk Time (%)								0	1	62	93
Queuing Penalty (veh)								0	0	0	0
Storage Bay Dist (ft)			120								
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 9: Imperial Highway

Movement	NB	NB	NB	NB	SB	SB	SB
Directions Served	T	T	T	T	T	T	R
Maximum Queue (ft)	24	12	17	33	72	45	4
Average Queue (ft)	2	1	1	1	7	3	0
95th Queue (ft)	13	10	7	12	36	23	2
Link Distance (ft)	31	31	31	31	417	417	
Upstream Blk Time (%)	0	0	0	0			
Queuing Penalty (veh)	0	0	0	0			
Storage Bay Dist (ft)							50
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 814

Intersection: 1: Imperial Highway & SR-91 W Off Ramps

Movement	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	L	L	T	T	T	T	T	T	TR
Maximum Queue (ft)	545	611	557	226	255	164	168	172	357	440	567	592
Average Queue (ft)	286	370	319	132	141	113	118	115	197	197	397	565
95th Queue (ft)	456	522	476	202	216	159	161	161	311	359	633	608
Link Distance (ft)		1436	1436		417	417	417	417	495	495	495	495
Upstream Blk Time (%)										0	8	32
Queuing Penalty (veh)										0	53	197
Storage Bay Dist (ft)	650			285								
Storage Blk Time (%)		0		0	0							
Queuing Penalty (veh)		0		0	0							

Intersection: 1: Imperial Highway & SR-91 W Off Ramps

Movement	SB
Directions Served	R
Maximum Queue (ft)	548
Average Queue (ft)	509
95th Queue (ft)	553
Link Distance (ft)	495
Upstream Blk Time (%)	16
Queuing Penalty (veh)	98
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Imperial Highway & SR-91 E Off Ramps

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	T	T	R	T	T	T	T
Maximum Queue (ft)	725	805	505	584	578	573	585	180	139	127	117	51
Average Queue (ft)	424	546	442	553	554	542	558	175	109	106	51	11
95th Queue (ft)	667	755	554	580	572	586	576	220	131	137	112	37
Link Distance (ft)	1212	1212		539	539	539	539		31	31	31	31
Upstream Blk Time (%)				61	63	29	73		46	40	15	1
Queuing Penalty (veh)				0	0	0	0		198	173	65	6
Storage Bay Dist (ft)			480					50				
Storage Blk Time (%)		13	1				100	16				
Queuing Penalty (veh)		44	5				359	57				

Intersection: 3: Imperial Highway & Project Access

Movement	EB	SB	SB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	58	1070	1134	1164	1164
Average Queue (ft)	32	447	987	1124	1130
95th Queue (ft)	49	1178	1347	1158	1150
Link Distance (ft)	363	1108	1108	1108	1108
Upstream Blk Time (%)			5	61	94
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Imperial Highway

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	T	T	T	T	T	T	T	T	R	R
Maximum Queue (ft)	28	12	12	18	203	182	133	14	1	6
Average Queue (ft)	2	1	0	1	82	67	30	0	0	0
95th Queue (ft)	14	9	6	8	189	169	116	10	1	4
Link Distance (ft)	31	31	31	31	417	417	417	417		
Upstream Blk Time (%)	0	0	0	0						
Queuing Penalty (veh)	0	0	0	0						
Storage Bay Dist (ft)									50	50
Storage Blk Time (%)										
Queuing Penalty (veh)										

Network Summary

Network wide Queuing Penalty: 1255

Intersection: 1: Imperial Highway & Driveway/SR-91 W Off Ramps

Movement	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	L	LT	R	R	LT	T	T	T	R
Maximum Queue (ft)	455	456	1613	1638	490	191	133	113	1183	1221	1210
Average Queue (ft)	384	321	1448	1493	453	7	14	6	1023	1187	1143
95th Queue (ft)	549	621	2010	2030	659	98	67	44	1355	1207	1480
Link Distance (ft)	446	446	1586	1586			60	60	1165	1165	1165
Upstream Blk Time (%)	64	61	23	78			3	1	3	96	84
Queuing Penalty (veh)	0	0	0	0			24	10	0	0	0
Storage Bay Dist (ft)					465	465					
Storage Blk Time (%)				77	2	0					
Queuing Penalty (veh)				603	5	0					

Intersection: 2: Imperial Highway & SR-91 E Off Ramps

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	T	T	R	T	T	T	T
Maximum Queue (ft)	478	456	433	582	574	566	526	172	128	128	66	27
Average Queue (ft)	277	290	228	545	523	482	340	98	113	115	29	3
95th Queue (ft)	417	420	382	603	624	653	596	184	136	134	57	15
Link Distance (ft)	1212	1212		539	539	539	539		41	41	41	41
Upstream Blk Time (%)				44	42	33	2		30	33	2	0
Queuing Penalty (veh)				0	0	0	0		126	140	8	0
Storage Bay Dist (ft)			480					50				
Storage Blk Time (%)		0					33	19				
Queuing Penalty (veh)		0					117	66				

Intersection: 9: Imperial Highway

Movement	NB	SB	SB	SB
Directions Served	T	T	T	R
Maximum Queue (ft)	7	49	55	36
Average Queue (ft)	0	12	17	2
95th Queue (ft)	5	41	46	17
Link Distance (ft)	41	452	452	
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				50
Storage Blk Time (%)				0
Queuing Penalty (veh)				0