DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

February 14, 2020

Delta Conveyance Design and Construction Authority
Board of Directors

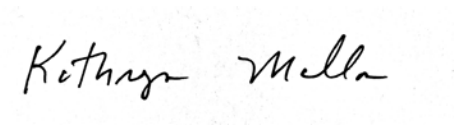
Subject: ***Materials for the February 20, 2020, Regular Board Meeting***

Members of the Board:

The next regular meeting of the Delta Conveyance Design and Construction Authority (DCA) Board of Directors is scheduled for **Thursday, February 20, 2020 at 1:30 p.m.** at the **Sacramento Public Library, East Room, 828 I Street, Sacramento, Ca**.

Enclosed are the materials for the Board meeting in a PDF file, which has been bookmarked for your convenience.

Regards,



Kathryn Mallon
DCA Executive Director

DELTA CONVEYANCE DESIGN AND CONSTRUCTION AUTHORITY
BOARD OF DIRECTORS MEETING

REGULAR MEETING

Thursday, February 20, 2020
1:30 p.m.

SACRAMENTO PUBLIC LIBRARY, TSAKOPOULOS LIBRARY GALLERIA
828 I Street, Sacramento, CA 95814

AGENDA

Assistance will be provided to those requiring accommodations for disabilities in compliance with the Americans with Disabilities Act of 1990. Interested person must request the accommodation at least two working days in advance of the meeting by contacting the Design and Construction Authority support staff at (916) 347-0486 or info@dcdca.org. Members of the public may speak regarding items on the agenda when recognized by the Chair. Speakers are limited to three minutes each; however, the Chair may limit this time when reasonable based on the circumstances. Persons wishing to speak are requested to complete speaker cards.

1. **CALL TO ORDER**

2. **ROLL CALL**

3. **PLEDGE OF ALLEGIANCE**

4. **CLOSED SESSION – OPEN SESSION TO FOLLOW AT APPROXIMATELY 2:00 P.M.**

   (a) Public Employee Performance Evaluation

   Title: Executive Director

5. **PUBLIC COMMENT**

   Members of the public may address the Authority on matters that are within the Authority's jurisdiction but that are not on the agenda. Speakers are limited to three minutes each; however, the Chair may limit this time when reasonable based on the circumstances. Persons wishing to speak are requested to complete speaker cards.

6. **APPROVAL OF MINUTES: January 16, 2019 Regular Board Meeting and February 6, 2020 Special Board Meeting**

7. CONSENT CALENDAR

Items on the Consent Calendar are considered to be routine by the Board of Directors and will be enacted by one motion and one vote. There will be no separate discussion of these items unless a director so requests, in which event the item will be removed from the Consent Calendar and considered separately.

a. None.

8. DISCUSSION ITEMS

a. Stakeholder Engagement Committee Update

   Recommended Action: Information Only

b. Findings of the Independent Technical Review (ITR) Committee Report

   Recommended Action: Information Only

c. Intakes Update

   Recommended Action: Information Only

d. Launch Shaft Update

   Recommended Action: Information Only

e. February DCA Monthly Report

   Recommended Action: Information Only

9. STAFF REPORTS AND ANNOUNCEMENTS

a. General Counsel's Report

b. Treasurer's Report

c. DWR Environmental Manager's Report

d. Verbal Reports, if any

10. FUTURE AGENDA ITEMS

11. ADJOURNMENT

* * * * * *

Next scheduled meeting: March 19, 2020 Regular Board Meeting at 2:00 p.m. (1:30 p.m. if there is a closed session) in the Sacramento Public Library, Tsakopoulos Library Galleria, 828 I Street, Sacramento, CA 95814

BOARD OF DIRECTORS MEETING

MINUTES

REGULAR MEETING
Thursday, January 16th, 2020
2:00 PM
(Paragraph numbers coincide with agenda item numbers)

1. CALL TO ORDER

The regular meeting of the Delta Conveyance Design and Construction Authority (DCA) Board of Directors was called to order in the Sacramento Public Library, Tsakopoulos Library Galleria, 828 I Street, Sacramento, CA 95814, at 2:00 p.m.

2. ROLL CALL

Board members in attendance were Tony Estremera, Richard Atwater, Sarah Palmer, and Steve Blois constituting a quorum of the Board.

DCA staff members in attendance were Kathryn Mallon, Carrie Buckman, Joshua Nelson, and Katano Kasaine.

3. PLEDGE OF ALLEGIANCE

President Tony Estremera convened the open session at approximately 2:00 p.m. and led all present in reciting the Pledge of Allegiance.

4. PUBLIC COMMENT

President Estremera opened Public Comment, limiting speaking time to three minutes each.

President Estremera closed Public Comment.

5. APPROVAL OF MINUTES: December 19, 2019 Regular Board Meeting

Recommendation: Approve the December 19, 2019 Regular Board Meeting Minutes

Move to Approve Minutes from December 19, 2019 as Amended: Atwater

Second:	Palmer
Yeas:	Estremera, Atwater, Palmer, Blois
Nays:	None
Abstains:	None
Recusals:	None
Absent:	None
Summary:	4 Yeas; 0 Nays; 0 Abstains; 0 Absent. (Motion passed as MO 20-01-01).

6. CONSENT CALENDAR

a. None.

7. DISCUSSION ITEMS:

a. Report out from Stakeholder Engagement Committee Meeting

Ms. Mallon gave an update on the next SEC meeting schedule which will be January 22, 2020 from 3pm-6pm at Belle Vie Vineyards in Rio Vista. At this meeting there will be a follow up round table discussion regarding the previous meeting topics and to answer any question. Ms. Buckman will be presenting the Notice of Preparation (NOP) and what it means for the DCA. The discussion topics of this meeting will be about the proposed Northern Delta facilities and intakes. Ms. Mallon noted that the committee have been very helpful through this process.

Ms. Palmer commented that she felt the last SEC meeting went well and mentioned that committee members are becoming more comfortable with expressing their feelings.

Mr. Estremera reminded everyone that the SEC meetings are welcome to the public and the meeting is live streamed in case anyone cannot attend in person.

b. January DCA Monthly Report

Ms. Mallon briefly spoke about the budget, forecasting just under 50Mil at the end of this fiscal year. There have been no new requests for permissions for procurement. A task order has just been signed to initiate development of the DCA's new website which will take about 4-6 months. Ms. Palmer requested a demo of the website to learn how to navigate around it.

b. Consider Passing the Resolution to Amend the DCA Bylaws

Recommendation: Pass the Resolution to Amend the DCA Bylaws

Mr. Nelson presented the proposed amendment to the DCA Bylaws to clarify how the Executive Director can delegate her authority. The current Bylaws are silent on this topic therefore we would like to explicitly lay out how authority may be delegated. The proposal is to have Ms. Mallon be able to delegate her authority to any other staff person that she felt was appropriate, as long as the delegation was in writing and forwarded to the Board.

Move to Pass the Resolution to Amend the DCA Bylaws,

as Noted:	Atwater
Second:	Palmer
Yeas:	Estremera, Atwater, Palmer, Blois
Nays:	None
Abstains:	None
Recusals:	None
Absent:	None
Summary:	4 Yeas; 0 Nays; 0 Abstains; 0 Absent. (Motion passed as Resolution 20-01).

d. 980 9th Street DCA Build-out Update

Ms. Mallon briefed the Board on the move in schedule for the new building which is set for January 27th. Ms. Mallon introduced the DCA Facilities Manager, Jennifer Malone, to give a presentation on the new building.

Ms. Malone spoke about the January 27th move in date for the 24th floor as well as the 23rd floor in late February and then the 1st floor in late March. We anticipate the first Board meeting in the new Board room will be for the month of April. Ms. Malone presented some pictures of the space to show the progress including all of the collaboration areas. There are 100 work station, 7 meeting rooms that have different types of technology driven equipment as well as 12 open flexible work spaces. The 23rd floor holds the majority of the meeting rooms including the Engineering War Room with Avicore system that allows for touch screen use. This floor will hold additional desking areas as our team grows. Among these conference rooms there are also phone booths, mud rooms, & a wellness room. The first floor is where the main Board room is and reception area as well as a few additional conference rooms. The dais will seat up to 11 Board members with 65 seats for the public.

Ms. Palmer requested a tour of the new offices which Ms. Mallon indicated that could be arranged.

Ms. Mallon mentioned the purpose for the high-tech facility is to give the capability of integrating staff across the world.

8. STAFF REPORTS AND ANNOUNCEMENTS:

a. General Counsel's Report

A written report was provided in the Board package. Mr. Nelson highlighted that due to it being the year of 2020, there is a new round of form 700's. Mr. Nelson indicated that the Board should have received an email directing them to file this electronically which are due April 1st.

Mr. Blois asked if the FPPC figured out how they can report multiple Boards on one submission. Mr. Nelson responded that he believes you need to file separately for each office.

b. Treasurer's Report

A written report was provided in the Board package. Ms. Kasaine spoke about the December report mentioning the 522K remaining in the DCA funds. Ms. Kasaine referenced the advance that was requested because the DCO could not pay for advanced deposits which is why the funds are low until we receive those advanced funds. We are submitting our annual financial transaction report to the State next week for the DCA.

c. DWR Environmental Manager's Report

A written report was provided in the Board package. Ms. Buckman presented information on the recent release of the Proposed Negative Declaration on Soil Investigation to help inform the geological study on Delta Conveyance and alternatives. The DWR has received 22 comment letters so far on the ISMND that was released in November. These comments are coming from tribes, local governments, state and local agencies, non-governmental organizations and individuals. In addition, the Notice of Preparation (NOP) was released on January 15th for the Delta Conveyance project to initiate the environmental review process. Comments are due on March 20th and there will be

scoping meetings in February mostly in the Delta. Ms. Buckman stated that the NOP was filed with the State Clearinghouse and 36 county clerks. Ms. Buckman wanted to signify the amount of people that DWR is trying to reach with this update. 1400 thousand post cards were mailed along with 45 notification letters to State and Federal agencies. 155 notifications letters were sent to disadvantages communities' representatives, 177 letters to tribal representatives, and an electronic distribution list equaling to over 8000 recipients. A press release also came out and the DWR website was updated with this information. There were 7 published legal notices as well as copies of the NOP placed at over 100 libraries. Ms. Buckman discussed how the NOP described the project objective which includes an overview of the proposed project as a basis for comments and seeks input on the scope of the environmental analysis and potential alternatives.

Ms. Palmer found the Q&A very helpful that was released. Ms. Palmer asked why there was no mention of the development of the DCA in the NOP. Ms. Buckman clarified that DWR is the CEQA lead agency and the NOP is describing their action as the potential lead agency. The DCA is acting as the DWR agent.

Ms. Osha Meserve, Local Agencies of the North Delta, commented on the names of the conference rooms that she did not agree with. Ms. Meserve spoke about her disappointed of the NOP having the same intakes and locations as the previous project. She feels that the NOP does not address the operational impacts that they are so concerned about with up to 7500 cfs. Ms. Meserve feels that there has been no interest with addressing better alternative that would meet the export water contractors' concerns.

d. Verbal Reports

Ms. Palmer references the monthly report, pg. 10, regarding the schedule and wanted to have folks take a look at this to see how the project is progressing. Another useful area of the report is slide 8 which is the planned cash flow.

9. FUTURE AGENDA ITEMS:

Ms. Palmer requested to have more of a Board discussion of the NOP. In addition, Ms. Palmer would like to take a look at some succession planning in terms of people moving in and out of the project.

10. ADJOURNMENT:

President Estremera adjourned the meeting at 2:27p.m., in the Sacramento Public Library, Tsakopoulos Library Galleria, 828 I Street, Sacramento, CA.

BOARD OF DIRECTORS MEETING

MINUTES

SPECIAL MEETING
Thursday, February 6th, 2020
4:30 PM
(Paragraph numbers coincide with agenda item numbers)

1. CALL TO ORDER

The special meeting of the Delta Conveyance Design and Construction Authority (DCA) Board of Directors was called to order in the Park Tower, 980 9TH Street, Second Floor Conference Center, Sacramento, CA 95814, at 4:30 p.m. Teleconference Locations: 546 Lagrange Ln. Livermore, CA 94550; 5707 Ocean View Blvd, La Cañada Flintridge, CA 91011; Valley Water, 5500 Almaden Expressway, San Jose, CA 95118

2. ROLL CALL

Board members in attendance were Tony Estremera, Richard Atwater and Sarah Palmer constituting a quorum of the Board. Steve Blois was not in attendance.

DCA staff members in attendance were Kathryn Mallon, Nazli Parvizi and Joshua Nelson.

3. PLEDGE OF ALLEGIANCE

President Tony Estremera convened the open session at approximately 4:30 p.m. and led all present in reciting the Pledge of Allegiance.

4. PUBLIC COMMENT

President Estremera opened Public Comment, however there were no public comments received.

President Estremera closed the Public Comment.

5. DISCUSSION ITEMS:

a. Consider Passing Resolution to Appoint DCA Stakeholder Engagement Committee (SEC) Member

Recommendation: Pass Resolution to Appoint DCA SEC Member

Ms. Parvizi provided a summary of the applications received for the SEC Recreation vacancy. After careful review and consideration of the applications received, Mr. Peter Robertson was selected as the Recreation candidate for the SEC. Ms. Parvizi made the recommendation to the Board to appoint Mr. Robertson as the new SEC Recreation member.

Move to Pass Resolution to Appoint DCA Stakeholder Engagement Committee Member,
As Noted: Palmer
Second: Atwater

Vote by Roll Call

Yeas:	Estremera, Atwater, Palmer
Nays:	None
Abstains:	None
Recusals:	None
Absent:	Blois
Summary:	3 Yeas; 0 Nays; 0 Abstains; 1 Absent. (Motion passed as MO 20-02-01).

6. FUTURE AGENDA ITEMS

a. None.

7. ADJOURNMENT:

President Estremera adjourned the meeting at 4:42p.m., in the Park Tower, 980 9TH Street, Second Floor Conference Center, Sacramento, CA.

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Board Memo

Contact: Nazli Parvizi, Stakeholder Engagement

Date: February 20, 2020 **Item No.** 8a

Subject: Stakeholder Engagement Committee Update

Summary

The Stakeholder Engagement Committee (SEC) convened on February 12th at 3pm in Hood, Ca., at the Willow Ballroom. Members had the opportunity to report out information, updates and feedback from their respective organizations and communities about the Intakes materials provided at the January 22nd meeting. DCA engineering staff provided SEC Members with information about the basics of tunneling, launch shaft siting and the methodology for ranking sites for suitability.

Detailed Report

The proposed topics of discussion for the upcoming meeting are as follows:

- Follow-Up & Roundtable on January 22, 2020 SEC Meeting
- Basics if Tunnel Driving
- Launch Shaft Siting

More information regarding the SEC can be found in section four (4) of the DCA Monthly Board Report and the Meeting Summary attached.

Recommended Action:

Information only.

Attachments:

Attachment 1 – February 12th SEC Meeting Summary

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

STAKEHOLDER ENGAGEMENT COMMITTEE (SEC)

MEETING SUMMARY

February 12, 2020

This summary is provided as a resource for committee members and the public to have brief highlights following SEC meetings. In addition to this summary, detailed meeting minutes, question and answer documents and full meeting video will be available on the dcdca.org website.

MEETING OVERVIEW

At the fourth meeting of the Stakeholder Engagement Committee (SEC), held February 12:

- Members had the opportunity to report out information, updates and feedback from their respective organizations and communities about the Intakes materials provided at the January 22nd meeting.
- DCA engineering staff provided SEC Members with information about the basics of tunneling, launch shaft siting and the methodology for ranking sites for suitability.
- During the Feb. 26 meeting, the SEC will have a roundtable discussion regarding the Launch Shaft Siting information presented. DCA asked SEC members to specifically provide input regarding the evaluation system, any preferred sites, logistics alternatives, and requests for any additional information related to the launch shaft sites.

The meeting video, agenda, presentation and supplemental materials are available for review on the dcdca.org website.

COMMITTEE THOUGHT EXCHANGE

- Committee members Ms. Mann, Mr. Moran, Mr. Hsia, Ms. Swenson, Ms. Barrigan-Parrilla, Mr. Cosio, Mr. Wallace, Mr. Wirth, Dr. Lytle, Mr. Hardesty, Mr. Cox and Ms. Giacoma provided reports of their conversations with community members. Most comments highlighted concerns about effects on water levels, hydrology and levees as well as other effects including truck traffic, noise, air quality and regional and local economies. Members also want further information and justification regarding the constraints and analysis that determined the potential intake sites.
- Members requested composite information about the cumulative construction work and effects that will be occurring throughout the Delta at the same time. Further, the information should encompass not just the project components but any new infrastructure needed to support construction, such as power lines, rail terminals, etc. DCA will be able to provide this information once siting and logistics have been determined.
- DCA will look into arranging a tour to Red Bluff so SEC members can see a flat panel intake facility of similar magnitude as those proposed for Delta Conveyance. DCA will also arrange a visit to ISI's manufacturing facility in Freeport to see an example of a "Tee Screen". Updates on scheduling will be forthcoming.
- Disposal of water removed from contaminated soil in the dewatering process is a concern for many members. Members requested more detailed information and ongoing discussion. The SEC will include information on dewatering methods and water disposal alternatives for each site in future presentations.
- As a reminder, DWR is currently conducting scoping meetings. SEC members were encouraged to submit comments to DWR about environmental studies, impacts and alternatives since comments made in the SEC meetings are not specifically tracked as part of DWR's CEQA process. More information about DWR's scoping process, meeting locations and how to submit comments can be found at https://water.ca.gov/Programs/State-Water-Project/Delta-Conveyance/Environmental-Planning.

NEXT MEETING

DATE:
February 26, 2020

TIME:
3-6pm

LOCATION:
Belle Vie Vineyards, 19900 Sherman Island Cross Rd., Rio Vista, CA 94571

PURPOSE:
Member roundtable regarding technical information discussed during the Jan. 22 meeting; finalize drive shaft locations; review retrieval and maintenance shaft locations

MORE QUESTIONS?

- Meeting minutes and video will be available at **dcdca.org**
- Contact us at **SEC-info@dcdca.org**

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

STAKEHOLDER ENGAGEMENT COMMITTEE (SEC)

MEETING SUMMARY

February 12, 2020

HIGHLIGHTS TO SHARE

- Members received new and updated materials to add to their information binders.
  - The information included updated logistics maps for roadway, rail, and barging feasibility, siting evaluation methodology, siting rankings (after applying methodology), updated staff and member directories, responses to questions and requests from previous meetings, past meeting minutes and summaries, a map showing the existing water facilities in the Delta.
- Members provided reports of the feedback they have heard from their communities regarding the intakes siting discussed at the January meeting.
- Members were reminded that materials shared at SEC meetings is preliminary and changes will be reflected often as the proposed project is designed and engineered.
- **Launch Shafts:** The engineering team presented maps and information identifying zones within the Central and Eastern Corridors where launch shafts could be located based on acceptable drive lengths.
- **Site Ranking Criteria and Results:** DCA created an evaluation system to rank feasible sites within each of these zones, with access logistics and truck traffic sensitivities as primary considerations. Engineers shared information illustrating the ranking of 250-acre areas as more favorable, acceptable, or less favorable for launch shaft siting. Engineers also shared the methodology for determining the rankings and solicited input from SEC members on both the methodology and the results. The DCA has evaluated sites based on engineering considerations while DWR will evaluate sites based on environmental analysis in the CEQA process.

- **Considerations for SEC:** DCA solicited input regarding the ranking methodology and results. SEC members are encouraged to discuss with their communities and report feedback at the next SEC meeting roundtable. DWR staff encouraged SEC members and audience to provide thoughts on impacts and alternatives through DWR's scoping process since comments made in the SEC meetings are not specifically tracked as part of DWR's CEQA process.

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Board Memo

Contacts: Kathryn Mallon, Executive Director

Date: February 20, 2020 Board Meeting **Item No.** 8b

Subject:

Findings of the Independent Technical Review Committee Report

Summary:

An Independent Technical Review (ITR) Committee was convened to review early technical material developed by the DCA related to the tunnel design of the Delta Conveyance Program. ITRs are considered best practices in providing expert opinion on the technical studies and design work associated with large infrastructure projects and programs. ITRs are part of the DCA's overall Quality Plan and will continue to be convened throughout the planning and design phase of the program covering the range of technical work performed by the DCA.

The Tunnel ITR was chaired by Dan Adams, President of McMillen Jacobs, a highly experienced design and construction management firm specializing in tunnel infrastructure. Committee members were selected from across the globe and represent a cross section of the most experienced tunnel engineers and builders in the world. The ITR included the following members:

- Werner Burger, Chief Engineer Herrenknecht, German-based Tunnel Boring Machine (TBM) manufacturer
- John Kennedy, Vice President, Dragados, Spanish-based international heavy civil construction firm
- Jeff Petersen, Sr. Vice President, Kiewit Underground Construction Division specializing in tunnel infrastructure
- Dave Rogstad, President and CEO, Frontier-Kemper Constructors, specialize in heavy civil and underground infrastructure
- Kenji Yamauchi, Tunnel Engineer, Obayashi – Japanese-based major international construction firm specializing in heavy civil and underground infrastructure.

The requested scope of their review included the following topics:

- Tunnel Drive Length
- Tunnel Alignment Observations
- Logistics Observations
- Contract Delivery and Packaging
- Stakeholder Concerns (documented in previous WaterFix Testimony)

A copy of the ITR findings is attached to this memorandum as well as a copy of the DCA response to their findings and recommendations. The DCA found the session extremely constructive helping to validate key design approaches while providing insight from the perspective of a large construction firm.

Recommended Action:

Information only.

Attachments:

Attachment 1 – ITR Committee Report

Attachment 2 – DCA Response to ITR Report

Internal Technical Review Panel Memorandum

To:	Kathryn Mallon, DCA Executive Director Tony Meyers, DCO Executive Director	Project:	Delta Conveyance
From:	Werner Burger, Herrenknecht John Kennedy, Dragados Jeff Petersen, Kiewit Dave Rogstad, Frontier-Kemper Kenji Yamauchi, Obayashi Dan Adams, McMillen Jacobs Renée Fippin, McMillen Jacobs		
Date:	January 31, 2020	Job No.:	5226.2
Subject:	ITR December Workshop on Tunnel and Shafts - Report		

1.0 Introduction

The Delta Conveyance Project includes approximately 40 miles of 40-foot diameter tunnels, 8 deep shafts, and intake and outlet facilities required to convey water from south of Sacramento to near Discovery Bay, California. Various tunnel corridors and shaft locations have been under study by the DCA/DCO. The ground conditions can be characterized at the tunnel level by dense to very dense silty sand, poorly graded sand, and very stiff to hard silty clay and clayey silt.

On December 4th to 6th, 2019, an Independent Technical Review (ITR) Panel met in Sacramento, California to review and provide input on five major issues associated with the Delta Conveyance Project's Tunnels and Shafts:

- Achievable Tunnel Boring Machine (TBM) drive lengths;
- Tunnel alignment;
- Logistic & advanced procurement;
- Contract delivery and packaging; and,
- Stakeholder Concerns

Prior to the workshop, the ITR was provided with the following documents:

- Reconnaissance Alignment Assessment (Draft), October 30, 2019
- Viability of Long Tunnel Boring Machine Tunneling Drives (Draft), November 15, 2019
- Preliminary Draft Reusable Tunnel Material (RTM) Handling and Disposal, November 8, 2019
- Tunnel Corridors Map, Working Draft, November 5, 2019
- Draft Graphical Schedule for Central Corridor, no date
- California WaterFix Conceptual Engineering Report, Byron Tract Forebay Option, July 2018

- Compilation of Comments on Tunnel Construction and Reusable Tunnel Material from Previous Studies, Draft, November 11, 2019

On the morning of Day 1 (December 4), the DCA's Engineering Design Management team (EDM) presented Delta Conveyance background information including background geology, logistics information, project schedule and assumptions, and stakeholder concerns. The remainder of the day was spent driving along both the Central and Eastern corridors under study. The ITR visited each site except for the shared South Tunnel Outlet Structure site, as it was visible in the distance from Clifton Court Forebay site.

Day 2 was spent in a workshop with the ITR brainstorming and discussing the various topics of drive length, alignment, logistics, contract strategy and packaging, reusable tunnel material use and/or disposal, stakeholder considerations, and other various topics until consensus was obtained.

This consensus was shared with the DCA/DCO and EDM team late morning on Day 3. This memorandum summarizes the consensus and recommendation of the ITR for the tunnel and shaft related aspects of Delta Conveyance Project.

2.0 TBM Drive Lengths

The ITR's opinion is that TBM drive lengths up to 15 miles are achievable for this project. The key reasons being that 1) the alluvial deposits are relatively uniform and favorable to tunneling, 2) the inner diameter of the tunnel provides sufficient space to support of operations, and 3) issues that typically jeopardize TBM longevity, including high groundwater pressures, mixed ground conditions, and high boulder frequencies, are not present for this project.

The achievability of long tunnel drives is primarily driven by logistics. The size of the Delta Conveyance tunnel and favorable geology suit an extended drive without substantially raising the risk profile of the project. A summary of long tunnels is presented on Figure 1.

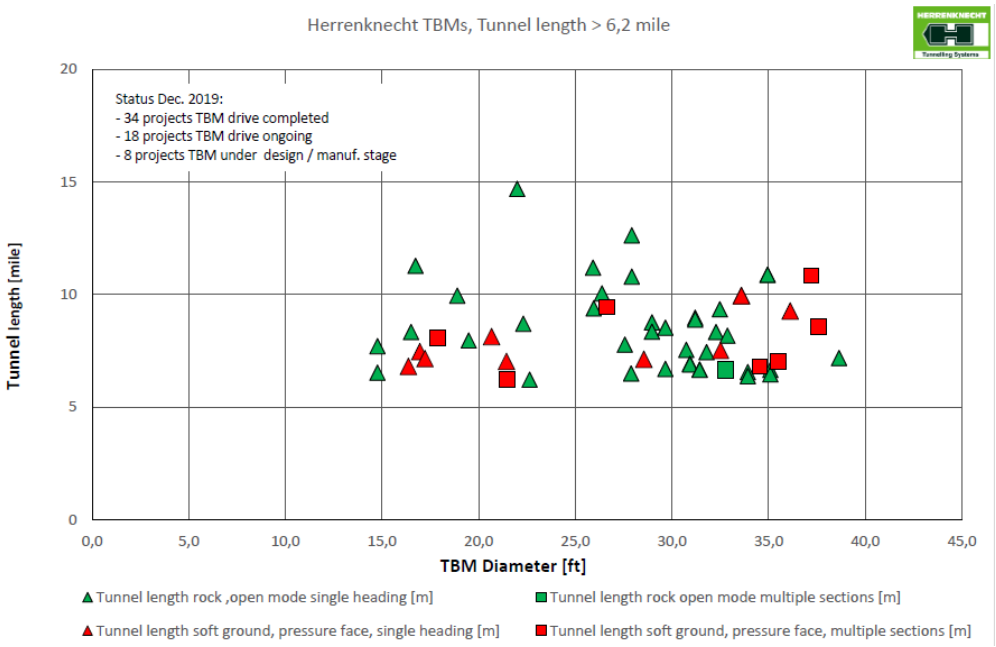


Figure 1. TBM Drive Lengths with Herrenknecht TBMs

For this project, where the ground conditions are favorable for tunneling and the TBM operating pressures are not excessively high, the drive length between shafts can be safely extended by implementing current technologies. Longevity of the TBM main bearing and ring/drive motors are the key as well as the ability to frequently exchange cutting tools along the drive. Cutting tool exchanges may be either through pressurized interventions or under atmospheric conditions if the TBM is equipped with accessible cutterhead technology. While there may not be a comparable soft ground TBM drive length example, the demands on a TBM in rock far exceed those for soft ground in terms of wear and tear on the machine. The durability of the mechanical elements for rock TBMs is typically far more difficult to overcome compared to soft ground TBMs in homogeneous ground conditions. Main bearing seal systems may see a higher load on pressurized TBMs in soft ground due to the face pressure, however, rock TBMs see higher cutterhead speeds. This means rock TBMs typically have main bearing seals that must withstand 2 – 6 times the propagation of soft ground TBMs for the same drive length.

But, more importantly, the critical elements for long tunnel drives are the logistics and safety elements. The drive lengths noted above have either been fully achieved or are currently underway. These projects demonstrated that the solutions currently exist to support extending TBM drive length and will only continue to improve by the time Delta Conveyance breaks ground.

The ITR recognized that longer drives carry additional risks. The mitigations to address the risks of longer drive lengths exist within current technology as described below.

2.1 Risk Mitigation Measures – TBM Drive Length

The following recommendations are made to manage the risk of a longer drive, all of which is current technology:

- Evaluating and/or including an accessible cutterhead option to reduce the need for pressurized interventions and simplify cutting tool maintenance
- Installing cutting tool and cutterhead structure condition monitoring systems
- Installing a camera system for remote chamber inspection
- Preparing the TBM for face and periphery drill pattern for ground consolidation from within the TBM
- Utilizing an engineering solution for tail shield brush replacement
- Requiring a strict maintenance and inspection program in place from the beginning ("industrialized tunneling" philosophy)

Further recommendations are detailed in the following subsections.

2.1.1 Main Bearing Replacement

TBMs have a main bearing that allows the cutterhead to rotate at the tunnel face. Historically, the main bearing has been a primary mechanical point of weakness on the TBM in that it sees significant stresses and, if it fails, it has required an emergency access shaft to replace it with a new one. While engineering solutions to replace a main bearing from within the tunnel exist, an access shaft is oftentimes selected as a simpler solution. Further, current bearing technology supports a main bearing life of 20,000 to 30,000 hours (time spent with the cutterhead rotating). Decisive factors for the main bearing life are the loads and the total number of revolutions. Both factors are significantly higher on rock TBMs compared to soft ground TBMs. Therefore, the experience gained from long distance rock tunnels can be applied to long soft ground tunnels. This would support the longest drive recommended without replacement unless an unanticipated failure occurred. It was noted by Mr. Burger of Herrenknecht that there are many examples of main bearings lasting longer under more strenuous circumstances than exist for this project. The ITR recommends that TBMs used for the longer drives through the Delta be designed to accommodate bearing replacement from within the tunnel as a risk mitigation measure.

2.1.2 Safe Havens

A safe haven is a location where unpressurized access to the TBM face can be achieved for inspection and maintenance purposes. The ITR recommend a minimum of one safe haven per tunnel drive, preferably fairly early in the drive to confirm assumptions and monitoring efforts on wear. The ITR debated the need for a second safe haven. It is prudent to have safe havens, but rarely is a safe haven in the location one needs it. If allowable within the constraints of the environmental documentation, it is recommended that an additional allowance for "unlocated" safe haven(s) (e.g., unplanned intervention) be included. This means, the contractor is allowed to develop a safe haven where necessary to support operations. It's important to point out that certain sites within reason can be excluded – such as in areas of biological resources.

The TBM safe haven can be a low-impact solution. As shown in Figure **2**, the ITR proposed a small 15-foot diameter shaft which could be a drilled shaft, sunken cast-in-place concrete or vertical shaft sinking (VSM) excavation with segmental lining. From within the shaft, ground treatment such as grouting or freezing can be performed in the horizontal direction providing coverage for the cutterhead. This process will minimize surface impacts as well reduce the surface impact schedule for the safe havens.

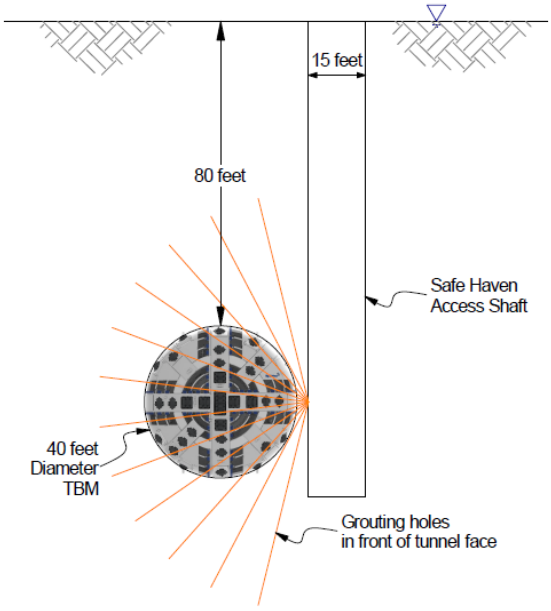


Figure 2. Safe Haven Concept

The ITR offered that knowledge gained from the first drive/contract (or portions thereof) would be quite valuable to have during planning for the next (e.g., 2nd) contract. With respect to the need for safe havens, knowledge gained from the first contract should be incorporated into subsequent ones.

2.1.3 Abrasivity

Soil abrasivity can lead to wear and tear on the TBM from the hardness of soil particles. Minimal soil abrasivity tests have been performed. The prior GDR reported AVS values between 7 and 59.5 with an average of 31 and median of 30. While further study and possible mitigation is recommended, tunneling in the alluvial soils is not going to be a similarly harsh environment when compared to long drives in quartz rock.

It is recommended that, no matter the case, state of the art heavy wear protection for the cutterhead structure should be required in combination with a structure monitoring system as mentioned above under Section 2.1. Heavy wear protection exists in today's technology. The benefits of tool wear sensors and potential use of accessible cutterhead technology enable data to be collected for proactive planning. The data of such wear monitoring systems will support the planning for any required additional safe haven ahead of time so that proper procedures and actions can be taken. The ITR further recommends a strict maintenance program that includes timely cutting tool maintenance and exchange to reduce the risk for structural wear.

All of the above mitigates against unplanned/long-term breakdowns.

3.0 Tunnel Alignment Corridors

The project team discussed and compared the current tunnel alignments under study in the Central (yellow) and Eastern (blue) corridors as shown in Figure 3.

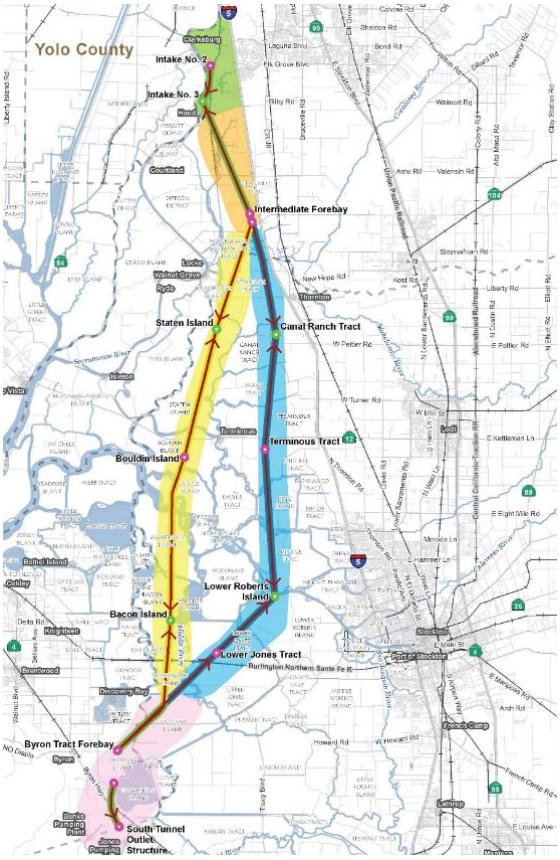


Figure 3. Studied Central (Yellow) and Eastern (Blue) Alignment Corridors

The consensus among the ITR was that the Central Corridor is logistically impractical and the ITR does not recommend this corridor be further studied. The shaft locations are located a significant distance from Interstate 5, accessible by only farm roads with hindrances such as narrow weight-restricted bridges and single lanes. This makes supporting large operations, which requires a constant transfer of materials and people in and out, impractical and expensive as well as difficult to price. In addition, addressing safety, including hospital access and tunnel safety duplication, creates a costly layer or redundancy without definitive costs. While it was recognized that extensive roadway, levee, and likely barge improvements could be constructed as part of the project for the Central Corridor, the ITR offered:

- The cost of improvements to provide reliable and safe access and egress at each site would exceed the cost of additional length of tunnel required for the East alignment.
- Levee re-build, barge, and site preparation & stabilization is temporary work, and much of it (e.g. barge facilities) will require removal;
- Site improvements and prep is driven by means and methods;

- Labor and construction safety costs, regardless of improvements, are too uncertain to price due to the location and distance from any shaft on the Central Alignment to developed land/communities.

For the reasons described above, the ITR recommended adjustments to the alignment as described in Section 3.1 which will facilitate large scale tunneling.

3.1 Recommended Alignment Adjustment

The ITR recommended that between the Terminous Shaft and the Lower Roberts Shaft, the alignment be shifted further to the east and closer to Interstate 5. Specifically, the following recommendations are made:

- Relocate Terminous shaft to the north and east
- Move shaft at Lower Roberts Island, south-east to industrial land in/closer to Stockton
- Eliminate Lower Jones Tract and Canal Ranch shafts

These proposed changes expand and/or shift the East (blue) corridor east as shown below on Figure 4. The longest tunnel drive length would become approximately 13.5 miles.

For the vertical alignment, the ITR recommends raising the tunnel alignment by one tunnel diameter. This will reduce the operating pressures considerably which is beneficial to the overall operation of the machine and safety of the workers.

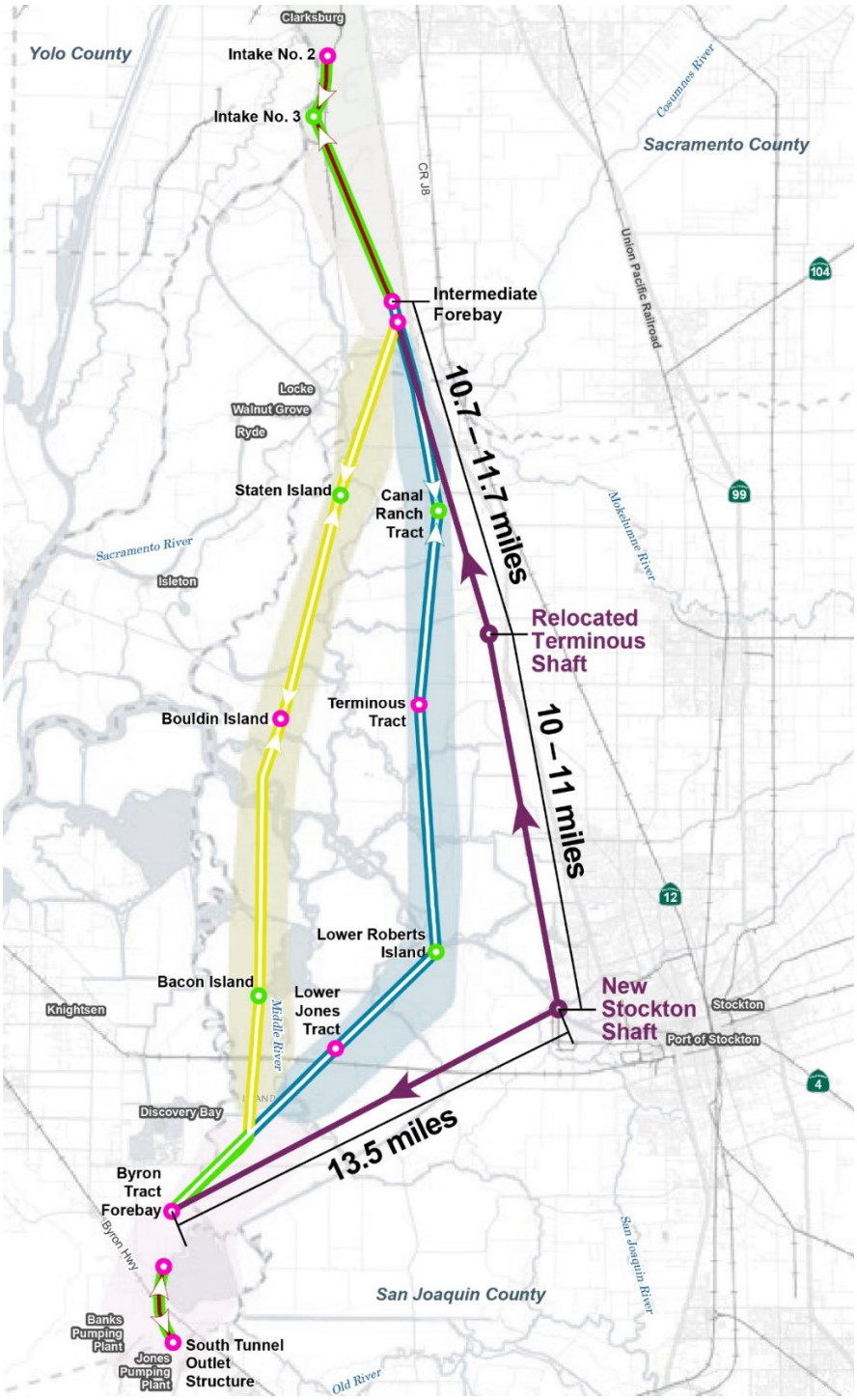


Figure 4. Recommended Far East Alignment Corridor

3.1.1 Terminous Shaft

Figure 5 shows a recommended placement for a relocated Terminous shaft. It is located approximately ½ mile west of the I-5 interchange and one mile north of Highway 12. Shifting the shaft north allows for trucks to enter the shaft site while minimizing impact to traffic on Highway 12. It is recommended that

the ½ mile stretch of Highway 12 to the shaft access road be widened and a turn lane and signal be added at the shaft access road.

Figure 5. Relocated Terminous Shaft

3.1.2 New Stockton Shaft

Figure 6 shows the general placement of a New Stockton Shaft. In general, the recommendation is to shift east along the San Joaquin River closer to industrialized Stockton. The pin location shown in Figure 6 is just adjacent to the Port of Stockton and eliminate additional road widening and improvements to get to the Lower Roberts location as well as time. This site allows for segment production if desired and barge facilities to be developed. It is also adjacent to rail. This could be an important advantage, particularly when considering the contract packaging discussed below as a new Stockton Shaft as proposed would have 50% of the tunnel material (supply in, tunnel material out) flowing through that location.

Figure 6. New Stockton Shaft

4.0 Logistics and Advanced Procurement

The recommendations on alignment (above) were almost entirely driven by project logistics. Quite simply, the tunneling through the Central Corridor was considered more of a logistics project than a tunnel project. Moving the alignment east, is thought to greatly simplify the logistics and as such, enhance competition for all materials that are needed to construct the tunnels due to increased modes of transport afforded by the industrialized eastern cities, barge and rail access.

4.1 Segment Manufacture

There was discussion as the most cost-effective way to provide the 40 miles of concrete segments for the project. The ITR considers the difference between on-site and off-site production, in terms of material transport, is insignificant, recommending that despite 80% of the tunnel segments being the same diameter:

- Plan for off-site production of segments, as it lowers cost and provides far more flexibility in the supply and delivery chain.
- Leave the design and construction of the segments to the contractor, as the configuration, length, and reinforcing details/requirements are all means and methods driven; and
- Progress with permitting as if on-site will be used, as a position point for the environmental documentation process (it's more environmentally challenging).

4.2 Tunnel Material

The handling and disposal of tunnel material is a major project driver that will influence the builder's approach to the project (TBM Selection, Site Configuration, sub-contracting, etc.). Based on ITR experience, soft ground tunnel material is not a commodity (has no residual value) and is difficult to dispose or find a use for. These two factors were part of the reasons the ITR recommends (above) moving the alignment closer to industrialized land, close to multiple modes of transport, to handle removal of it in the most economical manner.

As part of the advanced procurement work, the project would benefit from DCA working to find a location and negotiate terms for disposal and or reclamation using it in advance of advertising the tunnel contracts. This could include stockpiles and or temporary storage at the Southern Forebay site for re-use of the material on the site. However, the ITR cautions that the "reusability" of such material should not be over-sold within the project team, as no experience exists (within the ITR members) where material from a soft ground tunnel has been used as structural fill.

There are some projects that have used materials for quarry restoration (e.g., SR 99 in Seattle) or land reclamation (Bay Tunnel and numerous European projects), which were negotiated/established prior to the contract being let. In each case, advance analyses was performed to characterize the natural components and any potential for materials deemed as contaminants. There are several quarries within the project vicinity and early research and conversations with these quarry operators would benefit the project.

4.3 Tunnel Classification and Permissible Equipment

Based on what is known of the geology, it is anticipated that the tunnel will be classified as "gassy" or, at least, "potentially gassy". For both potential and gassy classifications, Cal/OSHA will also implement a list of "special conditions" that add specific detail to existing regulations and add requirements. While it is difficult to predict what details or regulations Cal/OSHA will impose, quite often on large consequential projects, it is important that DCA meet with Cal/OSHA to start early discussion on what may need to be design "into the project" and set the basis for understanding of expectations.

It is likely that these discussions with Cal/OSHA will set forth that all equipment used in the tunnel including the TBM will have to have special gas detection systems and anti-explosion systems (e.g., permissible equipment). The TBM will be required to have a sophisticated gas detection system that will automatically shut down the systems and put it into emergency power mode in the event of detection. Safety trained and certified gas tester employees will have to be on site at the face full time.

4.4 Tunnel Rescue Plan and Communication

A detailed tunnel rescue plan is required by law before underground work can begin. The tunnel rescue plan will be developed by contractor(s) although the owner/engineer can have preliminary discussions on any specialized requirements. Because of the long tunnel drives, the rescue plan as well as the training requirements for workers will be more extensive. The length of tunnel means that it will take longer to get an injured person out of the tunnel. The plan will need to include requirements for practice and documentation.

A trained tunnel rescue team with a minimum of five people will need to be on-site within 30 minutes of the ingress/egress point at all times. This is another advantage of moving the alignment closer to I-5, particularly when you consider the duration (approximately 8 calendar years) of the project.

A refuge chamber (e.g., Figure 7) will be required on the TBM and at intervals along the tunnel. These chambers provide life support systems including primary and secondary oxygen supplies and CO/CO^2 scrubbing systems to regenerate the air. They also maintain positive internal pressure at all times.

Figure 7. Refuge Chamber Example

5.0 Contract Delivery and Packaging

5.1 Contract Delivery Methods

There are various methods by which the DCA/DCO can deliver the project. While explaining each in detail is beyond the scope of this memorandum, three popular contract delivery methods are mentioned herein. The most traditional is Design-Bid-Build (DBB) in which the owner's engineer prepares complete contract documents and the low bidder is awarded the job. There is also Construction Management/General Contractor (CMGC) which allows an owner to engage a construction manager to provide input during the design process. The owner and the construction manager agree on a price for construction of the project, and the construction manager becomes the general contractor. There is also Design-Build (DB) in which the owner released documents at an early design phase (often at 30%) and the contractor completes the design and builds the project. Selection methods for CM/GC and DB contractors vary and are not discussed herein. Each has merits for consideration.

5.2 Recommendation on Contract Delivery

The ITR members held a robust discussion on the merits of one delivery method over another.

Two companies from which the ITR has associated members had previously reviewed the project (when it was twin tunnels) and offered at that time that DBB and/or CMGC were preferred. DBB was previously recommended because it lowers the contractor's risk, and at the time was thought to provide a better opportunity to achieve a lower total project cost. CMGC was preferred because the "use and disposal" of tunnel material was such a large uncertainty; and, CMGC would allow the contractor to be engaged before resolution of material disposal was completed. However, after the site visit, and recognition that this project is "a logistics project with a tunnel in it", the ITR came to consensus recommending Design-Build delivery for the tunnel and shaft work. The key reasons that informed this recommendation for Design-Build include:

- Gives a much higher likelihood of completing the work by the estimated completion date of 2035 through concurrent work and ability to procure items such as the TBM and start-up of segment production;
- Enables the contractor to be engaged in the design, of all elements of the work, including logistics planning (site set-up, etc.); and,
- Nearly all the site work, material handling, and all the large shafts are temporary structures.

If the DCA/DCO establishes the internal diameter of the tunnel and permanent shafts, a horizontal alignment and rights of way/easements associated with it, negotiates power drops at each working shaft, and determines the extent of allowable use and/or locations to dispose of tunnel material, all other elements of the project would be means-and-methods driven, which aligns very well to Design-Build.

5.3 Recommendation on Contract Packaging

The ITR recommends five tunnel design build contracts in order of release as follows and shown in Figure 8:

- Contract 1: Stockton Shaft to Byron Forebay
- Contract 2: Terminous Shaft to Intermediate Forebay Shaft
- Contract 3: Stockton Shaft to Terminous Shaft
- Contract 4A: Intermediate Forebay to Intake 3
- Contract 4B: Intake 3 to Intake 2
- Contract 5: South Outlet Tunnels (twin tunnels)

If the release of contracts begins in Quarter 1 of 2023, completion of the project tunnels by 2035 is achievable. The ITR recommends that each contract be separated by approximately 9 months.

It is recommended that the logistics for each site including shaft height above ground surface, finalization of power drop, etc. be included in the DB contracts as it allows the contractor to set up the sites to suit their means and methods. Any early works contract can include items such as widening of the ½ mile of Highway 12, Twin Cities Road and improvements to the Clifton Court area.

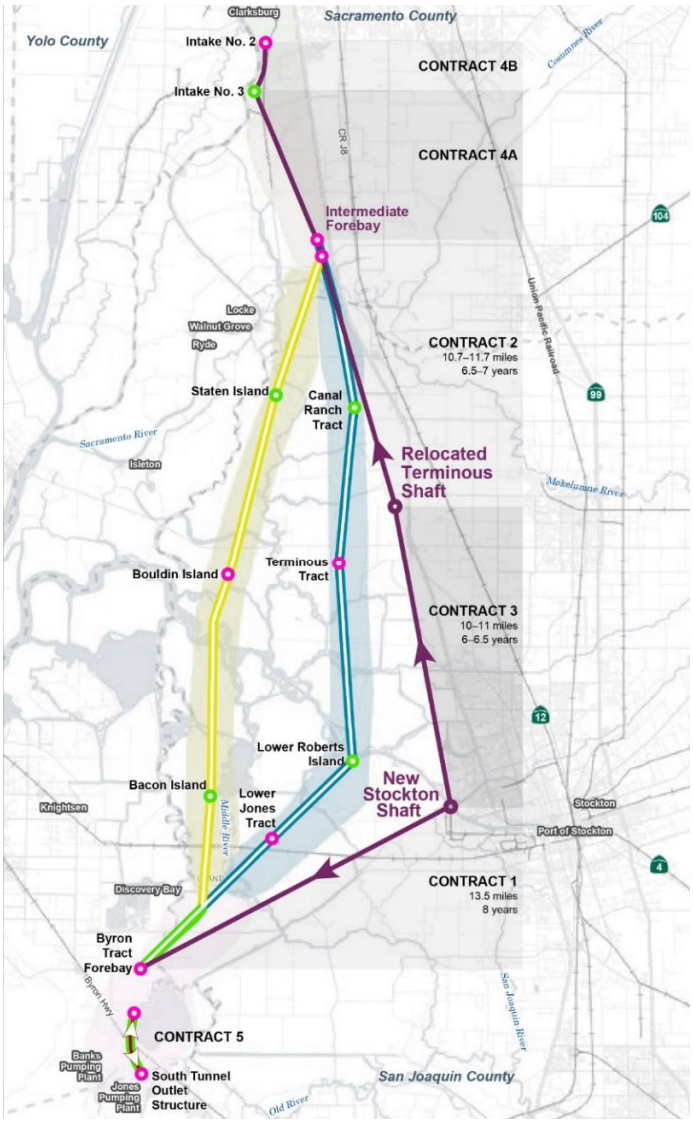


Figure 8. Recommended Tunnel DB Contract Packaging

5.4 Contract Value

The ITR recommends that the packaging of contracts be held at approximately $1.5 to $2 billion in order to ensure enough teams are available and to ensure bonding availability. All major tunnel contractors have capacity to team and to pursue the work. It is also recommended that the DCA/DCO also have initial discussions with bonding agencies.

6.0 Stakeholder and Community Concerns

The ITR was requested to review various stakeholder and community comments from prior phases of the project. All of the current comments were noted to be straightforward and could be answered by sharing engineering information. Each is addressed briefly in the following subsections.

In general, the ITR recommends that the DCA/DCO have a dedicated engineering liaison. They should be capable of translating tunnel engineering and construction to the public at large (e.g., breaking down complex topics into understandable terms with enough information). This person(s) should be supported by a team of people who can prepare graphic materials or other supporting information.

6.1 EBMUD – Mokelumne Aqueduct

East Bay Municipal Utilities District (EBMUD) expressed several concerns with the Delta Conveyance tunnel in terms of their future tunneling plans and potential conflicts. They also indicated the need for a secondary tunnel lining system. The ITR recommends that the DCA/DCO coordinate on some level with EBMUD to understand their tunnel alignment elevations and work jointly to determine an appropriate offset distance with the Delta Conveyance tunnel. The ITR does not concur with EBMUD's comment that the tunnel needs a secondary liner. There are many project examples that use a single pass segmental lining. The precast lining is sufficient to support the anticipated loads including seismic events.

6.2 Natural Gas Wells

There are several community comments with respect to unknown gas wells. The ITR noted that traditionally, the records of gas well installations are quite accurate. However, the team/contractor can perform a magnetometer survey when the final alignment is set (e.g, versus being a corridor), then the team can perform an alignment check/walk/survey to look for unknown wells.

6.3 Seismic Behavior of Tunnels

There are no active fault crossings along the Delta Conveyance alignment and the seismic demands are not extreme compared to other projects. A tunnel, in particular a segmentally lined tunnel, is capable of flexing and thus survival during an earthquake. The primary concern would be at the connection points such as the shaft/tunnel connection. These locations likely need specialized detailing to handle the localized increased stresses. This is not an unusual undertaking in areas of high seismicity.

6.4 Dewatering

There were several comments associated with dewatering caused by tunneling. The TBM will be a "pressurized face machine" meaning that it will balance both the groundwater loads and earth loads. With this type of tunneling, dewatering is not required for tunnel and lining operations. The segments are designed to be gasketed and sealed to handle water pressures and can be constructed to be watertight. The ITR does recommend that a bottom seal be required for shafts to avoid excessive pumping of groundwater out of the excavation. These comments can be answered by simply educating the stakeholders on the process of pressurized face tunneling.

6.5 Settlement

There were several comments associated with "subsidence." In reading these comments, it appeared that there was a general misuse of the word subsidence and that the concerns were related to settlement. The ITR recommends education to correct the terminology usage. Further, modern tunneling and proper face pressures mitigate against settlements.

6.6 Failure and Repair of the Lining

Failure of a segmental tunnel lining is highly unlikely and unprecedented. Segmental linings are fabricated with reinforced precast concrete in a highly controlled environment with strict quality control. A tunnel constructed with precast segments is generally considered by industry to be of higher quality than those lined by the cast-in-place concrete method. The design life is a minimum of 100 year and designed to appropriate standards and loads. We recommend sharing and explaining the calculations to the public.

Repair of the lining is highly unlikely to be necessary if designed for the service life. While transportation tunnels undergo regular maintenance due to their exposure to elements, water conveyance tunnels are not subject to the same stresses-meaning, there is not much that can damage the lining.

6.7 Emergency Response

Contractor's are required by law to have a tunnel rescue plan approved by Cal/OSHA prior to beginning underground work. This job in particular will require a five person on-site dedicated rescue team at a minimum for each tunnel contract. Moving the alignment closer to I-5 significantly improves emergency response. The ITR recommend that the DCA/DCO develop a detailed emergency response plan as well as any specifics that can be passed into contractor protocols.

6.8 Flood Risk

Current plans assume significant overbuilding of the shaft pad areas. The ITR noted that only the shaft walls need to be overbuilt to a height addressing some level of flood risk. The surrounding pad doesn't need to be as high as the shaft wall. Permanent works can be raised to the final elevation as necessary.

7.0 Conclusions

The ITR was asked to review and provide input on five major issues for the Delta Conveyance project with respect to achievable TBM drive lengths; tunnel alignment; logistics & advanced procurement for transport and storage; contract delivery and contract packaging, and stakeholder/community concerns.

The recommendations based on the December 2019 ITR workshop are as follows:

- 15-mile TBM drive lengths are achievable if appropriate mitigations are implemented;
- The tunnel alignment should move closer to Interstate 5 (further east) with shafts located adjacent to major roads and multiple methods of transport where feasible;
- Design-build delivery is preferred; and
- The existing stakeholder comments and community concerns are straightforward with simple answers.

These recommendations and conclusions are the opinion of the ITR members attending the December workshop and may not necessarily represent the unanimous opinion of the companies represented by the

ITR members. Further, the recommendations are based on the project information provided at the time, and knowledge obtained during the workshop.

The ITR thanks the DCA/DCO for their interest in engaging outside expertise and sharing the project information for brainstorming and new ideas.

Respectfully,

Werner Burger, Herrenknecht

Kenji Yamauchi, Obayashi

John Kennedy, Dragados

Dan Adams, McMillen Jacobs

Jeff Petersen, Kiewit

Renée L Fippin, McMillen Jacobs

Dave Rogstad, Frontier-Kemper

DCA Response to December 2019 Tunnel Independent Technical Review Panel Recommendations

Item No.	ITR Recommendation	DCA Response
1. TBM Drive Lengths		
	a. TBM drive lengths up to 15 miles achievable	a. Agree.
	b. TBMs used for the longer drive be designed to accommodate main bearing replacement from within the tunnel.	b. Agree.
	c. A minimum of one maintenance be provided per tunnel drive and that consideration be given to a smaller offset maintenance shaft if more needed.	c. Noted. DCA recommends two inline maintenance shafts spaced 4 to 5 miles apart with the last maintenance shaft used for a major TBM "tune up" (main bearing replacement, cutterhead face replacement, etc.) to reduce risk of TBM breakdown in the final section of long drives. Smaller off-set shafts may reduce flexibility for maintenance.
	d. Further study soil abrasivity and require state of the art heavy wear protection for the cutterhead structure in combination with a cutterhead structure monitoring system.	d. Agree. Studies on going with existing stored samples.
2. Tunnel Alignment Corridors		
	a. Central Corridor is logistically impractical and therefore should not be further studied.	a. Agree that Central corridor poses greater challenges for construction logistics than corridors closer to I-5. However, there are other considerations for siting the tunnel alignment that must be considered.
	b. Between Terminous and Lower Roberts, shift alignment further east and closer to Interstate 5.	b. Agree that proximity to I-5 facilitates construction logistics.
	c. Add new shaft along the San Joaquin River and closer to the industrialized area of Stockton.	c. DCA understands the proximity of port, rail and roadway access in this location but does not believe the alignment would benefit from shifting further east toward Stockton considering a wider range of issues.
	d. Raise vertical alignment by one-tunnel diameter to reduce operating pressures.	d. Noted but requires further study of US Army Corp of Engineers requirements and potential conflicts with the planned new East Bay Municipal Utilities District (EBMUD) Mokelumne Aqueduct tunnel.

3.	**Logistics and Advanced Procurement**	
	a. An option for on-site production of tunnel liner segments may be feasible but the DCA should also plan for off-site production and leave the design and manufacture of the segments to the tunneling contractors.	a. Agree in principle but other factors may drive the decision on liner fabrication strategy.
	b. Based on past experience, soft ground tunnel material is difficult to dispose or find a use for. The Project would benefit from finding a location for disposal and/or reuse of the RTM in advance of advertising the tunnel contracts.	b. Noted. Significant testing will be done as part of the future field work activities to validate the composition and reuse of the tunnel spoils. Previous testing results indicate that the material is suitable for forebay embankment construction and other structural uses.
	c. Based on the known geology, it is anticipated that the tunnel will be classified as "gassy" or "potentially gassy". It is important that DCA meet with Cal/OSHA early to start discussions on what requirements may need to be designed into the project to address this issue.	c. Agree.
	d. A detailed tunnel rescue plan is required by law and because of the long tunnel drives, the rescue plan requirements will be more extensive.	d. Agree.
4.	**Contract Delivery and Packaging**	
	a. Recommend Design-Build (DB) be used as the contract delivery method for the tunnel and shaft work.	a. Agree that D-B offers key benefits to the design and construction of the tunnel and should be explored. Legal hurdles may hinder its use for Delta Conveyance.
	b. Break the tunnel work into five DB contracts separated by 9 months and include work site early works in the DB contract.	b. Noted but subject to further DCA study.
	c. Hold contracts to less than $1.5-$2.0 billion in order to ensure enough teams are available and to ensure bonding availability.	c. Noted but subject to further DCA study.
5.	**Stakeholder and Community Concerns**	
	a. Mokelumne Aqueduct – EBMUD expressed concerns that the Delta Conveyance tunnel conflicts with their future tunneling plans and that a secondary tunnel lining system is needed for the Delta Conveyance tunnel. Coordination with EBMUD needs to occur, however, the ITR does not concur with the need for a secondary liner.	a. Agree.

	b. Natural Gas Wells – perform magnetometer survey when the final alignment is set to locate unknown wells.	b. Agree.
	c. Seismic Behavior of Tunnels – as there are no active fault crossings along the Delta Conveyance alignment, a segmentally lined tunnel is capable of flexing and thus surviving during an earthquake. The primary concern would be at the connection points, such as the shaft/tunnel connections, which require specialized detailing to handle the localized increased stresses.	c. Agree.
	d. Dewatering – the TBM will be a pressurized face machine and therefore dewatering is not required for tunnel and lining operations since the segments are designed to be gasketed and sealed to handle the water pressure. A bottom seal should be required for shafts to avoid excessive pumping of groundwater out of the excavation.	d. Agree.
	e. Settlement – modern tunneling techniques and maintaining a proper face pressure will mitigate against settlement.	e. Agree.
	f. Failure and Repair of the Lining – failure and/or repair of a segmental tunnel lining is highly unlikely and unprecedented.	f. Agree.
	g. Emergency Response – Contractors are required to have a tunnel rescue plan. Moving the alignment closer to I-5 significantly improves emergency response. The ITR recommends that the DCA develop a detailed emergency response plan.	g. Agree.
	h. Flood Risk – permanent works need to be raised to protect against predicted flood levels, however only the shaft walls need to be overbuilt to a height addressing some level of flood risk. The surrounding pad doesn't need to be as high as the shaft wall.	h. Agree.

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

STAKEHOLDER ENGAGEMENT COMMITTEE (SEC)

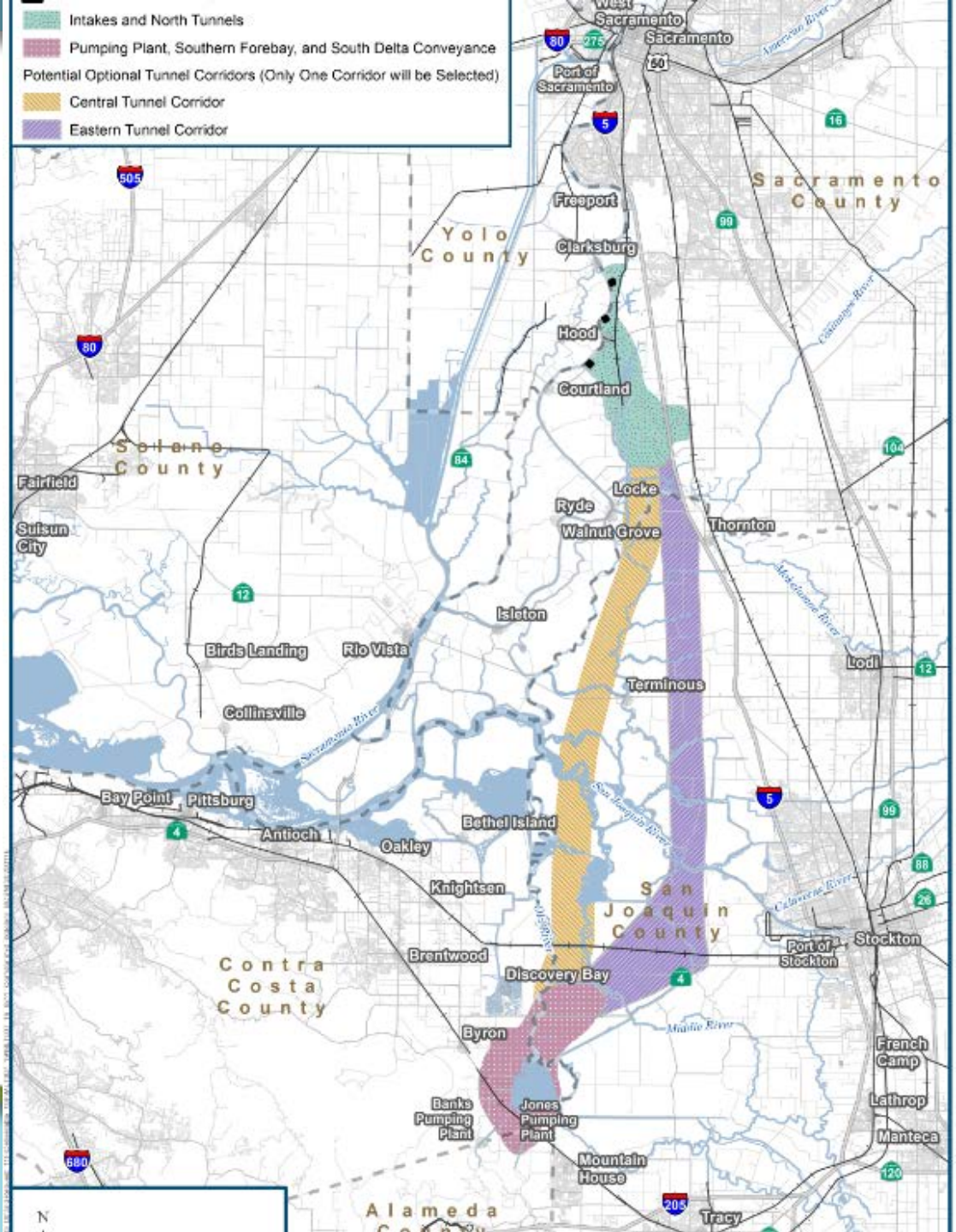
Intakes Update

Siting, Type, Sizing, Construction, and Flow Control

Agenda Item 8c | February 20,2020

NOP – KEY ITEMS FOR DCA

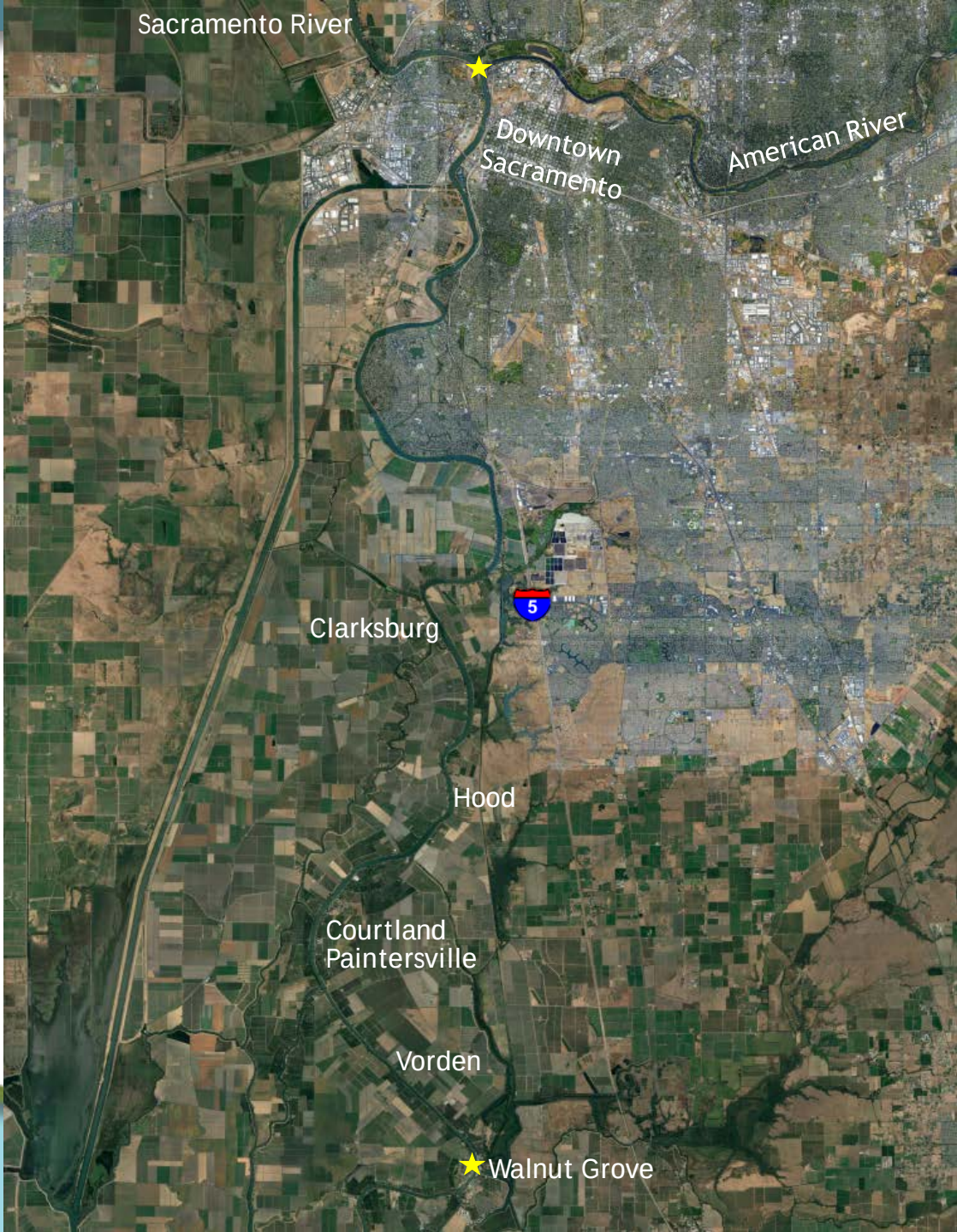
1. Facilities that comprise the proposed Delta Conveyance Project
2. Delta Corridor Map for Tunnel Alignments and Facility Siting
3. Range of Flows for Study



Intake Siting

- Siting study area is from the American River to Sutter Slough
- Sites on the east bank viable with the NOP corridors
    - West bank not viable due to poor access
- 1 to 3 intake sites required for likely alternatives

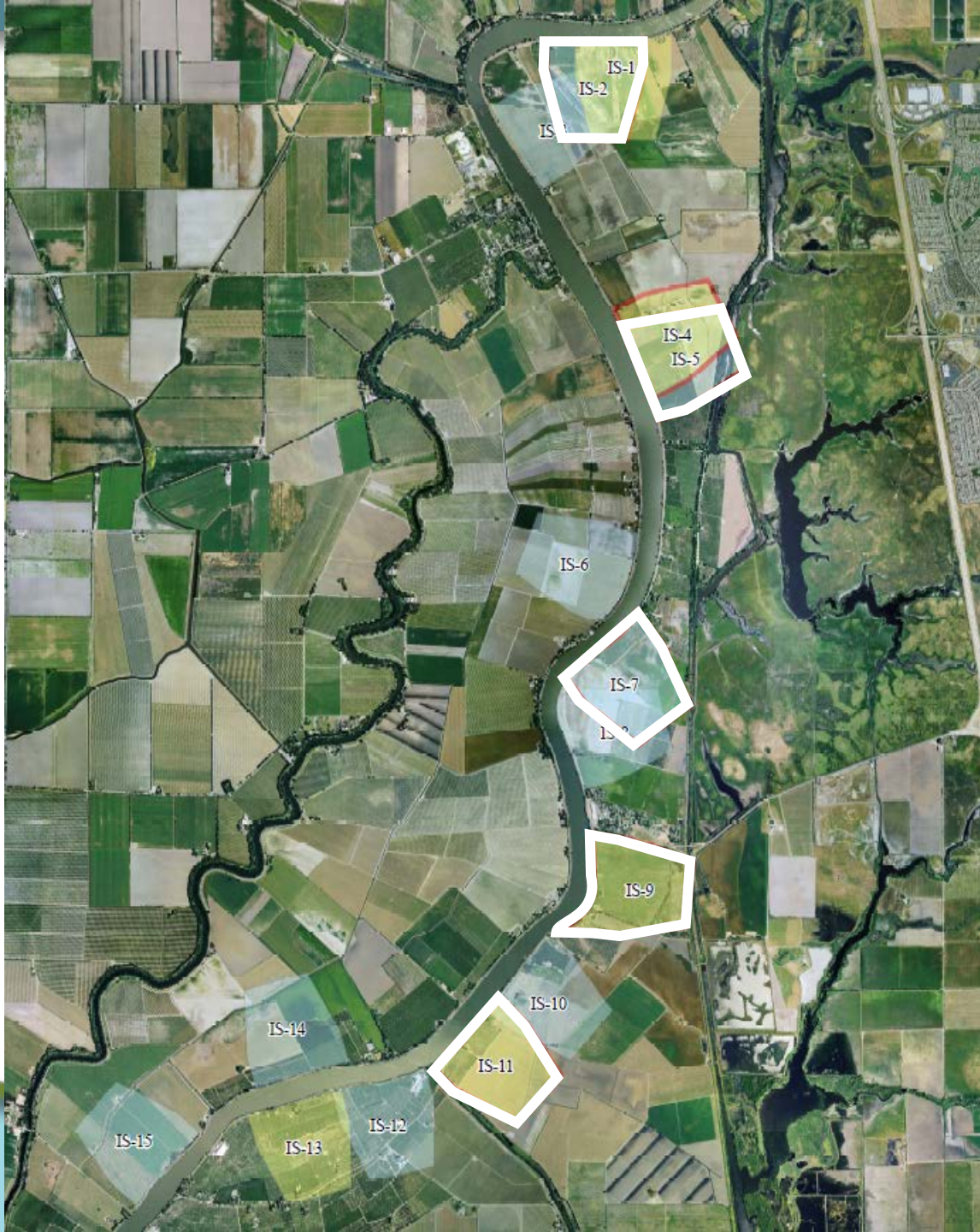
Capacity	Number of Intakes
3000 cfs	1 intake
4500 cfs	2 intakes
6000 cfs	2 intakes
7500 cfs	3 intakes



Intake Site Investigation

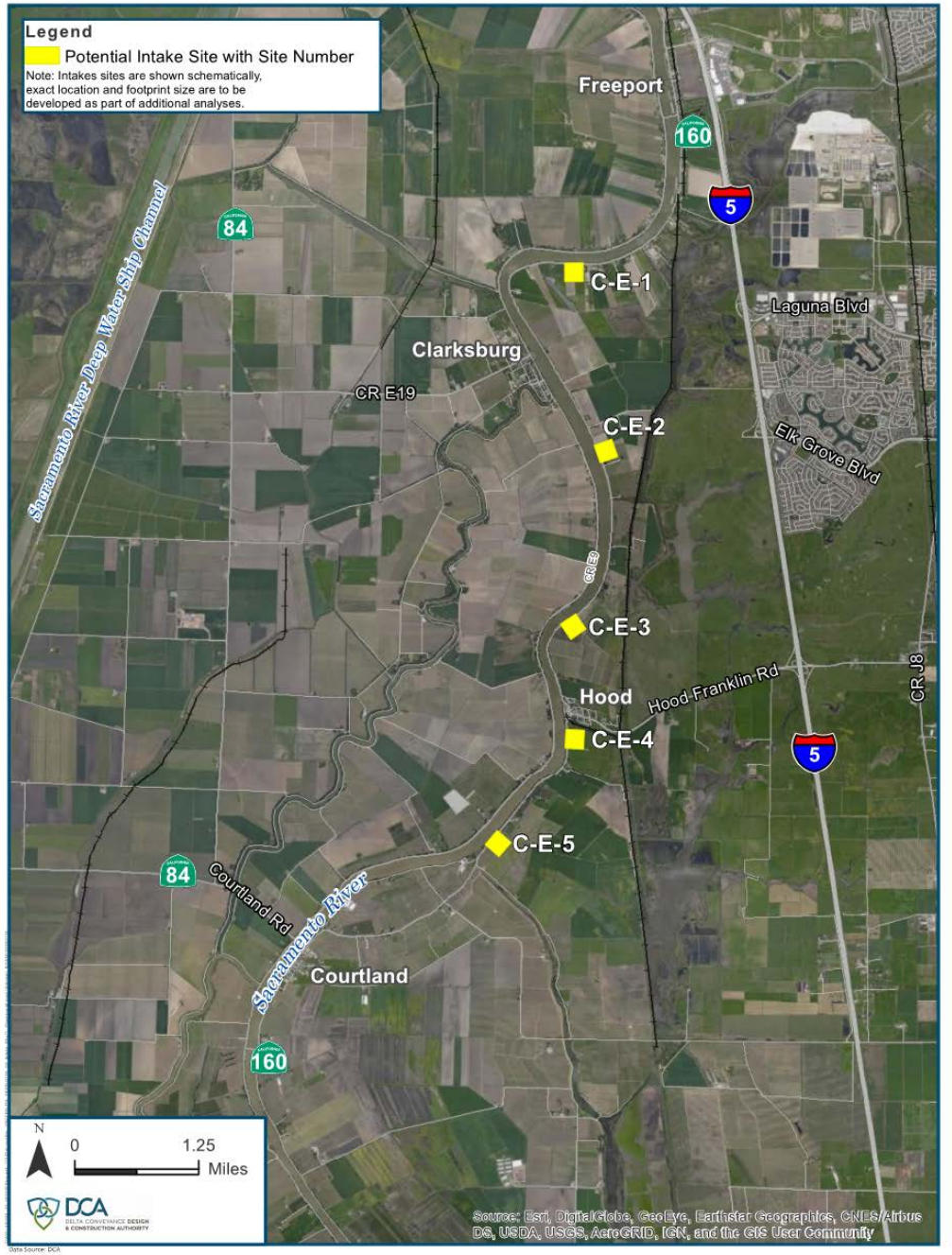
Potential siting informed by Fish Facility Technical Team (FFTT) as well as subsequent efforts

- Outside of bends best
  - Deeper is better (12 feet min)
  - 1 mile spacing
  - Non-shoaling (no sediment accumulation)
  - Adequate straight length for structure
  - Negligible effect on flood levels
- Landside Effects
  - Property effects
  - Proximity to existing development
  - Built environment effects
- Geotechnical Concerns
- Environmental and Habitat Disruption
- Access
  - Roads and traffic effects



Candidate Sites

- Reach of river has been exhaustively studied
  - Same sites as previously identified
  - Studied new land use, flows, and river bathymetry
  - No additional viable sites on the east side of the river
  - West side is not logistically feasible
- Conceptual position developed at each site as basis for comparison
- Intake sites are feasible for either Central or Eastern Corridors



Evaluation Results

Sites C-E-1 and C-E-4 ranked as least favorable and not recommended for use unless other 3 sites not implementable

- Land use
- Proximity to existing development
- Geotechnical issues

Site C-E-3 is apparent best site

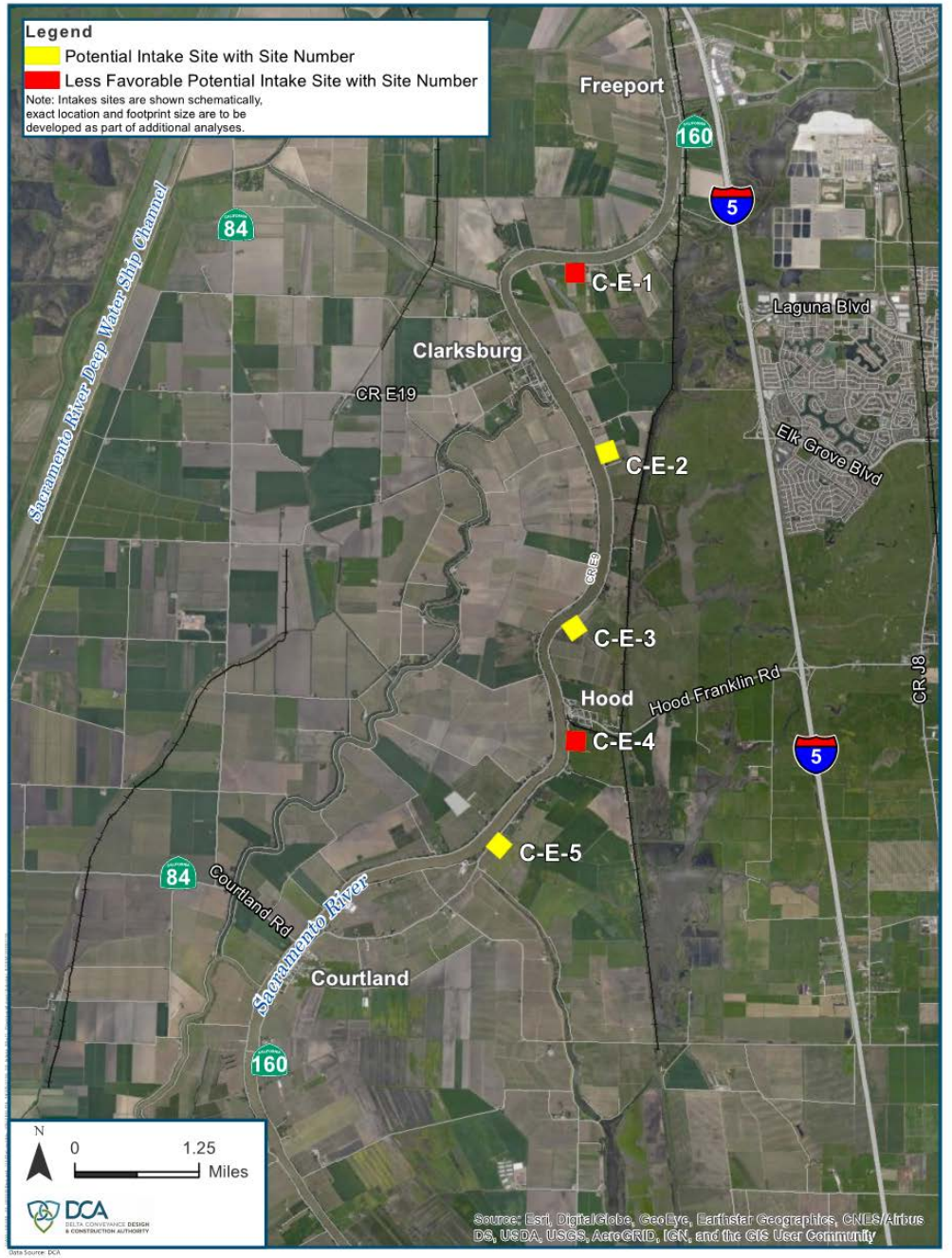
- Lowest effects on existing property and features
- Excellent river conditions

Site C-E-5

- Low effects on existing property and features
- Good river conditions

Site C-E-2

- Longest intake structure
- More substantial property effects
- Adequate river conditions



Intake Structure Types

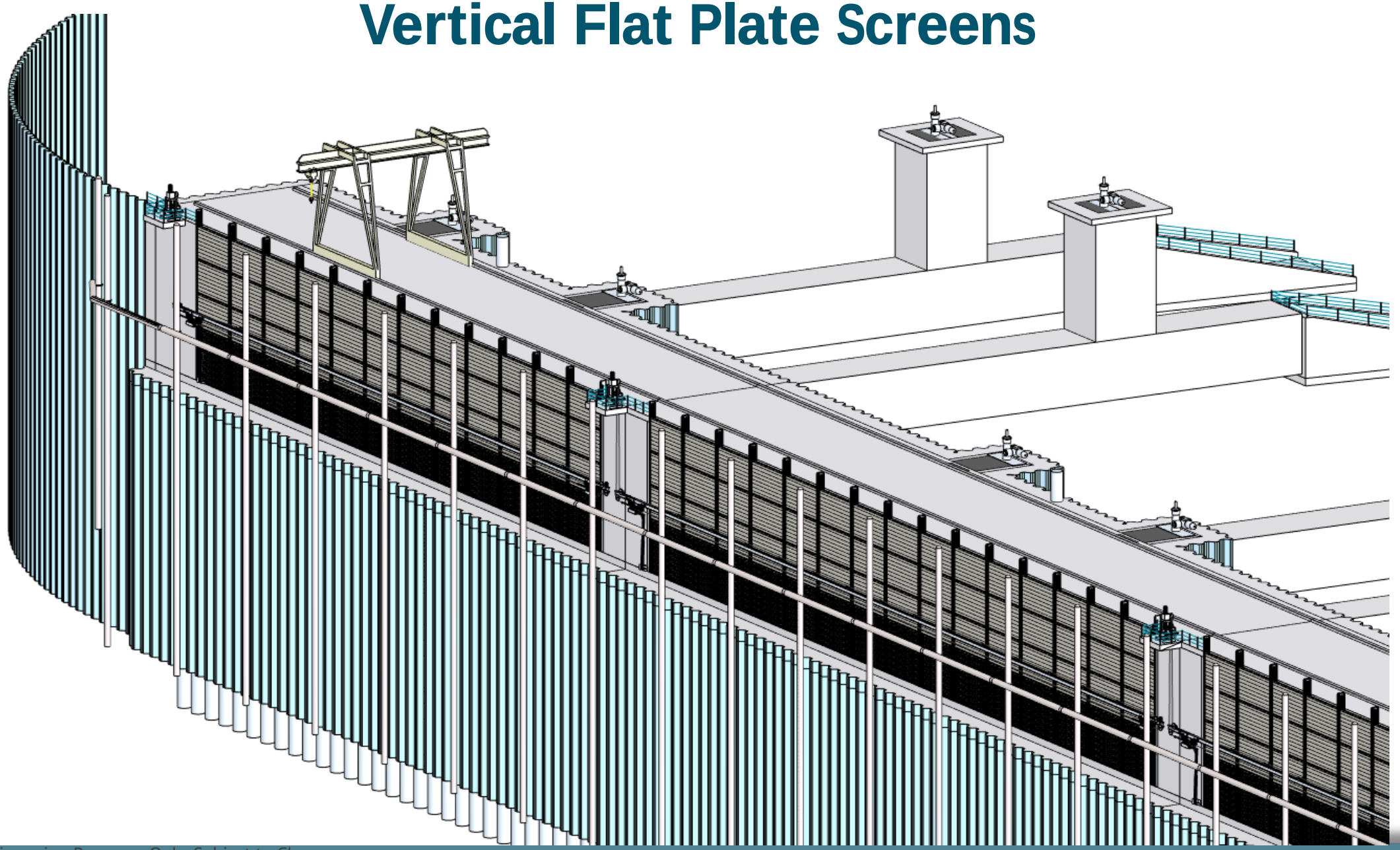

Vertical Cylindrical Tee On-Bank


Vertical Plate On-Bank

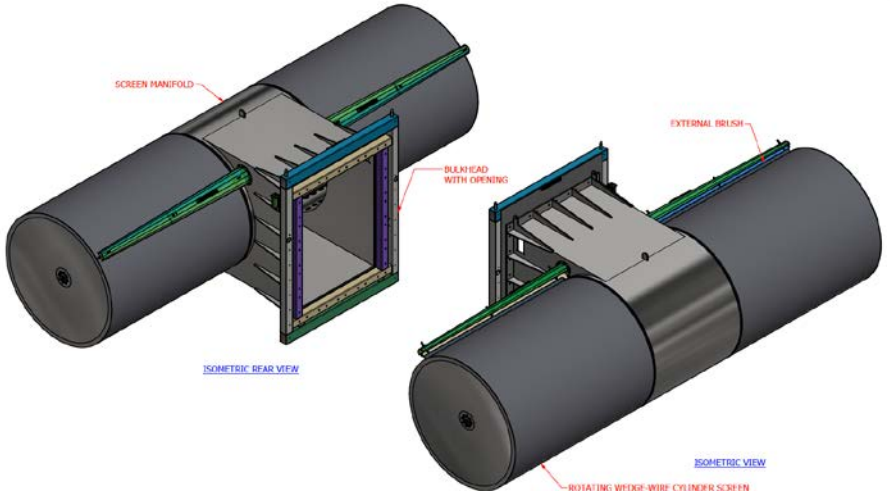
Current Focus:

- Vertical Cylindrical Tee with On-Bank Structure
- Vertical Plate with On-Bank Structure

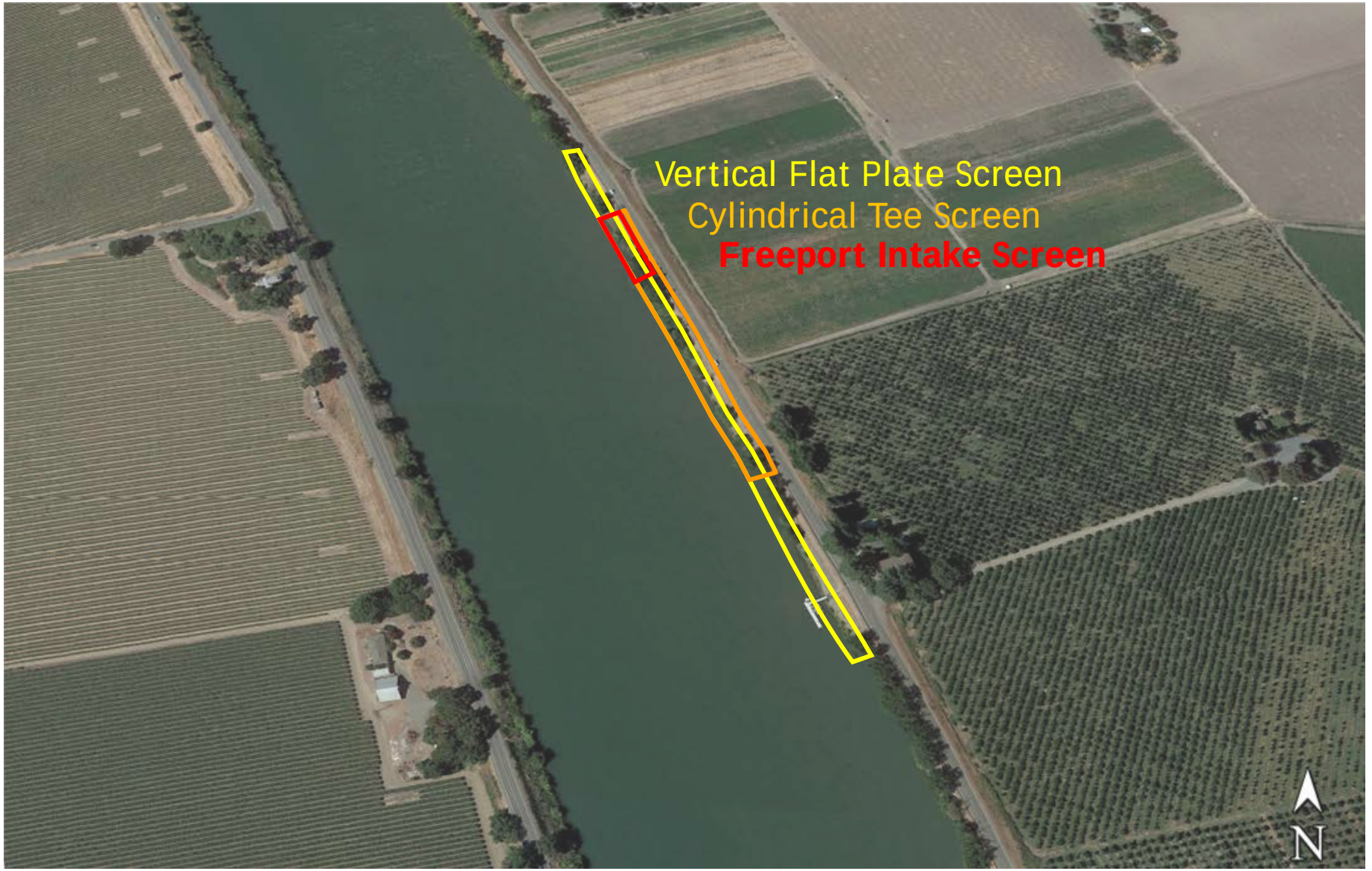
Vertical Flat Plate Screens



Cylindrical Tee Screens



Intake Type and Sizing – Comparison (Site C-E-2)



Logistics Alternatives

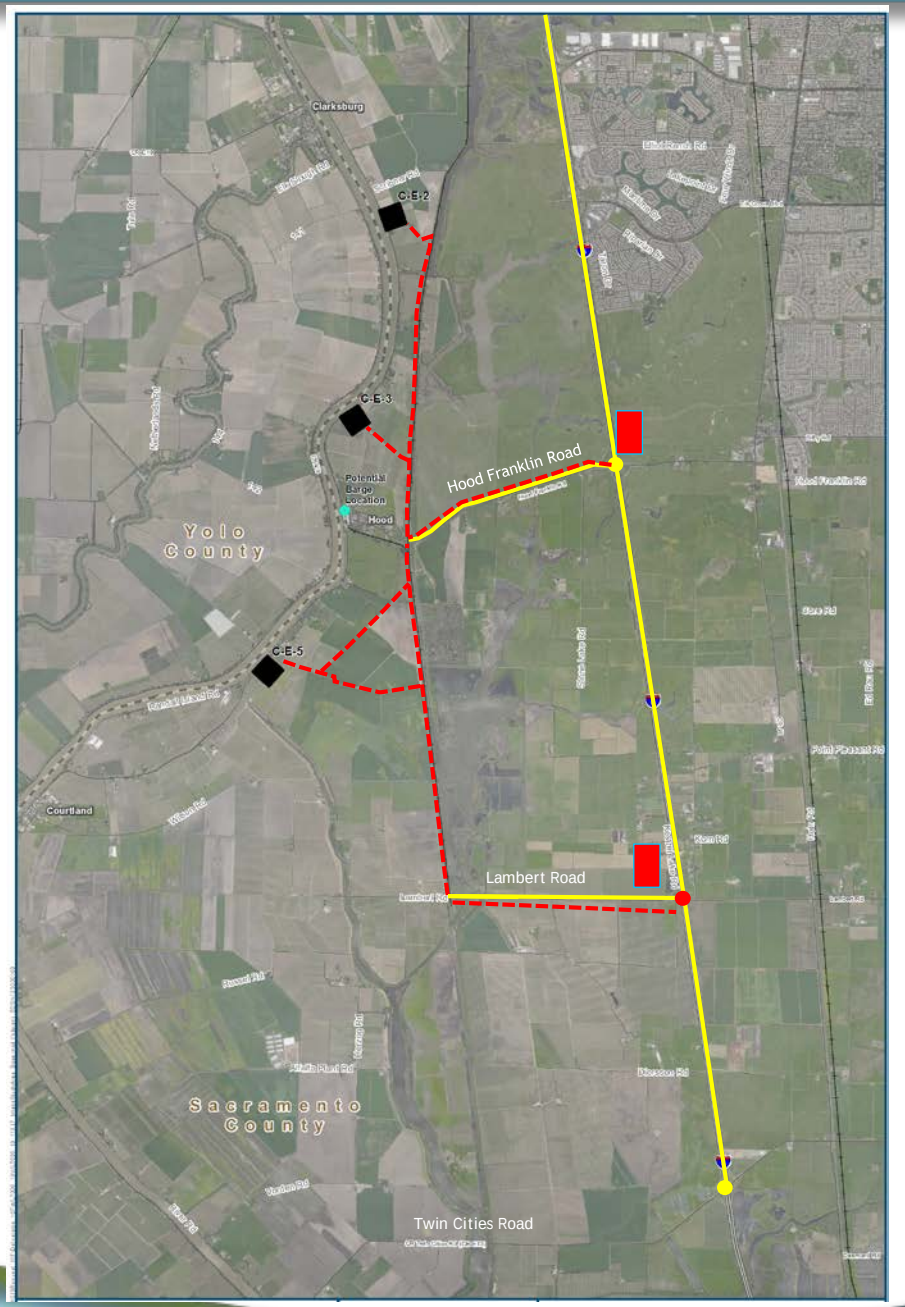
- Modes of Transportation
  - Rail
  - Trucking/Roads
  - Barge

- Trucking/Roads
  - Force traffic to use I-5
  - Avoid 160 and the River Road using new Haul Roads.
  - Possible staging center for consolidation and/or employee parking

- Barge
  - Potential barge landings at Hood or at/near intake sites
- Rail
  - Possible rail staging area and consolidation center off tracks near I-5

Proposed Approach

- Limit access to intake construction sites to I-5 Corridor
- Interchanges:
  - Hood Franklin Rd - Improve I-5 Interchange
  - Lambert – Potential new interchange
  - Twin Cities Road – Improve I-5 Interchange
- Construct haul roads from interchanges to shift traffic off existing roads to extent possible
- Utilize existing haul routes to minimum disturbance



Construction Noise is Key Concern at Intake Sites

Table 1. Typical A-Weighted Sound Levels

Common Outdoor Activities	Noise Level Scale (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		Unmitigated Pile Driving Decibel Level at X ft
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	70	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Large business office
Quiet urban daytime	50	Dishwasher in next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Source: Caltrans 2009.

Pile Driver without Noise Reduction Equipment
Source: Carpenters Training Institute

Noise Reduction Equipment - Shroud

Noise Control

- Specify lower decibel equipment and methods
- Attach shrouds around pile driving equipment
- Sound barrier walls around elevated decibel construction zones
- Noise reduction measures at receptor locations

Typical Pile Driving with Noise Reduction Equipment

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STAKEHOLDER ENGAGEMENT COMMITTEE (SEC)

Clarifications?

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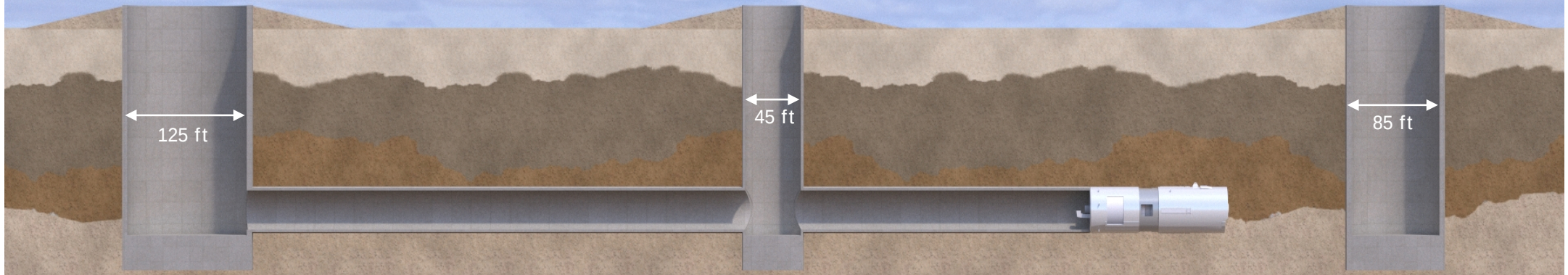
STAKEHOLDER ENGAGEMENT COMMITTEE (SEC)

Launch Shaft Update

Agenda Item 8d | February 20, 2020

Key Components of a Tunnel Drive

10 to 15 mile tunnel drive lengths acceptable based on Delta soil conditions



Tunnel Launch Shaft
Where the tunnel boring machine (TBM) is lowered into the tunnel. Where the concrete liners are transported into the tunnel. Where the excavated material (RTM) is removed.

Maintenance Shaft
Provides direct access to the TBM for routine maintenance work. Needed approximately every 4 to 5 miles.

Tunnel Retrieval Shaft
Termination point of tunnel drive. Where TBM is disassembled and lifted out of the tunnel.

Main Activities at Launch Site

- Launch tunnel boring machine
- Tunnel boring operations
- Segment liner deliveries, stockpiling and transport into the tunnel for placement
- Reusable Tunnel Material (RTM) production, dewatering, and stockpiling
- Power supply systems
- Tunnel ventilation systems
- Site runoff management
- Tunnel boring machine worker access
- Emergency access

Reusable Tunnel Material (RTM)

- Extracted material from the tunneling process
- Comprised of clays, sands, and silts
- Consistency of toothpaste
- Soil conditioners used for boring operation are also present in low quantities
- Wet material would be dried prior to stockpiling
- Continuous soil and water testing program would be implemented to confirm quality of material for reuse or disposal
- Material suitable for beneficial reuse

RTM and Environmental Test Results

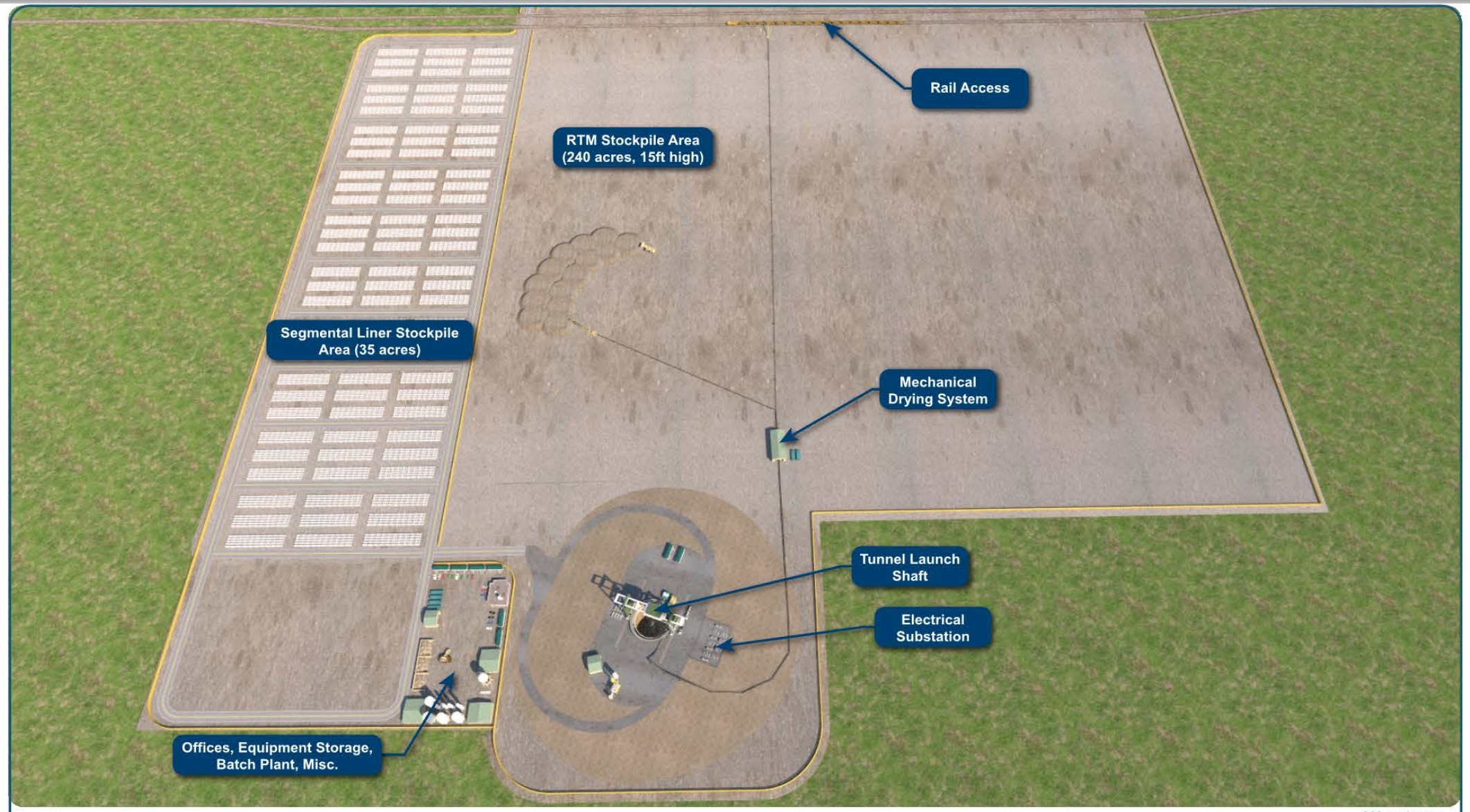
- Reviewed available environmental soil laboratory results
- Initial observations:
  - Metals generally resemble background levels. Cadmium appears slightly elevated in all samples compared with published background, but doesn't appear to represent a human health or ecological risk.
  - Pesticides and total petroleum hydrocarbons (TPH): few detects (no pesticides, TPH in one water sample)
- Additional sampling as part of future soil investigation program
- Developing exposure scenarios to evaluate human health and ecological risks
- Evaluating alternatives to control airborne RTM particulate matter

Possible Local Beneficial Reuse Opportunities (further discussion Feb 26)

- Delta Conveyance Southern Forebay embankment
- Delta Conveyance mitigation projects in Delta
- Delta Reclamation Districts levee maintenance
- Other Delta restoration projects
- Land subsidence
- Road improvements
- Commercial sale

Pre-Cast Liners

- Liners typically provided by tunnel contractor
- Fabricated at existing or new purpose-built pre-cast facility
- Continuous operations at pre-cast facility with on-site stockpiling and batch shipments to tunnel launch sites
- Stockpiled on launch shaft site



290 total acres
Single 15 mile drive
6,000 cfs capacity

Tunnel Launch Shaft Site Plan

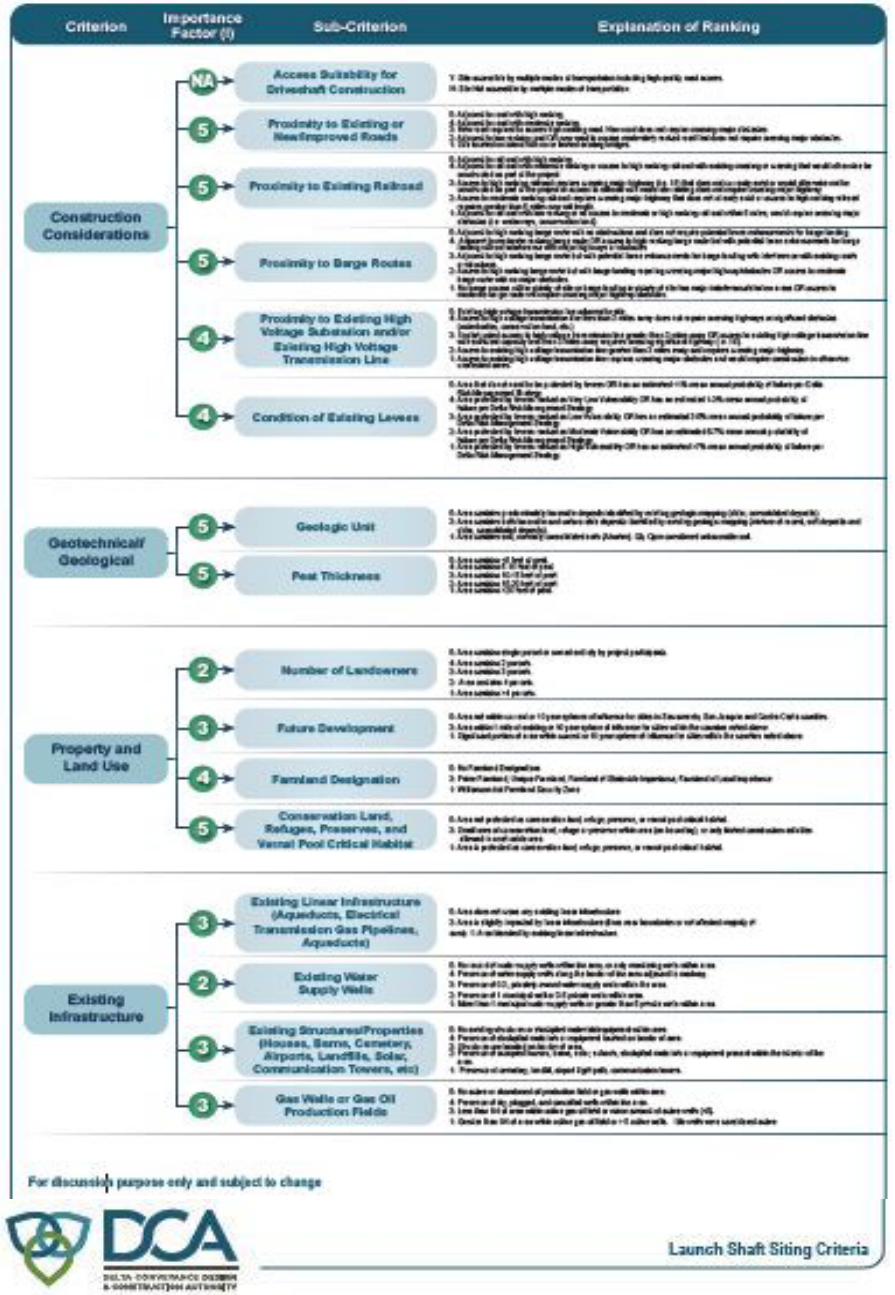
DCA
DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Tunnel Launch Shaft Construction

SCHEDULE

Siting Methodology

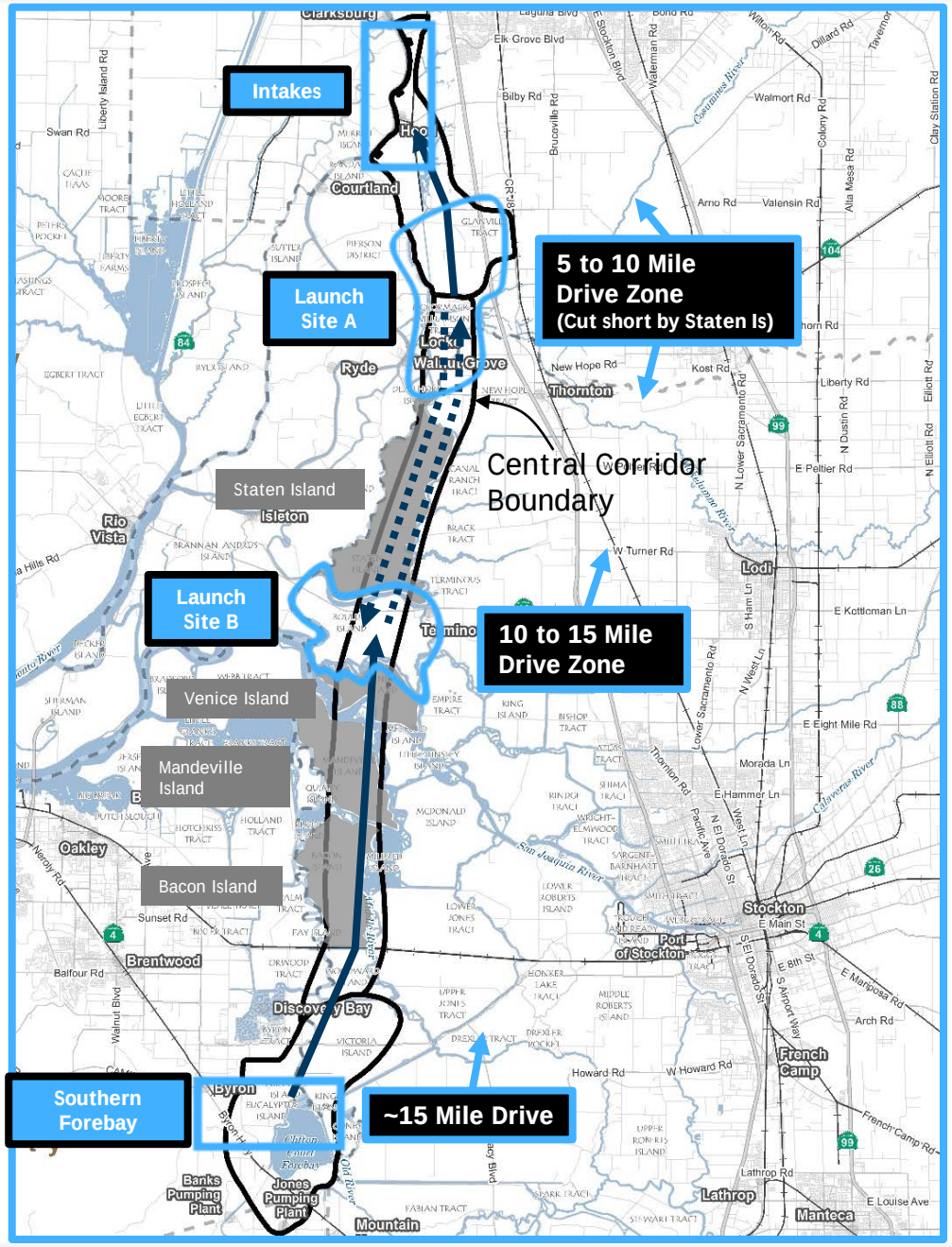
- Siting methodology breakdown is in handout packet
- Methodology is broken out into criteria and sub-criteria
- Sub-criteria are assigned an Importance Factor to reflect their weighting
- Criteria are based on design and construction considerations
  - The CEQA process will study additional environmental considerations



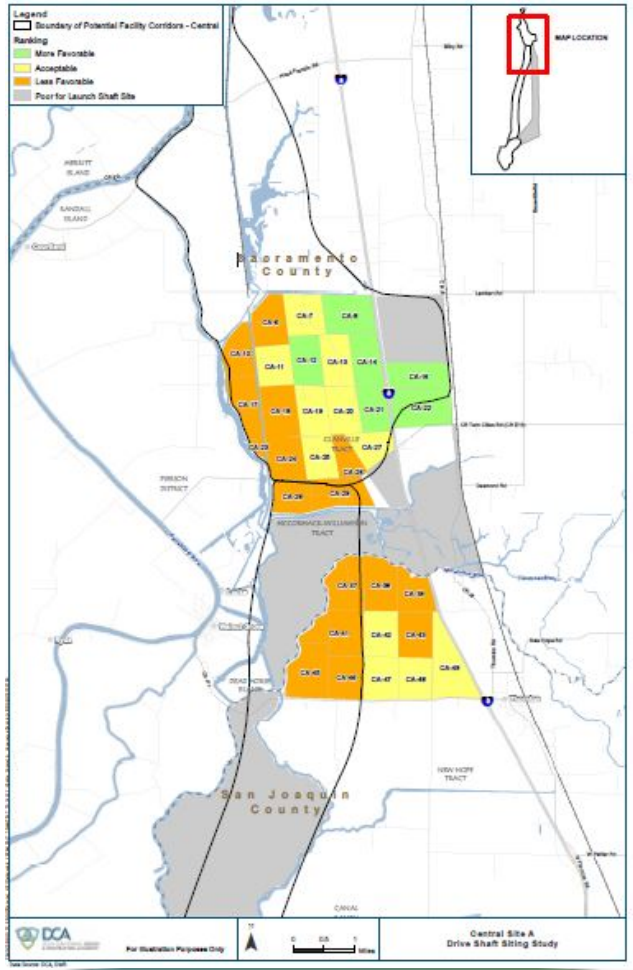
Central Alignment

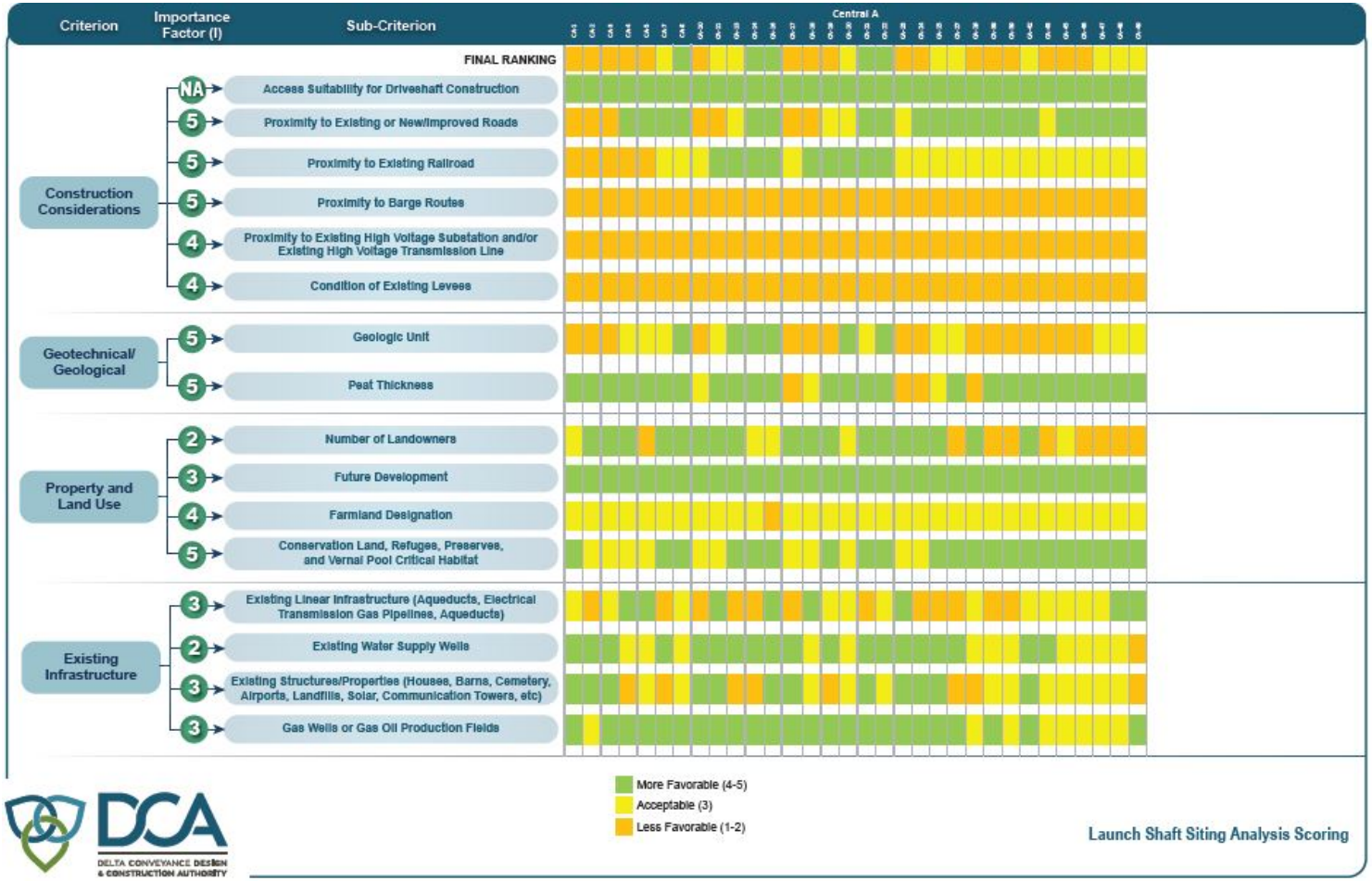
3 Drives:

1. **Intakes to Launch Site A**
   - Drive shorter than desirable to avoid Staten Island
   - Drive north to reduce potential effects at intakes
   - Sites closer to rail preferable for liner and RTM transport
2. **Launch Site A to Launch Site B (Bouldin Island)**
   - Good road (Hwy 12) and barge access (off San Joaquin River)
   - Good location to stockpile RTM for Delta beneficial reuse
   - Launch or receive at this site depending on where RTM desired
3. **Launch Site B to Southern Forebay**
   - Drive north from Southern Forebay to Bouldin – use RTM to build forebay levees
   - Potential for ~100% reuse of material on site

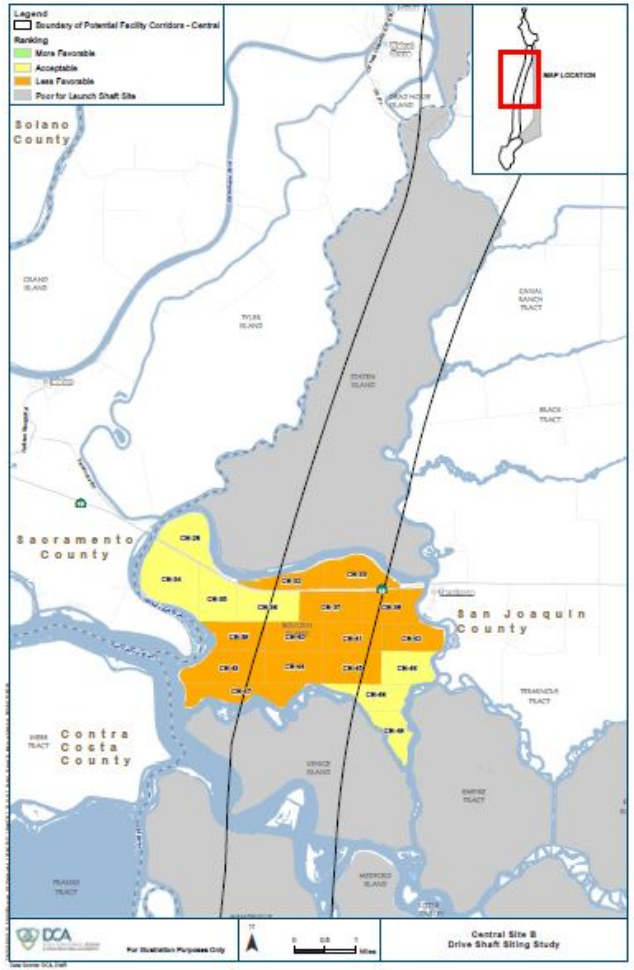


Central Alignment –Shaft Site A





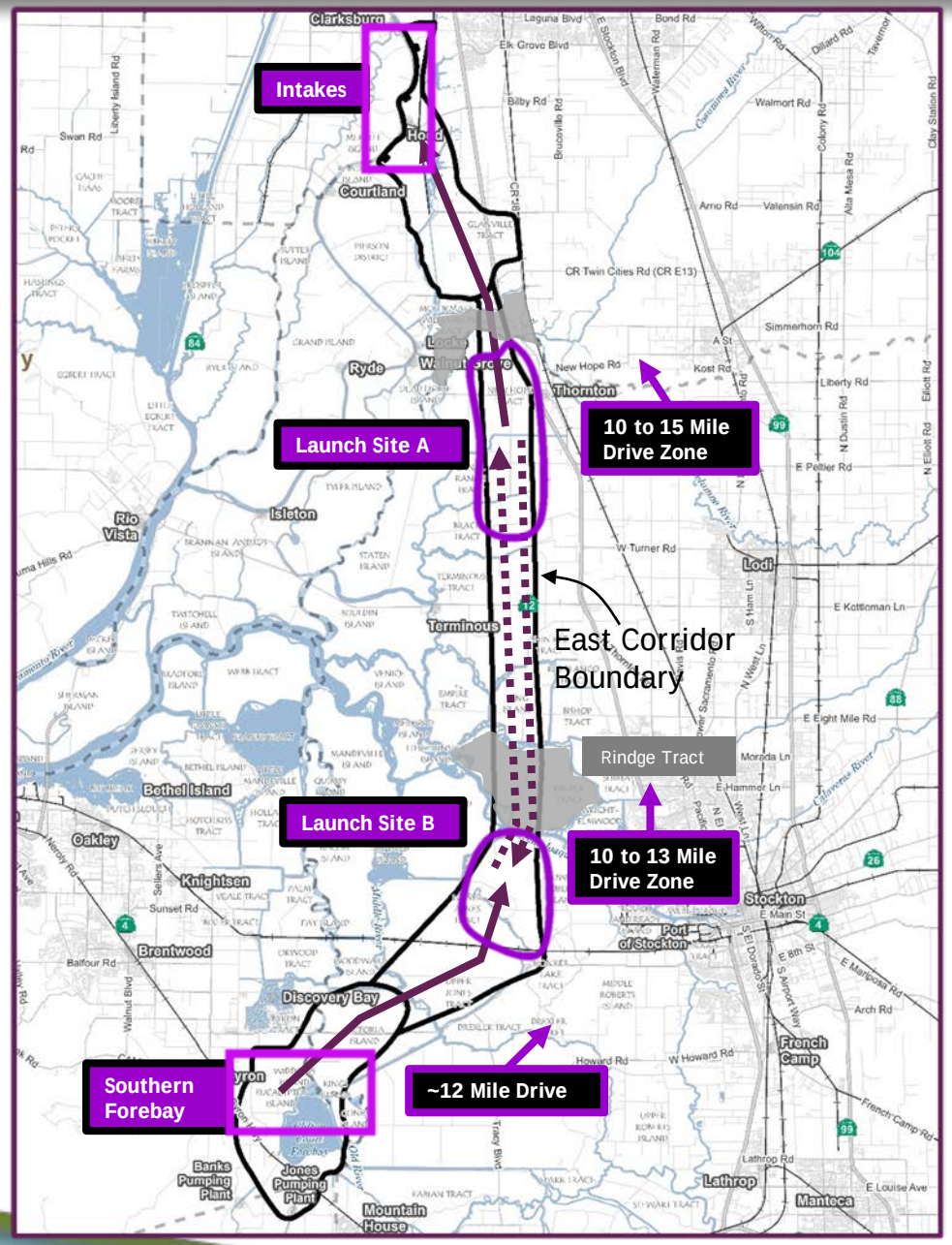
Central Alignment –Shaft Site B



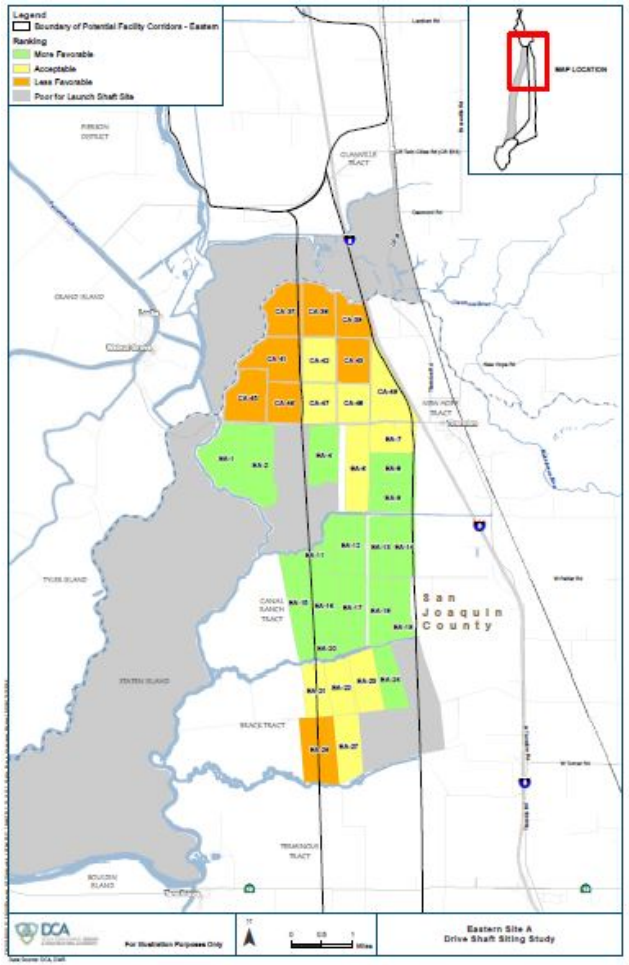
Configurations - East

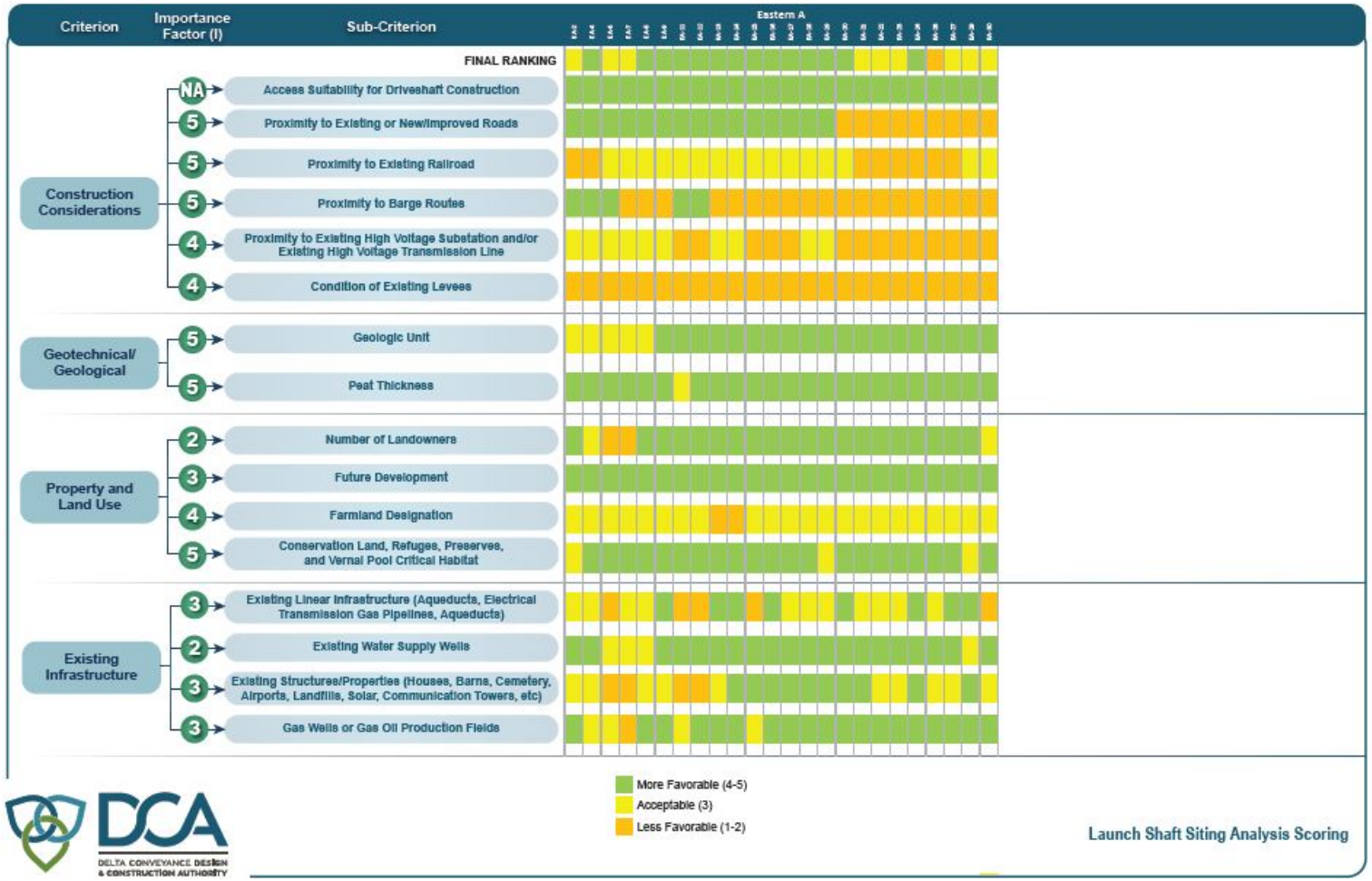
3 Drives:

1. **Intakes to Launch Site A**
   - Drive north to reduce potential effects at Intakes
   - Sites closer to rail preferable for liner and RTM transport
2. **Launch Site A to Launch Site B**
   - Acceptable road (Hwy 4) and barge access (San Joaquin River)
   - Good location to stockpile RTM for Delta beneficial reuse
   - Launch or receive at this site depending on where RTM desired
3. **Launch Site B to Southern Forebay**
   - Drive from Forebay north to Launch Site B – use RTM to build forebay levees
   - Potential for ~100% reuse of material on site

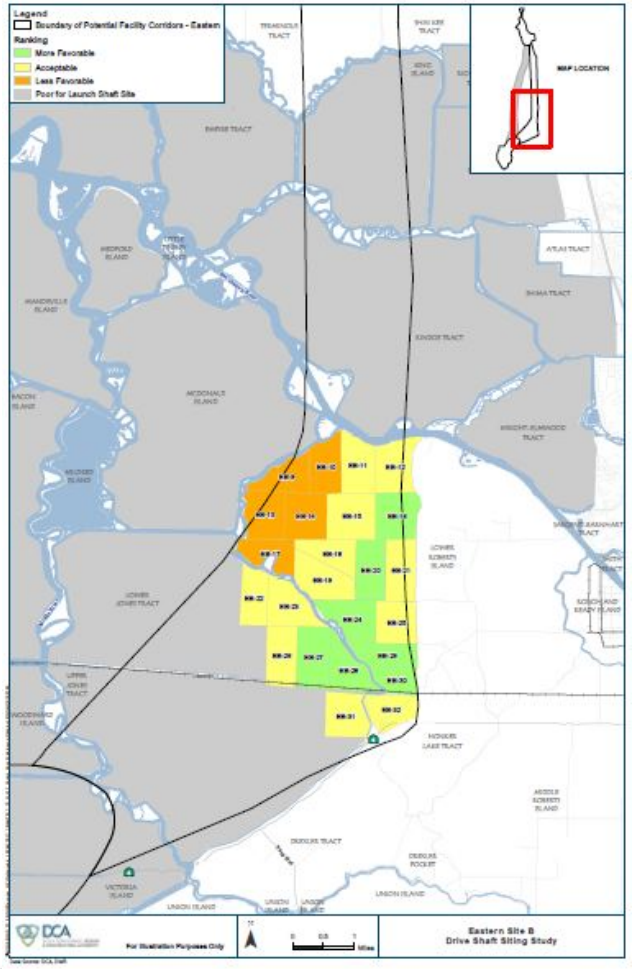


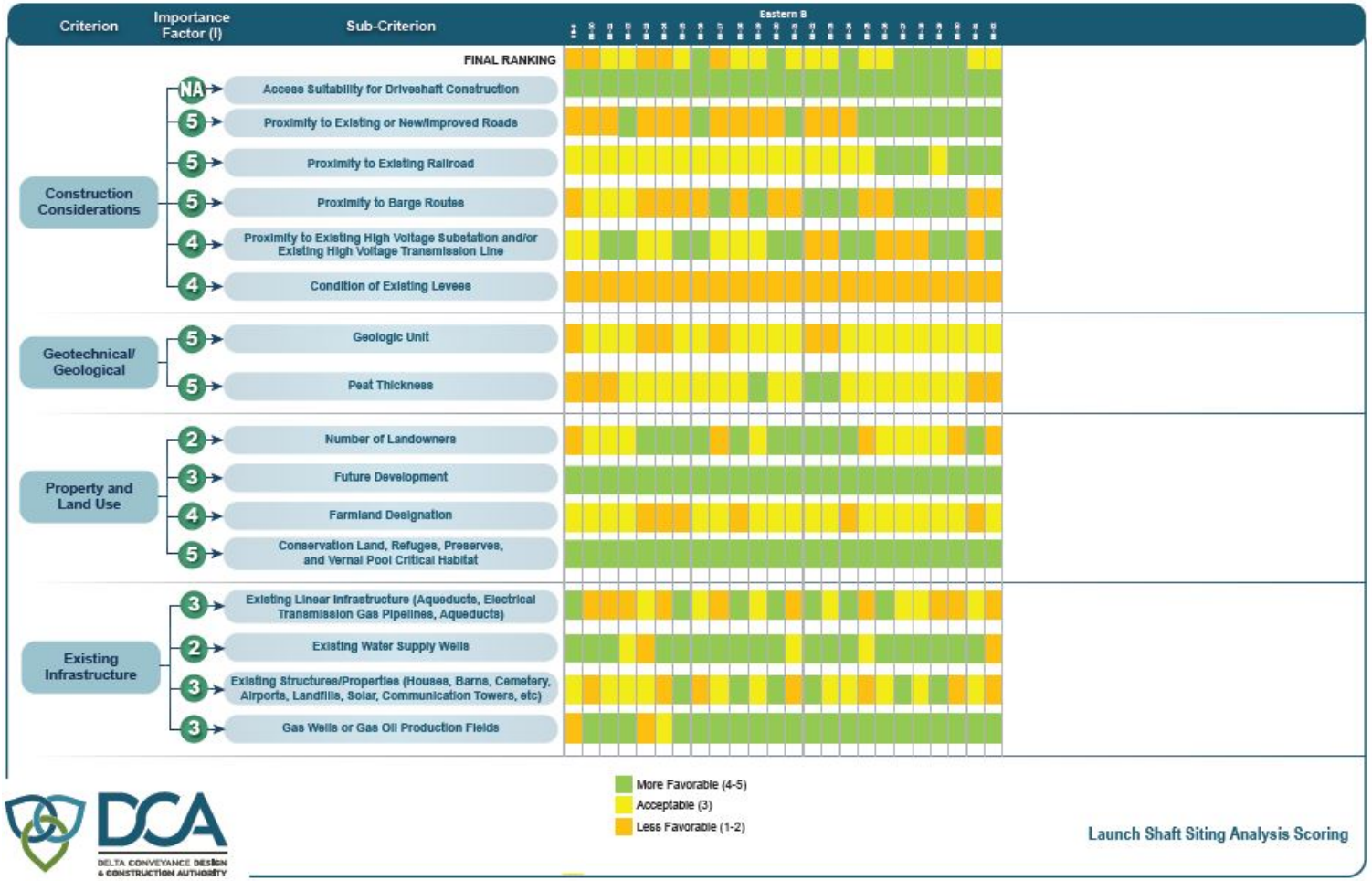
East Alignment – Shaft Site A





East Alignment – Shaft Site B





DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

FEBRUARY 2020 Monthly Board Report

(ACTIVITIES IN JANUARY)

This document is fully interactive; use menus to navigate on-screen.

Agenda Item 8e

Section 1 | Executive Summary

Program Initiation. The program initiation team continues to focus on finalizing cost enabled business requirements and integrating priority procedures into our E-Builder Project Management Information System. Annual Budget preparation and Task Order Initiation business requirements were completed and configured in the system in the past month.

Engineering. The team continues to complete foundational studies regarding design criteria and alternative siting analyses of the proposed Delta Conveyance Project. Now that the NOP has been released, the focus is on siting facilities within the two proposed corridors and creating facility layouts during construction and the permanent facilities.

Field work has been delayed as we await the completion of the CEQA process for the geotechnical work and gain clarity on the permitting requirements for the program from the on-going litigation with the Delta Counties. In the meantime, we continue to analyze the existing data and enter validated data into our geologic model of the Delta.

Stakeholder Engagement. The DCA held its third Stakeholder Engagement Committee meeting in January where we presented an overview of the proposed Intakes including the results of siting studies, proposed layouts, screen technology alternatives and highlights of key construction effects. Meeting material and minutes from the SEC meetings are available on the DCA website.

Budget. The DCA has committed approximately $72.8M of the Board approved budget of $82M. Our current forecasted Estimate at Completion for FY 2019/20 has remained at approximately $49.2M. Delays in implementation of the Field Work program has significantly reduced our cost forecasts. We continue to remain well below the approved budget.

Schedule. The monthly schedule update continues to show the program running approximately six weeks behind schedule. The team began to ramp up engineering resources in January and are anticipating recovering time over the next two to three months.

Monthly Budget Summary (FY 2019/2020)

Category	Current Budget	Current Contingency	Current Commitments	Incurred To Date	EAC	Variance
Program Management	$ 8,800,000	$ 1,600,000	$ 5,897,767	$ 2,796,394	$ 4,565,000	(4,235,000)
Project Controls	$ 5,250,000	$ 700,000	$ 4,299,635	$ 2,278,882	$ 4,175,000	(1,075,000)
Stakeholder Engagement	$ 4,700,000	$ 700,000	$ 4,884,926	$ 1,200,594	$ 1,800,000	(2,900,000)
Administration	$ 6,930,000	$ 1,500,000	$ 5,629,173	$ 3,471,580	$ 6,110,000	(820,000)
Engineering	$ 31,800,000	$ 5,800,000	$ 29,500,684	$ 7,298,472	$ 23,285,000	(8,515,000)
Field Work	$ 21,460,000	$ 4,900,000	$ 21,423,155	$ 1,330,977	$ 7,200,000	(14,260,000)
Property Access and Acquistion	$ 3,060,000	$ 600,000	$ 1,132,659	$ 172,390	$ 2,040,000	(1,020,000)
	$ 82,000,000	$ 15,800,000	$ 72,767,999	$ 18,549,290	$ 49,175,000	$ (32,825,000)

Section 2 | Engineering & Field Work

The engineering team is continuing to complete various Technical Memorandum that describe the engineering design criteria, analyses and alternatives that will inform the Engineering Design Report that will be submitted to DWR for inclusion in the Draft EIS document.

The field work teams continue to screen and digitize available historic data across the Delta to supplement the project data. The comprehensive soils data will enhance potential future development of a model of subsurface conditions. Geotechnical Consultant, Right of Way Consultants and Surveying Consultants remain on pause

General Work

Completed

- Draft Intake Screen Sizing TM

Look Ahead – Next Month

- Draft TBM Tunneling Evaluations
- Draft Forebay Embankment Conceptual Design Criteria TM
- Draft Tunnels Key Features Summary
- Draft Tunnel Construction Power TM
- Draft Conceptual Tunnel Lining Evaluation
- Draft Shaft Options and Site Layout
- Draft Systemwide Hydraulic and Capacity Study TM
- Draft Hydraulics Design Criteria TM
- Draft Summary of Historical Studies
- Draft Pre-Cast Yard Study
- Draft South Delta Conveyance and Intake O&M Facility Requirements preliminary data

Field Work

Completed

- GeoBIM Selection Procedure and Final Recommendation

Look Ahead – Next Month

- Preparation of Geostatistical Analysis, GeoBIM, Evaluation, and Interpretive Report

continued >

Section 3 | Stakeholder Engagement

At the February 12th Meeting the Stakeholder Engagement Meeting members were provided presentation materials regarding the basics of tunnel driving and launch shaft siting. Below are the specific discussion topics covered:

Launch Shafts:

The engineering team presented maps and information identifying zones within the Central and Eastern Corridors where launch shafts could be located based on acceptable drive lengths.

Site Ranking Criteria and Results:

DCA created an evaluation system to rank feasible sites within each of these zones, with access logistics and truck traffic sensitivities as primary considerations. Engineers shared information illustrating the ranking of 250-acre areas as more favorable, acceptable, or less favorable for launch shaft siting. Engineers also shared the methodology for determining the rankings and solicited input from SEC members on both the methodology and the results. The DCA has evaluated sites based on engineering considerations while DWR will evaluate sites based on environmental analysis in the CEQA process.

Considerations for SEC:

DCA solicited input regarding the ranking methodology and results. SEC members are encouraged to discuss with their communities and report feedback at the next SEC meeting roundtable. DWR staff encouraged SEC members and audience to provide thoughts on impacts and alternatives through DWR's scoping process since comments made in the SEC meetings are not specifically tracked as part of DWR's CEQA process.

Upcoming SEC Meeting

Date: February 26, 2020

Time: 3 to 6 PM

Location: Belle Vie Vineyard

Topics:

- Feedback on Launch Shaft Siting
- Introduction to Retrieval and Maintenance Shafts

SEC Meeting Calendar

- March 11, 2020
- March 25, 2020
- April 8, 2020 (if needed)
- April 22, 2020
- May 13, 2020 (if needed)
- May 27, 2020

SEC Meeting Materials & Updates

https://www.dcdca.org/

Section 4 | Program Management/Administration

Program Management/Project Controls

The program management team continues to work on finalizing policies and procedures and expanding the Program Management Information System to include processes for budget management, cost management, and procurement management plans.

Program Controls continues to manage and track costs including budget, commitments, invoicing and payments. We are working on developing a 3-year schedule and budget for the program to take us through the environmental planning phase.

Key Accomplishments

- E-Builder Configuration on 8 new business processes for budget, cost and procurement management are under way.
- The controls team processed and submitted 8 invoices to DWR for approval and payment.

Administration

The team has successfully opened the 23rd & 24th floors of the new DCA Headquarters located at 980 9th Street. The team is now focused on fine-tuning operations.

Information Technology is collaborating with AP42 for the DCA website revamp.

Key Accomplishments

- Opened new DCA Headquarters 24th Floor
- Kicked off AP42 services to design and implement new DCA website
- Management of buildout, design, furniture and vendors for 1st and 23rd floor at 980 9th Street;
- Go-live for Ring Central meetings software

Section 5 | Budget

Budget Summary

Budget Forecast FY 2019/20. The DCA has committed approximately $72.8M of the original budgeted $82M excluding Contingency. Our current estimate at completion (EAC) of the current Fiscal Year is $49.2M which is $33M below our original approved budget exclusive of our contingency budget. See pages 6-7.

Budget Change Requests. During the reporting period, there was no budget changes this month.

Planned Cash Flow. The DCA continues to forecast approximately $52M in expenditure through the end of the Fiscal Year, including May and June of the previous Fiscal Year (Planned Period Restart). Our current cost forecast indicates that we will exceed our existing funding levels in the February to March 2020 timeframe based on earned value (work completed). See page 8.

Budget Detail

WBS	Fiscal Year	Original Budget	Current Budget	Contingency	Commitments	Pending Commitments	Incurred to Date	% Spent	Remaining Budget	% Rem	EAC	Variance
Delta Conveyance	2019/2020	$ 97,800,000	$ 82,000,000	$ 15,800,000	$ 72,767,999	$ -	$ 18,549,290	23%	$ 63,450,710	77%	$ 49,175,000	$ (32,825,000)
Program Management	2019/2020	$ 10,400,000	$ 8,800,000	$ 1,600,000	$ 5,897,767	$ -	$ 2,796,394	32%	$ 6,003,606	68%	$ 4,565,000	$ (4,235,000)
Executive Management	2019/2020	2,000,000	2,000,000	-	1,792,364	-	674,896	34%	1,325,104	66%	1,800,000	(200,000)
Legal Counsel	2019/2020	3,020,000	2,970,000	-	550,000	-	330,597	11%	2,639,403	89%	720,000	(2,250,000)
Audit	2019/2020	100,000	100,000	-	-	-	-	0%	100,000	100%	50,000	(50,000)
Treasury	2019/2020	160,000	160,000	-	153,046	-	121,233	76%	38,767	24%	160,000	-
Health & Safety	2019/2020	100,000	100,000	-	-	-	-	0%	100,000	100%	25,000	(75,000)
Quality	2019/2020	750,000	750,000	-	750,000	-	-	0%	750,000	100%	250,000	(500,000)
Program Initiation	2019/2020	2,130,000	2,180,000	-	2,115,306	-	1,569,938	72%	610,062	28%	1,460,000	(720,000)
Sustainability	2019/2020	540,000	540,000	-	537,052	-	99,730	18%	440,270	82%	100,000	(440,000)
Contingency	2019/2020	1,600,000		1,600,000	-	-	-	0%	-	-	-	-
Program Controls	2019/2020	$ 5,950,000	$ 5,250,000	$ 700,000	$ 4,299,635	$ -	$ 2,278,882	43%	$ 2,971,118	57%	$ 4,175,000	$ (1,075,000)
Cost, Schedule and Document Control	2019/2020	3,950,000	3,950,000	-	3,783,822	-	1,856,523	47%	2,093,477	53%	3,500,000	(450,000)
Procurement	2019/2020	1,020,000	1,020,000	-	287,259	-	191,868	19%	828,132	81%	325,000	(695,000)
Risk Management	2019/2020	280,000	280,000	-	228,553		230,490	82%	49,510	18%	350,000	70,000
Contingency	2019/2020	700,000		700,000	-	-	-	0%	-	0%	-	-
Stakeholder Engagement	2019/2020	$ 5,400,000	$ 4,700,000	$ 700,000	$ 4,884,926	$ -	$ 1,200,594	26%	$ 3,499,406	74%	$ 1,800,000	$ (2,900,000)
Engineering Coordination	2019/2020	1,497,000	1,497,000		1,496,447	-	359,424	24%	1,137,576	100%	800,000	(697,000)
Outreach	2019/2020	2,173,000	1,923,000	-	1,931,929		748,813	39%	1,174,187	61%	500,000	(1,423,000)

continued >

Section 5 | Budget *continued*

Budget Detail

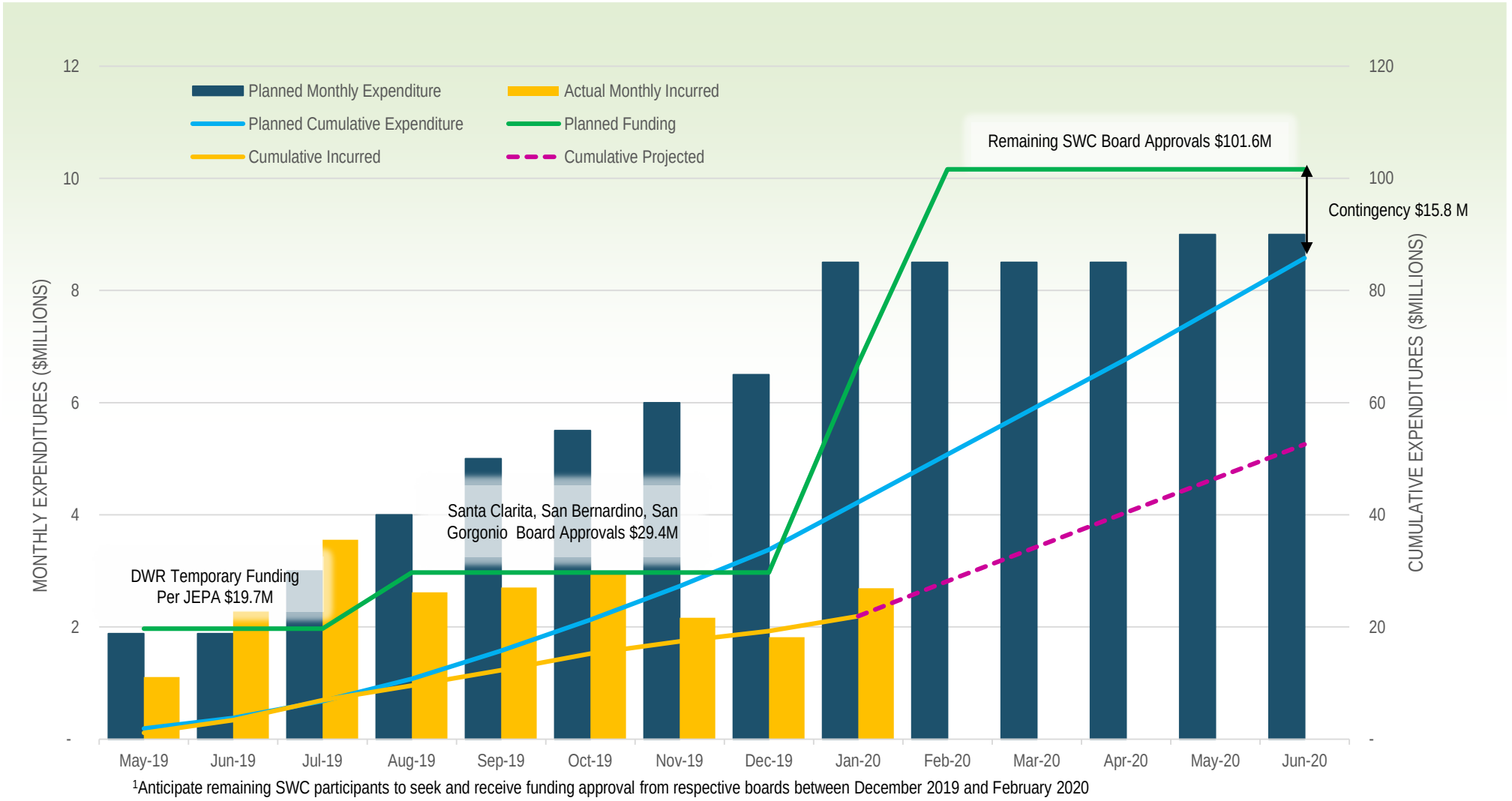
WBS	Fiscal Year	Original Budget	Current Budget	Contingency	Commitments	Pending Commitments	Incurred to Date	% Spent	Remaining Budget	% Rem	EAC	Variance
Stakeholder Engagement	2019/2020	$ 5,400,000	$ 4,700,000	$ 700,000	$ 4,884,926	$ -	$ 1,200,594	26%	$ 3,499,406	74%	$ 1,800,000	$ (2,900,000)
Committee Management	2019/2020	-	250,000	-	428,112	-	92,357	37%	157,643	63%	500,000	250,000
Economic Development	2019/2020	1,030,000	1,030,000	-	1,028,438	-	-	0%	1,030,000	100%	-	(1,030,000)
Contingency	2019/2020	700,000		700,000	-	-	-	0%	-	0%	-	-
Administration	2019/2020	$ 8,430,000	$ 6,930,000	$ 1,500,000	$ 5,629,173	$ -	$ 3,471,580	50%	$ 3,458,420	50%	$ 6,110,000	$ (820,000)
Facilities & Operations	2019/2020	3,800,000	3,800,000		2,972,543		2,166,399	57%	1,633,601	43%	3,800,000	-
Human Resources	2019/2020	650,000	650,000	-	210,000	-	84,234	13%	565,766	87%	210,000	(440,000)
Information Technology	2019/2020	2,480,000	2,480,000	-	2,446,630		1,220,947	49%	1,259,053	51%	2,100,000	(380,000)
Contingency	2019/2020	1,500,000		1,500,000	-	-	-	0%	-	-		-
Engineering	2019/2020	$ 37,600,000	$ 31,800,000	$ 5,800,000	$ 29,500,684	$ -	$ 7,298,472	23%	$ 24,501,528	77%	$ 23,285,000	$ (8,515,000)
Engineering Management	2019/2020	2,900,000	2,300,000	-	600,000	-	144,513	6%	2,155,487	94%	825,000	(1,475,000)
Engineering	2019/2020	27,900,000	27,900,000	-	27,883,774	-	6,823,731	24%	21,076,269	76%	21,460,000	(6,440,000)
DWR Engineering Coordination	2019/2020	-	600,000		-		-	0%	600,000	100%	-	(600,000)
Environmental Coordination	2019/2020	1,000,000	1,000,000		1,016,910	-	330,228	33%	669,772	67%	1,000,000	-
Contingency	2019/2020	5,800,000		5,800,000	-	-	-	0%	-	0%		-
Field Work	2019/2020	$ 26,360,000	$ 21,460,000	$ 4,900,000	$ 21,423,155	$ -	$ 1,330,977	6%	$ 20,129,023	94%	$ 7,200,000	$ (14,260,000)
Geotech	2019/2020	20,440,000	20,440,000	-	20,435,957	-	1,233,736	6%	19,206,264	94%	7,100,000	(13,340,000)
Survey	2019/2020	1,020,000	1,020,000	-	987,198	-	97,241	10%	922,759	90%	100,000	(920,000)
Contingency	2019/2020	4,900,000		4,900,000	-	-		0%	-	0%		-
Property Access & Acquisition	2019/2020	$ 3,660,000	$ 3,060,000	$ 600,000	$ 1,132,659	$ -	$ 172,390	6%	$ 2,887,610	94%	$ 2,040,000	$ (1,020,000)
Property Access Management	2019/2020	360,000	360,000	-	358,659	-	121,879	34%	238,121	66%	540,000	180,000
Easements	2019/2020	1,700,000	1,700,000	-	-	-	-	0%	1,700,000	100%	750,000	(950,000)
Temporary Access	2019/2020	1,000,000	1,000,000	-	774,000		50,512	5%	949,488	95%	750,000	(250,000)
Land Purchases	2019/2020	-	-	-	-	-	-	0%	-	100%	-	-
Contingency	2019/2020	600,000		600,000	-	-	-	0%	-	0%		-

Section 5 | Budget *continued*

Budget Change

No budget changes to be reported this month.

DCA FY18/19 May & June + FY19/20 Planned Cash Flow



[1]Anticipate remaining SWC participants to seek and receive funding approval from respective boards between December 2019 and February 2020

Section 6 | Contracts

Contract Summary. The table on pages 9-11 summarize the status of all executed contracts and task orders to date.

New Commitments. DCA executed three (3) new commitments during the reporting period: AP42 for $131,000 in FYE 19-20 providing graphic support services; Matchware (Meeting Booster) for $23,562 for meeting management and action tracking software services; and Foliate for NTE $16,640 for office plant services.

Procurement. The DCA has no pending commitments this month. See page 12.

S/DVBE Participation. The program has committed approximately 10% of the total contract values for FY 2019/20 to S/DVBEs. Based on actual incurred costs for the current Fiscal Year, 3% has been paid to our S/DVBE contractors and subcontractors. See page 13.

Contract Summary

Contracts	Contract Budget	Contingency	Historical Expenditures	Commitments FY19/20	Pending Commitments	Total Committed to Date	Incurred to Date FY19/20	% Spent FY19/20
180001 Best Best & Krieger LLP	$ 900,000	$ -	$ 343,992	$ 550,000		$ 893,992	$ 330,597	60%
180002 Management Partners	$ 375,000	$ -	$ 192,315	$ 192,315		$ 384,630	$ -	0%
180005 e-Builder	$ 855,633	$ -	$ 305,891	$ 113,000		$ 418,891	$ 112,833	100%
180006 Jacobs	$ 93,000,000	$ 17,000,000	$ 4,221,224	$ 38,615,750		$ 42,836,974	$ 9,909,373	26%
180007 Fugro	$ 75,000,000	$ -	$ 1,055,699	$ 18,786,567		$ 19,842,267	$ 881,992	5%
180008 Hamner Jewell Associates	$ 9,000,000	$ -		$ 250,000		$ 250,000	$ 20,088	8%
180009 Bender Rosenthal	$ 9,000,000	$ -		$ 274,000		$ 274,000	$ 13,944	5%
180010 Associated ROW Services	$ 9,000,000	$ -		$ 250,000		$ 250,000	$ 16,479	7%
180011 Michael Baker	$ 8,000,000	$ -		$ 180,000		$ 180,000	$ 3,735	2%
180013 Psomas	$ 15,000,000	$ -		$ 475,000		$ 475,000	$ 1,563	0.3%
180014 CDMSmith	$ 74,999	$ -	$ 34,696	$ -		$ 34,696	$ -	0%
180015 AECOM	$ 15,000	$ -	$ 12,579	$ -		$ 12,579	$ -	0%

continued >

Section 6 | Contracts *continued*

Contract Summary *continued*

Contracts	Contract Budget	Contingency	Historical Expenditures	Commitments FY19/20	Pending Commitments	Total Committed to Date	Incurred to Date FY19/20	% Spent FY19/20
180016 PlanNet	$ 77,894	$ -	$ 77,894	$ 9,105		$ 86,999	$ 8,619	95%
180017 Sextant	$ 74,999	$ -	$ 21,889	$ 53,110		$ 74,999	$ 38,397	72%
190001 Bentley Systems ProjectWise	$ 140,860	$ -	$ 100,000	$ 40,850		$ 140,850	$ 25,625	63%
190003 Ron Rakich Consulting	$ 6,000	$ -	$ 5,831	$ -		$ 5,831		
190005 Management Partners	$ 3,135,000	$ -	$ 156,755	$ 627,000		$ 783,755	$ 332,353	53%
190008 RMW Architecture & Interiors	$ 30,594	$ -		$ 30,594		$ 30,594	$ 30,594	100%
190009 Parsons	$ 36,000,000	$ 4,000,000	$ 474,133	$ 5,820,392		$ 6,294,524	$ 3,082,723	53%
190010 Porter Consulting LLC	$ 51,150	$ -		$ 51,150		$ 51,150	$ 28,710	56%
190011 GV/ HI Park Tower	$ 8,122,584	$ -		1,596,124.32		1,596,124.32	1,592,699.60	1.00
190013 Jacqueline Blakeley LLC	$ 25,000	$ -		$ 25,000		$ 25,000	$ 8,500	34%
190014 Direct Technology Gov Solutions	$ 1,840,000	$ -		$ 756,482		$ 756,482	$ 572,013	76%
190015 Audio Visual Innovations, Inc.	$ 310,000	$ -		$ 310,000		$ 310,000	$ 156,485	50%
190016 Consolidatd Communications	$ 108,072	$ -		$ 21,014		$ 21,014	$ -	0%
190017 ATT	$ 70,380	$ -		$ 18,192		$ 18,192	$ -	0%

continued >

Section 6 | Contracts *continued*

Contract Summary *continued*

Contracts	Contract Budget	Contingency	Historical Expenditures	Commitments FY19/20	Pending Commitments	Total Committed to Date	Incurred to Date FY19/20	% Spent FY19/20
190018 AP42	$ 700,000	$ -		$ 131,100		$ 131,100	$ 12,030	9%
190019 VMA	$ 1,200,000	$ -		$ 391,565		$ 391,565	$ 73,362	19%
190020 Miles Treaster & Associates	$ 700,007	$ -		$ 700,007		$ 700,007	$ 280,003	40%
190021 Ring Central	$ 216,932	$ -		$ 23,586		$ 23,586	$ 3,641	15%
190022 Caltronics Business	$ 166,671	$ -		$ 32,051		$ 32,051	$ -	0%
190023 Jambo	$ 69,840	$ -		$ 34,920		$ 34,920	$ 34,920	100%
190025-Sierra Valley Moving & Storage	$ 4,616	$ -		$ 4,616		$ 4,616	$ -	0%
190026-Meeting Booster	$ 23,562	$ -		$ 7,854		$ 7,854	$ 7,854	100%
200001-Foliate	$ 16,640	$ -		$ 16,640			$ 2,012	12%
07252018 Hallmark Group	$ 1,531,360	$ -	$ 1,517,583	$ -		$ 1,517,583	$ -	0%
Department of Water Resources	$ 3,294,035	$ -	$ 3,294,035	$ 125,413		$ 3,419,448	$ 125,413	100%
AO5218 Metropolitan Water District	$ 1,660,048	$ -	$ 1,660,048	$ 2,055,000		$ 3,715,048	$ 710,549	35%
Miscellaneous Vendors	$ 331,004	$ -	$ 131,402	$ 199,602		$ 331,004	$ 132,181	66%

continued >

Section 6 | Contracts *continued*

Contract Procurement

WBS	Description	Contract Type	Company	Pending Contract Value	Pending Commitment (FY2019/20)	Procurement Method	Procurement Start	Status
Program Management								
Legal	General Counsel Services	Professional Services				RFQ - Best Value	Jan-20	RFQ Issued
Human Resources	Payroll Services	Software and Services				Direct Purchase - Existing Agency Contract Price List	Dec-19	Under Analysis
Contract Procurement & Admin.								
Program Controls								
Risk Mgmt.	Risk Register & Risk Analysis	Software as a Service				RFP - Best Value	Dec-19	Under Analysis
eDiscovery	eDiscover & Legal Records Mgmt.	Software as a Service					Mar-20	Not Started
IT Administration								
IT - New Building								
Information Technology	Laptops/docking stations	Material + Installation	Under Analysis			Direct Purchase	Apr-20	In Progress
Information Technology	Monitors	Material + Installation	Under Analysis			Direct Purchase	Apr-20	In Progress
Information Technology	Ancillary devices - keyboards, headsets, webcams	Material + Installation	Under Analysis			Direct Purchase	Dec-19	In Progress
Facilities and Operations	Small Form Factor PC's (Conference Rooms)	Materials + Installation	AVI-SPL			AVI Purchase	Dec-19	In Progress
Facilities and Operations	Beverage Supply Service	On Premise Service	Under Analysis			Executive Director's discretion - Best Value	Jan-20	In Progress

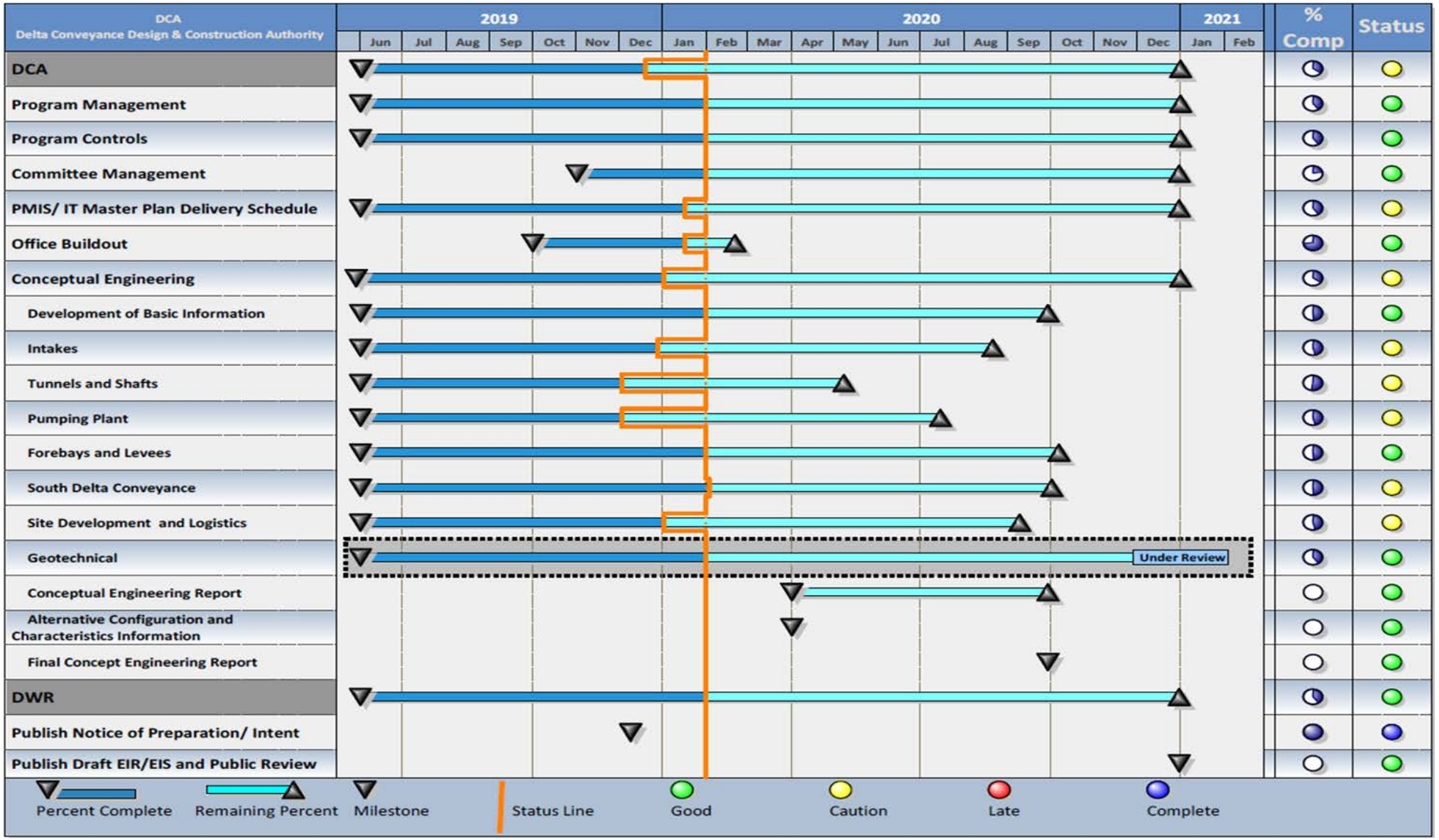
Section 6 | Contracts *Continued*

S/DVBE Status FY 2019/20

Contract/Prime	Prime	Committed	Incurred	Firm Name	SBE / DVBE	SBE/DVBE Committed	% SBE/DVBE Committed	SBE/DVBE Incurred	% SBE/DVBE Incurred
180006-02	**Jacobs**	**$ 38,615,750**	**$ 9,909,372**			**$ 2,467,143**	**6%**	**$ 429,275**	**4%**
				AnchorCM	DVBE	785,652		64,060	
				Babendererde	SBE	24,986		30,842	
				EETS, Inc.	SBE	471,957		29,766	
				JMA Civil, Inc.	SBE	125,110		59,470	
				Kearns & West, Inc.	SBE	35,213		35,213	
				Lettis Consulting Internatio	SBE	416,791		-	
				Nazparv Consulting LLC	SBE	325,600		127,124	
				Wiseman Consulting	SBE	281,834		82,800	
180007-02&03	**Fugro**	**$ 18,934,723**	**$ 1,010,445**			**$ 2,772,364**	**15%**		**0%**
				Dillard Environmental Servi	SBE	408,744		-	
				GeoTech Utility	SBE	121,500		-	
				The LeBaugh Group	SBE	2,242,120		-	
190022-00	**Caltronics**	**$ 32,051**	**$ -**	**Caltronics Government Services**		**$ 32,051**		**$ -**	**0%**
190009-02	**Parsons**	**$ 5,823,296**	**$ 3,083,656**			**$ 923,851**	**16%**	**$ 132,438**	**4%**
				Chaves & Associates	SBE	923,851		132,438	
190019-01	**VMA**	**$ 391,695**	**$ 73,362**	**VMA Communications**	**SBE**	**$ 391,695**		**$ 73,362**	**100%**

Section 7 | Schedule

The program continues to run six weeks behind schedule based on deliverable status. The engineering team is ramping up their resources and expected to recover the time in the upcoming 2 months to maintain our April 1 Milestone for "Alternative Configuration and Characteristics Information".



Section 8 | Risk (*Note: Same as November Report - Updated Quarterly*)

Risk Summary

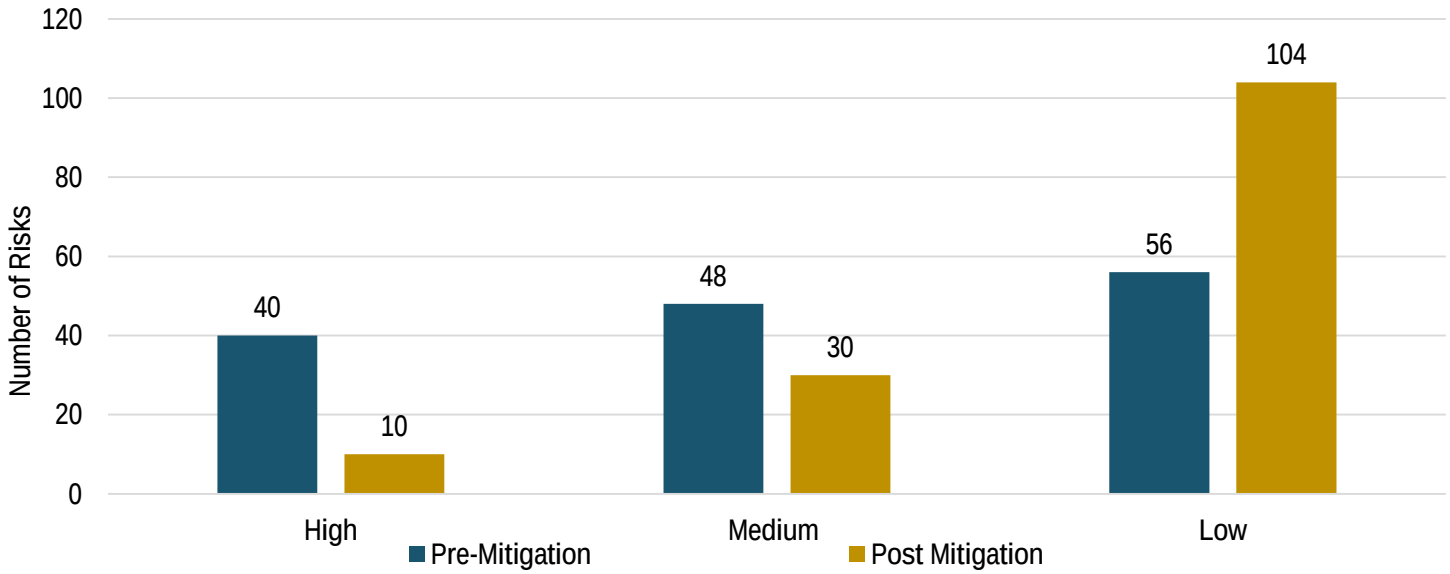
Risk management is a critical component in the overall delivery of the Delta Conveyance Program. In September through November, the DCA Risk Manager completed two rounds of workshops with each of the technical leads to first, identify the primary risks within their respective technical areas, and secondly, identify mitigation measures to reduce risks. The results of the process are summarized in the chart and table to the right.

Overall, the team identified 144 risks distributed in 10 different technical risk categories. The area with the most identified risk was the Construction Logistics category with 36 identified risks and a composite Pre-Mitigated risk score of 300. During the risk mitigation workshops, measures to reduce risk were identified for all medium and high impact risks. The composite risk score was then re-calculated accounting for the mitigation measures ("Post-Mitigated). Overall, the team was able to reduce the risk profile by between 26% to 77% in the various categories for an overall risk reduction of 50%.

The total number of "high" risks were reduced from 40 to 10 and the number of "medium" risks from 48 down to 30 with the mitigation efforts.

During the Conceptual Engineering phase, the DCA Risk team will be performing formal updates to the Risk Profile semi-annually. In the meantime, the engineering team will continue to identify risks for entry in the risk register.

No.	Risk Category	# Risks	Total Pre-Mitigation Score	Total Post-Mitigation Score	% Reduction From Mitigation
1	Tunnels & Shafts	22	155	84.5	45%
2	Intakes	21	144.5	106.5	26%
3	Pumps	6	64	41	36%
4	Levees & Forebays	8	64.5	15	77%
5	South Delta Conveyance	10	44	26	41%
6	Safety	10	123.5	42	66%
7	Construction Logistics	36	300	121	60%
8	Right-of-Way	8	107	43	60%
9	Geotechnical	14	226.5	120.5	47%
11	Contracting & Market Conditions	9	145	90	38%
	Totals	144	1374	689.5	50%



DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

General Counsel's Report

Contact: Josh Nelson, Interim General Counsel

Agenda Date: February 20, 2020 **Item No.** 9a

Subject: Status Update

Summary:

The General Counsel continues to assist the DCA on legal matters as requested.

Detailed Report:

The General Counsel assisted with the review and development of materials for the January and first February Stakeholder Engagement Committee meetings. The General Counsel also attended both meetings. The General Counsel assisted staff with coordinating finalizing move-in and lease commencement for the new office space with the landlord.

The General Counsel assisted with questions regarding members of independent technical review panels potentially participating in future DCA work. Given the very limited technical role of these members, no issues are presented. The General Counsel continues to respond to public records requests Lastly, the General Counsel continues to assist with other legal matters as necessary. These matters are confidential and not appropriate for discussion in a public report.

Recommended Action:

Information only.

Item 9b - Treasurer's Report

The report will be available at the DCA Board Meeting

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Environmental Manager's Report

Contact: Carolyn Buckman, DWR Environmental Manager

Date: February 20, 2020 **Item No.** 9c

Subject: Environmental Manager's Report

Summary:

The Department of Water Resources (DWR) has initiated the California Environmental Quality Act (CEQA) process for a single-tunnel solution to modernizing and rehabilitating the water distribution system in the Delta.

Detailed Report:

DWR released a Notice of Preparation (NOP) for the proposed Delta Conveyance project on January 15 to document the intent to develop an Environmental Impact Report (EIR) under CEQA. The scoping period started with release of the NOP and continues until March 20, 2020. During the scoping period, DWR is seeking input on the scope of the EIR, including the range of alternatives, the types of impacts, impact methodology, and potential mitigation measures. Scoping meetings are underway from February 3 to March 2.

Recommended Action:

Information only.