



Orange County Transportation Authority

Board Agenda

Monday, January 9, 2023 at 9:00 a.m.

550 South Main Street, Orange, California

Board Members

Gene Hernandez, Vice Chairman

Doug Chaffee

Jose Diaz

Andrew Do

Jon Dumitru

Jamey Federico

Katrina Foley

Brian Goodell

Patrick Harper

Michael Hennessey

Steve Jones

Fred Jung

Farrah N. Khan

Jessie Lopez

Tam Nguyen

Vicente Sarmiento

Donald P. Wagner

Ryan Chamberlain, Ex-Officio

Any person with a disability who requires a modification or accommodation in order to participate in this meeting should contact the Orange County Transportation Authority (OCTA) Clerk of the Board's office at (714) 560-5676, no less than two business days prior to this meeting to enable OCTA to make reasonable arrangements to assure accessibility to this meeting.

Agenda Descriptions

Agenda descriptions are intended to give members of the public a general summary of items of business to be transacted or discussed. The posting of the recommended actions does not indicate what action will be taken. The Board may take any action which it deems to be appropriate on the agenda item and is not limited in any way by the notice of the recommended action.

Public Availability of Agenda Materials

All documents relative to the items referenced in this agenda are available for public inspection at www.octa.net or through the Clerk of the Board's office at the OCTA Headquarters, 600 South Main Street, Orange, California.

BOARD MEETING AGENDA

Meeting Access and Public Comments on Agenda Items

Members of the public can either attend in-person or listen to audio live streaming of the Board and Committee meetings by clicking the below link:

<https://octa.legistar.com/Calendar.aspx>

Members of the public may address the Board of Directors regarding any item two ways:

In-Person Comment

Members of the public may attend in-person and address the Board of Directors regarding any item. Please complete a speaker's card and submit it to the Clerk of the Board (or notify the Clerk of the Board the item number on which you wish to speak). Speakers will be recognized by the Chairman at the time the agenda item is to be considered. A speaker's comments shall be limited to three minutes.

Written Comment

Written public comments may also be submitted by emailing them to ClerkOffice@octa.net, and must be sent by 5:00 p.m. the day prior to the meeting. If you wish to comment on a specific agenda item, please identify the item number in your email. All public comments that are timely received will be part of the public record and distributed to the Board of Directors. Public comments will be made available to the public upon request.

Call to Order

Invocation

Director Diaz

Pledge of Allegiance

Director Lopez

Special Calendar

Orange County Transportation Authority Special Calendar Matters

1. Administration of the Oath of Office to New and Returning Orange County Transportation Authority Board of Directors

Oath of Office will be administered to new Board Members Jon Dumitru, Jamey Federico, and Farrah N. Khan, and returning Board Members Doug Chaffee, Katrina Foley, Patrick Harper, Fred Jung, and Vicente Sarmiento.

2. Election of Orange County Transportation Authority Board of Directors Chair

The Orange County Transportation Authority Board of Directors annually, at its first meeting in January, shall elect a Chair.

3. Election of Orange County Transportation Authority Board of Directors Vice Chair

The Orange County Transportation Authority Board of Directors annually, at its first meeting in January, shall elect a Vice Chair.

BOARD MEETING AGENDA

4. Update on Emergency Railroad Track Stabilization in the Vicinity of Milepost 206.8 on the Orange Subdivision

Jason Lee/James G. Beil

Overview

A hillside adjacent to the Orange County Transportation Authority-owned railroad right-of-way, in the vicinity of Mile Post 206.8 on the Orange Subdivision, has failed and continues to incrementally move, pushing the railroad tracks toward the Pacific Ocean. Measures are being taken to stabilize the landslide to restore and maintain passenger and freight rail service. Staff will provide an update on efforts to stabilize the railroad tracks.

Recommendation

Reaffirm Resolution No. 2022-075 authorizing the Chief Executive Officer to take all necessary actions to address the emergency need for railroad track stabilization in the vicinity of Mile Post 206.8 on the Orange Subdivision, and to return to the Board of Directors, as required, to report on the status thereof.

5. 2022 Board of Directors and Chief Executive Officer Initiatives and Action Plan - End-of-Year Report

Darrell E. Johnson

Overview

On January 24, 2022, the Board of Directors (Board) approved the 2022 Board and Chief Executive Officer (CEO) Initiatives (Attachment A) and Action Plan (Attachment B). The Action Plan consisted of three Board initiatives supported by nine CEO initiatives and monitored through 96 milestones. This year-end report summarizes the Orange County Transportation Authority's (OCTA) progress on advancing these initiatives between January 1, 2022 and December 31, 2022.

Consent Calendar (Item 6)

All matters on the Consent Calendar are to be approved in one motion unless a Board Member or a member of the public requests separate action on a specific item.

Orange County Transportation Authority Consent Calendar Matters

6. Approval of Minutes

Recommendation

Approve the minutes of the December 12, 2022, Orange County Transportation Authority and affiliated agencies' regular meeting.

BOARD MEETING AGENDA

Regular Calendar

Orange County Transit District Regular Calendar Matters

7. Zero-Emission Bus Pilot Update

Cliff Thorne/Johnny Dunning, Jr.

Overview

On October 8, 2020, the Orange County Transportation Authority Board of Directors approved the purchase of ten hydrogen fuel-cell electric buses and ten plug-in battery-electric buses to gain necessary operational and technological experience in preparation for transitioning the Orange County Transportation Authority's bus fleet to zero-emission technologies. This report provides an update on the zero-emission bus pilot performance and deployment efforts.

Recommendation

Receive and file as an information item.

Discussion Items

8. 20-Year Anniversary of Purchase of the 91 Express Lanes

Kirk Avila

Overview

On January 3, 2003, the Orange County Transportation Authority acquired the assets and liabilities of the California Private Transportation Company. This includes the Franchise Agreement rights to the 91 Express Lanes. Since 2003, the 91 Express Lanes has provided over 275 million trips on the Orange County segment. Staff will be recognizing the accomplishments during this 20-year anniversary celebration.

9. Public Comments

10. Chief Executive Officer's Report

11. Directors' Reports

12. Closed Session

A Closed Session is not scheduled.

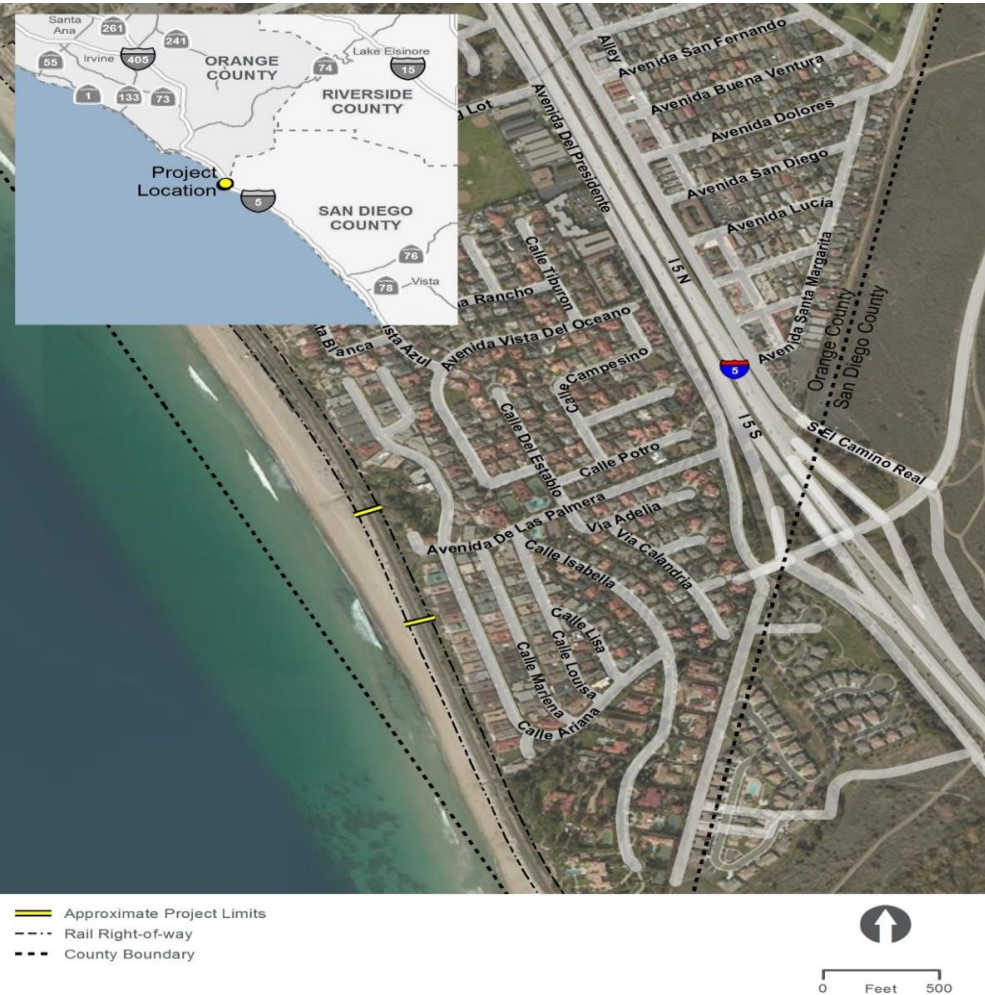
BOARD MEETING AGENDA

13. **Adjournment**

The next regularly scheduled meeting of this Board will be held at:

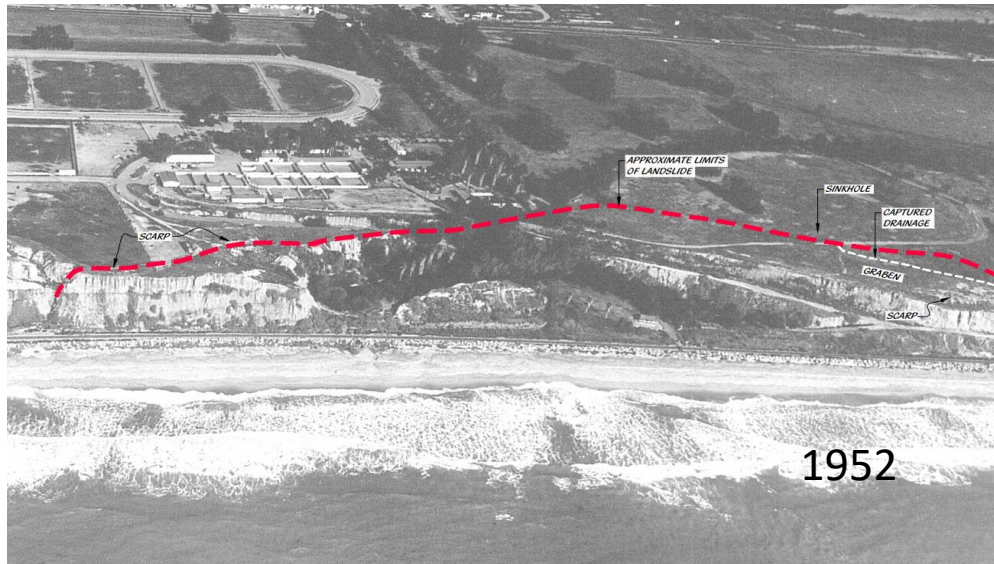
9:00 a.m., on Monday, January 23, 2023

OCTA Headquarters
550 South Main Street
Orange, California.



Update on Emergency Railroad Track Stabilization in the Vicinity of Milepost 206.8 on the Orange Subdivision

Historical Conditions



Recent Conditions



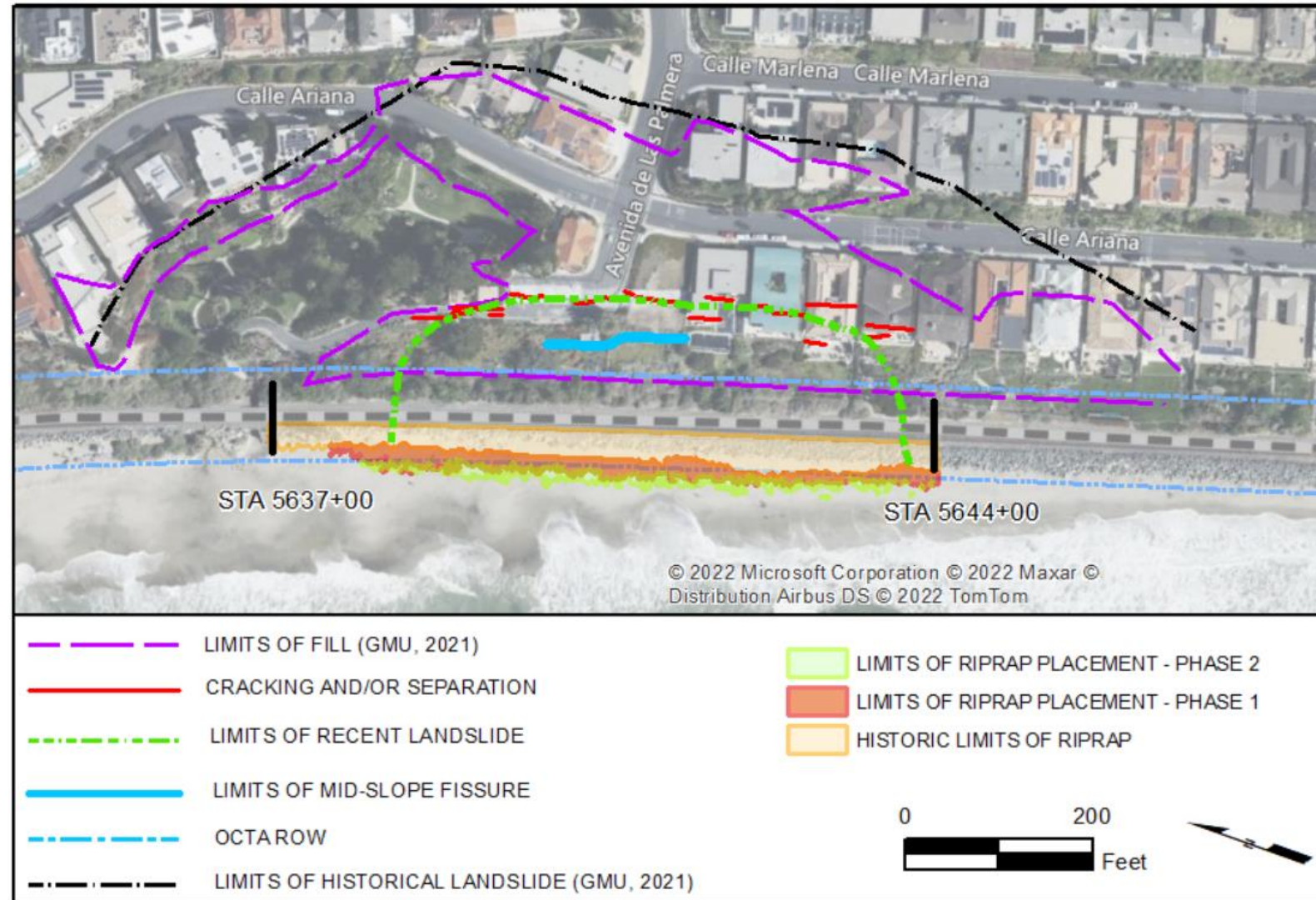
September 2021 & 2022
Beach erosion and activation of
ancient landslide



November 2022
Beach erosion continues north
of landslide area

Landslide Background

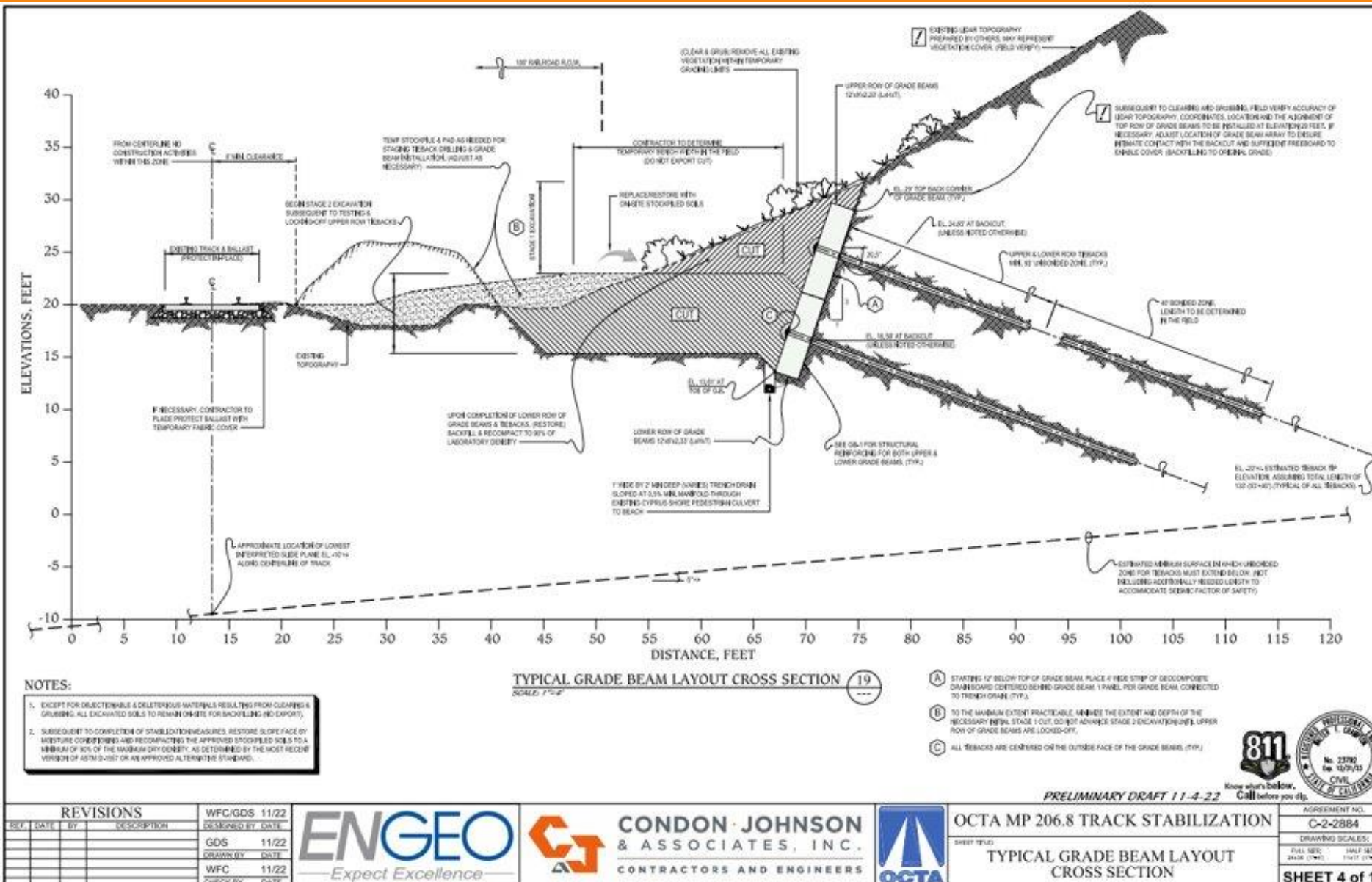
- September 2021
 - Significant beach erosion activated historical landslide
 - Tracks moved +28-inches laterally toward ocean
 - Passenger train service suspended to stabilize tracks
 - Placed +18,000 tons of riprap along 700 feet of track (counteracts mass of slide)
 - Monitoring track and slope movement
- September 2022
 - Additional slope movement due to high tides, waves, and storm surge
 - Placed more riprap
 - Operating speed reductions
 - Assessment of slope movement indicates larger mass of historic slide is beginning to move
 - Passenger train service suspended due to continued incremental movement
 - Assessed alternatives to stop slide movement



Actions To Date

- October 3, 2022
 - OCTA Board of Directors adopted Resolution No. 2022-075 and authorized the Chief Executive Officer to take all necessary actions to address the emergency need for railroad track stabilization.
 - Executed contract with Leighton Consulting to provide third-party independent geotechnical engineering review of stabilization plan and tieback system design.
- October 14, 2022
 - Executed contract with Condon-Johnson & Associates (CJ) for design and construction of a tieback system to stabilize the slope. CJ began early mobilization and ordered tieback material.
- October 24, 2022
 - All Possession and Use Agreements with private property owners executed for immediate access to and possession of certain surface and subsurface portions of the effected properties where construction will occur.
- November 4, 2022
 - CJ completed clearing and grubbing of tieback construction area. Constructed grade beam test panels in Basilone yard.
- November 10, 2022
 - Began excavation of slope where upper row of grade beam panels and drilling will take place (expected to take up to a week).
- November 11, 2022
 - Final design of tieback system reviewed and approved.

Tiebacks/Grade Beam Section and Elevation



- 220 Tiebacks
- 110 Grade Beam Panels

Completed and Upcoming Activities

Activity	Estimated *
Excavate for 1st level anchors (Completed)	November 15, 2022
Construct 1st level grade beam panels (Completed)	November 15 – December 30, 2022
Install 1st level tiebacks (Completed)	November 21 – December 23, 2022
Test 1st level tiebacks	December 2, 2022 – January 17, 2023
Excavate for 2nd level anchors	January 18 – February 7, 2023
Construct 2nd level grade beam panels	January 25 – February 20, 2023
Install 2nd level tiebacks	February 6 – February 21, 2023
Test 2nd level tiebacks	February 10 – March 3, 2023
Construction closeout	March to July 2023
Regulatory permitting	Ongoing

**Dates are preliminary and subject to change*

Costs Update

- CJ Design-Build base contract: \$6,440,000
 - Construction Change Order (CCO) #1: \$700,602
 - Clear and grub operations, Stormwater Pollution Prevention Plan and implementation, spoils export, water source, permit, use and pipeline, construction survey, temporary construction access, temporary fencing and signage
 - Other CCO's: \$2,000,000
 - Additional design, testing, and monitoring: \$430,000
 - Extended tieback lengths and additional strands: \$1,300,000
 - Addition of trench drain: \$140,000
 - Soil Nail wall shoring: \$130,000
- Metrolink: \$1,500,000 for flagging and rail operations support
- Leighton Consulting: \$50,000 for third party independent geotechnical engineering review
- HDR Engineering: \$800,000 for project/construction management contract amendment

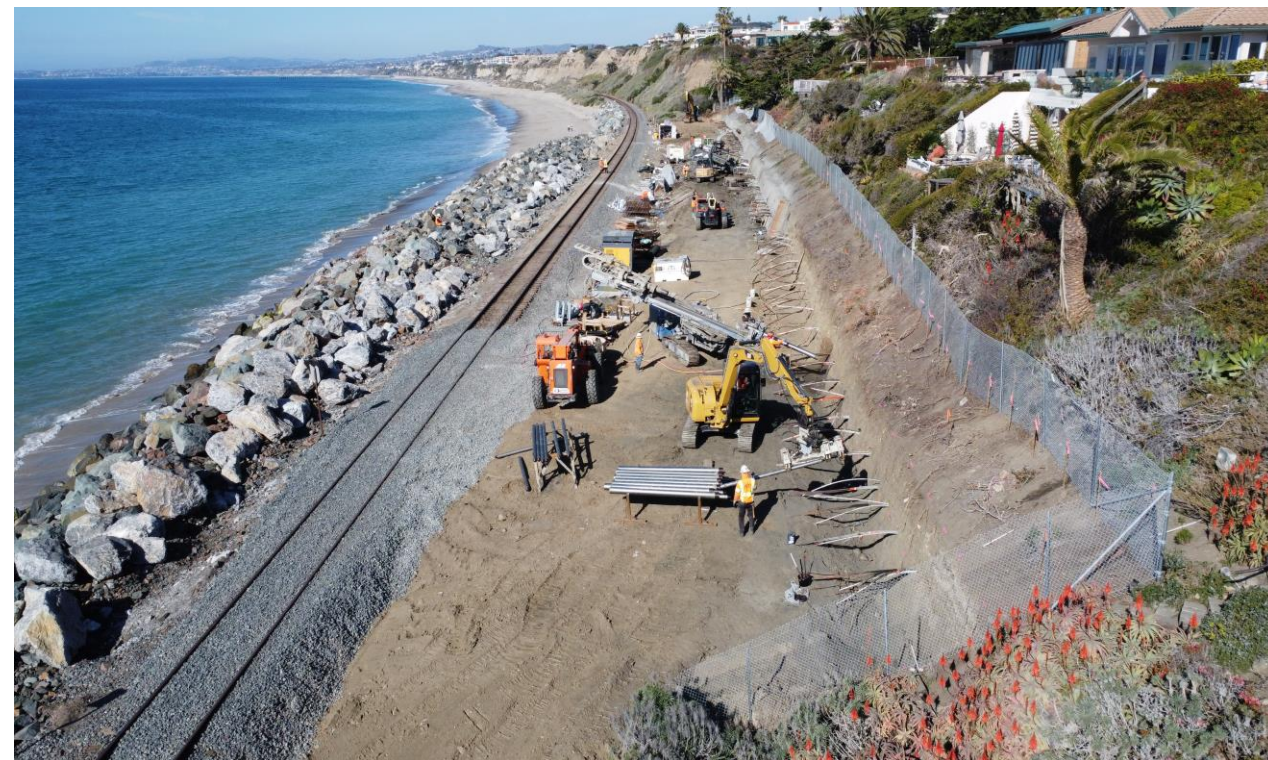
Current estimate of known costs: \$11,491,000

- Costs to-be-determined
 - ROW acquisition (permanent easements)
 - Coastal development permit fees and mitigation costs

Tieback Installation



December 15, 2022



December 19, 2022

First Level Grade Beams and Tiebacks Installed



January 2, 2023



January 9, 2023

To: Members of the Board of Directors

From: Gene Hernandez, Vice Chairman of the Board of Directors
Darrell E. Johnson, Chief Executive Officer

Subject: 2022 Board of Directors and Chief Executive Officer Initiatives and Action Plan – End-of-Year Report

On January 24, 2022, the Board of Directors (Board) approved the 2022 Board and Chief Executive Officer (CEO) Initiatives (Attachment A) and Action Plan (Attachment B). The Action Plan consisted of three Board initiatives supported by nine CEO initiatives and monitored through 96 milestones. This year-end report summarizes the Orange County Transportation Authority's (OCTA) progress on advancing these initiatives between January 1, 2022 and December 31, 2022.

At the conclusion of 2022, 80 of the 96 milestones were completed. Attachment B provides a summary of all 96 milestones, including the 16 milestones that will be carried over and reconsidered for 2023. These carryover milestones had to be adjusted due to schedule conflicts, delays in coordination with external entities, and other unanticipated challenges.

Highlights of OCTA's accomplishments are provided below.

Board Initiative: Balanced and Equitable Transportation

Despite ongoing challenges throughout the year, OCTA's commitment to its mission – to keep Orange County moving – remained strong. The agency continued providing balanced and efficient mobility options to the public while delivering transit and capital improvement projects through the Measure M2 (M2) program. Additionally, OCTA enhanced engagement activities to better meet the needs of its stakeholders, as well as connect with and increase accessibility for local communities, particularly those with diverse and disadvantaged populations.

- **Contracted Fixed-Route:** On July 11, 2022, the Board authorized the release of a request for proposals for the management, operation, and maintenance of OC Bus contracted fixed-route service. A new agreement is essential to maintain service continuity. It will strategically increase the agency's portion of contracted fixed-route service from approximately 30 percent to 40 percent and help OCTA improve service levels.
- **Interstate 405 (I-405) Improvement Project:** The I-405 Improvement Project will improve a 16-mile stretch of the freeway between the City of Costa Mesa and the Orange/Los Angeles County lines. As part of this project, 18 bridges have been or are in the process of being constructed, widened, or replaced. Construction on the Westminster Boulevard bridge was completed in August 2022, becoming the 11th bridge to open to traffic. Construction is over 90 percent complete and the remaining seven bridges are anticipated to open in 2023.
- **Making Better Connections Study (Study):** The Board approved the final Study service plan on October 24, 2022. As part of an effort to assess the emerging travel patterns and transit network in Orange County, the Study evaluated OC Bus service and route structures and developed improvements to better align with current ridership demand. The agency carried out extensive public engagement and incorporated public feedback in the final recommendations. The overall goal of the final Study service plan is to improve bus service on high ridership routes, reduce wait times, and simplify route structures. Recommendations will be implemented over the next two years.
- **M2 Next 10 Delivery Plan (Next 10 Plan):** The Next 10 Plan is a strategic plan for the implementation of M2 projects, including freeway, roadway, transit, and environmental programs. An updated Next 10 Plan was presented to and approved by the Board in November 2022. The updated plan ensures OCTA will be able to uphold its current commitments and M2 promises to voters.
- **Diversity, Equity, and Inclusion:** OCTA continued to conduct meaningful outreach throughout 2022 to connect with diverse and disadvantaged communities in Orange County. Through several outreach activities, such as the Trust-Building Campaign and soliciting feedback from the Diverse Community Leaders group, OCTA has strengthened its relationships with community members and organizations representing under-represented populations, including ethnic and disadvantaged communities. These public involvement efforts play an important role in meeting the future needs of local ethnic communities and hard-to-reach stakeholders, as well as providing them with equitable transportation solutions.

Board Initiative: Fiscal and Environmental Responsibility and Adaptability

As champions of financial stewardship, OCTA is devoted to maintaining fiscal sustainability and responsibly administering taxpayer dollars to successfully deliver transportation improvements in Orange County. Additionally, the agency recognizes and values the importance of environmental sustainability and preparing for a changing climate. OCTA continued to not only minimize its impacts, but also adapt and prepare for current and future climate conditions. This will better enable OCTA to sustain efficient, reliable, and safe operations and services for its riders.

- **Annual Comprehensive Financial Report (ACFR):** On December 12, 2022, the Board received the ACFR for fiscal year 2021-2022. The report is an annual audit of OCTA's financial records and systems and concluded that OCTA presented statements fairly, in all material respects to the financial position of OCTA.
- **Zero-Emission Buses (ZEB):** OCTA is preparing to transition its bus fleet to zero-emissions by 2040. It has invested in ten hydrogen fuel-cell electric buses (FCEB) and ten plug-in battery-electric buses (BEB) as part of a pilot program that will test and assess the mix of technologies that would be most suitable for Orange County. The FCEB pilot has been ongoing since February 2020, while the BEB pilot was partially initiated in July 2022 with two BEBs. Seven BEBs arrived in December 2022, and the last remaining BEB is anticipated to be delivered in 2023. The ZEB pilot program will continue with the deployment of the remaining BEBs and procurement of ten battery-electric cutaway buses for paratransit.
- **M2 Environmental Mitigation Program (EMP):** As part of M2, the EMP delivers comprehensive mitigation to offset the biological impacts of 13 freeway projects. Through the EMP, OCTA acquired seven conservation properties and funded 12 habitat restoration projects in return for a streamlined project approval process from state and federal resource agencies. To date, OCTA has largely met the intent and mitigation requirements of the EMP. In December 2022, a second biannual status report on the progress of the EMP was presented to Board.
- **M2 Environmental Cleanup Program (ECP):** On November 14, 2022, the Board approved grant funding allocations for 13 Tier 1 water quality projects totaling approximately \$3.1 million to improve overall water quality in Orange County from transportation-related pollution.

Board Initiative: Organizational Excellence, Partnership, and Transparency

OCTA attributes its ability to fulfill its commitments to the hard work and dedication of its workforce. Consequently, the agency places a strong focus on health, safety, and security measures in the workplace, as well as promoting employee development and a diverse and inclusive work culture. Furthermore, OCTA prioritizes accountability and transparency, while fostering collaborative relationships with local and regional partners, to better address the region's mobility needs.

- **Collective Bargaining Agreement for Maintenance Employees:** On December 12, 2022, the Board approved the renewed collective bargaining agreement with OCTA maintenance employees. The new contract acknowledges the great work and commitment of this essential workforce and ensures OCTA can continue providing critical bus service for riders to reach their work, school, and healthcare destinations.
- **Cybersecurity:** With ever-increasing cyber threats, OCTA remains vigilant to safeguard its computer systems and networks. In September 2022, all OCTA employees were required to complete cybersecurity training to increase their awareness about the importance of utilizing best practices to defend against cyberattacks and stay safe online.
- **Diversity, Equity, Inclusion, and Belonging:** To support its diverse workforce, OCTA strives to encourage and cultivate a work culture of belonging and inclusivity. On December 1, 2022, OCTA launched its first-ever employee resource group, OCTA's Women's Affinity Group, which is a voluntary and employee-led collective representing different voices throughout the agency. The Women's Affinity Group will support and empower female employees through various social and networking opportunities as they prepare for future leadership roles in their careers.
- **College Pass Program:** Since the initial success of the College Pass Program in 2017 with Santa Ana College, OCTA has expanded the program to all nine community colleges in Orange County. The College Pass Program allows enrolled community college students to ride OC Bus free of cost to help them access school, work, and recreational destinations. Marketing and communications continued throughout 2022 to promote the program to students. In November 2022, the Orange County Business Council honored OCTA with the Sustainable and Green Development award for the College Pass Program. The program has helped reduced transportation costs for its riders, while contributing to the reduction of more than 4,000 tons of carbon dioxide emissions.

With the conclusion of the 2022 Action Plan, OCTA remains committed to effectively and strategically addressing the immediate needs of the public and agency employees to keep Orange County moving. Please let me know if you have any questions or contact Darrell E. Johnson, CEO, at (714) 560-5343.

GH/DEJ:ls

2022 BOARD & CEO INITIATIVES



Balanced and Equitable Transportation

- Maximize Effectiveness of Mobility Options
- Deliver Measure M2 Infrastructure Improvements
- Connect with Stakeholders in Diverse and Disadvantaged Communities



Fiscal and Environmental Responsibility and Adaptability

- Demonstrate Financial Stewardship and Responsibly Administer Public Funds
- Anticipate and Adapt to Changing Conditions
- Advocate Sustainability and Environmental Stewardship



Organizational Excellence, Partnership, and Transparency

- Collaborate with Regional Stakeholders and Provide Outstanding Customer Service
- Embrace Inclusive Work Culture and Enhance Diversity
- Modernize Workplace and Promote Employee Growth and Safety

MARK A. MURPHY
CHAIRMAN

DARRELL E. JOHNSON
CHIEF EXECUTIVE OFFICER

2022 BOARD & CEO INITIATIVES



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MARK A. MURPHY
CHAIRMAN

DARRELL E. JOHNSON
CHIEF EXECUTIVE OFFICER

ORANGE COUNTY TRANSPORTATION AUTHORITY

2022 Board Initiatives

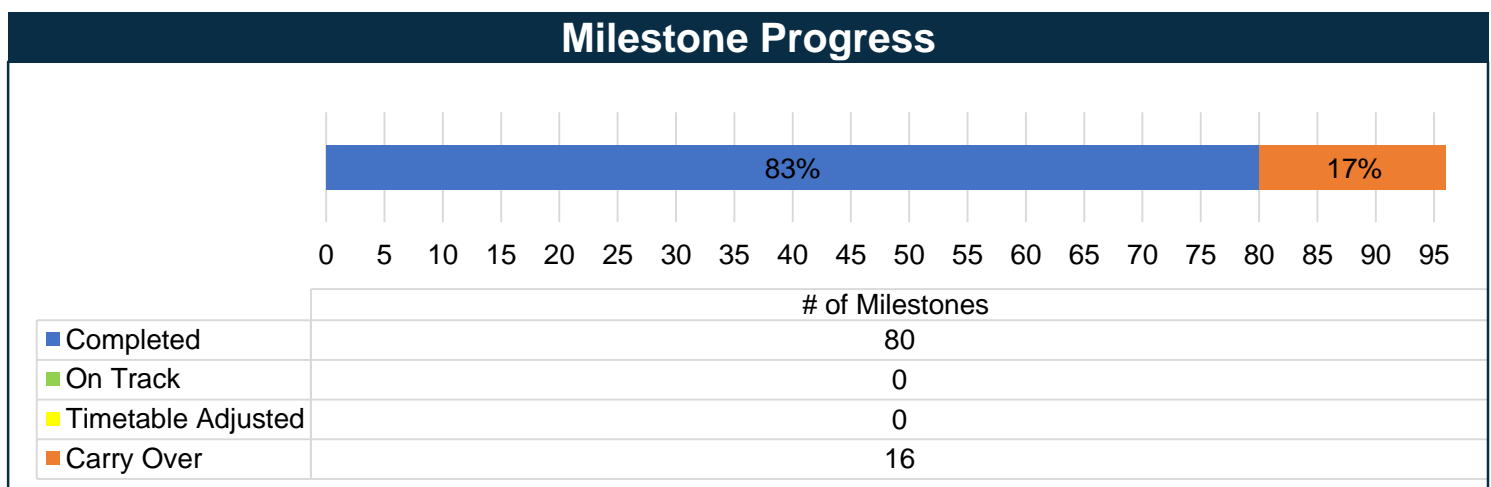
1. Balanced and Equitable Transportation
2. Fiscal and Environmental Responsibility and Adaptability
3. Organizational Excellence, Partnership, and Transparency

2022 CEO Initiatives

1. Maximize Effectiveness of Mobility Options
2. Deliver Measure M2 Infrastructure Improvements
3. Connect with Stakeholders in Diverse and Disadvantaged Communities
4. Demonstrate Financial Stewardship and Responsibly Administer Public Funds
5. Anticipate and Adapt to Changing Conditions
6. Advocate Sustainability and Environmental Stewardship
7. Collaborate with Regional Stakeholders and Provide Outstanding Customer Service
8. Embrace Inclusive Work Culture and Enhance Diversity
9. Modernize Workplace and Promote Employee Growth and Safety

2022 CEO Milestone Summary

Number of Milestones by Quarter	
Quarter Due	Number
First Quarter	14
Second Quarter	24
Third Quarter	17
Fourth Quarter	41
TOTAL	96



FIRST QUARTER (Q1)

14 of 14 Completed - 100%

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
1.	I-405 Project	Continue to Advance Construction	Complete and open first half of bridge at Brookhurst Street - Q1	February 5, 2022 - completed and opened first half of the Brookhurst Street bridge.				
2.	I-5, SR-73 to El Toro Road Project	Ensure Segment 3 is Under Construction	Provide construction update to Board - Q1	March 28, 2022 - provided update to Board.				
3.	91 Express Lanes Operating Contract Transition*	Implement New Transaction Processing System	Transition to a new contract for the back-office and customer service center systems - Q1	March 7, 2022 - completed transition.				
4.	Intelligent Transit Management System (ITMS)	Upgrade ITMS Radio System to Adopt Voice-Over Internet Protocol Technology for Implementation to OC Streetcar Fleets	Complete in-kind testing for OC Streetcar - Q1	March 2022 - completed testing. However, the vendor (Siemens) did not fully pass requirements for a completed and successful test; Siemens resolved these issues before first article inspection, which was completed in May 2022.				
5.	Ridership Growth Initiatives	Increase Bus Ridership	Evaluate future options for the Youth Ride Free Program - Q1	February 14, 2022 - presented the addition of the Youth Ride Free Pass to OCTA's Fare Policy to Board.				
6.	Near-Zero Engine Repower	Reduce Emissions in Orange County	Start the repowering of 173 (157 40-foot buses and 16 60-foot buses) engines - Q1	January 2022 - repowering of engines commenced.				
7.	OC ACCESS	Ensure Service Continuity	Transition OC ACCESS to new contractor - Q1	January 1, 2022 - completed transition to First Transit.				
8.	Coach Operator Collective Bargaining Agreement*	Negotiate and Renew Agreement	Present agreement to Board - Q1	February 22, 2022 - final agreement presented to and approved by the Board in a special closed session.				
9.	College Pass Program	Provide Community College Students with a Discount Bus Pass to Enhance Access to Education	Work with Coastline College to implement and begin the program in spring 2022 - Q1	January 31, 2022 - launched the Coastline College Pass program on the first day of its spring 2022 semester.				

*2021 Carryover

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FIRST QUARTER (Q1) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
10.	Diversity, Equity, Inclusion, and Belonging	Provide Ongoing Unconscious Bias Training to Ensure New Administrative Employees Understand OCTA's Commitment to Diversity, Equity, Inclusion, and Belonging	Launch online version of Unconscious Bias training for all new administrative employees - Q1	March 31, 2022 - completed and launched training.				
11.	Management Development Academy (MDA)	Provide Career Development for Mid-Level Managers	Complete fourth cohort of MDA - Q1	March 1, 2022 - graduated fourth cohort; January 19, 2022 - MDA capstone presentations presented.				
12.	Market Research	Obtain Public Feedback to Inform the Development of the Bus Restructuring Plan	Conduct qualitative research to provide input for the Bus Restructuring Study - Q1	February 18, 2022 - survey collection completed; results were provided to consultant for analysis and to inform study recommendations.				
13.	Remote Work Program	Provide a Work/Life Balance for Staff Able to Perform Work Duties Remotely	Launch Remote Work Policy - Q1	February 28, 2022 - launched Remote Work Policy.				
14.	2023 Federal Transportation Improvement Program (FTIP)	Comply with State and Federal Law to Update the FTIP (Allows for the Obligation of Federal Funds)	Submit the 2023 FTIP - Q1	January 6, 2022 - submitted 2023 FTIP; February 14, 2022 - presented to Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

SECOND QUARTER (Q2)

19 of 24 Completed - 79%

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
1.	I-405 Project	Continue to Advance Construction	Complete and fully open bridge at Fairview Road - Q2	May 12, 2022 - completed and fully opened the Fairview Road bridge.				
2.	I-5, Pico to San Diego County Line	Complete the Environmental Phase	Release Notice of Preparation and provide update to Board - Q2	March 28, 2022 - provided update to Board; June 30, 2022 - released Notice of Preparation.				
3.	Orange County Maintenance Facility	Build a Rail Maintenance Facility on the Orange County Line	Complete preliminary engineering and environmental clearance - Q2	Additional time is needed to complete the preliminary engineering and environmental clearance phase for this project, which is under further assessment. This will be carried over and reconsidered in the future upon further direction from the Board.				
4.	SR-55, I-405 to I-5 Project	Begin Construction	Initiate construction - Q2	May 27, 2022 - awarded construction contract, indicating the start of construction.				
5.	Transit Security and Operations Center (TSOC)	Continue to Advance Delivery of OCTA's TSOC	Complete design phase - Q2	Due to design revisions and plan changes, completion of the design phase has been delayed. This will be carried over and reconsidered for Q1 of 2023.				
6.	Hazard Mitigation Plan (HMP)	Identify Potential Projects to Mitigate Risks to OCTA Service Areas from Natural Hazards	Present FEMA-approved HMP to ESC - Q2	May 23, 2022 - presented HMP to ESC, which was tentatively approved by FEMA; FEMA reserved final approval of the HMP upon it being signed by the Board. October 10, 2022 - presented to and approved by the Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

SECOND QUARTER (Q2) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
7.	State Triennial Review	Evaluate the Effectiveness, Efficiency, and Economy of OCTA Transit Operations	Present results of the Triennial Review to Board - Q2	May 23, 2022 - completed and presented results to Board.				
8.	Cybersecurity	Protect OCTA's Information Systems	Provide cybersecurity update to Executive Committee - Q2	April 4, 2022 - provided update to Executive Committee.				
9.	Digital Transformation Strategies*	Continue Operations Plan to Migrate Shared Work Files	Move all shared work files into the cloud - Q2	Due to unforeseen challenges, a different approach was developed and defined to best serve OCTA customers and has been fully tested. Shared files for the Information Systems and General Services departments have been migrated, with the remaining departments to follow. The new strategy entails having departments to move their own files, so this is now an ongoing process.				
10.	OCTA's Operating and Capital Budget	Develop a FY 2022-23 Balanced Budget	Present a comprehensive balanced OCTA FY 2022-23 Budget for adoption to Board - Q2	June 13, 2022 - presented to Board for approval and adoption.				
11.	Contracted Fixed-Route	Award New Agreement for Contracted Fixed-Route Service Provision	Release RFP for contracted fixed-route service - Q2	July 11, 2022 - released RFP and presented to Board for approval. Additional time was needed to adjust the RFP to permit bidders the option to submit proposals that serve either one or both bus bases; this will allow for flexibility to compare costs and help determine which option is most beneficial for the contracted fixed-route service. Due to these factors, this milestone was timetable adjusted to Q3.				

*2021 Carryover

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

SECOND QUARTER (Q2) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
12.	OC Streetcar	Prepare for OC Streetcar Operations	Issue NTP to Herzog - Q2	Due to delays in construction, there is a subsequent delay in the start of start-up testing and pre-revenue service. Issuance of the NTP will be carried over and reconsidered for Q1 of 2023. Herzog will continue to work under the LNTP.				
13.	OC Streetcar*	Complete Vehicle Production	Complete production of all streetcar vehicles - Q2	Due to continued inspection and testing activities to ensure compliance with technical specifications, completion of vehicle production has been delayed. This will be carried over and reconsidered for 2023.				
14.	Zero-Emission Battery-Electric Buses	Reduce Emissions in Orange County	Receive delivery of remaining eight of ten plug-in battery-electric buses (first two arrived in 2021) - Q2	December 2022 - received seven of the eight remaining buses, but due to an in-plant accident, delivery of the last remaining bus has been delayed. This will be carried over to Q1 of 2023.				
15.	Core Competency Integration	Provide Clear Growth and Development Pathways for Staff and Bridge Gaps Between Performance and Opportunity by Articulating which Competencies are Needed for Various Positions	Develop a "road map" for core competency implementation and implement core competencies into the job descriptions of one division at OCTA - Q2	Completion of the core competency integration was delayed due to unanticipated challenges with the consultant agreement. December 15, 2022 - completed implementation of core competencies into the job descriptions for the Capital Programs division, as well as updating the "road map" timeline.				
16.	Early Career Academy (ECA)	Provide Early Career Development to Grow New Professionals	Launch third cohort of ECA - Q2	June 15, 2022 - launched third cohort of the program.				

*2021 Carryover

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

SECOND QUARTER (Q2) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
17.	Human Resources IS System	Modernize OCTA's Workforce	Release RFP - Q2	Due to additional time being needed to add the payroll function as a requirement for the new system and to hire a qualified project manager, presentation to Board for approval was delayed; July 25, 2022 - presented to and received approval from the Board to release RFP.				
18.	Personnel and Salary Resolution	Update Personnel Policies	Present recommendations to Board - Q2	June 13, 2022 - presented to Board as part of the OCTA FY 2022-23 Budget.				
19.	Public Transportation Agency Safety Plan (PTASP)	Regularly Communicate from the Top Down the Value of Safety and Executive Commitment to Reduce Safety Events	Develop and distribute three CEO communications on PTASP/SMS initiatives to all employees - Q2	Distributed all three CEO communications: - March 31, 2022 - Focus on Safety - April 14, 2022 - New OCTA Manager's Safety Toolkit June 30, 2022 - National Safety Month and Driving Safety Spotlight				
20.	Transportation Communications Union Collective Bargaining Agreement*	Negotiate and Renew Agreement	Present parts clerks and facilities technicians agreement to Board - Q2	February 7, 2022 - final agreement presented to and approved by the Board in a special Closed Session.	Early Complete			
21.	2022 State Transportation Improvement Program (STIP)	Maximize State Funding Opportunities	Present the final 2022 STIP to Board - Q2	May 23, 2022 - presented final STIP to Board. December 15, 2021 - submitted 2022 STIP.				
22.	M2 Triennial Performance Assessment	Evaluate the Efficiency, Effectiveness, Economy, and Results of the Agency's Delivery of M2	Present the 2018-2021 M2 Triennial Performance Assessment Report - Q2	April 25, 2022 - presented performance assessment to Board.				

*2021 Carryover

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

SECOND QUARTER (Q2) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
23.	South Orange County Rail Station Feasibility Study	Assess Feasibility of a New Rail Station South of Existing Laguna Niguel Metrolink Station	Award contract and present to Board for approval - Q2	April 25, 2022 - presented to Board for contract award and approval.				
24.	SR-57 Operational Improvements (Between Lambert Road and Tonner Canyon)	Fulfill Measure M2 Project G (Improvements on SR-57 Between OC Crush to OC-LA County Line) Commitments	Award contract and present to Board - Q2	July 11, 2022 - awarded contract and presented to Board. The SOW required additional time and effort to develop the appropriate methodology to comply with new SB 743 (Chapter 386, Statutes of 2013) requirements to assess vehicle miles traveled; additional time was also needed to gather existing information from Caltrans on the SR-57 Lambert Road Interchange Project. Due to these factors, this milestone was timetable adjusted to Q3.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

THIRD QUARTER (Q3)**15 of 17 Completed - 88%**

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
1.	San Juan Creek Bridge Replacement	Ensure Asset Preservation	Complete ROW activities - Q3	Due to additional time being needed to complete the necessary agreements and documentation, this has been delayed and will be carried over to Q1 of 2023. All property rights are generally agreed upon; the certification needs to be prepared and circulated for signature internally.				
2.	91 Express Lanes	Install Toll Entrance Readers to Register Vehicles Entering the 91 Express Lanes	Complete installation of infrastructure gantries, cameras, and readers at the three entrances of the 91 Express Lanes - Q3	Staff was recently made aware of several conflicts/issues at the gantry sites, including drainage conflicts, grade and cross slopes issues, and issues relating to the electrical system. Staff is working on a plan to address the issues and will keep the Board informed of updates and timing as the situation becomes more definitive. Due to the conflicts, there will be a delay in site turnover to Kapsch TrafficCom USA, Inc., the toll lanes system integrator for the 91 Express Lanes. This will be carried over and reconsidered for Q3 of 2023.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

THIRD QUARTER (Q3) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
3.	Diversity, Equity, and Inclusion	Communicate OCTA's Diversity, Equity, and Inclusion Efforts to the Public and Stakeholders	Maintain and update the equity webpage on OCTA.net to reflect current activities and actions - Q3	September 2022 - incorporated updates into the website.				
4.	Credit Ratings	Maintain OCTA's Positive Credit Rating	Conduct annual rating agency meeting - Q3	June 21-23, 2022 - conducted annual meetings with rating agencies and financial institutions.		Early Complete		
5.	Cybersecurity	Protect OCTA's Information Systems	Require completion of annual cybersecurity training for all employees - Q3	September 2022 - assigned required training for OCTA employees to complete.				
6.	Federal Compliance Training*	Provide Federal Compliance and Oversight Training	Conduct federal compliance training for agency's project managers and subject matter experts - Q3	January 18-19, 2022 - conducted federal compliance training, with more than 50 OCTA project managers and subject matter experts in attendance; the feedback received from an anonymous survey noted that participants were very satisfied with all their expectations met.	Early Complete			

*2021 Carryover

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

THIRD QUARTER (Q3) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
7.	Diversity, Equity, and Inclusion - Diverse Community Leaders Group	Maximize Relationships with Key Stakeholders and Leaders that Represent Diverse Communities to Gain Feedback	Enhance engagement opportunities with OCTA's DCLG as part of transportation programs, projects, and plans with update to L&C - Q3	May 3, 2022 - the DCLG met and shared their thoughts on the Making Better Connections Study, LRTP, and South Orange County Multimodal Study; and also received updates on OCTA's Trust Building Campaign and the OC Streetcar construction. July 20, 2022 - held DCLG quarterly meeting, which featured the Making Better Connections Study, numerous planning studies, the OC Streetcar Project, and the SR-55 (I-405 to I-5) Project. September 15, 2022 - provided update to L&C; September 26, 2022 - provided update to Board.				
8.	Diversity, Equity, and Inclusion - Outreach Update	Conduct Diversity Outreach Programs to Support Capital Projects, Planning Studies and Marketing	Ensure proactive diversity outreach and inclusion strategies are integrated with capital projects, planning studies, transit marketing, and other OCTA initiatives and activities with update to L&C - Q3	September 15, 2022 - provided update to L&C; September 26, 2022 - provided update to Board.				
9.	Diversity, Equity, Inclusion, and Belonging	Enhance Professional Development of Managers of Unconscious Bias in Hiring	Develop and implement online interview training for managers that encompasses elements of unconscious bias - Q3	The training module has been completed; May 2022 - rolled out training.		Early Complete		
10.	Employee Health Insurance Renewal Programs	Secure Competitive Health Benefits	Present health insurance recommendations to Board - Q3	August 22, 2022 - presented recommendations to Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

THIRD QUARTER (Q3) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
11.	Express Lanes Network	Assess Feasibility of an Express Lanes Network on Existing Facilities	Incorporate network assumptions into draft LRTP - Q3	Incorporating the network assumptions was delayed to coincide with the LRTP development process. October 10, 2022 - presented network assumptions to Board as part of the LRTP workshop.				
12.	Mobility Hubs	Strategize and Develop Options for Countywide Network of Mobility Hubs	Finalize study and incorporate appropriate recommendations into LRTP - Q3	After finalization of the Mobility Hubs Study, incorporating the recommendations was delayed to coincide with the LRTP development process. October 10, 2022 - presented mobility hubs recommendations to Board as part of the LRTP workshop.				
13.	Santa Ana Transit Signal Priority Corridor Study	Ensure Existing Transit Service is Not Impacted	Provide update to ESC of recommended transit solutions on Santa Ana corridors that will be modified for bicycle lanes - Q3	September 26, 2022 - provided update to ESC.				
14.	South Orange County Multimodal Study	Study Regional Multimodal Transportation Improvement Options	Complete and present study to Board - Q3	Presentation of the final study to Board was delayed due to OCTA staffing changes and to ensure sufficient time for internal and stakeholder review. November 14, 2022 - presented final study with a locally preferred strategy to Board.				
15.	SR-91 Gap Closure	Determine Logical Sequence to Fulfill Measure M2 Commitment to Improve SR-91 Corridor	Provide update to SR-91 Advisory Committee - Q3	This study was completed during Q2. Although an update will not be provided to the SR-91 Advisory Committee, an update on the progress was folded into the updated 2022 SR-91 Implementation Plan, which was presented to Board on June 13, 2022.		Early Complete		

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

THIRD QUARTER (Q3) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
16.	SR-91 Implementation Plan	Collaborate with RCTC to Update the Plan in Support of Regional SR-91 Corridor Transportation Improvements	Present Plan to Board - Q3	June 13, 2022 - presented draft Plan to Board.		Early Complete		
17.	Streets and Roads Grants	Fund Streets and Roads Improvements	Present recommendations for RCP (Project O) and RTSSP (Project P) projects grant awards to Board - Q3	May 9, 2022 - presented recommendations to Board with \$10.2 million for nine RCP projects and \$16.2 million for five RTSSP projects.		Early Complete		

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4)

32 of 41 Completed -

78%

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
1.	Anaheim Canyon Metrolink Station Improvement	Initiate Construction for Passenger Enhancements	Provide construction update to Board - Q4	Due to a delay in receiving the platform guardrail material, completion of construction has been delayed and will be carried over to Q1 of 2023. An update on the construction phase was provided to Board in October 2021.				
2.	I-405 Project*	Continue to Advance Construction	Complete and fully open bridges at Westminster Boulevard and Goldenwest Street - Q4	Due to unexpected utility relocation challenges in the roadway approaches to the Goldenwest Street bridge, the completion and opening of this bridge has been delayed; it will be carried over to Q1 of 2023. August 24, 2022 - completed and fully opened the Westminster Boulevard bridge.				
3.	OC Streetcar	Continue to Advance Construction	Report on status of construction and updates to target service startup date Q1-Q4	January 24, April 25, July 25, and October 24, 2022 - status updates presented to Board.				
4.	241/91 Express Lanes Connector (ELC)	Provide 241/91 ELC Project Progress	Provide an update on the status of the project with a discussion on the development of the final design to Board - Q4	Staff from OCTA, RCTC, TCA, and Caltrans continues to meet regularly to advance the 241/91 ELC Project to construction. Several meetings scheduled in December will impact the future direction of this project. As a result, this has been delayed and will be carried over to Q1 of 2023.				
5.	Crisis Communications	Ensure Agency and Staff Preparedness	Conduct a tabletop exercise for the Crisis Communications team and revise Crisis Communications Plan as appropriate - Q4	October 12, 2022 - completed tabletop exercise.				

*2021 Carryover

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
6.	Diversity, Equity, and Inclusion	Review OCTA Organizational Policies, Practices and Programs Related to Diversity, Equity and Inclusion, and Develop Recommendations to Enhance Efforts in this Area and Help Guide Future Agency Decisions	Present third-party consultant study to ESC and seek direction on implementing recommendations to enhance OCTA's diversity, equity, and inclusion efforts - Q4	October 17, 2022 - presented third-party consultant study to division leads.				
7.	Diversity, Equity, Inclusion, and Belonging	Communicate OCTA's Diversity, Equity, and Inclusion Efforts to the Public and Stakeholders	Present an overview of agency activities related to diversity, equity, inclusion, and belonging to Board - Q4	Although no formal update was presented, a memo was provided to Board Members with an overview of agency diversity, equity, inclusion, and belonging activities. December 30, 2022 - CEO distributed memo to Board.				
8.	Headquarters Building	Evaluate Alternatives for a Potential New Headquarters Building	Present Real Estate Ad Hoc Committee's preferred long-term strategy for the OCTA Headquarters to Board for approval - Q4	August 22, 2022 - presented to Board for approval.			Early Complete	
9.	Comprehensive Annual Financial Report	Ensure Accountability and Transparency	Obtain an unmodified opinion from the external auditors and provide the annual financial statements to Board - Q4	December 12, 2022 - presented financial report to Board.				
10.	Comprehensive Business Plan (CBP)	Develop OCTA's Business Plan	Present CBP to Board for adoption - Q4	Due to ongoing labor negotiations, this has been delayed and will be carried over to Q1 of 2023.				
11.	Electronic Signage (Bus Stops Pilot Program)	Provide Riders with Accurate, Real-Time Bus Schedule Information	Complete installation of electronic display signage at up to 23 bus stops along the Bravo! Main Street Rapid Bus and OC Bus Route 53/53X corridor in Anaheim, Orange, and Santa Ana - Q4	June 10, 2022 - completed installation of all 23 electronic signs.		Early Complete		

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
12.	Federal Transportation Reauthorization	Monitor Reauthorization Implementation Efforts	Provide updates to Board on legislation and regulatory activities to implement the Infrastructure Investment and Jobs Act at the state and federal levels - Q2 and Q4	Several updates have been provided to Board, including: February 28, 2022 - Administration priorities related to the IIJA; March 28, 2022 - actions taken related to zero-emission bus transition plans and an overview of new project labor agreement requirements; April 25, 2022 - FY 2022 appropriations bill, implementing funding levels provided for in the IIJA; June 27, 2022 - implementation of the Buy America provisions of the IIJA; July 25, 2022 - FY 2023 appropriations.				
13.	Legislative Forums	Communicate Transportation Needs and Challenges	Conduct forums with local delegation representatives and present report to ESC - Q2 and Q4	June 28, 2022 - conducted first forum; October 10, 2022 - presented report to ESC; October 18, 2022 - conducted second forum.				
14.	Legislative Platforms	Set Legislative Priorities	Present 2023 state and federal legislative platforms to Board - Q4	November 28, 2022 - presented final legislative platforms to Board.				
15.	Legislative Priorities	Provide End of Session Report	Discuss outcomes of legislative priorities with L&C - Q4	November 28, 2022 - presented end-of-year report to Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
16.	Zero-Emission Battery-Electric Buses	Reduce Emissions in Orange County	Deploy the ten buses into service - Q4	Due to industry electronic parts shortages, delivery of the eight remaining buses was delayed. While two buses have been deployed into service, deployment of the remaining buses is anticipated to occur next year. Seven buses will undergo acceptance testing; if successful, they will be deployed. This will be carried over to Q1 of 2023.				
17.	Zero-Emission Bus Pilots	Reduce Emissions in Orange County	Provide progress report to Board on zero-emission bus pilots, including the hydrogen fuel-cell electric buses and plug-in battery-electric buses - Q4	December 8, 2022 - provided progress report to Transit Committee. However, due to the transition of Board Members and to provide a more in-depth discussion, presentation of the progress report to Board has been delayed and will be carried over to Q1 of 2023.				
18.	Diversity, Equity, Inclusion, and Belonging - Affirmative Action Plan/Equal Employment Opportunity (AAP/EEO)	Provide Updates on Progress of AAP/EEO Development and Implementation and Adhere to Federal Requirements	Present biannual updates to ESC - Q2 and Q4	April 25, 2022 - presented first biannual update to ESC; September 12, 2022 - presented second biannual update to ESC.			Early Complete	
19.	COVID-19 Task Force	COVID-19 Planning and Response Actions	Track, monitor, and implement policies/plans related to COVID-19, including returning all employees to the workplace. Update Executive Leadership to provide updates to Board - Q1-Q4	The COVID-19 Task Force and pandemic response efforts continue, and the CEO continues to provide regular updates to Board on the status of COVID-19 and related impacts. OCTA continues to be in compliance with all Cal/OSHA regulations.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
20.	Diversity, Equity, Inclusion, and Belonging	Identify and Develop Enhancements to Support Employees' Voices Throughout the Organization	Develop and implement an internal schedule/calendar for recognizing historical/cultural dates and use OCTA Intranet for recognizing dates, and pilot one Employee Resource Group - Q4	December 1, 2022 - launched Women's Affinity Group.				
21.	Maintenance Collective Bargaining Agreement	Negotiate and Renew Agreement	Present agreement to Board - Q4	December 12, 2022 - final agreement presented to and approved by the Board in closed session.				
22.	Marketing Activities	Promote and Educate Public on OCTA Services	Develop campaigns and programs, including a loyalty program, to help increase ridership - Q4	September 2022 - celebrated 50th anniversary of OC Bus service. October 2022 - received Board approval for the Making Better Connections Study following phase two outreach on the draft service plan in July 2022; launched BRAVO! 553 service on Main Street. November 2022 - continued marketing and communications to students in all nine Orange County community colleges in the College Pass Program, which was honored with the Sustainable and Green Development Award by the Orange County Business Council.				
23.	Marketing Activities	Promote and Educate Public on OCTA Services	Present biannual updates on ongoing campaigns promoting bus, rail, OC Flex, rideshare, and vanpool services to L&C - Q2 and Q4	June 16, 2022 - presented first biannual update to L&C. Due to a lack of L&C quorum in November, the second biannual update has been delayed and will be carried over to Q1 of 2023.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
24.	Outreach Activities	Conduct Outreach to Support Capital Projects	Provide quarterly I-405 and OC Streetcar outreach updates, as well as I-5 south and SR-55, and other projects to Board - Q1-Q4	January 24, April 25, July 25, and October 24, 2022 - provided OC Streetcar updates to Board; February 14, May 9, and August 8, and November 14, 2022 - provided I-405 Project updates to Board; March 28, 2022 - provided I-5 (SR-73 to El Toro Road) Project and I-5 (Pico to San Diego County Line) project updates to Board.				
25.	Outreach Activities	Conduct Outreach to Support Planning Studies	Provide outreach updates for planning studies including the LRTP, Mobility Hubs Study and South Orange County Multimodal Transportation Study as appropriate to Board - Q1-Q4	June 27, 2022 - provided South Orange County Multimodal Transportation Study update to Board; July 11, 2022 - provided LRTP update to Board; October 10, 2022 - conducted LRTP workshop to Board; November 14, 2022 - presented final South Orange County Multimodal Transportation Study with a locally preferred strategy to Board.				
26.	Active Transportation Initiatives	Implement Programs in Support of Non-Motorized Transportation	Provide biannual updates on E-Bicycles, Safe Routes to School, OC Loops, STEP Campaign, safety programs, and other active transportation initiatives to Board - Q2 and Q4	June 13, 2022 - provided first biannual update to Board; December 12, 2022 - provided second biannual update to Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
27.	Bus Connections Study	Improve Bus Service to Respond to Performance Trends and Travel Demand	Present final plan to Board for approval - Q4	January 24 - February 18, 2022 - conducted first round of public outreach; May 23, 2022 - presented draft plan to Board; July 25, 2022 - presented initial public input on draft plan; October 24, 2022 - presented draft final plan to Board for approval.				
28.	Bus Fleet Outlook	Update 20-Year Bus and Paratransit Fleet Plan	Provide update to ESC - Q4	Although no formal update to ESC was presented, several updates have been provided at various executive and upper management meetings.				
29.	Climate Adaptation and Sustainability Plan (CASP)	Advance Agency Sustainability Practices and Resiliency Efforts to Adapt to Climate Change Impacts	Present update to ESC - Q4	December 23, 2022 - distributed CASP update memo to ESC; although no formal update to ESC was presented, this memo provided the committee with an overview and progress update of the CASP development.				
30.	Harbor Boulevard Transit Corridor Study	Invest in High-Capacity Transit Corridors	Initiate procurement for preliminary engineering/environmental document studies phase - Q4	The study is currently on hold pending Board direction given other higher priorities, such as the Making Better Connections Study and LRTP. This will be carried over and reconsidered in the future upon direction and final decision from the Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
31.	Interim Placentia Transit Center Improvements	Develop Mobility Hub Options for Proposed Placentia Transit Center	Provide an update on interim Placentia Station improvements to ESC - Q4	Following preliminary conversations with the City of Placentia to initiate a study of mobility hub options in the Placentia Transit Center area, the City of Placentia informed OCTA they desired to pursue a locally-funded downtown parking improvement in lieu of the study. ESC was notified of the City of Placentia's decision. The need and timing for the study may be reconsidered at a future date.				
32.	LRTP	Develop the LRTP	Release draft LRTP for public review - Q4	October 10, 2022 - hosted Board workshop. Due to unforeseen contractor staffing challenges, release of the draft LRTP has been delayed. This will be carried over to Q1 of 2023.				
33.	M2 Environmental Cleanup Program	Fund Water Quality Improvements	Present programming recommendations for Tier 1 water quality projects (Project X) grant awards to Board - Q4	November 14, 2022 - presented recommendations to Board.				
34.	M2 Environmental Mitigation Programs	Ensure Comprehensive Freeway Program Mitigation	Present biannual progress reports to Board - Q2 and Q4	June 13, 2022 - presented first biannual progress report to Board; December 12, 2022 - presented second biannual progress report to Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
35.	M2 Quarterly Reports	Provide Updates on Progress of M2 Implementation and Fulfill the Requirements of the M2 Ordinance No. 3	Present quarterly reports to Board - Q1-Q4	March 14, 2022 - presented FY 2021-22 Q2 report to Board; June 13, 2022 - presented FY 2021-22 Q3 report to Board; September 12, 2022 - presented FY 2021-22 Q4 report to Board; December 12, 2022 - presented FY 2022-23 Q1 report to Board.				
36.	Metrolink Rail Coastal Protection	Assess Vulnerability of the Railroad ROW in South Orange County to Address the Impacts of Sea Level Rise, Erosion, Etc.	Provide biannual updates to Board - Q2 and Q4	Originally to be completed by Metrolink, it has been decided that this rail coastal protection assessment will now be performed by OCTA as the owner of the rail ROW in south Orange County. Although no formal report was presented, OCTA has updated the Board on the new direction being taken on this and will continue efforts into 2023.				
37.	Next 10 Delivery Plan	Ensure M2 Delivery Commitment	Review and present status of the Next 10 Delivery Plan deliverables to Board - Q4	November 14, 2022 - presented to Board.				
38.	PE Corridor Trail Project	Prepare PA/ED for Garden Grove-Santa Ana Gap Closure Study	Present to Board and award contract - Q4	July 25, 2022 - presented to Board for approval to release RFP.			Early Complete	
39.	Regional Planning Activities	Highlight Transportation Planning Activities	Present biannual reports on activities underway that impact OCTA and the Southern California region to Board - Q2 and Q4	June 13, 2022 - presented first biannual report to Board; November 14, 2022 - presented second biannual report to Board.				
40.	Signal Synchronization Technology	Future Proof Infrastructure	Provide biannual updates on signal synchronization projects and development of updated Signal Synchronization Master Plan (Project P) - Q2 and Q4	March 14, 2022 - provided first biannual update to Board; November 14, 2022 - provided second biannual update to Board.				

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

FOURTH QUARTER (Q4) (Continued)

#	Project/Program	Objective	Milestone	Notes	Q1	Q2	Q3	Q4
41.	TAM Plan Update	Update the Agency's Existing TAM Plan and Satisfy All Applicable FTA Requirements	Present Transit Asset Management Plan to ESC - Q4	August 2022 - presented TAM Plan to ESC; September 12, 2022 - presented TAM Plan to Board.			Early Complete	

COMPLETED

ON TRACK

TIMETABLE ADJUSTED

CARRYOVER

Acronyms

Board - Board of Directors	NTP - Notice to Proceed
Cal/OSHA - California Division of Occupational Safety and Health	OCTA - Orange County Transportation Authority
Caltrans - California Department of Transportation	OC-LA - Orange County-Los Angeles
CASP - Climate Adaptation and Sustainability Plan	PA/ED - Project Approval/Environmental Document
CEO - Chief Executive Officer	PE - Pacific Electric
COVID-19 - Coronavirus	RCTC - Riverside County Transportation Commission
DCLG - Diverse Community Leaders Group	RCP - Regional Capacity Program
ESC - Executive Steering Committee	RFP - Request for Proposals
FEMA - Federal Emergency Management Agency	ROW - Right-of-Way
FY - Fiscal Year	RTSSP - Regional Transportation Signal Synchronization Program
FTA - Federal Transit Administration	SMS - Safety Management System
I-5 - Interstate 5	SOW - Scope of Work
I-405 - Interstate 405	SR-55 - State Route 55
IIJA - Infrastructure Investment and Jobs Act	SR-57 - State Route 57
L&C - Legislative and Communications Committee	SR-73 - State Route 73
LNTP - Limited Notice to Proceed	SR-91 - State Route 91
LRTP - Long-Range Transportation Plan	STEP - Safe Travels Education Program
M2 - Measure M2	TCA - Transportation Corridor Agencies



Call to Order

The Monday, December 12, 2022, regular meeting of the Orange County Transportation Authority (OCTA) and affiliated agencies was called to order by Chairman Murphy at 9:05 a.m. at the OCTA Headquarters, 550 South Main Street, Orange, California.

Directors Present: Mark A. Murphy, Chairman
Gene Hernandez, Vice Chairman
Lisa A. Bartlett
Doug Chaffee
Jose Diaz
Andrew Do
Katrina Foley
Brian Goodell
Michael Hennessey
Steve Jones
Fred Jung (via teleconference)
Jessie Lopez
Tam Nguyen
Vicente Sarmiento
Ryan Chamberlain, Ex-Officio

Directors Absent: Patrick Harper
Donald P. Wagner

Staff Present: Darrell E. Johnson, Chief Executive Officer
Jennifer L. Bergener, Deputy Chief Executive Officer
Andrea West, Interim Clerk of the Board
Gina Ramirez, Clerk of the Board Specialist, Principal
Allison Cheshire, Clerk of the Board Specialist, Senior
Aaron Delgado, Employee Rotation Program
James Donich, General Counsel

Special Calendar

1. Administration of the Oath of Office to New Orange County Transportation Authority Board of Directors

The Oath of Office was administered to incoming new Board Members Jose Diaz and Jessie Lopez.

2. Closed Session

A Closed Session was held as follows:

- A. Pursuant to Government Code Section 54956.9(d)(1) - Conference with General Counsel - Orange County Transportation Authority v. One Pacific Plaza Association, et al., OCSC Case No. 30-2018-01025154.
- B. Pursuant to Government Code Section 54957.6 to discuss negotiations with Teamsters Local 952 regarding the maintenance unit.

James Donich, General Counsel, reported out from Closed Session:

The Board of Directors approved, by a vote of 13-1, a three-year collective bargaining agreement with the maintenance employees represented by Teamsters 952.

Vice Chairman Hernandez voted in opposition to this item.

3. Update on Emergency Railroad Track Stabilization in the Vicinity of Milepost 206.8 on the Orange Subdivision

James G. Beil, Executive Director, Capital Programs, provided a presentation on this item.

A motion was made by Chairman Murphy, seconded by Vice Chairman Hernandez, and declared passed by those present, to reaffirm Resolution No. 2022-075 authorizing the Chief Executive Officer to take all necessary actions to address the emergency need for railroad track stabilization in the vicinity of Mile Post 206.8 on the Orange Subdivision, and to return to the Board of Directors, as required, to report on the status thereof.

Director Foley inquired about the project budget, train service through the area, and concerns over movement in the area.

Mr. Beil responded that the project is currently within budget, tie backs are being installed in the area as quickly as possible to lessen movement in the area, and freight movement is going through the area in the evenings but a survey of the area is done first and trains are moving slowly with passenger service still suspended at this time.

Public comment was received from Peter Warner.



4. Salute to Outgoing Orange County Transportation Authority Board of Directors

Resolutions of Appreciation were presented to outgoing Board Members Lisa A. Bartlett, Mark A. Murphy, and Tim Shaw.

5. Presentation of Resolutions of Appreciation for Employees of the Month for December 2022

Resolutions of Appreciation were presented to Rong Ith, Coach Operator, Travis Corey, Maintenance, and Amelia Hsu, Administration.

Consent Calendar (Items 6 through 25)

6. Approval of Minutes

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to approve the minutes of the November 28, 2022, Orange County Transportation Authority and affiliated agencies' special meeting.

Director Diaz abstained from voting on this item.

7. Proposed 2023 Board of Directors Meetings Calendar

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to approve the Orange County Transportation Authority and affiliated agencies 2023 Board of Directors meetings calendar.

8. Right-of-Way and Appraisal Services and Activities, Internal Audit Report No. 22-511

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to direct staff to implement two recommendations provided in Right-of-Way and Appraisal Services and Activities, Internal Audit Report No. 22-511.

9. Amendment to Agreement for Emergency Security Services

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Amendment No. 1 to Agreement No. C-2-2226 between the Orange County Transportation Authority and SecurSolution, Inc., in the amount of \$27,086, for additional emergency security services. Amending this agreement will increase the maximum cumulative obligation of the agreement to a total contract value of \$167,086.

10. Fiscal Year 2021-22 Audited Financial Statements and Independent Auditor's Reports on Internal Control over Financial Reporting

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to:

- A. Receive and file the fiscal year 2021-22 audited financial statements and independent auditor's report on internal control over financial reporting as information items.
- B. Direct staff to implement auditor recommendations related to findings over internal controls.

11. Orange County Employees Retirement System Early Payment for Fiscal Year 2023-24

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to authorize the early payment of approximately \$30.6 million by January 13, 2023, to the Orange County Employees Retirement System for member contributions for fiscal year 2023-24.

12. Orange County Transportation Authority Investment and Debt Programs Report - October 2022

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to receive and file as an information item.

13. Agreement for Palo Alto Firewall Renewal Subscriptions

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Purchase Order No. A52259 between the Orange County Transportation Authority and Thomas Gallaway Corporation, doing business as Technogent, in the amount of \$393,639 for Palo Alto Firewall renewal subscriptions for a three-year term.

14. Active Transportation Program Biannual Update

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to receive and file as an information item.

15. 2023 Technical Steering Committee Membership

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to approve the proposed 2023 Technical Steering Committee membership recommendations.

16. Securing State and Federal Formula Funds for Highway, Transit, and Complete Streets Priority Projects

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to:

- A. Authorize the use of up to \$128.800 million for five highway projects from the following fund sources:
 - * Surface Transportation Block Grant (\$54.711 million),
 - * Measure M2 (\$57.589 million), and
 - * Congestion Mitigation and Air Quality Improvement Program (\$16.5 million).
- B. Authorize the use of up to \$173.14 million for five transit programs/projects from the following formula fund sources:
 - * Congestion Mitigation and Air Quality Improvement Program (\$116.971 million),
 - * Carbon Reduction Program (\$35.344 million),
 - * Surface Transportation Block Grant (\$9 million),
 - * SB 1 (Chapter 5, Statutes of 2017) Local Partnership Program – Formula (\$7.825 million), and
 - * SB 1 State of Good Repair (\$4 million).
- C. Authorize the use of up to \$55 million for a future Complete Streets call for projects from the following formula fund sources:
 - * Surface Transportation Block Grant (\$43 million), and
 - * Congestion Mitigation and Air Quality Improvement Program (\$12 million).
- D. Authorize staff to process all necessary amendments to the Federal Transportation Improvement Program and execute or amend all necessary agreements to facilitate the above actions.

17. Consultant Selection for Preliminary Engineering and Environmental Services for the Garden Grove to Santa Ana Rails to Trails

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to:

- A. Approve the selection of Alta Planning + Design, Inc., as the firm to provide preliminary engineering and environmental services for the Garden Grove to Santa Ana Rails to Trails.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-2-2595 between the Orange County Transportation Authority and Alta Planning + Design, Inc., to provide preliminary engineering and environmental services for the Garden Grove to Santa Ana Rails to Trails.



18. Agreement for Installation of Battery-Electric Bus Chargers at Garden Grove Bus Base

Director Foley pulled this item and requested a report on this item.

George Olivo, Program Manager, Facilities Engineering, provided a report on this item.

Director Foley requested staff to look into solar charging for the battery-electric bus chargers.

A motion was made by Director Foley, seconded by Director Do, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Agreement No. C-2-2853 between the Orange County Transportation Authority and Elegant Construction Inc., the lowest responsive, responsible bidder, in the amount of \$260,000, for the installation of battery-electric bus chargers at the Garden Grove Bus Base.

19. Amendment to Agreement for On-Call Materials Testing and Inspection Services for Facilities Projects

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Amendment No. 2 to Agreement No. C-9-1356 between the Orange County Transportation Authority and Ninyo & Moore Geotechnical & Environmental Science Consultants, to exercise the two-year option term for continued on-call materials testing and inspection services for facilities projects, in the amount of \$331,420, and extend the term of the agreement through December 31, 2024. This will increase the maximum obligation of the agreement to a total contract value of \$861,885.

20. February 2023 Bus Service Change

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to receive and file as an information item.

Public comment was received from Peter Warner.

21. Approval to Release Request for Proposals for Construction Management Support Services for the State Route 91 Improvement Project Between State Route 55 and Lakeview Avenue

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to:

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 2-2919 for selection of a consultant to provide construction management support services for the State Route 91 Improvement Project between State Route 55 and Lakeview Avenue.
- B. Approve the release of Request for Proposals 2-2919 to provide construction management support services for the State Route 91 Improvement Project between State Route 55 and Lakeview Avenue.

22. Contract Change Order for the Interstate 405 Improvement Project from State Route 73 to Interstate 605

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Contract Change Order No. 143 to Agreement No. C-5-3843 between the Orange County Transportation Authority and OC 405 Partners, a joint venture, in the amount of \$5,100,000, for direct costs associated with resequencing and restaging certain paving operations near the Bolsa Avenue bridge.

23. Environmental Mitigation Program Endowment Fund Investment Report for September 30, 2022

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to receive and file as an information item.

24. Measure M2 Quarterly Progress Report for the Period of July 2022 Through September 2022

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to receive and file as an information item.

25. Measure M2 Environmental Mitigation Program Update

A motion was made by Director Bartlett, seconded by Director Foley, and declared passed by those present, to receive and file as an information item.



Regular Calendar

26. Amendment to Agreement for the Procurement of 40-Foot Compressed Natural Gas-Powered Buses

Johnny Dunning, Jr., Chief Operating Officer, provided a presentation on this item.

A motion was made by Director Do, seconded by Director Foley, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Amendment No. 4 to Agreement No. C-9-1836 between the Orange County Transportation Authority and GILLIG LLC, in the amount of \$22,679,995 to exercise the option to purchase 36 additional buses. This will increase the maximum obligation of the agreement to a total contract value of \$124,537,700.

Discussion Items

27. Public Comments

Public comment was received from Peter Warner.

28. Chief Executive Officer's Report

Darrell E. Johnson, Chief Executive Officer, reported on the following:

- Innovative Transportation Solutions Award received from the Women's Transportation Seminar for the zero-emission bus program
- Stuff-A-Bus
- New Year's Eve Free Bus Service

29. Directors' Reports

Director Foley reported that the annual Board of Supervisors open house event will be held on Wednesday, December 14.



30. Adjournment

The meeting adjourned at 11:00 a.m.

The next regularly scheduled meeting of this Board will be held:

9:00 a.m. on Monday, January 9, 2023

OCTA Headquarters

550 South Main Street

Orange, California.

ATTEST:

Gina Ramirez
Clerk of the Board Specialist, Principal



December 8, 2022

To: Transit Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: Zero-Emission Bus Pilot Update

Overview

On October 8, 2020, the Orange County Transportation Authority Board of Directors approved the purchase of ten hydrogen fuel-cell electric buses and ten plug-in battery-electric buses to gain necessary operational and technological experience in preparation for transitioning the Orange County Transportation Authority's bus fleet to zero-emission technologies. This report provides an update on the zero-emission bus pilot performance and deployment efforts.

Recommendation

Receive and file as an information item.

Background

In 2018, the California Air Resources Board (CARB) passed the Innovative Clean Transit (ICT) rule requiring all public transit agencies to transition their bus fleets to zero-emission technologies by the year 2040. Transit agencies were required to develop and submit a rollout plan that describes how the agency will transition to a zero-emission bus (ZEB) fleet by 2040, with purchasing requirements beginning in 2023. On June 22, 2020, the Orange County Transportation Authority (OCTA) Board of Directors (Board) approved the OCTA ZEB Rollout Plan, which included the deployment of a mix of hydrogen fuel-cell electric buses (FCEB) and plug-in battery-electric buses (BEB) to prepare for compliance with the ICT rule.

In anticipation of the ICT rule, OCTA developed a strategy to pilot both FCEB and BEB technologies using available grant funding. Piloting both technologies will allow OCTA to gain direct experience with operational effectiveness, maintenance, and cost. OCTA has initiated both pilots as outlined in this report. In 2017, OCTA entered into an agreement to utilize grants provided by CARB and the South Coast Air Quality Management District to purchase ten FCEBs in lieu

of compressed natural gas (CNG)-powered buses to replace buses that had reached their useful life. The grant also funded the required supporting infrastructure, such as the hydrogen fueling station and maintenance shop upgrades.

On February 9, 2020, OCTA initiated the FCEB pilot, which included ten, 40-foot FCEBs operating in OC Bus fixed-route service, and a hydrogen fueling station capable of fueling up to 50 buses per day.

On October 12, 2020, the Board approved the purchase of ten plug-in BEBs as a pilot for operation in OC Bus fixed-route service. To support the charging of these vehicles, OCTA is partnering with Southern California Edison (SCE) and the Charge Ready Transport Program to provide electrical infrastructure at the Garden Grove Bus Base. In addition to the equipment being provided by SCE, OCTA is required to provide the BEB charging stations.

On June 14, 2021, the Board approved the purchase of ten, 150-kilowatt (kW) BEB charging stations that will provide power to ten depot charging stations. The chargers can supply power evenly or sequentially to the charging stations. This allows buses to be intelligently charged in a manner tailored to the power and logistical needs of each bus. BEBs can be fully charged in less than four hours.

The first two BEBs arrived in December 2021. After acceptance testing and working through supply chain issues, the buses went into OC Bus fixed-route service in July 2022. The remaining eight buses are arriving between October and December 2022. Delays in receiving the remaining eight BEBs are related to electronic parts shortages and other supply chain issues. The performance of the two BEBs is provided below.

The BEB charging stations have arrived and will be installed following the completion of infrastructures upgrades being made by SCE. The charging stations are expected to be installed and operational by January 2023. In the interim, the BEBs are being charged using the pay-per-use level III charging stations installed at both directly-operated bus bases.

On August 16, 2022, the Federal Transit Administration (FTA) awarded OCTA \$2.5 million in federal funding toward the purchase of ten battery-electric buses that will replace ten gasoline OC ACCESS buses. OCTA applied for and was awarded this funding through a competitive FTA grant program.

Discussion

The FCEBs have been in service for 33 months. The performance data included in this report will cover 32 months of operation from February 2020 through October 2022. The two BEBs have been in service for five months and their performance will be through October 2022. The BEB data is only informational and will not be comparative until all ten buses are fully deployed into service, which is expected to occur in January 2023. The performance of the ten FCEBs and two BEBs is measured against the performance of ten CNG buses that were selected at the onset of the pilot to provide comparative performance analytics. General vehicle information on all three bus types is provided in the following chart.

Vehicle Information	FCEB	BEB	CNG Bus
Number of Buses	10	10	10
Manufacturer/Model	New Flyer Xcelsior	New Flyer Xcelsior	New Flyer Xcelsior
Model Year	2018	2020	2016
Bus Cost Each	\$1.3M	\$1.1M	\$580,000
Length	40 feet	40 feet	40 feet
Curb Weight	33,560 pounds	33,500 pounds	30,000 pounds
Propulsion System	Ballard Fuel Cell 85 kW	Siemens Electric Motor 210 kW	Cummins CNG Engine 280 hp
	Siemens Electric Motor 210 kW		Allison Transmission
Energy Storage	Five Composite Fuel Cylinders		Six Composite Fuel Cylinders
	Lithium-Ion Batteries 100 kW	Lithium-Ion Batteries 440kW	
Operating Range	300 miles	200 miles	350 miles

The key performance indicators include bus availability, miles between road calls (MBRC), fuel economy, and cost per mile (CPM).

Bus availability, which is a measure of reliability, is the percentage of days the buses are actually available compared to the total number of days that the buses are planned for revenue service. Buses available for service may be used in revenue service, training, special events, or they may be available but just not used. Buses unavailable for service may have had mechanical issues with the propulsion system (fuel-cell system, electric drive system, engine), regular scheduled maintenance, or required unscheduled repairs.

The OCTA performance standard for bus availability is 80 percent; however, for new bus technology, especially during the onset of a pilot, availability can be challenging as the system issues are analyzed and buses are out of service for a longer period. Both the ten FCEBs and the ten CNG buses fell below the target.

Bus availability can fluctuate for a variety of reasons and lengths of time due to the nature of repairs or scheduled service, eventually averaging out to meet the goal. However, due to the coronavirus pandemic, the drop in ridership, and subsequent drop in bus usage led to holding operational buses from service in order to rotate fleet usage. As a result, the availability for CNG buses was skewed. The CNG buses selected for this comparison achieved a 77 percent availability. Had the CNG buses not been held artificially, the goal would have been met.

Unlike the CNG buses, the FCEBs did not achieve the goal for a variety of mechanical and electrical issues. The FCEBs dropped slightly from 59 percent availability in 2021 to 57 percent availability in 2022. Considering this is new technology and buses may be placed out of service for longer periods of time as issues are analyzed and often require factory support, the expectation is that availability will improve as experience with the technology grows. Another contributing factor to availability was supply chain issues. In one example, two FCEBs were out of service for more than two months waiting for parts.

The two BEBs achieved 76 percent availability within five months of operation.

MBRC is a measurement of bus reliability. A road call is defined as a revenue vehicle mechanical or system failure that causes the bus to be replaced on a route or causes a significant delay in the route schedule.

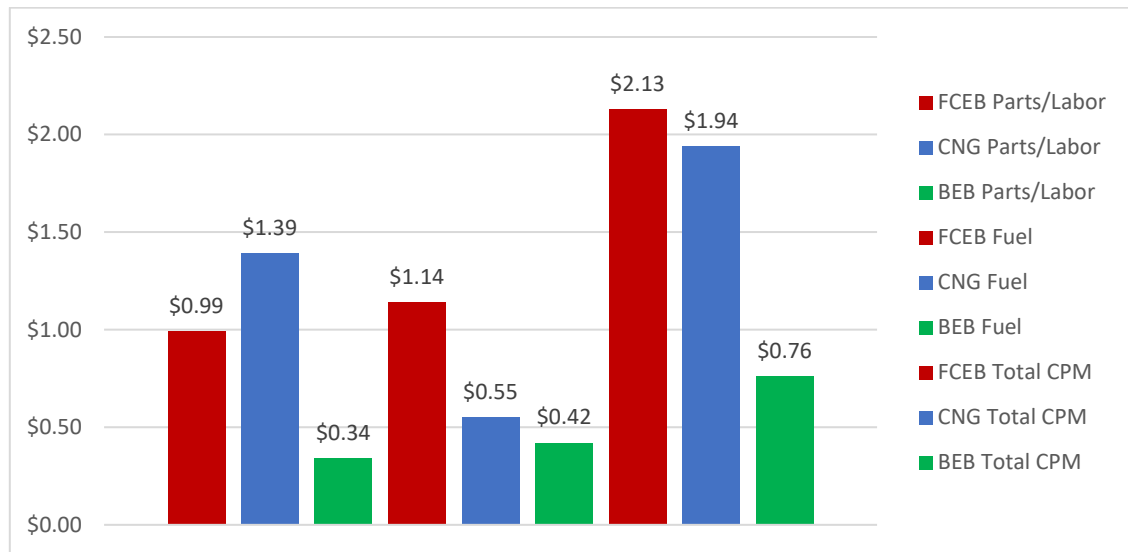
The OCTA performance standard for MBRC is 14,000 miles. The CNG buses regularly exceeded the standard achieving a total of 29,316 MBRC over the last 32 months.

The FCEBs are not meeting the standard, achieving only 5,254 MBRC. The FCEBs only met the MBRC standard in five of the 32 months. Taking into consideration that this is new technology and only 30 FCEBs were built by this manufacturer at the time of delivery, peak performance may be delayed compared to a conventional transit bus. In the early months there were a variety of issues including software and calibration issues, but more recently most of the road calls are related to electrical components. In terms of the fuel cell performance, it is performing at parity with the CNG engine.

Fuel economy is a measurement of how efficiently the fuel is being used by the propulsion system. Because CNG is measured in Therms, hydrogen is measured in kilograms, and battery power in kW, fuel types are converted to a common measurement. In this case, all three technologies are measured in miles per diesel gallon equivalent (mpdge). CNG buses have consistently averaged 4.14 mpdge, while FCEBs have more than doubled that with an average of 9.63 mpdge. FCEB fuel economy is 2.3 times greater than a CNG bus. The higher fuel economy on the FCEB helps offset the higher cost of hydrogen fuel. The current CPM for hydrogen fuel is \$1.14 compared to the CNG fuel at \$0.55. The two BEBs in service have measured at \$0.42 CPM. However, it is important to note that with electricity, cost is based on kW usage and due to current rate structures, as that usage increases the cost per kW also increases, which will increase the CPM.. The BEB fuel CPM is expected to increase when all ten buses are in service.

OCTA calculates total CPM for each technology by tracking parts and labor cost and fuel cost. Maintenance cost is categorized by each bus system to understand which components are the highest cost drivers.

As illustrated in the following chart, the parts and labor CPM for FCEBs is lower than CNG buses by approximately 28 percent. The parts and labor CPM for FCEBs is currently \$0.99, compared to \$1.39 for CNG buses. Adding fuel cost to parts and labor costs results in the FCEB total CPM exceeding the CNG bus total cost per mile by nine percent. The FCEB total CPM is \$2.13, compared to the CNG buses at \$1.93. Fuel cost is the highest cost driver for the FCEB. Preliminary CPM calculations show the BEB parts and labor cost at \$.34 and fuel cost at \$.042, for a total of \$.076. Since BEBs share many of the same components with the FCEBs and as noted above electricity rates increase with usage and will therefore increase costs, the BEB CPM is expected to increase.



Hydrogen Fueling Station Update

In the first months of operation, the hydrogen fueling station experienced a variety of issues resulting in the station shutting down during operation. These issues were resolved with software updates while some issues required engineering reconfiguration. For the last year, the hydrogen fueling station has performed consistently well, matching the performance of the CNG fueling station. Monthly meetings with the fuel station provider are held to ensure incidents are discussed and resolved immediately. Although the hydrogen fueling station is performing well, there are times when the station is out of service resulting in buses not being fueled and not deployed into service. The CNG fueling station also goes down at times; however, fueling can be accomplished by sending buses to another base. Currently there is no backup fueling infrastructure, public or private, available for hydrogen.

Summary

After 33 months, much has been gained in terms of knowledge and experience from the ZEB pilot program. Although the performance of the FCEB is not yet meeting the OCTA standards in availability and MBRC, there is a greater understanding of the differences between the technologies, what components need improvement to improve reliability, and where training can be developed to help mitigate issues. Understanding the various costs to operate and maintain ZEBs helps drive financial planning and advocacy for funding and lowering costs, such as the need to find solutions to lower the cost of hydrogen fuel. As the ZEB pilot program continues with the addition of ten BEBs and ten battery-electric cutaway buses for paratransit services, OCTA will continue to gain necessary

operational and technological experience for each ZEB type available to shape and define the fleet mix required to meet the service demands of Orange County when utilizing ZEBs. Staff will keep the Board apprised of any changes in the ZEB Program and provide performance updates annually.

Attachment

None.

Prepared by:

Cliff Thorne
Director, Maintenance
(714) 560-5975

Approved by:

Johnny Dunning, Jr
Chief Operating Officer
(714) 560-5710

Zero-Emission Bus Pilot Update





OCTA ZEB PILOT DETAILS

- Fuel Cell Electric Bus (FCEB) Pilot – Initiated February 2020, included ten 40-foot FCEBs, a hydrogen fueling station, shop upgrades
 - Grant Funded \$13.2M - California Air Resources Board and South Coast Air Quality Management District
- Battery-Electric Bus (BEB) Pilot – Partially initiated July 2022 with two BEBs, remaining eight buses arriving by December 2022
 - Grant Funded \$10.3M - California Transportation Commission Solutions for Congested Corridors Program (SCCP) under SB 1 (Chapter 5, Statutes of 2017) and the Low Carbon Transit Operations Program (LCTOP)
- Battery-Electric Cutaway Bus Pilot – Federal Transit Administration awarded \$2.5M for ten battery-electric paratransit buses and infrastructure
 - Grant Funded \$2.5M - FTA's Buses and Bus Facilities, and Low and No Emissions Vehicle programs

OCTA ZEB PILOT UPDATE - BEB

- The first two BEBs in service July 2022
 - Third bus arrived in October 2022, first BRAVO! branded bus
 - Remaining seven will arrive by the end of December 2022
 - Performance measured against ten compressed natural gas-powered (CNG) buses and ten FCEBs
- Charging stations have arrived and will be installed in January 2023
 - 10 - 150 kW Chargers
 - Full charge in four hours

kW – kilowatt



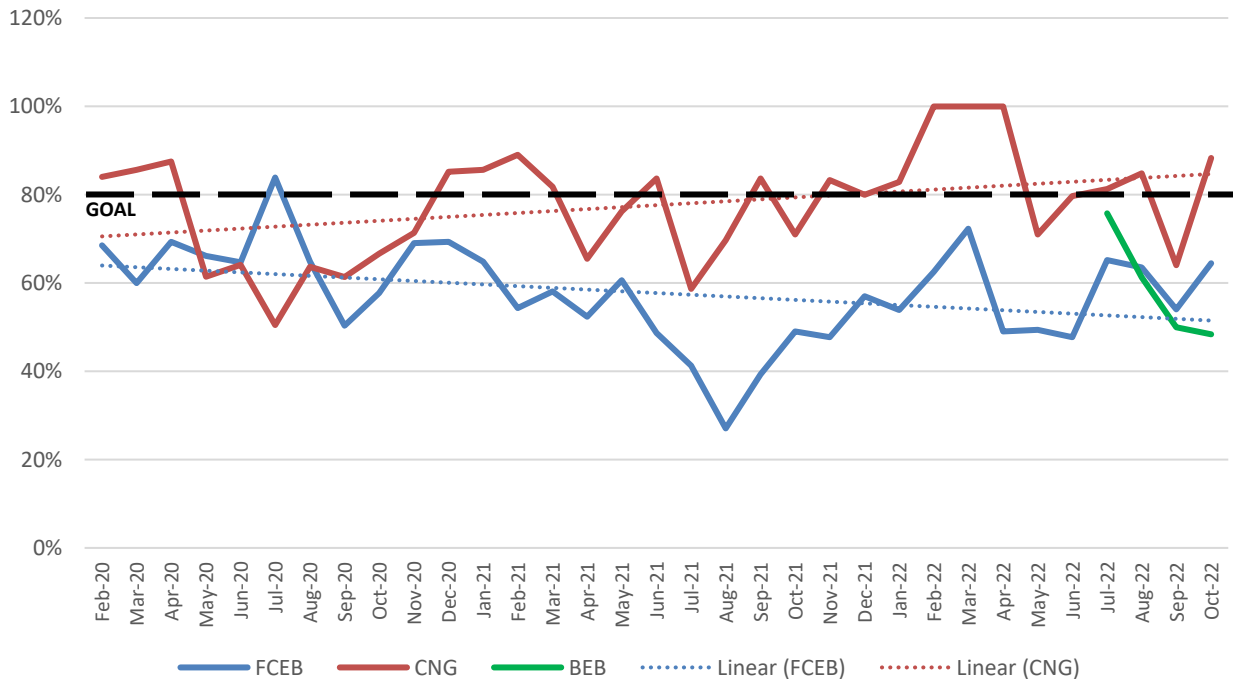
OCTA ZEB PILOT UPDATE – FCEB

- In Service 33 months
- Performance Data for 32 months
February 2020 – October 2022
- Performance measured against of ten CNG buses and ten BEBs
- Life to Date Miles - 898,964 miles
- Key Performance Indicators
 - Bus Availability
 - Miles Between Road Calls (MBRC)
 - Fuel Economy
 - Cost Per Mile

* Compressed Natural Gas



BUS AVAILABILITY



OCTA Standard 80%

CNG – 77%

- Skewed Data due to Rotating Fleet

FCEB – 57%

- Supply Chain Issues, long wait time for parts

BEB – 76%

- Only two buses, in service July 2022

MILES BETWEEN ROAD CALLS

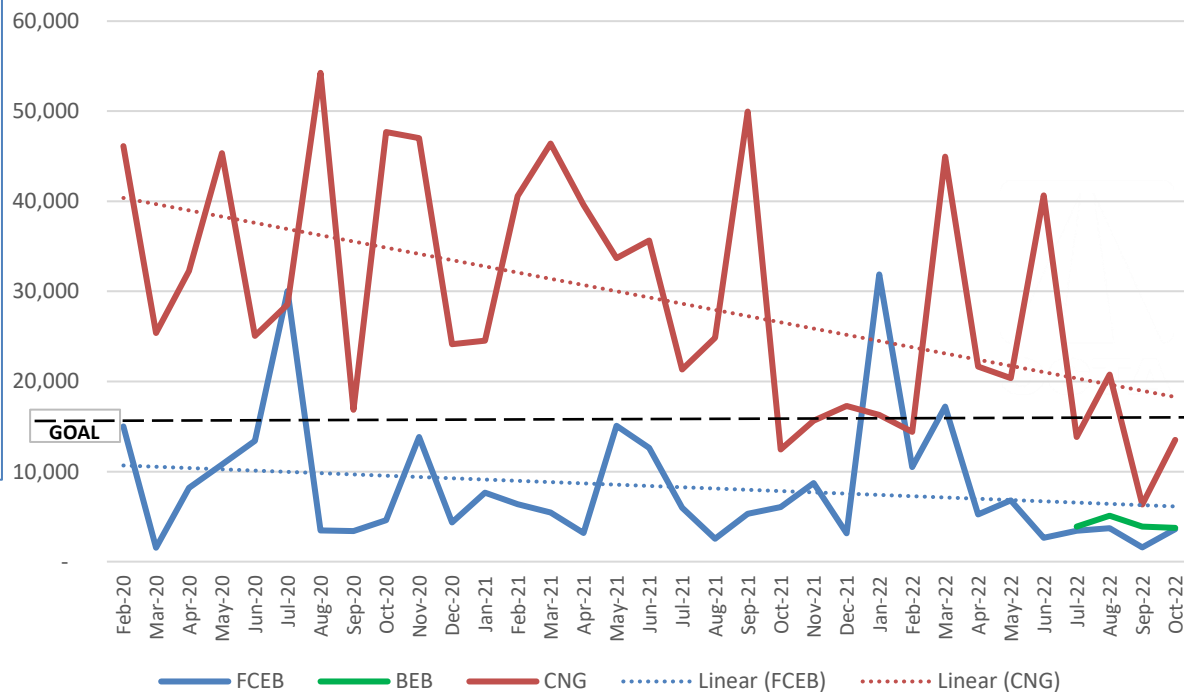
- OCTA performance standard is 14,000 MBRC

CNG: 29,316 MBRC ▲

FCEB: 5,254 MBRC ▼

BEB*: 19,412 MBRC ▲

** Only one road call since July 2022*





FUEL ECONOMY

- FCEB fuel economy is 2.3 times greater than the CNG bus
- BEB fuel economy is 3.5 times greater than the CNG bus and 1.5 times greater than the FCEB

Fuel Cost Per Mile

- FCEB - \$1.14
- CNG - \$0.55
- BEB - \$0.42

Measurement	CNG	FCEB	BEB
Miles per gasoline gallon equivalent	3.70	8.37	13.38
Miles per diesel gallon equivalent	4.14	9.63	14.87
Miles per kilogram equivalent	3.77	8.53	13.63
Miles per kilowatt(kW)	0.11	0.26	0.40

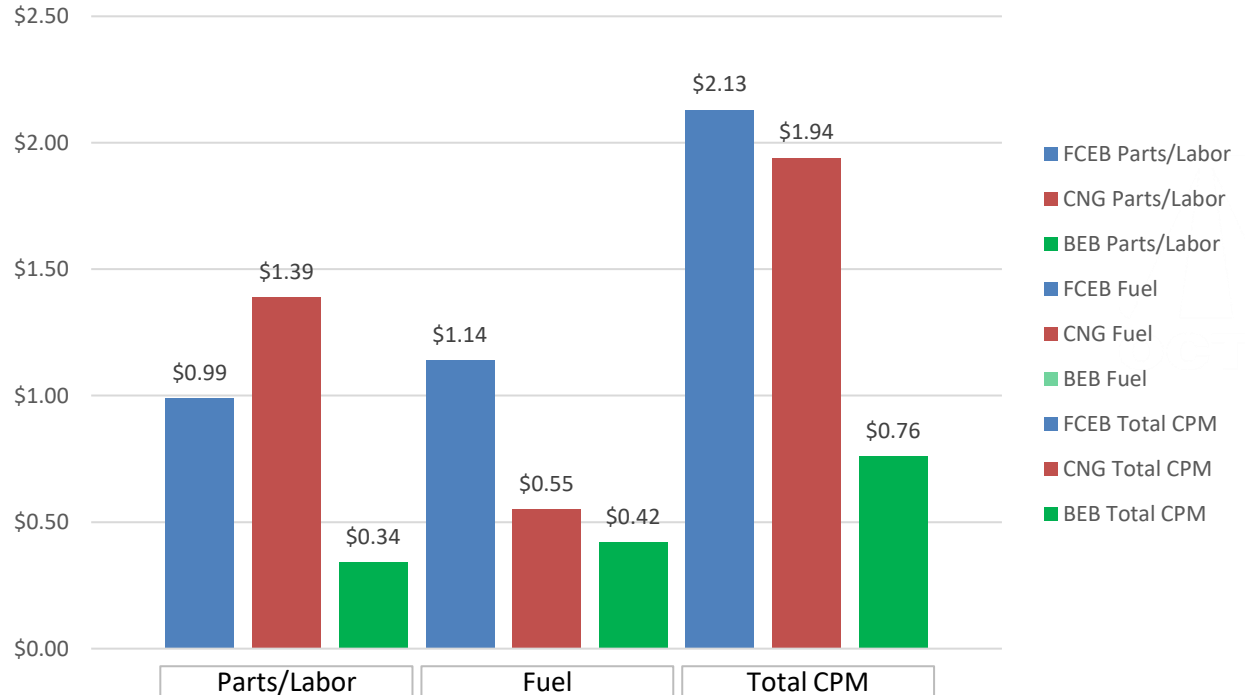
COST PER MILE (CPM)

Parts and Labor for FCEB is 28 percent lower than CNG

- FCEB = \$0.99
- CNG = \$1.39

Total CPM, includes fuel cost, FCEB is 9% higher than CNG

- FCEB = \$2.13
- CNG = \$1.94



HYDROGEN FUELING STATION UPDATE



- Early months – variety of issues resulting in station shutdowns. Issues have been resolved
- Availability has improved, matching the performance of the CNG fueling station

Next Steps

- Deploy Remaining BEBs
- Procure Ten Battery-Electric Cutaway Buses



20-Year Anniversary of the Purchase of the 91 Express Lanes





