AGENDA

Transit Committee Meeting

Committee Members
Tim Shaw, Chairman
Harry S. Sidhu, Vice Chairman
Doug Chaffee
Andrew Do
Steve Jones
Tam Nguyen
Vicente Sarmiento

Orange County Transportation Authority
Headquarters
Conference Room 07
550 South Main Street
Orange, California
Thursday, December 9, 2021 at 9:00 a.m.

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, telephone (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

The agenda descriptions are intended to give members of the public a general summary of items of business to be transacted or discusses. The posting of the recommended actions does not indicate what action will be taken. The Committee Members 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 inspectionat www.octa.net or through the Clerk of the Board's office at: OCTA Headquarters, 600 South Main Street, Orange, California.

Public Comments on Agenda Items

Members of the public can either attend in-person (subject to OCTA's Coronavirus (COVID-19) safety protocols) or listen to audio live streaming of the Board of Directors and Committee meetings by clicking the below link:

http://www.octa.net/About-OCTA/Who-We-Are/Board-of-Directors/Live-and-Archived-Audio/

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 (subject to OCTA's COVID-19 safety protocols) and address the Board regarding any item. Members of the public will be strongly encouraged to wear a face covering regardless of vaccine status. Limited (physically distanced) seating will be available in the Board room. If capacity is reached, members of the public will be asked to wait outside until it is time for them to speak.

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. Public comments will be made available to the public upon request.

Call to Order

Pledge of Allegiance
Director Nguyen

1. Public Comments

Special Calendar

There are no Special Calendar matters.

Consent Calendar (Items 2 through 5)

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

2. Approval of Minutes

Approval of the minutes of the Transit Committee meeting of November 11, 2021.

3. Consultant Selection for Transit Facilities Condition Assessment

George Olivo/James G. Beil

Overview

On September 14, 2021, the Orange County Transportation Authority issued a request for proposals for consultant services to conduct a transit facilities condition assessment and ratings of its transit facility assets. Proposals were solicited in accordance with Orange County Transportation Authority procurement procedures for professional and technical services. Board of Directors' approval is requested for the selection of the firm to perform the required work.

Recommendations

A. Approve the selection of Cumming Management Group, Inc., as the firm to conduct a transit facilities condition assessment.

B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-1-3695 between the Orange County Transportation Authority and Cumming Management Group, Inc., in the amount of $286,453, to conduct a transit facilities condition assessment.

4. Bus Operations Performance Measurements Report for the First Quarter of Fiscal Year 2021-22
Johnny Dunning, Jr./Jennifer L. Bergener

Overview

The Orange County Transportation Authority operates fixed-route bus and demand-response paratransit service throughout Orange County and into neighboring counties. The established measures of performance for these services assess the safety, courtesy, reliability, and overall quality of the services. This report summarizes the year-to-date performance of these services through the first quarter of fiscal year 2021-22.

Recommendation

Receive and file as an information item.

5. February 2022 Bus Service Change
Jorge Duran/Kia Mortazavi

Overview

In an effort to better meet demand for bus service as California and the economy continue to emerge from the coronavirus pandemic, the February 2022 bus service change will provide additional service to improve service quality and reliability. Bus service levels will increase by 83,000 annual revenue vehicle hours to 1.43 million annual revenue vehicle hours, which is within the fiscal year 2021-22 budgeted amount of service. Staff utilized customer comments and route performance statistics to develop the service improvements.

Recommendation

Receive and file as an information item.

Regular Calendar

6. OC Streetcar Cost and Schedule Update
Ross Lew/James G. Beil

Overview

The Orange County Transportation Authority is currently underway with the implementation of the OC Streetcar project. Staff is seeking Board of Directors' approval of a revised OC Streetcar budget and funding plan.

Recommendations

A. Approve the revised OC Streetcar Federal Transit Administration Full Funding Grant Agreement budget of $509.54 million.

B. Authorize the use of an additional $86.10 million for the OC Streetcar Federal Transit Administration Full Funding Grant Agreement, increasing the total funding for the Full Funding Grant Agreement from $423.44 million to $509.54 million, as follows:
   - $45.72 million in additional Congestion Mitigation and Air Quality Improvement Program funds;
   - $30.98 million in additional Measure M2 Transit Extensions to Metrolink (Project S) program funding; and
   - $9,407,272 in American Rescue Plan Act Capital Investment Grant funds.

C. Authorize staff to male all necessary amendments to the Federal Transportation Improvement Program, update any air quality conformity requirements, and execute any required agreements, amendments, or grants with the Federal Transit Administration to facilitate the recommendation above.

7. Amendment to Agreement for Construction Management Services for the OC Streetcar Project
Ross Lew/James G. Beil

Overview

On July 25, 2016, the Orange County Transportation Authority Board of Directors approved an agreement with PGH Wong Engineering, Inc., to provide construction management services for the OC Streetcar project for a term of five years. An amendment to the existing agreement is requested for continued construction management services.

Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 14 to Agreement No. C-6-0926 between the Orange County Transportation Authority and PGH Wong Engineering, Inc., in the amount of $17,100,794, and extend the agreement term through November 30, 2024, for continued OC Streetcar project construction management services. This will increase the maximum cumulative obligation of the agreement to a total contract value of $35,082,570.

8. Amendment to Agreement for Project Management Consultant Services for the OC Streetcar Project
Ross Lew/James G. Beil

Overview

On February 23, 2015, the Orange County Transportation Authority Board of Directors approved an agreement with HDR Engineering, Inc., to provide project management consultant services for the OC Streetcar project, for a term of five years, with two, two-year option terms. An amendment to the existing agreement for execution of the second option term is requested for continued project management consultant services.

Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 22 to Agreement No. C-4-1854 between the Orange County Transportation Authority and HDR Engineering, Inc., to exercise the second two-year option term for project management consultant services for the OC Streetcar project, in the amount of $15,527,477, 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 $44,553,767.

9. Zero-Emission Bus Pilot Update
Cliff Thorne/Jennifer L. Bergener

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 in order 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

10. OC Bus and OC ACCESS Services Update
Johnny Dunning, Jr./Jennifer L. Bergener

Staff will provide an update on the OC Bus and OC ACCESS Services.

11. Chief Executive Officer's Report

12. Committee Members' Reports

13. Closed Session

There are no Closed Session items scheduled.

14. Adjournment

The next regularly scheduled meeting of this Committee will be held at **9:00 a.m. on Thursday, January 13, 2022**, at the Orange County Transportation Authority Headquarters, Conference Room 07, 550 South Main Street, Orange, California.

Committee Members Present
Via Teleconference
Tim Shaw, Chairman
Harry S. Sidhu, Vice Chairman
Doug Chaffee
Andrew Do
Steve Jones
Tam Nguyen
Vicente Sarmiento

Committee Members Absent
None

Staff Present
Darrell E. Johnson, Chief Executive Officer
Andrea West, Interim Clerk of the Board
Allison Cheshire, Clerk of the Board Specialist, Senior
Gina Ramirez, Clerk of the Board Specialist, Senior

Via Teleconference
Jennifer L. Bergener, Deputy Chief Executive Officer
Cassie Trapesonian, Assistant General Counsel
OCTA Staff

Call to Order

The November 11, 2021, regular meeting of the Transit Committee (Committee) was called to order by Committee Chairman Shaw at 9:01 a.m.

Roll Call

Allison Cheshire, Clerk of the Board Specialist, Senior, conducted an attendance roll call and announced a quorum of the Committee.

Pledge of Allegiance

Director Jones led in the Pledge of Allegiance.

1. Public Comments

There were no Public Comments.

Special Calendar

There were no Special Calendar matters.

Consent Calendar (Items 2 through 4)

2. Approval of Minutes

A motion was made by Director Sidhu, seconded by Director Sarmiento, and following a roll call vote, declared passed 7-0, to approve the minutes of the Transit Committee meeting of October 14, 2021.

3. Cooperative Agreement with the Southern California Regional Rail Authority for the Coastal Rail Infrastructure Improvements Project

A motion was made by Director Sidhu, seconded by Director Sarmiento, and following a roll call vote, declared passed 7-0, to:

A. Request to amend the Orange County Transportation Authority Fiscal Year 2021-22 budget by $700,000, to accommodate Cooperative Agreement No. C-1-3828 with the Southern California Regional Rail Authority to develop long-term solutions along the coastal rail corridor to protect the railroad against future tidal and landslide risks.

B. Authorize the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-1-3828 between the Orange County Transportation Authority and the Southern California Regional Rail Authority, in the amount of $700,000, to prepare a Project Definition Report for the Coastal Rail Infrastructure Improvements Project.

4. Funding Recommendations for the 2021 Enhanced Mobility for Seniors and Disabled Grant Program

A motion was made by Director Sidhu, seconded by Director Sarmiento, and following a roll call vote, declared passed 7-0, to:

A. Approve the award of $2.750 million in local funding to 14 applications submitted for consideration of funding through the Enhanced Mobility for Seniors and Disabled Grant Program.

B. Authorize the Chief Executive Officer to negotiate and execute cooperative agreements with selected applicants to receive funding through the Enhanced Mobility for Seniors and Disabled Grant Program.

Regular Calendar

5. Cooperative Agreement with the Southern California Regional Rail Authority for Railroad Track Stabilization in the City of San Clemente

Jason Lee, Project Manager, III, and Justin Fornelli, Chief of Program Delivery, Metrolink, provided a PowerPoint presentation on this item.

A discussion ensued regarding:

- Deviation standards for track movement;
- Responsible parties for maintenance and repair of the area around the track;
- Funding for long-term restoration of track area; and
- Track monitoring system and response.

A motion was made by Director Nguyen, seconded by Director Chaffee, and following a roll call vote, declared passed 7-0, to

A. Authorize the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-1-3749 with the Southern California Regional Rail Authority in the amount up to $5,000,000, to stabilize the railroad track structure in the City of San Clemente.

B. Amend the Orange County Transportation Authority's Fiscal Year 2021-22 Budget by $5,000,000, to accommodate Cooperative Agreement No. C-1-3749 for the railroad track stabilization work.

Discussion Items

6. OC Bus and OC ACCESS Services Update

Johnny Dunning, Jr., Department Manager of Scheduling and Bus Operations Support, and Ryan Maloney, Section Manager of Marketing and Customer Service, provided a PowerPoint presentation on this item.

No action was taken on this item.

7. Chief Executive Officer's Report

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

Veterans Appreciation Event

- Today, OCTA is hosting the annual Veterans Appreciation event to honor OCTA employees who have served in the U.S. Armed Forces.
- Employees who have a child or grandchild in the military will also be recognized.

8. Committee Members' Reports

Director Jones inquired about how to position OCTA to take advantage of funds available under the proposed infrastructure bill for OC Streetcar connectivity to Harbor Boulevard.

Mr. Johnson, CEO, commented that staff has been discussing the infrastructure bill and funding that may be available. OCTA is positioned for projects underway and can move into the environmental phase to be ready. Harbor Boulevard has the most promise for the next stage for OC Streetcar.

Committee Vice Chairman Sidhu commented that the City of Anaheim would discuss the OC Streetcar connectivity from Anaheim to Fullerton.

Director Sarmiento commented that OCTA should position itself to be able to obtain funds as soon as possible.

Director Do suggested Bristol Street as a future option in addition to Harbor Boulevard and to consider connectivity to California State University, Fullerton.

Mr.Johnson, CEO, commented that staff can bring this item to the next scheduled Transit Committee in December.

Committee Chairman Shaw commented that he plans to attend the OCTA Veteran's Day event later in the day and acknowledged former Director Winterbottom in remembrance of his past attendance and support of the annual event.

9. Closed Session

There were no Closed Session items scheduled.

10. Adjournment

The meeting adjourned at 9:43 a.m.

The next regularly scheduled meeting of this Committee will be held at **9:00 a.m. on Thursday, December 9, 2021**, at the Orange County Transportation Authority Headquarters, Conference Room 07, 550 South Main Street, Orange, California.

ATTEST

Tim Shaw
Committee Chairman

Allison Cheshire
Clerk of the Board Specialist

December 9, 2021

To: Transit Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: Consultant Selection for Transit Facilities Condition Assessment

Overview

On September 14, 2021, the Orange County Transportation Authority issued a request for proposals for consultant services to conduct a transit facilities condition assessment and ratings of its transit facility assets. Proposals were solicited in accordance with Orange County Transportation Authority procurement procedures for professional and technical services. Board of Directors' approval is requested for the selection of the firm to perform the required work.

Recommendations

A. Approve the selection of Cumming Management Group, Inc., as the firm to conduct a transit facilities condition assessment.

B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-1-3695 between the Orange County Transportation Authority and Cumming Management Group, Inc., in the amount of $286,453, to conduct a transit facilities condition assessment.

Discussion

The Orange County Transportation Authority (OCTA) has responsibility for its transit operating facilities, including five maintenance and operations bus bases, five transportation centers, and two park-and-ride facilities. As part of periodic reporting to the Federal Transit Administration (FTA), OCTA is required to report facility condition ratings to the National Transit Database. The FTA requires public transit agencies to perform a facilities condition assessment (FCA) at least once every four years. The FCA process includes inspection and condition rating of facility elements using FTA's Transit Economic Requirements Model (TERM), a five-point scale defining condition as 1-poor, 2-marginal, 3-adequate, 4-good, or 5-excellent, and calculating an overall TERM rating for

each facility. The facility condition rating is calculated using FTA's weighted average condition approach utilizing replacement costs. The scope of work (SOW) includes project administration/management, quality assurance/ quality control, and performance of the facility condition assessment. OCTA's last FCA was completed in 2018. This work effort will be performed in 2022 to meet the FTA's data reporting requirements for OCTA's administrative and maintenance facilities, as well as for passenger and parking facilities. This work effort will be performed in accordance with the latest FTA guidance and requirements found in the Transit Asset Management (TAM) Facility Performance Measure Reporting Guidebook, Condition Assessment Calculation.

Procurement Approach

This procurement was handled in accordance with OCTA's Board of Directors (Board)-approved procedures for professional and technical services. In addition to cost, many other factors are considered in an award for professional and technical services. Award is recommended to the firm offering the most comprehensive overall proposal considering such factors as staffing and project organization, prior experience with similar projects, and work plan, in addition to cost and price.

On September 14, 2021, Request for Proposals (RFP) 1-3695, was electronically released on OCTA's CAMM NET system. The project was advertised in a newspaper of general circulation on September 16 and September 22, 2021. A pre-proposal conference was held on September 23, 2021, with nine attendees representing six firms. Three addenda were issued to make available the pre-proposal conference registration sheets and presentation materials, provide responses to questions received, and address administrative issues related to the RFP.

On October 13, 2021, three proposals were received. An evaluation committee consisting of staff from the Contracts Administration and Materials Management, Facilities Maintenance, Maintenance, Facilities Engineering, and Planning departments met to review all submitted proposals. The proposals were evaluated based on the following evaluation criteria and weights:

- Qualifications of the Firm 25 percent
- Staffing and Project Organization 25 percent
- Work Plan 25 percent
- Cost and Price 25 percent

The evaluation criteria and weightings are consistent with those developed for the previous procurement for the same services. Several factors were considered in developing the criteria weights, and all four criteria were weighted equally. The qualifications of the firm in performing work of similar scope and size are important to the successful completion of the project. Staffing and project organization are similarly important, as the qualifications of the project manager (PM) and other key task leaders are essential to the timely delivery of project objectives. The same level of importance was also assigned to the work plan, as the technical approach to the project is critical to the successful performance of the project. Lastly, the cost and price criterion is important to ensure OCTA receives value for the work provided.

The evaluation committee reviewed all proposals based on the evaluation criteria and found two firms most qualified to perform the required services. The most qualified firms are listed below in alphabetical order:

Firms and Location

Cumming Management Group, Inc. (Cumming)
Los Angeles, California

Marx Okubo Associates, Inc. (MOA)
Santa Ana, California

On October 26, 2021, the evaluation committee interviewed the two short-listed firms. The interviews consisted of a presentation allowing each team to discuss its qualifications, highlight its proposal, and respond to evaluation committee questions. Questions were asked relative to each team's experience, approach to work plan execution, quality assurance/quality controls procedures, FTA requirements in the SOW, and perceived project challenges. After considering the presentations and responses to questions asked during the interview, the evaluation committee adjusted the preliminary scores for both firms. However, Cumming remained as the top-ranked firm with the higher cumulative score.

Based on the evaluation of the written proposals, information obtained from the interviews, as well as cost and price, staff recommends Cumming as the firm to conduct a transit FCA and ratings of OCTA's transit facility assets. Cumming ranked higher as the firm's proposal was most responsive to the RFP requirements. Cumming demonstrated the most extensive relevant experience, presented the most qualified and experienced team, and provided a comprehensive work plan and competitive price. The following is a brief summary of the proposal evaluation results.

Qualifications of the Firm

Cumming was founded in 1996 and provides project and construction management, sustainability and energy, cost estimating, project controls, and commissioning services. The firm has 1,100 employees in 36 offices worldwide, with four offices in Southern California. Cumming demonstrated the firm's overall experience performing FCAs, FTA TAM facility performance measure reports, comprehensive assessment and facility cost estimating, and experience working directly for transit agencies. Cumming has successfully delivered FCA services for public agencies and transit programs in California and throughout the United States (U.S). Cumming's recent and relevant projects include: Los Angeles County Metropolitan Transportation Authority (Metro) FTA FCA, as well as inspection services for rail and bus facilities and the Purple Line subway extension; City of Hope Medical Campus FCA project; FCA and energy audits for the El Centro Elementary School District, and FCA and master planning work for the Napa Valley Unified School District. Cumming proposed to utilize subconsultant Morgner Construction Management to provide additional FCA support services, which is experienced in public construction management and facilities assessment experience, in-house cost management, and facility and cost estimating for commercial buildings. Positive reference checks were received from public sector clients for FCA services performed.

MOA was founded in 1982, and a core of its business is focused on FCAs. The firm has eight offices in the U.S, including a local office in the City of Santa Ana, and employs a total of 199 staff, including 116 licensed professionals, architects, and engineers. MOA is experienced in performing assessment services for hospitals, retailers, and industrial and residential customers, and has worked with clients in the private and government sectors. However, MOA lacked relevant experience working directly with transit agencies or transit programs performing FCAs in conformance with FTA requirements. MOA's FCA projects include: City of Palmdale low-income housing development assessment project; property condition assessments of office buildings for UBS Realty Investors, Inc., and CIM Group, Inc.; FCA for De Luz residential neighborhood at Camp Pendleton; and condition and seismic risk assessment for the City of Laguna Beach Library. MOA's subconsultant, Pac Rim Engineering, Inc., is experienced in civil engineering type services and hydraulic lift inspections for maintenance facilities. Positive references checks were received for work performed.

Staffing and Project Organization

Cumming proposed an experienced project team, including key personnel who have worked together on similar projects. The project team consists of experienced engineers, architects, inspectors, cost estimators, and other skilled professionals. The proposed project director is an electrical engineer and certified inspector, as well as an energy and environmental design lead with 29 years of experience developing and managing projects in the public sector, and overseeing energy efficient design, electricity utility design, and in managing large capital construction programs and construction projects. The proposed PM is a senior mechanical commissioning engineer, with 15 years of experience in project management, energy management, utility programs, building technologies, sustainability consulting, and smart grid solutions. The principal architect has over 35 years of experience in the planning, design, and development of projects, and has performed numerous FCAs for large and complex healthcare projects. Cumming's other key personnel and support staff are skilled and experienced in FCAs, energy assessment services, integrated building design, and construction.

MOA's proposed team has experience performing FCAs, though cited references did not indicate that the team has previously worked together on past projects. The proposed PM is a licensed architect with four years of experience performing architectural consulting, property condition assessments, pre-construction project reviews, and construction observation services; however, project management experience leading FCAs was limited. MOA's proposed principal has over 33 years of experience performing oversight services and property condition assessments, pre-construction document reviews, and construction phase services, and has demonstrated professional experience as a design and technical architect for the public and private sectors. The lead mechanical engineer has 34 years of experience in facility engineering, information technology management, and specializes in tenant improvements, plant relocations, and building construction manufacturing reengineering. Other key staff and task leaders are experienced in performing structural and seismic evaluations, property condition assessments, seismic risk assessments, preconstruction reviews, and observations for residential, commercial, and industrial projects.

Work Plan

Cumming presented a comprehensive and practical work plan and demonstrated an understanding of FCA requirements. The proposal included a thorough approach to the work and outlined a detailed work plan addressing all

the needs of the project and conformance to the FTA TAM facility performance measurement reporting guidelines. Cumming conveyed a good project management methodology, quality assurance and quality control methods, and adherence to schedule and budget. Cumming discussed its team's approach to estimating costs for repair and replacement of deficient elements, experience complying with FTA guidance and requirements, approach to inspecting and assigning ratings under FTA's TERM scales, understanding of the tasks related to quality assurance/quality control reviews and certification of deliverables and lift inspections, and lessons learned from previous assessments. The firm's proposed workplan included a concise discussion of proposed methods to meet SOW requirements, budget, and schedule. Cumming's proposal was supported by a cohesive interview where the team provided well organized, detailed, and thorough responses to interview questions.

MOA's proposed work plan showed a general understanding of the FCA process. Its work plan discussed project management tools, property assessment and coordination, field assessments, costs, and deliverables. The work plan reviewed timelines and a schedule to meet the SOW requirements. Specific quality assurance and quality control practices were discussed, including reviews of assessment findings and recommendations. MOA did not clearly discuss its approach to inspecting and assigning a rating under FTA's TERM scale. The work plan did not indicate specific knowledge or understanding of performing FCAs in conformance with FTA. The work plan met the basic project requirements but was brief and general overall, restating the requirements of the RFP without elaborating on the approach. The PM was responsive to all interview questions; however, responses lacked details.

Cost and Price

Pricing scores were based on a formula which assigns the highest score to the lowest total firm-fixed price for the tasks to be completed, with the other proposals' total firm-fixed prices being scored based on relation to the lowest total firm-fixed price. Both firms provided competitive pricing. Although Cumming did not propose the lowest price, it was lower than the OCTA PM's independent cost estimate and is considered by staff to be fair and reasonable for the work performed.

Procurement Summary

Based on the evaluation of each firm's written proposals, qualifications, staffing, work plan, and information obtained from the interviews, the evaluation committee recommends the selection of Cumming as the firm to provide the

transit FCA services. Cumming submitted a comprehensive proposal that was responsive to the requirements of the RFP and presented a cohesive interview highlighting the firm's experience, staffing, work plan, and complete understanding of the overall project.

Fiscal Impact

The project is included in OCTA's Fiscal Year 2021-22 Budget, Capital Programs Division, Account No. 1722-7512-D3107-TKB, and will be funded through local transportation funds.

Summary

Based on the information provided, staff recommends the Board of Directors authorize the Chief Executive Officer to negotiate and execute Agreement No. C-1-3695 between the Orange County Transportation Authority and Cumming Management Group, Inc., in the amount of $286,453, as the firm to conduct a transit facilities condition assessment.

Attachments

A. Review of Proposals - RFP 1-3695 Transit Facilities Condition Assessment
B. Proposal Evaluation Criteria Matrix (Short-Listed Firms) - RFP 1-3695 Transit Facilities Condition Assessment
C. Contract History for the Past Two Years - RFP 1-3695 Transit Facilities Condition Assessment

Prepared by:

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Approved by:

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Review of Proposals

RFP 1-3695 Transit Facilities Condition Assessment

Presented to Transit Committee - December 9, 2021

3 proposals were received, 2 firms were interviewed, 1 firm is being recommended.

Overall Ranking	Proposal Score	Firm and Location	Subcontractors	Evaluation Committee Comments	Total Price
1	83	Cumming Management Group, Inc. Los Angeles, California	Morgner Construction Management	Highest-ranked firm overall. Firm demonstrated direct overall experience performing facility condition assessments (FCA) for transit agencies utilizing Federal Transit Administration (FTA) guidelines. Proposed project manager has 15 years of project related experience. Proposed project team has demonstrated experience working together on projects of similar size and scope. Proposal included a comprehensive and practical workplan that demonstrated an understanding of project requirements. Team presented a well organized and detailed interview with thorough responses to interview questions.	$286,453
2	68	Marx Okubo Associates, Inc. Santa Ana, California	Pacific Rim Engineering, Inc.	Firm demonstrated experience performing FCA for hospitals, retailers, and industrial and residential entities. Proposed project manager has four years of relevant experience. Proposed project team has experience performing facility condition assessments. Work plan did not indicate specific knowledge of performing FCAs in conformance with FTA guidelines. Project manager was responsive to all interview questions; however responses lacked details.	$242,977

Evaluation Panel:

Internal:
Contracts Administration and Materials Management (1)
Facilities Engineering (1)
Planning(1)
Facilities Maintenance (1)
Maintenance (1)

Proposal Criteria	Weight Factors
Qualifications of the Firm	25%
Staffing and Project Organizat	25%
Work Plan	25%
Cost and Price	25%

ATTACHMENT A

PROPOSAL EVALUATION CRITERIA MATRIX (Short-Listed Firms)							
RFP 1-3695 TRANSIT FACILITIES CONDITION ASSESSMENT							
FIRM: Cumming Management Group Inc.							
Evaluator Number	1	2	3	4	5	Weights	Criteria Score
Qualifications of Firm	4.5	4.0	4.5	4.0	4.5	5	**21.5**
Staffing/Project Organization	4.0	4.0	4.5	4.5	4.5	5	**21.5**
Work Plan	4.5	4.0	4.0	4.5	4.0	5	**21.0**
Cost and Price	3.8	3.8	3.8	3.8	3.8	5	**19.0**
Overall Score	**84.0**	**79.0**	**84.0**	**84.0**	**84.0**		**83**
FIRM: Marx Okubo Associates, Inc						Weights	Criteria Score
Evaluator Number	1	2	3	4	5		
Qualifications of Firm	3.0	3.0	3.0	3.5	3.5	5	**16.0**
Staffing/Project Organization	3.0	3.0	3.0	3.0	3.5	5	**15.5**
Work Plan	3.0	2.5	2.5	3.0	3.0	5	**14.0**
Cost and Price	4.4	4.4	4.4	4.4	4.4	5	**22.0**
Overall Score	**67.0**	**64.5**	**64.5**	**69.5**	**72.0**		**68**
The range of scores for the non-short-listed firm is 55.							

ATTACHMENT B

CONTRACT HISTORY FOR THE PAST TWO YEARS

RFP 1-3695

Transit Facilities Condition Assessment

Prime and Subconsultants	Contract No.	Description	Contract Start Date	Contract End Date	Subconsultant Amount	Total Contract Amount
Cumming Management Group, Inc.						
Contract Type:		No contracts awarded				
				Subtotal		**$ -**

Prime and Subconsultants	Contract No.	Description	Contract Start Date	Contract End Date	Subconsultant Amount	Total Contract Amount
Marx Okubo Associates, Inc.						
Contract Type:		No contracts awarded				
				Subtotal		**$ -**

ATTACHMENT C

December 9, 2021

To: Transit Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: Bus Operations Performance Measurements Report for the First Quarter of Fiscal Year 2021-22

Overview

The Orange County Transportation Authority operates fixed-route bus and demand-response paratransit service throughout Orange County and into neighboring counties. The established measures of performance for these services assess the safety, courtesy, reliability, and overall quality of the services. This report summarizes the year-to-date performance of these services through the first quarter of fiscal year 2021-22*.*

Recommendation

Receive and file as an information item.

Background

The Orange County Transportation Authority (OCTA) operates a countywide network of 58 routes, including local, community, rail connector, and express bus routes serving over 5,000 bus stops. Fixed-route bus (OC Bus) service operates in a 798 square-mile area, serving more than three million residents in 34 cities and unincorporated areas, with connections to transit services in Los Angeles, Orange, and Riverside counties. OCTA provides these services through both directly operated fixed-route (DOFR) and contracted fixed-route (CFR) service. OCTA also provides OC ACCESS, a federally mandated paratransit service, which is a shared-ride program available for people unable to use the OC Bus service because of functional limitations. Performance measures for OC Bus, OC ACCESS, and OC Flex services are summarized and reported quarterly (Attachment A).

In response to a significant decline in ridership as the result of the coronavirus (COVID-19) pandemic, OC Bus service has operated on a

significantly reduced schedule, beginning with a Sunday-only schedule, seven days a week, implemented in March 2020. This was followed by the implementation of a Saturday schedule, six days a week, in June 2020. This level of service was sustained through the entirety of fiscal year (FY) 2020-21, ending June 30, 2021. In August 2021, additional capacity was added to support emerging ridership trends, particularly the return of students to in-person instruction, the gradual return of employees to offices and work sites, and the resumption of commercial, retail, and recreation activities throughout the county. Through the first quarter of FY 2021-22, 52 of the 58 total OC Bus routes were operated.

Discussion

This report provides an update on the performance of the OC Bus and OC ACCESS services by presenting the current trends and comparisons with OCTA-established performance standards for transit system safety, courtesy, and reliability. OCTA counts preventable vehicle accidents to evaluate system safety, customer complaints to assess courtesy, and both on-time performance (OTP) and miles between road calls (MBRC) to measure service reliability.

This report includes performance through the first quarter, including the months of July, August, and September of FY 2021-22. It is important to note that OCTA continues to operate a reduced level of service as a result of the prolonged impacts of the COVID-19 pandemic. As ridership remains significantly lower on both OC Bus and OC ACCESS, though consistently trending upward since January 2021, the return of students to in-person instruction, increased traffic congestion, and road construction are directly impacting the delivery of service. This is reflected in the performance discussed in the attached report.

- Safety – DOFR and CFR OC Bus service performed below the accident frequency standard of one preventable accident per 100,000 service miles. OCTA Operations and contracted staff continue to stress safety in the bus loading/unloading zones and vehicle operation that impacts passenger safety inside the vehicle (passenger falls). Roundtable discussions continue with coach operators to discuss safety and identify problem locations where fixed-object strikes frequently occur. Accident prevention is also reinforced during post-accident retraining and during annual refresher training. OC ACCESS service performed above standard.
- Customer Service – Customer service is measured by evaluating the number of valid customer complaints received compared to boardings. Through the first quarter, the DOFR and CFR modes of service performed above the respective standards. OC ACCESS fell below the standard as

increasing ridership and driver shortages resulted in challenges to meet key metrics, most notably OTP, causing an increase in customer complaints.

- Reliability – Through the first quarter, the OTP for all services is below standard largely due to increased ridership and dwell times at bus stops, increase in traffic congestion, and routing detours due to construction.
- The MBRC for DOFR OC Bus service exceeded the standard, while CFR OC Bus service and OC ACCESS both came in below the standard. Causes included major engine and transmission failures, electrical issues, several cooling system component failures, vehicle mileage, and fleet age (OC ACCESS).

The report also includes:

- An assessment of the efficiency of OCTA transit operations based on industry standards for ridership, productivity, farebox recovery, and cost per revenue vehicle hour;
- A review of contractor performance for CFR and OC ACCESS services;
- A route-level performance evaluation that includes subsidy per boarding, revenue per boarding, and resource allocation (buses); and
- A status on the initiatives implemented under the OC Bus 360° Program, including OC Flex and the College Pass Program.

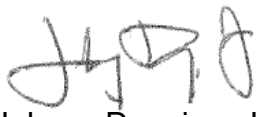
Summary

Through the first quarter of FY 2021-22, the performance of OC Bus service exceeded the performance in the area of courtesy, but performance is below the standard for safety and reliability (OTP). CFR service also performed below standard with respect to MBRC. OC ACCESS performed above the safety standard, but is below standard for all other measures. OCTA staff continue to focus on continuous improvement in safety and reliability as detailed in the report. In addition to tracking the established key performance indicators, staff will continue to manage the service contracts pursuant to contract requirements and work to identify other strategies to improve overall system performance.

Attachment

A. Bus Operations Performance Measurements Report, First Quarter, Fiscal Year 2021-22

Prepared by:



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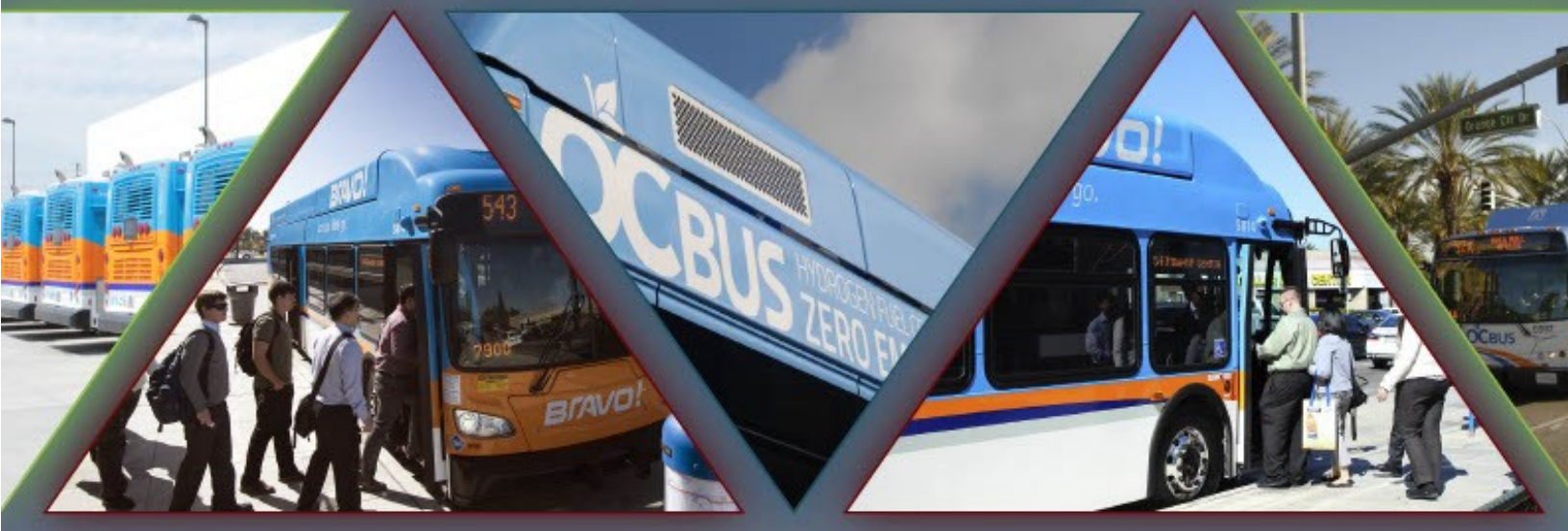
ATTACHMENT A

Bus Operations Performance Measurements Report

First Quarter
Fiscal Year 2021-22

OCTA



About This Report

The Orange County Transportation Authority (OCTA) operates a countywide network of 58 routes including local, community, rail connector, and express bus routes serving over 5,000 bus stops known as OC Bus. OCTA also operates paratransit service (OC ACCESS), a shared-ride program available for people unable to use the standard OC Bus service because of functional limitations. OC Bus service is provided through both direct operations by OCTA referred to as directly operated fixed-route (DOFR) and contracted operations referred to as contracted fixed-route (CFR) service. The OC ACCESS service is a contract-operated demand-response service required by the Americans with Disabilities Act that is complementary to the fixed-route service and predominately accounts for the overall paratransit services operated by OCTA. These services make up the bus transit system and are evaluated by the performance measurements summarized in this report.

This report tracks bus system safety, as measured by vehicle accidents; courtesy, as measured by customer complaints; and reliability, as measured by on-time performance (OTP) and miles between road calls (MBRC). Along with these metrics, industry-standard measurements are tracked to assess OCTA bus operations; these measurements include ridership, productivity, farebox recovery ratio (FRR), and cost per revenue vehicle hour (RVH). Graphs accompany the details of each indicator showing the standards or goals and the values for the current reporting period. The following sections provide performance information for OC Bus service, DOFR and CFR, and OC ACCESS service.

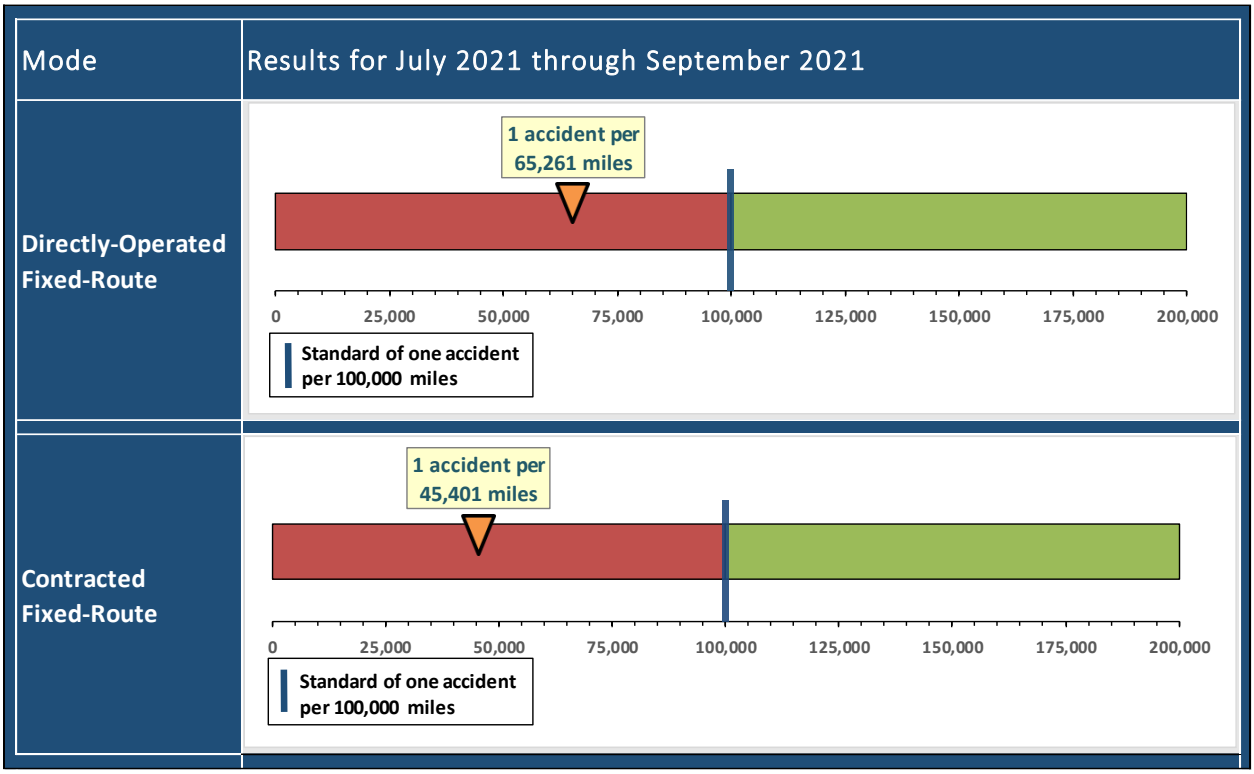
It is important to note that OCTA continues to operate a reduced level of service with the prolonged impact of the coronavirus (COVID-19) pandemic. As ridership remains significantly lower on both OC Bus and OC ACCESS, but trending favorably, the return of students in-person instruction, increased traffic congestion, and road construction are directly impacting the delivery of service. This is reflected in the performance to be discussed in this report.

FY2021-22 Q1 SUMMARY

- **Safety**:
  - DOFR - ▼
  - CFR - ▼
  - OC ACCESS - ▼
- **Courtesy**:
  - DOFR - ▲
  - CFR - ▲
  - OC ACCESS - ▼
- **OTP**:
  - DOFR - ▼
  - CFR - ▼
  - OC ACCESS - ▼
- **MBRC**:
  - DOFR - ▲
  - CFR - ▼
  - OC ACCESS - ▼

Safety: Preventable Vehicle Accidents

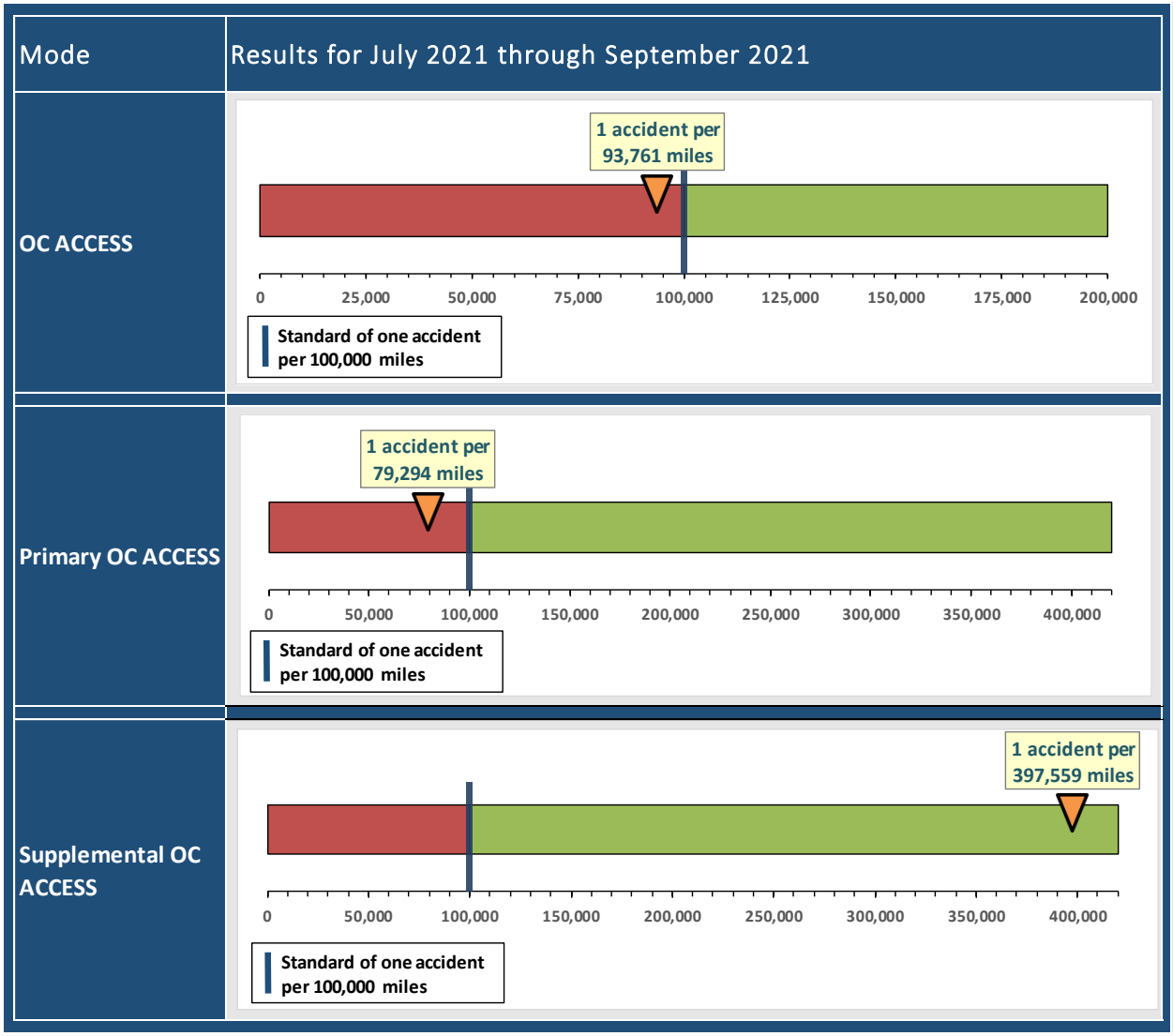
OCTA is committed to the safe delivery of the OC Bus service. The safety standard for DOFR, CFR, and OC ACCESS services is no more than one vehicle accident per 100,000 miles. Preventable vehicle accidents are defined as incidents when physical contact occurs between vehicles used for public transit and other vehicles, objects, or pedestrians, and where a coach operator failed to do everything reasonable to prevent the accident. On-board passenger falls on fixed-route service that are determined to be preventable are also included among these accidents. Through the first quarter (Q1) of fiscal year (FY) 2021-22, OC ACCESS, DOFR, and CFR did not meet the standard of operating more than 100,000 miles between preventable accidents.



DOFR OC Bus continued to perform below the accident frequency standard and OCTA Operations staff continue to focus on and stress the importance of safety, conduct safety-related campaigns, and promote the safe driving award program. During the past quarter, training continued to focus on safety as approximately half of the accidents between July and September were a result of the operator failing to check or properly judge vehicle clearances resulting in contact with the curb, a tree, pole, sign, or another vehicle. Other accidents were related to failure to check door clearances resulting in the door closing on customers and sudden vehicle stops and starts resulting in passenger falls.

For CFR, the number of miles between preventable accidents was extraordinarily lower than performance during the previous reporting period and FY. This is because, unlike DOFR, the preventable accidents for CFR with less than $1,000 in damage were not factored into the accident frequency ratio. As staff strive to ensure that reporting of performance measures is consistent among both CFR and DOFR, effective July 1, 2021, all preventable accidents for CFR are counted. This reporting change is the primary reason for the dramatic change in performance as the trends by accident type were similar to DOFR – fixed-object strikes

(curb, sign, pole, vehicles) and sudden starts and stops resulting in passenger falls. Staff continues working with the contractor to improve performance and reduce the current accident trends.

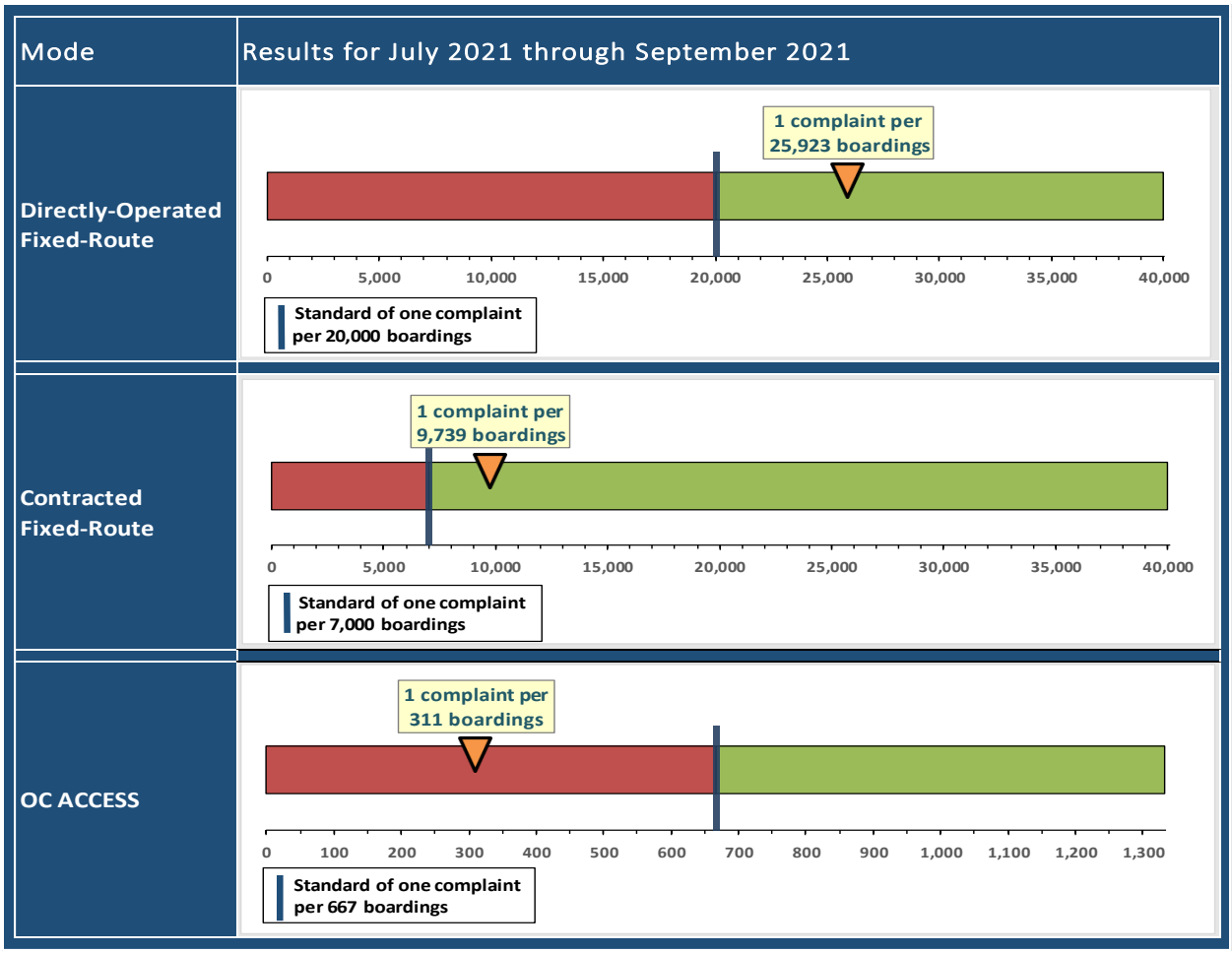


For Primary OC ACCESS, a modest increase in curb strikes, a total of three in Q1, along with typical collisions with fixed objects (poles) and overhanging tree branches resulted in performance just below standard. The contractor is conducting a campaign for drivers to reinforce best practices when maneuvering into difficult pickup and drop-off locations.

Courtesy: Customer Complaints

OCTA strives to achieve a high level of customer satisfaction in the delivery of OC Bus services. The performance standard for customer satisfaction is courtesy as measured by the number of valid complaints received. Customer complaints are the count of incidents when a rider reports dissatisfaction with the service. The standard adopted by OCTA for DOFR OC Bus is no more than one customer complaint per 20,000 boardings; the standard for CFR OC Bus service is no more than one complaint per 7,000 boardings; and the contractual standard for OC ACCESS is no more than one complaint per 667 boardings.

Through Q1 of FY 2021-22, the DOFR and CFR modes of service continue to perform well, exceeding the courtesy standard with less than one valid complaint per 20,000 and 7,000 boardings, respectively, while OC ACCESS performed below standard.

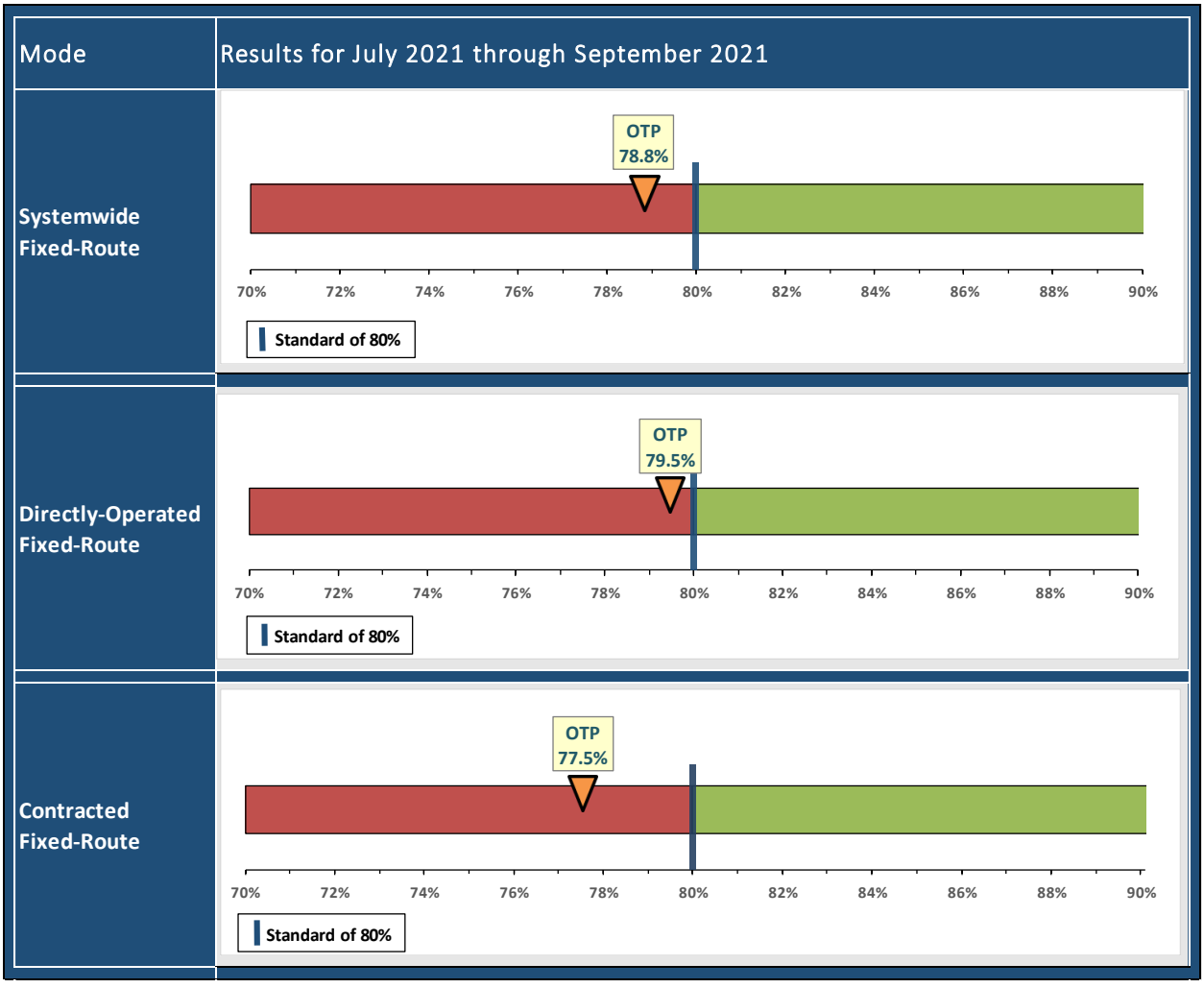


For OC ACCESS, the contractor has struggled to meet key service delivery metrics due to increasing ridership and driver shortages. Compounding those issues, in mid-September the contractor launched a new driver bid to better align existing driver resources with changing demand. During the process of executing the new driver bid, a staff error occurred resulting in hundreds of trips not being assigned to driver routes. Though the root cause of the issue was identified and corrected after six days, this error significantly affected the contractor's performance, resulting in increased customer complaints. The contractor is actively recruiting drivers to ensure appropriate resources are in place to meet increasing demand.

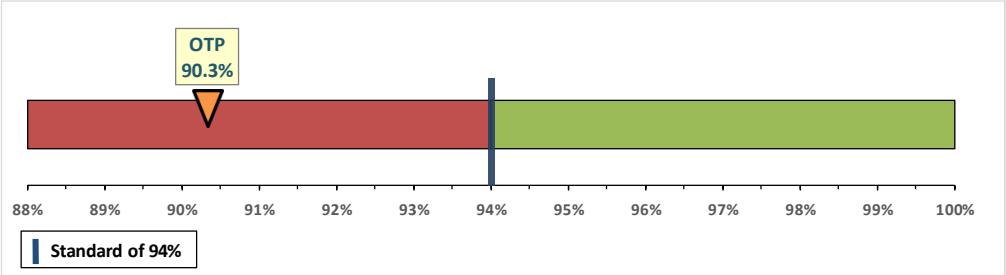
Reliability: OTP

Reliability is vital to a successful transportation network. Reliability for OCTA is measured in part by OTP. OTP is a measure of performance which evaluates the schedule adherence of a bus operating in revenue service according to a published schedule. Schedule adherence is tracked by monitoring the departure of vehicles from time points, which are designated locations on a route used to control vehicle spacing as shown in the published schedule. For OC Bus service, a trip is considered on-time if it departs the scheduled time point from zero minutes before up to no more than five minutes after the time as printed on the bus route schedule. OCTA's fixed-route system standard for OTP is 80 percent. For OC ACCESS service, OTP is a measure of performance evaluating a revenue vehicle's adherence to a scheduled pickup time for transportation on a demand-response trip. A trip is considered on-time if the vehicle arrives within a 30-minute window. The OC ACCESS OTP standard is 94 percent.

The OTP for OC Bus and OC ACCESS services all fell below the respective standards during Q1 of FY 2021-22. Systemwide fixed-route OTP was 78.8 percent, four percent lower than the prior quarter. The decreases for both DOFR and CFR were largely due to increased ridership and dwell times at bus stops, increase in traffic congestion, and routing detours due to construction. Planned changes in the February 2022 service change include schedule modifications specifically meant to address OC Bus OTP performance.

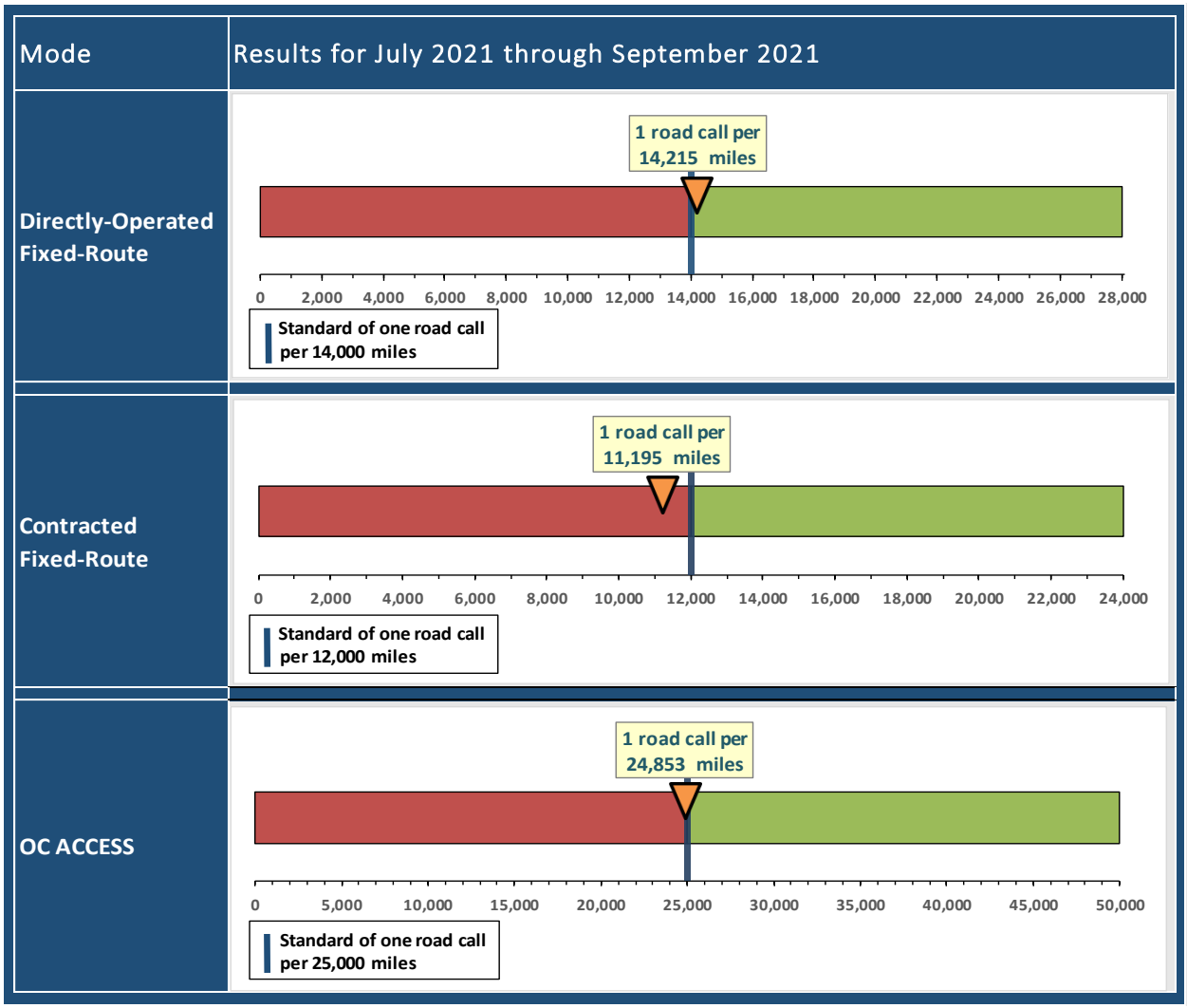


The OTP for OC ACCESS also came in below standard with a rate of 90.3 percent, 7.7 percent lower than the rate reported last quarter and 3.7 percent below the standard. As reported under customer complaints, the OC ACCESS contractor struggled to meet the OTP standard in Q1 due to increasing demand, driver shortages, and the September routing error. Staff is working closely with the contractor to ensure appropriate driver resources are in place to meet the increasing demand.

Mode	Results for July 2021 through September 2021
OC ACCESS	

Reliability: MBRC

MBRC is a vehicle reliability performance indicator that measures the average distance in miles that a transit vehicle travels before failure of a vital component forces removal of the vehicle from service. OCTA has adopted standards for the MBRC for DOFR, CFR, and OC ACCESS services. These standards vary to align with the specific type of service being provided and to account for the variability inherent to each of these services including the vehicles assigned. The specific standards as adopted by OCTA are 14,000 MBRC for DOFR OC Bus service; 12,000 MBRC for CFR OC Bus service; and 25,000 MBRC for OC ACCESS.

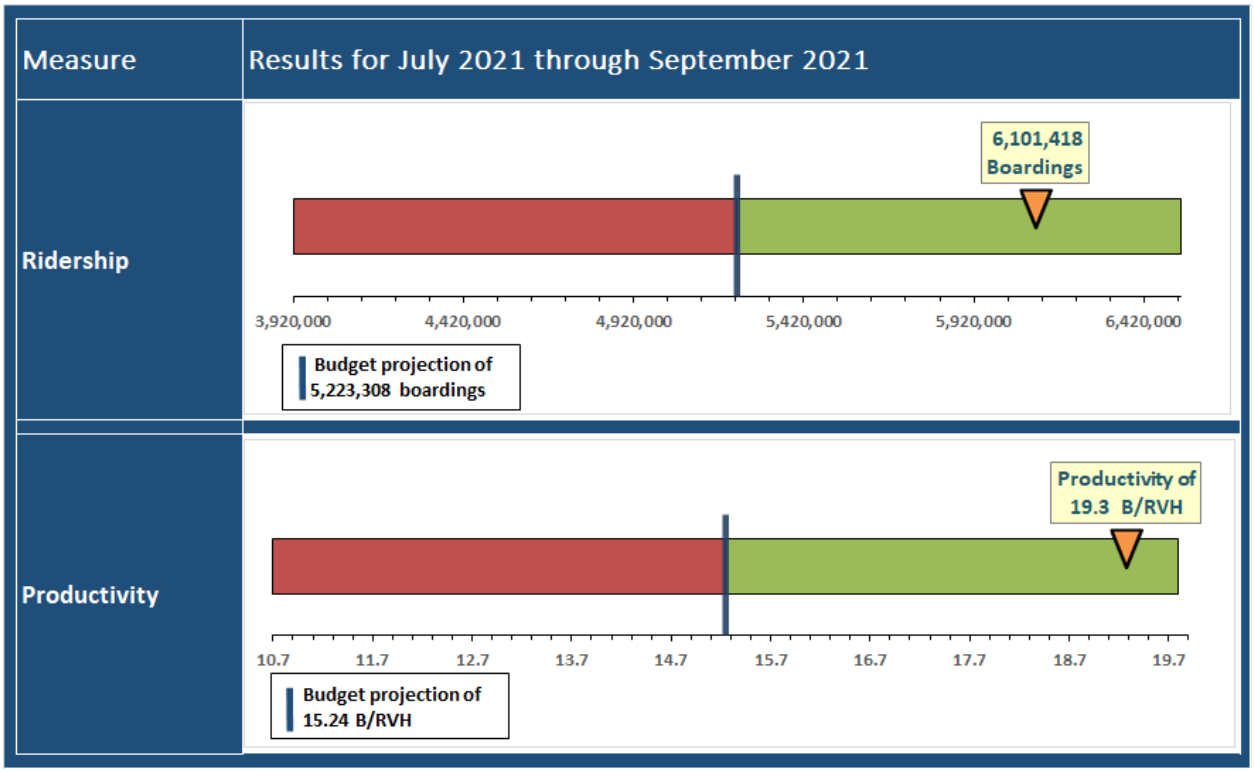


Through Q1 of FY 2021-22, DOFR OC Bus service continues to meet the MBRC standard while CFR OC Bus is currently below the standard. MBRC mileage for CFR buses was below the standard primarily due to several major engine and transmission failures and electrical issues related to drivetrain control modules and sensors. Several cooling system components also failed as a result of higher seasonal temperatures. The Contractor has initiated several maintenance campaigns to improve vehicle performance and staff continue to monitor all failures in an effort to improve vehicle performance and reduce valid mechanical road calls. MBRC for OC ACCESS fell by 8.4 percent to drop just below the standard. OC ACCESS road calls were mostly related to summer heat, vehicle mileage, and fleet age.

Ridership and Productivity – OC Bus

Ridership (or boardings) is the number of rides taken by passengers using public transit and is influenced by the level of service provided, weather, the economy, and seasonal variations in demand. Productivity is an industry measure that counts the average number of boardings for each revenue vehicle hour that is operated. A RVH is any 60-minute increment of time that a vehicle is available for passengers within the scheduled hours of service, excluding deadhead (a non-revenue movement of a transit vehicle to position it for service). Boardings per RVH (B/RVH) is calculated by taking the boardings and dividing it by the number of RVH operated.

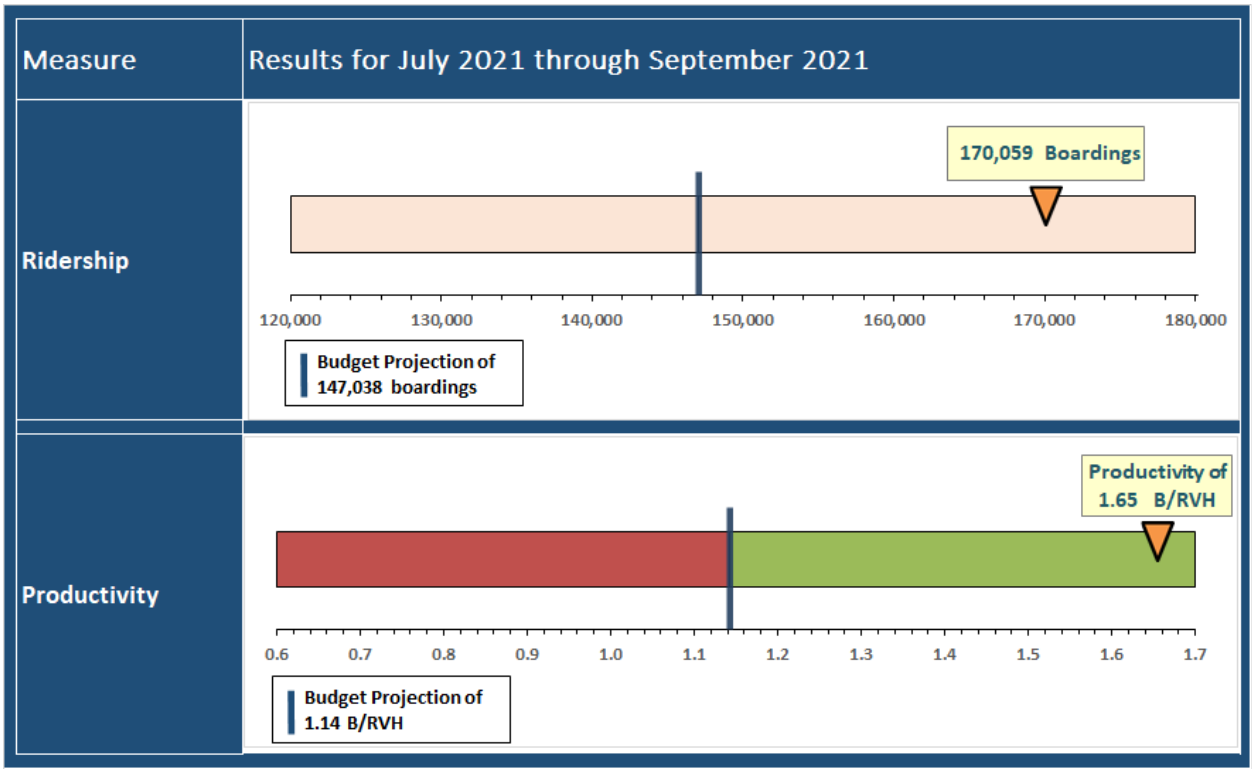
The COVID-19 pandemic continues to have an impact overall on ridership and productivity for all services. However, with students returning to in-person instruction and businesses now providing in-person services, OC Bus ridership experienced a significant increase compared to the prior quarter. Through September, the average weekday ridership was over 81,000, a 22 percent increase over the 66,500 reported for June 2021, resulting in FY-to-date ridership rate that is nearly 17 percent higher than the budgeted projection. Productivity for OC Bus service was also higher than budgeted projections, trending at over 19 boardings per revenue vehicle hour.



Ridership and Productivity – OC ACCESS

(Primary Service Provider and Supplemental Taxi Service)

Through Q1 of FY 2021-22, the total ridership and productivity for OC ACCESS was 15.7 percent and 44.7 percent higher than the budgeted projections, respectively. Though the impacts of the COVID-19 pandemic remain, recommendations for travel have been lifted for those persons 65 years or older or have underlying health issues leading to increased trip making. Additionally, many adult day programs are being restored resulting in higher demand for OC ACCESS service.



Contractor Performance: Fixed-Route

Per Agreement No. C-4-1737 between OCTA and First Transit, Inc., additional measures are tracked to ensure the CFR OC Bus service meets specified standards for safety, customer service, and reliability. When the contractor's monthly performance exceeds the standard as set forth in the agreement, financial incentives are paid to the contractor; conversely, when the monthly performance of the contractor is below the standard as set forth in the agreement, penalties are assessed and are paid to OCTA by the contractor.

Through Q1 of FY 2021-22, the overall performance of the contracted OC Bus service as determined by the performance categories outlined in the contract was below standard for preventive maintenance, road calls, and missed trips.

Table 1 provides the penalties and incentives assessed to the contractor by quarter for FY 2021-22. The incentives paid in Q1 relate to courtesy and accident frequency ratio, which totaled $21,400. The total penalties assessed to the contractor during the quarter total $36,300. This brings the FY-to-date total payment to OCTA to $11,900 after the adjustment for waived penalties.

Table 1:	Performance Categories	FY22 Q1	FY22 Q2	FY22 Q3	FY22 Q4	FYTD 22
Penalties	On-Time Performance	$ (3,000)	$ -	$ -	$ -	$ (3,000)
	Valid Complaints: Per 7,000 boardings	$ -	$ -	$ -	$ -	$ -
	Unreported Accident	$ (10,000)	$ -	$ -	$ -	$ (10,000)
	Accident Frequency Ratio	$ -	$ -	$ -	$ -	$ -
	Key Positions	$ -	$ -	$ -	$ -	$ -
	CHP Terminal Inspections	$ -	$ -	$ -	$ -	$ -
	Reports	$ -	$ -	$ -	$ -	$ -
	Preventive Maintenance	$ (1,600)	$ -	$ -	$ -	$ (1,600)
	Road Calls	$ (1,700)	$ -	$ -	$ -	$ (1,700)
	Vehicle Damage: Per vehicle per day	$ -	$ -	$ -	$ -	$ -
	Missed Trips	$ (20,000)	$ -	$ -	$ -	$ (20,000)
	Total	**$ (36,300)**	**$ -**	**$ -**	**$ -**	**$ (36,300)**
Incentives	On-Time Performance	$ -	$ -	$ -	$ -	$ -
	Valid Complaints: Per 7,000 boardings	$ 6,400	$ -	$ -	$ -	$ 6,400
	Accident Frequency Ratio	$ 15,000	$ -	$ -	$ -	$ 15,000
	Total	**$ 21,400**	**$ -**	**$ -**	**$ -**	**$ 21,400**
Adjustment	Unreported Accident (Prior Period)	$ -	$ -	$ -	$ -	$ -
	Waived Penalties (On-Time Performance)	$ 3,000	$ -	$ -	$ -	$ 3,000
	Waived Incentives	$ -	$ -	$ -	$ -	$ -
	Total	**$ 3,000**	**$ -**	**$ -**	**$ -**	**$ 3,000**
All	**Total**	**$ (11,900)**	**$ -**	**$ -**	**$ -**	**$ (11,900)**

Contractor Performance: OC ACCESS

(Primary Service Provider and Supplemental Taxi Service)

Per Agreement No. C-2-1865 between OCTA and MV Transportation, Inc., additional measures are tracked to ensure OC ACCESS meets the standards for safety, customer service, and reliability. When the contractor's monthly performance exceeds the standard as set forth in the agreement, financial incentives are paid to the contractor; conversely, when the monthly performance of the contractor is below the standard as set forth in the agreement, penalties are assessed and must be paid to OCTA by the contractor.

As presented in this report, the overall performance of the contractor providing OC ACCESS service through Q1 of FY 2021-22 is generally below standard with respect to courtesy, safety (OC ACCESS Primary), and OTP. Table 2 lists, by quarter, the penalties and incentives assessed to the OC ACCESS contractor as established in the agreement. The penalties assessed during Q1 totaled $209,400 for performance in passenger productivity, OTP, customer comments, call center hold times, excessively late trips, missed trips, unreported accident (untimely), preventive maintenance and road calls. Due to the circumstances of the COVID-19 pandemic, the incentive for excessively late trips and the penalties related to passenger productivity were waived resulting in a net payment to OCTA of $179,400 in the Q1.

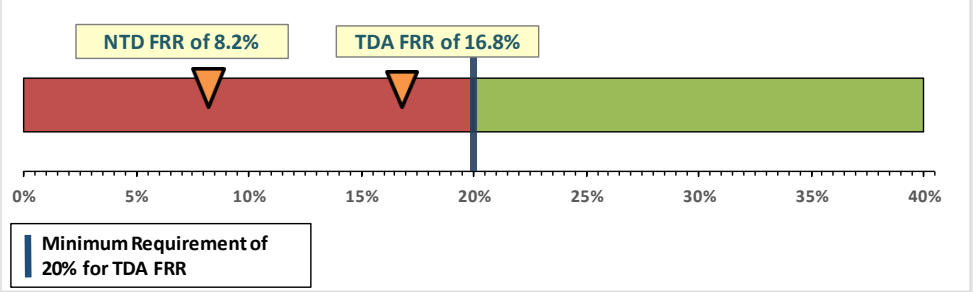
Table 2:	Performance Categories	FY22 Q1	FY22 Q2	FY22 Q3	FY22 Q4	FYTD 22
Penalties	Passenger Productivity	$ (30,000)	$ -	$ -	$ -	$ (30,000)
	On-Time Performance	$ (45,000)	$ -	$ -	$ -	$ (45,000)
	Customer Comments	$ (32,900)	$ -	$ -	$ -	$ (32,900)
	Call Center Hold Times	$ (31,000)	$ -	$ -	$ -	$ (31,000)
	Excessively Late Trips	$ (30,000)	$ -	$ -	$ -	$ (30,000)
	Missed Trips	$ (30,000)	$ -	$ -	$ -	$ (30,000)
	Unreported Accident	$ (10,000)	$ -	$ -	$ -	$ (10,000)
	Preventive Maintenance	$ (200)	$ -	$ -	$ -	$ (200)
	Road calls	$ (300)	$ -	$ -	$ -	$ (300)
	Reports	$ -	$ -	$ -	$ -	$ -
	Key Positions	$ -	$ -	$ -	$ -	$ -
	CHP Terminal Inspections	$ -	$ -	$ -	$ -	$ -
	Vehicle Damage	$ -	$ -	$ -	$ -	$ -
	Fare Variance	$ -	$ -	$ -	$ -	$ -
	Total	**$ (209,400)**	**$ -**	**$ -**	**$ -**	**$ (209,400)**
Incentives	Passenger Productivity	$ -	$ -	$ -	$ -	$ -
	On-Time Performance	$ -	$ -	$ -	$ -	$ -
	Excessively Late Trips	$ -	$ -	$ -	$ -	$ -
	Missed Trips	$ -	$ -	$ -	$ -	$ -
	Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Adjustment	Unreported Accident (Prior Period)	$ -	$ -	$ -	$ -	$ -
	Waived Penalties	$ 30,000	$ -	$ -	$ -	$ 30,000
	Waived Incentives	$ -	$ -	$ -	$ -	$ -
	Total	**$ 30,000**	**$ -**	**$ -**	**$ -**	**$ 30,000**
All	**Total**	**$ (179,400)**	**$ -**	**$ -**	**$ -**	**$ (179,400)**

Farebox Recovery Ratio

FRR is a measure of the proportion of operating costs recovered by passenger fares, calculated by dividing the farebox revenue by total operating expenses. A minimum FRR of 20 percent for all service is required by the Transportation Development Act for transit agencies to receive the state sales tax available for public transit purposes. To normalize seasonal fluctuations, data shown below reflects actuals over the last 12 months from October 2020 through September 2021.

Based on the National Transit Database definition in which only passenger fares are included under revenue, FRR did not meet the 20 percent goal. However, as a result of the passage of SB 508 (Chapter 716, Statutes of 2015), OCTA was able to adjust the FRR to include local funds. SB 508 states, "If fare revenues are insufficient to meet the applicable ratio of fare revenues to operating cost required by this article, an operator may satisfy that requirement by supplementing its fare revenues with local funds. As used in this section, "local funds" are any non-federal or non-state grant funds or other revenue generated by, earned by, or distributed to an operator." After incorporating property tax revenue, advertising revenue, and Measure M fare stabilization, the adjusted FRR was 16.8 percent, an increase of 2.6 percentage points from the previous quarter and a 0.3 percentage point drop from the same quarter last year.

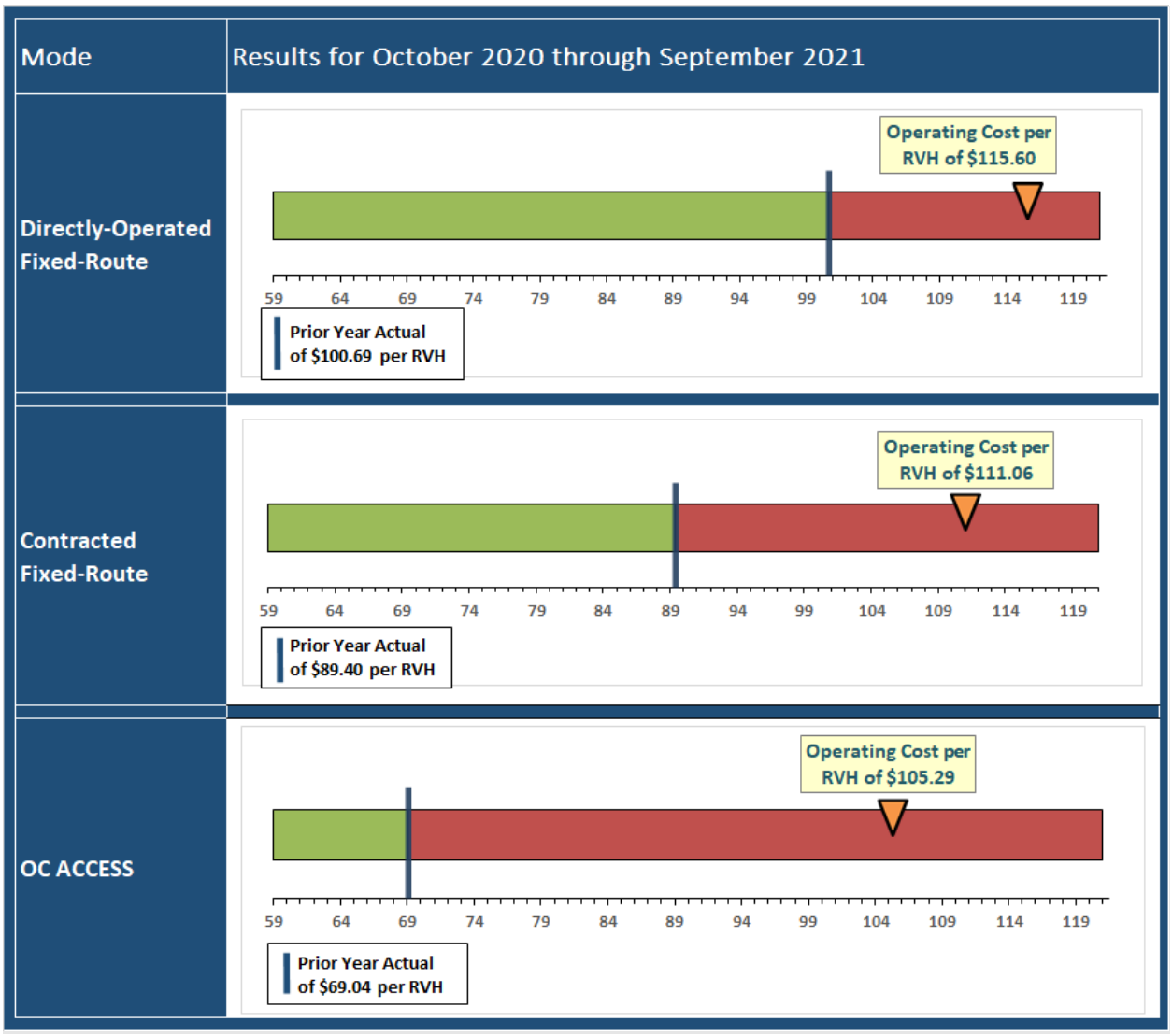
During Q1 of FY 2021-22, FY 2019-20, ~~OCTA implemented the Youth Ride Free (YRF) fare program that directly impacted the amount of revenue received~~ the prolonged impacts of the pandemic on ridership continue to be the primary factor in the reduced fare revenue ~~-~~and the adjusted FRR. The collection of fares at the farebox is the primary source of revenue collection and YRF program is a contributor to the drop in OCTA's fare revenues. In addition, the reduced ridership due to the COVID-19 pandemic continues to play a role; the reduced ridership in both fixed-route and paratransit services further impacted the fare revenues and fare subsidies collected during Q1 of FY 2021-22. Due to statewide impacts to the farebox because of the COVID-19 pandemic, last year the Governor signed AB 109 (Chapter 17, Statutes of 2020), which removed all financial penalties for failing to meet the 20 percent FRR requirement until January 1, 2022. This year the Governor signed AB 149 (Chapter 81, Statutes of 2021) which includes an extension of this exemption through FY 2022-23.

Mode	Results for October 2020 through September 2021
Systemwide	

Note:
- *National Transit Database (NTD) FRR consists of only passenger fares*
- *Transportation Development Act (TDA) FRR includes passenger fares, property tax revenue, advertising revenue and Measure M fare stabilization*

Operating Cost per Revenue Vehicle Hour

Cost per RVH is one of the industry standards used to measure the cost efficiency of transit service. It is derived by dividing actual operating expenses by RVH that is scheduled for the reporting period. To provide a more comparable illustration, all metrics below are calculated based on direct operating cost, which excludes capital, general administrative, and other overhead costs. DOFR cost includes labor costs for coach operator and maintenance employees. It also includes consumables such as replacement parts, fuel, and tires. CFR and OC ACCESS cost includes contracted costs (net of assessed penalties and incentives) and costs incurred by OCTA for maintenance, parts, and fuel for the contracted fleet.



Similar to the FRR, the statistics above depict actuals over the last 12 months. The difference in cost per RVH from the prior period was a 14.8 percent increase in DOFR, a 24.2 percent increase in CFR, and a 52.5 percent increase in OC ACCESS. All modes operated at a higher cost per RVH when compared to the prior 12-months. This is primarily due to a decrease in service hours related to the COVID-19 pandemic.

DOFR and CFR cost per RVH also increased in comparison to the prior year as a result of the alternative fuel tax credits that were received in the prior period and not the current period, which offset fuel costs. In addition, CFR and OC ACCESS cost per RVH increased because of OCTA Board of Directors (Board)-approved contract amendments for operating costs coupled with the impact of the COVID-19 pandemic. CFR cost per RVH in the current period included revised operating rates as a result of lower service levels due to the COVID-19 pandemic. An FY 2020-21 estimate of incurred COVID-19 pandemic pass-through expenses in the amount of $5.4 million based on Board-approved Amendments 11, 12, and 14 were also accounted for in the current period. On the other hand, OC ACCESS cost per RVH reflected the new tier-structure operating rates that were based on service demand. These revised rates were approved by the Board in Amendment 10 and were implemented to cover increased costs for service readiness in response to the COVID-19 pandemic, dating back to April 2020.

Performance Evaluation by Route

Continuing efforts are underway to better understand, evaluate, and improve route performance. Performance evaluation is important because it provides:

- A better understanding of where resources are being applied;
- A measure of how well services are being delivered;
- A measure of how well these services are used; and
- An objective basis for decisions regarding future service changes and service deployment.

The tables on the following pages summarize route-level performance through Q1. The first two tables present the route-level performance sorted by routes with the highest net subsidy per boarding to routes with a lower net subsidy per boarding, and the remaining two tables present the same information sorted by routes that have the highest boardings to routes with a lower level of boardings.

A route guide listing all of the routes and their points of origins and destinations is provided after the route-level performance tables. Route types are grouped by route numbers as follows:

- **Routes 1 to 99:** Local routes include two sub-categories:
  - Major: These routes operate as frequently as every 15 minutes during peak times. Major routes operate seven days a week throughout the day. Together, the Major routes form a grid on arterial streets throughout the highest transit propensity portions of the OC Bus service area, primarily in northern parts of the county.
  - Local: These routes operate on arterials within the grid created by the Major routes, but at lower frequencies. Local routes also operate in parts of Orange County with lower transit demand. Most Local routes operate seven days per week; however, some operate on weekdays only.
- **Routes 100 to 199**: Community routes to connect pockets of transit demand with major destinations and offer local circulation. Routes tend to be less direct than Local routes, serving neighborhoods and destinations off the arterial grid. Approximately half of Community routes operate seven days per week.
- **Routes 200 to 299**: Intra-county express routes operate on weekdays only at peak times and connect riders over long distances to destinations within Orange County, using freeways to access destinations. **(Did not operate during Q1 FY 2021-22)**.
- **Routes 400 to 499:** Stationlink routes are rail feeder services designed to connect Metrolink stations to nearby employment destinations. These routes have relatively short alignments, with schedules tied to Metrolink arrivals and departures. These routes operate during weekday peak hours only, in the peak direction, from the station to destinations in the morning and the reverse in the evening.
- **Routes 500 to 599**: Bravo! routes are limited-stop services operated with branded vehicles. **(Only Routes 543 and 560 operated during Q1 FY 2021-22).**
- **Routes 600 to 699**: Seasonal or Temporary routes (these are not included on the following charts) such as the OC Fair Express. **(Did not operate during Q1 FY 2021-22)**.
- **Routes 700 to 799**: Inter-county express routes that operate on weekdays only at peak times and connects riders over long distances to destinations outside of Orange County, often using freeways to access destinations. **(Did not operate during Q1 FY 2021-22)**.

OCTA Operating Statistics By Route for Local and Community Services (Sorted by Subsidy per Boarding)

Fiscal Year 2021-22

Route	Zone	Farebox	Subsidy per Boarding	Direct Subsidy	Indirect Subsidy	"Capital Subsidy" Per Boarding	Revenue per Boarding	Boardings	CostVSH	Direct CostVSH	CostVSM	BoardVSH	VSH	Bus Count 40 FT	Bus Count 32 FT	Bus Count 60 FT
862	C	2.0%	$ 30.86	$ 18.97	$ 9.61	$ 2.28	$ 0.58	12,239	$ 175.13	$ 111.51	$ 19.25	6.01	2,038	3	-	-
085	S	3.2%	23.36	12.97	8.99	1.40	0.73	13,252	150.03	101.99	11.98	6.61	2,004	2	-	-
167	C	3.5%	22.13	12.32	8.35	1.46	0.76	25,521	149.59	101.78	12.45	6.98	3,656	4	-	-
178	C	3.2%	21.60	12.14	8.23	1.23	0.68	15,143	149.13	101.74	12.00	7.08	2,138	2	-	-
087	S	4.0%	18.46	10.16	7.05	1.25	0.72	14,859	151.30	102.53	10.24	8.44	1,760	2	-	-
086	C	4.1%	18.18	10.02	6.95	1.21	0.73	23,113	149.09	101.80	11.52	8.42	2,744	3	-	-
123	N	4.2%	17.98	10.07	6.82	1.09	0.74	34,282	148.86	101.80	10.83	8.44	4,062	4	-	-
001	S	4.1%	17.05	9.76	6.56	0.73	0.69	89,157	179.29	116.56	11.73	10.54	8,461	7	-	-
153	N	4.3%	16.93	9.58	6.50	0.85	0.72	21,984	148.25	101.60	11.50	8.83	2,491	2	-	-
177	S	5.5%	14.76	8.20	5.56	1.00	0.80	18,687	147.93	101.50	11.60	10.15	1,840	2	-	-
076	C	4.6%	14.63	8.17	5.49	0.97	0.66	19,201	165.32	106.15	14.15	11.55	1,662	2	-	-
129	N	6.2%	13.35	7.50	5.08	0.77	0.83	36,155	152.39	102.44	12.67	11.37	3,180	3	-	-
091	S	7.1%	13.05	7.23	5.01	0.81	0.94	68,694	150.85	102.43	10.53	11.44	6,004	6	-	-
090	S	6.4%	12.83	7.20	5.00	0.63	0.83	44,239	152.22	102.78	10.19	11.68	3,788	3	-	-
150	C	6.8%	12.69	6.31	4.28	2.10	0.78	17,709	164.23	105.51	16.45	14.45	1,225	4	-	-
079	C	5.4%	12.55	7.06	4.90	0.59	0.68	47,382	148.87	101.65	13.09	11.78	4,023	3	-	-
083	C	5.0%	12.27	7.07	4.75	0.45	0.63	102,357	174.22	113.51	9.10	14.00	7,309	5	-	-
143	N	5.5%	12.26	6.96	4.71	0.59	0.68	31,741	149.24	101.78	12.16	12.09	2,626	2	-	-
082	S	8.3%	11.62	6.41	4.45	0.76	0.98	12,301	153.13	102.95	10.84	12.93	951	1	-	-
056	N	6.1%	11.56	6.34	4.26	0.96	0.68	67,950	170.06	108.99	14.46	15.08	4,505	7	-	-
059	C	6.9%	11.34	6.31	4.37	0.66	0.79	56,181	149.36	101.62	14.67	13.02	4,316	4	-	-
560	C	7.5%	11.02	5.79	3.89	1.34	0.78	55,557	178.03	111.10	15.35	17.01	3,265	8	-	-
026	N	7.0%	10.78	5.96	4.13	0.69	0.76	53,817	151.03	102.10	13.06	13.93	3,865	4	-	-
072	C	6.6%	10.51	6.00	4.03	0.48	0.71	77,785	167.13	107.39	14.42	15.55	5,002	4	-	-
025	N	7.5%	9.77	5.45	3.78	0.54	0.75	51,941	151.24	102.32	11.98	15.14	3,430	3	-	-
070	C	7.3%	9.61	5.33	3.70	0.58	0.71	144,372	150.11	101.99	12.91	15.41	9,367	9	-	-
071	N	7.8%	9.32	5.23	3.63	0.46	0.75	101,171	149.48	101.92	11.51	15.55	6,508	5	-	-
050	N	6.8%	9.23	5.24	3.52	0.47	0.64	233,064	171.71	110.55	14.35	18.28	12,750	9	-	2
037	N	7.2%	9.11	5.20	3.49	0.42	0.68	153,792	180.04	115.53	15.35	19.20	8,008	7	-	-
033	N	7.2%	8.69	4.81	3.34	0.54	0.63	34,412	148.12	101.55	11.74	16.87	2,040	2	-	-
055	C	9.0%	8.32	4.78	3.21	0.33	0.79	228,174	167.53	107.62	14.93	19.09	11,950	8	-	-
089	S	10.1%	7.99	4.51	3.13	0.35	0.86	53,778	151.05	102.22	12.28	17.76	3,028	2	-	-
038	N	9.2%	7.89	4.25	2.95	0.69	0.73	162,634	154.00	103.06	11.75	19.44	8,367	12	-	-
054	N	8.2%	7.77	4.36	2.93	0.48	0.65	175,679	168.91	108.56	14.53	21.25	8,268	9	-	-
047	C	9.6%	7.66	4.33	2.91	0.42	0.77	358,625	176.42	113.32	15.47	22.03	16,280	16	-	-
035	N	8.0%	7.64	4.27	2.96	0.41	0.63	112,418	152.10	102.34	13.01	19.33	5,814	5	-	-
543	N	8.0%	7.62	4.28	2.87	0.47	0.63	138,996	168.62	107.90	15.93	21.68	6,412	7	-	-
030	N	9.4%	7.51	4.10	2.84	0.57	0.72	82,310	151.21	102.35	11.53	19.74	4,169	5	-	-
046	N	9.1%	7.40	4.17	2.89	0.34	0.71	83,328	148.78	101.62	13.10	19.16	4,348	3	-	-
053	C	8.7%	7.31	4.15	2.79	0.37	0.66	322,682	171.14	109.56	17.30	22.51	14,335	13	-	-
029	N	9.5%	7.09	4.01	2.69	0.39	0.70	392,811	170.96	110.08	14.81	23.11	17,000	-	-	12
042	N	9.4%	6.72	3.74	2.59	0.39	0.65	237,559	151.50	102.29	13.47	21.70	10,948	10	-	-
057	C	10.0%	6.62	3.72	2.50	0.40	0.69	513,884	171.71	110.35	16.17	24.86	20,670	-	-	16
043	N	9.8%	6.57	3.77	2.54	0.26	0.69	389,450	169.22	108.47	17.17	24.19	16,098	11	-	-
060	C	9.1%	6.26	3.63	2.44	0.19	0.61	392,677	173.51	112.40	14.03	26.01	15,100	8	-	-
064	C	10.4%	5.66	3.19	2.14	0.33	0.62	393,028	166.71	106.80	17.49	27.99	14,044	14	-	-
066	C	12.2%	5.40	3.03	2.04	0.33	0.70	367,620	172.70	110.91	15.86	29.94	12,280	13	-	-

(1) Total bus count (299) is based on PM weekday equipment requirements.
(2) C under Zone is Central County, N is North County and S is South County.

OCTA Operating Statistics By Route for Stationlink Service (Sorted by Subsidy per Boarding)

Fiscal Year 2021-22

														Bus Count		
Route	Zone	Farebox	Subsidy per Boarding	Direct Subsidy	Indirect Subsidy	"Capital Subsidy" Per Boarding	Revenue per Boarding	Boardings	CostVSH	Direct CostVSH	CostVSM	BoardVSH	VSH	40 FT	32 FT	60 FT
463	C	1.7%	$ 53.97	$ 25.49	$ 17.18	$ 11.30	$ 0.73	3,294	$ 179.85	$ 102.45	$ 17.96	4.14	795	4	-	-
480	C	3.5%	31.49	14.58	9.83	7.08	0.88	2,628	186.11	104.13	14.93	7.36	357	2	-	-
473	C	3.5%	28.05	12.55	8.46	7.04	0.75	3,966	184.04	102.82	16.90	8.45	469	3	-	-
453	N	3.3%	25.32	11.96	8.06	5.30	0.69	3,512	189.46	104.55	28.54	9.15	384	2	-	-
472	C	3.9%	23.39	10.10	6.81	6.48	0.69	4,307	172.50	100.84	14.41	9.80	440	3	-	-

(1) Total bus count (299) is based on PM weekday equipment requirements.
(2) C under Zone is Central County, N is North County and S is South County.

OCTA Operating Statistics By Route for Local and Community Services (Sorted by Boardings)

Fiscal Year 2021-22

Route	Zone	Farebox	Subsidy per Boarding	Direct Subsidy	Indirect Subsidy	"Capital Subsidy" Per Boarding	Revenue per Boarding	Boardings	CostVSH	Direct CostVSH	CostVSM	BoardVSH	VSH	Bus Count 40 FT	Bus Count 32 FT	Bus Count 60 FT
057	C	10.0%	$ 6.62	$ 3.72	$ 2.50	$ 0.40	$ 0.69	513,884	$ 171.71	$ 110.35	$ 16.17	24.86	20,670	-	-	16
064	C	10.4%	5.66	3.19	2.14	0.33	0.62	393,028	166.71	106.80	17.49	27.99	14,044	14	-	-
029	N	9.5%	7.09	4.01	2.69	0.39	0.70	392,811	170.96	110.08	14.81	23.11	17,000	-	-	12
060	C	9.1%	6.26	3.63	2.44	0.19	0.61	392,677	173.51	112.40	14.03	26.01	15,100	8	-	-
043	N	9.8%	6.57	3.77	2.54	0.26	0.69	389,450	169.22	108.47	17.17	24.19	16,098	11	-	-
066	C	12.2%	5.40	3.03	2.04	0.33	0.70	367,620	172.70	110.91	15.86	29.94	12,280	13	-	-
047	C	9.6%	7.66	4.33	2.91	0.42	0.77	358,625	176.42	113.32	15.47	22.03	16,280	16	-	-
053	C	8.7%	7.31	4.15	2.79	0.37	0.66	322,682	171.14	109.56	17.30	22.51	14,335	13	-	-
042	N	9.4%	6.72	3.74	2.59	0.39	0.65	237,559	151.50	102.29	13.47	21.70	10,948	10	-	-
050	N	6.8%	9.23	5.24	3.52	0.47	0.64	233,064	171.71	110.55	14.35	18.28	12,750	9	-	2
055	C	9.0%	8.32	4.78	3.21	0.33	0.79	228,174	167.53	107.62	14.93	19.09	11,950	8	-	-
054	N	8.2%	7.77	4.36	2.93	0.48	0.65	175,679	168.91	108.56	14.53	21.25	8,268	9	-	-
038	N	9.2%	7.89	4.25	2.95	0.69	0.73	162,634	154.00	103.06	11.75	19.44	8,367	12	-	-
037	N	7.2%	9.11	5.20	3.49	0.42	0.68	153,792	180.04	115.53	15.35	19.20	8,008	7	-	-
070	C	7.3%	9.61	5.33	3.70	0.58	0.71	144,372	150.11	101.99	12.91	15.41	9,367	9	-	-
543	N	8.0%	7.62	4.28	2.87	0.47	0.63	138,996	168.62	107.90	15.93	21.68	6,412	7	-	-
035	N	8.0%	7.64	4.27	2.96	0.41	0.63	112,418	152.10	102.34	13.01	19.33	5,814	5	-	-
083	C	5.0%	12.27	7.07	4.75	0.45	0.63	102,357	174.22	113.51	9.10	14.00	7,309	5	-	-
071	N	7.8%	9.32	5.23	3.63	0.46	0.75	101,171	149.48	101.92	11.51	15.55	6,508	5	-	-
001	S	4.1%	17.05	9.76	6.56	0.73	0.69	89,157	179.29	116.56	11.73	10.54	8,461	7	-	-
046	N	9.1%	7.40	4.17	2.89	0.34	0.71	83,328	148.78	101.62	13.10	19.16	4,348	3	-	-
030	N	9.4%	7.51	4.10	2.84	0.57	0.72	82,310	151.21	102.35	11.53	19.74	4,169	5	-	-
072	C	6.6%	10.51	6.00	4.03	0.48	0.71	77,785	167.13	107.39	14.42	15.55	5,002	4	-	-
091	S	7.1%	13.05	7.23	5.01	0.81	0.94	68,694	150.85	102.43	10.53	11.44	6,004	6	-	-
056	N	6.1%	11.56	6.34	4.26	0.96	0.68	67,950	170.06	108.99	14.46	15.08	4,505	7	-	-
059	C	6.9%	11.34	6.31	4.37	0.66	0.79	56,181	149.36	101.62	14.67	13.02	4,316	4	-	-
560	C	7.5%	11.02	5.79	3.89	1.34	0.78	55,557	178.03	111.10	15.35	17.01	3,265	8	-	-
026	N	7.0%	10.78	5.96	4.13	0.69	0.76	53,817	151.03	102.10	13.06	13.93	3,865	4	-	-
089	S	10.1%	7.99	4.51	3.13	0.35	0.86	53,778	151.05	102.22	12.28	17.76	3,028	2	-	-
025	N	7.5%	9.77	5.45	3.78	0.54	0.75	51,941	151.24	102.32	11.98	15.14	3,430	3	-	-
079	C	5.4%	12.55	7.06	4.90	0.59	0.68	47,382	148.87	101.65	13.09	11.78	4,023	3	-	-
090	S	6.4%	12.83	7.20	5.00	0.63	0.83	44,239	152.22	102.78	10.19	11.68	3,788	3	-	-
129	N	6.2%	13.35	7.50	5.08	0.77	0.83	36,155	152.39	102.44	12.67	11.37	3,180	3	-	-
033	N	7.2%	8.69	4.81	3.34	0.54	0.63	34,412	148.12	101.55	11.74	16.87	2,040	2	-	-
123	N	4.2%	17.98	10.07	6.82	1.09	0.74	34,282	148.86	101.80	10.83	8.44	4,062	4	-	-
143	N	5.5%	12.26	6.96	4.71	0.59	0.68	31,741	149.24	101.78	12.16	12.09	2,626	2	-	-
167	C	3.5%	22.13	12.32	8.35	1.46	0.76	25,521	149.59	101.78	12.45	6.98	3,656	4	-	-
086	C	4.1%	18.18	10.02	6.95	1.21	0.73	23,113	149.09	101.80	11.52	8.42	2,744	3	-	-
153	N	4.3%	16.93	9.58	6.50	0.85	0.72	21,984	148.25	101.60	11.50	8.83	2,491	2	-	-
076	C	4.6%	14.63	8.17	5.49	0.97	0.66	19,201	165.32	106.15	14.15	11.55	1,662	2	-	-
177	S	5.5%	14.76	8.20	5.56	1.00	0.80	18,687	147.93	101.50	11.60	10.15	1,840	2	-	-
150	C	6.8%	12.69	6.31	4.28	2.10	0.78	17,709	164.23	105.51	16.45	14.45	1,225	4	-	-
178	C	3.2%	21.60	12.14	8.23	1.23	0.68	15,143	149.13	101.74	12.00	7.08	2,138	2	-	-
087	S	4.0%	18.46	10.16	7.05	1.25	0.72	14,859	151.30	102.53	10.24	8.44	1,760	2	-	-
085	S	3.2%	23.36	12.97	8.99	1.40	0.73	13,252	150.03	101.99	11.98	6.61	2,004	2	-	-
082	S	8.3%	11.62	6.41	4.45	0.76	0.98	12,301	153.13	102.95	10.84	12.93	951	1	-	-
862	C	2.0%	30.86	18.97	9.61	2.28	0.58	12,239	175.13	111.51	19.25	6.01	2,038	3	-	-

(1) Total bus count (299) is based on PM weekday equipment requirements.

(2) C under Zone is Central County, N is North County and S is South County.

OCTA Operating Statistics By Route for Stationlink Service (Sorted by Boardings)

Fiscal Year 2021-22

Route	Zone	Farebox	Subsidy per Boarding	Direct Subsidy	Indirect Subsidy	"Capital Subsidy" Per Boarding	Revenue per Boarding	Boardings	CostVSH	Direct CostVSH	CostVSM	BoardVSH	VSH	Bus Count 40 FT	Bus Count 32 FT	Bus Count 60 FT
472	C	3.9%	$ 23.39	$ 10.10	$ 6.81	$ 6.48	$ 0.69	4,307	$ 172.50	$ 100.84	$ 14.41	9.80	440	3	-	-
473	C	3.5%	28.05	12.55	8.46	7.04	0.75	3,966	184.04	102.82	16.90	8.45	469	3	-	-
453	N	3.3%	25.32	11.96	8.06	5.30	0.69	3,512	189.46	104.55	28.54	9.15	384	2	-	-
463	C	1.7%	53.97	25.49	17.18	11.30	0.73	3,294	179.85	102.45	17.96	4.14	795	4	-	-
480	C	3.5%	31.49	14.58	9.83	7.08	0.88	2,628	186.11	104.13	14.93	7.36	357	2	-	-

(1) Total bus count (299) is based on PM weekday equipment requirements.

(2) C under Zone is Central County, N is North County and S is South County.

Route Reference Table

Route	Route Description	Main Street	Route Category
1	Long Beach - San Clemente	via Pacific Coast Hwy	LOCAL
25	Fullerton - Huntington Beach	via Knott Ave/ Goldenwest St	LOCAL
26	Fullerton - Yorba Linda	via Commonwealth Ave/ Yorba Linda Blvd	LOCAL
29	La Habra - Huntington Beach	via Beach Blvd	LOCAL
30	Cerritos - Anaheim	via Orangethorpe Ave	LOCAL
33	Fullerton - Huntington Beach	via Magnolia St	LOCAL
35	Fullerton - Costa Mesa	via Brookhurst St	LOCAL
37	La Habra - Fountain Valley	via Euclid St	LOCAL
38	Lakewood - Anaheim Hills	via Del Amo Blvd/ La Palma Ave	LOCAL
42	Seal Beach - Orange	via Seal Beach Blvd/ Los Alamitos Blvd/ Lincoln Ave	LOCAL
43	Fullerton - Costa Mesa	via Harbor Blvd	LOCAL
46	Long Beach - Orange	via Ball Road/ Taft Ave	LOCAL
47	Fullerton - Balboa	via Anaheim Blvd/ Fairview St	LOCAL
50	Long Beach - Orange	via Katella Ave	LOCAL
53	Anaheim - Irvine	via Main St	LOCAL
54	Garden Grove - Orange	via Chapman Ave	LOCAL
55	Santa Ana - Newport Beach	via Standard Ave/ Bristol St/ Fairview St/ 17th St	LOCAL
56	Garden Grove - Orange	via Garden Grove Blvd	LOCAL
57	Brea - Newport Beach	via State College Blvd/ Bristol St	LOCAL
59	Anaheim - Irvine	via Kraemer Blvd/ Glassell St/ Grand Ave/ Von Karman Ave	LOCAL
60	Long Beach - Tustin	via Westminster Ave/ 17th St	LOCAL
64	Huntington Beach - Tustin	via Bolsa Ave/ 1st St	LOCAL
66	Huntington Beach - Irvine	via McFadden Ave/ Walnut Ave	LOCAL
70	Sunset Beach - Tustin	via Edinger Ave	LOCAL
71	Yorba Linda - Newport Beach	via Tustin Ave/ Red Hill Ave/ Newport Blvd	LOCAL
72	Sunset Beach - Tustin	via Warner Ave	LOCAL
76	Huntington Beach - John Wayne Airport	via Talbert Ave/ MacArthur Blvd	LOCAL
79	Tustin - Newport Beach	via Bryan Ave/ Culver Dr/ University Ave	LOCAL
82	Foothill Ranch - Rancho Santa Margarita	via Portola Pkwy/ Santa Margarita Pkwy	LOCAL
83	Anaheim - Laguna Hills	via 5 Fwy/ Main St	LOCAL
85	Mission Viejo - Laguna Niguel	via Marguerite Pkwy/ Crown Valley Pkwy	LOCAL
86	Costa Mesa - Mission Viejo	via Alton Pkwy/ Jeronimo Rd	LOCAL
87	Rancho Santa Margarita - Laguna Niguel	via Alicia Pkwy	LOCAL
89	Mission Viejo - Laguna Beach	via El Toro Rd/ Laguna Canyon Rd	LOCAL
90	Tustin - Dana Point	via Irvine Center Dr/ Moulton Pkwy/ Golden Lantern St	LOCAL
91	Laguna Hills - San Clemente	via Paseo de Valencia/ Camino Capistrano/ Del Obispo St	LOCAL
123	Anaheim - Huntington Beach	via Malvern Ave/ Valley View/ Bolsa Chica	COMMUNITY
129	La Habra - Anaheim	via La Habra Blvd/ Brea Blvd/ Birch St/ Kraemer Blvd	COMMUNITY
143	La Habra - Brea	via Whittier Blvd/ Harbor Blvd/ Brea Blvd/ Birch St	COMMUNITY
150	Santa Ana - Costa Mesa	via Fairview St/ Flower St	COMMUNITY
153	Brea - Anaheim	via Placentia Ave	COMMUNITY
167	Orange - Irvine	via Irvine Ave/ Hewes St/ Jeffrey Rd	COMMUNITY
177	Foothill Ranch - Laguna Hills	via Lake Forest Dr/ Muirlands Blvd/ Los Alisos Blvd	COMMUNITY
178	Huntington Beach - Irvine	via Adams Ave/ Birch St/ Campus Dr	COMMUNITY
453	Orange Transportation Center - St. Joseph's Hospital	via Chapman Ave/ Main St/ La Veta Ave	STATIONLINK
463	Santa Ana Regional transportation Center - Hutton Centre	via Grand Ave	STATIONLINK
472	Tustin Metrolink Station - Irvine Business Complex	via Edinger Ave/ Red Hill Ave/ Campus Dr/ Jamboree Rd	STATIONLINK
473	Tustin Metrolink Station - U.C.I.	via Edinger Ave/ Harvard Ave	STATIONLINK
480	Irvine Metrolink Station - Lake Forest	via Alton Pkwy/ Bake Pkwy/ Lake Forest Dr	STATIONLINK
543	Fullerton Transportation Center - Santa Ana	via Harbor Blvd	BRAVO
560	Santa Ana - Long Beach	via 17th St / Westminster Ave	BRAVO
862	Downtown Santa Ana Shuttle	via Civic Center Dr	COMMUNITY

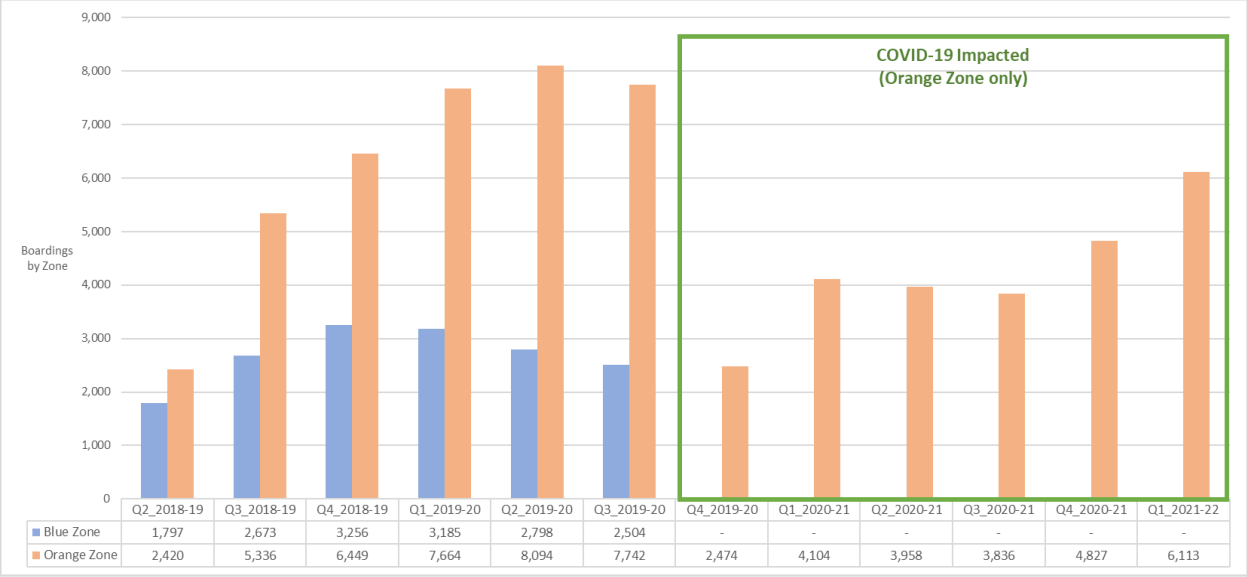
OC Bus 360° Initiatives

OC Flex Pilot Program

OC Flex service launched in October 2018 in two zones under a pilot program. The Board approved five primary goals and performance metrics to evaluate the pilot program. Upon approval of the pilot program, the Board directed staff to provide updates on the performance metrics as part of a quarterly Bus Operations Performance Measurements Report.

For Q1 of FY 2021-22, the trends for ridership in the Orange Zone, as well as other metrics, remain relatively stable as the state began to reopen, though quarterly ridership continues to increase. Service in the Blue Zone was suspended in March 2020. In November 2020, the Board approved staff recommendation to eliminate the Blue Zone from the pilot program. As travel restrictions are lifted and the Orange Zone recovers from the impacts of the COVID-19 pandemic, staff will continue to evaluate these trends under the Board-approved extension of the pilot program through December 2021.

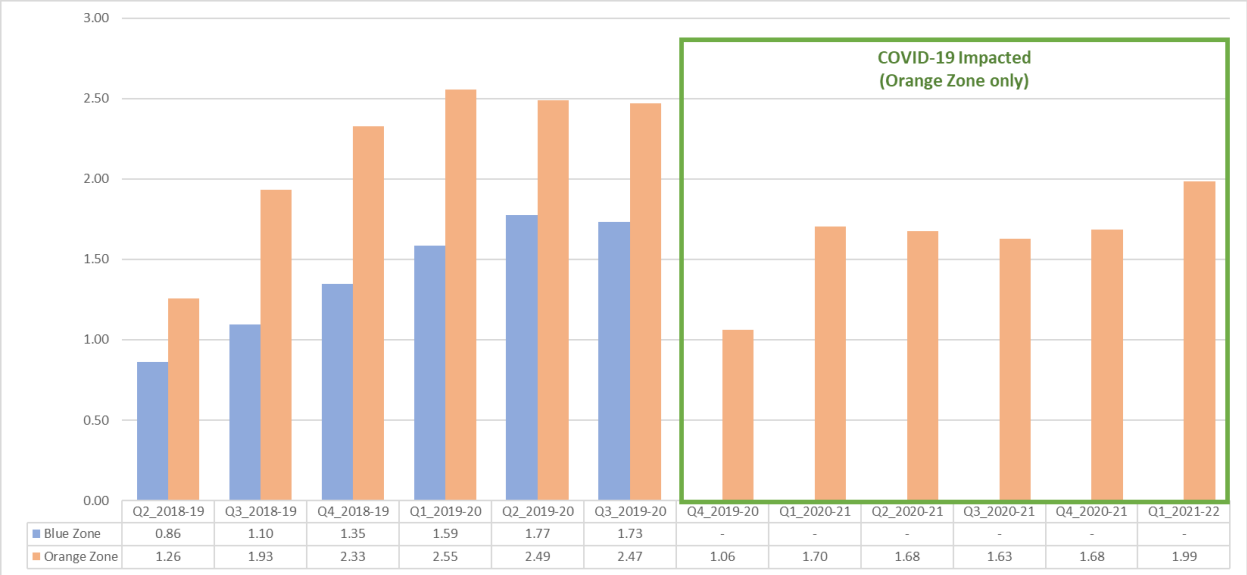
Quarterly OC Flex Ridership – Through Q1-FY 2021-22



	Q2_2018-19	Q3_2018-19	Q4_2018-19	Q1_2019-20	Q2_2019-20	Q3_2019-20	Q4_2019-20	Q1_2020-21	Q2_2020-21	Q3_2020-21	Q4_2020-21	Q1_2021-22
Blue Zone	1,797	2,673	3,256	3,185	2,798	2,504	-	-	-	-	-	-
Orange Zone	2,420	5,336	6,449	7,664	8,094	7,742	2,474	4,104	3,958	3,836	4,827	6,113

OC Flex Productivity (Boarding/Revenue Vehicle Hour) – Through Q1-FY 2021-22

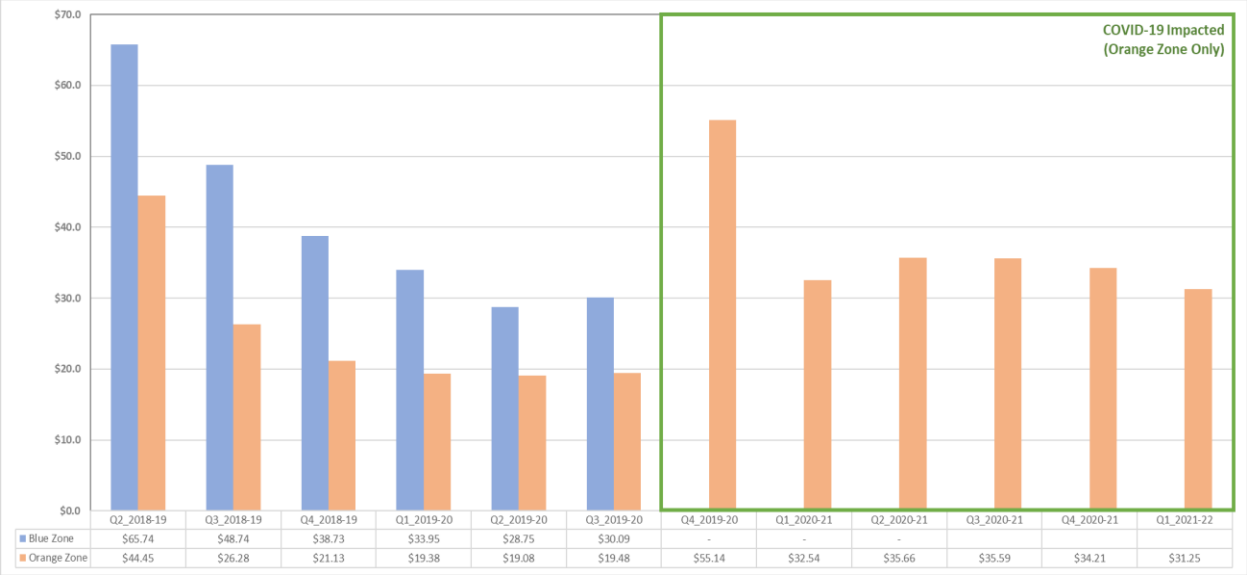
Target: Productivity – 6 B/RVH



	Q2_2018-19	Q3_2018-19	Q4_2018-19	Q1_2019-20	Q2_2019-20	Q3_2019-20	Q4_2019-20	Q1_2020-21	Q2_2020-21	Q3_2020-21	Q4_2020-21	Q1_2021-22
Blue Zone	0.86	1.10	1.35	1.59	1.77	1.73	-	-	-	-	-	-
Orange Zone	1.26	1.93	2.33	2.55	2.49	2.47	1.06	1.70	1.68	1.63	1.68	1.99

Quarterly OC Flex Direct Subsidy per Boarding – Through Q1-FY 2021-22

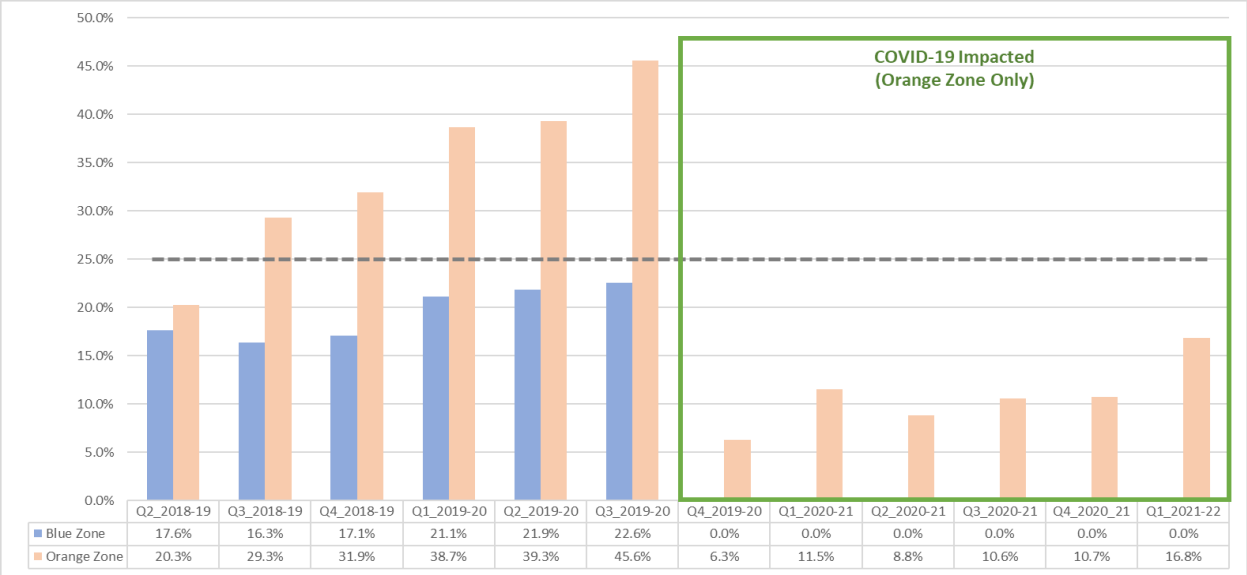
Target: Direct Subsidy per Boarding - $9 per Boarding



	Q2_2018-19	Q3_2018-19	Q4_2018-19	Q1_2019-20	Q2_2019-20	Q3_2019-20	Q4_2019-20	Q1_2020-21	Q2_2020-21	Q3_2020-21	Q4_2020-21	Q1_2021-22
Blue Zone	$65.74	$48.74	$38.73	$33.95	$28.75	$30.09	-	-	-			
Orange Zone	$44.45	$26.28	$21.13	$19.38	$19.08	$19.48	$55.14	$32.54	$35.66	$35.59	$34.21	$31.25

OC Flex Shared Trips – Through Q1-FY 2021-22

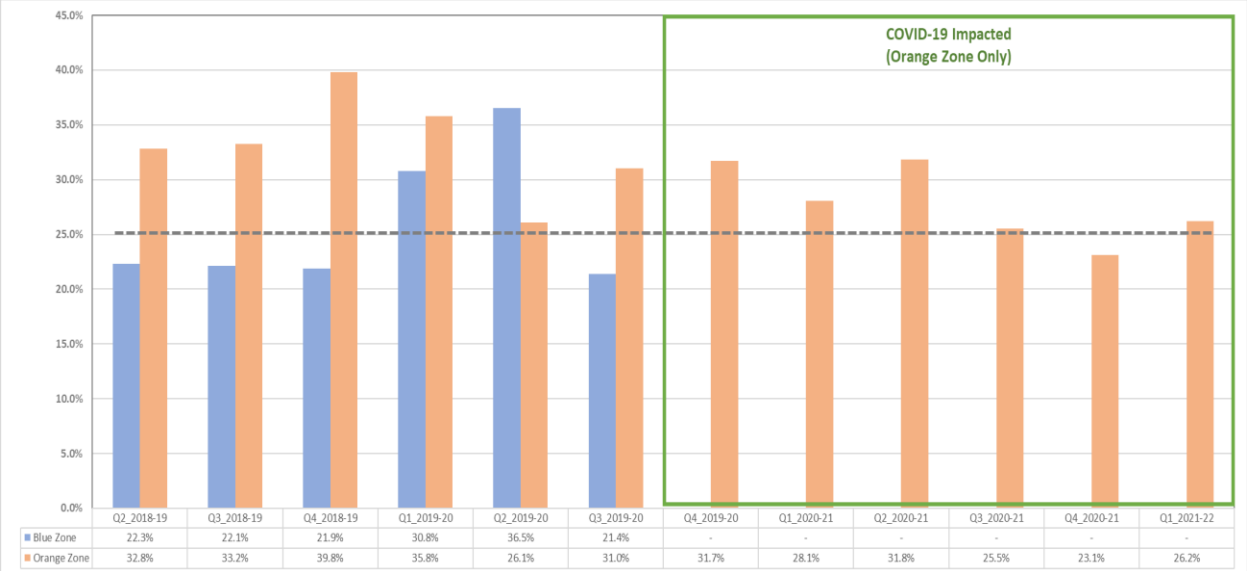
Target: 25% of Booked Trips Sharing a Vehicle



	Q2_2018-19	Q3_2018-19	Q4_2018-19	Q1_2019-20	Q2_2019-20	Q3_2019-20	Q4_2019-20	Q1_2020-21	Q2_2020-21	Q3_2020-21	Q4_2020_21	Q1_2021-22
Blue Zone	17.6%	16.3%	17.1%	21.1%	21.9%	22.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Orange Zone	20.3%	29.3%	31.9%	38.7%	39.3%	45.6%	6.3%	11.5%	8.8%	10.6%	10.7%	16.8%

OC Flex Connecting Trips (Transfers) – Through Q1-FY 2021-22

Target: 25% of Trips Transfer to OC Bus or Metrolink Service



	Q2_2018-19	Q3_2018-19	Q4_2018-19	Q1_2019-20	Q2_2019-20	Q3_2019-20	Q4_2019-20	Q1_2020-21	Q2_2020-21	Q3_2020-21	Q4_2020-21	Q1_2021-22
Blue Zone	22.3%	22.1%	21.9%	30.8%	36.5%	21.4%	-	-	-	-	-	-
Orange Zone	32.8%	33.2%	39.8%	35.8%	26.1%	31.0%	31.7%	28.1%	31.8%	25.5%	23.1%	26.2%

College Pass Program

In 2017, OCTA introduced college students to the convenience and affordability of public transit by a shared-cost program that allows enrolled students to travel free on any OC Bus fixed route. Since then, OCTA has been building on the success of the program, which has helped increase ridership, introduced new riders to public transit, and removed barriers to higher education for students. Despite the COVID-19 pandemic which resulted in remote learning for most of the students, colleges have continued to stay in the program to help meet essential travel needs of students.

In addition, OCTA enrolled new colleges in the program during the pandemic including Cypress College, which began its program in Spring 2021, and Irvine Valley College in Fall 2021. In August, when colleges returned to partially in-person classes, OCTA launched a "Welcome Back" marketing campaign to remind students of the program and the benefits of riding transit. To date, the College Pass Program has seven colleges out of nine in Orange County enrolled. They are Santa Ana, Santiago Canyon, Fullerton, Goldenwest, Saddleback, Cypress, and Irvine Valley colleges. Staff has continued working with the last two colleges – Coastline and Orange Coast College through numerous planning meetings. Coastline College is ready to start the program in Spring 2022 with Orange Coast is looking to come on board in Fall 2022.

December 9, 2021

To: Transit Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: February 2022 Bus Service Change

Overview

In an effort to better meet demand for bus service as California and the economy continue to emerge from the coronavirus pandemic, the February 2022 bus service change will provide additional service to improve service quality and reliability. Bus service levels will increase by 83,000 annual revenue vehicle hours to 1.43 million annual revenue vehicle hours, which is within the fiscal year 2021-22 budgeted amount of service. Staff utilized customer comments and route performance statistics to develop the service improvements.

Recommendation

Receive and file as an information item.

Background

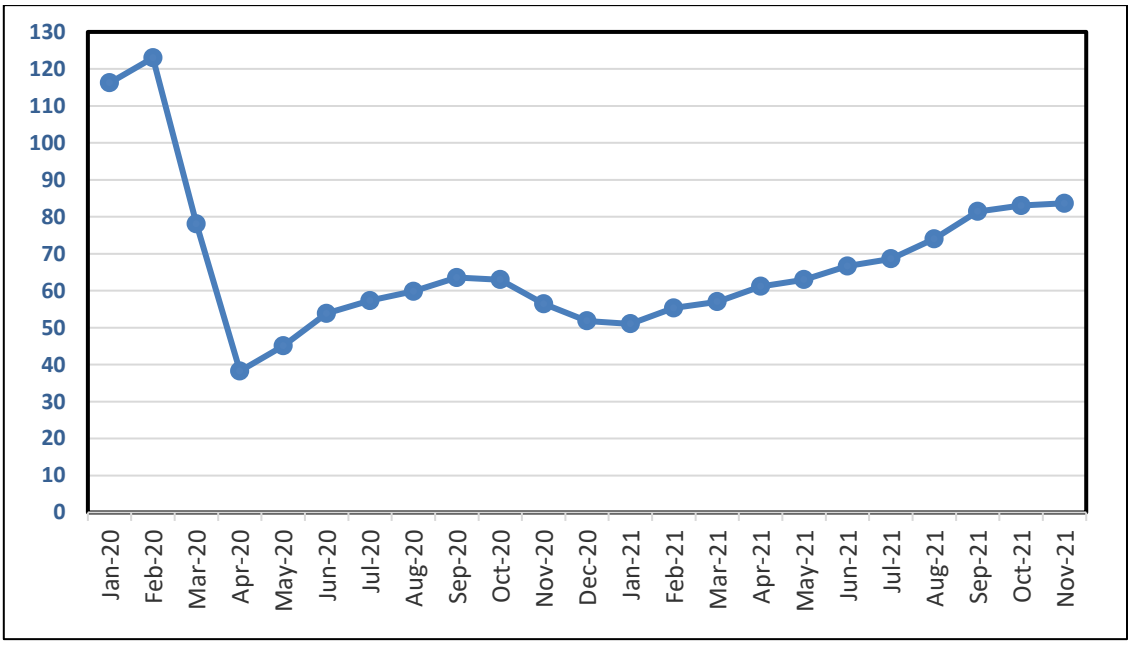
The Orange County Transportation Authority (OCTA) implements regular schedule and route revisions to selected OC Bus routes three times a year, in February, June, and October. The next bus service change is scheduled for implementation on February 13, 2022.

OCTA implemented an emergency service change on March 23, 2020. Service levels were reduced to balance a reduction in demand for transit service, resulting from the federal and state emergency declarations, while still providing vital transportation services. This also included California's stay-at-home order to help reduce the spread of coronavirus (COVID-19). OCTA has made numerous adjustments to bus service since the initial state emergency declaration. These changes have been implemented strategically to address changes in demand, customer and coach operator requests, and changes in traffic conditions.

Discussion

As regularly reported to the Board of Directors (Board), the COVID-19 pandemic has had a significant and sustained impact on transit ridership, not only in Orange County but also nationwide. OC Bus ridership decreased from approximately 125,000 average weekday boardings to the low 30,000s in April 2020. Ridership has recently rebounded to about 85,000 average weekday boardings. The chart below shows the average weekday ridership, by week, from mid-February 2020 through the end of October 2021.

Average Weekday Boardings by Month (in Thousands)



On March 23, 2020, in direct response to the dramatic decrease in demand, OCTA reduced fixed-route bus service approximately 40 percent by implementing Sunday service schedules on all routes, seven days a week. Between June 2020 and June 2021, OCTA operated an enhanced Saturday service schedule on weekdays and a regular weekend schedule on Saturdays and Sundays. Since the June 2021 service change, OCTA has been adding service, focusing on improving frequency and service hours of operation on many OC bus routes. In June 2021, approximately 13,000 annual revenue vehicle hours (RVH) were added, 107,000 RVH in August 2021, and about 41,000 RVH in October 2021. An additional 83,000 RVH are planned for February 2022, which will increase bus service levels to 1.43 million annual RVH. This is slightly below with the fiscal year (FY) 2021-22 budget of 1.45 million annual RVH, and represents a 6.1 percent increase in service over October 2021 levels and about 12 percent below pre-COVID-19 levels.

Based on current demand and ridership trends, bus service levels are expected to remain constant at 1.45 million RVH through FY 2022-23. Future service increases will be informed by the Bus Restructuring Study. The study will identify improvements to better serve travel patterns that have been affected by the pandemic, as well as improve service quality and reliability. Recommendations from the study are anticipated to be presented to the Board for consideration in October 2022, and will be implemented starting with the February 2023 service change. Staff will provide the Board with an overview on this study and the public engagement that will be required for a study of this magnitude at the January 2022 Transit Committee and Board meetings.

The proposed February 2022 service change will improve service on 39 of the 52 OCTA bus routes currently operated. The changes were developed to improve service quality and reliability by providing more service during early morning and late evenings, more frequency throughout the day, and additional time to account for increases in traffic. Staff used customer comments along with route performance statistics to develop the list of improvements, which include:

- Improving service frequency on 16 bus routes,
- Expanding hours of operation earlier in the morning and/or later in the evening on nine bus routes,
- Schedule adjustments on 35 bus routes to improve on-time performance,
- Adjusting schedules on one bus route due to changes to Metrolink schedule, and
- Reinstating Bravo! Route 529 service on the Beach Boulevard corridor.

OCTA will continue the suspension of five freeway express bus routes, and the Bus Restructuring Study will make recommendations for future restoration or changes to these routes. The recommendations are detailed in Attachment A and shown in attachments B, C, D, E, F, and G.

Following the implementation of the service improvements, staff will assess the service based on key variables, such as customer demand, service performance, and the latest developments regarding COVID-19. Additional adjustments could be made in future service changes. The February 2022 service change levels are consistent with the approved OCTA FY 2021-22 Budget.

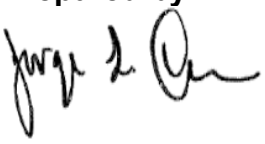
Summary

The proposed February 2022 bus service change will increase transit service to improve service quality and reliability. Customer comments and route performance statistics were used to develop the improvements, which include more frequent service, expanded hours of operations, schedule adjustments to improve on-time performance, and other changes. Customers will be notified of the changes three weeks prior to implementation.

Attachments

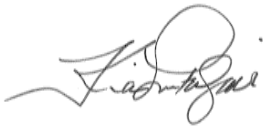
A. February 2022 Bus Service Change: Bus Route Recommendations
B. February 2022 Bus Service Change System Map, Routes with Frequency Improvements
C. February 2022 Bus Service Change System Map, Routes with Span Improvements
D. February 2022 Bus Service Change System Map, Routes with Improved On-Time Performance
E. February 2022 Bus Service Change System Map, Routes Continue Suspended
F. February 2022 Bus Service Change System Map, Routes to be Reinstated
G. February 2022 Bus Service Change System Map, Routes with No Changes

Prepared by:



Jorge Duran
Service Planning Analyst, Principal
(714) 560-5765

Approved by:



Kia Mortazavi
Executive Director, Planning
(714) 560-5741

February 2022 Service Change: Bus Route Recommendations

Route	Route Description	Recommendation	CHANGE IN SERVICE			
			Daily RVH	Annual RVH	Peak Vehicles	Daily Trips
1	Long Beach - San Clemente	Improve span	9.7	2,465	-	3
25	Fullerton - Huntington Beach	Improve span; improve frequency; improve OTP	21.4	5,449	1	9
26	Fullerton - Yorba Linda	Improve frequency; improve OTP	25.6	6,515	2	18
29	La Habra - Huntington Beach	Improve frequency; improve OTP	(17.7)	(4,514)	-	(13)
30	Cerritos - Anaheim	Improve span	6.1	1,556	1	2
33	Fullerton - Huntington Beach	Improve span; improve frequency; improve OTP	27.6	7,042	2	20
35	Fullerton - Costa Mesa	No change	-	-	-	-
37	La Habra - Fountain Valley	No change	-	-		
38	Lakewood - Anaheim Hills	Improve span; improve OTP	6.1	1,543	1	4
42	Seal Beach - Orange	Improve OTP	5.5	1,394	-	1
43	Fullerton - Costa Mesa	Improve OTP	0.0	4	-	-
46	Los Alamitos - Orange	Improve frequency; improve OTP	21.1	5,381	2	12
47	Fullerton - Balboa	Improve OTP	(0.4)	(106)	-	3
50	Long Beach - Orange	Improve OTP	4.3	1,084	1	-
53	Orange - Irvine	Improve OTP	10.5	2,686	2	(5)
54	Garden Grove - Orange	Improve frequency; improve OTP	15.7	3,999	1	7
55	Santa Ana - Newport Beach	Improve OTP	9.3	2,376	2	2
56	Garden Grove - Orange	Improve OTP	2.7	697	1	-
57	Brea - Newport Beach	Improve frequency; improve OTP	6.5	1,645	2	6
59	Anaheim - Irvine	Improve frequency; improve OTP	3.9	982	(1)	6
60	Long Beach - Tustin	Improve OTP	5.2	1,326	2	-
64	Huntington Beach - Tustin	Improve frequency	1.1	281	(3)	1
66	Huntingon Beach - Irvine	Improve frequency; improve OTP	16.4	4,182	2	4
70	Sunset Beach - Tustin	Improve frequency; improve OTP	2.7	689	-	-
71	Yorba Linda - Newport Beach	Improve OTP	6.5	1,649	1	-
72	Sunset Beach - Tustin	Improve frequency; improve OTP	14.9	3,804	1	10
76	Huntington Beach-JWA via Talbert Avenue/ MacArthur Boulevard	No change	-	-	-	-
79	Tustin - Newport Beach	Improve frequency; improve OTP	28.2	7,195	3	20
82	Foothill Ranch - Rancho Santa Margarita	No change	-	-	-	-
83	Anaheim - Laguna Hills	No change	-	-	-	-
85	Mission Viejo - Laguna Niguel	Improve OTP	(0.3)	(68)	-	-
86	Costa Mesa - Mission Viejo	No change	-	-	-	-
87	Rancho Santa Margarita - Laguna Niguel	Improve OTP	(0.0)	(4)	-	-
89	Mission Viejo - Laguna Beach	Improve OTP	(0.1)	(13)	-	-
90	Tustin - Dana Point	Improve frequency	0.0	9	-	4
91	Laguna Hills - San Clemente	Improve OTP	-	-	-	-
123	Anaheim - Huntington Beach	No change	-	-	-	-

ATTACHMENT A

February 2022 Service Change: Bus Route Recommendations

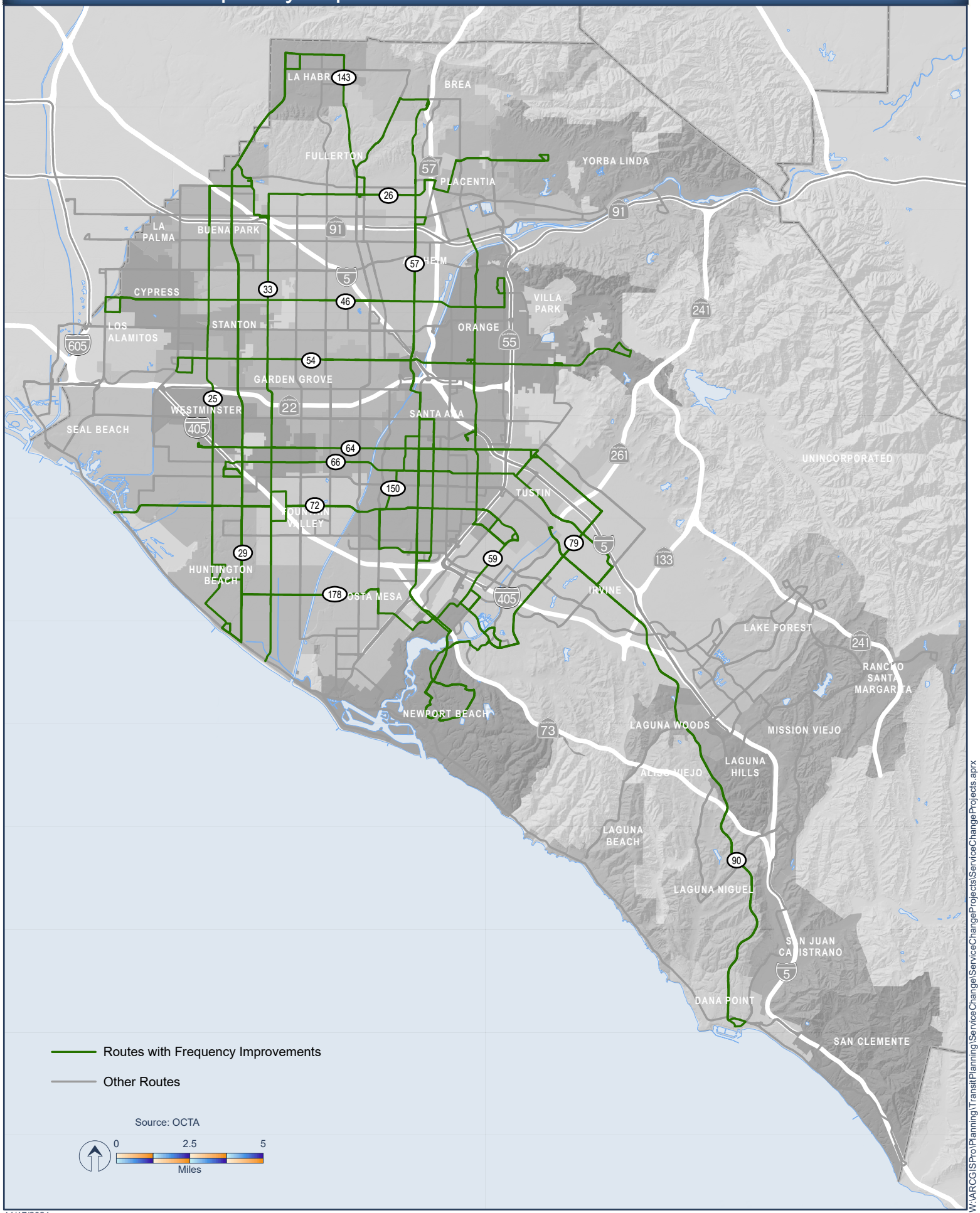
Route	Route Description	Recommendation	CHANGE IN SERVICE			
			Daily RVH	Annual RVH	Peak Vehicles	Daily Trips
129	La Habra - Anaheim	Improve span; improve OTP	2.0	497	-	1
143	La Habra - Brea	Improve span; improve OTP	16.0	4,076	1	10
150	Santa Ana - Costa Mesa	Improve frequency; improve OTP	12.6	3,222	-	8
153	Brea - Anaheim	Improve span; improve OTP	2.0	510	-	2
167	Orange - Irvine	Improve span; improve OTP	4.1	1,041	-	2
177	Foothill Ranch - Laguna Hills	No change	-	-	-	-
178	Huntington Beach - Irvine	Improve frequency; improve OTP	(0.1)	(17)	-	2
206	Santa Ana - Lake Forest Express	Continue suspension				
213	Brea - Irvine Express	Continue suspension				
453	Orange Transportation Center - St. Joseph's Hospital	No change				
463	The Depot at Santa Ana - Hutton Center	No change				
472	Tustin Station - Irvine Business Complex	Metrolink schedule adjustment	(0.4)	(89)	-	-
473	Tustin Station - UCI	No change				
480	Irvine Station - Lake Forest	No change				
529	Fullerton - Huntington Beach Express	Reinstate route	56.3	14,365	5	58
543	Fullerton - Santa Ana	No change				
560	Santa Ana - Long Beach	Improve OTP	0.2	51	-	-
701	Huntington Beach - Los Angeles Express	Continue suspension				
721	Fullerton - Los Angeles Express	Continue suspension				
794	Riverside - South Coast Metro Express	Continue suspension				
862	Downtown Santa Ana Shuttle	No change				
Total			**325.1**	**82,901**	**29**	**197**

Acronyms

JWA - John Wayne Airport
OTP - On-Time Performance
RVH - Revenue Vehicle Hours
UCI - University of California, Irvine

February 2022 Bus Service Change System Map
Routes with Frequency Improvements

ATTACHMENT B



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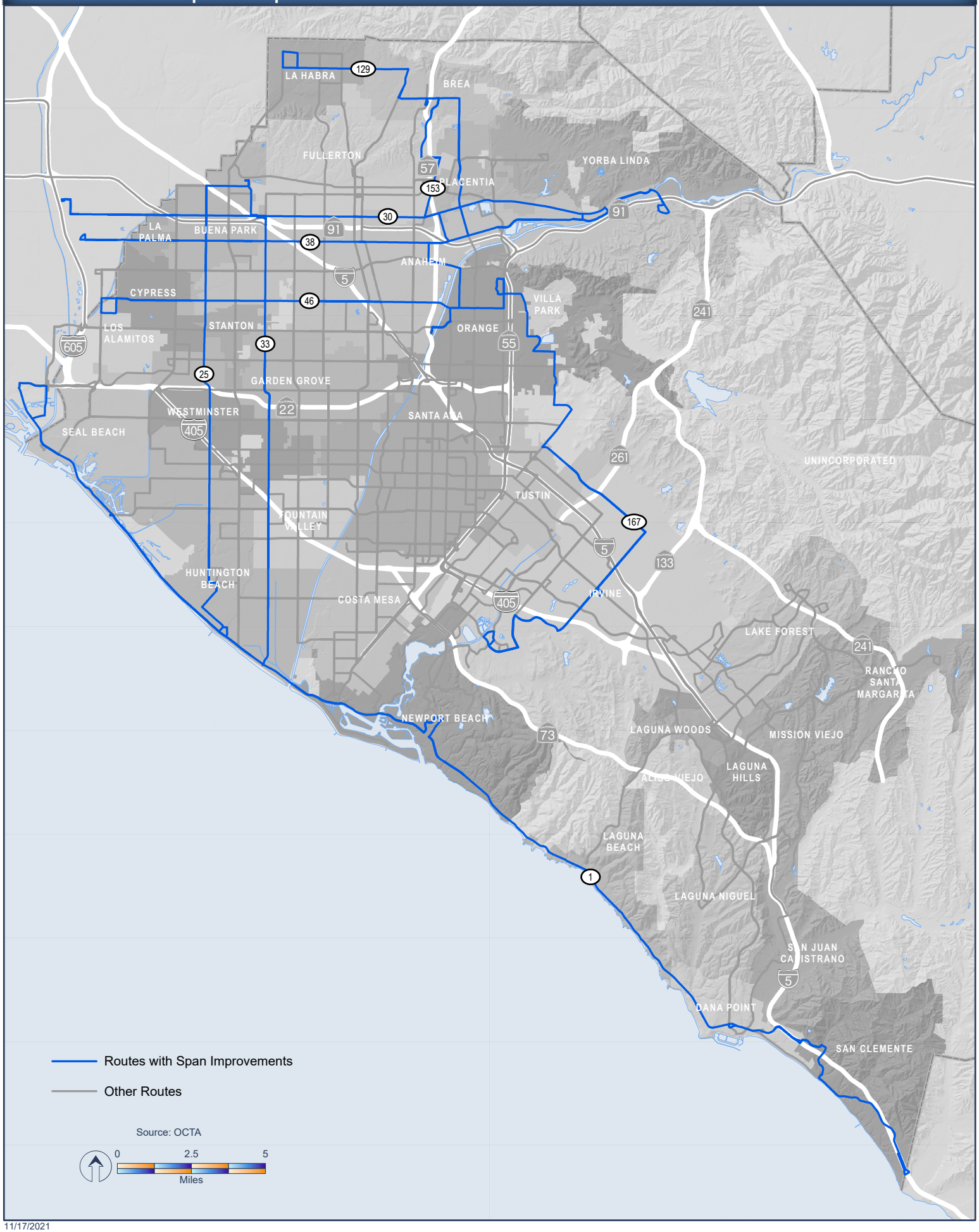
February 2022 Bus Service Change System Map
Routes with Span Improvements

ATTACHMENT C



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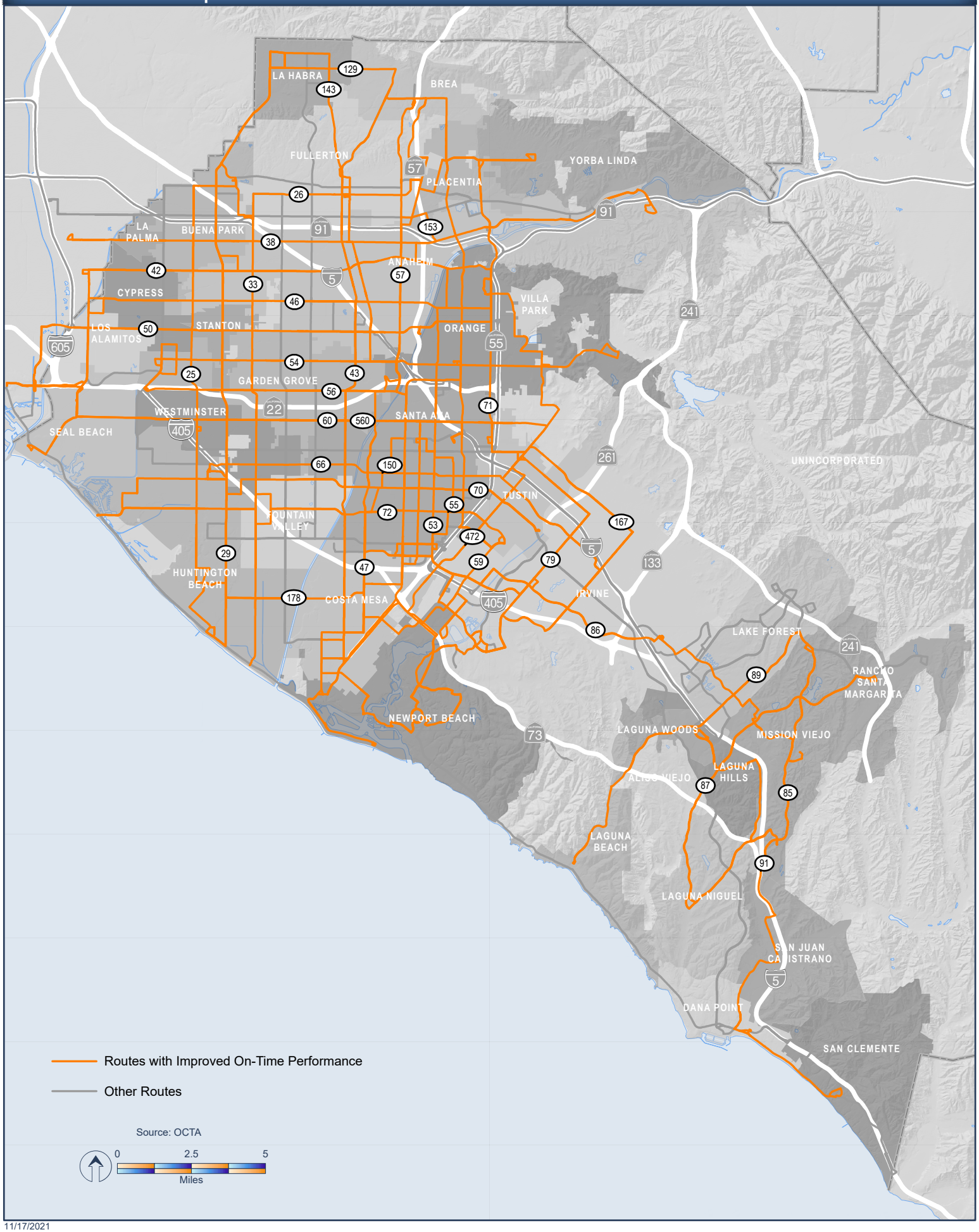
February 2022 Bus Service Change System Map
Routes with Improved On-Time Performance

ATTACHMENT D



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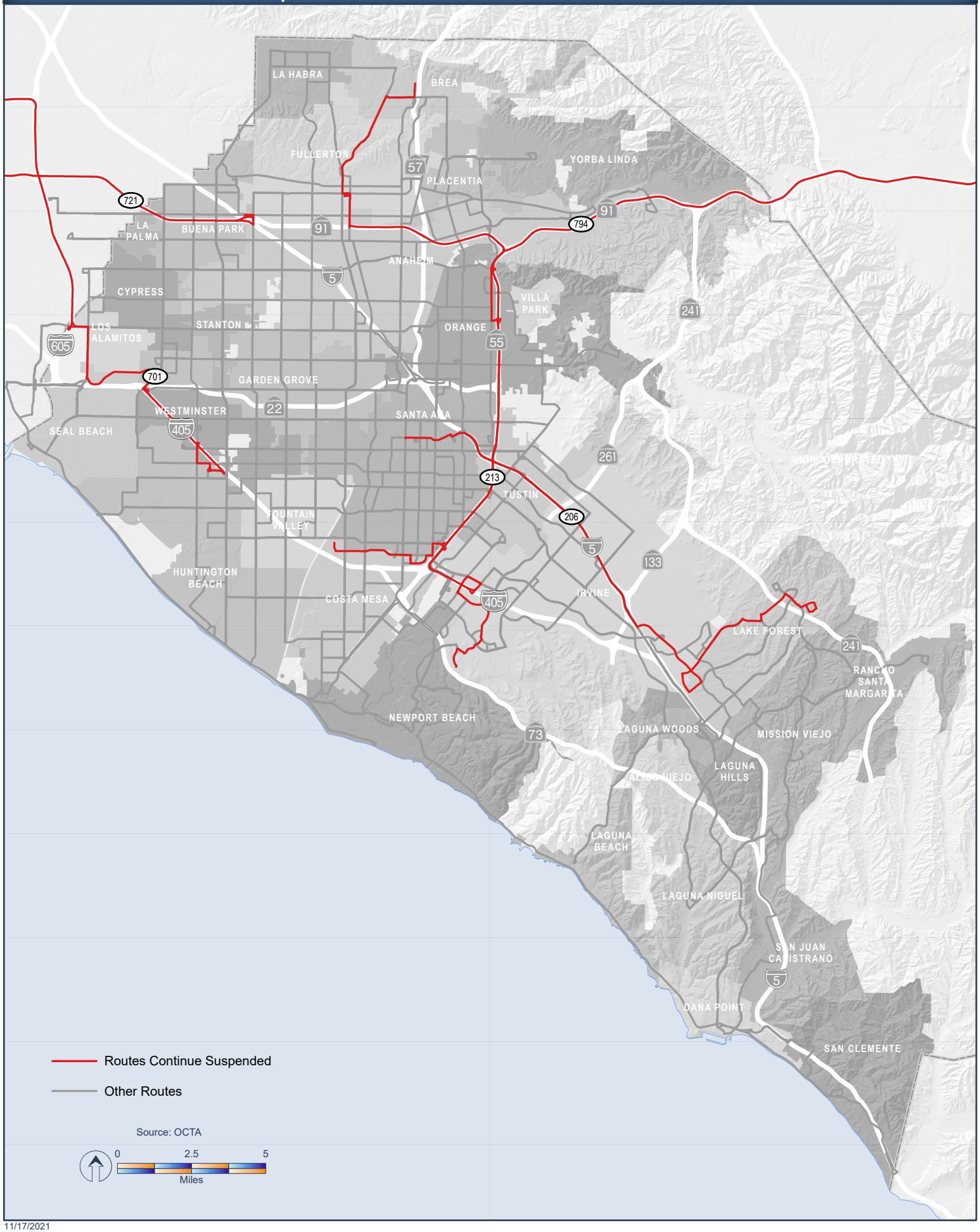
February 2022 Bus Service Change System Map
Routes Continue Suspended

ATTACHMENT E



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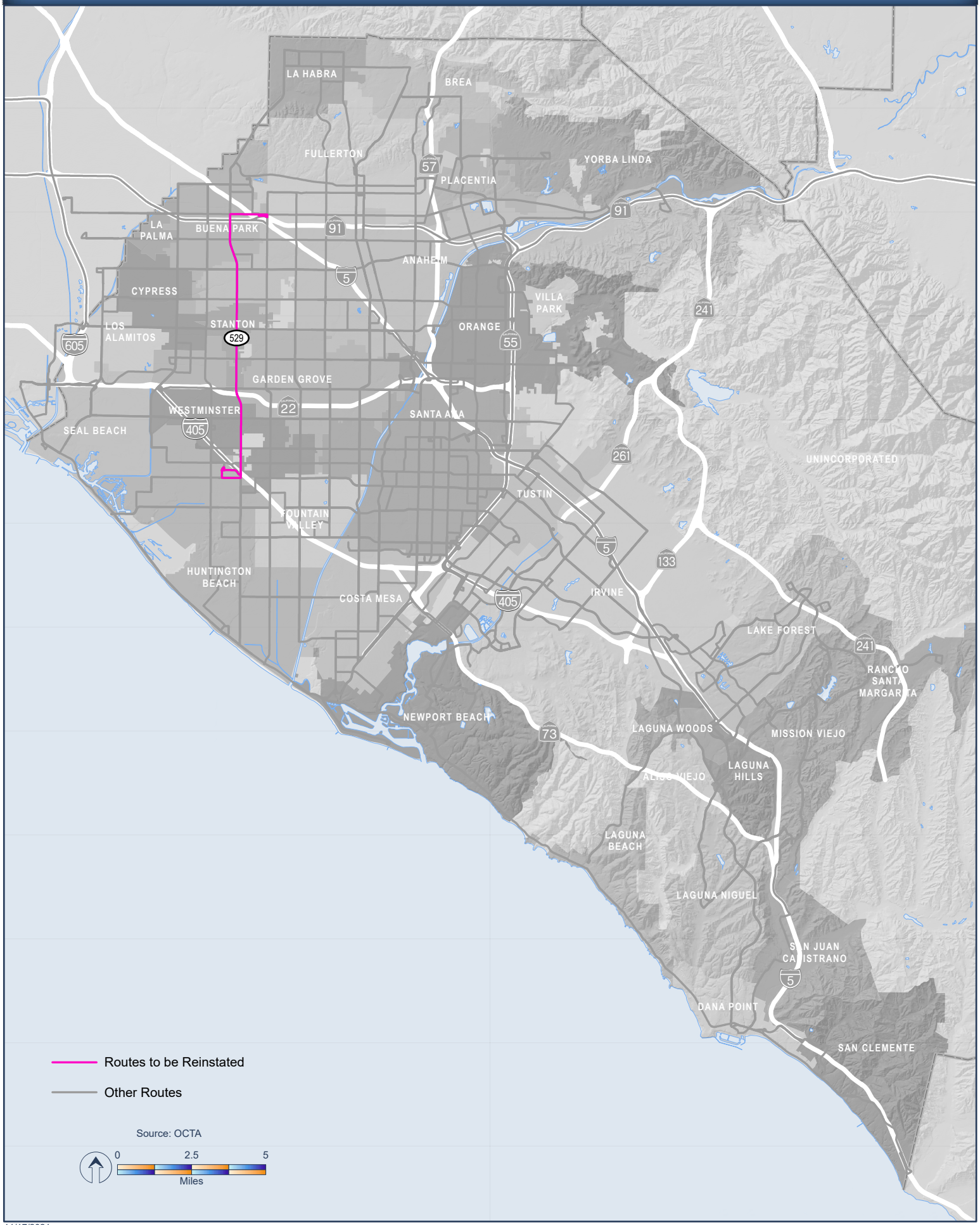
February 2022 Bus Service Change System Map
Routes to be Reinstated

ATTACHMENT F



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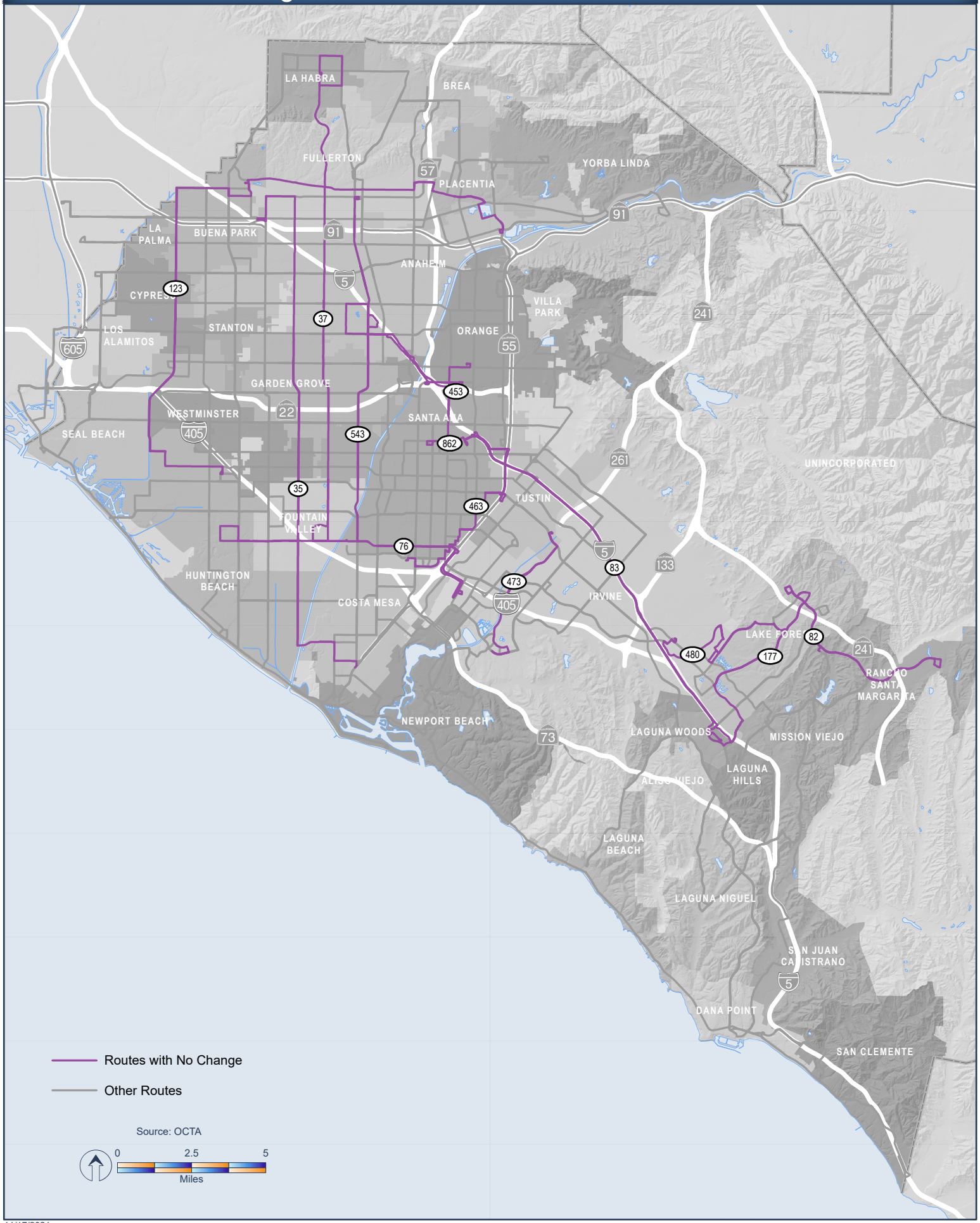
February 2022 Bus Service Change System Map
Routes with No Changes

ATTACHMENT G



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December 9, 2021

To: Transit Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: OC Streetcar Cost and Schedule Update

Overview

The Orange County Transportation Authority is currently underway with the implementation of the OC Streetcar project. Staff is seeking Board of Directors' approval of a revised OC Streetcar budget and funding plan.

Recommendations

A. Approve the revised OC Streetcar Federal Transit Administration Full Funding Grant Agreement budget of $509.54 million.

B. Authorize the use of an additional $86.10 million for the OC Streetcar Federal Transit Administration Full Funding Grant Agreement, increasing the total funding for the Full Funding Grant Agreement from $423.44 million to $509.54 million, as follows:
   - $45.72 million in additional Congestion Mitigation and Air Quality Improvement Program funds;
   - $30.98 million in additional Measure M2 Transit Extensions to Metrolink (Project S) program funding; and
   - $9,407,272 in American Rescue Plan Act Capital Investment Grant funds.

C. Authorize staff to make all necessary amendments to the Federal Transportation Improvement Program, update any air quality conformity requirements, and execute any required agreements, amendments, or grants with the Federal Transit Administration to facilitate the recommendation above.

Background

The Orange County Transportation Authority (OCTA), in cooperation with the City of Santa Ana (City) and the City of Garden Grove, is implementing a modern streetcar running between the Santa Ana Regional Transportation Center in the City and the intersection of Harbor Boulevard and Westminster Avenue in the City of Garden Grove. The OC Streetcar project (Project) will improve transit connectivity and accessibility, increase transit options, relieve congestion, and provide benefits to the community and traveling public. The Project is being implemented as part of Measure M2 (M2) Project S – Transit Extensions to Metrolink, approved by Orange County voters in November 2006.

Construction of the 4.15-mile Project involves complex and specialized work, including the installation of embedded track in existing streets, an overhead contact system (OCS) to supply power to the vehicles, stops with canopies, two bridges, and a maintenance and storage facility (MSF).

On July 9, 2018, the OCTA Board of Directors (Board) approved a Project cost of $407.75 million. The Project cost was adopted as part of the execution of the Full Funding Grant Agreement (FFGA) with the Federal Transit Administration (FTA) in November 2018 that secured $148.95 million in federal New Starts Capital Investment Grant (CIG) discretionary funding for the Project. The FFGA is a contract between OCTA and FTA governing the delivery of the Project. The FTA closely monitors implementation of the Project to ensure that the terms of the FFGA are being met.

Following execution of the FFGA in November 2018, a Notice to Proceed was issued to Walsh Construction Company II, LLC, (Walsh) to commence construction activities. Since that time, work has progressed with substantial completion of the bridges over Westminster Avenue and the Santa Ana River, completion of planned utility relocations, installation of embedded track in City streets and ballasted track in the Pacific Electric Right-of-Way (PEROW), and construction and installation of the MSF building floor slabs, station platforms, and the OCS poles.

Despite the progress made in the construction of the Project, there have been many challenges encountered as shared with the Board in several prior Project updates. Some of the major challenges include the following:

- The number and nature of unknown utility conflicts encountered was higher and more complex than anticipated.
- An extensive amount of contaminated and hazardous soil was encountered during excavations on the PEROW, city streets, and at the MSF site.

- Additional unforeseen conditions have been encountered, including thicker sections of pavement and unsuitable subgrade conditions within city streets, as well as an abandoned well, underground storage tank, and cultural resources discovery at the MSF.
- Unanticipated revisions to the MSF design related to structural, safety, operational, and maintenance elements.
- Unanticipated revisions to traction power substations to meet current electrical requirements, which include clearances around electrical equipment, modifications to electrical conduit, and added maintenance access and security gates.
- Contractor non-compliance with construction quality requirements and quality control plans.
- An extensive number of change requests (CR) have been submitted by Walsh to address unforeseen conditions, material substitutions, design modifications, and requests made by third parties. The CRs have resulted in numerous change directives being issued.
- An extensive number of requests for information (RFI) have been submitted by Walsh seeking clarifications of plans and specifications, design modifications, deviations for constructability, and designer intent. Each RFI requires technical and contractual reviews and may include specialized design disciplines, as well as oversight and approval from partner agencies and other third parties.

These challenges have resulted in OCTA issuing a higher than anticipated number of construction contract change orders (CCO) to Walsh, requiring an increased level of professional services for technical and contractual reviews, as well as oversight of the work by OCTA and its consultants to ensure that quality, safety, and environmental compliance requirements are met.

The original Project estimate, including contingency, was established using the methodologies prescribed by FTA. The estimate was reviewed and concurred with by FTA and based on the assessed known costs and risks at the time, the Project construction contract was awarded in 2018. Some of the realized risks have been greater than expected, and there have been additional expenses associated with items not included in the FFGA that resulted in Project contingency being drawn down faster than originally forecasted for this stage of construction. As a result, in March 2021, the Board authorized $15.61 million in supplemental contingency, increasing the Project cost from $407.83 million to $423.44 million. This was done to ensure the Project could continue to progress while staff conducted the FTA-required risk analysis needed to develop a revised cost and schedule to complete the Project.

Discussion

Based on OCTA's review of contractor progress through invoicing and monitoring of activity in the field, it is estimated that construction is 58.6 percent complete. This work includes the installation of track along approximately 1.35 miles of the 4.15-mile alignment, numerous OCS and traffic signal foundations and poles, and foundations for three of the 16 station platforms. In addition, Siemens is in the final stages of vehicle equipping and testing, and it is anticipated that the eight vehicles required for service will be complete in April 2022.

In addition to the challenges previously noted, there are remaining challenges associated with unknown utilities which have, and may continue to, impact the installation of track and the placement of OCS poles. Revisions to the MSF design related to structural, safety, operational, and maintenance elements require time to coordinate and implement. Additionally, there have been revisions to certain specified equipment as manufacturers have updated equipment model availability and specifications due to new technology.

Delays in constructing the MSF impact the timing of delivery of the vehicles from Siemens, as the MSF site is necessary for providing OCTA a secure location to test, accept, and commission the vehicles. OCTA will be subject to monthly costs for the secure storage of the vehicles at the Siemens Sacramento facility after April 2022, and until the MSF is ready for vehicle delivery.

While the delays to the MSF and continuing challenges of unknown utilities in City streets are of concern, there have been encouraging improvements in the contractor's progression of work. For example, in recent months additional progress has been made in placement of ballasted track in Segment 1, as well as excavation for embedded track along Santa Ana Boulevard and placement of rail in Segments 2 and 3 (Attachment A). Progress has been evident at the MSF as well, with concrete placement for the walls and slab for the service and inspection pit and wheel truing pit.

As discussed with the Board as part of prior Project updates, staff has been working in consultation with FTA on updating the Project cost and schedule based on a robust risk-based methodology to determine an updated cost to complete the Project and the projected revenue service date (RSD). OCTA and FTA have collaborated on updating project risks through interactive risk workshops and monitoring the schedule based on actual work in the field. As risks have been realized or retired and the construction progression is documented, the cost and schedule to complete the Project are becoming clearer. The latest FTA-compliant risk assessment was conducted with input

from FTA and FTA's consultant on the many factors influencing the assessment of cost and schedule.

Following this methodology, staff has determined March 2024 to be an achievable RSD with an estimated cost to complete of $509.54 million. This increase from $423.44 million as approved by the Board in March 2021, to $509.54 million, represents an increase in construction cost due to CCOs approved through October 2021, forecast required CCOs, as well as an increase in costs of equipment for the MSF, ticket vending machines, spare parts, and additional utility costs. The increase includes costs for vehicle storage, and for professional services covering an increased level of effort and the extended period of service through March 2024, including associated close-out activities. These professional services include the project management consultant, construction manager, designer of record, public outreach, quality manager, legal services, and those provided by OCTA staff. Additionally, as required by the FTA for a project at this stage of construction, contingency is being supplemented based on project risk. A summary of the cost increases totaling $86.10 million is provided in Attachment B.

Funding Plan

The $86.10 million supplemental budget is proposed to be funded with a combination of American Rescue Plan Act of 2021 (ARP), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and M2 funding. OCTA has a required local match for the project of 46.9 percent, and so the additional funding need of $86.10 million requires local matching funds of $40.38 million

ARP funds provide additional CIG funding for FFGA projects across the nation, including the OC Streetcar which received $9.41 million. The ARP funding helps offset the local match and reduces the amount of M2 needed to fund the cost increase from $40.38 million to $30.98 million.

CMAQ funds are committed to air quality improvements and Board policy directs these funds to M2 fixed-guideway and/or M2 high-occupancy or high-occupancy toll operational improvements. OCTA receives approximately $49 million each year in new CMAQ funding. Staff is recommending the use of $45.72 million in additional future CMAQ funding.

In summary, the additional Project funding need of $86.10 million is proposed to be funded using $9.41 million in ARP, $45.72 million in additional CMAQ, and $30.98 million in additional M2 Project S funds. The use of these funds is consistent with the Board-adopted Capital Programming Policies and the M2 Ordinance, which require that every effort be made to maximize state and federal funding for M2 projects. FTA will need to approve the use of additional federal

funds including both the CMAQ and the ARP. Also, the Southern California Association of Governments (SCAG) must move the project into a later year for air quality conformity purposes and program the funding into the Federal Transportation Improvement Program (FTIP) in future years. OCTA will work with SCAG to update the air quality conformity information as required and align the FTIP to be consistent with the current Project schedule and RSD of March 2024.

The original and recommended funding is provided in the table below:

Project Recommended FFGA Funding Plan

Funding Programs (in 1,000's)	Funding Approved March 2021	Funding Need	Recommended Funding
FTA New Starts	$148,955		$148,955
FTA Section 5307	$13,599		$13,599
Federal CMAQ	$62,412	$45,720	$108,132
Federal ARP*		$9,407	$9,407
State TIRCP**	$25,586		$25,586
Subtotal State and Federal	$250,552	$55,127	$305,679
M2	$172,886	$30,975	$203,861
Total Funding	$423,438	$86,102	$509,540

*Federal ARP funding is an offset to the M2 amount requested

**Transit and Intercity Rail Capital Program

Not included in the table is $16.60 million in previously expended funding for activities that are non-federally participating and not eligible to be included in the FFGA Project cost, including early environmental phase work and certain right-of-way acquistion costs.

When OCTA approves a programming change for a project, a Capital Funding Plan is provided to allow the Board to consider this change while looking at the overall funding for projects in the transit program. Once approved, the changes noted above will be finalized into the Capital Funding Program Report for the transit program, which is provided in Attachment C.

Next Steps

Staff will work with SCAG to amend the FTIP and with the FTA to update and/or amend the FFGA and execute grants for CMAQ and ARP. Additionally, staff will continue to track Project cost and schedule adherence and continue to report to the Board quarterly.

Fiscal Impact

Funds are included in OCTA's Fiscal Year 2021-22 Budget, Capital Programs Division, under several professional service and construction accounts for the Project in Fund 0051. This action will not require a fiscal year budget amendment because the proposed Project budget increase will primarily affect future fiscal year budgets. It will increase the Project FFGA budget by $86.10 million, using a combination of ARP, CMAQ, and M2 funding.

Summary

Staff is seeking Board of Directors' approval of a revised OC Streetcar project budget and funding plan, and approval to process all necessary amendments to the Federal Transportation Improvement Program, update air quality conformity requirements, and execute any agreements, amendments, or grants necessary to facilitate the revised funding plan.

Attachments

A. OC Streetcar Project Map
B. OC Streetcar Project Budget Comparison
C. Capital Funding Program Report

Prepared by:

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Approved by:

James G. Beil, P.E.
Executive Director, Capital Programs
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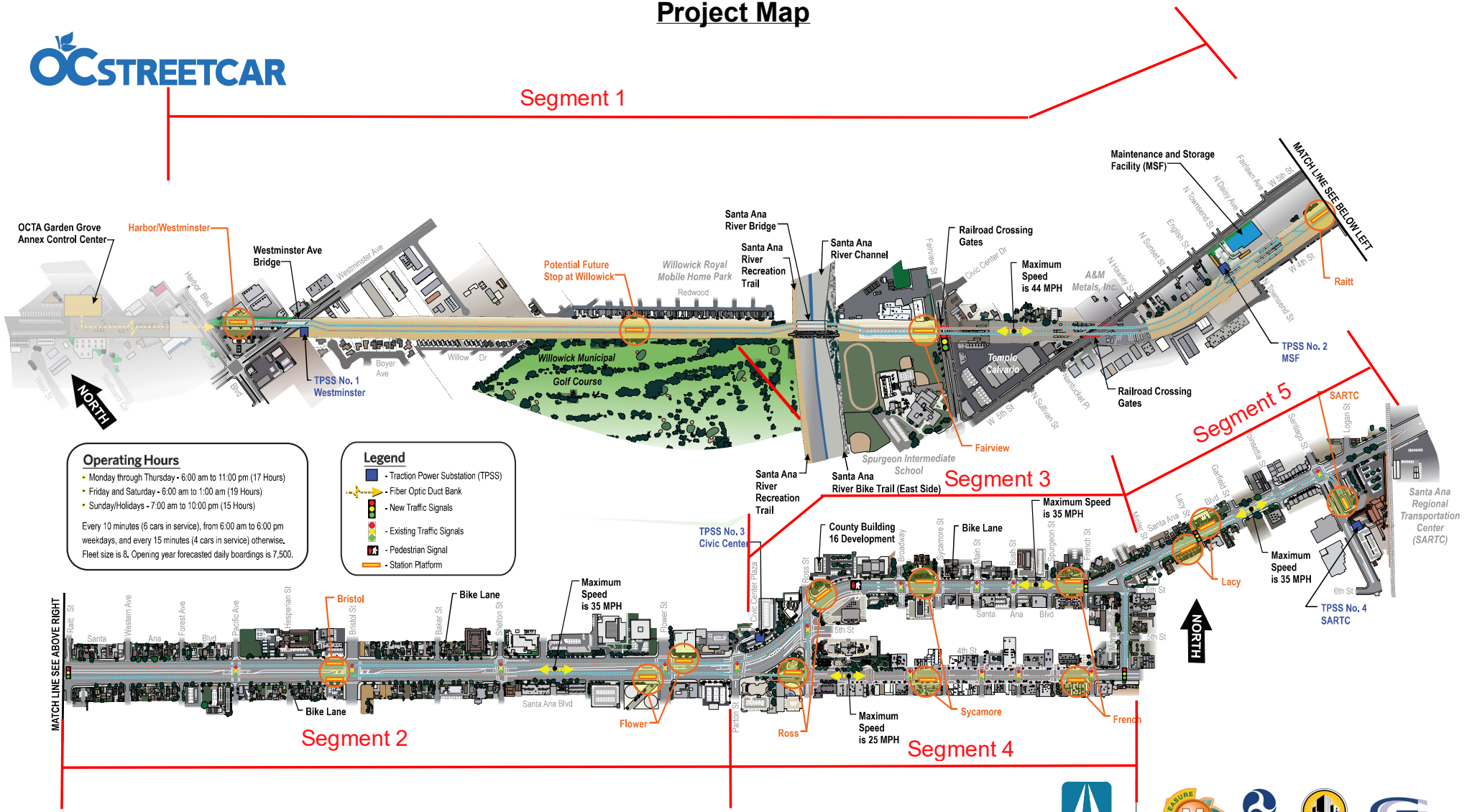
Project Map

OCSTREETCAR



OCTA

Federal Transit Administration

SANTA ANA

GARDEN GROVE

05.10.2018
Prepared by HDR, Inc.

ATTACHMENT A

ATTACHMENT B

OC STREETCAR PROJECT BUDGET COMPARISON

Cost Categories	Current Budget March 2021	Proposed Budget December 2021	Change Between Proposed Budget and Current Budget	% Change	Key Changes
Construction	$234.28	$273.80	$39.52	16.9%	• Pending/executed contract change orders through October 2021 • Added/increased costs for maintenance and storage facility/operational equipment, ticket vending machines, spare parts
Right-of-Way	$8.22	$7.17	($1.05)	-12.8%	• Cost savings from SA Recycling Acquisition
Professional services	$74.94	$140.63	$65.69	87.7%	• Increased costs for professional services including the extended performance period required with the extended revenue service date of March 2024 plus project close-out (professional services, OCTA staff)
Vehicles	$52.35	$57.03	$4.68	8.9%	• Vehicle and spare parts/special tools storage. Addition of computer-aided dispatch/automatic vehicle locator technology
Contingency	$53.64	$30.91	($22.73)	-42.4%	• Current budget contingency has been distributed between all cost categories in cost to complete amount • OCTA estimate is 6.5% of base cost
Total	**$423.43**	**$509.54**	**$86.11**	**20.3%**	

* All costs in millions

** Numbers may be slightly off due to rounding

Capital Funding Program Report

Pending Approval by OCTA Board of Directors (Board) - December 13th, 2021

Rail Project

			Federal Funds			State Funds			Local Funds		
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
Fullerton Transportation Center parking expansion	M1/R	$33,667				$11,250		$11,035	$9,718		$1,664
OC Streetcar (New Starts)[1]	M1/S	$509,540	$108,132	$171,961				$25,586		$203,861	
OC Streetcar (non-New Starts)	M1/S	$8,601		$341					$6,904	$1,213	$143
Anaheim Canyon Station	R	$34,200	$30,432							$2,000	$1,768
Fullerton Transportation Center Stair Rehabilitation	R	$1,330		$1,295							$35
Future VSS	R	$217		$174							$43
Laguna Niguel to San Juan Capistrano Passing Siding	R	$36,360	$25,056	$1,015		$3,000		$6,734			$555
Metrolink new capital	R	$516		$516							
Metrolink rehabilitation/renovation - FY 2016-17 to FY 2024-25	R	$102,257		$102,257							
Metrolink station and track improvements, and rehabilitation	R	$3,063		$2,617							$446
Orange Olive Wye Connection	R	$16,000				$16,000					
Placentia Commuter Rail Station	R	$34,825	$50			$2,500		$400		$8,000	$23,875
Preventive Maintenance (SCRRA - Metrolink) - FY 16-17 to FY 24-25	R	$51,000		$51,000							
San Juan Creek Bridge replacement	R	$43,092	$908	$39,833	$913			$59		$1,379	
Slope stabilization Laguna Niguel-Lake Forest	R	$5,168		$4,834						$334	
State College grade separation (LOSSAN)	R	$79,284						$46,000		$33,284	
Ticket vending machines	R	$6,857									$6,857
VSS at Commuter Rail Stations	R	$4,409		$3,594				$56			$759
M2 Project S Transit extensions to Metrolink (Rubber Tire)	S	$733								$733	
OC Maintenance Facility		$198		$198							
Slope and Culvert Improvements		$300		$300							
Tactile Tile Project		$1,304		$1,273						$31	
Rail Project Totals		**$972,921**	**$164,578**	**$381,208**	**$913**	**$32,750**		**$89,870**	**$16,622**	**$250,835**	**$36,145**

Federal Funding Total	**$546,699**
State Funding Total	**$122,620**
Local Funding Total	**$303,602**
Total Funding (000's)	**$972,921**

Rail Project Completed

			Federal Funds			State Funds			Local Funds		
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
Laguna Niguel-Mission Viejo Station parking improvements and expansion (ADA ramps)	M1/R	$5,177	$2,800	$732					$1,645		
Metrolink Grade Crossing Safety Improvements (OCX)	M1/R	$80,618						$18,250	$7,600	$30,710	$24,058
Metrolink rolling stock	M1/R	$158,009	$42,230	$35,390				$36,300	$44,089		
Metrolink Service Track Expansion	M1/R	$119,957						$51,399	$68,558		
Orange Transportation Center parking structure	M1/R	$31,003	$2,555	$2,644		$13,762			$1,850	$420	$9,772

ATTACHMENT C

Capital Funding Program Report

Pending Approval by OCTA Board of Directors (Board) - December 13th, 2021

Rail Project Completed												
			Federal Funds			State Funds			Local Funds		
Project Title	M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
Sand Canyon Avenue grade separation	M1/R	$62,050	$10,536					$28,192	$3,116	$5,352	$14,854
M2 Project S Fixed-Guideway Anaheim Rapid Connection	M1/S	$9,924		$1,516					$6,000	$1,286	$1,122
ARTIC construction	M1/T	$184,164	$33,250	$37,253	$3,501	$29,219			$43,900	$35,291	$1,750
Fullerton Transportation Station expansion planning, environmental PSR	M1/T	$0	$0						$0		
Santa Ana grade separation planning and environmental PSR	M1/T	$1,333	$1,180						$153		
Santa Ana Transportation Station planning and environmental PSR	M1/T	$1,003	$888						$115		
17th Street grade separation environmental	R	$2,476								$2,476	
Control Point at 4th Street	R	$2,985		$2,985							
Control Point Stadium Crossover	R	$6,490		$3,245				$3,245			
LOSSAN Corridor grade separations PSR in Anaheim, Orange, and Santa Ana	R	$2,699								$2,699	
Metrolink grade crossing safety improvements ROW	R	$3,025								$3,025	
North Beach crossings safety enhancements	R	$348						$166		$182	
Positive Train Control (Metrolink)	R	$39,916		$4,492	$1,234			$34,190			
Rail Crossing signal lights and pedestrian gates	R	$252						$252			
Rail Station Platform safety improvements (Fullerton, Irvine, and Tustin)	R	$553						$553			
Safety repairs for San Clemente Pier Station	R	$122						$122			
San Clemente Beach Trail Crossings safety enhancements	R	$4,999						$2,170		$2,251	$578
Transit Rail Security (monitors, fencing, video surveillance)	R	$163						$163			
Go Local	S	$7,730							$7,730		
ARTIC environmental, ROW, program management support, site plan	M1	$41,369							$8,869		$32,500
Fiber Optics installation (Metrolink)	M1	$23,183		$10,903				$10,479	$1,801		
Laguna Niguel-Mission Viejo Station parking expansion (south lot)	M1	$4,135						$695	$3,440		
Tustin Rail Station parking expansion	M1	$15,390				$1,100		$7,181	$7,109		
Rail Project Completed Totals		**$809,073**	**$93,439**	**$99,160**	**$4,735**	**$44,081**		**$193,357**	**$205,975**	**$83,692**	**$84,634**

Federal Funding Total	**$197,334**
State Funding Total	**$237,438**
Local Funding Total	**$374,301**
Total Funding (000's)	**$809,073**

Capital Funding Program Report

Pending Approval by OCTA Board of Directors (Board) - December 13th, 2021

Board Action:
1.Authorize the use of an additional $86.10 million for the OC Streetcar Federal Transit Administration Full Funding Grant Agreement, increasing the total funding for the Full Funding Grant Agreement from $423.44 million to $509.54 million, as follows:
•$45.72 million in additional Congestion Mitigation and Air Quality Improvement Program funds,
•$30.98 million in additional Measure M2 Transit Extensions to Metrolink (Project S) program funding, and
•$9,407,272 in American Rescue Plan Act Capital Investment Grant Funds

Acronyms:

ADA - Americans with Disabilities Act
ARTIC – Anaheim Regional Intermodal Transportation Center
CMAQ - Congestion Mitigation Air Quality Improvement Program
FTA - Federal Transit Administration
FY - Fiscal Year
LOSSAN - Los Angeles-San Diego-San Luis Obispo Rail Corridor
M Code - Project Codes in Measure M1 and M2
M1 - Measure M1
M2 - Measure M2
OC - Orange County
OCTA - Orange County Transportation Authority
OCX - Rail-Highway Grade Crossing/Safety Enhancement Project
PSR - Project Study Report
ROW - Right-of-Way
STBG - Surface Transportation Block Grant
STIP - State Transportation Improvement Program
VSS - Video Surveillance System

OC Streetcar Cost and Schedule Update

Status

Project progress is 62.7 percent complete. Planned OC Streetcar (Project) progress is 99.4 percent complete. (October 2021)

- $245.32 million of $423.44 million current forecast expended (October 2021)
- $51.11 million of $53.60 million in contingency expended

Construction is 58.6 percent complete. Planned percent complete is 99.7 percent. (October 2021)

- Westminster Avenue and Santa Ana River bridges substantially complete
- Track installation ongoing
- Installation of maintenance and storage facility (MSF) building floor slabs, perimeter block wall, streetcar vehicle wash
- Fairview and Raitt station platforms ongoing

Utility relocation

- Planned utility relocation is complete

Vehicles are 52.4 percent complete. Planned percent complete is 99.1 percent. (October 2021)

Background of Project Challenges

- Unknown utility conflicts and unsuitable subgrade conditions within city streets
- Extensive amount of contaminated and hazardous soil in the Pacific Electric Right-of-Way, city streets, and at the MSF* site
- Unforeseen conditions at the MSF
- Unanticipated design revisions
- Contractor non-compliance with construction quality requirements and quality control plans
- Extensive number of change requests and requests for information and submittals

**Maintenance and storage facility*

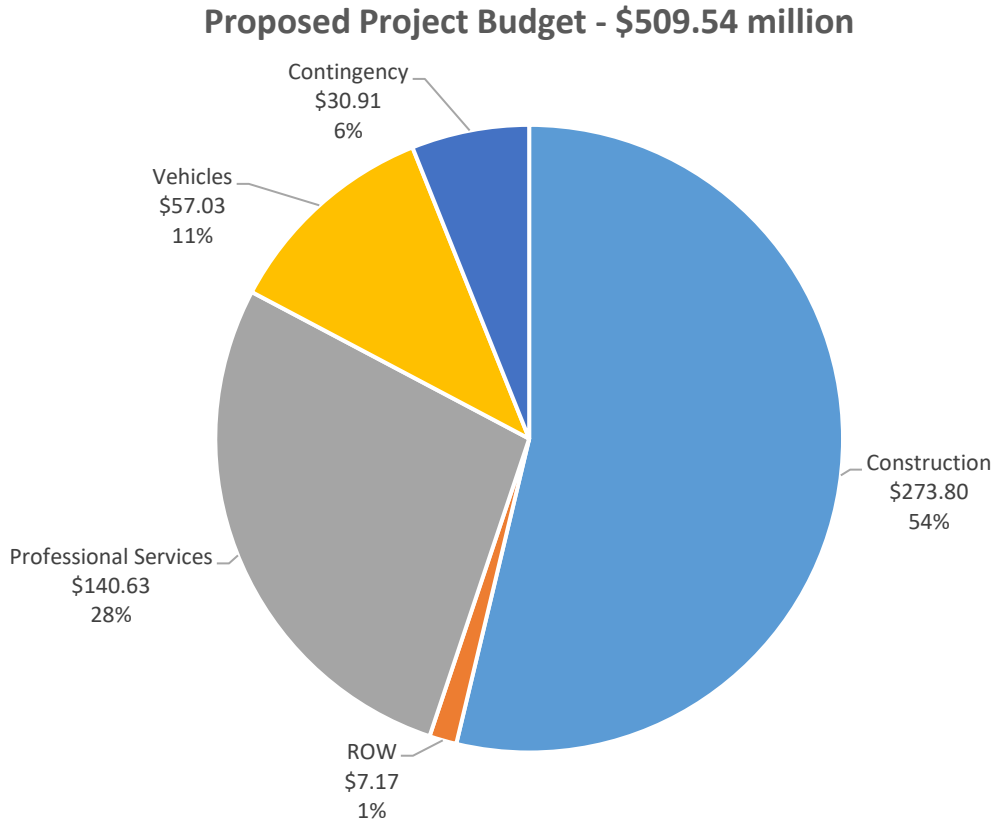
Impacts of Challenges to Cost and Schedule

- Schedule Impacts
  - Extended construction duration
- Costs of Schedule Delay
  - Storage costs for vehicles and equipment
  - Extended performance period for professional services
  - Increased costs to update equipment technology
- Additional Cost Impacts
  - Increased change orders
  - Increased level of oversight for technical and contractual reviews

Proposed Project Budget and Schedule

Based on challenges, contractor progress, and current risks assessed in coordination with the Federal Transit Administration (FTA):

- Anticipated revenue service date is March 2024
- Estimated cost to complete is $509.54 million
  - Includes $30.91 million in contingency. This estimate is consistent with FTA's standard percent contingency at current stage of construction.



Project Budget Comparison

Cost Categories	Current Budget March 2021	Proposed Budget December 2021	Change Between Proposed and Current Budget	% Change	Key Changes
Construction	$234.28	$273.80	$39.52	16.9%	• Pending/executed contract change orders through October 2021 • Added/increased costs for MSF/operational equipment, ticket vending machines, spare parts
Right-of-Way	$8.22	$7.17	($1.05)	-12.8%	• Cost savings from SA Recycling Acquisition
Professional services	$74.94	$140.63	$65.69	87.7%	• Increased costs for professional services including the extended performance period required with the extended revenue service date of March 2024 plus project close-out (professional services, OCTA staff)
Vehicles	$52.35	$57.03	$4.68	8.9%	• Vehicle and spare parts/special tools storage. Addition of computer-aided dispatch/automatic vehicle locator technology
Contingency	$53.64	$30.91	($22.73)	-42.4%	• Current budget contingency has been distributed between all cost categories in cost to complete amount • OCTA estimate is 6.5% of base cost
Total	**$423.43**	**$509.54**	**$86.11**	**20.3%**	

* All costs in millions
**Numbers may be slightly off due to rounding

Proposed Funding Sources

Funding Programs (in 1,000's)	Funding Approved March 2021	Funding Need	Recommended Funding
FTA New Starts	$148,955		$148,955
FTA Section 5307	$13,599		$13,599
Federal Congestion Mitigation and Air Quality Improvement Program (CMAQ)	$62,412	$45,720	$108,132
Federal American Rescue Plan Act (ARP)*		$9,407	$9,407
State Transit and Intercity Rail Capital Program	$25,586		$25,586
Subtotal State and Federal	**$250,552**	**$55,127**	**$305,679**
Measure M2 (M2) Project S	$172,886	$30,975	$203,861
Total Funding	**$423,438**	**$86,102**	**$509,540**

*Federal ARP funding is an offset to the M2 amount requested

Next Steps

- Work with Southern California Association of Governments to amend the Federal Transportation Improvement Program
- Work with the FTA to update and/or amend the Full Funding Grant Agreement and execute grants for CMAQ and ARP CIG funds
- Continue to track Project cost and schedule adherence and continue to report to the Board of Directors quarterly

December 9, 2021

To: Transit Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: Amendment to Agreement for Construction Management Services for the OC Streetcar Project

Overview

On July 25, 2016, the Orange County Transportation Authority Board of Directors approved an agreement with PGH Wong Engineering, Inc., to provide construction management services for the OC Streetcar project for a term of five years. An amendment to the existing agreement is requested for continued construction management services.

Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 14 to Agreement No. C-6-0926 between the Orange County Transportation Authority and PGH Wong Engineering, Inc., in the amount of $17,100,794, and extend the agreement term through November 30, 2024, for continued OC Streetcar project construction management services. This will increase the maximum cumulative obligation of the agreement to a total contract value of $35,082,570.

Discussion

The Orange County Transportation Authority (OCTA), in cooperation with the cities of Garden Grove and Santa Ana, is implementing a modern streetcar that will operate between the Santa Ana Regional Transportation Center in the City of Santa Ana and the intersection of Harbor Boulevard and Westminster Avenue in the City of Garden Grove. The OC Streetcar project (Project) will improve transit connectivity and accessibility, increase transit options, relieve congestion, and provide benefits to the community and traveling public. The Project is being implemented as part of Measure M2 (M2) Project S – Transit Extensions to Metrolink, approved by Orange County voters in November 2006.

Construction activities have been underway since the issuance of the Notice to Proceed to Walsh Construction Company II, LLC, (Walsh) on March 4, 2019. As of October 2021, construction on the Project is 58.6 percent complete. Recent construction milestones include the substantial completion of the Santa Ana River and Westminster Avenue bridges, completion of utility relocations and ongoing installation of embedded track in city streets, station platforms, overhead contact system poles, and construction of the maintenance and storage facility.

On July 25, 2016, the OCTA Board of Directors (Board) approved an agreement with PGH Wong Engineering, Inc., (PGH Wong) for a five-year term to provide construction management services (CMS) for the Project. As the construction manager on behalf of OCTA, PGH Wong has been administering and overseeing the construction contract. Some of the key tasks under this contract include:

- Coordination between Walsh and the Project team
- Performing quality assurance, including inspections
- Oversight of safety and environmental compliance
- Change management and claims support
- Oversight of labor compliance
- Management of the Project construction schedule
- Support services for testing, commissioning, and start-up
- Coordination with other third-party stakeholders (cities of Garden Grove and Santa Ana, County of Orange, and Orange County Fire Authority)
- Day-to-day construction management activities, including Project reporting and documentation, review of payment applications, and document control.

On March 22, 2021, the Board approved an interim amendment to the agreement with PGH Wong for continued CMS for the Project through January 2022. At that time, staff advised that a future item would be brought to the Board to address the additional CMS needed to provide continued oversight through the revised construction completion schedule. As part of prior Project updates discussed with the Board, including the preceding staff report titled *OC Streetcar Cost and Schedule Update*, Project challenges and an extended duration of construction have resulted in a revised revenue service date of March 30, 2024. Therefore, continued support with the construction management tasks described above is required from PGH Wong during the next two-and-a-half years.

Project challenges have required a significantly higher level of effort and an extended period of performance from PGH Wong. This continued level of effort is needed to manage specific areas, including:

- Enhanced oversight of quality inspections, including some instances of repeat inspections to assure compliance.
- The number of requests for information submitted by Walsh, which require extensive time and effort to develop responses, provide clarifications, and issue construction change notices.
- The volume and complexity of Walsh's submittals for several project elements that require extensive coordination between various technical disciplines to review and approve. This effort also includes resubmittals and changes required by field conditions.
- The volume of change directives, change orders, and processing of time and materials payments.
- Reviewing schedules and coordination with Walsh, including an increased number of meetings with Walsh for attempting to resolve numerous schedule and cost disputes, as well as to provide an accurate reflection of progress.
- The number of Project meetings with both Walsh and stakeholders to resolve ongoing, complex issues, and to ensure proper integration of project elements, as well as an increased number of construction partnering sessions.

Procurement Approach

The original procurement was handled in accordance with OCTA's Board-approved procedures for architectural and engineering services, which conform to both state and federal laws. On July 25, 2016, the Board approved an agreement with PGH Wong, in the amount of $10,752,136, which has been previously amended as shown in Attachment A.

Staff and PGH Wong have agreed upon the required level of effort for additional CMS through November 30, 2024. Staff found PGH Wong's cost proposal to be fair and reasonable relative to the negotiated level of effort and consistent with the independent cost estimate prepared by the OCTA project management team. Proposed Amendment No. 14 includes continued CMS for the Project, in the amount of $17,100,794, and will bring the total contract value to $35,082,570.

Fiscal Impact

Funding for portions of the contract amendment is included in OCTA's Fiscal Year 2021-2022 Budget, Capital Programs Division, Account No. 0051-9018-TS010-Z84, and the remaining portions of the contract amendment will be requested in future fiscal year budgets, pending Board approval of the additional federal Congestion Mitigation and Air Quality Improvement Program and local M2 funds of the revised funding plan at the December 13, 2021, Board meeting.

Summary

Staff requests Board of Directors' approval to authorize the Chief Executive Officer to negotiate and execute Amendment No. 14 to Agreement No. C-6-0926 between the Orange County Transportation Authority and PGH Wong Engineering, Inc., in the amount of $17,100,794, for the continuation of OC Streetcar project construction management services and extend the term of the agreement through November 30, 2024. This will increase the maximum obligation of the agreement to a total contract value of $35,082,570.

Attachment

A. PGH Wong Engineering, Inc., Agreement No. C-6-0926 Fact Sheet

Prepared by:

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Pia Veesapen
Director, Contracts Administration and Materials Management
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Approved by:

James G. Beil, P.E.
Executive Director, Capital Programs
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PGH Wong Engineering, Inc.
Agreement No. C-6-0926 Fact Sheet

1. July 25, 2016, Agreement No. C-6-0926, in the amount of $10,752,136, approved by the Board of Directors (Board).

    - The agreement was executed on December 6, 2016, for construction management services (CMS) to support the OC Streetcar project (Project) for a five-year term.

2. November 12, 2018, Amendment No. 1 to Agreement No. C-6-0926, $153,972, approved by the Contracts Administration and Materials Management (CAMM) Department.

    - Increase maximum obligation to add subconsultant Gonzales-White Consulting Services to perform labor compliance support.
    - Modify the key personnel for prime consultant PGH Wong Engineering, Inc., (PGH) and subconsultant MARRS Services, Inc. (MARRS).
    - Add subconsultant Safework, Inc. (Safework).
    - Modify hourly rate and other direct costs schedules for all firms.
    - Incorporate revised health, safety, and environmental specifications.

3. June 27, 2019, Amendment No. 2 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

    - Modify payment article.
    - Modify hourly rates and other direct costs schedules for prime consultant PGH and subconsultants MARRS, Towill, Inc. (Towill), and UltraSystems Environmental, Inc. (UltraSystems).

4. February 10, 2020, Amendment No. 3 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

    - Modify hourly rates schedule for prime consultant PGH and subconsultants AP Engineering and Testing, Inc., (AP Engineering) and UltraSystems.

5. March 24, 2020, Amendment No. 4 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

    - Modify hourly rates and other direct costs schedules for UltraSystems.

6. April 2, 2020, Amendment No. 5 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

   - Modify hourly rate schedules for prime consultant PGH and subconsultants Consultant Engineering, Inc., and Inspection Services, Inc.
   - Modify other direct costs schedule for subconsultant AP Engineering.

7. July 8, 2020, Amendment No. 6 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

   - Modify hourly rates and other direct costs schedules for prime consultant PGH.

8. September 18, 2020, Amendment No. 7 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

   - Modify hourly rates and other direct costs schedules for prime consultant PGH and subconsultants AP Engineering and UltraSystems.

9. October 21, 2020, Amendment No. 8 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

   - Add subconsultant PaleoWest, LLC, to provide cultural support services.

10. November 6, 2020, Amendment No. 9 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

    - Modify hourly rates and other direct costs schedules for subconsultants AP Engineering and UltraSystems.

11. February 3, 2021, Amendment No. 10 to Agreement No. C-6-0926, $247,504, approved by the CAMM Department.

    - Modify hourly rates and other direct costs schedules for prime consultant PGH.
    - Increase maximum cumulative obligation for additional tribal monitoring services.

12. March 22, 2021, Amendment No. 11 to Agreement No. C-6-0926, $6,828,164, approved by the Board.

    - Increase maximum cumulative obligation for additional CMS to support the Project and extend the contract term by five months to November 30, 2021.

13. June 29, 2021, Amendment No. 12 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

    - Modify hourly rates for subconsultant Safework.

14. September 2, 2021, Amendment No. 13 to Agreement No. C-6-0926, $0, approved by the CAMM Department.

    - Extend the contract term by six months through May 31, 2022.
    - Modify hourly rates and other direct costs schedules for prime consultant PGH and subconsultant Towill.

15. December 13, 2021, Amendment No. 14 to Agreement No. C-6-0926, $17,100,794, pending approval by the Board.

    - Increase maximum cumulative obligation for additional CMS to support the Project and extend the contract term through November 30, 2024.

Total funds committed to PGH Wong Engineering, Inc. after approval of Amendment No. 14 to Agreement No. C-6-0926: $35,082,570.

December 9, 2021

To: Transit Committee

From: Darrell E. Johnson, Chief Executive Officer

Subject: Amendment to Agreement for Project Management Consultant Services for the OC Streetcar Project

Overview

On February 23, 2015, the Orange County Transportation Authority Board of Directors approved an agreement with HDR Engineering, Inc., to provide project management consultant services for the OC Streetcar project, for a term of five years, with two, two-year option terms. An amendment to the existing agreement for execution of the second option term is requested for continued project management consultant services.

Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 22 to Agreement No. C-4-1854 between the Orange County Transportation Authority and HDR Engineering, Inc., to exercise the second two-year option term for project management consultant services for the OC Streetcar project, in the amount of $15,527,477, 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 $44,553,767.

Discussion

The Orange County Transportation Authority (OCTA), in cooperation with the cities of Garden Grove and Santa Ana, is implementing a modern streetcar that will operate between the Santa Ana Regional Transportation Center in the City of Santa Ana (City) and the intersection of Harbor Boulevard and Westminster Avenue in the City of Garden Grove. The OC Streetcar project (Project) will improve transit connectivity and accessibility, increase transit options, relieve congestion, and provide benefits to the community and traveling public. The Project is being implemented as part of Measure M2 (M2) Project S – Transit Extensions to Metrolink, approved by Orange County voters in November 2006.

As of October 2021, construction is 58.6 percent complete, vehicle production is near completion, third-party utility relocations are complete, and the operations and maintenance contractor is working under a limited Notice to Proceed to develop the standard operating procedures for the service.

The firm HDR Engineering, Inc., (HDR) has been providing technical expertise and staff augmentation to assist in the delivery of the Project since 2015. HDR also provides specialized support in delivering a Federal Transit Administration (FTA) New Starts project given extensive oversight by the FTA. HDR provides support for key Project implementation tasks, including:

- Coordination between the Project designer and the construction management (CM) consultant
- Management oversight of design changes necessitated by changes in the field
- Enhanced management oversight of the CM consultant in the review of requests for information, submittals, processing of construction change orders, response to letters, claims, quality assurance, and project administration
- Third-party utility coordination
- Performing quality assurance activities related to construction and vehicle manufacturing
- Risk analysis and management
- Safety and environmental compliance activities, including coordination with Tribal Monitors
- Project controls, including management of the Project schedule and budget
- Coordination with the FTA, including reporting requirements and monthly/quarterly meetings with FTA and its project management oversight consultant
- Vehicle design/manufacturing oversight and on-site vehicle inspection
- Operations planning, including start-up and testing
- Public outreach
- Coordination with other third-party stakeholders (the cities of Garden Grove and Santa Ana, County of Orange, US Army Corps of Engineers, Orange County Fire Authority)
- Day-to-day project management activities, including invoice review, permits, and document control

On February 24, 2020, the OCTA Board of Directors (Board) approved the first two-year option term for HDR to continue to provide project management support services through March 2022, assuming the revenue service date (RSD) would occur within this period. As part of prior Project updates discussed with

the Board, including the preceding staff report titled *OC Streetcar Cost and Schedule Update*, Project challenges and an extended duration of construction have resulted in the RSD occurring beyond the end of HDR's first option term. Therefore, continued support with the Project implementation tasks as described above is required from HDR to deliver the Project by the estimated RSD of March 30, 2024, and to assist OCTA in Project close-out activities.

Procurement Approach

The original procurement was handled in accordance with OCTA's Board-approved procedures for architectural and engineering services that conform to both state and federal laws. On February 23, 2015, the Board approved an agreement with HDR for an initial term of five years with two, two-year option terms. The total maximum obligation of the initial five-year term was $20,962,005. The first two-year option term approved by the Board on February 24, 2020, extended the agreement to March 31, 2022, and increased the maximum obligation to $29,026,290. The agreement has also been previously amended as shown in Attachment A.

Staff requested a cost proposal from HDR for the level of effort required for continued project management support services. The cost proposal was reviewed by OCTA project staff and found to be fair and reasonable for the tasks to be performed.

Proposed Amendment No. 22 to Agreement No. C-4-1854, in the amount of $15,527,477, is to provide additional funding and to exercise and extend the second, two-year option term through December 31, 2024, for the continued level of effort needed. This amendment will bring the total contract value to $44,553,767.

Fiscal Impact

Funding for portions of the contract amendment is included in OCTA's Fiscal Year 2021-2022 Budget, Capital Programs Division, account nos. 0051-7519-TS010-Z83 and 0051-7519-TS010-Z71, and the remaining portions of the contract amendment will be requested in future fiscal year budgets, pending Board approval of the additional federal Congestion Mitigation and Air Quality Improvement and local M2 funds of the revised funding plan at the December 13, 2021, Board meeting.

Summary

Staff requests Board of Directors' approval to authorize the Chief Executive Officer to negotiate and execute Amendment No. 22 to Agreement No. C-4-1854 between the Orange County Transportation Authority and HDR Engineering, Inc., to exercise the second option term for project management consultant services for the OC Streetcar project, in the amount of $15,527,477, and to 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 $44,553,767.

Attachment

A. HDR Engineering, Inc., Agreement No. C-4-1854 Fact Sheet

Prepared by:

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HDR Engineering, Inc.
Agreement No. C-4-1854 Fact Sheet

1. February 23, 2015, Agreement No. C-4-1854, in the amount of $21,557,909, approved by the Board of Directors (Board).

    - The agreement was executed on June 1, 2015, to provide project management services for the OC Streetcar project. A limited Notice to Proceed was issued on February 25, 2015, to initiate development of the draft scope of work (SOW) for design services and related work to support the vehicle procurement process and interim utility work.

2. June 11, 2015, Amendment No. 1 to Agreement No. C-4-1854, $0, approved by the Contracts Administration and Materials Management (CAMM) Department.

    - Modify hourly rate schedule for subconsultants Arellano Associates, LLC (Arellano), Civil Source, Inc., (Civil Source), Interfleet Technology, Inc. (Interfleet), and Maintenance Design Group, LLC.

3. April 6, 2016, Amendment No. 2 to Agreement No. C-4-1854, ($595,904) approved by the CAMM Department.

    - Decrease maximum obligation due to adjustments to indirect cost rates for subconsultants Civil Source and Interfleet; modify hourly rate schedules for subconsultants Hatch Mott MacDonald, IBI Group, Intueor Consulting, Inc., Safework, Inc., and Shiels Obletz Johnsen, Inc.

4. September 13, 2016, Amendment No. 3 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify subconsultant name Interfleet to SNC-Lavalin Rail & Transit, Inc., (SNC) and update key personnel.

5. December 8, 2016, Amendment No. 4 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify subconsultant name Hatch Mott MacDonald, LLC, to Mott MacDonald, LLC (Mott MacDonald).
    - Modify other direct costs schedule for subconsultant Arellano.
    - Modify hourly rate schedules for SNC.

6. April 4, 2017, Amendment No. 5 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for subconsultant Mott MacDonald

7. August 22, 2017, Amendment No. 6 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - At the request of subconsultant, release subconsultant Safework, Inc., from the agreement as construction safety support portion of the SOW has shifted to the construction management contract.

8. December 26, 2017, Amendment No. 7 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedules for HDR Engineering, Inc. (HDR) and subconsultant Shiels Obletz Johnsen, Inc.
    - Modify schedule and other direct costs schedule for subconsultant Mott MacDonald.

9. January 8, 2019, Amendment No. 8 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for subconsultant Arellano.

10. April 16, 2019, Amendment No. 9 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Amend SOW to include quality assurance activities related to consultants and contractors in field or offsite locations.
    - Modify hourly rate schedule for subconsultants Arellano, IBI Group, and Mott MacDonald.
    - Modify other direct costs schedule for subconsultant IBI Group.

11. August 21, 2019, Amendment No. 10 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for prime consultant HDR and subconsultant SNC.

12. February 23, 2020, Amendment No. 11 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Extend term of agreement through March 31, 2020.

13. February 24, 2020, Amendment No. 12 to Agreement No. C-4-1854, $8,064,285, approved by the Board.

    - Exercise the first two-year option term for continued project management consultant services and extend the term of the agreement through March 31, 2022. Total maximum cumulative obligation increased to $29,026,290.

14. June 1, 2020, Amendment No. 13 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Add new subconsultant, RGI Utility Consultants (RGI).

15. February 18, 2021, Amendment No. 14 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for prime consultant HDR and subconsultant RGI.

16. July 22, 2021, Amendment No. 15 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modified agreement to update Article 5, “Payment” per OCTA’s Internal Audit recommendations.

17. May 10, 2021, Amendment No. 16 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for prime consultant HDR and subconsultants Arellano, IBI Group, and Mott MacDonald.

18. May 25, 2021, Amendment No. 17 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for subconsultants Arellano and Amheart Solutions.

19. July 15, 2021, Amendment No. 18 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for prime consultant HDR and subconsultant Arellano.

20. August 26, 2021, Amendment No. 19 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for subconsultant RGI.

21. October 8, 2021, Amendment No. 20 to Agreement No. C-4-1854, $0, approved by the CAMM Department.

    - Modify hourly rate schedule for subconsultant Mott MacDonald.

22. Amendment No. 21 to Agreement No. C-4-1854, $0, pending approval by the CAMM Department.

    - Add new subconsultant, Kimley-Horn.
    - Modify hourly rate schedule for prime consultant HDR and subconsultant Amheart Solutions.

23. December 13, 2021, Amendment No. 22 to Agreement No. C-4-1854, $15,527,477, pending Board approval.

    - Exercise the second two-year option term for continued project management consultant services and extend the term of the agreement through December 31, 2024.

Total funds committed to HDR Engineering, Inc. after approval of Amendment No. 22 to Agreement No. C-4-1854: $44,553,767.

December 9, 2021

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 in order 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 (H2Bs) and plug-in battery-electric buses (BEBs) to prepare for compliance with the ICT rule.

Discussion

In anticipation of the ICT rule, OCTA developed a strategy to pilot both H2B 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 H2Bs 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 fueling station. A provision of the grant was a commitment to deploy the buses in regular service within disadvantaged communities.

On February 9, 2020, OCTA initiated the H2B pilot, which included ten, 40-foot H2Bs running in OC Bus fixed-route service, and a hydrogen fueling station capable of fueling up to 50 buses per day. The performance of the H2Bs to date is provided below.

On October 12, 2020, the Board approved the purchase of ten, plug-in BEBs as a pilot for operation of 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 Base. In addition to the equipment being provided by SCE, OCTA is required to provide the BEB chargers.

On June 14, 2021, the Board approved the purchase of ten 150 kilowatt (kW) BEB chargers 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.

Plug-in Battery-Electric Bus Update

The first two BEBs and the BEB chargers are expected to arrive in December 2021. The OCTA Maintenance Department will complete the necessary inspection and testing of these buses in revenue service before issuing the notice to proceed for the remaining eight buses. The remaining eight buses are expected to begin arriving in mid-May 2022. The battery chargers will be installed in conjunction with the SCE infrastructure upgrades, which are currently in the design stage.

Hydrogen Fuel-Cell Electric Bus Update

The H2Bs have been in service 22 months. The performance data included in this report will cover the first 20 months of operation from February 2020 through September 2021. The performance of the ten H2Bs is being measured against the performance of ten CNG-powered buses that were selected at the onset of

the pilot in order to provide consistent performance analytics. General vehicle information on both bus types is provided below.

Vehicle Information	**H2 Bus** 	**CNG Bus** 
Number of Buses	10	10
Manufacturer/Model	New Flyer/Xcelsior	New Flyer/Xcelsior
Model Year	2018	2016
Bus Purchase Cost	$1.3 million	$580,000
Length	40 foot	40 foot
Curb Weight	33,560 pounds	30,000 pounds
Propulsion System	Ballard FCvelocity-HD85, 85 kW Siemens Electric Motor, 210 kW	Cummins ISL-G 280 hp Allison B400 Transmission
Energy Storage	Five Composite Fuel Cylinders (Compressed Hydrogen) Lithium-ion Batteries (100 kW)	Six Composite Fuel Cylinders (CNG)
Operating Range	300 miles	350 miles

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

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 issues with the propulsion system (fuel-cell system, electric drive system), required regular scheduled maintenance, or required other 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 failures are analyzed and buses are out of service for a longer period of time. Both the ten H2Bs and the ten CNG-powered 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-powered buses was skewed. The CNG-powered buses selected for this comparison achieved a 73 percent availability.

Unlike the CNG-powered buses, the H2Bs did not achieve the goal for a variety of mechanical issues. The H2Bs dropped from 62 percent availability in the first six months to 59 percent availability in the last 20 months. Considering this is new technology and buses may be placed out of service for longer periods of time as failures are analyzed and often require factory support, the expectation was that performance would improve in the second year of service. The most recent failures on the H2Bs have been related to fuel control and fuel-cell failures.

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 route or causes a significant delay in the route schedule.

The performance standard for MBRC is 14,000 miles. The CNG-powered buses consistently exceeded the standard achieving a total of 35,461 MBRC over the last 20 months.

The H2Bs met the MBRC standard in only three of the 20 months. Overall, the H2Bs are not meeting the standard achieving only 8,655 MBRC. Peak performance for a conventional transit bus is typically realized in the second year of operation or approximately 100,000 miles in service without introducing new technology. Currently, each H2B has only averaged 58,500 miles in service. Taking into consideration that this is new technology, peak performance may be delayed compared to a conventional transit bus. In the early months there were a variety of issues related to electrical components and software calibration issues, but as of late, the majority of the road calls are related to fuel control and fuel-cell failures.

Fuel economy is a measurement of how efficiently the fuel is being used by the propulsion system. Because CNG is measured in therms and hydrogen is measured in kilograms, both fuels are converted to a common measurement. In this case, both are measured in miles per diesel gallon equivalent (mpdge). CNG-powered buses have consistently averaged 4.22 mpdge, while H2Bs have more than doubled that with an average of 9.73 mpdge. H2B fuel economy is 2.3 times that of a CNG-powered bus. The higher mpdge helps offset the higher cost of hydrogen fuel. The current cost per mile for hydrogen fuel is $0.97 compared to the CNG fuel at $0.42.

OCTA calculates total cost per mile, scheduled maintenance cost per mile, and unscheduled maintenance cost per mile. This includes parts and labor. Maintenance cost is categorized by system to provide insight into which systems have the most costs for each technology.

The cost per mile for H2Bs is lower than CNG-powered buses by approximately 17 percent. The cost per mile for H2Bs is $0.62, compared to $0.75 for CNG-powered buses. Combined with the cost per mile of fuel, the H2B's total cost per mile is $1.60, compared to the CNG-powered buses at $1.18. The cost per mile for both CNG-powered buses and H2Bs have remained consistent over the last 20 months.

Hydrogen Fueling Station Update

In the early months, the hydrogen fueling station experienced a variety of issues resulting in the station shutting down during operation. These issues have been resolved with software updates while issues required engineering reconfigurations. The overall availability of the fueling station has improved over the last 20 months, matching that of the CNG fueling station. Monthly meetings with the fuel station provider have resulted in prompt resolutions and improved performance.

Summary

At the 20-month mark of the ZEB pilot, the performance of the H2B is below the standard primarily due to fuel control and fuel-cell failures. The H2B builder and fuel-cell system provider have been very responsive in resolving the issues as they occur, and staff is encouraged that the level of effort will result in performance improvements. New conventional transit buses typically reach peak performance in their second year of service without the challenge of new technology. As a result, working through the new technology issues will likely result in a delay in reaching peak performance. Staff will continue to monitor

performance between the H2Bs and CNG-powered buses and will soon incorporate the plug-in BEBs.

Attachment

None.

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Approved by:

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Zero-Emission Bus Pilot Update

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 year 2040.
- In 2020, the Orange County Transportation Authority (OCTA) Board of Directors (Board) approved the OCTA zero-emission bus (ZEB) rollout plan, which included the deployment of a mix of hydrogen fuel-cell electric buses (H2B) and plug-in battery-electric buses (BEB).
- In anticipation of the ICT rule, OCTA developed a strategy to pilot both H2B and BEB technologies using available grant funding. Piloting both technologies allows OCTA to gain direct experience with operational effectiveness, maintenance, and cost.

OCTA ZEB PILOT DETAILS

- H2B Pilot – Initiated on February 9, 2020, which included ten, 40-foot H2Bs and a hydrogen fueling station capable of fueling up to 50 buses per day.

- BEB Pilot – On October 12, 2020, the OCTA Board approved the purchase of ten, plug-in BEBs. On June 14, 2021, the OCTA Board approved the purchase of ten 150 kilowatt (kW) BEB depot charging stations.

- Key Performance Indicators
  - Bus Availability
  - Miles Between Road Calls
  - Fuel Economy
  - Cost Per Mile

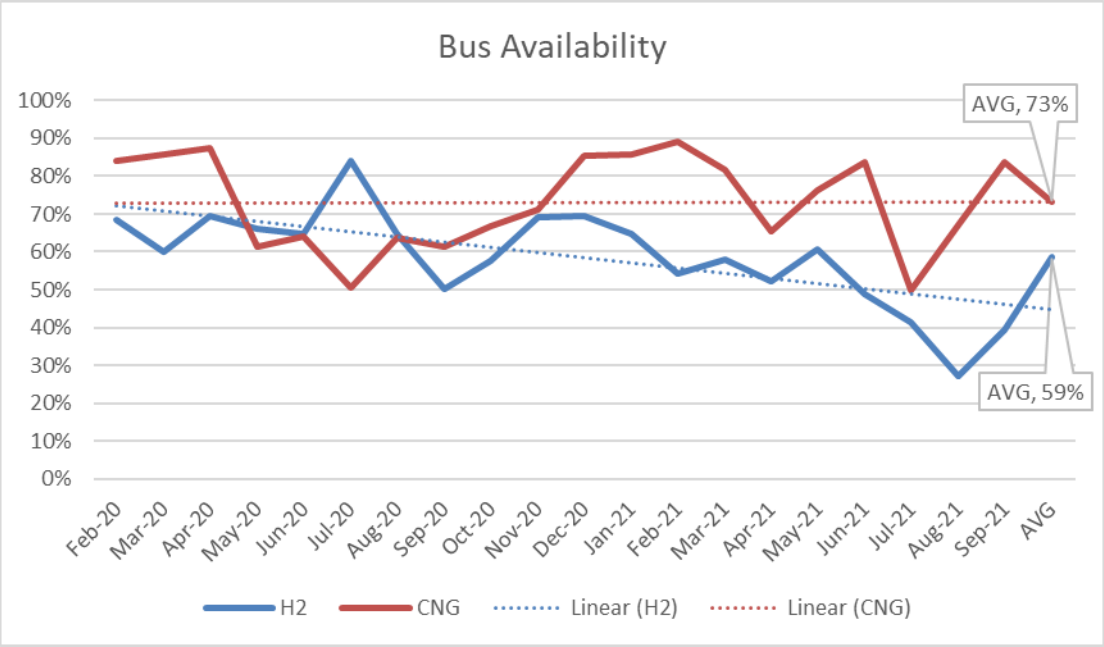
OCTA ZEB PILOT UPDATE - BEB

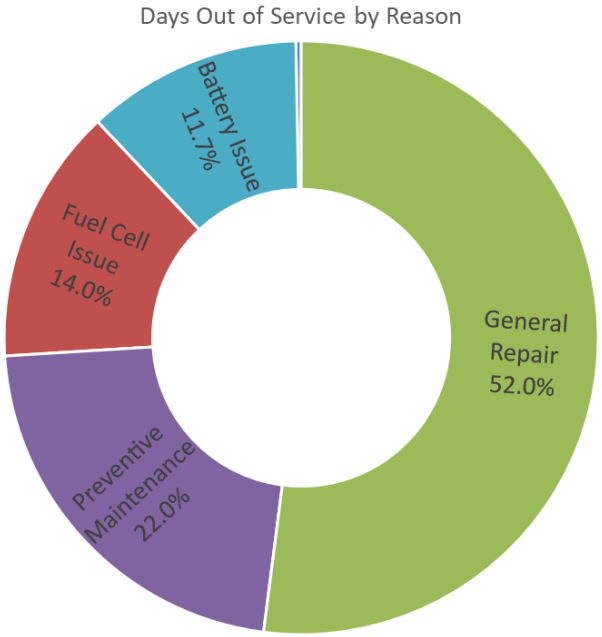
- The first two BEBs arrived in December of 2021.
  - Undergoing acceptance inspection and testing.
  - Remaining eight will arrive in Mid-May.
  - BEB charging stations due to arrive in December 2021.

OCTA ZEB PILOT UPDATE – H2B

- In Service 22 months.
- Performance Data for 20 months February 2020 – September 2021
- Performance measured against the performance of ten compressed natural gas-powered (CNG) buses
- Key Performance Indicators
  - Bus Availability
  - Miles Between Road Calls
  - Fuel Economy
  - Cost Per Mile

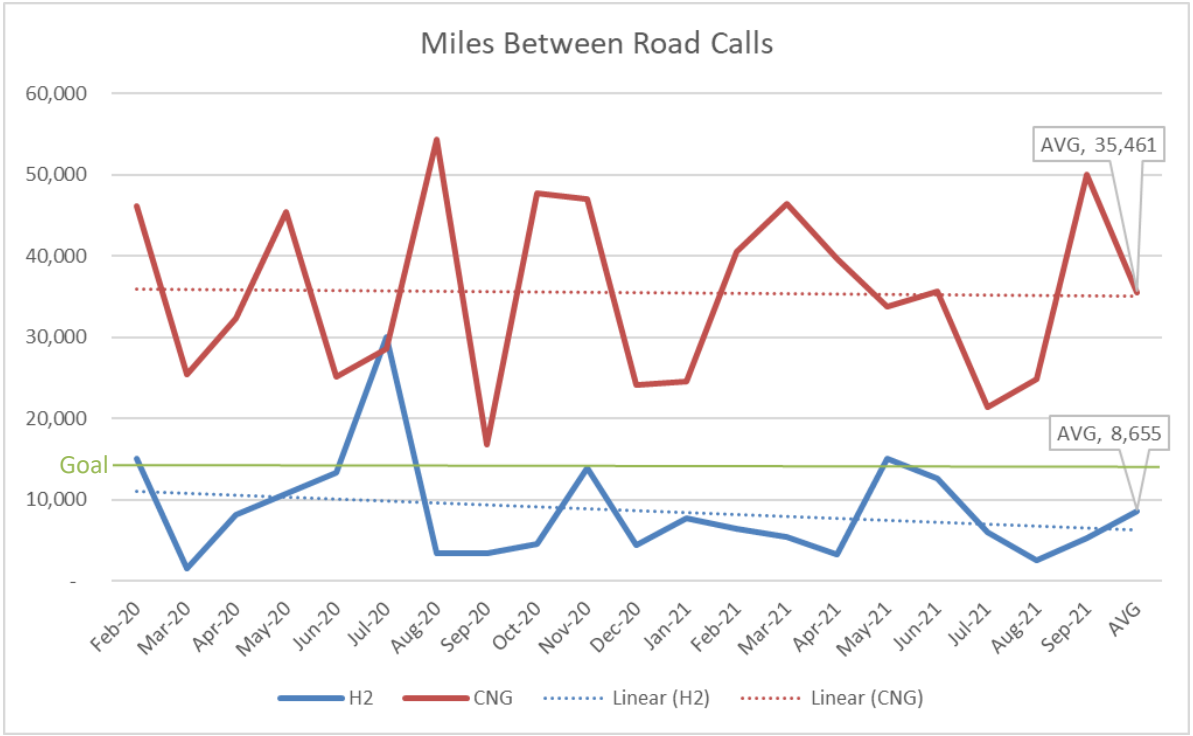
H2B – BUS AVAILABILITY





H2B – MILES BETWEEN ROAD CALLS (MBRC)

- The performance standard for MBRC is 14,000 miles.
- Recently, the majority of the road calls are related to fuel control and fuel cell failures.



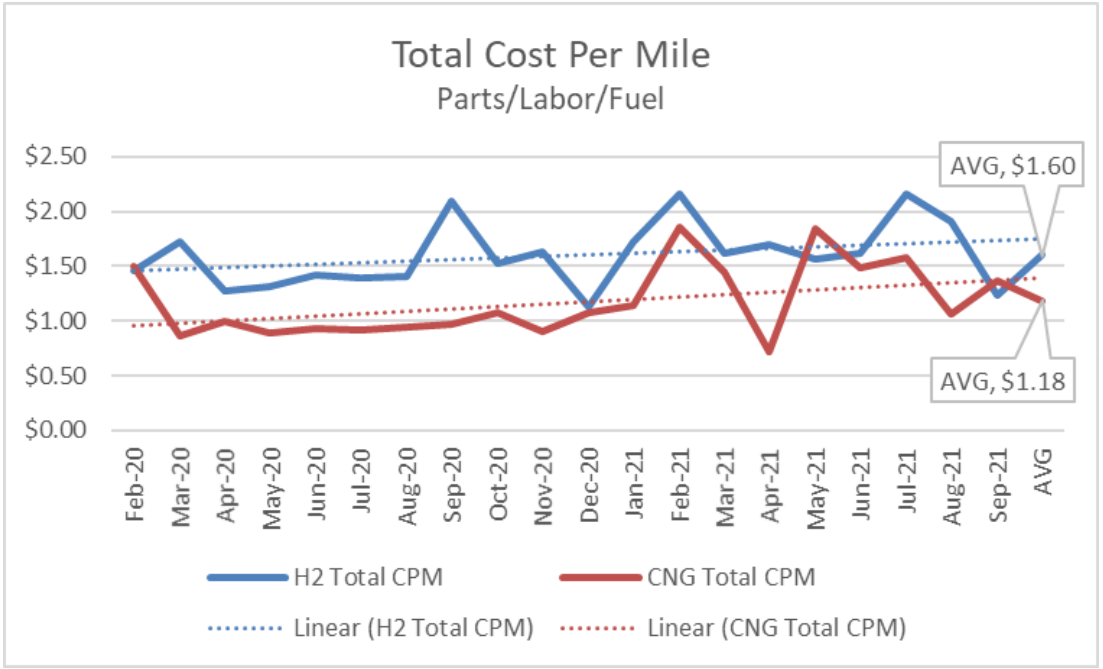
H2B – FUEL ECONOMY

- H2B fuel economy is 2.3 times that of a CNG-powered bus.
- The current cost per mile for hydrogen fuel is $0.97 compared to the CNG fuel at $0.42.

	H2B	CNG
Miles per gasoline gallon equivalent	8.45	3.77
Miles per diesel gallon equivalent	9.73	4.22
Miles per kilogram equivalent	8.61	3.85
Miles per kilowatt	0.26	NA

H2B – COST PER MILE (CPM)

- CPM parts and labor for H2Bs is 17 percent lower than CNG
  - H2B = $0.62
  - CNG = $0.75
- Total CPM, includes fuel cost, H2B is 26% higher that CNG
  - H2B = $1.60
  - CNG = $1.18



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.

OCTA ZEB PILOT UPDATE

Questions?

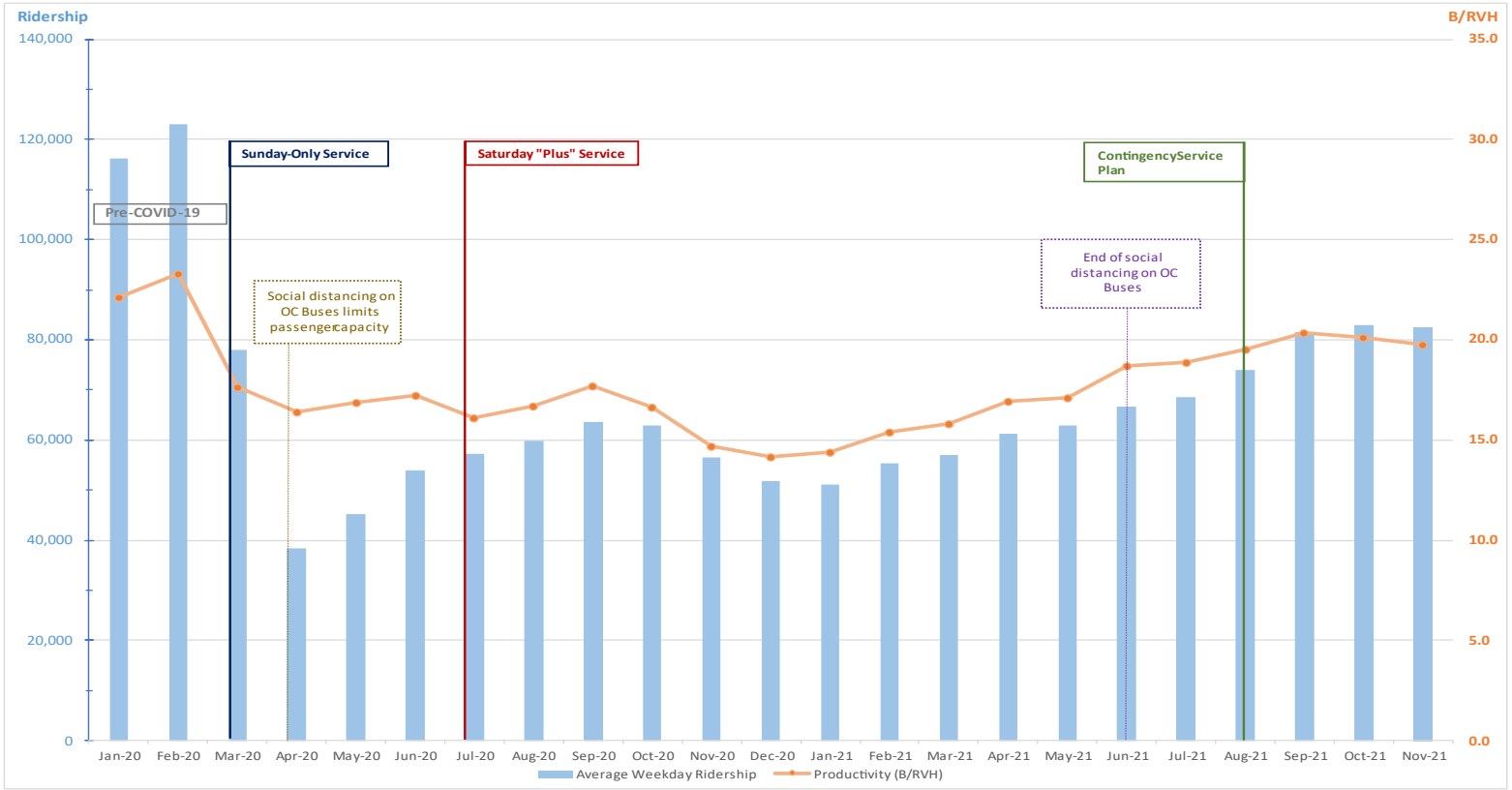
OC Bus and OC ACCESS Services Update

KEY METRICS

- Ridership
  - Average weekday boardings and productivity as measured by boardings per revenue vehicle hour (B/RVH)
- On-Time Performance
  - Measuring service quality as impacted by the coronavirus (COVID-19) pandemic
- Customer Comments
  - Trends, feedback, and issues reported

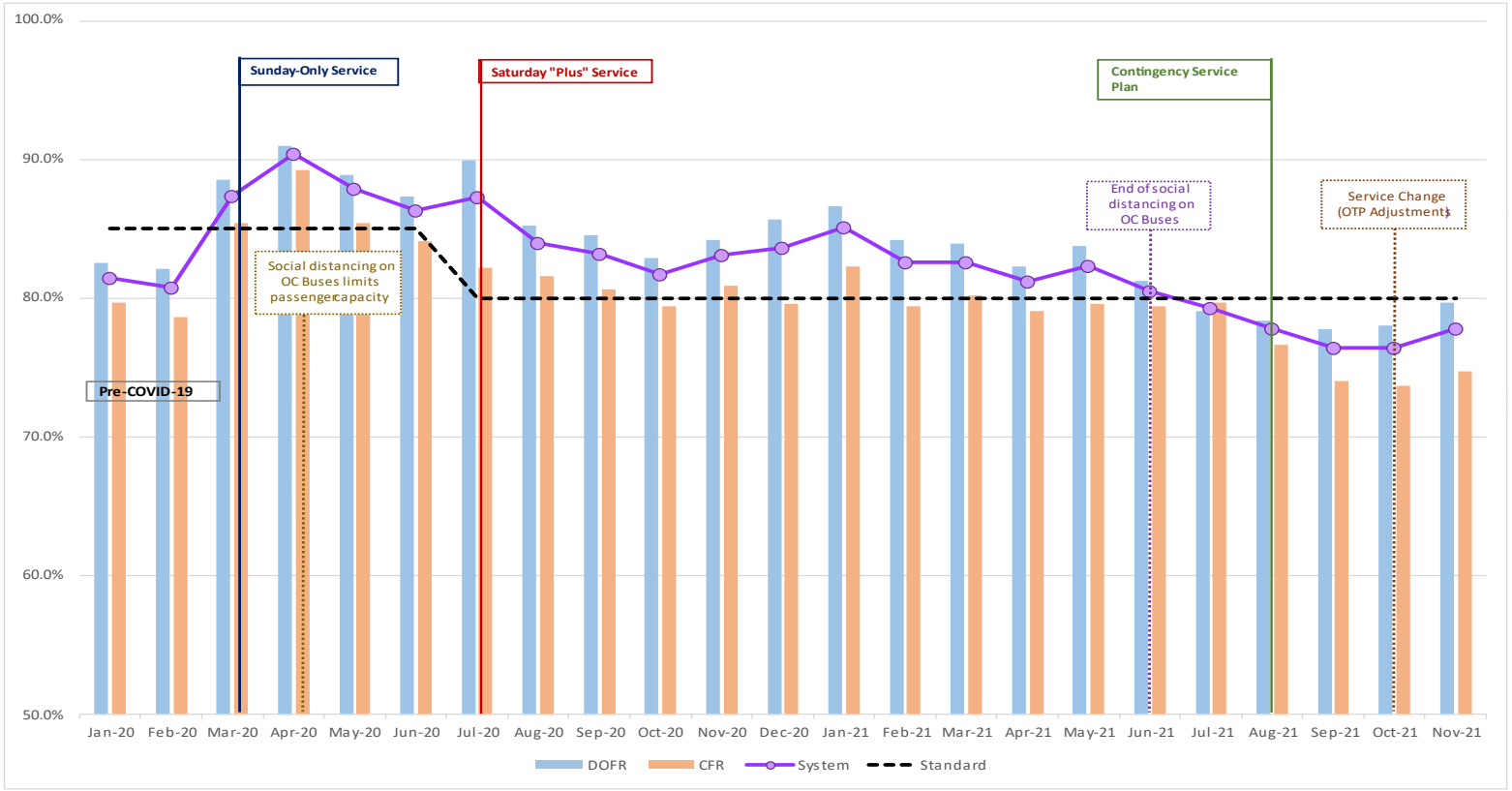
OC BUS RIDERSHIP AND PRODUCTIVITY

(AVERAGE WEEKDAY)



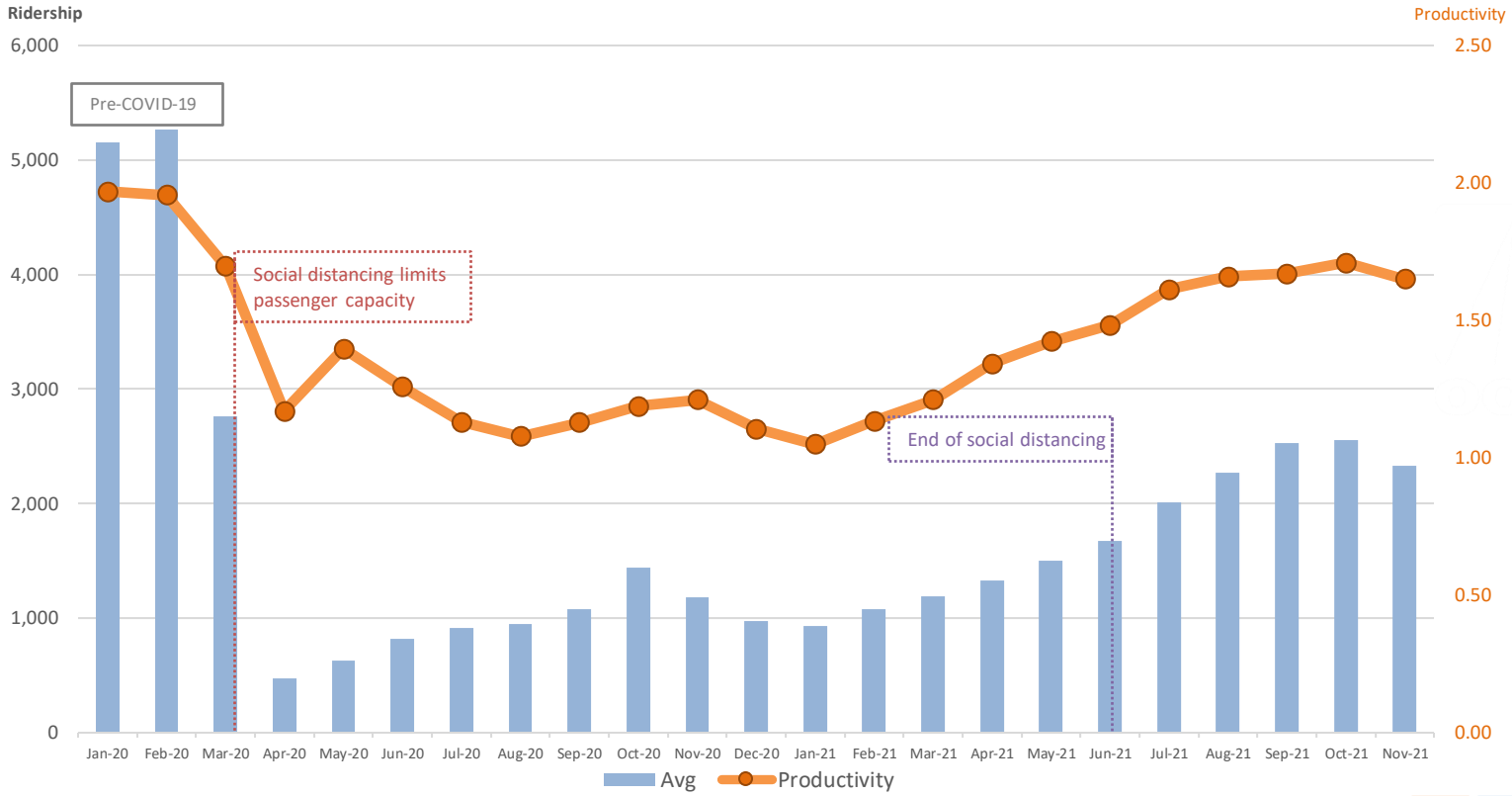
OC BUS ON-TIME PERFORMANCE

(AVERAGE WEEKDAY)



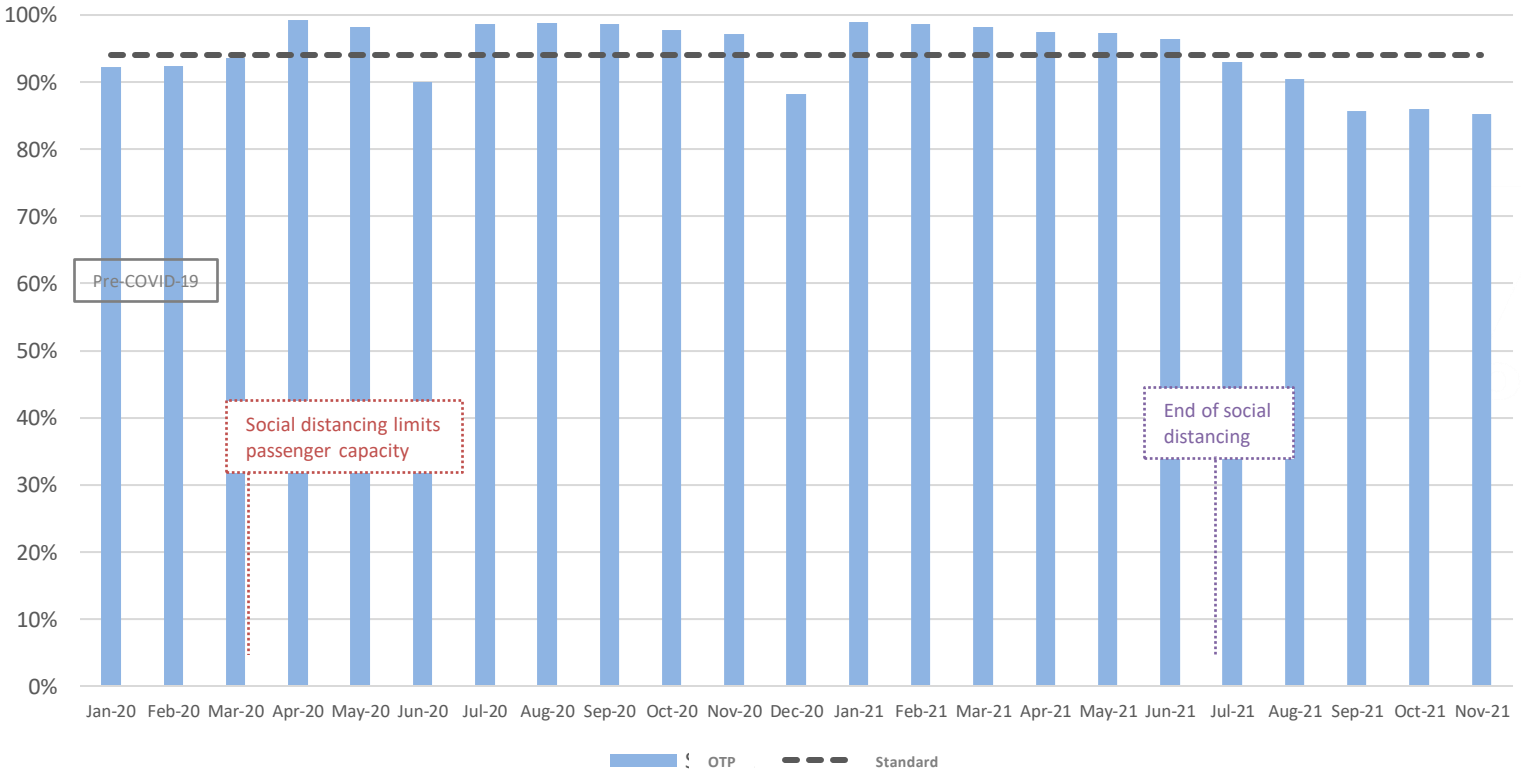
OC ACCESS RIDERSHIP AND PRODUCTIVITY

(AVERAGE WEEKDAY)



OC ACCESS ON-TIME PERFORMANCE

(AVERAGE WEEKDAY)

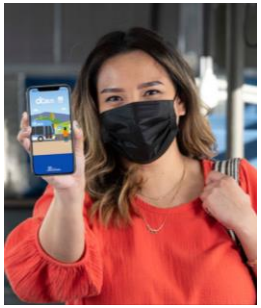


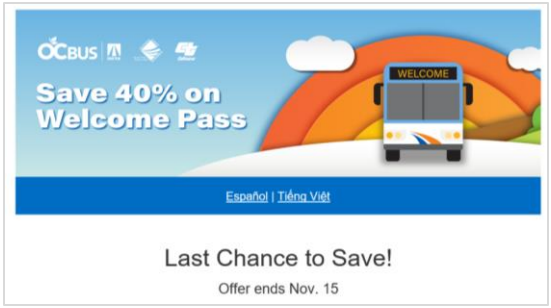
CUSTOMER COMMUNICATION AND FEEDBACK

COVID-19 Safety Measures

Safety/Customer Communications

The OC Bus Comeback Campaign, which includes the Welcome Pass, Youth Ride Free, and the College Pass programs, continued to reinforce important ongoing safety messages. Marketing efforts also supported the launch of the new OC Bus Mobile App, which launched in mid-November.





Customer Comments

Bus Pass-Bys

- Complaints on pass-bys decreased to an average of seven complaints per week in the first four weeks of November compared to nine complaints per week in October.

Overcrowding

- Passenger overcrowding complaints decreased to an average of 0.5 complaints per week in the first four weeks of November compared to one complaint per week in October.

NEXT STEPS

- Continue to Track Service Performance
  - Ridership trends and seasonal patterns
  - On-time performance
- Upcoming Service Changes
  - February 13, 2022
  - June 12, 2022