

# REVISED

## **BOARD AGENDA**

Orange County Transportation Authority Board Meeting Orange County Transportation Authority Headquarters Board Room - Conference Room 07-08 550 South Main Street Orange, California Monday, March 23, 2020 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 OCTA Clerk of the Board, telephone (714) 560-5676, no less than two (2) 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 discussed. The posting of the recommended actions does not indicate what action will be taken. The Board of Directors 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 Comments on Agenda Items

Members of the public may address the Board of Directors (Board) regarding any item. Please complete a speaker's card and submit it to the Clerk of the Board or notify the Clerk of the Board the item number on which you wish to speak. Speakers will be recognized by the Chairman at the time the agenda item is to be considered. A speaker's comments shall be limited to three (3) minutes.

#### Public Availability of Agenda Materials

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

#### Guidance for Public Access to the Board of Directors Meeting

On March 12, 2020 and March 18, 2020, Governor Gavin Newsom enacted Executed Orders N-25-20 and N-29-20 authorizing a local legislative body to hold public meetings via teleconferencing and make public meetings accessible telephonically or electronically to all members of the public to promote social distancing due to the state and local State of Emergency resulting from the threat of Novel Coronavirus (COVID-19).



#### Guidance for Public Access to the Board of Directors Meeting (continued)

In accordance with Executive Order N-29-20, and in order to ensure the safety of OCTA Board Members and staff and for the purposes of limiting the risk of COVID-19, in-person public participation at public meetings of the Orange County Transportation Authority will not be allowed during the time period covered by the above-referenced Executive Orders.

Instead, members of the public can listen to live streaming of the Board meeting by clinking the below link:

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

Public comments may be submitted for the upcoming Board meeting by emailing them to boardofdirectors@octa.net, and the comments will be distributed to all of the Board of Directors. If you wish to comment on a specific agenda Item please identify the item in your email. General public comments will be addressed during the general public comment item on the agenda. In order to ensure that staff has the ability to provide comments to the Board of Directors in a timely manner, please submit your comments by 8:30 a.m. on March 23, 2020.



Call to Order

Roll Call

Invocation Director Sidhu

Pledge of Allegiance Chairman Jones

## **Special Calendar**

There are no Special Calendar Matters.

## Consent Calendar (Items 1 through 13)

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

# Orange County Transportation Authority Consent Calendar Matters

#### 1. Approval of Minutes

Approval of the Orange County Transportation Authority and affiliated agencies' regular meeting minutes of March 9, 2020.

#### 2. Performance Audit of the Orange County Transportation Authority's Patch Management Program Ricco Bonelli/Janet Sutter

#### Overview

On behalf of the Internal Audit Department, the firm BCA Watson Rice, LLP, has completed an audit of the Orange County Transportation Authority's Patch Management Program. The audit found that the Patch Management Program for the Windows operating environment complies with industry standards and best practices; however, the program should be expanded to address areas outside the Windows environment. The auditors identified five areas of improvement to further enhance the program.



#### 2. (Continued)

#### Recommendation

Direct staff to implement five recommendations provided in the performance audit of the Orange County Transportation Authority's Patch Management Program.

#### 3. Low Carbon Transit Operations Program Recommendations for Fiscal Year 2019-20 Funds Louis Zhao/Kia Mortazavi

#### Overview

Funding recommendations are presented for the Low Carbon Transit Operations Program for fiscal year 2019-20 funds that will promote transit ridership growth and reduce greenhouse gas emissions. This program is part of the state Cap-and-Trade Program.

#### **Recommendations**

- Α. Approve Resolution No. 2020-002 authorizing the use of \$7,130,042 in fiscal year 2019-20 Low Carbon Transit Operations Program funding, and the use of \$7,111,592 in fiscal year 2018-19 funds for bus and commuter rail projects.
- Β. Approve the use of \$812,976, currently programmed to Bravo! Main Street Operations for the Bravo! 529 Rapid Bus Service Start-Up and Operations Project.
- C. Approve the use of all unprogrammed Low Carbon Transit Operations Program interest from prior years through fiscal year 2019-20 for the Bravo! 529 Rapid Bus Service Start-up and Operations Project.
- D. Authorize staff to make all necessary amendments to the Federal Transportation Improvement Program, as well as execute any necessary agreements to facilitate the recommendations above.



## Orange County Transit District Consent Calendar Matters

4. Agreement for Asphalt Pavement Replacement at the Fullerton Park and Ride George Olivo/James G. Beil

#### **Overview**

As part of the Orange County Transportation Authority Fiscal Year 2019-20 Budget, the Board of Directors approved asphalt pavement replacement at the Fullerton Park and Ride. Bids were received in accordance with the Orange County Transportation Authority's public works procurement procedures. Approval from the Board of Directors is requested to execute the agreement.

#### **Recommendations**

- Α. Find PaveWest, Inc., the apparent low bidder, as non-responsive for failure to meet the federal requirement for Disadvantaged Business Enterprise participation.
- Β. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1796 between the Orange County Transportation Authority and Onyx Paving Company, Inc., the lowest responsive, responsible bidder, in the amount of \$210,000, for asphalt pavement replacement at the Fullerton Park and Ride.
- 5. Selection of Consultants for On-Call Architectural and Engineering Design and Construction Support Services for Transit Facility Projects Nhatran Phi Do/James G. Beil

#### Overview

On October 28, 2019, the Orange County Transportation Authority Board of Directors authorized the issuance of a request for proposals for consultants to provide on-call architectural and engineering design and construction support services for transit facility projects. Approval from the Board of Directors is requested for the selection of the firms to perform the required work.



#### 5. (Continued)

#### Recommendations

- A. Approve the selection of Stantec Architecture, Inc., Gannett Fleming, Inc., IBI Group, Dahl, Taylor and Associates, Inc., and IDS Group, Inc., as the firms to provide on-call architectural and engineering design and construction support services for transit facility projects.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1599 between the Orange County Transportation Authority and Stantec Architecture, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- C. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2111 between the Orange County Transportation Authority and Gannett Fleming, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- D. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2112 between the Orange County Transportation Authority and IBI Group, to provide on-call architectural and engineering services for three years and one, two-year option term.
- E. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2113 between the Orange County Transportation Authority and Dahl, Taylor and Associates, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- F. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2114 between the Orange County Transportation Authority and IDS Group, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.



6. Agreement for Installation of Monitoring Wells at Garden Grove Bus Base

George Olivo/James G. Beil

#### Overview

Monitoring wells are required to be installed at the Garden Grove Bus Base at the direction of the Regional Water Quality Control Board. Bids for construction of the monitoring wells were received in accordance with the Orange County Transportation Authority's public works procurement procedures. Approval from the Board of Directors is requested to execute the agreement.

#### Recommendation

Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1595 between the Orange County Transportation Authority and Core Probe International, Inc., the lowest responsive, responsible bidder, in the amount of \$91,000, for the installation of monitoring wells at the Garden Grove Bus Base.

7. Agreement for Replacement of Heating, Ventilation, and Air Conditioning Units at the Garden Grove Bus Base Maintenance Building

George Olivo/James G. Beil

#### Overview

As a part of the Orange County Transportation Authority's Fiscal Year 2019-20 Budget, the Board of Directors approved the replacement of heating, ventilation, and air conditioning units at the Garden Grove Bus Base maintenance building. Bids were received in accordance with the Orange County Transportation Authority's public works procurement procedures. Approval from the Board of Directors is requested to execute the agreement.



#### 7. (Continued)

#### Recommendations

- A. Find GM Climate Control, Inc., the apparent low bidder, as non-responsive for failure to meet the federal requirement for Disadvantaged Business Enterprise participation.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1696 between the Orange County Transportation Authority and Golden Gate Steel, Inc., doing business as Golden Gate Construction, the lowest responsive, responsible bidder, in the amount of \$254,250, for the replacement of heating, ventilation, and air conditioning units at the Garden Grove Bus Base maintenance building.

#### 8. Local Transportation Fund Claims for Fiscal Year 2020-21 Sam Kaur/Andrew Oftelie

#### Overview

The Orange County Transit District is eligible to receive funding from the Local Transportation Fund for providing public transportation services throughout Orange County. In order to receive these funds, the Orange County Transit District, as the public transit and community transit services operator, must file claims with the Orange County Transportation Authority, the transportation planning agency for Orange County.

#### Recommendation

Adopt Orange County Transit District Resolution No. 2020-009 authorizing the filing of Local Transportation Fund claims in the amounts of \$165,118,625 to support public transportation and \$8,753,906 for community transit services.



# 9. Bus Operations Performance Measurements Report for the Second Quarter of Fiscal Year 2019-20

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 second quarter of fiscal year 2019-20.

#### Recommendation

Receive and file as an information item.

10. Amendment to Agreement for Bus Cleaning and Environmental Control Services

Dayle Withers/Jennifer L. Bergener

#### Overview

On March 14, 2016, the Board of Directors approved an agreement with Gamboa Services, Inc., doing business as Corporate Image Maintenance, to provide bus cleaning and pesticide application services for a three-year initial term, with two one-year option terms. The first option term will expire on April 30, 2020. Staff is requesting approval to exercise the second option term.

#### Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 3 to Agreement No. C-5-3680, between the Orange County Transportation Authority and Gamboa Services, Inc., doing business as Corporate Image Maintenance, in the amount of \$359,058, to exercise the second option term of the agreement from May 1, 2020 through April 30, 2021, for continued bus cleaning and pesticide application services. This will increase the maximum obligation of the agreement to a total contract value of \$1,426,318.



# Orange County Local Transportation Authority Consent Calendar Matters

11. Orange County Local Transportation Authority Measure M2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Santa Ana, Year Ended June 30, 2019 Janet Sutter

#### Overview

Eide Bailly LLP, an independent accounting firm, has applied agreed-upon procedures related to Measure M2 Maintenance of Effort expenditures by the City of Santa Ana for the fiscal year ended June 30, 2019. Based on the audit, the City of Santa Ana spent sufficient funds to meet the required minimum expenditures as outlined in a settlement agreement between the City of Santa Ana and the Orange County Transportation Authority.

#### Recommendation

Direct staff to develop recommendation(s) for Board of Directors' action related to the status of the City of Santa Ana's Measure M2 eligibility.

12. Orange County Local Transportation Authority Measure M2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Stanton, Year Ended June 30, 2019 Janet Sutter

#### Overview

Eide Bailly LLP, an independent accounting firm, has applied agreed-upon procedures related to Measure M2 Maintenance of Effort expenditures by the City of Stanton for the fiscal year ended June 30, 2019. Based on the audit, the City of Stanton spent sufficient funds to meet the required minimum expenditures as outlined in a settlement agreement between the City of Stanton and the Orange County Transportation Authority.

#### Recommendation

Direct staff to develop recommendation(s) for Board of Directors' action related to the status of the City of Stanton's Measure M2 eligibility.



### 13. Approval to Release Request for Proposals for On-Call Commercial Real Estate Brokerage Services

Joe Gallardo/James G. Beil

#### Overview

The Orange County Transportation Authority has developed a request for proposals to initiate a competitive procurement process to retain a consultant for on-call commercial real estate brokerage services for leasing and disposition of anticipated excess land owned by the Orange County Transportation Authority. Staff is seeking Board of Directors' approval to release the request for proposals to select a firm to perform the required work.

#### Recommendations

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 0-2160 for selection of consultant services for on-call commercial real estate brokerage services.
- B. Approve the release of Request for Proposals 0-2160 for on-call commercial real estate brokerage services.

### **Regular Calendar**

## Orange County Transit District Regular Calendar Matter

 Approval to Release Request for Proposals for the Procurement of 40-Foot Compressed Natural Gas-Powered Buses Dayle Withers/Jennifer L. Bergener

#### Overview

The Orange County Transportation Authority operates a fleet of 462, 40-foot compressed natural gas-powered buses to provide fixed-route service. Based on the Orange County Transportation Authority's Fleet Plan, these vehicles will operate in fixed-route service for up to 18 years. A sub-fleet of 299 buses is nearing the end of its useful life and a request for proposals has been developed to purchase replacement buses. Staff is seeking Board of Directors' approval to release the request for proposals.



#### 14. (Continued)

#### Recommendations

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 9-1836 for the procurement of up to 299, 40-foot compressed natural gas-powered buses.
- B. Approve the release of Request for Proposals 9-1836 for the procurement of up to 299, 40-foot compressed natural gas-powered buses.

# Orange County Local Transportation Authority Regular Calendar Matters

15. OC Streetcar Project Quarterly Update Mary Shavalier/James G. Beil

#### Overview

The Orange County Transportation Authority is currently implementing the OC Streetcar project. Updates are provided to the Board of Directors on a quarterly basis. This report provides an update on OC Streetcar project activities from October 2019 through February 2020.

#### Recommendation

Receive and file as an information item.

#### **Discussion Items**

#### 16. Coronavirus Update

Darrell E. Johnson

Darrell E. Johnson, Chief Executive Officer, will provide an update on the Orange County Transportation Authority's efforts to proactively respond to the Coronavirus pandemic.



#### 17. Public Comments

At this time, members of the public may address the Board of Directors regarding any items within the subject matter jurisdiction of the Board of Directors, but no action may be taken on off-agenda items unless authorized by law. Comments shall be limited to three (3) minutes per speaker, unless different time limits are set by the Chairman subject to the approval of the Board of Directors.

#### **18.** Chief Executive Officer's Report

#### 19. Directors' Reports

#### 20. Closed Session

There are no Closed Session items scheduled.

#### 21. Adjournment

The next regularly scheduled meeting of this Board will be held at **9:00 a.m. on Monday, April 13, 2020**, at the Orange County Transportation Authority Headquarters, 550 South Main Street, Board Room - Conference Room 07-08, Orange, California. Minutes of the Orange County Transportation Authority Orange County Transit District Orange County Local Transportation Authority Orange County Service Authority for Freeway Emergencies Board of Directors Meeting

## **Call to Order**

The March 9, 2020 regular meeting of the Orange County Transportation Authority (OCTA) and affiliated agencies was called to order by Chairman Jones at 9:03 a.m. at the OCTA Headquarters, 550 South Main Street, Board Room – Conference Room 07-08, Orange, California.

Directors Present:	Steve Jones, Chairman Andrew Do, Vice Chairman Lisa A. Bartlett Doug Chaffee Laurie Davies Barbara Delgleize Michael Hennessey Gene Hernandez Joseph Muller Mark A. Murphy Tim Shaw Harry S. Sidhu Michelle Steel Donald P. Wagner Ryan Chamberlain, District Director California Department of Transportation District 12
Director Absent:	Richard Murphy Miguel Pulido Gregory T. Winterbottom
Also Present:	Darrell E. Johnson, Chief Executive Officer Kenneth Phipps, Deputy Chief Executive Officer Laurena Weinert, Clerk of the Board Martha Ochoa, Assistant Clerk of the Board Sahara Meisenheimer, Deputy Clerk of the Board James Donich, General Counsel Members of the Press and the General Public

#### Invocation

Director Chaffee gave the invocation.

### Pledge of Allegiance

Director Chamberlain led in the Pledge of Allegiance.

## **Special Calendar**

## **Orange County Transportation Authority Special Calendar Matters**

#### 1. Presentation of Resolution of Appreciation

Darrell E. Johnson, Chief Executive Officer (CEO), presented the OCTA Resolution of Appreciation No. 2020-017 to Kenneth Phipps, Deputy Chief Executive Officer, and Chairman Jones provided comments.

## Consent Calendar (Items 2 through 16)

Regional Planning and Highways (RP&H) Committee (RP&H) Chairman M. Murphy reported that at the recent RP&H Committee meeting, there was no quorum for various reasons, the agenda items were reviewed by the Members present, and the Members recommended the items be forward to the Board of Directors (Board).

#### 2. Approval of Minutes

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to approve the Orange County Transportation Authority and affiliated agencies' regular meeting minutes of February 24, 2020.

#### 3. Audit Responsibilities of the Finance and Administration Committee

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to approve the Audit Responsibilities of the Finance and Administration Committee.

#### 4. Approval of Board Members Travel

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to approve for Chairman Steve Jones, Vice Chairman Andrew Do, and Finance and Administration Committee Chairman Michael Hennessey to travel the week of June 15, 2020, to attend the annual New York rating agency trip in New York, New York.

#### 5. 91 Express Lanes Update for the Period Ending - December 31, 2019

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

## 6. Fiscal Year 2019-20 Second Quarter Grant Reimbursement Status Report

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

#### 7. Grant Award Acceptance for Development of the Disaster Mitigation Plan

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to authorize the Chief Executive Officer, or designee, to accept California Governor's Office of Emergency Services Hazard Mitigation Grant Program award.

#### **Orange County Transit District Consent Calendar Matters**

#### 8. Interagency Fare Revenue Agreements, Internal Audit Report No. 20-505

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to receive and file Interagency Fare Revenue Agreements, Internal Audit Report No. 20-505, as an information item.

# Orange County Local Transportation Authority Consent Calendar Matters

## 9. Amendment to Cooperative Agreement with the City of Fountain Valley for the Interstate 405 Improvement Project

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Amendment No. 4 to Cooperative Agreement No. C-5-3613 between the Orange County Transportation Authority and the City of Fountain Valley, in the amount of \$282,000, for the design and construction of an eight-inch waterline along the freeway between Mount Baldy Circle and Euclid Street, as part of the Interstate 405 Improvement Project. This will increase the maximum obligation of the cooperative agreement to a total value of \$4,649,708.

## 10. Amendment to Cooperative Agreement with the City of Westminster for the Interstate 405 Improvement Project

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Amendment No. 2 to Cooperative Agreement No. C-5-3615 between the Orange County Transportation Authority and the City of Westminster, in the amount of \$838,791, for additional city services for the Interstate 405 Improvement Project. This will increase the maximum obligation of the cooperative agreement to a total value of \$2,662,679.

#### 11. Supplemental Contract Change Order for the Interstate 405 Improvement Project from State Route 73 to Interstate 605 - Collection and Disposal of Unknown Hazardous Materials

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute supplemental Contract Change Order No. 8.3 to Agreement No. C-5-3843 between Orange County Transportation Authority and OC 405 Partners, a joint venture, in the amount of \$1,900,000, to collect and dispose of unknown hazardous materials for the Interstate 405 Improvement Project from State Route 73 to Interstate 605.

#### 12. Cooperative Agreement with the Orange County Flood Control District for the State Route 55 Improvement Project Between Interstate 405 and Interstate 5

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to authorize the Chief Executive Officer to negotiate and execute Cooperative Agreement No. C-9-1469 between the Orange County Transportation Authority and the Orange County Flood Control District for in-kind equivalent exchange relating to the Lane Channel reconstruction and property rights, and the amount of \$175,000 for project support services, including design plans, specifications and report reviews, permit issuance, right-of-way coordination, and construction inspection for the Lane Channel reconstruction within the State Route 55 Improvement Project between Interstate 405 and Interstate 5.

#### 13. Approval to Release Request for Proposals for the Preparation of Plans, Specifications, and Estimates for the State Route 91 Improvement Project Between Acacia Street and La Palma Avenue

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to:

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 0-2073 for consultant services for the preparation of plans, specifications, and estimates for the State Route 91 improvement project between Acacia Street and La Palma Avenue.
- B. Approve the release of Request for Proposals 0-2073 for consultant services for the preparation of plans, specifications, and estimates for the State Route 91 improvement project between Acacia Street and La Palma Avenue.

## 14. Environmental Mitigation Program Endowment Fund Investment Report for December 31, 2019

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

#### 15. Measure M2 Quarterly Progress Report for the Period of October 2019 Through December 2019

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

#### 16. Measure M2 Environmental Cleanup Program - Project X Tier 1 Grant Program Call for Projects

A motion was made by Director Davies, seconded by Director Hernandez, and declared passed by those present, to:

- A. Approve the proposed revisions to the Comprehensive Transportation Funding Programs Guidelines for the Environmental Cleanup Program Tier 1 Program.
- B. Authorize staff to issue the fiscal year 2020 Environmental Cleanup Program Tier 1 call for projects.

## **Regular Calendar**

There were no Regular Calendar Matters.

#### **Discussion Items**

#### 17. Fiscal Year 2020-21 Budget Kick-off and Assumptions

Darrell E. Johnson, CEO, provided opening comments and introduced Victor Velasquez, Manager of Financial Planning and Analysis, who provided a PowerPoint presentation for this item as follows:

- Fiscal Year 2020-21 Budget Timeline;
- Major Programs;
- Measure M2 Program Assumptions;
- Bus Program Revenue Assumptions;
- Bus Operations Expenditure Assumptions;
- Rail Program Revenue Assumptions;
- 91 Express Lanes Program Assumptions;
- Motorist Services & Orange County Taxi Administration Programs; and
- Next Steps.

A discussion ensued regarding the pending bills in Sacramento for free transit fares as follows:

- The Board recently acted on a set of principles to be considered for any legislation that requires OCTA to provide free transit fares for youth and seniors.
- The free transit fare, specific to age groups, were noted.
- Ensure opportunity to backfill with other or current funds.
- OCTA's potential impact would be approximately \$10 million, which is about 3.75 percent in terms of revenue.
- OCTA's college pass program is focused on community colleges, and the pending bills would include the University of California and California State University systems.
- Concerns about potential fare fraud, operations of the bus system, and proper identification.
- OCTA will engage with the California Transit Association, keep OCTA's Legislative and Communications Committee apprised, and address through next fiscal year's budget process.

A public comment was heard from <u>Craig Durfey</u>, Founder of Parents for the Rights of Developmentally Disabled Children, who provided the Board handouts and commented on safe routes to school, housing, and public transportation, and other related concerns.

No action was taken on this information item.

#### 18. Update on Interstate 5/EI Toro Road Interchange Project

Darrell E. Johnson, CEO, provided opening comments and introduced Rose Casey, Director of Highway Programs, provided a PowerPoint presentation for this item as follows:

- Project Area;
- Project Background/Timeline;
- Alternative 2: Flyover;
- Alternative 4: Collector Distributer Road and Hook Ramps;
- Alternative 4 and Option B: Collector Distributer Road and Hook Ramps;
- Cost Benefit Comparison;
- Recent Activities;
- Focused Coordination with Cities; and
- Next Steps.

A discussion ensued regarding the following:

- Alternative 4 would impact the developer's recent plans for the Laguna Hills Mall, and OCTA has been coordinating with the City of Laguna Hills as the main contact with the developer.
- The benefit cost ratio for Alternative 2 is 1.82 and Alternative 4 is 1.51.
- The higher the benefit cost ratio, the alternative has more benefits for the cost.
- At the last RP&H Committee meeting, RP&H Committee Chairman M. Murphy asked that the no-build alternative be highlighted.
- A no-build option is a concern as the current traffic conditions are gridlock.
- Director Bartlett requested that the new consultant understand south Orange County and city involvement.
- Measure M2 (M2) Ordinance specified an interchange improvement for local traffic circulation to El Toro Road, local streets, and on-off ramps that access El Toro Road.
- The M2 interchange improvement project requires cooperation with the local cities and communities.
- Director Davies added to Director Bartlett's request and suggested outreach/education. She also commented, there are Regional Housing Needs Assessment (RHNA) requirements, and the Association of California Cities – Orange County could work in conjunction with OCTA for outreach about RHNA and the interchange project.
- The new consultant procurement timelines were highlighted.

No action was taken on this information item.

#### **19.** Public Comments

Public comments were heard from the following:

- 1. <u>Craig Durfey</u>, Founder of Parents for the Rights of Developmentally Disabled Children, asked the Board to take a survey within the cities about mobility needs, advertise on the buses safe routes to school, as well as provided suggestions and examples for safe routes to school.
- 2. <u>Charles Johnson</u>, Teamsters Local 952 Union representative and former Coach Operator, commented that the coach operators cannot challenge passengers who are wrongfully using college student passes. They also fear exposure, etcetera, to the Coronavirus, and asked the Board to take their concerns into consideration.

#### 20. Chief Executive Officer's Report

Darrell E. Johnson, CEO, reported the following:

Coronavirus Update -

- OCTA is closely monitoring the developing Coronavirus situation;
- Using the Centers for Disease Control guidelines and being vigilant with OCTA's cleaning and disinfectant practices;
- A multi-divisional task force is in place that meets regularly to assess and address any new developments;
- There is nightly disinfecting of all vehicles and buses;
- Bases are cleaned three times a day with disinfectant; and
- Transit center facilities are cleaned twice a day with disinfectant.

Careers in Transportation Expo (Expo) -

- This Tuesday, OCTA will host the fifth annual Expo at the OCTA Headquarters from 9:00 a.m. to noon.
- Approximately 300 local high-school and college students will attend the Expo to learn about career paths in the transportation industry.

American Public Transportation Association (APTA) Awards -

- OCTA recently was awarded three APTA AdWheel Awards for marketing and communications efforts for the following:
  - Making Safety a Core Corporate Value video;
  - Metrolink Daycations Digital Outreach, and
  - OC Flex Microtransit Pilot Program.
- Staff who worked on these campaigns were congratulated.

#### 21. Directors' Reports

Director Shaw highlighted last week's State Route (SR) 91 Advisory Committee meeting actions and discussions. Director Shaw inquired about the \$2 billion SR-91 corridor improvements.

Darrell E. Johnson, CEO, responded that \$2 billion has been invested by Orange and Riverside counties for the SR-91 corridor, as well as provided other comments about the improvements

#### 22. Closed Session

James Donich, General Counsel, reported that the Closed Session noted on today's Board agenda has been continued to the March 23, 2020 Board meeting.

#### 23. Adjournment

The meeting adjourned at 10:00 a.m.

The next regularly scheduled meeting of this Board will be held at **9:00 a.m. on Monday, March 23, 2020**, at the OCTA Headquarters, 550 South Main Street, Board Room – Conference Room 07-08, Orange, California.

ATTEST:

Laurena Weinert Clerk of the Board

Steve Jones Chairman



March 23, 2020

To: Members of the Board of Directors

From: Laurena Weinert, Clerk of the Board

**Subject:** Performance Audit of the Orange County Transportation Authority's Patch Management Program

Finance and Administration Committee Meeting of March 11, 2020

Present: Directors Do, Hennessey, Hernandez, Jones, Muller, R. Murphy, and Steel Absent: None

#### **Committee Vote**

This item was passed by the Members present.

#### **Committee Recommendation**

Direct staff to implement five recommendations provided in the performance audit of the Orange County Transportation Authority's Patch Management Program.



#### March 11, 2020

То:	Finance and Administration Committee	
rom:	Janet Sutter, Executive Director	
Subject:	Performance Audit of the Orange County Transportatio	'n

Authority's Patch Management Program

#### Overview

On behalf of the Internal Audit Department, the firm BCA Watson Rice, LLP, has completed an audit of the Orange County Transportation Authority's Patch Management Program. The audit found that the Patch Management Program for the Windows operating environment complies with industry standards and best practices; however, the program should be expanded to address areas outside the Windows environment. The auditors identified five areas of improvement to further enhance the program.

#### Recommendation

Direct staff to implement five recommendations provided in the performance audit of the Orange County Transportation Authority's Patch Management Program.

#### Background

The Orange County Transportation Authority (OCTA) Information Systems (IS) Department is responsible for the effective and secure delivery of computing solutions to all business units. This includes the execution of OCTA's Patch Management Program (PMP). The National Institute of Standards and Technology (NIST) defines patch management as "...the process for identifying, acquiring, installing, and verifying patches for products and systems." Patches aim to correct security and functionality problems in firmware and software applications.

#### Performance Audit of the Orange County Transportation *Page 2* Authority's Patch Management Program

The purpose of the audit was to assess and test the adequacy of OCTA's PMP and to make detailed recommendations for improvement based on industry standards, best practices, economy, and efficiency. The audit included testing of OCTA's compliance with its patch management policies and procedures and best practices, including NIST 800-53, Revision 4 Security Standards and NIST 800-40, Revision 3, titled "Guide to Enterprise Patch Management Technologies".

#### Discussion

OCTA's IS Department has developed a PMP, supported by a written policy, that focuses on the Windows operating environment. Management's strategy was to focus first on the highest risk area, the Windows environment, and then expand the program to address other risk areas. The auditors offered one recommendation to expand the PMP to address all other operating systems hardware, software, and peripherals, and to incorporate all devices into the PMP. The auditors also offered four recommendations to further enhance the PMP by formalizing plans to address patch vulnerabilities, removing obsolete operating systems and software from the network, restricting users from installing unauthorized software, and developing test scripts to ensure system functionality after implementation of a patch. Management agreed with the recommendations and indicated that progress has been made, and efforts will continue, to implement these improvements.

#### Summary

An audit of OCTA's PMP has been completed by the firm of BCA Watson Rice, LLP. The detailed audit scope and results are included in the audit report at Attachment A.

#### Attachment

A. Orange County Transportation Authority, Performance Audit of OCTA's Patch Management Program, February 18, 2020

#### Prepared by:

- T. Ball'

Ricco Bonelli Principal Internal Auditor 714-560-5384

Approved by:

Janet Sutter Executive Director, Internal Audit 714-560-5591

ATTACHMENT A

# ORANGE COUNTY TRANSPORTATION AUTHORITY

## Performance Audit of

**OCTA's Patch Management Program** 

February 18, 2020

## **FINAL REPORT**

Prepared by: BCA Watson Rice LLP Certified Public Accountants and Management Consultants

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### CONCLUSION

Based on the audit, the Orange County Transportation Authority's Patch Management Program for the Windows operating system environment complies with industry standards and best practices; however, the program should be expanded to address areas outside the Windows environment. In addition, we have identified areas of improvement that will further enhance the program.

#### **INTRODUCTION AND BACKGROUND**

The Orange County Transportation Authority's (OCTA) Internal Audit Department contracted with BCA Watson Rice (BCAWR) to conduct a performance audit of OCTA's Patch Management Program (PMP). The purpose of the audit was to assess and test the adequacy of OCTA's PMP and to make detailed recommendations for improvement based on industry standards, best practices, economies, and efficiencies. The audit included testing of OCTA's compliance with its patch management policies and procedures and best practices including the National Institute of Standards and Technology (NIST) 800-53, Revision 4 Security Standards and NIST 800-40, Revision 3, titled "Guide to Enterprise Patch Management Technologies". BCAWR used its corporate knowledge of OCTA and its extensive knowledge of best practices to develop a detailed work plan to perform this audit as outlined in the methodology section of this report.

At the time of the audit, OCTA's PMP addresses the following components:

- 1. Approximately 950 individual user accounts;
- 2. Approximately 950 Windows workstations;
- 3. Approximately 90% of the workstations (which are run on Windows 10) with the remaining workstations running on Windows 7;
- 4. Approximately 200 Linux devices;
- 5. Approximately 900 network devices; and
- 6. 350 Windows Servers (Windows Server 2012 and 2016, currently migrating from the remaining 2008 Servers).

BCAWR affirms that it is independent of OCTA and conducted the performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS) and relevant best practices. GAGAS requires that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and conclusions based on the audit objectives. BCAWR believes that the evidence obtained provides a reasonable basis for our findings and recommendations.

### METHODOLOGY

This section contains the methodology used to assess OCTA's PMP based on the scope and objectives of this audit:

AUDIT STEPS	TESTING METHODOLOGY						
Reviews and	We requested and reviewed all relevant and existing PMP						
Observations	documentation. We observed, where possible, activities related to						
	the PMP operations and overall management process.						
Inquiries and Meetings	We made inquiries of management and corroborated responses with appropriate operations personnel. We also conducted inquiries of personnel responsible for carrying out distinct aspects of the PMP and corroborated responses with other personnel and documentation. Our inquiries included interviews and meetings with OCTA's PMP key stakeholders.						
Examinations and Walk-	We inspected PMP documents and other related documentation to						
Throughs	determine the adequacy and appropriateness of OCTA's PMP. We also determined whether the PMP development process was conducted in accordance with specific control policies and procedures, and any established industry standards. Our examination process involved reviewing and analyzing the PMP and related documents.						
Substantive Testing	We conducted substantive testing of OCTA's PMP, where appropriate.						

### CRITERIA

To guide our audit and to adequately assess OCTA's PMP, our criterion was based on the requirements outlined in the agreement between OCTA and BCAWR, industry "Best Practices", and the relevant NIST Special Publications. BCAWR used these criteria as the framework for the development of our audit methodology, findings and recommendations. The audit was conducted in accordance with Generally Acceptable Government Auditing Standards. Below is a pictorial representation of the criteria used.



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## **DETAILED AUDIT RESULTS**

OCTA's Information Systems Department has developed a PMP, supported by a Patch Management Policy that focuses on the Windows operating system environment. Management's strategy was to focus first on OCTA's highest risk area, the Microsoft Windows environment, and then expand the program to address other risk areas. The findings and recommendations described below, if implemented, would cause OCTA to leverage their success in the Windows environment across all platforms and systems.

### Finding No. 1: OCTA's Patch Management Policy and Program should be expanded

To reduce the risk of security breaches, OCTA should expand the PMP to address all other operating systems software, hardware, and peripherals, and to incorporate all devices; including firewalls, Linux and Mac Operating systems, IoT devices, 3rd party devices, applications that communicate with the network, and other technology-based devices (e.g. field fuel stations).

#### **Recommendation 1:**

We recommend OCTA expand the PMP to address all software, hardware, peripherals, and devices; including firewalls, Linux and Mac Operating systems, IoT devices, 3<sup>rd</sup> party devices, applications that communicate with the network, and other technology-based devices.

#### Management Response:

Management agrees with the recommendation to expand the patch management program. The Information Systems (IS) Department will identify and develop a plan to comply with the recommendations that will focus on security and core infrastructure and applications first, and then continue to address all other areas. The additional resource as recommended in Finding #2, will play a critical role in this process.

#### Finding No. 2: OCTA should formalize plans to address patch vulnerabilities

Through regular scanning, OCTA identifies a high number of critical and severe vulnerabilities in the Windows environment. Many of the identified vulnerabilities have not been addressed and have been outstanding over 90 days. Management indicated that other operational activities, including relocation of the data center, have hampered efforts at remediating these vulnerabilities.

#### **Recommendation 2:**

We recommend that OCTA identify a dedicated operations staff person to coordinate with employees who have designated responsibility for remediating vulnerabilities. These employees should develop and document a Plan of Action with Milestones and create desktop procedures for patch management.

#### Management Response:

Management agrees with the recommendation to dedicate an operations staff person to coordinate with those responsible for remediating vulnerabilities and support the completion of the recommendations. The dedicated resource will document a plan of action with milestones and create desktop procedures.

## Finding No. 3: Numerous workstations and servers are operating with end-of-life software and operating systems

OCTA vulnerability scans identify a number of devices with obsolete operating systems and/or software. Allowing these unsupported system components makes the network more vulnerable to attack and renders the system less reliable.

#### **Recommendation 3:**

We recommend that OCTA remove all obsolete operating systems and software from the network. Where operations currently require the use of obsolete software, we recommend that OCTA work with the vendors to acquire more secure software. In cases where the vendor is not able to supply more secure functionality, we recommend that OCTA develop plans to migrate to an alternative software solution and develop mitigating controls in the interim.

#### Management Response:

Management agrees with the recommendation to remove all obsolete Operating Systems (OS) and software from the network. This is a continuing process that will rely on cybersecurity to provide guidance to help the IS operational teams plan for the removal or upgrade of obsolete software. All obsolete OS and software that can't be removed due to business requirements will use alternative vulnerability remediation methods until removed. This process will continue the best practice of separation of duties as used in the recent removal of all Windows 7 machines.

Finding No. 4: Allowing for network workstations that are not managed by OCTA's Information System Department (ISD), and granting of local administrative access rights to users, increases exposure to the network

During our audit, we identified software on workstations that are not managed by OCTA's ISD. One department within OCTA has historically purchased and managed its own workstations.

In addition, we identified unsupported software, like iTunes, VLC player, and Wireshark (a tool used by hackers), installed on workstations. In most of the cases noted, the software was installed by users with local administrative access; which should be limited.

#### **Recommendation 4:**

We recommend that OCTA restrict users from installing unauthorized software and that the ISD be authorized to manage all OCTA workstations. Also, management should strictly enforce policies against installing unauthorized software on workstations. Any workstation that requires local administrative rights should be closely monitored by ISD.

#### Management Response:

Management agrees with the recommendation to restrict users from installing unauthorized software and that IS be authorized to manage all OCTA workstations. IS will continue to scan for new devices and software on the network. IS is aware of and in the process of taking back the management of found devices that are not IS managed, to include non-IS administrative accounts that will no longer be needed.

#### Finding No. 5: Patch testing should be strengthened and formalized

Use of formalized test scripts helps ensure system functionality after implementation of a patch, and is part of a mature patch management program.

As new patches are introduced, testing of basic functions is performed; however, formalized test scripts should be developed and implemented for each of the mission critical systems. Formalized test scripts identify critical functions of the particular system and provide a guide for testing after implementing a patch.

#### **Recommendation 5:**

We recommend that patch management test scripts be developed through collaboration between ISD and users of the mission critical systems. These scripts should mirror those used in the change management process.

#### Management Response:

Management agrees with the recommendation that patch management test scripts be developed for mission critical systems. IS and system/application owners will develop test scripts to follow the IS patching schedule for critical systems as defined in the Continuity of Operations Plan. As this is a continuous process, IS will implement and maintain the process for all defined systems.

February 18, 2020

BCA Wartson Rice, LLP



March 23, 2020

То:	Members	of the	Board	of Director	s
			Λ		

From: Laurena Weinert, Clerk of the Board

Subject: Low Carbon Transit Operations Program Recommendations for Fiscal Year 2019-20 Funds

Transit Committee Meeting of March 12, 2020

Present:Directors Do, Davies, Jones, Shaw, and SidhuAbsent:Directors Pulido and Winterbottom

#### Committee Vote

This item was passed by the Members present.

#### Committee Recommendations

- A. Approve Resolution No. 2020-002 authorizing the use of \$7,130,042 in fiscal year 2019-20 Low Carbon Transit Operations Program funding, and the use of \$7,111,592 in fiscal year 2018-19 funds for bus and commuter rail projects.
- B. Approve the use of \$812,976, currently programmed to Bravo! Main Street Operations for the Bravo! 529 Rapid Bus Service Start-Up and Operations Project.
- C. Approve the use of all unprogrammed Low Carbon Transit Operations Program interest from prior years through fiscal year 2019-20 for the Bravo! 529 Rapid Bus Service Start-up and Operations Project.
- D. Authorize staff to make all necessary amendments to the Federal Transportation Improvement Program, as well as execute any necessary agreements to facilitate the recommendations above.



### March 12, 2020

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*From:* Darrell E. Johnson, Chief Executive Officer

**Subject:** Low Carbon Transit Operations Program Recommendations for Fiscal Year 2019-20 Funds

#### Overview

Funding recommendations are presented for the Low Carbon Transit Operations Program for fiscal year 2019-20 funds that will promote transit ridership growth and reduce greenhouse gas emissions. This program is part of the state Cap-and-Trade Program.

#### Recommendations

- A. Approve Resolution No. 2020-002 authorizing the use of \$7,130,042 in fiscal year 2019-20 Low Carbon Transit Operations Program funding, and the use of \$7,111,592 in fiscal year 2018-19 funds for bus and commuter rail projects.
- B. Approve the use of \$812,976, currently programmed to Bravo! Main Street Operations for the Bravo! 529 Rapid Bus Service Start-Up and Operations Project.
- C. Approve the use of all unprogrammed Low Carbon Transit Operations Program interest from prior years through fiscal year 2019-20 for the Bravo! 529 Rapid Bus Service Start-up and Operations Project.
- D. Authorize staff to make all necessary amendments to the Federal Transportation Improvement Program, as well as execute any necessary agreements to facilitate the recommendations above.

#### Background

The California Department of Transportation (Caltrans) Low Carbon Transit Operations Program (LCTOP) provides funds to transit agencies on a formula basis to support transit operations or capital projects that reduce greenhouse gas (GHG) emissions and improve mobility, with a priority to provide benefit to disadvantaged communities.
The February 14, 2020, distribution letter from the State Controller's Office (SCO) for fiscal year (FY) 2019-20 has notified all eligible transit operators that the LCTOP Formula Program will provide \$146 million statewide, and the Orange County Transportation Authority's (OCTA) share is \$7,130,042. Caltrans is requesting transit agencies to submit projects for consideration for FY 2019-20 funds on April 8, 2020.

Based on the Capital Programming Policies (CPP) approved by the OCTA Board of Directors (Board) on February 11, 2019, the funds are to be used for transit operations or capital for expansion of bus transit service, fare reduction programs, and other bus and commuter rail transit efforts that increase ridership and reduce GHG emissions where 50 percent of the funds provide benefit for passengers in disadvantaged communities. LCTOP funds from previous funding cycles have been used for fare programs, travel training, bicycle racks on buses, bus purchases, and bus and commuter rail operations.

# Discussion

# FY 2019-20 LCTOP

For FY 2019-20, staff is proposing that the \$7,130,042 in FY 2019-20 LCTOP funds be used for the following program elements that are further described in Attachment A:

- Ten battery-electric buses: \$2,594,886
- Bravo! 529 Rapid Bus Service Start-Up and Operations Project: \$1,470,913
- Discounted Age-Based Fare Program: \$2,000,000
- College Pass Program: \$749,243
- Travel training: \$315,000

These projects and programs are consistent with LCTOP Guidelines and the OCTA CPP is expected to reduce GHG emissions and automobile vehicle miles traveled.

# Prior LCTOP Funds

For FY 2018-19, staff is proposing changes to use funds earlier than they would have been used if they remained on the Bravo! Main Street Service, which is not scheduled to start until FY 2022-23. The proposed projects/programs for these funds are listed below and further described in Attachment A:

# Low Carbon Transit Operations Program Recommendations for Fiscal Year 2019-20 Funds

Project	Prior FY 2018-19 L CTOP	Proposed FY 2018-19 I CTOP	Difference +(-)
College Pass Program	\$990,000	\$990,000	\$0
Travel Training	\$685,000	\$685,000	\$0
Metrolink Service Expansion	\$2,100,000	\$2,100,000	\$0
Battery Electric Bus	\$2,523,000	\$2,523,000	\$0
Bravo! Main Street Operations	\$812,796	\$0	(\$812,976)
Bravo! 529 Rapid Bus Service			
Start-Up and Operations Project	\$0	\$812,976	\$812,976
	\$7,111,592	\$7,111,592	\$0

Interest accrued by LCTOP funds can be used for approved LCTOP projects. As of January 31, 2020, the estimated unprogrammed interest was \$288,392. This interest, along with any additional future interest earned from the current programming years through the FY 2019-20 LCTOP program year, is proposed to be used for the Bravo! 529 Rapid Bus Service Start-Up and Operations Project. That project is eligible for additional LCTOP funds and can use those funds immediately.

Consistent with Caltrans' LCTOP Guidelines, the Board is requested to approve submittal of the projects and execution of the certifications and assurances, and authorized agent forms through a resolution (Attachment B). The authorized agent form authorizes the Chief Executive Officer, or his designee, to sign documents on behalf of OCTA.

The revised Capital Program Funding Report is pending Board approval and is provided in Attachment C.

#### Next Steps

With Board approval, staff will submit the Board resolution to Caltrans for \$7,130,042 in FY 2019-20 LCTOP funds, amending the use of \$7,111,592 in FY 2018-19 LCTOP funds to Caltrans. The use of LCTOP funds is subject to approval by both Caltrans and the California Air Resources Board. Caltrans expects the SCO to begin releasing FY 2019-20 funds to transit agencies for identified projects by June 30, 2020.

#### Summary

The Board is requested to approve a resolution authorizing the use of FY 2018-19 and FY 2019-20 LCTOP funds for transit projects. The Board is further requested to approve the use of unprogrammed interest accrued from LCTOP funds for the Bravo! 529 Rapid Bus Service Start-up and Operations Project.

#### **Attachments**

- A. Orange County Transportation Authority, Low Carbon Transit Operations Program – Projects Description
- B. Resolution 2020-002, Authorization for the Execution of the Certifications and Assurances, and Authorized Agent Forms for the Low Carbon Transit Operations Program and for the Execution of the Low Carbon Transit Operations Program Projects: \$7,130,042 in Fiscal Year 2019-20 Funds for Ten Battery-Electric Buses; Bravo! 529 Rapid Bus Service Operations; Discounted Age-Based Fare Program; New College Pass Programs; and Travel Training; \$7,111,592 in Fiscal Year 2018-19 Funds for Metrolink Service Expansion; Battery-Electric Buses; Bus Depot Upgrades and Charging Infrastructure; Travel Training, College Pass Program; Bravo! Main Street Operations
- C. Capital Funding Program Report

Prepared by:

Louis Zhao Section Manager, Discretionary Funding Programs (714) 560-5494

Approved by:

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

# ATTACHMENT A

# Orange County Transportation Authority Low Carbon Transit Operations Program – Projects Description

#### Bravo! Main Street/Ten Battery-Electric Buses

As described in the table below, to date, the Orange County Transportation Authority (OCTA) has programmed \$11,343,681 in funding for battery-electric buses and the associated infrastructure upgrades, including \$2,523,000 in fiscal year (FY) 2018-19 Low Carbon Transit Operations Program (LCTOP) funds. It is proposed that an additional \$2,594,886 in FY 2019-20 LCTOP funds would be used to allow the purchase of a total of ten battery-electric buses under the State of California contract, along with the associated infrastructure upgrades. This action will provide the funding necessary to cover the estimated cost of the electric buses and support systems.

The buses will be 40-foot standard low floor OCTA-equipped battery-electric buses with seating for 37 passengers, or 33 passengers and two wheelchairs, internal and external camera system, WIFI and mobile routers, a farebox equipped for mobile ticketing, automated passenger counters, radio system and automatic vehicle location, and a three-position exterior bike rack.

Utility and depot upgrades are necessary to charge the electric buses and, according to Southern California Edison (SCE), the current available energy required at the Garden Grove Base to support this project is currently available through SCE's transformer installed at that location; however, electrical cabling, trenching, dedicated charging stations, smart energy management controllers, and other devices similar in nature are still required.

Purchasing these ten buses with the required infrastructure will allow OCTA to test them along with the hydrogen fuel cell electric buses in the local environment and geography to see how both technologies perform within the OC Bus Service Plan.

	Cost Escalated						I	FY 19-20 SGR	Se	VW ttlement	P	roposed
Item	to FY 19-20	SCCP	(1)	H\	/IP (2)	LCTOP		(3)		(4)		LCTOP
Heavy Duty Battery-Electric Buses	\$ 10,721,130	\$ 3,699	,424	\$ 1	,520,000	\$ 1,083,000	\$	2,070,281	\$	900,000	\$	1,448,425
Diagnostic Tools, Resident Inspector, Technical												
Assistance, Training for ten buses	\$ 1,261,952	\$ 630	,976	\$	-	\$ -	\$	-			\$	630,976
Depot Chargers and Installation	\$ 775,800	\$	-	\$	-	\$ 485,158	\$	-			\$	290,642
Depot Construction (3)	\$ 809,999	\$	-	\$	-	\$ 769,999	\$	-			\$	40,000
Depot Design / CM	\$ 369,686	\$	-	\$	-	\$ 184,843	\$	-			\$	184,843
TOTAL	\$ 13,938,567	\$ 4,330	,400	\$ 1,	,520,000	\$ 2,523,000	\$	2,070,281	\$	900,000	\$	2,594,886

#### The proposed funding plan is provided below:

(1) SB 1 (Chapter 5, Statues of 2017) Solutions for Congested Corridors Program (SCCP)

(2) The California Air Resources Board (CARB), in partnership with CALSTART, launched the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) and Low NOx Engine Incentives in 2009 funded with state Cap-and Trade funds, to accelerate the purchase of cleaner, more-efficient trucks and buses in California. HVIP subsidy is paid to the vendor and expansion buses are eligible for \$152,000 per bus.

(3) SB 1 State of Good Repair (SGR) will replace about two buses with battery electric buses.

(4) The Volkswagen (VW) Environmental Mitigation Trust provides about \$423 million for California to mitigate the excess nitrogen oxide (NOx) emissions caused by VW's use of illegal emissions testing defeat devices in certain VW diesel vehicles. Funding is available for expansion buses at \$180,000 per bus.

# Orange County Transportation Authority Low Carbon Transit Operations Program – Projects Description

#### Bravo! 529 Rapid Bus Service Start-up and Operations Project

Bravo! 529 Rapid Bus started service in February 2019 and provides weekday service with 12-minute peak frequency and 19-minute off-peak frequency, primarily on Beach Boulevard from the Fullerton Park-and-Ride to the Goldenwest Transportation Center. FY 2017-18 LCTOP funds (\$4,787,534) were programmed to the start-up and operation of the Bravo! 529 Rapid Bus Service to support operations for two and a half years. LCTOP funds may be used for up to five years of start-up and operations and OCTA staff is recommending the use of an additional \$2,572,281 in LCTOP funds, which will derive from \$1,470,913 in FY 2019-20 LCTOP funds, \$812,976 in FY 2018-19 funds, and \$288,392 in accrued interest. These funds will support this service for up to 12 months.

Bravo! Main Street Rapid Bus service is not anticipated to start until FY 2022-23 and reprogramming the FY 2018-19 funds to the Bravo! 529 Rapid Bus Service Start-up and Operations Project allows for a more immediate use of the FY 2018-19 LCTOP funds.

#### Discounted Aged-Based Fare Program

OC Bus 360°, OCTA's comprehensive plan to improve bus service from all angles, identifies youth as a key audience for bus service growth. Beginning in January 2021, OCTA is proposing to offer subsidized youth passes. The cost of lost fare revenue over four years is estimated to be \$2,000,000. Additionally, this program would position OCTA to respond if legislation is passed requiring free fares to riders based on age. There are several legislative proposals circulating at present that would provide free fares to passengers based on age or other similar criteria.

#### New College Pass Programs

OC Bus 360°, OCTA's comprehensive plan to improve bus service from all angles, identifies college students as a key audience for bus service growth. According to OCTA's bus customer satisfaction surveys, work and school are the top trip purposes for bus riders.

Beginning in fall 2017, OCTA provided Santa Ana College (SAC) students, enrolled full- and part-time with a one-year free pass program funded through LCTOP. In May 2017, SAC students voted to pass a per semester student transportation fee to fund the program from fall 2018 through summer 2020. Using a cost-sharing approach to raise sufficient revenue to cover lost fare revenues, OCTA established the per semester student fee at \$6.75 for each full-time student and \$5.75 for each part-time student. The cost is established based on an analysis of the existing transit service and assumptions about current and future ridership.

# Orange County Transportation Authority Low Carbon Transit Operations Program – Projects Description

As a result of this program, OCTA has seen significant ridership increases over the estimated ridership for this cohort before the incentive project. Based on this success, FY 2018-19 LCTOP funds were programmed for Santa Ana, Fullerton, and Golden West colleges. OCTA staff recommends \$749,243 in FY 2019-20 LCTOP funds be used to replicate this model at Irvine Valley, Saddleback, Cypress, and Coastline colleges for three years. The student enrollment fee will vary as it is based on the specific transit opportunities and demographics of each college. OCTA may need to revisit this request if proposed legislation to offer free transit to college students is passed.

#### Travel Training

OCTA staff recommends that \$315,000 in FY 2019-20 LCTOP be used to expand the travel training program by increasing the total amount of trainings both in workshop and individual travel training format, as well as introducing these two training formats in additional languages other than English and Spanish, over the next two contract years.

In FY 2018-19, LCTOP funds (\$685,000) were awarded for travel training to assist the senior and disabled community and new riders with using the fixed-route bus system to increase ridership. Individuals are trained at workshops, small groups, and one-on-one sessions. All of these individuals who are trained receive free day pass or 30-day pass.

Over a three-year period, approximately 24 workshops were proposed each year averaging two workshops each month for the next three years at senior centers, day program locations, and other sites to train approximately 517 people per year. In addition, approximately 103 people will receive one-on-one individual training. Follow-up surveys will determine usage of the OCTA system before and after training. For those trained with current paratransit eligibility, ridership data will be collected by tracking the unique identification number assigned to all users of OCTA's paratransit service. Additionally, all senior or disabled trainees without paratransit eligibility status will be encouraged to apply for a Reduced Fair Identification (RFID) Card. OCTA will use the unique identification numbers of the RFID card holders to determine usage of the OCTA system.

#### Metrolink Service Expansion

On September 23, 2019, the OCTA Board of Directors (Board) approved the use of \$2,100,000 in FY 2018-19 LCTOP funds for the Metrolink Service Expansion. Starting in April 2020, Metrolink service will be expanded on the Orange County line by up to two round trips between Laguna Niguel/Mission Viejo and Los Angeles Union Station, one round trip between the cities of Oceanside and Los Angeles and up to two weekday round trips on the 91/Perris Valley Line between Perris-South and Los Angeles Union Station, via Fullerton.

# Orange County Transportation Authority Low Carbon Transit Operations Program – Projects Description

In order to approve the use of the FY 2018-19 funds, the California Department of Transportation and the California Air Resources Board must approve the project through approval of an allocation request. Allocation request may only be submitted once a year and OCTA would submit an allocation request for Metrolink Service Expansion using FY 2018-19 funds. For this reason, FY 2018-19 LCTOP projects are included in the resolution that is provided for Board consideration and approval.

#### **Bravo! Main Street Operations**

Bravo! Main Street is identified as one of the 11 corridors in the OC Transit Vision. This corridor runs parallel to State Route 55 and traverses through several disadvantaged communities. The bus service is on Main Street and the route starts at the Anaheim Regional Transportation Intermodal Center (ARTIC), which provides connections to Metrolink and Amtrak services to the cities of Los Angeles, Riverside, San Bernardino, Oceanside, and San Diego, and ends at South Coast Metro, a key employment center of the County. Bravo! Main Street will operate weekdays along Main Street serving 13 stops in each direction over 8.4 miles from ARTIC to MacArthur Boulevard.

In 2019, \$2,902,976 in FY 2018-19 LCTOP funds were approved to be set aside to contribute to the start-up operating costs for the Bravo! Main Street Rapid Bus Service. However, this service is not scheduled to start until FY 2022-23. In order to ensure timely-use of LCTOP funds, \$2,100,000 was previously approved to be used for a nearer term service expansion for Metrolink and the remaining funds are recommended to be used for the Bravo! 529 Rapid Bus Service Start-up and Operations Project as part of this item.

#### **RESOLUTION 2020-002**

#### AUTHORIZATION FOR THE EXECUTION OF THE CERTIFICATIONS AND ASSURANCES, AND AUTHORIZED AGENT FORMS FOR THE LOW CARBON TRANSIT OPERATIONS PROGRAM AND FOR THE EXECUTION OF THE LOW CARBON TRANSIT OPERATIONS PROGRAM PROJECTS:

\$7,130,042 IN FISCAL YEAR 2019-20 FUNDS FOR TEN BATTERY-ELECTRIC BUSES; BRAVO! 529 RAPID BUS SERVICE OPERATIONS; DISCOUNTED AGE-BASED FARE PROGRAM; NEW COLLEGE PASS PROGRAMS; AND TRAVEL TRAINING;

#### \$7,111,592 IN FISCAL YEAR 2018-19 FUNDS FOR METROLINK SERVICE EXPANSION; BATTERY-ELECTRIC BUSES; BUS DEPOT UPGRADES AND CHARGING INFRASTRUCTURE; TRAVEL TRAINING; COLLEGE PASS PROGRAM; BRAVO! MAIN STREET OPERATIONS

**WHEREAS,** the Orange County Transportation Authority (OCTA) is an eligible project sponsor and may receive state funding from the Low Carbon Transit Operations Program (LCTOP) for transit projects; and

**WHEREAS**, the statutes related to state-funded transit projects require a local or regional implementing agency to abide by various regulations; and

**WHEREAS**, SB 862 (Chapter 36, Statutes 2014) named the California Department of Transportation (Caltrans) as the administrative agency for the LCTOP; and

**WHEREAS**, Caltrans has developed guidelines for the purpose of administering and distributing LCTOP funds to eligible project sponsors (local agencies); and

**WHEREAS**, OCTA wishes to delegate authorization to execute these documents and any amendments thereto to Darrell E. Johnson, Chief Executive Officer; and

WHEREAS, OCTA wishes to implement the LCTOP projects listed above;

**NOW, THEREFORE, BE IT RESOLVED** by the OCTA Board of Directors (Board) that the fund recipient agrees to comply with all conditions and requirements set forth in the Certification and Assurances and the Authorized Agent documents and applicable statutes, regulations, and guidelines for all LCTOP-funded transit projects;

**NOW THEREFORE, BE IT FURTHER RESOLVED** that Darrell E. Johnson, Chief Executive Officer, or his designee, be authorized to execute all required documents of the LCTOP and any amendments thereto with Caltrans;

**NOW, THEREFORE, BE IT RESOLVED** by the OCTA Board that the fund recipient agrees to comply with all conditions and requirements set forth in applicable statutes, regulations, and guidelines for all LCTOP-funded transit projects;

**NOW, THEREFORE, BE IT FURTHER RESOLVED** by the OCTA Board hereby authorizes the submittal of the following project nomination and allocation request to Caltrans in fiscal year (FY) 2019-20 LCTOP funds:

Project Name: Ten Battery-Electric Buses; Bravo! 529 Rapid Bus Service Operations; Discounted Age-Based Fare Program; New College Pass Programs at Irvine Valley, Saddleback, Cypress and Coastline colleges; and travel training.

Amount of LCTOP funds requested: FY 2019-20 LCTOP funding at \$7,130,042.

**NOW, THEREFORE, BE IT FURTHER RESOLVED** by the OCTA Board hereby authorizes the submittal of the following project nomination and allocation request to Caltrans in fiscal year (FY) 2018-19 LCTOP funds:

Project Name: Metrolink Service Expansion, Battery Electric Buses, Bus Depot Upgrades, and Charging Infrastructure, and Bravo! Main Street Operations.

Amount of LCTOP funds requested: FY 2018-19 LCTOP funding at \$7,111,592.

Short Description of Projects:

# FY 2019-20 LCTOP funds:

- **Ten Battery-Electric Buses (\$2,594,886):** Combined with already approved funds, for Bravo! Main Street Capital the FY 2019-20 LCTOP funds will allow the purchase of ten battery-electric buses under the State of California General Services Administration's contract.
- **Bravo! 529 Rapid Bus Service Start-Up and Operations (\$1,470,913):** LCTOP funds will support up to an additional seven months for the Bravo! 529 Rapid Bus Service Start up and Operations Project operating primarily on Beach Boulevard from Fullerton Park-and-Ride to the Goldenwest Transportation Center and previously funded with FY 2017-18 LCTOP funds.
- **Discounted Age-Based Fare Program (\$2,000,000**): OCTA is proposing to offer free youth passes. The cost of lost revenue over four years is estimated to be \$2,000,000.
- New College Pass Programs at Irvine Valley, Saddleback, Cypress, and Coastline Colleges (\$749,243): The College Fare Program provides funding to OCTA to allow college students to ride free for one year and then cover the cost of ridership increases for the life of the program. The program will provide an incentive to a student enrollment fee to pay for future student use of the OC Bus.
- **Travel Training (\$315,000):** \$315,000 in FY 2019-20 LCTOP will be used to expand the Travel Training Program by increasing training opportunities.

# FY 2018-19 LCTOP Funds:

- Existing Project College Fare Programs at Fullerton, Santa Ana, and Golden West Colleges (\$1,000,000): The College Fare Program provides funding to OCTA to allow college students to ride free for one year and will cover the cost of ridership increases for the life of the program. The program will provide an incentive to a student enrollment fee to pay for future student use of the OC Bus.
- **Existing Project Travel Training (\$685,000)**: Travel training is available to seniors and disabled to assist in increasing ridership over the three-year period.

- Existing Project Battery electric buses, bus depot upgrades, and charging infrastructure for Bravo! Main Street Rapid Bus Service (\$2,523,000): LCTOP funds will provide match to other grant funds available for the purchase of five zero-emission buses for the new Bravo! Main Street Rapid Bus service, as well as provide funding for the required bus depot upgrades and charging infrastructure.
- Existing Project Bravo! Main Street Operations (\$2,912,976): LCTOP funds were approved for future Bravo! Main Street service operations. However, \$2,100,000 is now proposed for the Metrolink Service Expansion and \$812,976 is proposed for Bravo! 529 Rapid Bus Service Start-up and Operations.
- New Project Metrolink Service Expansion (\$2,100,000 in FY 2018-19 LCTOP funds): Starting in April 2020, expand Metrolink service on the Orange County line by up to two round trips between Laguna Niguel/Mission Viejo and Los Angeles Union Station, one round trip between the cities of Oceanside and Los Angeles, and up to two weekday round trips on the 91/Perris Valley Line between Perris-South and Los Angeles Union Station, via Fullerton.
- New FY 2017-18 Project Bravo! 529 Rapid Bus Start-up and Operations (\$812,976): LCTOP funds will support up to an additional four months for the Bravo! 529 Rapid Bus Service Start up and Operations Project operating primarily on Beach Boulevard from Fullerton Park-and-Ride to the Goldenwest Transportation Center and previously funded with FY 2017-18 LCTOP funds.

The projects will reduce greenhouse gas emissions, reduce automobile vehicle miles traveled and as applicable, reach over 50 percent of boardings from disadvantaged communities.

Contributing Sponsor: City of Laguna Beach

ADOPTED, SIGNED AND APPROVED this 23<sup>rd</sup> day of March 2020.

AYES:

NOES:

ABSENT:

ATTEST:

Laurena Weinert Clerk of the Board Steve Jones, Chairman Orange County Transportation Authority

OCTA Resolution No. 2020-002



Bus Transit Project											
			Fe	ederal Fun	ds	ļ	State Fund	s	L	ocal Fund	s
Project Title	M Code	<b>Total Funding</b>	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
Go Local - Step 1	S	\$5,730							\$5,730		
Mobile ticketing equipment	S	\$4,036						\$4,036			
Project V Community Circulators	V	\$43,659								\$43,659	
Project W Safe Transit Stops (City)	W	\$1,206								\$1,206	
Project W Safe Transit Stops (OCTA)	W	\$370								\$370	
ACCESS and fixed-route radio systems upgrade		\$22,465		\$4,434	\$341			\$16,239			\$1,451
Associated Transportation Improvements		\$556		\$556							
Bravo! 529 buses (six)		\$3,595	\$549					\$3,046			
Bus replacement - articulated alternative fuel buses (60')		\$31,105	\$22,250	\$8,855							
Bus replacement (40' and ACCESS)		\$149,009	\$29,198	\$68,139							\$51,672
Capital cost of contracting FY2016-17 to FY2023-24 (ACCESS and contracted fixed-route contracts)		\$325,734		\$162,114							\$163,620
Engine rebuild		\$16,294		\$14,824				\$1,470			
FTA Section 5310 Enhanced Mobility of Seniors & Individuals with Disabilities		\$3,657		\$3,657							
FTA Section 5316 Jobs Access and Reverse Commute		\$13,962		\$13,962							
FTA Section 5317 New Freedom		\$6,388		\$6,388							
Goldenwest Transportation Center parking structure		\$4,000	\$3,400								\$600
Goldenwest Transportation Center surface lot		\$2,000						\$1,200			\$800
Heating ventilation unit replacements		\$448		\$381			\$67				
iShuttle replacement buses (12)		\$6,803					\$6,123				\$680
iShuttle replacement buses (five)		\$2,800					\$2,520				\$280
MSRC County Transportation Commission Partnership Program		\$2,319				\$176					\$2,143
Non-fixed-route paratransit operations assistance - FY 2014-15 to FY 2023-24		\$294,861		\$102,395							\$192,466
OCTA Transit Security & Operations Center		\$5,914						\$5,914			
Preventive maintenance - including salaries and benefits (includes ATN & Laguna Beach)		\$162,740		\$162,740							
Purchase (201) 40-foot alternative fuel replacement buses (OCTA)		\$229,384	\$134,670	\$47,696							\$47,018
Purchase replacement paratransit vans (through FY 2023-24)		\$64,290		\$50,524							\$13,766
Rideshare/vanpool		\$6,732	\$6,732								
Standby backup generators at Anaheim and IRCC bases		\$800					\$800				
Transit Security Program		\$3,167						\$3,167			
Vanpool Program - capital lease		\$12,838	\$12,838								
VSS upgrades at OCTA facilities		\$1,159		\$960				\$199			
Zero-emission Bravo! buses (Ten battery electric) and bus infrastructure <sup>1</sup>		\$13,938					\$6,400	\$5,118			\$2,420
Zero-emission hydrogen fuel cell buses (10)		\$12,914					\$5,607	\$7,307			
Bus Transit Project Totals		\$1,454,873	\$209,637	\$647,625	\$341	\$176	\$21,517	\$47,696	\$5,730	\$45,235	\$476,916

ATTACHMENT C



#### Pending Board Approval - March 23, 2020

Bus Transit Project													
					Fe	deral Fur	nds		State Fund	ls		Local Fund	ls
	Project Title		M Code	Total Funding	STBG/CMAQ	FTA	Other Fed.	STIP	SB1	Other State	M1	M2	Other Local
Federal Funding Total	\$857,603												
State Funding Total	\$69,389												
Local Funding Total	\$527,881												
Total Funding (000's)	\$1,454,873												

**Board Actions:** 

1. Authorize the use of up to \$2.595 million in Low Carbon Transit Operations Program for Bravo! Main Street/Ten Battery-Electric Buses. Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (\$1.520 million) and

Volkswagen Environmental Mitigation Trust (\$0.900 million) are included under Other Local.

#### Acronyms:

ATN - Anaheim Transportation Network Board - Board of Directors CMAQ - Congestion Mitigation and Air Quality Improvement Program FTA - Federal Transit Administration FY - Fiscal Year IRCC - Irvine Construction Circle M Code - Project Codes in Measure M1 and M2 M1 - Measure M1 M2 - Measure M1 M2 - Measure M2 MSRC - Mobile Source Air Pollution Reduction Review Committee OCTA - Orange County Transportation Authority SB 1 - Senate Bill 1 (Chapter 5, Statutes of 2017) STBG - Surface Transportation Block Grant STIP - State Transportation Improvement Program VSS - Video Surveillance System



March 23, 2020

То:	Members of the Board of Directors
From:	Laurena Weinert, Clerk of the Board
Subject:	Agreement for Asphalt Pavement Replacement at the Fullerton Park and Ride

Transit Committee Meeting of March 12, 2020

Present:	Directors Do, Davies, Jones, Shaw, and Sidhu
Absent:	Directors Pulido and Winterbottom

#### **Committee Vote**

This item was passed by the Members present.

#### **Committee Recommendations**

- A. Find PaveWest, Inc., the apparent low bidder, as non-responsive for failure to meet the federal requirement for Disadvantaged Business Enterprise participation.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1796 between the Orange County Transportation Authority and Onyx Paving Company, Inc., the lowest responsive, responsible bidder, in the amount of \$210,000, for asphalt pavement replacement at the Fullerton Park and Ride.



### March 12, 2020

То:	Transit Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Agreement for Asphalt Pavement Replacement at the Fullerton

# Overview

Park and Ride

As part of the Orange County Transportation Authority Fiscal Year 2019-20 Budget, the Board of Directors approved asphalt pavement replacement at the Fullerton Park and Ride. Bids were received in accordance with the Orange County Transportation Authority's public works procurement procedures. Approval from the Board of Directors is requested to execute the agreement.

#### Recommendations

- A. Find PaveWest, Inc., the apparent low bidder, as non-responsive for failure to meet the federal requirement for Disadvantaged Business Enterprise participation.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1796 between the Orange County Transportation Authority and Onyx Paving Company, Inc., the lowest responsive, responsible bidder, in the amount of \$210,000, for asphalt pavement replacement at the Fullerton Park and Ride.

#### Discussion

The Orange County Transportation Authority (OCTA) completed construction of the Fullerton Park and Ride facility in 1981. OCTA needs to replace a portion of deteriorated asphalt pavement in the Fullerton Park and Ride parking lot. The project scope covers two parking bays and includes removal of existing asphalt pavement, preparing subgrade material, placement of aggregate base and new asphalt pavement, striping, traffic control, safety compliance, and related work. The asphalt pavement replacement is necessary to maintain the Fullerton Park and Ride in a state of good repair for public use.

#### Procurement Approach

This procurement was handled in accordance with OCTA's Board of Directors-approved procedures for public works projects. These procedures, which conform to both federal and state requirements, require that contracts are awarded to the lowest responsive, responsible bidder after a sealed bidding process.

Invitation for Bids (IFB) 9-1796 was electronically released on January 7, 2020, through OCTA's CAMM NET system. The project was advertised on January 7 and 13, 2020, in a newspaper of general circulation. A pre-bid conference and job walk was held on January 14, 2020, and was attended by 11 firms. Three addenda were issued to provide the pre-bid conference registration sheets and handle administrative issues related to the IFB. On February 4, 2020, 11 bids were received and publicly opened.

All bids were reviewed by staff from both the Contracts Administration and Materials Management and Facilities Engineering departments to ensure compliance with the technical specifications and contract terms and conditions. The list of bidders and bid amounts is presented below:

Firm and Location	<u>Bid Amount</u>
PaveWest, Inc. Artesia, California 90701	\$207,892
Onyx Paving Company, Inc. Anaheim, California 92806	\$210,000
Superior Paving Company, Inc., dba United Paving Co. Corona, California 92879	\$222,467
Ben's Asphalt, Inc. Santa Ana, California 92704	\$231,444
All American Asphalt Corona, California 92879	\$239,239
Century Paving, Inc. La Mirada, California 90638	\$249,875
Prestige Striping Services, Inc., dba Prestige Paving Co. Corona, California 92882	\$254,802

# Agreement for Asphalt Pavement Replacement at the FullertonPage 3Park and Ride

R.J. Noble Company Orange, California 92865	\$258,493
PALP, Inc., dba Excel Paving Company Long Beach, California 90806	\$268,227
Roadway Engineering & Contracting, Inc. Fontana, California 92337	\$392,400
Aid Builders, Inc. Los Alamitos, California 90720	\$465,000

The apparent low bidder, PaveWest, Inc., was found non-responsive due to failure to comply with the required Disadvantaged Business Enterprise participation requirements in accordance with regulations from the United States Department of Transportation, which is providing funding for the project.

The recommended firm's bid is 55 percent below the engineer's estimate of \$470,000. The total bid amount is fair and reasonable as it appears that the bidder is considering the use of recycled asphalt and aggregate base products allowed in the specifications. The independent cost estimate is not based on recycled use of these products. Onyx Paving Company, Inc. (Onyx), met the requirements of the IFB, as well as all federal and state requirements.

State law requires award to the lowest responsive, responsible bidder. As such, staff recommends award to Onyx, the lowest responsive, responsible bidder, in the amount of \$210,000, for asphalt pavement replacement at the Fullerton Park and Ride.

#### Fiscal Impact

The project was approved in OCTA's Fiscal Year 2019-20 Budget, Capital Programs Division, Account No. 1722-9022-D3139-TX3, and is funded by a grant from the Federal Transit Administration 5337 State of Good Repair Program, Account No. 0030-6041-D3139-MJR.

#### Summary

Based on the information provided, staff recommends the Board of Directors authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1796 between the Orange County Transportation Authority and Onyx Paving Company, Inc., the lowest responsive, responsible bidder, in the amount of \$210,000, for asphalt pavement replacement at the Fullerton Park and Ride.

# Agreement for Asphalt Pavement Replacement at the FullertonPage 4Park and Ride

#### Attachment

None.

Prepared by:

George Olivo, P.E. Program Manager (714) 560-5872

ligenia Abadessa

Virginia Abadessa Director, Contracts Administration and Materials Management (714) 560-5623

Approved by:

SAL

James G. Beil, P.E. Executive Director, Capital Programs (714) 560-5646



March 23, 2020

To:	Members of the Board of Directors
	Rut
From:	Laurena Weinert, Clerk of the Board

Subject: Selection of Consultants for On-Call Architectural and Engineering Design and Construction Support Services for Transit Facility Projects

Transit Committee Meeting of March 12, 2020

Present:	Directors Do, Davies, Jones, Shaw, and Sidhu
Absent:	Directors Pulido and Winterbottom

# Committee Vote

This item was passed by the Members present.

# **Committee Recommendations**

- A. Approve the selection of Stantec Architecture, Inc., Gannett Fleming, Inc., IBI Group, Dahl, Taylor and Associates, Inc., and IDS Group, Inc., as the firms to provide on-call architectural and engineering design and construction support services for transit facility projects.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1599 between the Orange County Transportation Authority and Stantec Architecture, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- C. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2111 between the Orange County Transportation Authority and Gannett Fleming, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- D. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2112 between the Orange County Transportation Authority and IBI Group, to provide on-call architectural and engineering services for three years and one, two-year option term.



#### **Committee Recommendations (Continued)**

- E. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2113 between the Orange County Transportation Authority and Dahl, Taylor and Associates, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- F. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2114 between the Orange County Transportation Authority and IDS Group, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.



#### March 12, 2020

То:	Transit Committee	mil
From:	Darrell E. Johnson, Chief Executive Officer	Dane go

Subject: Selection of Consultants for On-Call Architectural and Engineering Design and Construction Support Services for Transit Facility Projects

#### Overview

On October 28, 2019, the Orange County Transportation Authority Board of Directors authorized the issuance of a request for proposals for consultants to provide on-call architectural and engineering design and construction support services for transit facility projects. Approval from the Board of Directors is requested for the selection of the firms to perform the required work.

#### Recommendations

- A. Approve the selection of Stantec Architecture, Inc., Gannett Fleming, Inc., IBI Group, Dahl, Taylor and Associates, Inc., and IDS Group, Inc., as the firms to provide on-call architectural and engineering design and construction support services for transit facility projects.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1599 between the Orange County Transportation Authority and Stantec Architecture, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- C. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2111 between the Orange County Transportation Authority and Gannett Fleming, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- D. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2112 between the Orange County Transportation Authority and IBI Group, to provide on-call architectural and engineering services for three years and one, two-year option term.

#### Selection of Consultants for On-Call Architectural and Page 2 Engineering Design and Construction Support Services for Transit Facility Projects

- E. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2113 between the Orange County Transportation Authority and Dahl, Taylor and Associates, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.
- F. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-0-2114 between the Orange County Transportation Authority and IDS Group, Inc., to provide on-call architectural and engineering services for three years and one, two-year option term.

#### Discussion

The Orange County Transportation Authority (OCTA) owns, operates, and maintains five bus maintenance and operations bases, two park-and-ride facilities, and five transportation centers. The facilities are comprised of 56 buildings and structures totaling over 400,000 square feet and are situated on approximately 89 acres of property throughout Orange County.

Architectural and engineering (A&E) design and construction support services for capital improvements, maintenance projects, facility modifications, and other projects as requested will be necessary to maintain OCTA's transit facilities in a state of good repair. Typical facility projects include repair and/or installation of heating, ventilation, and air conditioning systems, parking lot asphalt and striping, bus fueling systems, and modifications to comply with the Americans with Disabilities Act.

The current on-call agreements were established in 2014 and are scheduled to expire on November 30, 2020. Services provided through the new A&E agreements will be requested on an as-needed basis and authorized through the issuance of contract task orders (CTO's) on a rotational basis. Each CTO will include a site-specific statement of work, staffing plan, project duration, documentation of the agreed-upon price, and any other information that may be required to perform the services.

#### Procurement Approach

This procurement was handled in accordance with Board of Directors (Board)-approved procedures for A&E services that conform to both federal and state laws. Proposals are evaluated and ranked in accordance with the qualifications of the firm, staffing and project organization, and work plan. As this is a procurement for A&E services, price is not an evaluation criterion

#### Selection of Consultants for On-Call Architectural and Page 3 Engineering Design and Construction Support Services for Transit Facility Projects

pursuant to federal and state laws. Evaluation of the proposals was conducted based on overall qualifications to develop a competitive range of offerors. The recommended firms are requested to submit cost proposals, and the final agreements are negotiated. The awarded contracts will have a three-year term and one, two-year option term.

The Board authorized the release of Request for Proposals (RFP) 9-1599 on October 28, 2019, which was electronically issued on CAMM NET. The RFP was advertised in a newspaper of general circulation on October 28 and November 4, 2019. A pre-proposal conference was held on November 5, 2019, with 25 attendees representing 20 firms. Two 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 December 3, 2019, ten proposals were received. An evaluation committee consisting of staff from the Contracts Administration and Materials Management, Facilities Engineering, Facilities Maintenance, Rail Programs, and Scheduling and Bus Operations Support departments met to review all submitted proposals. The proposals were evaluated based on the following Board-approved evaluation criteria and weightings:

•	Qualifications of the Firm	35 percent
•	Staffing and Project Organization	40 percent
•	Work Plan	25 percent

The evaluation criteria are consistent with the weighting developed for similar A&E services procurements. OCTA staff assigned the greatest importance to staffing and project organization, as the qualifications of the project managers and task leaders are critical to successful completion of the individual CTOs. The next level of importance was given to the qualifications of the firm, since the ability of the firms to perform and support a variety of design projects ensures delivery of effective services. The firm's work plan was weighted lower, as a specific scope of work is defined in each CTO issued. Firms will be evaluated based on a broad understanding of the approach to project management for effective execution of the CTO's.

#### Selection of Consultants for On-Call Architectural and Page 4 Engineering Design and Construction Support Services for **Transit Facility Projects**

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

Firms and Location

Dahl, Taylor and Associates, Inc. (Dahl) Santa Ana, California

> Gannett Fleming, Inc. (Gannett) Irvine, California

> > IBI Group (IBI) Irvine, California

IDS Group, Inc. (IDS) Irvine. California

Stantec Architecture Inc. (Stantec) Irvine, California

Representatives from the five firms were interviewed by the evaluation committee on January 23, 2020. The interviews included a presentation from each firm to discuss its gualifications and respond to guestions from the evaluation committee. Questions were asked relative to each firm's approach for addressing operational needs during project design, cost estimating methodology, and the experience and qualifications of personnel proposed for cost estimating. Firms were asked about how any unforeseen conditions would be addressed during design and construction, and the approach to developing proposals in response to task order proposal requests. Each firm was also asked specific questions to clarify its proposal and/or interview responses.

Based on the final scores, as well as the evaluation of written proposals and information obtained from the interviews, the evaluation committee recommends all five firms for award. Stantec, Gannett, IBI, Dahl, and IDS are all qualified firms with prior experience working with public agencies and are familiar with design projects for transit facilities. The firms demonstrate a sound and thorough understanding of the scope of work and are capable of supporting OCTA's needs. Brief summaries of the evaluation results of the recommended firms follow.

#### Qualifications of the Firm

All five recommended firms have demonstrated direct relevant experience in working with transit facility projects that are similar to those included in this scope of work. These firms are multi-disciplined performing civil, mechanical, electrical, and structural work. Each firm demonstrated the capabilities to perform varied transit design and upgrade projects. All five firms have proven experience providing similar services to OCTA, public agencies or other transit agencies, such as Foothill Transit, Long Beach Transit, and/or the Los Angeles County Metropolitan Transportation Authority.

#### Staffing and Project Organization

All firms have adequate staff resources to support on-call services. The proposed teams from each recommended firm have experience that represents various disciplines to support OCTA's broad range of projects for the next three years. The staff of each firm was familiar with the local agencies that have jurisdiction over OCTA's projects and the local permitting processes. Interviews with the firms validated staff credentials and ability to support the varied projects.

The project managers and key personnel proposed by the recommended firms, along with the subconsultant teams, are all qualified and demonstrate extensive knowledge of transit facility projects. The project managers and subcontractors proposed by the recommended firms are experienced and qualified to serve and assist OCTA in facility modification projects and provide the required support services during construction.

#### Work Plan

The work plan proposed by all the recommended firms conformed to the scope of work identified in the RFP. The firms demonstrated an understanding of the on-call process and showed familiarity with the approach to deliver the work, once it is awarded. In the proposals, the firms demonstrated the ability to prepare the specifications, drawings, and cost estimates for similar projects, as well as manage project schedules and budgets. The firms also elaborated on typical problems encountered on a construction project and solutions for mitigating those problems. In the interview, each firm's quality control processes were discussed, as well as how those processes would assist during the site investigation prior to final design to minimize construction change orders.

#### Procurement Summary

Based on the evaluation of the written proposals, the qualifications of each firm's team, and information obtained during the interviews, the evaluation committee recommends award of contracts to Stantec, Gannett, IBI, Dahl, and IDS. All five recommended firms have relevant and recent experience in transit facility modification projects and can meet the requirements of the RFP. The teams assembled by the firms consist of highly qualified staff in providing design and construction support services for transit facility modification projects and have prior experience with public agencies. The firms demonstrated a sound and thorough understanding of the scope of work and are capable of supporting OCTA's requirements.

#### Fiscal Impact

Funding for these services is included in both OCTA's Fiscal Year 2019-20 Budget, Capital Programs, Account 1722-7629-D3107-2BT, and will be funded through local transportation funds. Funding will continue to be included in future budget years under the same account.

#### Summary

Staff requests Board of Directors' approval for the Chief Executive Officer to negotiate and execute agreements with Stantec Architecture Inc.; Gannett Fleming, Inc.; IBI Group; Dahl, Taylor and Associates, Inc.; and IDS Group, Inc. to provide on-call architectural and engineering design and construction support services for transit facility projects for a three-year term with one, two-year option term.

#### Selection of Consultants for On-Call Architectural and Page 7 Engineering Design and Construction Support Services for Transit Facility Projects

#### **Attachments**

- A. Review of Proposals RFP 9-1599 On-Call Architectural and Engineering Design and Construction Support Services for Transit Facility Projects
- B. Proposal Evaluation Criteria Matrix (Short-Listed Firms) RFP 9-1599 On-Call Architectural and Engineering Design and Construction Support Services for Transit Facility Projects
- C. Contract History for the Past Two Years RFP 9-1599 On-Call Architectural and Engineering Design and Construction Support Services for Facility Modification Projects

#### Prepared by:

Nhatran Phi Do, P.E. Project Manager, Capital Programs 714-560-5831

Virginia Abadessa

Virginia Abadessa Director, Contracts Administration and Materials Management 714-560-5623

Approved by:

In

James G. Beil, P.E. Executive Director, Capital Programs 714-560-5646

RFP 9-1599 On-Call Architectural and Engineering Design and Construction Support Services for Transit Facility Projects Presented to Transit Committee - March 12, 2020

10 proposals were received, 5 firms were interviewed, 5 firms are being recommended.

Overall Ranking	Overall Score	Firm & Location	Subcontractors	Evaluation Comments
~	8	Stantec Architecture Inc. Irvine, California	Coast Surveying, Inc. Diaz Yourman & Associates Fuel Solutions, Inc. Jacobus & Yuang, Inc. Miyamoto International, Inc. PBS Engineers, Inc. Psomas	Highest-ranked overall proposal. Relevant experience as a prime with transit projects at Orange County Transportation Authority (OCTA) and other transit agencies. Prime consultant is a multi-disciplined firm. Demonstrated qualifications and depth of experience. Proposed same key personnel as on current agreement. Defendentrated understanding of work plan tasks with discussion of quality control. Detemonstrated understanding of work plan tasks with discussion of quality control. Incumbent on-call firm.
2	82	Gannett Fleming, Inc. Irvine, California	AZTEC Engineering Group, Inc. Coast Surveying, Inc. Comerstone Solutions, Inc. Diaz Yourman & Associates Fuel Solutions, Inc. Group Delta Consultants, Inc. Lenax Construction Services, Inc. PacRim Engineering, Inc. Sapphos Environmental, Inc. Simpson Gumpertz & Heger, Inc. Systra Consulting, Inc.	Second-ranked proposal. Experienced as the prime consultant for various transit facility and on-call public agency design and construction support contracts. Prime consultant is a multi-disciplined firm. Lengthy relationship with numerous subconsultants. Team with capabilities across relevant disciplines and experience performing similar services for transit facility projects. Work plan addressed potential issues during design and construction and identified potential solutions. Interview demonstrated the firm's knowledge and experience.
m	8	IBI Group Irvine, California	ICF Jones & Stokes Jensen Hughes Mark Thomas Miyamoto International, Inc. OCMI, Inc. Psomas RockSol Consulting Group, Inc. Tri ASC Triurity, Inc.	Third-ranked proposal. Successfully performed similar tasks for OCTA and for other public agencies. Prime consultant is a multi-disciplined firm. The consultant is a multi-disciplined firm. Prime and has OCTA and transit gency expense providing similar services for transit facility, transportation center, operations and maintenance facility, and park-and-ride projects, including on-call contracts. Detailed work plan demonstrated an understanding of the on-call process. Work plan included a management system for successful project delivery.
4	80	Dahl, Taylor and Associates, Inc. Santa Ana, California	ABS Consulting, Inc. Guida Surveying, Inc. KOA Corporation Lynn Capouya, Inc. NMG Geotechnical, Inc. Stern Architects, Inc.	Fourth-ranked proposal. Experienced as prime consultant for various transit facilities projects. Prime consultant is a multi-disciplined firm. Prime and subconsultant personnel have recent and relevant experience performing similar tasks on a wide range of similar projects. Workplan includes specific management process addressing entirety of contract task order tasks. Interview demonstrated the depth of the team's experience with clarification of commitment of key personnel. Incerview demonstrated firm.
ю	62	IDS Group, Inc. Irvine, California	Exante 360 LLC Group Delta Consultants, Inc. NUVIS	Fifth-ranked proposal. Recent, relevant experience as the prime consultant providing similar services for various transit facilities and other public agency projects. Prime consultant is a multi-disciplined firm. Team has statensive experience providing similarscope services. Work plan details emphasis on quality control, budget, and schedule management. Interview clarified the team's understanding of the requirements of the scope of work.
Evaluation Panel (5. Internal: Contracts Administrat Facilities Engineering Facilities Maintenance Scheduling and Bus C Rail Programs (1)	members) ion and Mate (1) ⇒ (1) Dperations St	erials Management (1) Jupport (1)	<u>Evaluation Criteria</u> Qualifications of the Firm Staffing and Project Organization Work Plan	<u>Weight Factors</u> 35 percent 25 percent

# **ATTACHMENT A**

#### PROPOSAL EVALUATION CRITERIA MATRIX (Short-Listed Firms) RFP 9-1599 On-Call Architectural and Engineering Design and Construction Support Services for Transit Facility Projects

Stantec Architecture Inc.							
Evaluator Number	1	2	3	4	5	Weights	Criteria Score
Qualifications of Firm	4.0	4.5	4.0	4.5	4.5	7	30.1
Staffing/Project Organization	4.0	4.0	4.0	4.0	4.5	8	32.8
Work Plan	4.0	4.0	4.0	4.0	4.0	5	20.0
Overall Score	80	84	80	84	88		83
			+	•		÷	
Gannett Fleming, Inc.							
Evaluator Number	1	2	3	4	5	Weights	Criteria Score
Qualifications of Firm	4.0	4.5	4.5	4.5	4.5	7	30.8
Staffing/Project Organization	4.0	4.0	4.0	4.0	4.5	8	32.8
Work Plan	4.0	3.5	4.0	3.5	3.5	5	18.5
Overall Score	80	81	84	81	85		82
		•	+			+	
IBI Group							
Evaluator Number	1	2	3	4	5	Weights	Criteria Score
Qualifications of Firm	3.5	4.0	3.5	4.0	3.5	7	25.9
Staffing/Project Organization	4.0	4.5	4.0	4.5	4.0	8	33.6
Work Plan	4.0	4.5	4.0	4.5	4.5	5	21.5
			1				
Overall Score	77	87	77	87	79		81
				·		·	
Dahl, Taylor and Associates, Inc.							
Evaluator Number	1	2	3	4	5	Weights	Criteria Score
Qualifications of Firm	4.0	4.0	4.0	4.5	4.5	7	29.4
Staffing/Project Organization	4.0	4.0	4.0	4.0	4.0	8	32.0
Work Plan	3.5	4.0	3.5	4.0	4.0	5	19.0
			1				
Overall Score	78	80	78	84	84		80
						·	
IDS Group, Inc.							
Evaluator Number	1	2	3	4	5	Weights	Criteria Score
Qualifications of Firm	4.5	4.0	4.0	4.5	4.5	7	30.1
Staffing/Project Organization	4.0	4.0	4.0	4.0	4.5	8	32.8
Work Plan	3.0	3.0	4.0	3.0	3.0	5	16.0
Overall Score	79	75	80	79	83		79
The range of s	scores for	the non-s	short list	ed firms	was 54	<b>1</b> -72.	

**CONTRACT HISTORY FOR THE PAST TWO YEARS** 

RFP 9-1599 On-Call Architectural and Engineering Design and Construction Support Services for Facility Modification Projects

Prime and Subconsultants	Contract No.	Description	Contract Start Date	Contract End Date	Subconsultant Amount	Total Contract Amount
Stantec						
Contract Type: Time and Expense	C-9-1100	Zero Emission Bus Requirements	October 16, 2019	June 30, 2020		\$ 150,000
Subconsultants:						
Cutric Firel Solutions Inc						
Jacobus & Yuang, Inc.						
Contract Type: Contract Task Order	A41134	Light Pole and Luminaire Replacement at Golden West Transportation Center	December 10, 2018	August 31, 2020		\$ 71,255
Subconsultant: Jacobus & Yuana. Inc.					\$ 8.369	
Contract Type: Firm Fixed Price	C-8-1409	Updates to Interstate 5 Frequency Operational Model	March 22, 2018	December 31, 2018		\$ 47,000
Subconsultant: Counts Unlimited. Inc.					\$ 2.300	
Contract Type: Time and Expense	C-7-2023	On-Call Traffic and Revenue Forecasting Services for the 91 Express Lanes	January 24, 2018	December 31, 2020		' ب
Subconsultant:						
WSP						
Contract Type: Contract Task Order	A38370	Fullerton Transportation Center Revitalization	November 6, 2017	December 31, 2020		\$ 143,995
Glumaria					808.6	
Jacobus & Yuang, Inc.					\$ 14,599	
Psomas					\$ 36,901	
Contract Type: Time and Expense	C-6-1375	Review of Comprehensive Transportation Funding Program Applications	October 4, 2016	January 31, 2019		\$ 50,000
Subconsultants: none						
Contract Type: Firm Fixed Price	C-5-3781	Conceptual Station and Urban Design Plans for the Orange County Streetcar Project	June 22, 2016	June 30, 2018		\$ 265,078
Subconsultants:						
AHBE Landscape Architects					\$ 44,862	
SKA Design					\$ 24,205	
Contract Type: Time and Expense	C-3-1522	On-Call Transportation Planning and Support Services	September 29, 2013	June 30, 2018		۰ ج
Subconsultants:						
ICF						
Group Delta Consultants, Inc. Overland Pacific and Cutter Inc.						
Psomara, radio, and card, no.						
Warner Transportation Consulting						
Contract Type: Contract Task Order	A29099	Bake Parkway Traffic Signal Synchronization Project	June 18, 2013	June 30, 2019		\$ 623,847
Subconsultants: none						
Contract Type: Contract Task Order	A26006	Rancho Santa Margarita Parkway Traffic Signal Synchronization Project	June 18, 2013	December 31, 2018		\$ 351,749
Subconsultants: none						
				Sub Total		\$ 1,702,924

# **ATTACHMENT C**

Prime and Subconsultants	Contract No.	Description	Contract Start Date	Contract End Date	Subconsultant Amount	Total Contract Amount
Gannett Fleming, Inc.						
Contract Type: Firm Fixed Price	C-9-1143	Preliminary Engineering and Environmental Services for the Metrolink Orange County Maintenance Facility	TBD	TBD		TBD
Subconsultants:						
AECOM						
Arellano Associates						
Diaz Consultants, Inc.						
Psomas						
WKE, Inc.						
Zephyr						
				Sub Total		' \$
Prime and Subconsultants	Contract No.	Description	Contract Start Date	Contract End Date	Subconsultant Amount	Total Contract Amount
IBI Group						
Contract Type: Firm Fixed Price	C-9-1370	Evaluate Paratransit Business Models and Contract Structures	June 26, 2019	December 31, 2019		\$ 49,874
Subconsultants: none						
Contract Type: Time and Expense	C-8-1967	Professional Support for Regional Planning Activities	February 22, 2019	February 28, 2022		\$ 200,000
Subconsultants:						
Michael Baker International						
Contract Type: Firm Fixed Price	C-8-1517	Joint Development Study at Fullerton Park and Ride	June 5, 2018	June 30, 2020		\$ 159,798
Subconsultants:						
Economic and Planning Systems					\$ 39,270	
VCA Engineers, Inc.					\$ 18,500	
Contract Type: Firm Fixed Price	C-6-1417	Active Transportation Plan	February 14, 2017	December 31, 2018		\$ 350,000
Subconsultants:						
Arellano Associates					\$ 65,460	
KTUA					\$ 74,100	
Placeworks					\$ 26,420	
				Sub Total		\$ 759,672

Prime and Subconsultants	Contract No.	Description	Contract Start Date	Contract End Date	Subconsultant Amount	Total Contract Amount
Dahl, Taylor and Associates, Inc.						
Contract Type: Contract Task Order	A43918	Battery Electric Car Charging Systems at Santa Ana and Garden Grove Bus Bases	December 9, 2019	December 31, 2020		\$ 196,439
Subconsultants:						
Stantec					\$ 18,207	
Stern Architects, Inc.					\$ 19,105	
		Electrical Inspection and Verification Services for Hvdrogen Fueling Station at Santa Ana Bus				
Contract Type: Contract Task Order	A41731	Base	February 28, 2019	December 31, 2020		\$ 34,356
Subconsultants: none						
		Standby Generators at Anaheim and Irvine				
Contract Type: Contract Task Order	A41537	Construction Circle Bus Bases	February 11, 2019	December 31, 2020		\$ 191,541
Subconsultants: none						
		Pedestrian Access to Operations Building at				
Contract Type: Contract Task Order	A38467	Santa Ana Bus Base	December 13, 2017	December 31, 2020		\$ 93,550
Subconsultants:						
Stantec					\$ 12,290	
Stern Architects, Inc.					\$ 33,695	
				Sub Total		\$ 515,886
Prime and Subconsultants	Contract No.	Description	Contract Start Date	Contract End Date	Subconsultant Amount	Total Contract Amount
IDS Group, Inc.						
Contract Type:		No contracts awarded				
				Sub Total		\$



March 23, 2020

То:	Members of the Board of Directors
From:	Laurena Weinert, Clerk of the Board
Subject:	Agreement for Installation of Monitoring Wells at Garden Grove Bus Base

Transit Committee Meeting of March 12, 2020

Present:	Directors Do, Davies, Jones, Shaw, and Sidhu
Absent:	Directors Pulido and Winterbottom

#### Committee Vote

This item was passed by the Members present.

#### **Committee Recommendation**

Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1595 between the Orange County Transportation Authority and Core Probe International, Inc., the lowest responsive, responsible bidder, in the amount of \$91,000, for the installation of monitoring wells at the Garden Grove Bus Base.



#### March 12, 2020

То:	Transit Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Agreement for Installation of Monitoring Wells at the Garden Grove Bus Base

#### Overview

Monitoring wells are required to be installed at the Garden Grove Bus Base at the direction of the Regional Water Quality Control Board. Bids for construction of the monitoring wells were received in accordance with the Orange County Transportation Authority's public works procurement procedures. Approval from the Board of Directors is requested to execute the agreement.

#### Recommendation

Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1595 between the Orange County Transportation Authority and Core Probe International, Inc., lowest responsive. the responsible bidder, in the amount of \$91,000, for the installation of monitoring wells at the Garden Grove Bus Base.

#### Discussion

In November 2017, the Board of Directors (Board) approved the agreement for removal of liquefied natural gas (LNG) storage tanks at the Anaheim and Garden Grove bus bases. The LNG tank removal project was completed in December 2018; however, during removal of the LNG tanks at the Garden Grove Bus Base, petroleum hydrocarbons were detected in the soil at one end of the LNG tank excavation. The Orange County Health Care Agency referred the matter to the State of California Santa Ana Regional Water Quality Control Board (Water Board), and the project is required to comply with regulations set by the Water Board. After meeting with the Water Board, staff developed a work plan to install five monitoring wells and one vapor extraction well at the Garden Grove Bus Base to obtain and report data as required by the Water Board. The monitoring wells will remain in place for one year, during which time data will be reported to the Water Board.

#### Procurement Approach

This procurement was handled in accordance with the Orange County Transportation Authority's (OCTA) approved procedures for public works projects. These procedures, which conform to both state and federal requirements, require that contracts are awarded to the lowest responsive, responsible bidder after a sealed bidding process.

Invitation for Bids (IFB) 9-1595 was released on November 14, 2019, through OCTA's CAMM NET system. The project was advertised on November 14 and 18, 2019, in a newspaper of general circulation. A pre-bid conference and job walk for contractors was held on November 20, 2019, and was attended by seven firms. Two addenda were issued to provide the pre-bid conference registration sheets and handle administrative issues related to the IFB. On December 20, 2019, a single bid from Core Probe International, Inc., in the amount of \$91,000, was received and publicly opened.

The bid was reviewed by staff from both the Contracts Administration and Materials Management (CAMM) and Facilities Engineering departments to ensure compliance with technical specifications and the contract terms and conditions.

The recommended firm's bid is 52 percent below the engineer's estimate of \$172,080 for this project. The engineer's estimate included costs for three full days of labor and equipment for drilling, including soil vapor extraction equipment and steel casing for the five wells. Staff conducted a review and assessment of the bid. The analysis concluded that the bidder's means and methods assumed a shorter duration for the drilling and soil vapor extraction, resulting in the variance. The bid includes all of the required work components and has been determined to be fair and reasonable. Core Probe International, Inc., met the requirements of the IFB, as well as all federal and state requirements.

In accordance with OCTA's procurement policies and procedures, a single bid requires OCTA's Internal Audit Department to conduct a review to determine if there was adequate competition. The Internal Audit Department determined that the procurement was handled in a fair and competitive manner. In addition, CAMM contacted several firms that downloaded the IFB from OCTA's CAMM NET website, but ultimately did not submit bids. The reasons provided by these firms for not submitting a bid included not having expertise in the scope of work, exploring other potential bidding opportunities at the same time as the IFB, or experiencing resource constraints.

#### Agreement for Installation of Monitoring Wells at the Page 3 Garden Grove Bus Base

State law requires award to the lowest responsive, responsible bidder. As such, staff recommends award to Core Probe International, Inc., the lowest, responsive, responsible bidder, in the amount of \$91,000, for the installation of monitoring wells at the Garden Grove Bus Base.

#### Fiscal Impact

The project was approved in OCTA's Fiscal Year 2019-20 Budget, Capital Programs, Account 1722-9022-D1401-0ME, and is funded by Federal Transit Administration 5337 State of Good Repair Grant Funds, Account 0030-6049-D3120-MJK.

#### Summary

Based on the information provided, staff recommends the Board of Directors authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1595 between the Orange County Transportation Authority and Core Probe International, Inc., the lowest responsive, responsible bidder, in the amount of \$91,000, for the installation of monitoring wells at the Garden Grove Bus Base.

#### Attachment

None.

#### Prepared by:

George Olivo, P.E. Program Manager (714) 560-5872

Virginia Aladema

Virginia Abadessa Director, Contracts Administration and Materials Management (714) 560-5623

Approved by:

Space

James G. Beil, P.E. Executive Director, Capital Programs (714) 560-5646



March 23, 2020

**To:** Members of the Board of Directors  $\mathcal{J}_{L}$ 

**From:** Laurena Weinert, Clerk of the Board

Subject: Agreement for Replacement of Heating, Ventilation, and Air Conditioning Units at the Garden Grove Bus Base Maintenance Building

Transit Committee Meeting of March 12, 2020

Present:	Directors Do, Davies, Jones, Shaw, and Sidhu
Absent:	Directors Pulido and Winterbottom

# Committee Vote

This item was passed by the Members present.

#### **Committee Recommendations**

- A. Find GM Climate Control, Inc., the apparent low bidder, as non-responsive for failure to meet the federal requirement for Disadvantaged Business Enterprise participation.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1696 between the Orange County Transportation Authority and Golden Gate Steel, Inc., doing business as Golden Gate Construction, the lowest responsive, responsible bidder, in the amount of \$254,250, for the replacement of heating, ventilation, and air conditioning units at the Garden Grove Bus Base maintenance building.


#### March 12, 2020

- To: Transit Committee
- From: Darrell E. Johnson, Chief Executive Officer
- **Subject:** Agreement for Replacement of Heating, Ventilation, and Air Conditioning Units at the Garden Grove Bus Base Maintenance Building

#### Overview

As a part of the Orange County Transportation Authority's Fiscal Year 2019-20 Budget, the Board of Directors approved the replacement of heating, ventilation, and air conditioning units at the Garden Grove Bus Base maintenance building. Bids were received in accordance with the Orange County Transportation Authority's public works procurement procedures. Approval from the Board of Directors is requested to execute the agreement.

#### **Recommendations**

- A. Find GM Climate Control, Inc., the apparent low bidder, as non-responsive for failure to meet the federal requirement for Disadvantaged Business Enterprise participation.
- B. Authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1696 between the Orange County Transportation Authority and Golden Gate Steel, Inc., doing business as Golden Gate Construction, the lowest responsive, responsible bidder, in the amount of \$254,250, for the replacement of heating, ventilation, and air conditioning units at the Garden Grove Bus Base maintenance building.

#### Discussion

The Orange County Transportation Authority (OCTA) completed construction of the Garden Grove Bus Base in 1976. The heating, ventilation, and air conditioning (HVAC) units serving the maintenance building's second floor offices and conference rooms were originally installed in 1991 as part of a facility modification project. The HVAC units were last replaced in 2006, and each unit

# Agreement for Replacement of Heating, Ventilation, and AirPage 2Conditioning Units at the Garden Grove Bus Base MaintenanceBuilding

has exceeded its useful life and requires replacement. The project scope includes replacement of three HVAC units, installation of seismic-rated equipment curbs and related modification of supports, electrical disconnect switches, natural gas valves and piping, roof repair, and related work in the active maintenance building work environment. The HVAC equipment replacement is necessary and will increase energy efficiency and provide an improved work environment for bus maintenance staff.

#### Procurement Approach

This procurement was handled in accordance with OCTA's Board of Directors-approved procedures for public works projects. These procedures, which conform to both state and federal requirements, require that contracts are awarded to the lowest responsive, responsible bidder after a sealed bidding process.

Invitation for Bids (IFB) 9-1696 was released on November 1, 2019, through OCTA's CAMM NET system. The project was advertised on November 1 and 5, 2019, in a newspaper of general circulation. A pre-bid conference and job walk was held on November 6, 2019, and was attended by four firms. Three addenda were issued to provide the pre-bid conference registration sheets and handle administrative issues related to the IFB. On December 3, 2019, three bids were received and publicly opened.

All bids were reviewed by staff from both the Contracts Administration and Materials Management and Facilities Engineering departments to ensure compliance with technical specifications and the contract terms and conditions. The list of bidders and bid amounts is presented below:

Firm and Location	Bid Amount
GM Climate Control, Inc. North Hollywood, California	\$196,100
Golden Gate Steel, Inc. dba Golden Gate Construction Norwalk, California	\$254,250
Metro Builders & Engineers Group, Ltd. Newport Beach, California	\$341,550

#### Agreement for Replacement of Heating, Ventilation, and Air Page 3 Conditioning Units at the Garden Grove Bus Base Maintenance Building

The apparent low bidder, GM Climate Control, Inc., was found non-responsive due to the inability to secure the required Disadvantaged Business Enterprise (DBE) participation or sufficiently demonstrate good faith efforts as required by the United States Department of Transportation, which is providing funding for the project.

The recommended firm's bid is nine percent above the engineer's estimate of \$233,000 for this project. Staff conducted a cost analysis of the bid components and determined that the total bid amount is competitive after consideration of the nature of the work, phasing and safety requirements for removals and installation of new equipment in the active bus maintenance building environment, specialty subcontractor availability, and overall market conditions. The analysis revealed that specialty subcontractor costs for roofing and electrical were underestimated for the job. Golden Gate Steel, Inc., dba Golden Gate Construction (Golden Gate Construction) is a certified DBE contractor and met the requirements of the IFB, as well as all federal and state requirements.

State law requires award to the lowest responsive, responsible bidder. As such, staff recommends award to Golden Gate Construction, the lowest responsive, responsible bidder, in the amount of \$254,250, for the replacement of heating ventilation and air conditioning units at the Garden Grove Bus Base maintenance building.

#### Fiscal Impact

The project was approved in OCTA's Fiscal Year 2019-20 Budget, Capital Programs, Account 1722-9022-D3122-058, and is funded by Federal Transit Administration Section 5337 State of Good Repair Grant Funds, Account 0030-6049-D3122-MJK.

#### Summary

Based on the information provided, staff recommends the Board of Directors authorize the Chief Executive Officer to negotiate and execute Agreement No. C-9-1696 between the Orange County Transportation Authority and Golden Gate Steel, Inc. dba Golden Gate Construction, the lowest responsive, responsible bidder, in the amount of \$254,250, for the replacement of heating, ventilation, and air conditioning units at the Garden Grove Bus Base maintenance building.

Agreement for Replacement of Heating, Ventilation, and Air Page 4 Conditioning Units at the Garden Grove Bus Base Maintenance Building

#### Attachment

None.

Prepared by:

George Olivo, P.E. Program Manager (714) 560-5872

ligenia Abodessa

Virginia Abadessa Director, Contracts Administration and Materials Management (714) 560-5623

Approved by:

SAL

James G. Beil, P.E. Executive Director, Capital Programs (714) 560-5646



#### March 23, 2020

To: Members of the Board of	of Directors
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**From:** Laurena Weinert, Clerk of the Board

Subject: Local Transportation Fund Claims for Fiscal Year 2020-21

Finance and Administration Committee Meeting of March 11, 2020

Present: Directors Do, Hennessey, Hernandez, Jones, Muller, R. Murphy, and Steel Absent: None

#### **Committee Vote**

This item was passed by the Members present.

#### **Committee Recommendation**

Adopt Orange County Transit District Resolution No. 2020-009 authorizing the filing of Local Transportation Fund claims, in the amounts of \$165,118,625 to support public transportation and \$8,753,906 for community transit services.



March 11,	2020
To:	Finance and Administration Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Local Transportation Fund Claims for Fiscal Year 2020-21

#### Overview

The Orange County Transit District is eligible to receive funding from the Local Transportation Fund for providing public transportation services throughout Orange County. In order to receive these funds, the Orange County Transit District, as the public transit and community transit services operator, must file claims with the Orange County Transportation Authority, the transportation planning agency for Orange County.

#### Recommendation

Adopt Orange County Transit District Resolution No. 2020-009 authorizing the filing of Local Transportation Fund claims in the amounts of \$165,118,625 to support public transportation and \$8,753,906 for community transit services.

#### Background

The Transportation Development Act (TDA) of 1971 established a funding source dedicated to transit and non-transit related projects. The funding source consists of two parts: Local Transportation Fund (LTF), which is derived from a 1/4 cent of the current retail sales tax in Orange County, and State Transit Assistance Fund, which is generated from the sales tax on diesel and funded through the Public Transportation Account.

The LTF revenues are collected by the California Department of Tax and Fee Administration and returned monthly to local jurisdictions based on the volume of sales during each month. In Orange County, the LTF receipts are deposited in the Orange County LTF account at the Orange County Treasury and administered by the Orange County Auditor-Controller. LTF receipts are distributed by the Orange County Auditor-Controller among the various administrative, planning, and program apportionments as specified in the TDA. Section 6630 of the California Code of Regulations requires Orange County Transit District (OCTD) to file a claim with the Orange County Transportation Authority (OCTA) in order to receive an allocation from the LTF for providing public transportation services (Article 4 claims).

Since OCTA has previously designated the OCTD as the consolidated transportation service agency for Orange County, the OCTD is also required to file a claim with OCTA in order to receive an allocation from the LTF for operating community transit services (Article 4.5 claims). The total amount of these claims for fiscal year 2020-21 equals \$173,872,531.

#### Summary

The LTF provides funds to the OCTD for public transit services. In order to receive these funds, the OCTD must file the appropriate LTF claims with the OCTA. Staff recommends the OCTA Board of Directors adopt the OCTD Resolution No. 2020-009 to authorize the filing of these claims.

#### Attachment

A. Resolution of the Orange County Transit District, Authorizing the Filing of Local Transportation Fund Claims

Prepared by:

Sam Kaur Department Manager, Revenue Administration (714) 560-5889

Approved by:

Andrew Oftelie Chief Financial Officer, Finance and Administration (714) 560-5637

### ATTACHMENT A

#### RESOLUTION OF THE ORANGE COUNTY TRANSIT DISTRICT

#### AUTHORIZING THE FILING OF LOCAL TRANSPORTATION FUND CLAIMS

WHEREAS, the Orange County Local Transportation Fund was created by the Transportation Development Act (SB 325:1971) to aid in meeting the public transportation and community transit needs that exist in Orange County; and

**WHEREAS**, the Orange County Transit District is submitting transportation claims for funds from the Orange County Local Transportation Fund; and

WHEREAS, the Orange County Transportation Authority has the authority to review claims and allocate such funds in accordance with the California Code of Regulations and the California Transportation Development Act.

**NOW, THEREFORE, BE IT RESOLVED** that the Board of Directors of the Orange County Transit District hereby requests the Orange County Transportation Authority to allocate funds to the Orange County Transit District for the purpose of providing the support of a public transportation system as described under the California Transportation Development Act, Article 4, and for funding community transit services as described under the California Transportation Development Act, Article 4.5.

**BE IT FURTHER RESOLVED** that the Orange County Transit District agrees to provide the Orange County Transportation Authority with such information as may be necessary to support these transportation claims.

ADOPTED, SIGNED AND APPROVED this 23<sup>rd</sup> day of March 2020.

AYES:

NOES:

ABSENT:

ATTEST:

Laurena Weinert Clerk of the Board Steve Jones, Chairman Orange County Transit District

OCTA Resolution No. 2020-009



March 23, 2020

- **To:** Members of the Board of Directors  $\mathcal{A}_{\mathcal{A}}$
- From: Laurena Weinert, Clerk of the Board
- Subject: Bus Operations Performance Measurements Report for the Second Quarter of Fiscal Year 2019-20

Transit Committee Meeting of March 12, 2020

Present:Directors Do, Davies, Jones, Shaw, and SidhuAbsent:Directors Pulido and Winterbottom

#### Committee Vote

Following the discussion, no action was taken on this receive and file information item.

#### Staff Recommendation

Receive and file as an information item.



March 12, :	2020
То:	Transit Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Bus Operations Performance Measurements Report Second Quarter of Fiscal Year 2019-20

#### 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 second quarter of fiscal year 2019-20.

for the

#### Recommendation

Receive and file as an information item.

#### Background

The Orange County Transportation Authority (OCTA) operates a countywide network of 60 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 Orange, Los Angeles, and Riverside counties. OCTA provides these services through both directly-operated (DOFR) and contracted fixed-route service (CFR). 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 both, OC Bus and OC ACCESS services are summarized and reported quarterly (Attachment A).

#### 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 uses both on-time performance and miles between road calls (MBRC) to measure service reliability. This report includes year-to-date performance through the second quarter, including the months of October, November, December, of fiscal year (FY) 2019-20.

- <u>Safety</u> OC Bus and OC ACCESS services both remain below the accident frequency standard as the number of preventable accidents recorded for each mode exceeded one preventable accident per 100,000 service miles. The increase in vehicle accidents for DOFR is highly correlated with the increase in new coach operators with one year of service or less. As discussed further in the attached, the number of preventable accidents among coach operators in this group increased from nine preventable accidents to 39, an increase of more than 400 percent. OCTA Operations staff will continue to focus on reinforcing the importance of safety, conduct safety-related campaigns, and promote the safe driving award program. The Safety Managers for the contract services continue to emphasize safety and the accident reporting procedures in their monthly safety meetings.
- <u>Customer Service</u> During the first quarter, all modes of service performed above the respective standards. Customer service is measured by evaluating the number of valid customer complaints received compared to boardings.
- <u>Reliability</u> On-time performance (OTP) for OC Bus and OC ACCESS was below target. Under performing fixed-route OTP rates can be attributed to several factors, including vehicle reliability, driver behavior, high passenger loads, construction, and dynamic traffic conditions. The abundance of road improvement projects requiring short and long-term detours continues to be a prime factor impacting OTP for OC Bus service. Though the recent ratification of the contractor's collective bargaining agreement is addressing the operator shortage, the contractor is updating routing information for existing subscription trips to current traffic conditions.

#### Bus Operations Performance Measurements Report for the Page 3 Second Quarter of Fiscal Year 2019-20

The MBRC for all modes of service exceeded the standard through the reporting period. Notably, the MBRC for CFR OC Bus service increased by 21.4 percent from last quarter and increased by 57 percent compared to the same quarter of last year. The significant improvement is a result of the contractor's recent filling of key positions resulting in a better controlled maintenance environment, less technician turnover, and an improved maintenance program.

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 report on the service adjustments and strategies implemented under the OC Bus 360° Program, including OC Flex and the College Pass Program.

#### Summary

Through the second quarter of FY 2019-20, the performance of OC Bus service and OC ACCESS service exceeded the performance in the areas of courtesy and reliability (MRBC) but was below the standard for safety and OTP. OCTA staff continue to focus on continuous quality 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.

#### Bus Operations Performance Measurements Report for the Page 4 Second Quarter of Fiscal Year 2019-20

#### Attachment

A. Bus Operations Performance Measurements Report, Second Quarter, Fiscal Year 2019-20

Prepared by:

Johnny Dunning, Jr. Manager, Scheduling and Bus Operations Support (714) 560-5710

wh Jennifer L. Bergener

Chief Operating Officer, Operations (714) 560-5462

Approved by:

Beth McCormick General Manager, Operations (714) 560-5964

# Bus Operations Performance Measurements

Report





Second Quarter Fiscal Year 2019-20

# **About This Report**

The Orange County Transportation Authority (OCTA) operates a countywide network of 60 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). 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.

#### FY2019-20 Q2 SUMMARY

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  - DOFR -
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- o 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.

Through the second quarter of fiscal year (FY) 2019-20, all modes of service performed below the safety standard, operating less than 100,000 miles between preventable accidents.

DOFR OC Bus service experienced an increase in preventable accidents, including fixed-object and stationery (parked) vehicle collisions, and passenger falls. Comparing the performance over the first two quarters of FY 2019-2020 with the same time last year, the rate of preventable accidents among coach operators increased by 51.6 percent. In reviewing the data available, more accidents are occurring with new coach operators with one year of service or less. Specifically, the number of preventable accidents among coach operators in this group increased from nine preventable accidents to 39, an increase of more than 400 percent. Over the last year, OCTA has aggressively recruited more coach operators, allowing Operations to increase the number of assignments and reduce scheduled overtime in operator assignments. Other elements of the recruiting process, the coach operator training program, and ongoing accident reduction efforts are also being evaluated to identify other opportunities to improve safety performance. Concurrently with these efforts, OCTA Operations staff will continue to focus on and stress the importance of safety, conduct safety-related campaigns, and promote the safe driving award program.

CFR OC Bus service performance did improve during the second quarter, though performance remained below the standard through the first half of the fiscal year. Between the months of October and December, the number of preventable accidents reported by the contractor decreased by 44 percent. Each month, a comprehensive safety campaign is conducted on a different topic using a variety of communication methods including posters, safety messages, hands-on training, and discussions at monthly safety meetings by the CFR management.

For OC ACCESS, an increase in fixed object and curb strikes, a total of 15 and 17 respectively, along with the typical collisions with side mirrors, resulted in overall performance below standard. The contractor is taking steps to address the increase including having the Regional Director of Safety for Southern California onsite during February 2020 to review the safety program and ensure safety initiatives are being implemented. The contractor's safety initiatives include improving the retraining process used for all coach operators experiencing preventable accidents, and using knowledge gained from preventable accident investigation and retraining to develop concentrated messaging and additional training to reduce/eliminate similar accidents in the future.



# **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 the second quarter of FY 2019-20, all modes of service continue to perform well, exceeding the courtesy standard with less than one valid complaint per 20,000, 7,000, and 667 boardings, respectively.



# **Reliability: On-Time Performance**

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 time point no more than five minutes late. OCTA's fixed-route system standard for OTP is 85 percent. For OC ACCESS service, OTP is a measure of performance evaluating a revenue vehicle's adherence to a scheduled pick-up 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. Both OC Bus and OC ACCESS failed to meet the standard through the second quarter, with OTP rates of 80.3 percent and 92.2 percent, respectively.



OTP for the DOFR OC Bus service through the second quarter was at 81.3 percent, a 0.4 percent increase from last quarter but 1.6 percent lower than the same time last year. Contributing factors to the drop in OTP continue to be traffic associated with construction projects. The increase in road improvement projects throughout the service area has intensified local traffic and required the need for more short and long-term detours compared to the same period last year.

The OTP for the CFR OC Bus service through the second quarter was 78.8 percent, a 0.3 percent drop from last quarter and 1.9 percent lower than the same time last year. The contractor's shortage in coach operators continued to have impacts on the contractor as field supervisors were often deployed to operate vacant assignments rather than focus on service performance.



OTP for OC ACCESS service (Primary Service and Supplemental Taxi) for the second quarter was 92.2 percent, 1.8 percent below the standard, 0.4 percent lower than last quarter, and 1.1 percent lower than the 93.3 percent reported during the same period last year.

With the ratification of the Collective Bargaining Agreement (CBA) for contractor drivers operating OC ACCESS service making ground by generating an increase in applications and drivers hired, the contractor also evaluated subscription trip routing/scheduling for individuals traveling to day programs, which generates a significant number of the weekday trips provided during the peak period with the goal of better using vehicle and operator resources, improving the customer experience, and improving overall system performance. In most cases, the subscription trips going to day program locations have been in place for more than five years and have not been adjusted to consider current traffic conditions or ensure efficient routing is still in place given that riders on each route may have changed overtime.

OCTA staff will continue to monitor service delivery to ensure contractor efforts are working to attain performance standards.

# **Reliability: Miles Between Road Calls**

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 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 the second quarter of FY 2019-20, OC Bus services continue to perform well with all modes exceeding the performance standard. Notably, from October through December, the MBRC for CFR OC Bus service averaged 14,197 miles, an increase of 21.4 percent from last quarter, and a 57 percent increase from the same quarter of last year. This performance improvement was the result of

a better controlled maintenance environment, reduced technician turnover, and improved overall maintenance.

OCTA staff will continue to monitor performance in this area and work with the contractor to sustain or improve overall performance.

The MBRC for OC ACCESS service also exceeded the standard, averaging 27,970 miles between road calls during the second quarter, bringing the year-to-date average to 26,017.

# **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, economy, and seasonal variations in demand. Productivity is an industry measure that counts the average number of boardings for each RVH that is operated. 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.

Through the second quarter of FY 2019-20, both ridership and productivity for OC Bus service were slightly lower than budgeted projections, down by 1.4 percent.



The ridership and productivity for the second quarter shows a consistent trend when compared to the previous two-year period; ridership reaches a high point in October followed by month-over-month decreases through the December holiday period. Though the trend is consistent, compared with 2018, a slight decline in boardings and productivity was experienced in 2019, as shown in the following chart.



# **Ridership and Productivity – OC ACCESS**

(Primary Service Provider and Supplemental Taxi)

Through the second quarter of FY 2019-20, the ridership and Productivity for OC ACCESS are trending below budgeted projections by less than three-tenths of a percent and 3.8 percent, respectively.

Measure	Results for July 2019 through December 2019
Ridership	752,915 Boardings 752,915 Boardings 580,000 630,000 680,000 730,000 780,000 830,000 880,000 930,000 Budget Projection of 755,013 boardings
Productivity	Productivity of 2.01 B/RVH       1.6     1.7     1.8     1.9     2.0     2.1     2.2     2.3     2.4     2.5     2.6       Budget Projection of 2.09 B/RVH     1.0     1.

# **Contractor Performance: Fixed-Route**

Per Agreement No. C-4-1737 between OCTA and First Transit, Inc. (First Transit), 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 the second quarter of FY 2019-20, the overall performance of the contracted OC Bus service as determined by the performance categories outlined in the contract was below standard for missed trips and on-time performance.

Table 1 provides the penalties and incentives assessed to the contractor by quarter for FY 2019-20. The incentives paid in the second quarter relate to courtesy and accident frequency, which totaled \$12,400. This brings the year-to-date total up to \$26,900. The total penalties assessed to the contractor during the quarter total \$130,382. Despite improvements compared to the previous quarter, unreported accidents and missed trips, were the primary categories where penalties were assessed.

Table 1:	Performance Categories	FY20 Q1	FY20 Q2	FY20 Q3	FY20 Q4	FYTD 19
	On-Time Performance	\$ (6,000)	\$ (12,000)	\$ -	\$ -	\$ (18,000)
	Valid Complaints: Per 7,000 boardings	\$ -	\$ -	\$ -	\$ -	\$ -
	Unreported Accident	\$ (85,000)	\$ (20,000)	\$ -	\$ -	\$ (105,000)
	Accident Frequency Ratio	\$ (20,000)	\$ -	\$ -	\$ -	\$ (20,000)
	Key Positions	\$ -	\$ -	\$ -	\$ -	\$ -
Donaltion	CHP Terminal Inspections	\$ -	\$ -	\$ -	\$ -	\$ -
Penanties	Reports	\$ -	\$ -	\$ -	\$ -	\$ -
	Preventive Maintenance	\$ -	\$ (382)	\$ -	\$ -	\$ (382)
	Road Calls	\$ (1,400)	\$ -	\$ -	\$ -	\$ (1,400)
	Vehicle Damage: Per vehicle per day	\$ -	\$ -	\$ -	\$ -	\$ -
	Missed Trips	\$ (166,000)	\$ (98,000)	\$ -	\$ -	\$ (264,000)
	Total	\$ (278,400)	\$ (130,382)	\$ -	\$ -	\$ (408,782)
	On-Time Performance	\$ -	\$ -	\$ -	\$ -	\$ -
Incontivos	Valid Complaints: Per 7,000 boardings	\$ 14,500	\$ 7,400	\$ -	\$ -	\$ 21,900
incentives	Accident Frequency Ratio	\$ -	\$ 5,000	\$ -	\$ -	\$ 5,000
	Total	\$ 14,500	\$ 12,400	\$ -	\$ -	\$ 26,900
Duion Douioda	AFR	\$ -	\$ (5,000)	\$ -	\$ -	\$ (5,000)
Adjustment	Key Position	\$ -	\$ -	\$ -	\$ -	\$ -
Aujustment	Total	\$ -	\$ (5,000)	\$ -	\$ -	\$ (5,000)
All	Total	\$ (263,900)	\$ (122,982)	\$ -	\$ -	\$ (386,882)

## **Contractor Performance: OC ACCESS**

(Primary Service Provider and Supplemental Taxi)

Per Agreement No. C-2-1865 between OCTA and MV, 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 the second quarter of FY 2019-20 is above standard with respect to courtesy, while below standard for safety and on-time performance. Table 2 below lists, by quarter, the penalties and incentives assessed to the OC ACCESS contractor as established in the agreement. Through the second quarter, there were no incentives awarded to the contractor, but \$118,507 in penalties were assessed. This brings the gross year-to-date total for penalties up to \$182,007. Penalties assessed to the contractor were related to performance for passenger productivity, OTP, call center hold times, excessively late trips, missed trips, and an unreported accident.

Table 2:	Performance Categories	FY20 Q1	FY20 Q2	FY20 Q3	FY20 Q4	FYTD 19
	Passenger Productivity	\$ (10,000)	\$ (20,000)	\$ -	\$ -	\$ (30,000)
	On-Time Performance	\$ (15,000)	\$ (30,000)	\$ -	\$ -	\$ (45,000)
	Customer Comments	\$ (2,800)	\$ (3,000)	\$ -	\$ -	\$ (5,800)
	Call Center Hold Times	\$ (5,000)	\$ -	\$ -	\$ -	\$ (5,000)
	Excessively Late Trips	\$ (20,000)	\$ (30,000)	\$ -	\$ -	\$ (50,000)
	Missed Trips	\$ (5,000)	\$ (30,000)	\$ -	\$ -	\$ (35,000)
	Unreported Accident	\$ (5,000)	\$ (5,000)	\$ -	\$ -	\$ (10,000)
Penalties	Preventive Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -
	Road calls	\$ (700)	\$ -	\$ -	\$ -	\$ (700)
	Reports	\$ -	\$ -	\$ -	\$ -	\$ -
	Key Positions	\$ -	\$ -	\$ -	\$ -	\$ -
	CHP Terminal Inspections	\$ -	\$ -	\$ -	\$ -	\$ -
	Vehicle Damage	\$ -	\$ -	\$ -	\$ -	\$ -
	Fare Variance	\$ -	\$ (507)	\$ -	\$ -	\$ (507)
	Total	\$ (63,500)	\$ (118,507)	\$ -	\$ -	\$ (182,007)
	Passenger Productivity	\$ -	\$ -	\$ -	\$ -	\$ -
	On-Time Performance	\$ -	\$ -	\$ -	\$ -	\$ -
Incentives	Excessively Late Trips	\$ -	\$ -	\$ -	\$ -	\$ -
	Missed Trips	\$ -	\$ -	\$ -	\$ -	\$ -
	Total	\$ -	\$ -	\$ -	\$ -	\$ -
Prior Parioda	Customer Comments	\$ -	\$ -	\$ -	\$ -	\$ -
Adjustment	Unreported Accident	\$ 10,000	\$ -	\$ -	\$ -	
Aujustment	Total	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000
All	Total	\$ (53,500)	\$ (118,507)	\$ -	\$ -	\$ (172,007)

## **Farebox Recovery Ratio**

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 in order for transit agencies to receive the state sales tax available for public transit purposes. In an effort to normalize seasonal fluctuations, data shown below reflects actuals over the last 12 months from January 2019 through December 2019.

FRR, based on the National Transit Database definition in which only passenger fares are included under revenue, did not meet the 20 percent goal. However, as a result of the passage of Senate Bill No. 508 (SB 508), 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 22.3 percent, a decrease of 0.7 percent from the previous quarter and a 1.6 percent drop from the same quarter last year.* 



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 operating expenses by RVH. In order 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.

Similar to the FRR, the statistics below depict actuals over the last 12 months. All modes operated at a higher cost per RVH than the same 12-month period of the prior year except for OC ACCESS due to reimbursement to the contractor for Same Day Taxi call center operations. The adjustment totaled \$513k and was paid in March 2018 through June 2018. The difference in cost per RVH from the prior FY was a 3.3 percent increase in DOFR, 10.5 percent increase in CFR, and 1.6 percent decrease in OC ACCESS. The increase in DOFR was primarily due to the execution of the new labor agreement for Coach Operators and Maintenance employees which included a wage increase each year. The increase in CFR was primarily due to the execution of Amendment No. 9 for a wage adjustment for operating staff. In addition, DOFR and CFR costs were both increased due to a higher-than- expected compressed natural gas rate since July 2018. Also contributing to the higher cost per hour was the Alternative Fuel Tax Credit that was received in March 2018, but not received in March 2019. This reduced costs by 2.1 percent in 2018.



# **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 the second quarter. The first three 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 three 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 frequent 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.
- **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. They 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.
- **Routes 600 to 699**: Seasonal or Temporary routes (these are not included on the following charts) such as the OC Fair Express.
- 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.

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VSH 401	2.285 -	3,863 -	4,063	5,995	12,810	22,282	4,263	3,470	3,658	14,805	5,489	17,148	1,028	4513	6,916	14,316	6,220	2,057	16,629	4,989 10 116	12,777	17,152	10,942	10,358	20,182	22,389	27,615	11,406	25,759	35,320	18,329	16,204	8,827	31 030	13.943	39,246	21,756	31,792	21,873	28,043	33,669	17,295	30,011	
BoardVSH	8.00	8.32	8.84	9.27	13.17	12.25	10.22	10.30	11.99	13.23	13.15	17.01	14.32	14.60	14.13	15.14	15.24	18.72	16.88	20.30	17.36	21.90	17.28	16.78	17.75 22.11	24.03	22.85	22.18	23.65	24.44 21.30	21.56	21.23	21.79	30.08	22.60	26.71	23.33	29.76	31.07	27.22	31.50	31.70	34.23	
CostVSM	\$ 18.13	9.54	9.61	9.78	13.45	9.27	9.39	CU.0	92.01	8.43	9.02	7.95	9.62	0.22	10.51	10.41	10.61	9.03	10.96	CL.71 CL.72	11.93	12.95	9.95	9.34	9.64	11.99	12.60	11.26	12.87	12.23	10.56	9.06	9.52	15.21	10.35	12.87	10.02	12.54	15.96	10.77 12.65	13.99	11.92	14.13	
Direct CostVSH	83.20	83.44	82.34	82.81	96.58	94.37	81.98	03.13 06.04	82.82	83.33	81.94	94.76	82.74	81 72	82.36	82.64	82.80	85.74	83.08	83.23 88.60	82.39	93.54	82.32	81.35	83.07 89.64	93.85	89.83	87.74	90.71	91.26 83.51	83.03	82.42	82.40	91.24 103.05	82.53	90.19	82.61	90.41	93.13	82.68 82.18	88.59	82.49	87.82	
CostVSH	\$ 138.99	123.63	118.73	117.94	153.01	147.83	117.06	120.021	119.18	120.03	116.74	148.41	120.22	117 97	118.43	118.46	118.63	131.31	120.69	123.32	118.71	148.09	118.24	116.84	119.85	148.62	142.54	139.02	143.89	144.74	120.66	117.26	117.69	163 33	118.54	143.24	119.91	143.48	148.36	119.43 130.80	141.10	131.10	139.85	:
Boardings	18.289	32.127	35,938	55,561	168,736	2/3,031	43,557	101,05	43, 132	195,936	72,198	291,696	100,632	66,029	97,697	216,741	94,789	38,494	280,661	88,688 206 279	221,812	375,686	189,084	173,819	358,141 647 598	538,082	631,100	253,014	609,215	863,374 454 703	395,169	343,936	192,370	448,583 080 107	315.138	1,048,111	507,464	946,176	679,638	763,212	1.060,514	548,275	1,027,275	
Revenue per Boarding	\$ 0.87	0.88	1.01	0.92	0.82	0.84	0.94	0.90	0.03	1.08	0.91	0.87	0.92	0.1	0.99	0.91	0.88	1.06	0.91	0.98	0.87	0.84	0.92	0.98	0.91	0.86	0.79	0.88	0.86	0.87	0.81	0.82	0.78	0.80 080	0.88	0.94	0.83	0.83	0.86	0.79	0.90	0.89	0.91	,
"Capital Subsidy"   Per	Boarding	00.0	1.50	0.65	1.06	0.46	0.82	00.0	0.82	0.82	0.75	0.61	0.71	0.54	0.18	0.58	0.57	1.40	0.70	0.81	0.57	0.62	0.47	0.41	0.40	0.47	0.34	0.35	0.41	0.37	0.45	0.36	0.37	0.40	0.40	0.33	0.42	0.19	0.26	0.38	0.22	0.43	0.24	,
Indirect Subsidy	\$ 5.54	5.73	5.08	4.77	4.34	4.51	4.25	4.43	3.60	3.27	3.26	3.16	3.02	7 04	2.99	2.83	2.79	2.44	2.55	2.41	2.45	2.38	2.43	2.45	2.39	2.14	2.19	2.16	2.10	2.03	1.96	1.93	1.89	1.83	1.79	1.78	1.77	1.60	1.57	1.48	1.44	1.30	1.28	
Direct Subsidy	\$ 10.95	8.26	7.33	7.04	6.45	6.71	6.27	0.30	5.31	4.72	4.70	4.70	4.46	4.20	4.41	4.08	4.12	3.52	3.68	3.64	3.53	3.54	3.50	3.53	3.45	3.19	3.26	3.22	3.12	3.02	2.83	2.78	2.73	2.12	2.58	2.65	2.54	2.39	2.34	2.13	2.14	1.94	1.90	ļ
Subsidy per Boarding	\$ 19.43	13.99	13.91	12.46	11.85	11.68	11.34	10.11	00:01	8.81	8.71	8.47	8.19	0.10	7.58	7.49	7.48	7.36	6.93	6.77	6.55	6.54	6.40	6.39	6.24 5.85	5.80	5.79	5.73	5.63	5.42	5.24	5.07	4.99	4.95	4.77	4.76	4.73	4.18	4.17	3.99	3.80	3.67	3.42	
Farebox	5.0%	5.9%	7.5%	7.2%	7.1%	7.0%	8.2%	0/1.1	0.3%	11.9%	10.3%	10.0%	10.9%	10 9%	11.8%	11.6%	11.3%	15.1%	12.8%	14.1%	12.7%	12.5%	13.4%	14.1%	13.4%	13.9%	12.7%	14.1%	14.2%	14.7%	14.5%	14.9%	14.4%	15.7%	16.7%	17.6%	16.2%	17.2%	18.1%	17.9%	20.0%	21.5%	22.3%	
Zone	U	z	S	z	υ	s o	ບ່	n c	, א	ი თ	ပ	0	ပဖ	o z	zz	υ	z	S	υu	z ב	zz	υ	z	s :	zc	z	z	υ	z	zc	z	z	z	zc	z	υ	z	00	υ <del>,</del>	zc	) z	ပ	ပ	ľ
Route	862	021	085	153	529	100 1	1/8	100	177	091	086	083	167	050	129	670	143	082	059	150	026	560	025	080	071	037	050	072	054	020	035	030	033	057	046	047	038	060	053	042 053X	043	057X	990	

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

	unt	60 FT		-	•	-	-		
	us Cot	32 FT		•	-	•	•		
	В	40 FT			3	4	3		
		HSV		1,453	1,920	2,021	1,278	736	
		BoardVSH		3.87	5.72	7.47	10.28	8.24	
		CostVSM		\$ 9.70	98.8	9.46	11.04	9.44	
arding)		Direct CostVSH		\$ 132.56	148.78	190.58	171.00	126.02	
y per Bo		CostVSH		\$ 189.54	229.30	251.89	264.14	183.80	
d by Subsid		Boardings		5,619	10,989	15,100	13,135	6,061	
vice (Sorte		Revenue per Boarding		\$ 0.92	2.04	5.67	2.52	1.01	
ress Ser		"Capital Subsidy" Per	Boarding	۔ \$	4.90	4.75	4.10	0.00	
for Exp		Indirect Subsidy		\$ 18.24	14.66	10.63	8.94	8.08	amonte
y Route		Direct Subsidy		\$ 29.86	23.36	17.41	14.24	13.22	ment require
ting Statistics B 9-20 Through Q2		Subsidy per Boarding		\$ 48.10	42.92	32.79	27.28	21.30	in the vehaloon Manager
A Opera Year 201		Farebox		1.9%	5.1%	16.8%	9.8%	4.5%	1/20/ ic hac
OCT, Fiscal		Zone		z	z	U	υ	υ	
$\leq$	OCTA	Route		213	721	794	701	206	(1) Total h

I total bus count (429) is based on PM weekday equipment requirements.
C under Zone is Central County, N is North County and S is South County.

stics By Route for Stationlink Service (Sorted by Subsidy per Boarding) h Q2	Soarding Direct Indirect "Capital *Capital   Subsidy Subsidy Subsidy Per Boarding   Boarding Soarding CostVSH CostVSH	32.33 \$ 16.09 \$ 10.85 \$ 5.99 \$ 0.88 8,983 \$ 167.56 \$ 111.80 \$ 15.70 6.02 1,491 3	14.03 6.07 4.09 3.87 0.90 13.902 158.53 109.46 13.80 14.32 970 3	13.19 6.98 4.71 1.50 0.91 11.984 165.58 111.12 15.06 13.14 912 1	12.78 6.14 4.14 2.50 0.69 14,329 166.15 111.96 28.39 15.15 946 2	8.30 3.96 2.67 1.67 0.96 21,479 175.97 112.76 15.28 23.19 926 2
Stationlink Servic	ect Subsidy" Reven sidy Per Boa	0.85 \$ 5.99 \$	4.09 3.87	4.71 1.50	4.14 2.50	2.67 1.67
istics By Route for gh Q2	Boarding Direct Ind	32.93 \$ 16.09 \$	14.03 6.07	13.19 6.98	12.78 6.14	8.30 3.96
CTA Operating Stati cal Year 2019-20 Throu	ne Farebox Subsidy per	3.1% \$	3 8.2%	3 7.3%	N 6.3%	2 12.6%
	Route Zoi	463 C	472 C	480 C	453 N	473 C

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

60 FT				12	-	11		•					7	'	•	•	•	•	•			•			•	•	'	•	•	•	'	•						•													•
32 FT					-						'	'	,	'	'	•		'						'	•	'	'	•		'	'					•		•		•							'	'	'	'	'
40 FT	13	19	14	4	10	2	16	6	10	14	12	14	e	14	12	11	10	10	13	8	7	5	7	4	10	11		ΩI		<b>`</b>	90	א מ	ι	04	10	80	4	1	3	4	3	2	2	2	2	2	e	e	1		
HSV	33.669	39,246	30,011	31,930	31,792	35,320	28,043	19,775	21,873	29,284	27,615	25,759	17,295	22,389	21,756	21,262	16,728	18,329	17,152	20,182	16,204	11,655	13,943	8,288	17,148	16,629	22,282	11,406	12,777	14,310	10,116	000,41	10 042	10.358	12.810	10,813	7,028	6,916	6,220	4,989	5,489	4,513	5,995	3,658	4,263	3,330	2,057	4,063	3,470	3,863	2,285
BoardVSH	31.50	26.71	34.23	30.98	29.76	24.44	27.22	38.15	31.07	22.11	22.85	23.65	31.70	24.03	23.33	21.39	26.82	21.56	21.90	17.75	21.23	29.12	22.60	36.65	17.01	16.88	12.25	22.18	17.36	10.14	20.39	01 70	17.78	16.78	13.17	14.80	14.32	14.13	15.24	17.78	13.15	14.63	9.27	11.99	10.22	12.97	18.72	8.84	10.30	8.32	8.00
CostVSM	\$ 13.99	12.87	14.13	15.14	12.54	12.23	10.77	14.78	15.96	12.78	12.60	12.87	11.92	11.99	10.02	10.44	13.21	10.56	12.95	9.64	9.06	12.65	10.35	12.52	7.95	10.96	9.27	11.26	11.93	10.41	13.32	0.43	0.05	9.34	13.45	8.22	9.62	10.51	10.61	12.15	9.02	9.47	9.78	9.29	9.39	11.82	9.03	9.61	8.05	9.54	18.13
Direct CostVSH	\$ 88.59	90.19	87.82	103.05	90.41	91.26	82.68	91.30	93.13	89.64	89.83	90.71	82.49	93.85	82.61	83.51	91.24	83.03	93.54	83.07	82.42	82.18	82.53	82.27	94.76	83.08	94.37	81.74	82.39	82.04	88.69	00.00	02:70 82 32	81.35	96.58	83.80	82.74	82.36	82.80	83.23	81.94	81.72	82.81	82.82	81.98	86.91	85.74	82.34	83.13	83.44	83.20
CostVSH	\$ 141.10	143.24	139.85	163.33	143.48	144.74	119.43	145.44	148.36	142.40	142.54	143.89	131.10	148.62	119.91	121.91	144.79	120.66	148.09	119.85	117.26	130.80	118.54	130.85	148.41	120.69	147.83	139.02	118.71	118.40	140.92	117 60	118.20	116.84	153.01	122.50	120.22	118.43	118.63	123.32	116.74	117.97	117.94	119.18	117.06	137.87	131.31	118.73	120.66	123.63	138.99
Boardings	1.060.514	1,048,111	1.027.275	989,197	946,176	863,374	763,212	754,452	679,638	647,598	631,100	609,215	548,275	538,082	507,464	454,703	448,583	395,169	375,686	358,141	343,936	339,427	315,138	303,748	291,696	280,661	273,031	253,014	221,812	210,741	206,279	190,930	180.084	173.819	168.736	160,031	100,632	97,697	94,789	88,688	72,198	66,029	55,561	43,850	43,557	43,192	38,494	35,938	35,761	32,127	18,289
Revenue per Boarding	\$ 0.90	0.94	0.91	0.89	0.83	0.87	0.79	0.83	0.86	0.98	0.79	0.86	0.89	0.86	0.83	0.90	0.85	0.81	0.84	0.91	0.82	0.87	0.88	0.82	0.87	0.91	0.84	0.88	0.87	0.91	0.82	0.10	0.00	0.98	0.82	1.03	0.92	0.99	0.88	0.98	0.91	0.88	0.92	1.04	0.94	0.89	1.06	1.01	0.90	0.88	0.87
"Capital Subsidy" Per Boarding	\$ 0.22	0.33	0.24	0.39	0.19	0.37	0.38	0.21	0.26	0.39	0.34	0.41	0.43	0.47	0.42	0.43	0.40	0.45	0.62	0.40	0.36	0.26	0.40	0.24	0.61	0.70	0.46	0.35	0.57	8C.U	0.52	0.02	0.0	0.41	1.06	0.90	0.71	0.18	0.57	0.81	0.75	0.54	0.65	0.82	0.82	0.83	1.40	1.50	0.50	0.00	2.94
Indirect Subsidy	\$ 1.44	1.78	1.28	1.76	1.60	2.03	1.48	1.20	1.57	2.19	2.19	2.10	1.30	2.14	1.77	1.97	1.83	1.96	2.38	2.39	1.93	1.45	1.79	1.10	3.16	2.55	4.51	2.16	2.45	2.83	2.45	12.5	57.0	2.45	4.34	2.97	3.02	2.99	2.79	2.41	3.26	2.94	4.77	3.60	4.25	3.92	2.44	5.08	4.43	5.73	5.54
Direct Subsidy	\$ 2.14	2.65	1.90	2.62	2.39	3.02	2.13	1.79	2.34	3.27	3.26	3.12	1.94	3.19	2.54	2.84	2.72	2.83	3.54	3.45	2.78	2.16	2.58	1.64	4.70	3.68	6.71	3.22	3.53	4.08	3.64	9.12	3 50	3.53	6.45	4.28	4.46	4.41	4.12	3.55	4.70	4.24	7.04	5.31	6.27	5.83	3.52	7.33	6.38	8.26	10.95
Subsidy per Boarding	3.80	4.76	3.42	4.77	4.18	5.42	3.99	3.20	4.17	5.85	5.79	5.63	3.67	5.80	4.73	5.24	4.95	5.24	6.54	6.24	5.07	3.87	4.77	2.98	8.47	6.93	11.68	5.73	6.55	1.49	6.61	0.01	6.40	6:39	11.85	8.15	8.19	7.58	7.48	6.77	8.71	7.72	12.46	9.73	11.34	10.58	7.36	13.91	11.31	13.99	19.43
Farebox	20.0%	17.6%	22.3%	16.8%	17.2%	14.7%	17.9%	21.7%	18.1%	15.2%	12.7%	14.2%	21.5%	13.9%	16.2%	15.7%	15.7%	14.5%	12.5%	13.4%	14.9%	19.5%	16.7%	23.0%	10.0%	12.8%	7.0%	14.1%	12.7%	11.0%	11.9%	11.3%	13 10/	14.1%	7.1%	12.4%	10.9%	11.8%	11.3%	14.1%	10.3%	10.9%	7.2%	10.5%	8.2%	8.3%	15.1%	7.5%	7.7%	5.9%	5.0%
Zone	z	:0	ပ	0	ပ	z	z	υ	ပ	ပ	z	z	υ	z	z	ပ	z	z	ပ	z	z	ပ	z	ပ	ပ	υ	s o	: :	z	: د	z	0 2	zz	z v	0	S	ပ	z	z	υ	ပ	z	z	S	ပ	ပ	S	S	S	z	ပ
Route	043	047	066	057	090	029	042	064	053	055	050	054	057X	037	038	020	543	035	560	071	030	053X	046	064X	083	059	001	0/2	026	610	990	180	005	680	529	060	167	129	143	150	086	024	153	177	178	076	082	085	087	021	862

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

oerating Statistics By Route for Express Service (Sorted by Boardings) מי 2019-20 Through Q2
OCT A Operating Stati Fiscal Year 2019-20 Throu

							1
Bus Count	60 FT	•	•	•	•	•	
	32 FT						
	40 FT	4	3	3			
	HSV	2,021	1,278	1,920	736	1,453	
	BoardVSH	7.47	10.28	5.72	8.24	3.87	
	CostVSM	\$ 9.46	11.04	8.86	9.44	9.70	
	Direct CostVSH	\$ 190.58	171.00	148.78	126.02	132.56	
	CostVSH	\$ 251.89	264.14	229.30	183.80	189.54	
	Boardings	15,100	13,135	10,989	6,061	5,619	
	Revenue per Boarding	\$ 5.67	2.52	2.04	1.01	0.92	
	"Capital Subsidy" Per Boarding	\$ 4.75	4.10	4.90	00.00	00.00	
	Indirect Subsidy	\$ 10.63	8.94	14.66	8.08	18.24	.
	Direct Subsidy	\$ 17.41	14.24	23.36	13.22	29.86	
	Subsidy per Boarding	\$ 32.79	27.28	42.92	21.30	48.10	
	Farebox	16.8%	9.8%	5.1%	4.5%	1.9%	
	Zone	υ	υ	z	υ	z	
OCTA	Route	794	701	721	206	213	

Total bus count (429) is based on PM weekday equipment requirements.
C under Zone is Central County, N is North County and S is South County.

Г									
	٦t	60 FT		•	•	•	•	•	
	us Coul	32 FT			•		•		
	B	40 FT		2	2	3	1	3	
		HSV		926	946	026	912	1,491	
		BoardVSH		23.19	15.15	14.32	13.14	6.02	
		CostVSM		\$ 15.28	28.39	13.80	15.06	15.70	
(sɓu		Direct CostVSH		\$ 112.76	111.96	109.46	111.12	111.80	
y Boardi		CostVSH		\$ 175.97	166.15	158.53	165.58	167.56	
se (Sorted b		Boardings		21,479	14,329	13,902	11,984	8,983	
link Servid		Revenue per Boarding		\$ 0.96	0.69	0.90	0.91	0.88	
or Station		"Capital Subsidy" Per	Boarding	\$ 1.67	2.50	3.87	1.50	5.99	
Route fo		Indirect Subsidy		\$ 2.67	4.14	4.09	4.71	10.85	
tics By h Q2		Direct Subsidy		\$ 3.96	6.14	6.07	6.98	16.09	
ting Statis 9-20 Through		Subsidy per Boarding		\$ 8.30	12.78	14.03	13.19	32.93	
A Opera Year 201		Farebox		12.6%	6.3%	8.2%	7.3%	3.1%	
OCT. Fiscal		Zone		ပ	z	ပ	ပ	ပ	
$\leq$	OCTA	Route		473	453	472	480	463	

Total bus count (429) is based on PM weekday equipment requirements.
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
21	Buena Park - Sunset Beach	via Valley View St/ Bolsa Chica Rd	LOCAL
24	Buena Park - Orange	via Malvern Ave/ Chapman Ave/ Tustin Ave	LOCAL
25	Fullerton - Huntington Beach	via Knott Ave/ Goldenwest St	LOCAL
26	Fullerton - Placentia	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
53/53X	Anaheim - Irvine	via Main St	LOCAL
54	Garden Grove - Orange	via Chapman Ave	
55	Santa Ana - Newport Beach	via Standard Ave/ Bristol St/ Fairview St/ 17th St	
56	Garden Grove - Orange	via Garden Grove Blvd	
57/578	Brea - Newport Beach	via State College Blvd/ Bristol St	
59	Anabeim - Invine	via Kraemer Blvd/ Glassell St/ Grand Ave/ Von Karman Ave	
60	Long Beach - Tustin	via Westminster Ave/ 17th St	
64/648	Huntington Beach - Tustin	via Bolsa Ave/ 1st St	
66	Huntington Beach - Tustin	via Bolsa Ave/ 1st st	LOCAL
70	Support Boach - Tustin	via Nichadden Ave, Walnut Ave	
70	Suiset Beach - Tustin Verballinda - Newport Beach	via Euriger Ave	LOCAL
71	Forba Linua - Newport Beach		LOCAL
72	Sunset Beach - Tustin	via Warner Ave	LOCAL
70	Tuetin Neuroet Deech		LOCAL
79	Fasthill Banch - Dansha Canta Margarita	via Bryan Ave/ Cuiver Di/ Oniversity Ave	LOCAL
82	Anghaing Lagung Hills	via Portola Pkwy/ Santa Marganta Pkwy	LOCAL
83	Ananeim - Laguna Hins	via 5 Fwy/ Iviairi St	LOCAL
85	Mission Viejo - Laguna Niguei	via Marguerite Pkwy/ Crown Valley Pkwy	LOCAL
86	Costa Mesa - Mission Viejo	via Alton Pkwy/ Jeronimo Rd	LOCAL
87	Rancho Santa Margarita - Laguna Niguei		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
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
206	Santa Ana - Lake Forest Express	via 5 Fwy	EXPRESS BUS
211	Huntington Beach - Irvine Express	via 405 Fwy	EXPRESS BUS
213	Brea - Irvine Express	via 55 Fwy	EXPRESS BUS
453	Orange Transportation Center - St. Joseph's Hospital	via Chapman Ave/ Main St/ La Veta Ave	STATIONLINK
462	Santa Ana Regional transportation Center - Civic Center	via Santa Ana Blvd/ Civic Center Dr	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
529	Fullerton - Huntington Beach	via Beach Blvd	BRAVO
543	Fullerton Transportation Center - Santa Ana	via Harbor Blvd	BRAVO
560	Santa Ana - Long Beach	via 17th St/ Wesminster Blvd	BRAVO
701	Huntington Beach - Los Angeles Express	via 405 Fwy/ 605 Fwy/ 105 Fwy/ 110 Fwy	EXPRESS BUS
721	Fullerton - Los Angeles Express	via 110 Fwy/ 91 Fwy	EXPRESS BUS
794	Riverside / Corona - South Coast Metro Express	via 91 Fwy/ 55 Fwy	EXPRESS BUS

# OC Bus 360° Plan: Performance to Date

To address declining bus ridership, the OCTA Board of Directors (Board) endorsed a comprehensive action plan known as OC Bus 360° plan in 2015. This effort included a comprehensive review of current and former rider perceptions, a peer review panel that reviewed OCTA's performance and plans, new branding and marketing tactics tied to rider needs, upgraded bus routes and services to better match demand and capacity, technology solutions to improve passenger experience, and pricing, as well as other revenue changes to stimulate ridership and provide new funding.

Extensive work was invested by OCTA divisions to implement the OC Bus  $360^{\circ}$  plan. These efforts included:

- Implementation of new and faster bus routes;
- Redeployment of services in June 2016, October 2016, October 2017, and February 2018, to improve efficiencies and build ridership;
- Competitively awarded grants to local agencies through Project V for transit services tailored to community needs;
- Implementation of a promotional fare and college pass program;
- Rollout of new technologies, such as mobile ticketing, real-time bus arrival information, a microtransit service; and
- Extensive marketing, public outreach, and promotional campaigns.

#### Impact of the Service Changes

Of the series of approved bus service changes under the OC Bus 360° plan, the changes implemented in October 2016 and February 2018 were the most significant and are tracked for overall OC Bus 360° plan impact. Provided below is a series of charts that show overall system performance over the last 13 quarters and the impact of these route adjustments (*October 2016 marked by green bar; February 2018 marked by blue bar*). In this review, performance is measured by change in average weekday boardings for routes that were improved and average B/RVH for routes that were reduced. This analysis is necessary and on-going to gauge the effectiveness of the recommended changes and the overall OC Bus 360° plan. The trend of overall system ridership and productivity is provided on the following chart.

Through the second quarter of FY 2019-20:

- Ridership was 2.1 percent lower than the previous quarter, and 3.1 percent lower than the same quarter last year.
- Productivity through the second quarter fell by 0.9 percent from last quarter and dropped by 4.1 percent from the same quarter last year.


The impacts of the adjustments implemented under the OC Bus 360° plan are consistent with the systemwide trend. The following chart compares the system trend against the group of routes improved under the OC Bus 360° plan. The average weekday ridership systemwide and for the improved routes was nearly a percent lower than last quarter and dropped by 3.1 percent and 5.3 percent, respectively compared to the same quarter last year.



Improved system and route productivity are the goals for services that are *reduced* or *eliminated* under the OC Bus 360° plan – making low performing routes more productive.



The following chart compares the system productivity trend against the productivity of the group of routes that were reduced/eliminated in October 2016 and February 2018.

During the second quarter of FY 2019-20, productivity systemwide and for the collective reductions decreased by 0.3 percent and increased by 0.7 percent, respectively compared to last quarter, but fell by 4.1 percent and 1.4 percent, respectively compared to the same quarter last year. Overall, the productivity for the routes reduced under OC Bus 360° remain above the system average by 15.8 percent.

#### Other OC Bus 360° Initiatives

#### **OC Flex Pilot Program**

OC Flex service launched in October 2018 in two zones under a one-year pilot program. The OCTA 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 quarterly Bus Operations Performance Measurements Report.

Through the second quarter of FY 2019-20, ridership increased for the fifth consecutive quarter. Three of the five performance metrics, shared trips, connecting trips and customer satisfaction, continue to exceed the respective targets. The remaining two measures, productivity and subsidy per boarding, continue to trend in the right direction though they remain below target. To improve performance, several strategies were developed. The strategies include modifying the zone boundaries, adjusting the span of service hours, allowing additional pre-paid pass options, and targeted marketing. These adjustments were presented to the Board in January 2020 and implemented in February 2020. At that time, staff also proposed extending the pilot period through October 2020 to allow further evaluation of the service. The ridership impacts of these changes, as approved, will be tracked and reported on a quarterly basis.



OC Flex Ridership – Through Q2-FY2019-20

**OC Flex Productivity (B/RVH) and Direct Subsidy per Boarding – Through Q2-FY2019-20** Targets: Productivity – 6 b/rvh; Direct Subsidy per Boarding - \$9 per Boarding





# OC Flex Shared Trips – Through Q2-FY2019-20

Target: 25% of Booked Trips Sharing a Vehicle

# OC Flex Connecting Trips (Transfers) – Through Q2-FY2019-20



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

#### **College Pass Program**

The College Pass Program started in August 2017 with students participating from Santa Ana College and continuing education students from Santa Ana College and Santiago Canyon colleges. In August 2018, the program expanded to include all students from Santiago Canyon College. In Fall 2019, both Golden West and Fullerton colleges joined the College Pass Program. Since the inception of the program on August 26, 2019 through the end of the December 2019 reporting period, Fullerton College reported 109,419 boardings and Golden West College reported 63,798 boardings.

The College Pass Program continued to attract new student riders throughout the semester at Golden West and Fullerton colleges, with the cumulative total of unique student riders continuing to increase. The number of unique student riders at Fullerton College increased by 103 percent (from 1,163 in August 2019 to 2,356 by the end of December 2019) and number of unique student riders at Golden West College increased by 157 percent (from 415 in August 2019 to 1,066 by the end of December 2019).

As of December 31, 2019, approximately two and one-half years since the introduction of the College Pass Program, 2.92 million boardings have been recorded with 17,801 unique students participating since August 2017. Compared to second fiscal quarter in FY 2018-19 (and including the newly added colleges), program ridership increased by 19 percent, from 336,263 boardings to 435,830 boardings. The college pass program has been very successful and popular among students and colleges. OCTA continues to work with other interested colleges to expand the College Pass Program with funding support from the colleges, student fees, and available Low Carbon Transit Operations Program and Mobile Source Air Pollution Reduction grant funds.



March 23, 2020

То:	Members of the Board of Directors	
From:	Laurena Weinert, Clerk of the Board	
Subject:	Amendment to Agreement for Bus Cleaning and Environmental Control Services	

Transit Committee Meeting of March 12, 2020

Present:	Directors Do, Davies, Jones, Shaw, and Sidhu
Absent:	Directors Pulido and Winterbottom

### Committee Vote

This item was passed by the Members present.

#### **Committee Recommendation**

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 3 to Agreement No. C-5-3680, between the Orange County Transportation Authority and Gamboa Services, Inc., doing business as Corporate Image Maintenance, in the amount of \$359,058, to exercise the second option term of the agreement from May 1, 2020 through April 30, 2021, for continued bus cleaning and pesticide application services. This will increase the maximum obligation of the agreement to a total contract value of \$1,426,318.



March 12, 20	D20
То:	Transit Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Amendment to Agreement for Bus Cleaning and Environmental Control Services

/

#### Overview

On March 14, 2016, the Board of Directors approved an agreement with Gamboa Services, Inc., doing business as Corporate Image Maintenance, to provide bus cleaning and pesticide application services for a three-year initial term, with two one-year option terms. The first option term will expire on April 30, 2020. Staff is requesting approval to exercise the second option term.

#### Recommendation

Authorize the Chief Executive Officer to negotiate and execute Amendment No. 3 to Agreement No. C-5-3680, between the Orange County Transportation Authority and Gamboa Services, Inc., doing business as Corporate Image Maintenance, in the amount of \$359,058, to exercise the second option term of the agreement from May 1, 2020 through April 30, 2021, for continued bus cleaning and pesticide application services. This will increase the maximum obligation of the agreement to a total contract value of \$1,426,318.

#### Discussion

The Orange County Transportation Authority (OCTA) utilizes a fleet of 756 buses in fixed-route and paratransit services throughout Orange County. Transit buses routinely require pesticide application services and deep cleaning to effectively control pests and maintain cleanliness. The OCTA pest management program consists of licensed contractor services for application of pesticides, placement of bait, and detail cleaning. Detail cleaning is an important element of the program, providing both strategies for pest prevention and removal of chemical residue that often follows pesticide treatment. Scheduled pesticide and bait applications occur four times per year and include complete interior detail cleaning after application. The pesticide application and cleaning are performed on weekends when the

#### Amendment to Agreement for Bus Cleaning and Page 2 Environmental Control Services

maximum number of buses are available. Due to seasonal increases in pest activity during the period between May 1 to September 30, additional pesticide and baiting services are applied to transit buses as needed.

The contractor provides all supervision, equipment, labor, and materials to perform this service on all OCTA transit buses. The agreement also provides for supplemental tasks such as exterior window hard water spot and calcium removal, window sealant application, removal/replacement of window protectors on an as-required basis, Operator Relief Vehicle cleaning, and special event bus cleaning.

#### Procurement Approach

The procurement was handled in accordance with OCTA Board of Directors (Board)-approved policies and procedures for professional and technical services. On March 14, 2016, the Board approved award of the agreement with Gamboa Services, Inc., doing business as (dba) Corporate Image Maintenance, for a three-year initial term with two, one-year option terms, from May 1, 2016 through April 30, 2019, in the amount of \$1,067,260. On March 4, 2019, the first option term was exercised to extend the term of the agreement for 12 months through April 30, 2020. The original agreement was awarded on a competitive basis and has been previously amended as described in Attachment A.

The proposed Amendment No. 3 is to exercise the second option term of the agreement through April 30, 2021, at the same rates as negotiated in the original agreement. Amending this agreement will increase the maximum cumulative payment obligation by \$359,058, bringing the total contract value to \$1,426,318, which will allow continued services for bus cleaning and pesticide application.

#### Fiscal Impact

The project was approved in OCTA's Budget for fiscal years 2019-20 and 2020-21, Operations Division, Maintenance Department, accounts 2162-D3107-7613-2WP, 2168-D3107-7613-2WP, and 2194-D3107-7613-2WP, and Operations Division, Contracted Services, accounts 2136-D1208-7613-0B2, 2137-D1208-7613-0B1, 2138-D2108-7613-0GH, and 2148-D2140-7613-0JT, and is funded through the Local Transportation Fund.

#### Amendment to Agreement for Bus Cleaning and Page 3 Environmental Control Services

#### Summary

Based on the information provided, staff recommends the Board authorize the Chief Executive Officer to negotiate and execute Amendment No. 3 to Agreement No. C-5-3680 with Gamboa Services, Inc., dba Corporate Image Maintenance, in the amount of \$359,058, to exercise the second one-year option term of the agreement through April 30, 2021, for bus cleaning and pesticide application services. This will increase the maximum obligation of the agreement to a total contract value of \$1,426,318.

#### Attachment

A. Gamboa Services, Inc., doing business as Corporate Image Maintenance Agreement No. C-5-3680 Fact Sheet

Prepared by:

Dayle Withers Department Manager, Maintenance (714) 560-5538

Virginia Abadessa Director, Contracts Administration and Materials Management (714) 560-5623

Approved by:

Cliff Thorne Director, Maintenance and Motorist Services (714) 560-5975

Jennifer L. Bergener Chief Operating Officer, Operations (714) 560-5462

#### Gamboa Services, Inc., doing business as Corporate Image Maintenance Agreement No. C-5-3680 Fact Sheet

- 1. March 14, 2016, Agreement No. C-5-3680, \$1,067,260, approved by the Board of Directors (Board).
  - Agreement to provide bus cleaning and pesticide application services.
  - Initial term effective May 1, 2016 through April 30, 2019, with two, one-year option terms.
- 2. March 4, 2019, Amendment No. 1 to Agreement No. C-5-3680, \$0, approved by the Contracts Administration and materials Management Department (CAMM).
  - Amendment to exercise the first, one-year option term, extending the term of the agreement through April 30, 2020.
- 3. December 18, 2019, Amendment No. 2 to Agreement No. C-5-3680, \$0, approved by CAMM.
  - Amendment to add the task of special bus baiting to the Scope of Work.
- 4. March 23, 2020, Amendment No. 3 to Agreement No. C-5-3680, \$359,058, pending approval by the Board.
  - Amendment to exercise the second, one-year option term, extending the term of the agreement through April 30, 2021.

Total committed to Gamboa Services, Inc., doing business as, Corporate Image Maintenance, Agreement No. C-5-3680: \$1,426,318.



March 23, 2020

**To:** Members of the Board of Directors  $\mathcal{J}_{lv}$ 

From: Laurena Weinert, Clerk of the Board

Subject: Orange County Local Transportation Authority Measure M2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Santa Ana, Year Ended June 30, 2019

Finance and Administration Committee Meeting of March 11, 2020

Present: Directors Do, Hennessey, Hernandez, Jones, Muller, R. Murphy, and Steel Absent: None

### **Committee Vote**

This item was passed by the Members present.

#### **Committee Recommendation**

Direct staff to develop recommendation(s) for Board of Directors' action related to the status of the City of Santa Ana's Measure M2 eligibility.



### March 11, 2020

To:	Finance and Administration Committee
From:	Darrell E. Johnson, Chief Executive Officer
	Janet Sutter, Executive Director
Subject:	Orange County Local Transportation Authority Measure

#### Subject: Orange County Local Transportation Authority Measure M2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Santa Ana, Year Ended June 30, 2019

#### Overview

Eide Bailly LLP, an independent accounting firm, has applied agreed-upon procedures related to Measure M2 Maintenance of Effort expenditures by the City of Santa Ana for the fiscal year ended June 30, 2019. Based on the audit, the City of Santa Ana spent sufficient funds to meet the required minimum expenditures as outlined in a settlement agreement between the City of Santa Ana and the Orange County Transportation Authority.

#### Recommendation

Direct staff to develop recommendation(s) for Board of Directors' action related to the status of the City of Santa Ana's Measure M2 eligibility.

# Background

On May 13, 2019, the Orange County Transportation Authority (OCTA) Board of Directors (Board) found the City of Santa Ana (City) ineligible to receive Measure M2 revenues after an audit found that the City had not met the minimum Maintenance of Effort (MOE) requirement of the Measure M2 Ordinance. In addition, the Board directed staff to conduct audits of the City for the fiscal years (FY) ending June 30, 2019 and June 30, 2020, to assess full (100 percent) compliance with MOE requirements and to increase the MOE requirement for FY 2018-19 by the shortfall amount identified in the FY 2017-18 audit.

A written settlement agreement, dated October 22, 2019, was executed between OCTA and the City which outlined requirements for the City to re-establish

#### Orange County Local Transportation Authority Measure M2 Page 2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Santa Ana, Year Ended June 30, 2019

eligibility. Among other items, the settlement agreement required the City to undergo, and pay for, audits for FY 2018-19 and 2019-20, to determine compliance with MOE requirements.

#### Discussion

Eide Bailly LLP (auditors), tested MOE expenditures representing 100 percent of the City's minimum required expenditures and found it met the minimum required expenditures per the settlement agreement with OCTA.

Minimum required MOE expenditures totaled \$8,018,429, per the settlement agreement. The City spent a total of approximately \$10.7 million per its expenditure report and detailed general ledger. Of the amount spent, the auditors tested \$8,761,215 and, after removing ineligible and questioned expenditures, found that the City met the minimum required expenditures.

The detailed audit report can be found at Attachment A.

# Summary

The auditors have completed agreed-upon procedures related to Measure M2 MOE expenditures for the City for FY ended June 30, 2019.

# Attachment

A. Measure M2 Maintenance of Effort Agreed-Upon Procedures Report Year Ended June 30, 2019 Orange County Local Transportation Authority – City of Santa Ana

Prepared by:

Janet Sutter Executive Director, Internal Audit 714-560-5591

ATTACHMENT A



Measure M2 Maintenance of Effort Agreed-Upon Procedures Report Year Ended June 30, 2019

Orange County Local Transportation Authority – City of Santa Ana





**CPAs & BUSINESS ADVISORS** 

#### Independent Accountant's Report on Applying Agreed-Upon Procedures — City Santa Ana, California

Board of Directors Orange County Local Transportation Authority and the Taxpayers Oversight Committee of the Orange County Local Transportation Authority

We have performed the procedures enumerated below, which were agreed to by the Board of Directors of the Orange County Local Transportation Authority (OCLTA) (the specified party), on the City of Santa Ana's (City) compliance with certain provisions of the Measure M2 Local Transportation Ordinance (Ordinance) as of and for the fiscal year ended June 30, 2019. The City's management is responsible for compliance with the Ordinance and for its cash, revenue and expenditure records. The sufficiency of these procedures is solely the responsibility of the OCLTA. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

The procedures and associated findings were as follows:

1. We obtained the Settlement Agreement between OCTA and the City and identified the required minimum amount to be spent on MOU expenditures.

**<u>Findings</u>**: The City was required to spend \$8,018,429 in MOE expenditures during the fiscal year ended June 30, 2019, which included \$7,755,107 for 2018-19 MOE expenditures and \$263,322 of MOE shortfall from fiscal year 2017-18. No exceptions were found as a result of this procedure.

2. We documented which funds the City used to track all street and road expenditures and inquired how the City identifies MOE expenditures in its general ledger.

<u>Findings:</u> All MOE expenditures were tracked in the general ledger by fund, program, and activity. The City recorded its MOE expenditures in its General Fund under the following accounting units: Roadway Markings/Signs (AU 01117625), Street Light Maintenance (AU 01117630), Street Trees (AU 01117643), Street Lights (AU 05117620), Traffic/Transportation Engineering (AU 01117620), and Graffiti Abatement Program (AU 01117642). No exceptions were found as a result of this procedure.

3. We obtained the detail of MOE expenditures for the fiscal year ended June 30, 2019 and determined whether the City met the minimum MOE requirement. We agreed the total MOE expenditures to the amount reported on the City's Expenditure Report (Schedule 3, line 18), explaining any differences.

**Findings:** The City's MOE expenditures for the fiscal year ended June 30, 2019 were \$10,738,892 (see Schedule A), which exceeded the requirement. We agreed the total expenditures of \$10,738,892 to the amount reported on the City's Expenditure Report (Schedule 3, line 18) with no differences. No exceptions were found as a result of this procedure.

- 4. We tested MOE expenditures representing 100 percent of the City's minimum required expenditures, from the City's general ledger expenditure detail. For each item selected, we performed the following:
  - a. Agreed the dollar amount listed on the general ledger to supporting documentation, which may include a check copy or wire transfer, vendor invoice, payroll registers and timecards, journal voucher or other appropriate supporting documentation. For indirect charges, we reviewed supporting documentation for reasonableness and appropriate methodology.
  - b. Verified that the expenditure was properly classified as a local street and road expenditure and is allowable per the Ordinance.

**<u>Findings</u>**: MOE expenditures tested totaled \$8,761,215, representing approximately 109% of the minimum required for the fiscal year ended June 30, 2019. Of the total tested, we identified the following exceptions:

- \$341,070 of expenditures were not allowable per the Ordinance, as they were not local street and road expenditures.
- \$71,864 of expenditures were questioned due to lack of support demonstrating that the expenditures were eligible local street and road expenditures.
- \$225,000 in graffiti removal expenditures were questioned after testing of the City's methodology for allocating these costs and identified a 35% error rate.

After removing \$637,934 from total MOE expenditures, the City continued to meet the minimum MOE requirement, with \$8,123,281 in expenditures tested, or 101% of the MOE benchmark. No other exceptions were found as a result of this procedure.

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. We were not engaged to and did not conduct an audit or review, the objective of which would be the expression of an opinion or conclusion, respectively, on the accounting records, any indirect cost allocation plans and compliance with the provisions of the Measure M2 Local Transportation Ordinance. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

At the request of OCLTA, the City's responses to certain findings are included in Exhibit 1. The responses are included for the purposes of additional information and were not subjected to the procedures described above. Accordingly, we did not perform any procedures on the City's responses and express no assurance or opinion on them.

This report is intended solely for the information and use of the Board of Directors of the Orange County Local Transportation Authority and the Taxpayers Oversight Committee and is not intended to be and should not be used by anyone other than those specified parties.

sde Bailly LLP

Laguna Hills, California February 28, 2020

# Orange County Local Transportation Authority

Schedule of Measure M2 Maintenance of E	Effort Expenditures	(Unaudited)
	City of Santa An	- California

Schedule A	City of Santa A Year Ended	City of Santa Ana, California Year Ended June 30, 2019	
		,	
Maintenance of Effort (MOE) Expenditures:			
Maintenance:			
Street Lights & Traffic Signals - Schedule 3, line 13	\$	5,369,845	
Other Street Purpose Maintenance - Schedule 3, line 15		2,991,125	
Construction:			
Signals, Safety Devices & Street Lights - Schedule 3, line 4		1,719,634	
Indirect and/or Overhead - Schedule 3, line 1		658,288	
Total MOE expenditures		10,738,892	
MOE Benchmark 2018-19	¢	7 755 107	
MOE Shortfall 2017-18	Ŷ	763 377	
Total required MOE expenditures		8 018 429	
Total required MOL expenditures		0,010,425	
Direct MOE expenditures tested	\$	8,102,927	
Indirect MOE expenditures tested		658,288	
Total MOE expenditures Tested		8,761,215	
Ineligible costs identified		3/11 070	
Questioned costs identified (non-graffiti removal)		71 864	
Questioned costs identified (graffiti removal)		225 000	
		637 934	
Total allowable MOE expenditures tested	<u>¢</u>	9 122 291	
	Ş	0,123,201	

% allowable tested of required MOE expenditure total

Note:

The above amounts were taken directly from the financial records of the City of Santa Ana and were not audited.

101%

MAYOR Miguel A. Pulido MAYOR PRO TEM Juan Villegas COUNCILMEMBERS Phil Bacerra Cecilia Iglesias David Penaloza Vicente Sarmiento Jose Solorio



CITY OF SANTA ANA 20 Civic Center Plaza • P.O. Box 1988 Santa Ana, California 92702 www.santa-ana.org

February 28, 2020

Board of Directors Orange County Local Transportation Authority and the Taxpayers Oversight Committee of the Orange County Local Transportation Authority

The following response is being submitted to address results from the agreed upon procedures performed for the Measure M2 Local Transportation Ordinance for the City of Santa Ana as of and for the fiscal year ended June 30, 2019.

#### Procedure #4

We tested MOE expenditures representing 100 percent of the City's minimum required expenditures, from the City's general ledger expenditure detail. For each item selected, we performed the following:

- a. Agreed the dollar amount listed on the general ledger to supporting documentation, which may include a check copy or wire transfer, vendor invoice, payroll registers and timecards, journal voucher or other appropriate supporting documentation. For indirect charges, we reviewed supporting documentation for reasonableness and appropriate methodology.
- b. Verified that the expenditure was properly classified as a local street and road expenditure and is allowable per the Ordinance.

**Findings:** MOE expenditures tested totaled \$8,761,215, representing approximately 109% of the minimum required for the fiscal year ended June 30, 2019. Of the total tested, we identified the following exceptions:

- \$341,070 of expenditures were not allowable per the Ordinance, as they were not local street and road expenditures.
- \$71,864 of expenditures were questioned due to lack of support demonstrating that the expenditures were eligible local street and road expenditures.
- \$225,000 in graffiti removal expenditures were questioned after testing of the City's methodology for allocating these costs and identified a 35% error rate.

#### SANTA ANA CITY COUNCIL

Miguel A. Pulido Mayor mpulido@santaana.org Juan Villegas Vic Mayor Pro Tem, Ward 5 jvillegas@santa-ana.org vsa

Vicente Sarmiento Ward 1 vsarmiento@santaana.org David Penaloza Ward 2 dpenaloza@santaana.org Jose Solorio Ward 3 jsolorio@santa-ana.org Phil Bacerra Ward 4 <u>pbacerra@santa-</u> ana.org Cecilia Iglesias Ward 6 ciglesias@santaana.org After removing \$637,934 from total MOE expenditures, the City continued to meet the minimum MOE requirement, with \$8,123,281 in expenditures tested, or 101% of the MOE benchmark. No other exceptions were found as a result of this procedure.

#### City's Response:

- The Public Works Agency (PWA), with the assistance of the Finance and Management Services Agency, will update its department procedures to properly identify and code Maintenance of Effort (MOE) expenditures to ensure only eligible costs associated with Right-of Way are included in the General Fund accounting units identified for MOE.
- The City will review internal charges to ensure that MOE eligible expenditures are properly supported. MOE employee labor hours will be supported by daily timesheets and/or crew logs.
- PWA will review procedures related to graffiti services and explore the possibility of adding additional categories under the graffiti tracking system to improve the allocation process for MOE eligible expenditures.

With the implementation of procedures noted above, the City will continue to meet its MOE requirements.

Sincerely,

Kristine Ridge, City Manager

Kathryn Downs, Executive Director Finance and Management Services Agency

Mam aba

Nabil Saba, Acting Executive Director of Public Works

Miguel A. Pulido
Mayor
mpulido@santa-
ana.org

Juan Villegas Mayor Pro Tem, Ward 5 jvillegas@santa-ana.org

Vicente Sarmiento Ward 1 vsarmiento@santaana.org David Penaloza Ward 2 dpenaloza@santaana.org

SANTA ANA CITY COUNCIL

Jose Solorio Ward 3 jsolorio@santa-ana.org

Phil Bacerra Ward 4 pbacerra@santaana.org Cecilia Iglesias Ward 6 ciglesias@santaana.org



March 23, 2020

**To:** Members of the Board of Directors  $\mathcal{A}_{\mathcal{A}}$ 

From: Laurena Weinert, Clerk of the Board

Subject: Orange County Local Transportation Authority Measure M2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Stanton, Year Ended June 30, 2019

Finance and Administration Committee Meeting of March 11, 2020

Present: Directors Do, Hennessey, Hernandez, Jones, Muller, R. Murphy, and Steel Absent: None

### **Committee Vote**

This item was passed by the Members present.

#### **Committee Recommendation**

Direct staff to develop recommendation(s) for Board of Directors' action related to the status of the City of Stanton's Measure M2 eligibility.



### March 11, 2020

То:	Finance and Administration Committee
From:	Darrell E. Johnson, Chief Executive Officer
	Janet Sutter, Executive Director
Subject:	Orange County Local Transportation Authority Measure

Subject: Orange County Local Transportation Authority Measure M2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Stanton, Year Ended June 30, 2019

### Overview

Eide Bailly LLP, an independent accounting firm, has applied agreed-upon procedures related to Measure M2 Maintenance of Effort expenditures by the City of Stanton for the fiscal year ended June 30, 2019. Based on the audit, the City of Stanton spent sufficient funds to meet the required minimum expenditures as outlined in a settlement agreement between the City of Stanton and the Orange County Transportation Authority.

#### Recommendation

Direct staff to develop recommendation(s) for Board of Directors' action related to the status of the City of Stanton's Measure M2 eligibility.

# Background

On May 13, 2019, the Orange County Transportation Authority (OCTA) Board of Directors (Board) found the City of Stanton (City) ineligible to receive Measure M2 revenues after an audit found that the City had not met the minimum Maintenance of Effort (MOE) requirement of the Measure M2 Ordinance (Ordinance). In addition, the Board directed staff to conduct an audit of the City for the fiscal year (FY) ending June 30, 2019, to assess compliance with MOE requirements and to increase the MOE requirement for FY 2018-19 by the shortfall amount identified in the FY 2017-18 audit.

A written settlement agreement, dated July 22, 2019, was executed between OCTA and the City which outlined requirements for the City to re-establish eligibility. Among other items, the settlement agreement required the City to

#### Orange County Local Transportation Authority Measure M2 Page 2 Maintenance of Effort, Agreed-Upon Procedures Report, City of Stanton, Year Ended June 30, 2019

undergo, and pay for, an audit of FY 2018-19 to determine compliance with MOE requirements.

#### Discussion

Eide Bailly LLP (auditors), tested a sample of MOE expenditures for FY 2018-19, and found the City met the minimum required expenditures per the settlement agreement with OCTA.

Per the settlement agreement, the City was required to spend \$252,775 in MOE. The City reported total MOE expenditures of \$303,195, and the auditors tested \$163,627, or 54 percent, for compliance with the Ordinance. After removing \$12,413 in ineligible expenditures, the City still met the minimum requirement.

The detailed audit report can be found at Attachment A.

#### Summary

The auditors have completed agreed-upon procedures related to Measure M2 MOE expenditures for the City for FY ended June 30, 2019.

#### Attachment

A. Measure M2 Maintenance of Effort Agreed-Upon Procedures Report Year Ended June 30, 2019 Orange County Local Transportation Authority – City of Stanton

Prepared by:

Janet Sutter Executive Director, Internal Audit 714-560-5591

ATTACHMENT A

Measure M2 Maintenance of Effort Agreed-Upon Procedures Report Year Ended June 30, 2019 Orange County Local Transportation Authority – City of Stanton





**CPAs & BUSINESS ADVISORS** 

#### Independent Accountant's Report on Applying Agreed-Upon Procedures — City of Stanton, California

Board of Directors Orange County Local Transportation Authority and the Taxpayers Oversight Committee of the Orange County Local Transportation Authority

We have performed the procedures enumerated below, which were agreed to by the Board of Directors of the Orange County Local Transportation Authority (OCLTA) (the specified party), on the City of Stanton's (City) compliance with certain provisions of the Measure M2 Local Transportation Ordinance (Ordinance) as of and for the fiscal year ended June 30, 2019. The City's management is responsible for compliance with the Ordinance and for its cash, revenue and expenditure records. The sufficiency of these procedures is solely the responsibility of the OCLTA. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

The procedures and associated findings were as follows:

1. We obtained the Settlement Agreement between OCTA and the City and identified the required minimum amount to be spent on MOU expenditures.

**<u>Findings</u>**: The City was required to spend \$252,775 in MOE expenditures during the fiscal year ended June 30, 2019, which included \$245,213 for FY 2018-19 MOE expenditures and \$7,562 of MOE shortfall from fiscal year 2017-18. No exceptions were found as a result of this procedure.

2. We documented which funds the City used to track all street and road expenditures and inquired how the City identifies MOE expenditures in its general ledger.

**Findings:** All MOE expenditures were tracked in the general ledger by fund, program, and activity. The City recorded its MOE expenditures in its General Fund (101) under the Street Maintenance Department (3500). No exceptions were found as a result of this procedure.

3. We obtained the detail of MOE expenditures for the fiscal year ended June 30, 2019 and determined whether the City met the minimum MOE requirement. We agreed the total MOE expenditures to the amount reported on the City's Expenditure Report (Schedule 3, line 18), explaining any differences.

**Findings:** The City's MOE expenditures for the fiscal year ended June 30, 2019 were \$303,195 (see Schedule A), which exceeded the requirement. We agreed the total expenditures of \$303,195 to the amount reported on the City's Expenditure Report (Schedule 3, line 18) with no differences. No exceptions were found as a result of this procedure.

- 4. We haphazardly selected a sample of MOE expenditures from the City's general ledger expenditure detail. For each item selected, we performed the following:
  - a. Agreed the dollar amount listed on the general ledger to supporting documentation, which may include a check copy or wire transfer, vendor invoice, payroll registers and timecards, journal voucher or other appropriate supporting documentation. For indirect charges, we reviewed supporting documentation for reasonableness and appropriate methodology.
  - b. Verified that the expenditure was properly classified as a local street and road expenditure and is allowable per the Ordinance.

Findings: MOE expenditures tested totaled \$163,627, representing approximately 54% of total MOE expenditures for the fiscal year ended June 30, 2019. We identified eleven expenditures, totaling \$12,413 that were not properly classified as local street and road expenditures, nor were the costs allowable per the Ordinance. However, after removing the amounts from total MOE expenditures, the City continued to meet the minimum MOE requirement. No other exceptions were found as a result of this procedure.

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. We were not engaged to and did not conduct an audit or review, the objective of which would be the expression of an opinion or conclusion, respectively, on the accounting records, any indirect cost allocation plans and compliance with the provisions of the Measure M2 Local Transportation Ordinance. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

At the request of OCLTA, the City's responses to certain findings are included in Exhibit 1. The responses are included for the purposes of additional information and were not subjected to the procedures described above. Accordingly, we did not perform any procedures on the City's responses and express no assurance or opinion on them.

This report is intended solely for the information and use of the Board of Directors of the Orange County Local Transportation Authority and the Taxpayers Oversight Committee and is not intended to be and should not be used by anyone other than those specified parties.

Laguna Hills, California

March 4, 2020

	City of Stanton, California
Schedule A	Year Ended June 30, 2019
Maintenance of Effort (MOE) Expenditures:	
Maintenance: Other Street Purpose Maintenance - Schedule 3, line 15	\$ 122.846
Indirect and/or Overhead - Schedule 3, line 1	180.349
Total MOE expenditures	303,195
·	
MOE Benchmark 2018-19	\$ 245,213
MOE Shortfall 2017-18	7,562
Total required MOE expenditures	252,775
Direct MOE expenditures tested	\$ 106.124
Indirect MOE expenditures tested	57,503
Total MOE expenditures tested	163,627
% tested of total MOE expenditures	54%
Ineligible costs identified	12,413
Total Allowable MOE expenditures Tested	\$ 151,214
% allowable tested of required MOE expenditure total	60%

### Orange County Local Transportation Authority Schedule of Measure M2 Maintenance of Effort Expenditures (Unaudited) City of Stanton, California

Note:

The above amounts were taken directly from the financial records of the City of Stanton and were not audited.

# **EXHIBIT 1**



David J. Shawver Mayor

> Carol Warren Mayor Pro Tem

Gary Taylor Council Member

Hong Alyce Van Council Member

Rigoberto A. Ramirez Council Member

Jarad L. Hildenbrand City Manager March 4, 2020

Board of Directors Orange County Local Transportation Authority and the Taxpayers Oversight Committee of the Orange County Local Transportation Authority

The following response is being submitted to address results from the agreed upon procedures performed for the Measure M2 Local Transportation Ordinance for the City Stanton as of and for the fiscal year ended June 30, 2019.

#### Procedure #4

We haphazardly selected a sample of MOE expenditures from the City's general ledger expenditure detail. For each item selected, we performed the following:

- a. Agreed the dollar amount listed on the general ledger to supporting documentation, which may include a check copy or wire transfer, vendor invoice, payroll registers and timecards, journal voucher or other appropriate supporting documentation. For indirect charges, we reviewed supporting documentation for reasonableness and appropriate methodology.
- b. Verified that the expenditure was properly classified as a local street and road expenditure and is allowable per the Ordinance.

**Findings:** MOE expenditures tested totaled \$163,627, representing approximately 54% of total MOE expenditures for the fiscal year ended June 30, 2019. We identified twelve expenditures, totaling \$12,413 that were not properly classified as local street and road expenditures, nor were the costs allowable per the Ordinance. However, after removing the amounts from total MOE expenditures, the City continued to meet the minimum MOE requirement. No other exceptions were found as a result of this procedure.

#### **City's Response:**

Management has reviewed the types of expenditures that were disallowed by the auditors with the Public Works Department's staff who are responsible for coding vendor invoices to inform them of the appropriate division these expenditures should be coded to in the future. For fiscal year 2019-20, Finance Department staff is working with Public Works Department staff to scan the expenditure detail to reclassify similar costs that may have been incorrectly coded to the street maintenance division before the completion of the Measure M2 audit.

7800 Katella Avenue Stanton, CA 90680 Phone (714) 379-9222 Fax (714) 890-1443 www.ci.stanton.ca.us Board of Directors

Orange County Local Transportation Authority and the Taxpayers Oversight Committee of the Orange County Local Transportation Authority Page Two

Sincerely,

Jarad Hildenbrand, City Manager

12 -1Sam

Michelle Bannigan, Director of Finance

Allan Rigg, Director of Public Works



March 23, 2	020 for
То:	Members of the Board of Directors
From:	Darrell E. Johnson, Chief Executive Officer

**Subject:** Approval to Release Request for Proposals for On-Call Commercial Real Estate Brokerage Services

#### Overview

The Orange County Transportation Authority has developed a request for proposals to initiate a competitive procurement process to retain a consultant for on-call commercial real estate brokerage services for leasing and disposition of anticipated excess land owned by the Orange County Transportation Authority. Staff is seeking Board of Directors' approval to release the request for proposals to select a firm to perform the required work.

#### Recommendations

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 0-2160 for selection of consultant services for on-call commercial real estate brokerage services.
- B. Approve the release of Request for Proposals 0-2160 for on-call commercial real estate brokerage services.

# Discussion

The Orange County Transportation Authority (OCTA) is the owner of various parcels of improved and vacant land in the existing property inventory or will acquire inventory as part of capital improvement projects. Due to the number of anticipated future vacant and improved parcels not needed for OCTA's use (excess land), staff recommends the use of a commercial real estate brokerage consultant to provide its services to lease and/or dispose of excess land. OCTA may also require the need to investigate real estate market conditions to acquire properties for OCTA use.

# Approval to Release Request For Proposals for On-CallPage 2Commercial Real Estate Brokerage Services

Future anticipated excess land will result primarily from OCTA's freeway widening projects, including the Interstate 405 (I-405) Improvement Project between State Route 73 (SR-73) to Interstate 605, State Route 91 Improvement Project between Interstate 5 (I-5) and State Route 57, State Route 55 Improvement Project between I-405 and I-5, and I-5 Improvement Project between SR-73 and EI Toro Road. Staff has identified 15 potential properties that may need to be sold as excess over the next five years; however, the total number of excess parcels is still to be determined. OCTA also anticipates commercial brokerage services may be required to service various transit projects. Improved parcels may include commercial, retail, industrial, and office facilities, which will require marketing and lease or license agreements to maximize the property values prior to sale.

Commercial real estate brokerage services shall include, but are not limited to, conduct market analysis, lease and sale of excess land and facilities, advisory services, and conduct negotiations on behalf of OCTA with potential renters and buyers. Compensation for real estate brokerage services will be based upon a commission rate applied to the gross sales price achieved for each separate lease agreement or parcel sale. The estimated values for potential property sales currently identified is approximately \$50,000,000, plus the amount of potential rent that will be received through lease agreements. The total commissions to be paid will likely exceed \$1,000,000.

# Procurement Approach

The OCTA procurement policies and procedures require that the Board of Directors (Board) approve all request for proposals (RFP) over \$1,000,000, as well as approve the evaluation criteria and weightings. Staff is submitting for Board approval the draft RFP and evaluation criteria and weightings, which will be used to evaluate proposals received in response to the RFP. The recommended evaluation criteria and weightings are as follows:

•	Qualifications of the Firm	30 percent
•	Staffing and Project Organization	20 percent
•	Work Plan	20 percent
•	Cost and Price	30 percent

The evaluation criteria are consistent with criteria developed for previous procurements for real estate brokerage services. Several factors were considered in developing the criteria weights. Staff assigned the greatest level of importance to the qualifications of the firm and cost and price. The qualifications of the firm are important because a firm's corporate experience in a broad range of real estate commercial brokerage services is essential to effective performance. Cost and price will be reviewed to ensure services are competitive and reasonable. Staffing and project organization is also important

# Approval to Release Request For Proposals for On-CallPage 3Commercial Real Estate Brokerage Services

to ensure that the proposed staff are qualified across multiple functions and available to perform the services required. The work plan criterion will be used to review the firm's understanding of potential projects and any anticipated challenges.

The term of this agreement will be a three-year initial term with one, two-year option term.

This RFP will be released upon Board approval of these recommendations.

Fiscal Impact

Funding for this project is not included in OCTA's Fiscal Year 2020-21 Budget. The funds for payment for this procurement shall be deducted from the proceeds received from the lease revenue and sales revenue of the specific program related to each OCTA-owned parcel and/or facility.

#### Summary

Board approval is requested to release RFP 0-2160 for On-Call Commercial Real Estate Brokerage Services.

#### Approval to Release Request For Proposals for On-Call Page 4 Commercial Real Estate Brokerage Services

#### Attachment

Draft Request for Proposals (RFP) 0-2160, On-Call Commercial Α. Real Estate Brokerage Services

Prepared by:

Joe Gallardo Manager, Real Property (714) 560-5546

require Aladersa

Virginia Abadessa Director, Contracts Administration and Materials Management (714) 560-5623

Approved by:

Just

James G. Beil, P.E. **Executive Director, Capital Programs** (714) 560-5646

**DRAFT REQUEST FOR PROPOSALS (RFP) 0-2160** 

# ON-CALL REAL ESTATE BROKERAGE SERVICES



ORANGE COUNTY TRANSPORTATION AUTHORITY 550 South Main Street P.O. Box 14184 Orange, CA 92863-1584 (714) 560-6282

Key RFP Dates

Issue Date:	March 23, 2020
Pre-Proposal Conference Date:	April 1, 2020
Question Submittal Date:	April 3, 2020
Proposal Submittal Date:	April 21, 2020
Interview Date:	May 7, 2020

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#### NOTICE OF REQUEST FOR PROPOSALS

# (RFP): 0-2160: "ON-CALL REAL ESTATE BROKERAGE SERVICES"

#### **TO: ALL OFFERORS**

### FROM: ORANGE COUNTY TRANSPORTATION AUTHORITY

The Orange County Transportation Authority (Authority) invites proposals from qualified consultants to provide on-call real estate brokerage services for leasing and disposition of the Orange County Transportation Authority owned excess land.

The term of the Agreement will be a three (3) year initial term with one, two (2) year option term.

# Proposals must be received in the Authority's office at or before 2:00 p.m. on April 21, 2020.

Proposals delivered in person or by a means other than the U.S. Postal Service shall be submitted to the following:

Orange County Transportation Authority Contracts Administration and Materials Management 600 South Main Street, (Lobby Receptionist) Orange, California 92868 Attention: Megan Bornman, Contract Administrator

Proposals delivered using the U.S. Postal Service shall be addressed as follows:

Orange County Transportation Authority Contracts Administration and Materials Management P.O. Box 14184 Orange, California 92863-1584 Attention: Megan Bornman, Contract Administrator Proposals and amendments to proposals received after the date and time specified above will be returned to the Offerors unopened.

Firms interested in obtaining a copy of this Request for Proposals (RFP) may do so by downloading the RFP from CAMM NET at <u>https://cammnet.octa.net</u>.

All firms interested in doing business with the Authority are required to register their business on-line at CAMM NET. The website can be found at <u>https://cammnet.octa.net</u>. From the site menu, click on CAMM NET to register.

To receive all further information regarding this RFP 0-2160, firms and subconsultants must be registered on CAMM NET with at least one of the following commodity codes for this solicitation selected as part of the vendor's on-line registration profile:

<u>Category:</u> Professional Services <u>Commodity:</u> Real Estate Services

A pre-proposal conference will be held on April 1, 2020, at 3:30 p.m. at the Authority's Administrative Office, 550 South Main Street, Orange, California, 92868 in Conference Room 08. All prospective Offerors are encouraged to attend the pre-proposal conference.

The Authority has established May 7, 2020, as the date to conduct interviews. All prospective Offerors will be asked to keep this date available.

Offerors are encouraged to subcontract with small businesses to the maximum extent possible.

All Offerors will be required to comply with all applicable equal opportunity laws and regulations.

The award of this contract is subject to receipt of federal, state and/or local funds adequate to carry out the provisions of the proposed agreement including the identified Scope of Work.
# SECTION I: INSTRUCTIONS TO OFFERORS

## SECTION I. INSTRUCTIONS TO OFFERORS

### A. PRE-PROPOSAL CONFERENCE

A pre-proposal conference will be held on April 1, 2020, at 3:30 p.m. at the Authority's Administrative Office, 550 South Main Street, Orange, California, 92868 in Conference Room 08. All prospective Offerors are encouraged to attend the pre-proposal conference.

### B. EXAMINATION OF PROPOSAL DOCUMENTS

By submitting a proposal, Offeror represents that it has thoroughly examined and become familiar with the work required under this RFP and that it is capable of performing quality work to achieve the Authority's objectives.

#### C. ADDENDA

The Authority reserves the right to revise the RFP documents. Any Authority changes to the requirements will be made by written addendum to this RFP. Any written addenda issued pertaining to this RFP shall be incorporated into the terms and conditions of any resulting Agreement. The Authority will not be bound to any modifications to or deviations from the requirements set forth in this RFP as the result of oral instructions. Offerors shall acknowledge receipt of addenda in their proposals. Failure to acknowledge receipt of Addenda may cause the proposal to be deemed non-responsive to this RFP and be rejected.

### D. AUTHORITY CONTACT

All communication and/or contacts with Authority staff regarding this RFP are to be directed to the following Contract Administrator:

Megan Bornman, Contract Administrator Contracts Administration and Materials Management Department 600 South Main Street P.O. Box 14184 Orange, CA 92863-1584 Phone: 714.560. 5064, Fax: 714.560.5792 Email: mbornman@octa.net

Commencing on the date of the issuance of this RFP and continuing until award of the contract or cancellation of this RFP, no proposer, subcontractor, lobbyist or agent hired by the proposer shall have any contact or communications regarding this RFP with any Authority's staff; member of the evaluation committee for this RFP; or any contractor or consultant involved with the procurement, other than the Contract Administrator named above or unless expressly permitted by this RFP. Contact includes face-to-face, telephone, electronic mail (e-mail) or formal written communication. Any proposer, subcontractor, lobbyist or agent hired by the proposer that engages in such prohibited communications may result in disqualification of the proposer at the sole discretion of the Authority. mbornman@octa.net

## E. CLARIFICATIONS

## 1. Examination of Documents

Should an Offeror require clarifications of this RFP, the Offeror shall notify the Authority in writing in accordance with Section D.2. below. Should it be found that the point in question is not clearly and fully set forth, the Authority will issue a written addendum clarifying the matter which will be sent to all firms registered on CAMM NET under the commodity codes specified in this RFP.

## 2. Submitting Requests

- a. All questions, including questions that could not be specifically answered at the pre-proposal conference must be put in writing and must be received by the Authority no later than 5:00 p.m., on April 3, 2020.
- b. Requests for clarifications, questions and comments must be clearly labeled, "Written Questions". The Authority is not responsible for failure to respond to a request that has not been labeled as such.
- c. Any of the following methods of delivering written questions are acceptable as long as the questions are received no later than the date and time specified above:
  - (1) U.S. Mail: Orange County Transportation Authority, 550 South Main Street, P.O. Box 14184, Orange, California 92863-1584.
  - (2) Personal Delivery: Contracts Administration and Materials Management Department, 600 South Main Street, Lobby Receptionist, Orange, California 92868.
  - (3) Facsimile: (714) 560-5792.
  - (4) Email: mbornman@octa.net

## 3. Authority Responses

Responses from the Authority will be posted on CAMM NET, no later than April 9, 2020. Offerors may download responses from CAMM NET at *https://cammnet.octa.net*, or request responses be sent via U.S. Mail by emailing or faxing the request to Megan Bornman, Contract Administrator.

To receive email notification of Authority responses when they are posted on CAMM NET, firms and subconsultants must be registered on CAMM NET with at least one of the following commodity codes for this solicitation selected as part of the vendor's on-line registration profile:

<u>Category:</u>	<u>Commodity:</u>
Professional Services	Real Estate Services

Inquiries received after 5:00 p.m. on April 3, 2020 will not be responded to.

### F. SUBMISSION OF PROPOSALS

### 1. Date and Time

Proposals must be received in the Authority's office at or before 2:00 p.m. on April 21, 2020.

Proposals received after the above-specified date and time will be returned to Offerors unopened.

### 2. Address

Proposals delivered in person or by a means other than the U.S. Postal Service shall be submitted to the following:

Orange County Transportation Authority Contracts Administration and Materials Management (CAMM) 600 South Main Street, (Lobby Receptionist) Orange, California 92868 Attention: Megan Bornman, Contract Administrator

Or proposals delivered using the U.S. Postal Services shall be addressed as follows:

Orange County Transportation Authority Contracts Administration and Materials Management (CAMM) P.O. Box 14184 Orange, California 92863-1584 Attention: Megan Bornman, Contract Administrator

## 3. Identification of Proposals

Offeror shall submit an **original and 6 copies** of its proposal in a sealed package, addressed as shown above in F.2. The outer envelope must show the Offeror's name and address and clearly marked with RFP number. In addition to the above, Proposers shall also include one (1) electronic copy

of their entire RFP submittal package in "PDF" format, on a CD, DVD, or flash drive.

## 4. Acceptance of Proposals

- a. The Authority reserves the right to accept or reject any and all proposals, or any item or part thereof, or to waive any informalities or irregularities in proposals.
- b. The Authority reserves the right to withdraw or cancel this RFP at any time without prior notice and the Authority makes no representations that any contract will be awarded to any Offeror responding to this RFP.
- c. The Authority reserves the right to issue a new RFP for the project.
- d. The Authority reserves the right to postpone proposal openings for its own convenience.
- e. Each proposal will be received with the understanding that acceptance by the Authority of the proposal to provide the services described herein shall constitute a contract between the Offeror and Authority which shall bind the Offeror on its part to furnish and deliver at the fees given and in accordance with conditions of said accepted proposal.
- f. The Authority reserves the right to investigate the qualifications of any Offeror, and/or require additional evidence of qualifications to perform the work.
- g. Submitted proposals are not to be copyrighted.

## G. PRE-CONTRACTUAL EXPENSES

The Authority shall not, in any event, be liable for any pre-contractual expenses incurred by Offeror in the preparation of its proposal. Offeror shall not include any such expenses as part of its proposal.

Pre-contractual expenses are defined as expenses incurred by Offeror in:

- 1. Preparing its proposal in response to this RFP;
- 2. Submitting that proposal to the Authority;
- 3. Negotiating with the Authority any matter related to this proposal; or
- 4. Any other expenses incurred by Offeror prior to date of award, if any, of the Agreement.

## H. JOINT OFFERS

Where two or more firms desire to submit a single proposal in response to this RFP, they should do so on a prime-subcontractor basis rather than as a joint venture. The Authority intends to contract with a single firm and not with multiple firms doing business as a joint venture.

## I. TAXES

Offerors' proposals are subject to State and Local sales taxes. However, the Authority is exempt from the payment of Federal Excise and Transportation Taxes. Offeror is responsible for payment of all taxes for any goods, services, processes and operations incidental to or involved in the contract.

### J. PROTEST PROCEDURES

The Authority has on file a set of written protest procedures applicable to this solicitation that may be obtained by contacting the Contract Administrator responsible for this procurement. Any protests filed by an Offeror in connection with this RFP must be submitted in accordance with the Authority's written procedures.

## K. CONTRACT TYPE

It is anticipated that the Agreement resulting from this solicitation, if awarded, will be based on an agreed upon commission based on the contract price achieved for each separate lease or parcel agreement.

## L. CONFLICT OF INTEREST

All Offerors responding to this RFP must avoid organizational conflicts of interest which would restrict full and open competition in this procurement. An organizational conflict of interest means that due to other activities, relationships or contracts, an Offeror is unable, or potentially unable to render impartial assistance or advice to the Authority; an Offeror's objectivity in performing the work identified in the Scope of Work is or might be otherwise impaired; or an Offeror has an unfair competitive advantage. Conflict of Interest issues must be fully disclosed in the Offeror's proposal.

All Offerors must disclose in their proposal and immediately throughout the course of the evaluation process if they have hired or retained an advocate to lobby Authority staff or the Board of Directors on their behalf.

Offerors hired to perform services for the Authority are prohibited from concurrently acting as an advocate for another firm who is competing for a contract with the Authority, either as a prime or subcontractor.

## M. CODE OF CONDUCT

All Offerors agree to comply with the Authority's Code of Conduct as it relates to Third-Party contracts which is hereby referenced and by this reference is incorporated herein. All Offerors agree to include these requirements in all of its subcontracts.

# SECTION II: PROPOSAL CONTENT

## SECTION II. PROPOSAL CONTENT

## A. PROPOSAL FORMAT AND CONTENT

### 1. Format

Proposals should be typed with a standard 12-point font, double-spaced and submitted on 8 1/2" x 11" size paper, using a single method of fastening. Charts and schedules may be included in 11"x17" format. Proposals should not include any unnecessarily elaborate or promotional materials. Proposals should not exceed fifty (50) pages in length, excluding any appendices, cover letters, resumes, or forms.

## 2. Letter of Transmittal

The Letter of Transmittal shall be addressed to Megan Bornman, Contract Administrator and must, at a minimum, contain the following:

- a. Identification of Offeror that will have contractual responsibility with the Authority. Identification shall include legal name of company, corporate address, telephone and fax number, and email address. Include name, title, address, email address, and telephone number of the contact person identified during period of proposal evaluation.
- b. Identification of all proposed subcontractors including legal name of company, whether the firm is a Disadvantaged Business Enterprise (DBE), contact person's name and address, phone number and fax number, and email address; relationship between Offeror and subcontractors, if applicable.
- c. Acknowledgement of receipt of all RFP addenda, if any.
- d. A statement to the effect that the proposal shall remain valid for a period of not less than 120 days from the date of submittal.
- e. Signature of a person authorized to bind Offeror to the terms of the proposal.
- f. Signed statement attesting that all information submitted with the proposal is true and correct.

## 3. Technical Proposal

a. Qualifications, Related Experience and References of Offeror

This section of the proposal should establish the ability of Offeror to satisfactorily perform the required work by reasons of: experience in

performing work of a similar nature; demonstrated competence in the services to be provided; strength and stability of the firm; staffing capability; work load; record of meeting schedules on similar projects; and supportive client references.

## Offeror to:

- (1) Provide a brief profile of the firm, including the types of services offered; the year founded; form of the organization (corporation, partnership, sole proprietorship); number, size and location of offices; and number of employees.
- (2) Provide a general description of the firm's financial condition and identify any conditions (e.g., bankruptcy, pending litigation, planned office closures, impending merger) that may impede Offeror's ability to complete the project.
- (3) Describe the firm's experience in performing work of a similar nature to that solicited in this RFP, and highlight the participation in such work by the key personnel proposed for assignment to this project.
- (4) Identify subcontractors by company name, address, contact person, telephone number, email, and project function. Describe Offeror's experience working with each subcontractor.
- (5) Identify all firms hired or retained to provide lobbying or advocating services on behalf of the Offeror by company name, address, contact person, telephone number and email address. This information is required to be provided by the Offeror immediately during the evaluation process, if a lobbyist or advocate is hired or retained.
- (6) Provide as a minimum three (3) references for the projects cited as related experience, and furnish the name, title, address, telephone number, and email address of the person(s) at the client organization who is most knowledgeable about the work performed. Offeror may also supply references from other work not cited in this section as related experience.
- b. Proposed Staffing and Project Organization

This section of the proposal should establish the method, which will be used by the Offeror to manage the project as well as identify key personnel assigned. Offeror to:

- (1) Identify key personnel proposed to perform the work in the specified tasks and include major areas of subcontract work. Include the person's name, current location, proposed position for this project, current assignment, level of commitment to that assignment, availability for this assignment and how long each person has been with the firm.
- (2) Furnish brief resumes (not more than two [2] pages each) for the proposed Project Manager and other key personnel that includes education, experience, and applicable professional credentials.
- (3) Include a project organization chart, which clearly delineates communication/reporting relationships among the project staff.
- (4) Include a statement that key personnel will be available to the extent proposed for the duration of the project acknowledging that no person designated as "key" to the project shall be removed or replaced without the prior written concurrence of the Authority.
- c. Work Plan

Offeror should provide a narrative, which addresses the Scope of Work, and shows Offeror's understanding of Authority's needs and requirements.

Offeror to:

- (1) Describe the approach to completing the work specified in the Scope of Work. The approach to the work plan shall be of such detail to demonstrate the Offeror's ability to accomplish the project objectives and overall schedule.
- (2) Outline sequentially the activities that would be undertaken in completing the work and specify who would perform them.
- (3) Furnish a project schedule for completing the tasks in terms of elapsed weeks.
- (4) Identify methods that Offeror will use to ensure that the Authority will receive a high return from the sale or lease of its excess land or facilities.

- (5) Identify any special issues or problems that are likely to be encountered in this project and how the Offeror would propose to address them.
- (6) Offeror is encouraged to propose enhancements or procedural or technical innovations to the Scope of Work that do not materially deviate from the objectives or required content of the project.
- d. Exceptions/Deviations

State any technical and/or contractual exceptions and/or deviations from the requirements of this RFP, including the Authority's technical requirements and contractual terms and conditions set forth in the Scope of Work (Exhibit A) and Proposed Agreement (Exhibit C), using the form entitled "Proposal Exceptions and/or Deviations" included in this RFP. This Proposal Exceptions and/or Deviations form must be included in the original proposal submitted by the Offeror. If no technical or contractual exceptions and/or deviations are submitted as part of the original proposal. Offerors are deemed to have accepted the Authority's technical requirements and contractual terms and conditions set forth in the Scope of Work (Exhibit A) and Proposed Agreement (Exhibit C). Offerors will not be allowed to submit the Proposal Exceptions and/or Deviations form or any technical and/or contractual exceptions after the proposal submittal date identified in the RFP. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed by Authority.

All exceptions and/or deviations will be reviewed by the Authority and will be assigned a "pass" or "fail" status. Exceptions and deviations that "pass" do not mean that the Authority has accepted the change but that it is a potential negotiable issue. Exceptions and deviations that receive a "fail" status means that the requested change is not something that the Authority would consider a potential negotiable issue. Offerors that receive a "fail" status on their exceptions and/or deviations will be notified by the Authority and will be allowed to retract the exception and/or deviation and continue in the evaluation process. Any exceptions and/or deviation that receive a "fail" status and the Offeror cannot or does not retract the requested change may result in the firm being eliminated from further evaluation.

### 4. Cost and Price Proposal

As part of the cost and price proposal, the Offeror shall submit proposed fees to provide the services for each work task described in Exhibit A, Scope of Work.

The Offeror shall complete the "Price Summary Sheet" form included with this RFP (Exhibit B), and furnish any narrative required to explain the proposed fees quoted in the schedules.

## 5. Appendices

Information considered by Offeror to be pertinent to this project and which has not been specifically solicited in any of the aforementioned sections may be placed in a separate appendix section. Offerors are cautioned, however, that this does not constitute an invitation to submit large amounts of extraneous materials. Appendices should be relevant and brief.

## B. FORMS

## 1. Campaign Contribution Disclosure Form

In conformance with the statutory requirements of the State of California Government Code Section 84308, part of the Political Reform Act and Title 2, California Code of Regulations 18438 through 18438.8, regarding campaign contributions to members of appointed Board of Directors, Offeror is required to complete and sign the Campaign Contribution Disclosure Form provided in this RFP and submit as part of the proposal.

This form **must** be completed regardless of whether a campaign contribution has been made or not and regardless of the amount of the contribution.

The prime contractor, subconsultants, lobbyists and agents are required to report all campaign contributions made from the proposal submittal date up to and until the Board of Directors makes a selection.

Offeror is required to submit only **one** copy of the completed form(s) as part of its proposal and it must be included in only the **original** proposal.

## 2. Status of Past and Present Contracts Form

Offeror shall complete and sign the form entitled "Status of Past and Present Contracts" provided in this RFP and submit as part of its proposal. Offeror shall identify the status of past and present contracts where the firm has either provided services as a prime vendor or a subcontractor during the past five (5) years in which the contract has been the subject of or may be involved in litigation with the contracting authority. This includes, but is not limited to, claims, settlement agreements, arbitrations, administrative proceedings, and investigations arising out of the contract. Offeror shall have an ongoing obligation to update the Authority with any changes to the identified contracts and any new litigation, claims, settlement agreements,

arbitrations, administrative proceedings, or investigations that arise subsequent to the submission of Offeror's proposal.

A separate form must be completed for each identified contract. Each form must be signed by the Offeror confirming that the information provided is true and accurate. Offeror is required to submit one copy of the completed form(s) as part of its proposals and it should be included in only the original proposal.

## 3. **Proposal Exceptions and/or Deviations Form**

Offerors shall complete the form entitled "Proposal Exceptions and/or Deviations" provided in this RFP and submit it as part of the original proposal. For each exception and/or deviation, a new form should be used, identifying the exception and/or deviation and the rationale for requesting the change. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed nor considered by the Authority.

# SECTION III: EVALUATION AND AWARD

## SECTION III. EVALUATION AND AWARD

## A. EVALUATION CRITERIA

The Authority will evaluate the offers received based on the following criteria:

## 1. Qualifications of the Firm

Technical experience in performing work of a closely similar nature; strength and stability of the firm; strength, stability, experience and technical competence of subcontractors; assessment by client references.

### 2. Staffing and Project Organization

Qualifications of project staff, particularly key personnel and especially the Project Manager; key personnel's level of involvement in performing related work cited in "Qualifications of the Firm" section; logic of project organization; adequacy of labor commitment; concurrence in the restrictions on changes in key personnel.

## 3. Work Plan

Depth of Offeror's understanding of Authority's requirements and overall quality of work plan; logic, clarity and specificity of work plan; appropriateness of resource allocation among the tasks; reasonableness of proposed schedule; utility of suggested technical or procedural innovations.

## 4. Cost and Price

Reasonableness of the proposed fee; competitiveness with other offers received; adequacy of data in support of figures quoted.

## B. EVALUATION PROCEDURE

An evaluation committee will be appointed to review all proposals received for this RFP. The committee is comprised of Authority staff and may include outside personnel. The committee members will evaluate the written proposals using criteria identified in Section III A. A list of top-ranked proposals, firms within a competitive range, will be developed based upon the totals of each committee members' score for each proposal.

During the evaluation period, the Authority may interview some or all of the proposing firms. The Authority has established May 7, 2020, as the date to conduct interviews. All prospective Offerors are asked to keep this date available. No other interview dates will be provided, therefore, if an Offeror is unable to attend the interview on this date, its proposal may be eliminated from further discussion. The interview may consist of a short presentation by the Offeror after which the

30%

20%

30%

20%

evaluation committee will ask questions related to the firm's proposal and qualifications.

At the conclusion of the proposal evaluations, Offerors remaining within the competitive range may be asked to submit a Best and Final Offer (BAFO). In the BAFO request, the firms may be asked to provide additional information, confirm or clarify issues and submit a final cost/price offer. A deadline for submission will be stipulated.

At the conclusion of the evaluation process, the evaluation committee will recommend to the Finance and Administration Committee, the Offeror with the highest final ranking or a short list of top ranked firms within the competitive range whose proposal(s) is most advantageous to the Authority. The Finance and Administration Committee will review the evaluation committee's recommendation and forward its decision to the full Board of Directors for final action.

### C. AWARD

The Authority will evaluate the proposals received and will submit, with approval of the Finance and Administration Committee, the proposal considered to be the most competitive to the Authority's Board of Directors, for consideration and selection. The Authority may also negotiate contract terms with the selected Offeror prior to award, and expressly reserves the right to negotiate with several Offerors simultaneously and, thereafter, to award a contract to the Offeror offering the most favorable terms to the Authority.

The Authority reserves the right to award its total requirements to one Offeror or to apportion those requirements among several Offerors as the Authority may deem to be in its best interest. In addition, negotiations may or may not be conducted with Offerors; therefore, the proposal submitted should contain Offeror's most favorable terms and conditions, since the selection and award may be made without discussion with any Offeror.

The selected Offeror will be required to submit to the Authority's Accounting department a current IRS W-9 form prior to commencing work.

## D. NOTIFICATION OF AWARD AND DEBRIEFING

Offerors who submit a proposal in response to this RFP shall be notified via CAMM NET of the contract award. Such notification shall be made within three (3) business days of the date the contract is awarded.

Offerors who were not awarded the contract may obtain a debriefing concerning the strengths and weaknesses of their proposal. Unsuccessful Offerors, who wish to be debriefed, must request the debriefing in writing or electronic mail and the Authority must receive it within three (3) business days of notification of the contract award.

# EXHIBIT A: SCOPE OF WORK

### SCOPE OF WORK COMMERCIAL REAL ESTATE BROKERAGE SERVICES

## I. BACKGROUND

The Orange County Transportation Authority (OCTA) requires the use of a commercial real estate brokerage consultant to provide real estate brokerage services to lease and dispose of excess land parcels, both current and anticipated parcels in its inventory. OCTA may also require the services to investigate real estate market conditions and acquire properties for OCTA use. Additionally, some excess parcels may require marketing and lease or license agreements to maximize the property values prior to sale.

Future anticipated vacant and improved excess parcels will be primarily from OCTA's freeway widening projects, which include Interstate 405, State Route 73 (SR-73), Interstate 605, State Route 91, State Route 55 and Interstate 5 from SR-73 to El Toro Road. Additionally, OCTA anticipates commercial brokerage services will be required for various transit projects including potential sale of excess land along the Pacific Electric Right of Way. The number of excess parcels is still to be determined. The anticipated improved parcels may include but are not limited to: commercial properties, retail properties, industrial properties and office facilities.

## II. TASKS

In accordance to OCTA's Real Property Policies and Procedures and all federal, state and local laws, Consultant shall perform the following services to sell existing OCTAowned excess land:

- Review OCTA appraisals and market conditions and recommend the likely sale price range for each parcel.
- Develop a marketing plan and implementation schedule and upon OCTA's approval, implement the marketing strategy for sale of property.
- Facilitate negotiations between OCTA and prospective buyers or voluntary sellers.

Consultant shall perform the following services to lease commercial office space at the OCTA-owned property:

- Determine an opinion of value of the lease market price.
- Determine a marketing strategy and upon OCTA's written approval, implement the marketing strategy.

• Facilitate negotiations between OCTA and prospective tenants. Consultant shall draft lease and provide prospective tenant's financial information to OCTA for execution.

In accordance to OCTA's Real Property Policies and Procedures and all federal, state and local laws, Consultant shall perform the following services to lease and/or sell future OCTA-owned improved excess land:

- Analyze the financial aspect and propose the various options available to OCTA to sell or lease-up each parcel.
- Determine a marketing strategy and upon OCTA's written approval, implement the marketing strategy.
- Facilitate negotiations between OCTA and the prospective tenants and/or buyers.

## III. TIMELINE

The valuation and marketing services described in Section II above will be completed and a written report thereon shall be delivered to OCTA no later than 14 days from execution of contract.

Within seven days thereafter, Consultant will schedule a meeting with OCTA staff for a follow-up presentation, which will allow an opportunity for questions.

Consultant shall be available for additional conferences as required by OCTA, provide written reports as needed and/or may present to the OCTA Executive Management, Board Committee or Board of Directors.

## IV. DELIVERABLES

OCTA shall provide Consultant with the following items:

- Property List
- Property Descriptions
- Property Maps
- OCTA Real Property Policies and Procedures Manual
- Appraisals, as necessary

Consultant shall provide OCTA with the following items:

Market Overview

- Market Trends
- Provide recent sale/leasing comparables, as appropriate

• Market Activity (competitive buildings in the market)

## Property Information

- Opinion of value of the market sale price/proposed leasing rate of the subject property as offered.
- Likely Acquisition/Sale price range based on market conditions
- Length of time required to market property
- Opinion of best use for property that would yield the highest price
- Provide opinion of value for a developer sale scenario

## Marketing Strategy

- Marketing Plan/Canvassing Program
- Proposed target market for transactions
- Proposed Market Flyer
- Description of other collateral materials
- Implementation Schedule
- Communication (frequency of reporting)
- Approach to obtaining highest value
- Any cost associated with marketing (define)

# EXHIBIT B: COST AND PRICE FORMS

## PRICE SUMMARY SHEET

## **REQUEST FOR PROPOSALS (RFP) 0-2160**

Enter below the proposed fee for the work described in the Scope of Work, Exhibit A. Fees shall include direct costs, indirect costs and profits.

State the commission rate for listing and selling of excess land and facilities.	%
State your commission rate for listing and renting of land and facilities.	%
State any other costs anticipated in relation to the real estate services to be provided.	
1.	\$
2.	\$
3.	\$
4.	\$
5.	\$
6.	\$
7.	\$
8.	\$
9.	\$
10.	\$

1.	I acknowledge receipt of <b>RFP 0-2160</b> and Addenda No.(s)		
2.	This offer shall remain firm for (Mir	nimum of 120)	_ days from the date of proposal.
COM	PANY NAME		
ADDF	RESS		
TELE	PHONE		
FACS	SIMILE #		
EMAI	L ADDRESS		
SIGN AUTH	ATURE OF PERSON IORIZED TO BIND OFFEROR		
NAME AUTH	E AND TITLE OF PERSON IORIZED TO BIND OFFEROR		
DATE	SIGNED		

# EXHIBIT C: PROPOSED AGREEMENT

1	PROPOSED AGREEMENT NO. C-0-2160		
2	BETWEEN		
3	ORANGE COUNTY TRANSPORTATION AUTHORITY		
4	AND		
5			
6	THIS AGREEMENT is effective this day of, 2020		
7	("Effective Date"), by and between the Orange County Transportation Authority, 550 South Main Street,		
8	P.O. Box 14184, Orange, California 92863-1584, a public corporation of the State of California		
9	(hereinafter referred to as "AUTHORITY"), and , , , , (hereinafter referred to as "CONSULTANT").		
10	WITNESSETH:		
11	WHEREAS, AUTHORITY requires assistance from CONSULTANT to provide on-call real estate		
12	brokerage services; and		
13	WHEREAS, said work cannot be performed by the regular employees of AUTHORITY; and		
14	WHEREAS, CONSULTANT has represented that it has the requisite personnel and experience,		
15	and is capable of performing such services; and		
16	WHEREAS, CONSULTANT wishes to perform these services; and		
17	WHEREAS, the AUTHORITY's Board of Directors authorized this Agreement on;		
18	NOW, THEREFORE, it is mutually understood and agreed by AUTHORITY and CONSULTANT		
19	as follows:		
20	ARTICLE 1. COMPLETE AGREEMENT		
21	A. This Agreement, including all exhibits and documents incorporated herein and made		
22	applicable by reference, constitutes the complete and exclusive statement of the terms and conditions of		
23	this Agreement between AUTHORITY and CONSULTANT and it supersedes all prior representations,		
24	understandings and communications. The invalidity in whole or in part of any term or condition of this		
25	Agreement shall not affect the validity of other terms or conditions.		
26	/		

B. AUTHORITY's failure to insist in any one or more instances upon CONSULTANT's performance of any terms or conditions of this Agreement shall not be construed as a waiver or relinquishment of AUTHORITY's right to such performance or to future performance of such terms or conditions and CONSULTANT's obligation in respect thereto shall continue in full force and effect. Changes to any portion of this Agreement shall not be binding upon AUTHORITY except when specifically confirmed in writing by an authorized representative of AUTHORITY by way of a written amendment to this Agreement and issued in accordance with the provisions of this Agreement.

### ARTICLE 2. AUTHORITY DESIGNEE

The Chief Executive Officer of AUTHORITY, or designee, shall have the authority to act for and exercise any of the rights of AUTHORITY as set forth in this Agreement.

### ARTICLE 3. SCOPE OF WORK

A. CONSULTANT shall perform the work necessary to complete in a manner satisfactory to AUTHORITY the services set forth in Exhibit A, entitled "Scope of Work," attached to and, by this reference, incorporated in and made a part of this Agreement. All services shall be provided at the times and places designated by AUTHORITY.

B. CONSULTANT shall provide the personnel listed below to perform the above-specified services, which persons are hereby designated as key personnel under this Agreement.

### <u>Names</u>

### **Functions**

C. No person named in paragraph B of this Article, or his/her successor approved by AUTHORITY, shall be removed or replaced by CONSULTANT, nor shall his/her agreed-upon function or level of commitment hereunder be changed, without the prior written consent of AUTHORITY. Should the services of any key person become no longer available to CONSULTANT, the resume and

qualifications of the proposed replacement shall be submitted to AUTHORITY for approval as soon as possible, but in no event later than seven (7) calendar days prior to the departure of the incumbent key person, unless CONSULTANT is not provided with such notice by the departing employee. AUTHORITY shall respond to CONSULTANT within seven (7) calendar days following receipt of these qualifications concerning acceptance of the candidate for replacement.

#### ARTICLE 4. TERM OF AGREEMENT

A. This Agreement shall commence upon execution by both parties, and shall continue in full force and effect for a term of three (3) years through \_\_\_\_\_\_, unless earlier terminated or extended as provided in this Agreement.

B. AUTHORITY, at its sole discretion, may elect to extend the term of this Agreement up to an additional twenty-four (24) months, commencing on \_\_\_\_\_\_ and continuing through \_\_\_\_\_\_
(option term), and thereupon requires CONSULTANT to continue to provide services, and otherwise perform, in accordance with Exhibit A, entitled "Scope of Work".

C. AUTHORITY's election to extend the Agreement beyond the Initial Term shall not diminish its right to terminate the Agreement for AUTHORITY's convenience or CONSULTANT's default as provided elsewhere in this Agreement. The "maximum term" of this Agreement shall be the period extending from the commencement through \_\_\_\_\_\_, which period encompasses the Initial Term and Option Term.

### ARTICLE 5. PAYMENT

A. For CONSULTANT's full and complete performance of its obligations under this Agreement and subject to the maximum cumulative payment obligation provisions set forth in Article 6, AUTHORITY shall pay CONSULTANT based upon the price achieved in each lease and/or sale agreements into by the AUTHORITY and the buyer and/or lessee. CONSULTANT's commission rate shall be \_\_\_\_\_\_ percent.

B. The AUTHORITY may reimburse CONSULTANT for unanticipated expenses incurred in performing the services identified in the Scope of Work, Exhibit A. Such expenses must be approved by /

the AUHTORITY prior to being incurred. Expenses incurred in the normal course of performing the work under this Agreement shall not be reimbursed.

C. If the AUTHORITY agrees to reimburse CONSULTANT for unanticipated expenses, CONSULTANT shall invoice AUTHORITY. CONSULTANT shall furnish information as may be requested by AUTHORITY to substantiate the validity of an invoice. At its sole discretion, AUTHORITY may decline to make payment for any expense until such time as CONSULTANT has provided documentation to AUTHORITY's satisfaction.

D. Invoices shall be submitted by CONSULTANT on a monthly basis and shall be submitted in duplicate to AUTHORITY's Accounts Payable office. CONSULTANT may also submit invoices electronically to AUTHORITY's Accounts Payable Department at <u>vendorinvoices@octa.net</u>. Each invoice shall include the following information:

1. Agreement No. C-0-2160;

2. Specify the fee/expense for which payment is being requested;

- 3. The time period covered by the invoice;
- 4. Total monthly invoice;

5. Certification signed by the CONSULTANT or his/her designated alternate that a) The invoice is a true, complete and correct statement of reimbursable costs and progress; b) The backup information included with the invoice is true, complete and correct in all material respects; c) All payments due and owing to subcontractors and suppliers have been made; d) Timely payments will be made to subcontractors and suppliers from the proceeds of the payments covered by the certification and; e) The invoice does not include any amount which CONSULTANT intends to withhold or retain from a subcontractor or supplier unless so identified on the invoice.

6. Any other information as agreed or requested by AUTHORITY to substantiate the validity of an invoice.

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## ARTICLE 6. NOTICES

All notices hereunder and communications regarding the interpretation of the terms of this Agreement, or changes thereto, shall be effected by delivery of said notices in person or by depositing said notices in the U.S. mail, registered or certified mail, returned receipt requested, postage prepaid and addressed as follows:

To CONSULTANT:	To AUTHORITY:
	Orange County Transportation Authority
	550 South Main Street
	P.O. Box 14184
,	Orange, CA 92863-1584
ATTENTION:	ATTENTION: Megan Bornman
	Contract Administrator
	(714) 560 - 5064
	mbornman@octa.net
	cc: Joe Gallardo
	Department Manager, Real Property
	(714) 560 – 5546
	jgallardo@octa.net

### ARTICLE 7. INDEPENDENT CONTRACTOR

A. CONSULTANT's relationship to AUTHORITY in the performance of this Agreement is that of an independent contractor. CONSULTANT's personnel performing services under this Agreement shall at all times be under CONSULTANT's exclusive direction and control and shall be employees of CONSULTANT and not employees of AUTHORITY. CONSULTANT shall pay all wages, salaries and other amounts due its employees in connection with this Agreement and shall be responsible for all reports and obligations respecting them, such as social security, income tax withholding, unemployment compensation, workers' compensation and similar matters.

### PROPOSED AGREEMENT NO. C-0-2160

B. Should CONSULTANT's personnel or a state or federal agency allege claims against AUTHORITY involving the status of AUTHORITY as employer, joint or otherwise, of said personnel, or allegations involving any other independent contractor misclassification issues, CONSULTANT shall defend and indemnify AUTHORITY in relation to any allegations made.

### ARTICLE 8. INSURANCE

A. CONSULTANT shall procure and maintain insurance coverage during the entire term of this Agreement. Coverage shall be full coverage and not subject to self-insurance provisions. CONSULTANT shall provide the following insurance coverage:

1. Commercial General Liability, to include Products/Completed Operations, Independent Contractors', Contractual Liability, and Personal Injury Liability, and Property Damage with a minimum limit of \$1,000,000.00 per occurrence and \$2,000,000.00 general aggregate;

2. Automobile Liability Insurance to include owned, hired and non-owned autos with a combined single limit of \$1,000,000.00 each accident;

3. Workers' Compensation with limits as required by the State of California including a waiver of subrogation in favor of AUTHORITY, its officers, directors, employees or agents;

4.

Employers' Liability with minimum limits of \$1,000,000.00; and

5. Professional Liability with minimum limits of \$1,000,000.00 per claim.

B. Proof of such coverage, in the form of a certificate of insurance, with the AUTHORITY, its officers, directors, employees and agents, designated as additional insureds as required by contract. In addition, provide an insurance policy blanket additional insured endorsement. Both documents must be received by AUTHORITY prior to commencement of any work. Proof of insurance coverage must be received by AUTHORITY within ten (10) calendar days from the effective date of this Agreement. Such insurance shall be primary and non-contributive to any insurance or self-insurance maintained by the AUTHORITY. Furthermore, AUTHORITY reserves the right to request certified copies of all related insurance policies.

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C. CONSULTANT shall include on the face of the certificate of insurance the Agreement Number C-0-2160; and, the Contract Administrator's Name, Megan Bornman.

D. CONSULTANT shall also include in each subcontract the stipulation that subcontractors shall maintain insurance coverage in the amounts required from CONSULTANT as provided in this Agreement.

E. CONSULTANT shall be required to immediately notify AUTHORITY of any modifications or cancellation of any required insurance policies.

## ARTICLE 9. ORDER OF PRECEDENCE

Conflicting provisions hereof, if any, shall prevail in the following descending order of precedence: (1) the provisions of this Agreement, including all exhibits; (2) the provisions of RFP 0-2160; (3) CONSULTANT's proposal dated \_\_\_\_\_; (4) all other documents, if any, cited herein or incorporated by reference.

## ARTICLE 10. CHANGES

By written notice or order, AUTHORITY may, from time to time, order work suspension and/or make changes in the general scope of this Agreement, including, but not limited to, the services furnished to AUTHORITY by CONSULTANT as described in the Scope of Work. If any such work suspension or change causes an increase or decrease in the price of this Agreement, or in the time required for its performance, CONSULTANT shall promptly notify AUTHORITY thereof and assert its claim for adjustment within ten (10) calendar days after the change or work suspension is ordered, and an equitable adjustment shall be negotiated. However, nothing in this clause shall excuse CONSULTANT from proceeding immediately with the Agreement as changed.

## ARTICLE 11. DISPUTES

A. Except as otherwise provided in this Agreement, any dispute concerning a question of fact arising under this Agreement which is not disposed of by supplemental agreement shall be decided by AUTHORITY's Director, Contracts Administration and Materials Management (CAMM), who shall reduce the decision to writing and mail or otherwise furnish a copy thereof to CONSULTANT. The decision of the Director, CAMM, shall be final and conclusive.

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#### PROPOSED AGREEMENT NO. C-0-2160

B. Pending final decision of a dispute hereunder, CONSULTANT shall proceed diligently with the performance of this Agreement and in accordance with the decision of AUTHORITY's Director, CAMM. This Disputes clause does not preclude consideration of questions of law in connection with decisions provided for above. Nothing in this Agreement, however, shall be construed as making final the decision of any AUTHORITY official or representative on a question of law, which questions shall be settled in accordance with the laws of the State of California.

#### ARTICLE 12. TERMINATION

A. AUTHORITY may terminate this Agreement for its convenience at any time, in whole or part, by giving CONSULTANT written notice thereof. Upon said notice, AUTHORITY shall pay CONSULTANT its allowable costs incurred to date of termination and those allowable costs determined by AUTHORITY to be reasonably necessary to effect such termination. Thereafter, CONSULTANT shall have no further claims against AUTHORITY under this Agreement.

B. In the event either Party defaults in the performance of any of their obligations under this Agreement or breaches any of the provisions of this Agreement, the non-defaulting Party shall have the option to terminate this Agreement upon thirty (30) days' prior written notice to the other Party. Upon receipt of such notice, CONSULTANT shall immediately cease work, unless the notice from AUTHORITY provides otherwise. Upon receipt of the notice from AUTHORITY, CONSULTANT shall submit an invoice for work and/or services performed prior to the date of termination. AUTHORITY shall pay CONSULTANT for work and/or services satisfactorily provided to the date of termination in compliance with this Agreement. Thereafter, CONSULTANT shall have no further claims against AUTHORITY under this Agreement. AUTHORITY shall not be liable for any claim of lost profits or damages for such termination.

#### ARTICLE 13. INDEMNIFICATION

CONSULTANT shall indemnify, defend, and hold harmless AUTHORITY, its officers, directors, employees and agents from and against any and all claims (including attorneys' fees and reasonable expenses for litigation or settlement) for any loss, costs, penalties, fines, damages, bodily injuries, including death, damage to or loss of use of property, arising out of, resulting from, or in connection with the performance of CONSULTANT, its officers, directors, employees, agents, subconsultants or suppliers under the Agreement. Notwithstanding the foregoing, such obligation to defend, hold harmless, and indemnify AUTHORITY, its officers, directors, employees and agents shall not apply to such claims or liabilities arising from the sole or active negligence or willful misconduct of AUTHORITY.

### ARTICLE 14. ASSIGNMENTS AND SUBCONTRACTS

A. Neither this Agreement nor any interest herein nor claim hereunder may be assigned by CONSULTANT either voluntarily or by operation of law, nor may all or any part of this Agreement be subcontracted by CONSULTANT, without the prior written consent of AUTHORITY. Consent by AUTHORITY shall not be deemed to relieve CONSULTANT of its obligations to comply fully with all terms and conditions of this Agreement.

B. AUTHORITY hereby consents to CONSULTANT's subcontracting portions of the Scope of Work to the parties identified below for the functions described in CONSULTANT's proposal. CONSULTANT shall include in the subcontract agreement the stipulation that CONSULTANT, not AUTHORITY, is solely responsible for payment to the subcontractor for the amounts owing and that the subcontractor shall have no claim, and shall take no action, against AUTHORITY, its officers, directors, employees or sureties for nonpayment by CONSULTANT.

Subcontractor Name/Addresses

#### Subcontractor Amounts

.00 .00

### ARTICLE 15. AUDIT AND INSPECTION OF RECORDS

CONSULTANT shall provide AUTHORITY, or other agents of AUTHORITY, such access to CONSULTANT's accounting books, records, payroll documents and facilities, as AUTHORITY deems necessary. CONSULTANT shall maintain such books, records, data and documents in accordance with generally accepted accounting principles and shall clearly identify and make such items readily accessible to such parties during CONSULTANT's performance hereunder and for a period of four (4)

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years from the date of final payment by AUTHORITY. AUTHORITY's right to audit books and records directly related to this Agreement shall also extend to all first-tier subcontractors identified in Article 14 of this Agreement. CONSULTANT shall permit any of the foregoing parties to reproduce documents by any means whatsoever or to copy excerpts and transcriptions as reasonably necessary.

### ARTICLE 16. CONFLICT OF INTEREST

CONSULTANT agrees to avoid organizational conflicts of interest. An organizational conflict of interest means that due to other activities, relationships or contracts, the CONSULTANT is unable, or potentially unable to render impartial assistance or advice to the AUTHORITY; CONSULTANT's objectivity in performing the work identified in the Scope of Work is or might be otherwise impaired; or the CONSULTANT has an unfair competitive advantage. CONSULTANT is obligated to fully disclose to the AUTHORITY in writing Conflict of Interest issues as soon as they are known to the CONSULTANT. All disclosures must be submitted in writing to AUTHORITY pursuant to the Notice provision herein. This disclosure requirement is for the entire term of this Agreement.

## ARTICLE 17. CODE OF CONDUCT

CONSULTANT agrees to comply with the AUTHORITY's Code of Conduct as it relates to Third-Party contracts which is hereby referenced and by this reference is incorporated herein. CONSULTANT agrees to include these requirements in all of its subcontracts.

## ARTICLE 18. PROHIBITION ON PROVIDING ADVOCACY SERVICES

CONSULTANT and all subconsultants performing work under this Agreement, shall be prohibited from concurrently representing or lobbying for any other party competing for a contract with AUTHORITY, either as a prime consultant or subconsultant. Failure to refrain from such representation may result in termination of this Agreement.

## ARTICLE 19. FEDERAL, STATE AND LOCAL LAWS

CONSULTANT warrants that in the performance of this Agreement, it shall comply with all applicable federal, state and local laws, statutes and ordinances and all lawful orders, rules and regulations promulgated thereunder.

### ARTICLE 20. EQUAL EMPLOYMENT OPPORTUNITY

In connection with its performance under this Agreement, CONSULTANT shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age or national origin. CONSULTANT shall take affirmative action to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex, age or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

### **ARTICLE 21. PROHIBITED INTERESTS**

CONSULTANT covenants that, for the term of this Agreement, no director, member, officer or employee of AUTHORITY during his/her tenure in office or for one (1) year thereafter shall have any interest, direct or indirect, in this Agreement or the proceeds thereof.

### **ARTICLE 22. OWNERSHIP OF REPORTS AND DOCUMENTS**

The originals of all letters, documents, reports and other products and data produced under this Agreement shall be delivered to, and become the property of AUTHORITY. Copies may be made for CONSULTANT's records but shall not be furnished to others without written authorization from AUTHORITY. Such deliverables shall be deemed works made for hire and all rights in copyright therein shall be retained by AUTHORITY.

A. All ideas, memoranda, specifications, plans, manufacturing, procedures, drawings, descriptions, and all other written information submitted to CONSULTANT in connection with the performance of this Agreement shall not, without prior written approval of AUTHORITY, be used for any purposes other than the performance under this Agreement, nor be disclosed to an entity not connected with the performance of the project. CONSULTANT shall comply with AUTHORITY's policies regarding such material. Nothing furnished to CONSULTANT, which is otherwise known to CONSULTANT or is or becomes generally known to the related industry shall be deemed confidential. CONSULTANT shall not use AUTHORITY's name, photographs of the project, or any other publicity pertaining to the project in
any professional publication, magazine, trade paper, newspaper, seminar or other medium without the express written consent of AUTHORITY.

B. No copies, sketches, computer graphics or graphs, including graphic artwork, are to be released by CONSULTANT to any other person or agency except after prior written approval by AUTHORITY, except as necessary for the performance of services under this Agreement. All press releases, including graphic display information to be published in newspapers, magazines, etc., are to be handled only by AUTHORITY unless otherwise agreed to by CONSULTANT and AUTHORITY.

#### ARTICLE 23. PATENT AND COPYRIGHT INFRINGEMENT

A. In lieu of any other warranty by AUTHORITY or CONSULTANT against patent or copyright infringement, statutory or otherwise, it is agreed that CONSULTANT shall defend at its expense any claim or suit against AUTHORITY on account of any allegation that any item furnished under this Agreement or the normal use or sale thereof arising out of the performance of this Agreement, infringes upon any presently existing U.S. letters patent or copyright and CONSULTANT shall pay all costs and damages finally awarded in any such suit or claim, provided that CONSULTANT is promptly notified in writing of the suit or claim and given authority, information and assistance at CONSULTANT's expense for the defense of same. However, CONSULTANT will not indemnify AUTHORITY if the suit or claim results from: (1) AUTHORITY's alteration of a deliverable, such that said deliverable in its altered form infringes upon any presently existing U.S. letters patent or copyright; or (2) the use of a deliverable in combination with other material not provided by CONSULTANT when such use in combination infringes upon an existing U.S. letters patent or copyright.

B. CONSULTANT shall have sole control of the defense of any such claim or suit and all negotiations for settlement thereof. CONSULTANT shall not be obligated to indemnify AUTHORITY under any settlement made without CONSULTANT's consent or in the event AUTHORITY fails to cooperate fully in the defense of any suit or claim, provided, however, that said defense shall be at CONSULTANT's expense. If the use or sale of said item is enjoined as a result of such suit or claim, CONSULTANT, at no expense to AUTHORITY, shall obtain for AUTHORITY the right to use and sell

said item, or shall substitute an equivalent item acceptable to AUTHORITY and extend this patent and copyright indemnity thereto.

#### ARTICLE 24. FINISHED AND PRELIMINARY DATA

A. All of CONSULTANT's finished technical data, including but not limited to illustrations, photographs, tapes, software, software design documents, including without limitation source code, binary code, all media, technical documentation and user documentation, photoprints and other graphic information required to be furnished under this Agreement, shall be AUTHORITY's property upon payment and shall be furnished with unlimited rights and, as such, shall be free from proprietary restriction except as elsewhere authorized in this Agreement. CONSULTANT further agrees that it shall have no interest or claim to such finished, AUTHORITY-owned, technical data; furthermore, said data is subject to the provisions of the Freedom of Information Act, 5 USC 552.

B. It is expressly understood that any title to preliminary technical data is not passed to AUTHORITY but is retained by CONSULTANT. Preliminary data includes roughs, visualizations, software design documents, layouts and comprehensives prepared by CONSULTANT solely for the purpose of demonstrating an idea or message for AUTHORITY's acceptance before approval is given for preparation of finished artwork. Preliminary data title and right thereto shall be made available to AUTHORITY if CONSULTANT causes AUTHORITY to exercise Article 10, and a price shall be negotiated for all preliminary data.

#### ARTICLE 25. CONTRACTOR PURCHASED EQUIPMENT

A. If during the course of this Agreement, additional equipment is required, which will be paid for by the AUTHORITY, CONSULTANT must request prior written authorization from the AUTHORITY's project manager before making any purchase. As part of this purchase request, CONSULTANT shall provide a justification for the necessity of the equipment or supply and submit copies of three (3) competitive quotations. If competitive quotations are not obtained, CONSULTANT must provide the justification for the sole source.

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#### PROPOSED AGREEMENT NO. C-0-2160

B. CONSULTANT shall maintain an inventory record for each piece of equipment purchased that will be paid for by the AUTHORITY. The inventory record shall include the date acquired, total cost, serial number, model identification, and any other information or description necessary to identify said equipment or supply. A copy of the inventory record shall be submitted to the AUTHORITY upon request.

C. At the expiration or termination of this Agreement, CONSULTANT may keep the equipment and credit AUTHORITY in an amount equal to its fair market value. Fair market value shall be determined, at CONSULTANT's expense, on the basis of an independent appraisal. CONSULTANT may sell the equipment at the best price obtainable and credit AUTHORITY in an amount equal to the sales price. If the equipment is to be sold, then the terms and conditions of the sale must be approved in advance by AUTHORITY's project manager.

D. Any subconsultant agreement entered into as a result of this Agreement shall contain all provisions of this clause.

#### ARTICLE 26. FORCE MAJEURE

Either party shall be excused from performing its obligations under this Agreement during the time and to the extent that it is prevented from performing by an unforeseeable cause beyond its control, including but not limited to: any incidence of fire, flood; acts of God; commandeering of material, products, plants or facilities by the federal, state or local government; national fuel shortage; or a material act or omission by the other party; when satisfactory evidence of such cause is presented to the other party, and provided further that such nonperformance is unforeseeable, beyond the control and is not due to the fault or negligence of the party not performing.

#### ARTICLE 27. HEALTH AND SAFETY REQUIREMENT

CONSULTANT shall comply with all the requirements set forth in Exhibit \_, Level\_ Safety Specifications.

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	PROPOSED AGREEMENT NO.
IN WITNESS WHEREOF,	the parties hereto have caused this Agreement No. C-0-2
executed as of the date of the last	signature below.
CONSULTANT	ORANGE COUNTY TRANSPORTATION AL
Ву:	By:
	Darrell E. Johnson Chief Executive Officer
Date:	Date:
	APPROVED AS TO FORM:
	Ву:
	James M. Donich General Counsel
	Date:
	APPROVED:
	Ву:
	James G. Beil, P.E. Executive Director, Capital Programs
	Date:
	Page 15 of 15

# EXHIBIT D: FORMS

#### STATUS OF PAST AND PRESENT CONTRACTS FORM

On the form provided below, Offeror/Bidder shall list the status of past and present contracts where the firm has either provided services as a prime vendor or a subcontractor during the past five (5) years in which the contract has been the subject of or may be involved in litigation with the contracting authority. This includes, but is not limited to, claims, settlement agreements, arbitrations, administrative proceedings, and investigations arising out of the contract.

A separate form must be completed for each contract. Offeror/Bidder shall provide an accurate contact name and telephone number for each contract and indicate the term of the contract and the original contract value. Offeror/Bidder shall also provide a brief summary and the current status of the litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations. If the contract was terminated, list the reason for termination.

Offeror/Bidder shall have an ongoing obligation to update the Authority with any changes to the identified contracts and any new litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations that arise subsequent to the submission of the bid. Each form must be signed by an officer of the Offeror/Bidder confirming that the information provided is true and accurate.

Project city/agency/other:	
Contact Name:	Phone:
Project Award Date:	Original Contract Value:
Term of Contract:	
(1) Litigation, claims, settlem	ents, arbitrations, or investigations associated with contract:
(2) Oursensand Otatus of as	
(2) Summary and Status of Co	
(3) Summary and Status of ac	tion identified in (1):
(4) Reason for termination, if a	ipplicable:
(1)	
By signing this Form entitled "S	Status of Past and Present Contracts," I am affirming that all of the
information provided is true and a	ccurate.

Name

Signature

Title

Date

Revised. 03/16/2018

#### CAMPAIGN CONTRIBUTION DISCLOSURE FORM

#### Information Sheet

#### ORANGE COUNTY TRANSPORTATION AUTHORITY

The attached Campaign Contribution Disclosure Form must be completed by applicants for, or persons who are the subject of, any proceeding involving a license, permit, or other entitlement for use pending before the Board of Directors of the OCTA or any of its affiliated agencies. (Please see next page for definitions of these terms.)

#### IMPORTANT NOTICE

Basic Provisions of Government Code Section 84308

- A. If you are an applicant for, or the subject of, any proceeding involving a license, permit, or other entitlement for use, you are prohibited from making a campaign contribution of more than \$250 to any board member or his or her alternate. This prohibition begins on the date your application is filed or the proceeding is otherwise initiated, and the prohibition ends three months after a final decision is rendered by the Board of Directors. In addition, no board member or alternate may solicit or accept a campaign contribution of more than \$250 from you during this period.
- B. These prohibitions also apply to your agents, and, if you are a closely held corporation, to your majority shareholder as well. These prohibitions also apply to your subcontractor(s), joint venturer(s), and partner(s) in this proceeding. Also included are parent companies and subsidiary companies directed and controlled by you, and political action committees directed and controlled by you.
- C. You must file the attached disclosure form and disclose whether you or your agent(s) have in the aggregate contributed more than \$250 to any board member or his or her alternate during the 12-month period preceding the filing of the application or the initiation of the proceeding.
- D. If you or your agent have in the aggregate contributed more than \$250 to any individual board member or his/or her alternate during the 12 months preceding the decision on the application or proceeding, that board member or alternate must disqualify himself or herself from the decision. However, disqualification is not required if the board member or alternate returns the campaign contribution within 30 days from the time the director knows, or should have known, about both the contribution and the fact that you are a party in the proceeding. The Campaign Contribution Disclosure Form should be completed and filed with your proposal, or with the first written document you file or submit after the proceeding commences.

- 1. A proceeding involving "a license, permit, or other entitlement for use" includes all business, professional, trade and land use licenses and permits, and all other entitlements for use, including all entitlements for land use, all contracts (other than competitively bid, labor or personal employment contracts), and all franchises.
- 2. Your "agent" is someone who represents you in connection with a proceeding involving a license, permit or other entitlement for use. If an individual acting as an agent is also acting in his or her capacity as an employee or member of a law, architectural, engineering, consulting firm, or similar business entity, both the business entity and the individual are "agents."
- 3. To determine whether a campaign contribution of more than \$250 has been made by you, campaign contributions made by you within the preceding 12 months must be aggregated with those made by your agent within the preceding 12 months or the period of the agency, whichever is shorter. Contributions made by your majority shareholder (if a closely held corporation), your subcontractor(s), your joint venturer(s), and your partner(s) in this proceeding must also be included as part of the aggregation. Campaign contributions made to different directors or their alternates are not aggregated.
- 4. A list of the members and alternates of the Board of Directors is attached.

This notice summarizes the major requirements of Government Code Section 84308 of the Political Reform Act and California Code of Regulations, Title 2 Sections 18438-18438.8.

#### ORANGE COUNTY TRANSPORTATION AUTHORITY CAMPAIGN CONTRIBUTION DISCLOSURE FORM

RFP Number: RFP	P Title:	
Was a campaign contribution made to any OCTA regardless of dollar amount of the contribution by eithe agent/lobbyist? Yes	Board Member the proposing No	ber within the preceding 12 months g firm, proposed subconsultants and/o
If no, please sign and date below.		
If yes, please provide the following information:		
Prime Contractor Firm Name:		
Contributor or Contributor Firm's Name:		
Contributor or Contributor Firm's Address:		
Is Contributor:		
• The Prime Contractor	Yes	No
<ul> <li>Subconsultant</li> <li>Agent/Lobbyist bired by Prime</li> </ul>	Yes	No
to represent the Prime in this RFP	Yes	No
Identify the Board Member(s) to whom you, your su contributions, the name of the contributor, the dates of amount of the contribution. Each date must include th	bconsultants, f contribution(s ne exact month	and/or agent/lobbyist made campaigr and/or agent/lobbyist made campaigr and the preceding 12 months and dolla and day, and year of the contribution.
Name of Board Member:		
Name of Contributor:		
Date(s) of Contribution(s):		
Amount(s):		
Name of Board Member:		
Name of Contributor:		
Date(s) of Contribution(s):		
Amount(s):		
Date:	Signature	of Contributor
Print Firm Name	Print Name	e of Contributor

#### ORANGE COUNTY TRANSPORTATION AUTHORITY AND AFFILIATED AGENCIES

#### **Board of Directors**

Steve Jones, Chairman Andrew Do, Vice Chairman Lisa A. Bartlett, Director **Doug Chaffee, Director** Laurie Davies, Director Barbara Delgleize, Director **Michael Hennessey, Director** Gene Hernandez, Director **Joseph Muller, Director** Mark A. Murphy, Director **Richard Murphy, Director Miguel Pulido, Director Tim Shaw, Director** Harry S. Sidhu, Director **Michelle Steel, Director Donald P. Wagner, Director Greg Winterbottom, Director** 

# EXHIBIT E: SAFETY SPECIFICATIONS

#### PART I – GENERAL

#### 1.1 GENERAL HEALTH, SAFETY & ENVIRONMENTAL REQUIREMENTS

- A. The Contractor, its subcontractors, suppliers, and employees have the obligation to comply with all Authority health, safety and environmental compliance department (HSEC) requirements of this safety specification, project site requirements, bus yard safety rules, as well as all federal, state, and local regulations pertaining to scope of work, contracts or agreements with the Authority. Additionally, manufacturer requirements are considered incorporated by reference as applicable to this scope of work.
- B. Observance of repeated unsafe acts or conditions, serious violation of safety standards, non-conformance of Authority health, safety and environmental compliance department (HSEC) requirements, or disregard for the intent of these safety specifications to protect people and property, by Contractor or its subcontractors may be cause for termination of scope or agreements with the Authority, at the sole discretion of the Authority.
- c. The health, safety, and environmental requirements, and references contained within this scope of work shall not be considered all-inclusive as to the hazards that might be encountered. Safe work practices shall be planned and performed, and safe conditions shall be maintained during this work scope.
- D. The Authority Project Manager shall be responsible to ensure a safety orientation is conducted of known potential hazards and emergency procedures for all Contractor personnel, subcontractors, suppliers, vendors, and new employees assigned to the project prior to commencement of the project.
- E. The Contractor shall ensure that all Contractor vehicles, including those of its subcontractors, suppliers, vendors and employees are parked in designated parking areas, and comply with traffic routes, and posted traffic signs in areas other than the employee parking lots.
- F. California Code of Regulations (CCR) Title 8 Standards are minimum requirements; each Contractor is encouraged to exceed minimum requirements. When the Contractor's safety requirements exceed statutory standards, the more stringent requirements shall be applied for the safeguard of public and employees.

#### 1.2 REGULATORY

- A. Injury/Illness Prevention Program The Contractor shall comply with CCR Title 8, Section with California Code of Regulations (CCR) Title 8, Section 3203. The intent and elements of the IIPP shall be implemented and enforced by the Contractor and its sub-tier contractors, suppliers, and vendors. The program shall be provided to the Authority's Project Manager, upon request, within 72 hours.
- B. Substance Abuse Prevention Program

Contractor shall comply with the Policy or Program of the Company's Substance Abuse Prevention Policy that complies with the most recent Drug Free Workplace Act. The program shall be provided to the Authority's Project Manager, upon request, within 72 hours.

- C. Heat Illness Prevention Program Contractor shall comply with CCR Title 8, Section, Section 3395, Heat Illness Prevention. The program shall be provided to the Authority's Project Manager, upon request, within 72 hours.
- D. Hazard Communication Program

Contractor shall comply with CCR Title 8, Section 5194 Hazard Communication Standard. Prior to use on Authority property and/or project work areas Contractor shall provide the Authority Project Manager copies of SDS for all applicable chemical products used, if any. The program shall be provided to the Authority's Project Manager, upon request, within 72 hours.

- a. All chemicals including paint, solvents, detergents and similar substances shall comply with South Coast Air Quality Management District (SCAQMD) rules 103, 1113, and 1171.
- E. Storm Water Pollution Prevention Plan The Contractor shall protect property and water resources from fuels and similar products throughout the duration of the contract. Contractor shall comply with Storm Water Pollution Prevention Plan (SWPPP) requirements. The program or plan if required by scope shall be provided to the Authority's Project Manager, upon request, within 72 hours.
- 1.3 INCIDENT NOTIFICATION AND INVESTIGATION
  - A. The Authority shall be promptly notified of any of the following types of incidents including but not limited to:
    - 1. Damage incidents of property (incidents involving third party, contractor or Authority property damage);
    - 2. Reportable and/or Recordable injuries (as defined by the U. S. Occupational Safety and Health Administration), a minor injury, and near miss incidents;
    - 3. Incidents impacting the environment, i.e. spills or releases on Authority projects or property.
    - 4. Outside Agency Inspections; agencies such as Cal/OSHA, DTSC, SCAQMD, State Water Resources Control Board, FTA, CPUC, EPA, USACE and similar agencies.
  - B. Notifications shall be made to Authority representatives, employees and/or agents. This includes incidents occurring to contractors, vendors, visitors, or members of the public that arise from the performance of Authority contract work. An immediate verbal notice followed by an initial written incident investigation report shall be submitted to the Authority's Project Manager within 24 hours of the incident.

- C. A final written incident investigative report shall be submitted within seven (7) calendar days and include the following information. The Current Status of anyone injured, photos of the incident area, detailed description of what happened, Photos of the existing conditions and area of the injury/incident, the contributing factors that lead to the incident occurrence, a copy of the company policy or procedure associated with the incident and evaluation of effectiveness, copy of task planning documentation, copy of the Physician's first report of injury, copy of Cal/OSHA 300 log of work related injuries and illnesses, the Cal/OSHA 301 Injury Illness Incident Report, and corrective actions initiated to prevent recurrence. This information shall be considered the minimum elements required for a comprehensive incident report provided to OCTA.
- D. A Serious Injury, Serious Incident, OSHA Recordable Injury/Illness, or a Significant Near Miss shall require a formal incident review at the discretion of the Authority's Project Manager. The incident review shall be conducted within seven (7) calendar days of the incident. This review shall require a company senior executive, company program or project manager from the Contractors' organization to participate and present the incident review as determined by the OCTA Project Manager. The serious incident presentation shall include action taken for the welfare of the injured, a status report of the injured, causation factors that lead to the incident, a root cause analysis (using 5 whys and fishbone methods), and a detailed recovery plan that identifies corrective actions to prevent a similar incident, and actions to enhance safety awareness.
  - <u>Serious Injury</u>: includes an injury or illness to one or more employees, occurring in a place of employment or in connection with any employment, which requires inpatient hospitalization for a period in excess of twenty-four hours for other than medical observation, or in which an employee suffers the loss of any member of the body, or suffers any serious degree of physical disfigurement. A serious injury also includes a lost workday or reassignment or restricted injury case as determined by the Physician's first report of injury or Cal/OSHA definitions.
  - Serious Incident: includes but not limited to property damage of \$500.00 or more, an incident requiring emergency services (local fire, paramedics and ambulance response), news media or OCTA media relations response, and/or incidents involving other agencies (Cal/OSHA, EPA, AQMD, DTSC, Metrolink, FTA, FRA etc.) notification or representation.
  - 3. <u>OSHA Recordable Injury / Illness:</u> includes and injury / illness resulting in medical treatment beyond First Aid, an injury / illness which requires restricted duty, or an injury / illness resulting in days away from work.
  - 4. <u>Significant Near Miss Incident</u>; includes incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred.
- 1.4 DESIGNATED HEALTH AND SAFETY REPRESENTATIVE

- A. Upon contract award, the contractor within 10 business days shall designate a health and safety representative and provide a resume and qualifications to the Authority project manager, upon request, within 72 hours.
- B. This person shall be a competent or qualified individual as defined by the Occupational, Safety, and Health Administration (OSHA), familiar with applicable CCR Title 8 Standards (Cal/OSHA) and has the authority to affect changes in work procedures that may have associated cost, schedule and budget impacts.

#### 1.5 PERSONAL PROTECTIVE EQUIPMENT

- A. The Contractor, its subcontractors, suppliers, and employees are required to comply with applicable personal protective equipment (PPE) requirements while performing work at any Authority project or property. Generally minimum PPE requirements include eye protection; hearing protection, head protection, class 2 or 3 safety reflective vests, and appropriate footwear.
- B. The Contractor, its subcontractors, suppliers, and employees are required to provide their own PPE, including eye, head, foot, and hand protection, safety vests, or other PPE required to perform their work safely on Authority projects or property. The Authority requires eye protection on construction projects and work areas that meet ANSI Z-87.1 Standards.

#### 1.6 REFERENCES

- A. CCR Title 8 Standards (Cal/OSHA)
- B. FCR Including 1910 and 1926 Standards
- C. NFPA, NEC, ANSI, NIOSH Standards
- D. Construction Industry Institute (CII)
- E. OCTA Yard Safety Rules

#### END OF SECTION

# EXHIBIT F: PROPOSAL EXCEPTIONS AND/OR DEVIATIONS

### **PROPOSAL EXCEPTIONS AND/OR DEVIATIONS**

The following form shall be completed for each technical and/or contractual exception or deviation that is submitted by Offeror for review and consideration by Authority. The exception and/or deviation must be clearly stated along with the rationale for requesting the exception and/or deviation. If no technical or contractual exceptions or deviations are submitted as part of the original proposal, Offerors are deemed to have accepted Authority's technical requirements and contractual terms and conditions set forth in the Scope of Work (Exhibit A) and Proposed Agreement (Exhibit C). Offerors will not be allowed to submit this form or any contractual exceptions and/or deviation after the proposal submittal date identified in the RFP. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed by Authority.

Offeror:			
RFP No.:	RFP Title:		
Deviation or Exception	ו No. :		
Check one: Scope of Work Proposed Agree	t (Technical) eement (Contractual)		
Reference Section/Ex	hibit:	Page/Article No	
Complete Description	of Deviation or Exception:		
Rationale for Request	ing Deviation or Exception:		
	· · · · · · · · · · · · · · · · · · ·		
Area Below Reserved fo	r Authority Use Only:		



### March 23, 2020

То:	Members of the Board of Directors
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	Approval to Release Request for Proposals for the Procurement of 40-Foot Compressed Natural Gas-Powered Buses

#### Overview

The Orange County Transportation Authority operates a fleet of 462, 40-foot compressed natural gas-powered buses to provide fixed-route service. Based on the Orange County Transportation Authority's Fleet Plan, these vehicles will operate in fixed-route service for up to 18 years. A sub-fleet of 299 buses is nearing the end of its useful life and a request for proposals has been developed to purchase replacement buses. Staff is seeking Board of Directors' approval to release the request for proposals.

#### Recommendations

- A. Approve the proposed evaluation criteria and weightings for Request for Proposals 9-1836 for the procurement of up to 299, 40-foot compressed natural gas-powered buses.
- B. Approve the release of Request for Proposals 9-1836 for the procurement of up to 299, 40-foot compressed natural gas-powered buses.

#### Discussion

The Orange County Transportation Authority (OCTA) is currently operating 462, 40-foot compressed natural gas (CNG)-powered buses through directlyoperated and contract-operated fixed-route service. Of the 462, 40-foot CNG-powered buses, 299 were delivered and deployed into revenue service in years 2007 and 2008. The Federal Transit Administration (FTA) defines the minimum useful life of a 40-foot bus as 12 years or 500,000 miles. Since the last procurement of fixed-route buses, OCTA has reviewed the useful life provision through the recently completed Transit Asset Management (TAM) Plan and increased the useful life from a minimum of 14 years to up to 18 years. This extension of useful life of up to 18 years is a cost-saving measure which

#### Approval to Release Request for Proposals for the Page 2 Procurement of 40-Foot Compressed Natural Gas-Powered Buses

will be phased in by replacing buses between 16 and 18 years of service. Consistent with FTA guidelines and the OCTA Fleet Plan, the 299 CNG-powered buses will operate in revenue service for up to 18 years.

The California Air Resource Board Innovative Clean Transit rule, zero emission bus purchasing requirements do not begin until 2023. Therefore, staff is proposing the replacement buses have the same CNG-powered configuration as OCTA's current buses due to the fueling infrastructure availability at all four bases operating fixed-route service. Unless there is a change in regulation, this may be the last CNG-powered bus procurement for OCTA.

The Request for Proposals (RFP) will include all OCTA equipment and configuration for regular, Bravo!, and express buses. The estimated value of this purchase is approximately \$193,000,000.

#### Procurement Approach

OCTA's policies and procedures require that the Board of Directors (Board) approve all RFPs over \$1,000,000, as well as approve the evaluation criteria and weighting. Staff is submitting for Board approval the draft RFP and evaluation criteria and weightings, which will be used to evaluate proposals received in response to the RFP. The proposed evaluation criteria and weightings are as follows:

•	Technical Specifications	50 percent
•	lechnical Specifications	50 percent

- Qualifications of the Firm 20 percent
- Cost and Price 30 percent

Technical specifications was assigned the highest level of importance because proposals should address each section of the technical specifications in sufficient detail to demonstrate a clear understanding of the scope of work. The approach to comply with the bus specifications and requirements is a critical element to the successful manufacturing of the buses. The proposals should provide evidence of sufficient planning to show that work will be accomplished as required and include suggestions intended to improve the technical and operational aspects of the buses. Compliance with performance requirements, proposed vehicle design, proposed construction, forecasted reliability, warranties, past performance and experience with the proposed bus platform, type and number of requested deviations, ability to provide all requested and optional items, and survey of other transit operators will be evaluated under this criterion. Proposals should provide information regarding engineering,

#### Approval to Release Request for Proposals for the Page 3 Procurement of 40-Foot Compressed Natural Gas-Powered Buses

manufacturing, program and quality controls, plans for the coordination of major suppliers and subcontractors, and schedule for the production of both the pilot and production vehicles.

Qualifications of the firm was assigned a 20 percent weighting and will include the history of the firm and information regarding the firm's manufacturing capabilities in producing the same or similar vehicles, with an emphasis on experience in producing CNG-powered vehicles. Under this criterion, proposals should provide federal and non-federal certifications, warranty and service center locations, maintenance information, financial documentation, past performance of vehicles, and references. The overall reputation of the firm will also be assessed through the review of any judgements, liens, fleet defect history, and/or warranty claims, and the steps the firm took to resolve these matters.

Cost and price was assigned 30 percent, as each firm must provide a competitive cost proposal with supporting data.

The contract for this procurement will be for a single award of 299, 40-foot CNG-powered buses to be delivered in the years 2021 through 2026.

Fiscal Impact

Funds for the procurement of 40-foot CNG-powered buses are included in the OCTA Fiscal Year 2019-20 Budget, Transit Technical Services, Account 2114-9024-D2108-0OQ and 2114-7752-D2116-0OG funded with FTA Section 5307 Congestion Mitigation and Air Quality Improvement Program funds.

#### Summary

Board approval is requested for the release of RFP 9-1836 to select a bus manufacturer for the replacement of up to 299, 40-foot CNG-powered buses and approval of the proposed evaluation criteria and weightings.

Approval to Release Request for Proposals for the Page 4 Procurement of 40-Foot Compressed Natural Gas-Powered Buses

#### Attachment

A. Draft Request for Proposals (RFP) 9-1836, 40-Foot Compressed Natural Gas-Powered Buses

Prepared by:

Dayle Withers Department Manager, Maintenance (714) 560-5538

Spadema

Virginia Abadessa Director, Contracts Administration and Materials Management (714) 560-5623

Approved by:

Cliff Thorne

Director, Maintenance and Motorist Services (714) 560-5975

Jennifer L. Bergener

Chief Operating Officer, Operations (714) 560-5462

ATTACHMENT A.1

# **REQUEST FOR PROPOSALS (RFP) 9-1836**

# FORTY-FOOT COMPRESSED NATURAL GAS-POWERED BUSES



ORANGE COUNTY TRANSPORTATION AUTHORITY 550 South Main Street P.O. Box 14184 Orange, CA 92863-1584 (714) 560-6282

Key RFP Dates

Issue Date:

January 27, 2020

Pre-Proposal Conference Date:

**Question Submittal Date:** 

Proposal Submittal Date:

Interview Date:

February 11, 2020

February 17, 2020

March 11, 2020

April 7, 2020

FEDERAL TRANSIT ADMINISTRATION FUNDED PROJECT

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# NOTICE OF REQUEST FOR PROPOSALS

# (RFP) 9-1836: "FORTY-FOOT COMPRESSED NATURAL GAS-POWERED BUSES"

#### **TO: ALL OFFERORS**

#### FROM: ORANGE COUNTY TRANSPORTATION AUTHORITY

The Orange County Transportation Authority (Authority) invites proposals from qualified contractors to purchase up to 299, 40-foot compressed natural gas (CNG)-powered buses.

Proposals must be received in the Authority's office at or before 2:00 p.m. on March 11, 2020.

Proposals delivered in person or by a means other than the U.S. Postal Service shall be submitted to the following:

Orange County Transportation Authority Contracts Administration and Materials Management 600 South Main Street, (Lobby Receptionist) Orange, California 92868 Attention: Kristen Mason, Section Manager, Maintenance Procurement

Proposals delivered using the U.S. Postal Service shall be addressed as follows:

Orange County Transportation Authority Contracts Administration and Materials Management P.O. Box 14184 Orange, California 92863-1584 Attention: Kristen Mason, Section Manager, Maintenance Procurement

Proposals and amendments to proposals received after the date and time specified above will be returned to the Offerors unopened.

Firms interested in obtaining a copy of this RFP may do so by downloading the RFP from CAMM NET at <u>https://cammnet.octa.net</u>.

All firms interested in doing business with the Authority are required to register their business on-line at CAMM NET. The website can be found at

<u>https://cammnet.octa.net</u>. From the site menu click on CAMM NET to register.

To receive all further information regarding this RFP 9-1836, firms and subconsultants must be registered on CAMM NET with at least one of the following commodity codes for this solicitation selected as part of the vendor's on-line registration profile:

<u>Category:</u> <u>Commodity:</u> Buses; Parts, Components, Bus Manufacturers Vehicles

A pre-proposal conference will be held on February 11, 2020, at 10:00 a.m. at the Authority's Administrative Office, 600 South Main Street, Orange, California, in Conference Room 09. All prospective Offerors are encouraged to attend the pre-proposal conference.

The Authority has established April 7, 2020, as the date to conduct interviews. All prospective Offerors will be asked to keep this date available.

Offerors are encouraged to subcontract with small businesses to the maximum extent possible.

All Offerors will be required to comply with all applicable equal opportunity laws and regulations.

The award of this contract is subject to receipt of federal, state and/or local funds adequate to carry out the provisions of the proposed agreement including the identified Scope of Work.

# SECTION I: INSTRUCTIONS TO OFFERORS

# SECTION I. INSTRUCTIONS TO OFFERORS

#### A. PRE-PROPOSAL CONFERENCE

A pre-proposal conference will be held on February 11, 2020, at 10:00 a.m. the Authority's Administrative Office, 600 South Main Street, Orange, California, in Conference Room 09. All prospective Offerors are encouraged to attend the pre-proposal conference.

#### B. ESTIMATED QUANTITES

This RFP is intended to procure up to 299, 40-foot CNG-powered buses to be manufactured and delivered on a continuous multi-year delivery starting after the Authority issues the notice to proceed with the pilot/First Article bus. After full acceptance of the pilot bus, Authority will issue the second notice to proceed with the remainder of the production buses.

The Authority expects to take delivery of the pilot bus/First Article, no later than forty-five (45) weeks after issuing the first notice to proceed, having an estimated time of arrival to the Authority sometime during the first half of the year 2021. Then, after evaluation and acceptance of the First Article for up to sixteen (16) weeks, the Authority will issue a second notice to proceed with the production run of up to 298 buses, requiring the buses to commence arrival to the Authority by the end of June 2022, on a continuous basis, at the rate of two (2) buses per week, or as agreed upon, to have all buses delivered by June 2025.

#### C. EXAMINATION OF PROPOSAL DOCUMENTS

By submitting a proposal, Offeror represents that it has thoroughly examined and become familiar with the work required under this RFP and that it is capable of performing quality work to achieve the Authority's objectives.

#### D. ADDENDA

Any Authority changes to the requirements will be made by written addendum to this RFP. Any written addenda issued pertaining to this RFP shall be incorporated into the terms and conditions of any resulting Agreement. The Authority will not be bound to any modifications to or deviations from the requirements set forth in this RFP as the result of oral instructions. Offerors shall acknowledge receipt of addenda in their proposals. Failure to acknowledge receipt of Addenda may cause the proposal to be deemed non-responsive to this RFP and be rejected.

# E. AUTHORITY CONTACT

All communication and/or contacts with Authority staff regarding this RFP are to be directed to the following Contract Administrator:

Kristen Mason, Section Manager, Maintenance Procurement Contracts Administration and Materials Management Department 600 South Main Street P.O. Box 14184 Orange, CA 92863-1584 Phone: (714) 560-5842, Fax: (714) 560-5792 Email: kmason@octa.net

Commencing on the date of the issuance of this RFP and continuing until award of the contract or cancellation of this RFP, no proposer, subcontractor, lobbyist or agent hired by the proposer shall have any contact or communications regarding this RFP with any Authority's staff; member of the evaluation committee for this RFP; or any contractor or consultant involved with the procurement, other than the Contract Administrator named above or unless expressly permitted by this RFP. Contact includes face-to-face, telephone, electronic mail (e-mail) or formal written communication. Any proposer, subcontractor, lobbyist or agent hired by the proposer that engages in such prohibited communications may result in disqualification of the proposer at the sole discretion of the Authority.

#### F. CLARIFICATIONS

# 1. Examination of Documents

Should an Offeror require clarifications of this RFP, the Offeror shall notify the Authority in writing in accordance with Section F.2. below. Should it be found that the point in question is not clearly and fully set forth, the Authority will issue a written addendum clarifying the matter which will be sent to all firms registered on CAMM NET under the commodity codes specified in this RFP.

#### 2. Submitting Requests

- a. All questions, including questions that could not be specifically answered at the pre-proposal conference must be put in writing and must be received by the Authority no later than 4:00 p.m. Pacific Time, on February 17, 2020.
- b. Requests for clarifications, questions, comments and approved equals must be clearly labeled, "Written Questions". The Authority is not responsible for failure to respond to a request that has not been labeled as such.
- c. Any of the following methods of delivering written questions are

acceptable as long as the questions are received no later than the date and time specified above:

- (1) U.S. Mail: Orange County Transportation Authority, 550 South Main Street, P.O. Box 14184, Orange, California 92863-1584.
- (2) Personal Delivery: Contracts Administration and Materials Management Department, 600 South Main Street, Lobby Receptionist, Orange, California 92868.
- (3) Facsimile: (714) 560-5792.
- (4) Email: kmason@octa.net

#### 3. Authority Responses

Responses from the Authority will be posted on CAMM NET, no later than March 2, 2020. Offerors may download responses from CAMM NET at *https://cammnet.octa.net*, or request responses be sent via U.S. Mail by emailing or faxing the request to Kristen Mason, Section Manager, Maintenance Procurement.

To receive email notification of Authority responses when they are posted on CAMM NET, firms and subconsultants must be registered on CAMM NET with at least one of the following commodity codes for this solicitation selected as part of the vendor's on-line registration profile:

<u>Category:</u> Buses; Parts, Components, Vehicles <u>Commodity:</u> Bus Manufacturers

Inquiries received after 4:00 p.m. on February 17, 2020, will not receive a response.

#### G. SUBMISSION OF PROPOSALS

#### 4. Date and Time

Proposals must be received in the Authority's office at or before 2:00 p.m. on March 11, 2020.

Proposals received after the above-specified date and time will be returned to Offerors unopened.

#### 5. Address

Proposals delivered in person or by a means other than the U.S. Postal Service shall be submitted to the following:

Orange County Transportation Authority Contracts Administration and Materials Management (CAMM) 600 South Main Street, (Lobby Receptionist) Orange, California 92868 Attention: Kristen Mason, Section Manager, Maintenance Procurement

Or proposals delivered using the U.S. Postal Services shall be addressed as follows:

Orange County Transportation Authority Contracts Administration and Materials Management (CAMM) P.O. Box 14184 Orange, California 92863-1584 Attention: Kristen Mason, Section Manager, Maintenance Procurement

### 6. Identification of Proposals

Offeror shall submit an **original and 6 copies** of its proposal in a sealed package, addressed as shown above in F.2. The outer envelope must show the Offeror's name and address and clearly marked with RFP number. In addition to the above, Proposers shall also include one (1) electronic copy of their entire RFP submittal package in "PDF" format, on a CD or DVD, or flash drive.

#### 7. Acceptance of Proposals

- a. The Authority reserves the right to accept or reject any and all proposals, or any item or part thereof, or to waive any informalities or irregularities in proposals.
- b. The Authority reserves the right to withdraw or cancel this RFP at any time without prior notice and the Authority makes no representations that any contract will be awarded to any Offeror responding to this RFP.
- c. The Authority reserves the right to postpone proposal openings for its own convenience.
- d. Submitted proposals are not to be copyrighted.

# H. PRE-CONTRACTUAL EXPENSES

The Authority shall not, in any event, be liable for any pre-contractual expenses incurred by Offeror in the preparation of its proposal. Offeror shall not include any such expenses as part of its proposal.

Pre-contractual expenses are defined as expenses incurred by Offeror in:

- 1. Preparing its proposal in response to this RFP;
- 2. Submitting that proposal to the Authority;
- 3. Negotiating with the Authority any matter related to this proposal; or
- 4. Any other expenses incurred by Offeror prior to date of award, if any, of the Agreement.

#### I. JOINT OFFERS

Where two or more firms desire to submit a single proposal in response to this RFP, they should do so on a prime-subcontractor basis rather than as a joint venture. The Authority intends to contract with a single firm and not with multiple firms doing business as a joint venture.

#### J. TAXES

Unless otherwise specifically provided in this Contract, the Contract Price includes compensation for all taxes the Contractor is required to pay by Laws in effect on the date the Contractor's Proposal submission. Contractor shall pay all federal, state, and local taxes, and duties applicable to and assessable against any Work, including but not limited to retail sales and use, transportation, export, import, business, and special taxes. Contractor shall ascertain and pre-pay the taxes and add to the invoice when due. Contractor will maintain auditable Records, subject to Authority reviews, confirming that tax payments are current at all times otherwise specifically Offerors' proposals are subject to State and Local sales taxes. The Authority is exempt from the payment of Federal Excise and Transportation Taxes.

#### K. PROTEST PROCEDURES

The Authority has on file a set of written protest procedures applicable to this solicitation that may be obtained by contacting the Contract Administrator responsible for this procurement. Any protests filed by an Offeror in connection with this RFP must be submitted in accordance with the Authority's written procedures.

#### L. CONTRACT TYPE

It is anticipated that the Agreement resulting from this solicitation, if awarded, will be a firm-fixed price contract specifying firm-fixed prices for individual tasks specified in the Scope of Work, included in this RFP as Exhibit A.

#### M. CONFLICT OF INTEREST

All Offerors responding to this RFP must avoid organizational conflicts of interest which would restrict full and open competition in this procurement. An organizational conflict of interest means that due to other activities, relationships or contracts, an Offeror is unable, or potentially unable to render impartial assistance or advice to the Authority; an Offeror's objectivity in performing the work identified in the Scope of Work is or might be otherwise impaired; or an Offeror has an unfair competitive advantage. Conflict of Interest issues must be fully disclosed in the Offeror's proposal.

All Offerors must disclose in their proposal and immediately throughout the course of the evaluation process if they have hired or retained an advocate to lobby Authority staff or the Board of Directors on their behalf.

Offerors hired to perform services for the Authority are prohibited from concurrently acting as an advocate for another firm who is competing for a contract with the Authority, either as a prime or subcontractor.

### N. CODE OF CONDUCT

All Offerors agree to comply with the Authority's Code of Conduct as it relates to Third-Party contracts which is hereby referenced and by this reference is incorporated herein. All Offerors agree to include these requirements in all of its subcontracts.

### O. PRIME AND LOWER TIER DEBARMENT

Proposers are advised that the signing of their proposal, certifies that they and their sub-consultants are not debarred, suspended, proposed for debarrent, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency.

# P. DBE REQUIREMENTS FOR TRANSIT VEHICLE CONTRACTORS

Pursuant to Title 49, Code of Federal Regulations, Part 26.49, an Offeror, as a condition of being authorized to respond to this solicitation, must certify by completing the form DBE Approval Certification, Exhibit C, that it has on file with the Federal Transit Administration (FTA) an approved or not disapproved annual Disadvantaged Business Enterprise (DBE) subcontracting participation goal.

# Q. AVAILABILITY OF FUNDS

This procurement is subject to the availability of funding in the form of a grant from the Federal Government. The Authority's obligation hereunder is contingent upon the availability of appropriated funds from which payment for the Contract purposes can be made. No legal liability on the part of the Authority for any payment shall arise until funds are made available for this Contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer. Any award of Contract hereunder will be conditioned upon said availability of funds for the Contract.

#### REQUEST FOR PRE-OFFER CHANGE OR APPROVED EQUAL

This form must be used for requested clarifications, changes, substitutes or approval of items equal to items specified with a brand name and must be submitted in advance of the due date specified in "Submitting Requests" (Section I.F.2.)

Request #:	Proposer:
	Contact Information:
Page, Section	
Questions, Clarifications or Approved E	Equals:

# SECTION II: PROPOSAL CONTENT

### SECTION II. PROPOSAL CONTENT

#### A. PROPOSAL FORMAT AND CONTENT

#### 1. Format

Proposals should be typed with a standard 12-point font, double-spaced and submitted on  $8\frac{1}{2}$ " x 11" size paper, using a single method of fastening. Charts and schedules may be included in 11" x 17" format. Proposals should not include any unnecessarily elaborate or promotional materials. Technical proposals should not exceed one-hundred (100) pages in length, excluding any appendices, cover letters, resumes, or forms.

### 2. Letter of Transmittal

The Letter of Transmittal shall be addressed to Kristen Mason, Section Manager, Maintenance Procurement and must, at a minimum, contain the following:

- a. Identification of Offeror that will have contractual responsibility with the Authority. Identification shall include legal name of company, corporate address, telephone and fax number, and email address. Include name, title, address, email address, and telephone number of the contact person identified during period of proposal evaluation.
- b. Identification of all proposed subcontractors including legal name of company, whether the firm is a Disadvantaged Business Enterprise (DBE), contact person's name and address, phone number and fax number, and email address; relationship between Offeror and subcontractors, if applicable.
- c. Acknowledgement of receipt of all RFP addenda, if any.
- d. A statement to the effect that the proposal shall remain valid for a period of not less than 180 days from the date of submittal.
- e. Signature of a person authorized to bind Offeror to the terms of the proposal.
- f. Signed statement attesting that all information submitted with the proposal is true and correct.
### 3. Technical Proposal

### a. Technical Specifications

This section of the proposal should establish evidence that Offerors understand the Technical Specifications in detail and can comply with all requirements to the successful manufacturing of buses, with suggestions intended to improve the technical and operational aspect of the buses. Compliance with performance requirements, proposed vehicle design, proposed construction, forecasted reliability, provided warranties, past performance and experience with the proposed bus platform, type and number of requested deviations, ability to provide all requested and optional items, surveys of other transit operators, among others may be used for this criterion.

- (1) Offeror shall provide a narrative addressing the Technical Specifications contained in Section IV of this RFP, which exhibits the Offeror's understanding of the Authority's needs and requirements.
- (2) Offeror may also propose enhancements to the Technical Vehicle Specifications which do not materially deviate from the objectives or required content of the program.
- (3) Offeror shall complete the General Bus Data Sheet, of the Technical Vehicle Specifications, Section TS 1.32, and furnish any narrative required to explain or qualify the specifications provided in the proposal.
- (4) The proposal should include the gross vehicle weight on any single axle per vehicle in compliance with California's Vehicle Code, not to exceed 22,000 pounds on any single axle per vehicle, or as applicable at the time of manufacturing.
- (5) Offeror shall state on the form provided in "Contractor Service and Parts Support Data", Exhibit I, the representatives responsible for assisting the Authority, as well as the location of the nearest distribution center which shall furnish a complete supply of parts and components, for the repair and maintenance of the buses to be supplied.
- (6) Provide evidence that the human and physical resources are sufficient to perform the contract as specified and assure delivery of all equipment within the time specified in the Contract.
- (7) Provide evidence Offeror has adequate manufacturing facilities sufficient to produce and factory-test equipment on schedule. Include a detailed description of the proposed facilities where work will be done.

- (8) Propose critical path schedule for the production of the First Article and remaining vehicles as well as the methodology for controlling the schedule.
- (9) Provide evidence that Offeror is qualified in accordance with Section VI: Quality Assurance
- (10) Provide evidence that Proposer is qualified in accordance with Section VII: Warranty Requirements
- b. Qualifications, Related Experience and Project Management

This section of the proposal should establish the ability of the Offeror to satisfactorily provide the required equipment and services by reasons of; demonstrated competence in the product and service to be provided; the nature and relevance of recently completed work; staffing capability, work load and record of meeting schedules on similar projects; strength and stability as a business concern; strength of dealer/manufacturer relationship; and supportive client references.

- (1) Provide a brief profile of the firm, including the principal line of business, the year founded, form of organization (corporation, partnership, sole proprietorship), number and location of offices, licenses held, and number of employees. Identify any conditions (e.g. bankruptcy, pending litigation, planned office or plan closures, impending merger) that may impede the Offeror's ability to complete the project.
- (2) Describe the firm's experience in providing like equipment to that solicited in this RFP with emphasis on experience in producing CNG vehicles, and highlight the participation in such work by the key personnel. Offeror shall provide names and brief resumes of key personnel including project/account manager and the representatives responsible for assisting the Authority.
- (3) A copy of the firm's three (3) most recent financial statements. Offeror's financial statements should be prepared in accordance with United States Generally Accepted Accounting Principles (GAAP) and audited by an independent certified public accountant authorized to practice in the jurisdiction of either the Authority or the Offeror.
- (4) Provide evidence of satisfactory performance and integrity on contracts in making deliveries on time, meeting specifications and warranty provisions, parts availability, and steps Offeror has taken to resolve any judgments, liens, fleet defects history, and warranty claims. Evidence shall be by client references.
- (5) Identify subcontractors, if any, by company name, address, contact

person, telephone number and project function. Provide the same information for each subcontractor as requested above, and describe any experience working with each subcontractor.

- (6) Offeror to provide the location of the nearest distribution center which shall furnish a complete supply of parts and components, for the repair and maintenance of the buses to be supplied. Provide past maintenance and warranty experience including qualified staff.
- (7) Provide as a minimum three (3) references for the projects cited as related experience, and furnish the name, title, address, telephone number, and email address of the person(s) at the client organization who is most knowledgeable about the work performed. Offeror may also supply references from other work not cited in this section as related experience.
- (8) Complete and sign all forms required in this RFP including federal certifications: Buy America Certification, Non-Collusion Affidavit, Lobbying Certification, Certificate of Compliance with Bus Testing Requirement, DBE Approval Certification, and Federal Motor Vehicle Safety Standards.
- (9) Furnish brief resumes (not more than two (2) pages each) for the proposed key personnel. Resumes must feature experience most directly relevant to the work proposed for such key personnel on this project. Resumes should also describe the involvement of the key personnel in related experience and indicate length of time employed by the Offeror.
- (10) Provide engineering organization chart, engineering change control procedure, field modification process, including program controls and quality controls and plans for the coordination of major suppliers and subcontractors. Provide a schedule for the production of the pilot vehicle and remaining vehicles.
- (11) Provide evidence Offeror has sufficient engineering, management and services; can provide sufficient personnel and requisite disciplines, licenses, skills, experience, and equipment to complete the contract as required, and satisfy any engineering or service problems that may arise during the warranty period. Provide interface relationship between engineering manufacturing, program control, quality control and test departments
- (12) Provide evidence Offeror can provide spare parts and procurement and distribution system sufficient to support equipment maintenance without delays and a service organization with skills, experience, and equipment sufficient to perform all warranty and on-site work.

(13) Training and Documentation

### 4. Cost and Price Proposal

As part of the cost and price proposal, the Offeror shall submit proposed pricing in a separate sealed package from the technical proposal.

Offer shall complete the "Price Summary Sheet" and Acknowledgement of Receipt of Addenda and Offer" forms included with this RFP (Section V), and furnish any narrative required to explain the prices quoted in the schedules. It is anticipated that the Authority will issue a firm-fixed price contract specifying firm-fixed prices for each bus.

- a. Letter of Transmittal
- b. Contractor shall be liable for payment of all state and local taxes applicable to the complete bus as delivered. The Authority shall furnish to the Contractor a list of applicable state and local taxes imposed by the Authority's state or local governments at the Due Date. The Authority shall be liable for any such state and local taxes applicable to the complete bus as delivered that are promulgated and become effective between the Due Date and the delivery date. Quantities listed are estimated quantities which shall be used for the purpose of evaluation.

### 5. Exceptions/Deviations

State any technical and/or contractual exceptions and/or deviations from the requirements of this RFP, including the Authority's technical requirements and contractual terms and conditions set forth in the Technical Specifications (Section IV) and General Terms and Conditions / Proposed Agreement (Section VIII, using the form entitled "Proposal Exceptions and/or Deviations" included in this RFP. This Proposal Exceptions and/or Deviations form must be included in the original proposal submitted by the Offeror. If no technical or contractual exceptions and/or deviations are submitted as part of the original proposal, Offerors are deemed to have accepted the Authority's technical requirements and contractual terms and conditions set forth in the Technical Specifications (Section IV) and General Terms and Conditions / Proposed Agreement (Section VIII). Offerors will not be allowed to submit the Proposal Exceptions and/or Deviations form or any technical and/or contractual exceptions after the proposal submittal date identified in the RFP. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed by Authority.

All exceptions and/or deviations will be reviewed by the Authority and will be assigned a "pass" or "fail" status. Exceptions and deviations that "pass" do not mean that the Authority has accepted the change but that it is a potential negotiable issue. Exceptions and deviations that receive a "fail" status means that the requested change is not something that the Authority would consider a potential negotiable issue. Offerors that receive a "fail" status on their exceptions and/or deviations will be notified by the Authority and will be allowed to retract the exception and/or deviation and continue in the evaluation process. Any exceptions and/or deviation that receive a "fail" status and the Offeror cannot or does not retract the requested change may result in the firm being eliminated from further evaluation.

### 6. Appendices

Information considered by Offeror to be pertinent to this project and which has not been specifically solicited in any of the aforementioned sections may be placed in a separate appendix section. Offerors are cautioned, however, that this does not constitute an invitation to submit large amounts of extraneous materials. Appendices should be relevant and brief.

### B. FORMS

### 1. Campaign Contribution Disclosure Form, Exhibit A

In conformance with the statutory requirements of the State of California Government Code Section 84308, part of the Political Reform Act and Title 2, California Code of Regulations 18438 through 18438.8, regarding campaign contributions to members of appointed Board of Directors, Offeror is required to complete and sign the Campaign Contribution Disclosure Form provided in this RFP and submit as part of the proposal.

This form **must** be completed regardless of whether a campaign contribution has been made or not and regardless of the amount of the contribution.

The prime contractor, subconsultants, lobbyists and agents are required to report all campaign contributions made from the proposal submittal date up to and until the Board of Directors makes a selection.

Offeror is required to submit only **one** copy of the completed form(s) as part of its proposal and it must be included in only the **original** proposal.

### 2. Status of Past and Present Contracts Form, Exhibit B

Offeror shall complete and sign the form entitled "Status of Past and Present Contracts" provided in this RFP and submit as part of its proposal. Offeror shall identify the status of past and present contracts where the firm has either provided services as a prime vendor or a subcontractor during the past five (5) years in which the contract has been the subject of or may be involved in litigation with the contracting authority. This includes, but is not

limited to, claims, settlement agreements, arbitrations, administrative proceedings, and investigations arising out of the contract. Offeror shall have an ongoing obligation to update the Authority with any changes to the identified contracts and any new litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations that arise subsequent to the submission of Offeror's proposal.

A separate form must be completed for each identified contract. Each form must be signed by the Offeror confirming that the information provided is true and accurate. Offeror is required to submit one copy of the completed form(s) as part of its proposals and it should be included in only the original proposal.

## 3. Disadvantaged Business Enterprise Approval Certification Form, Exhibit C

### 4. Restrictions on Lobbying Form, Exhibit D

As a recipient of federal funds, the Authority is required to certify compliance with the influencing restrictions and efforts of Offeror to influence federal officials regarding specific procurements in excess of \$100,000 that must be disclosed pursuant to section 1352, Title 31, U.S. Code.

This RFP includes, under Exhibit G, the following: a certification form entitled "Certification of Restrictions on Lobbying," the office of Management and Budget (OMB) Standard Form LLL entitled "Disclosure of Lobbying Activities," and a document entitled "Limitation on Payments to Influence Certain Federal Transactions."

The Offeror to this solicitation will be required to complete and submit to the Authority in their proposal, the certification form entitled "Certification of Restrictions on Lobbying" whether or not any lobbying efforts took place. If the Offeror did engage in lobbying activities, then OMB Standard Form LLL "Disclosure of Lobbying Activities" must also be completed and submitted to the Authority.

### 5. Certification of Consultant Commission and Fees, Exhibit E

### 6. Buy America Certification, Exhibit F

Pursuant to 49 CFR Part 661, as amended by Section 337 of the Surface Transportation and Uniform Relocation Act of 1987, no federal funds authorized by the Urban Mass Transportation Act of 1964, as amended; 23 USC 103 (e)(4); and Section 14 of the National Capital Transportation Act of 1969 as amended; and which were obligated by the Federal Transit Administration (FTA) after January 6, 1983 shall be obligated by the Authority unless steel and manufacturers' products used in such articles are produced in the United States.

A bidder providing articles that do not meet the above provision must submit a written request to the Authority, which may be forwarded, to FTA. FTA shall review the request for waiver and FTA may grant such a waiver if FTA determines that:

- 1. The application of the domestic preference requirements would be inconsistent with the public interest; Materials are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
- 2. The inclusion of a domestic item or domestic material will increase the cost of the contract for the item or material by more than 25 percent.

FTA may grant a waiver in the case of the procurement of buses and other rolling stock (including train control, communications and traction power equipment), if the cost of components and subcomponents of such items which are produced in the United States is more than 60 percent for contracts entered into after April 1, 1992 with any supplier or contractor or any successor in interest or assignee which complied with the requirements of Section 165(b)(3) of the Surface Transportation Assistance Act of 1982 prior to April 2, 1987.

To determine costs of components or subcomponents for compliance with the Buy America Requirements, the bidder is referred to the Federal Register, Volume 56, No. 6, Dated January 9, 1991.

In order to demonstrate compliance with the Buy America Requirements, bidder shall complete the Certificates of Compliance/Noncompliance, included in this RFP. Failure to complete the appropriate certificate shall render a bidder non-responsive to this solicitation and will result in the rejection of the bid.

### 7. Certificate of Compliance with Bus Testing Requirement, Exhibit G

Certifies that the vehicle offered in this procurement complies and will, when delivered, comply with 49 USC § 5323(c) and FTA's implementing regulation at 49 CFR Part 665.

### 8. Federal Motor Vehicle Safety Standards (FMVSS), Exhibit H

Offeror and (if selected) Contractor shall submit 1) manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS or 2) manufacturer's certified statement that the contracted buses will not be subject to FMVSS regulations.

### 9. Contractor Service and Parts Support Data, Exhibit I

Offeror shall state on the form provided in "Contractor Service and Parts Support Data", the representatives responsible for assisting the Authority, as well as the location of the nearest distribution center which shall furnish a complete supply of parts and components, for the repair and maintenance of the buses to be supplied.

### 10. Non-Collusion Affidavit, Exhibit J

Certifies that proposers are not in collusion to restrict competition or are otherwise engaged in ani-competitive practices.

### 11. Proposal Exceptions and/or Deviation Form, Exhibit K

Offerors shall complete the form entitled "Proposal Exceptions and/or Deviations" provided in this RFP and submit it as part of the original proposal. For each exception and/or deviation, a new form should be used, identifying the exception and/or deviation and the rationale for requesting the change. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed nor considered by the Authority.



# SECTION III: EVALUATION AND AWARD

### SECTION III. EVALUATION AND AWARD

### A. EVALUATION CRITERIA

The Authority will evaluate the offers received based on the following criteria:

### 1. Technical Requirements

Offeror's understanding of the Authority's needs and requirements; proposed enhancements to the Technical Vehicle Specifications; compliance with performance requirements; proposed vehicle design; proposed construction, forecasted reliability, provided warranties, gross vehicle weight requirement, quality assurance; past experience with the proposed bus platform; complete the General Bus Data Sheet; exceptions to or deviations from the requirements of this RFP, segregating "technical" exceptions from "contractual" exceptions; ability to meet proposed delivery dates; warranty coverage.

### 2. Qualifications, Related Experience and Project Management 20%

Demonstrate competence in the product and service to be provided; the nature and relevance of recently completed work; staffing capability, work load and record of meeting schedules on similar projects; strength and stability as a business concern; strength of dealer/manufacturer relationship; and supportive client references; understanding the Authority's needs; federal compliance; the logic of the Proposer's proposed project organization as measured by lines of reporting and control; adequacy of labor resources; lead time, reasonableness of proposed schedule; training and documentation.

### 3. Cost and Price

30%

Reasonableness of the total price competitiveness with other offers received; adequacy of data in support of figures quoted and completion of required documentation.

### B. EVALUATION PROCEDURE

An evaluation committee will be appointed to review all proposals received for this RFP. The committee is comprised of Authority staff and may include outside personnel. The committee members will evaluate the written proposals using criteria identified in Section III A. A list of top ranked proposals, firms within a competitive range, will be developed based upon the totals of each committee members' score for each proposal.

50%

During the evaluation period, the Authority may interview some or all of the proposing firms. The Authority has established April 7, 2020, as the date to conduct interviews. All prospective Offerors are asked to keep this date available. No other interview dates will be provided, therefore, if an Offeror is unable to attend the interview on this date, its proposal may be eliminated from further discussion. The interview may consist of a short presentation by the Offeror after which the evaluation committee will ask questions related to the firm's proposal and qualifications.

At the conclusion of the proposal evaluations, Offerors remaining within the competitive range may be asked to submit a Best and Final Offer (BAFO). In the BAFO request, the firms may be asked to provide additional information, confirm or clarify issues and submit a final cost/price offer. A deadline for submission will be stipulated.

At the conclusion of the evaluation process, the evaluation committee will recommend to the Transit Committee, the Offeror with the highest final ranking or a short list of top ranked firms within the competitive range whose proposal(s) is most advantageous to the Authority. The Board Committee will review the evaluation committee's recommendation and forward its decision to the full Board of Directors for final action.

### C. AWARD

The Authority will evaluate the proposals received and will submit, with approval of the Transit Committee, the proposal considered to be the most competitive to the Authority's Board of Directors, for consideration and selection. The Authority may also negotiate contract terms with the selected Offeror prior to award, and expressly reserves the right to negotiate with several Offerors simultaneously and, thereafter, to award a contract to the Offeror offering the most favorable terms to the Authority.

The Authority reserves the right to award its total requirements to one Offeror or to apportion those requirements among several Offerors as the Authority may deem to be in its best interest. In addition, negotiations may or may not be conducted with Offerors; therefore, the proposal submitted should contain Offeror's most favorable terms and conditions, since the selection and award may be made without discussion with any Offeror.

The selected Offeror will be required to submit to the Authority's Accounting department a current IRS W-9 form prior to commencing work.

### D. NOTIFICATION OF AWARD AND DEBRIEFING

Offerors who submit a proposal in response to this RFP shall be notified via CAMM NET of the contract award. Such notification shall be made within three (3) business days of the date the contract is awarded.

Offerors who were not awarded the contract may obtain a debriefing concerning the strengths and weaknesses of their proposal. Unsuccessful Offerors, who wish to be debriefed, must request the debriefing in writing or electronic mail and the Authority must receive it within three (3) business days of notification of the contract award.

### E. CONTRACT EXECUTION

The Authority's intent is to enter into a contract for a first article bus only, to issue a notice to proceed for the first article bus, and upon successful approval and correction of all discrepancies to the Authority's satisfaction, noted and/or detected on the first article, validation testing of the first article including forty-hours of uninterrupted (no breakdowns) revenue-service testing, the Authority may issue a second notice to proceed for the initial order of production buses and options that may be exercised at the Authority's discretion, for possible future deliveries.

The process shall consist of the following steps:

- 1. Proposal, evaluation, award and written notice to proceed for the manufacturing of a first article bus and intent for first production award based upon evaluation and successful acceptance of the first article bus, which shall require extensive testing of up to sixteen weeks.
- 2. Upon acceptance of the first article bus, the Authority may issue a written "Notice to Proceed" for the initial production & delivery.
- 3. Upon acceptance of the first production run, or at the Authority's discretion, the Authority will determine whether to exercise option one for the next production of buses.
- 4. Upon the decision of the Authority, a written notice will be sent to the Contractor informing the Contractor of the decision to continue ("Notice to Proceed"), or not.
- 5. The Authority, at its sole discretion, may choose to change the delivery requirements based on its internal needs.
- 6. At the Authority's discretion, a second first-article bus may be required if significant changes or others are introduced throughout the yearly manufacturing processes.

### F. NOTICE TO PROCEED

It is a requirement for the Contractor to secure the Authority's "Notice to Proceed" with the manufacturing of the first-article bus and the additional "Notice to Proceed" with the manufacturing of any production run. Every additional Authority exercised

option and/or first article if deemed required, shall also require the issuing of individual "Notices to Proceed".

Contractor does not have the Authority's approval to, on its behalf or as intended for any portion of the award, to enter into any agreements, procure materials, order components, parts, supplies, etc., and any others intended for any buses under this agreement except for the units listed on the Authority's individual "Notice to Proceed" previously secured by the Contractor. If the Contractor fails to fulfill this requirement it is understood that the Contractor's deviation is done at the Contractor's own peril and risk, and the Authority and/or any of its representatives, employees and officials shall have no responsibility, of any kind, nor shall the Authority have any financial obligation as to any and all components, parts, resources, ordered by the Contractor without prior securing of the required "Notice(s) to Proceed".

The Authority expects to take delivery of the pilot bus/First Article, no later than forty-five (45) weeks after issuing the first notice to proceed, having an estimated time of arrival to the Authority sometime during the first half of the year 2021. Then, after evaluation and acceptance of the First Article for up to sixteen (16) weeks, the Authority will issue a second notice to proceed with the production run of up to 298 buses, requiring the buses to commence arrival to the Authority by the end of June 2022, on a continuous basis, at the rate of two (2) buses per week, or as agreed upon, to have all buses delivered by June 2025.

### G. CONFIDENTIALITY OF PROPOSALS

Access to government records is governed by the laws of the State of California. Except as otherwise required by the laws of the State of California, the Authority will exempt from disclosure proprietary information, trade secrets and confidential commercial and financial information submitted in the proposal. Any such proprietary information, trade secrets or confidential commercial and financial information which Offeror believes should be exempted from disclosure shall be specifically identified and marked as such. Blanket-type identification by designating whole pages or sections as containing proprietary information, trade secrets or confidential commercial and financial information will not assure confidentiality. The specific proprietary information, trade secrets or confidential commercial and financial information must be clearly identified as such.

Upon a request from a third party for materials designated by an Offeror as proprietary, trade secrets and/or confidential, the Authority will promptly notify the Offeror of said request in order to provide the Offeror the ability to seek protection of such identified information by way of a protective order. Offeror shall indemnify the Authority for any and all costs associated with its refusal to produce such identified information.

### H. ACCEPTANCE/REJECTION OF PROPOSALS

Authority reserves the right to reject any or all proposals for sound business reasons, to undertake discussions with one or more Offeror, and to accept that proposal or modified proposal which, in its judgment, will be most advantageous to the Authority, price and other evaluation criteria considered. Authority reserves the right to consider any specific proposal which is conditional or not prepared in accordance with the instructions and requirements of this RFP to be noncompetitive. Authority reserves the right to waive any defects, or minor informalities or irregularities in any proposal which do not materially affect the proposal or prejudice other Offerors. If there is any evidence indicating that two or more Offerors are in collusion to restrict competition or otherwise engaged in anti-competitive practices, the proposals of all such Offerors shall be rejected and such evidence may be a cause for disqualification of the participants in any future solicitations undertaken by the Authority.

### I. SINGLE PROPOSAL RESPONSE

If only one proposal is received in response to this RFP and it is found by the Authority to be acceptable, a detailed price/cost proposal may be requested of the single Offeror. A price or cost analysis, or both, possibly including an audit, may be performed by or for the Authority of the detailed price/cost proposal in order to determine if the price is fair and reasonable. Offeror has agreed to such analysis by submitting a proposal in response to this RFP. A price analysis is an evaluation of a proposed price that does not involve an in-depth evaluation of all the separate cost elements and the profit factors that comprise Offeror's price proposal. It should be recognized that a price analysis through comparison to other similar procurements must be based on an established or competitive price of the elements used in the comparison. The comparison must be made to a purchase of similar quantity, involving similar specifications and in a similar time frame. Where a difference exists, a detailed analysis must be made of this difference and costs attached thereto. Where it is impossible to obtain a valid price analysis, it may be necessary to conduct a cost analysis of the proposed price. A cost analysis is a more detailed evaluation of the cost elements in the Offeror's offer to perform. It is conducted to form an opinion as to the degree to which the proposed costs represent what the Offeror's performance should cost. A cost analysis is generally conducted to determine whether the Offeror is applying sound management in proposing the application of resources to the contracted effort and whether costs are allowable, allocable and reasonable. Any such analyses and the results therefrom shall not obligate the Authority to accept such a single proposal; and the Authority may reject such proposal at its sole discretion.

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### **TECHNICAL SPECIFICATIONS**

### TS 1.1General

### Scope

The Orange County Transportation Authority (Authority) intends to purchase up to 299, 40FT buses to be delivered in the years 2021 through 2025.

It is the Authority's intention to purchase new low floor buses that are fully compliant with the Americans with Disabilities Act of 1990 (ADA). If ADA's requirement exceeds these specifications, then the contractor shall comply with ADA. Buses shall incorporate features essential for safe, fast, efficient, and comfortable operation by the operator to ensure excellent road and traffic visibility, as well as adequate means for safe passenger movement, under all driving conditions. Buses shall be easily maneuverable in normal and heavy traffic.

These technical specifications are intended to provide a general description of a forty-foot, low floor CNG bus designed for general service in all areas of Orange County for both suburban express service and general service on urban arterial streets in addition to potential express service into any of the neighboring Counties of Los Angeles, Riverside, San Bernardino, etc. These buses are intended for use by the widest possible spectrum of passengers, including children, adults, the elderly and handicapped. The bus shall have a minimum expected life of twelve (12) years or 500,000 miles whichever comes first

These buses shall provide maximum passenger appeal in appearance, comfort, and safety; combined with excellence in operating characteristics, economy of operation, optimum seating and conformity with state and federal bus regulations and emission standards. These buses shall incorporate a high level of subsystem integration coordinated with central diagnostic functions and single point operator interface.

These technical specifications have been prepared with emphasis on in-service reliability. The basic structure of the bus, bolted on components, including major suspension components that shall be designed to last the life of the bus without major overhaul or replacement.

The Contractor shall conform to these technical specifications and shall not omit any unit or component or both, part or detail to make these buses ready for service, even though such part or detail is not mentioned in these specifications. In absence of a specification, the Contractor shall adhere to its manufacturing standards. No changes or substitutions are permitted without the prior written consent of the Authority. This procurement will allow retirement of older buses of the revenue fleet. The Authority's overall objective for purchase, design and operation of these CNG buses shall be to satisfy the following requirements:

- Safe and Reliable in Operation
- Economic to Purchase, Operate and Maintain
- Optimized Performance, Emissions and Fuel Consumption
- Full compliance with all applicable rules, regulations and standards in place at the time of manufacturing

### **TS 1.2 DEFINITIONS**

The following are definitions of the terminology used in this technical specification:

dBA. Decibels with reference to 0.0002 microbar as measured on the "A" scale.

<u>Audible Discrete Frequency</u>. An audible discrete frequency is determined to exist if the sound power level in any 1/3-octave band exceeds the average of the sound power levels of the two adjacent 1/3-octave bands by 4 decibels (dB) or more.

<u>Standee Line</u>. A line marked across the bus aisle to designate the forward area that passengers may not occupy when the bus is moving.

<u>Free Floor Space</u>. Floor area available to standees, excluding the area under seats, area occupied by feet of seated passengers, the vestibule area forward of the standee line, and any floor space indicated by manufacturer as non-standee areas such as, the floor space "swept" by passenger doors during operation. Floor area of 1.5 square feet shall be allocated for the feet of each seated passenger that protrudes into the standee area.

<u>Curb Weight</u>. Weight of bus, including maximum fuel, oil and coolant and all equipment required for operation and required by this specification, but without passengers or operator.

<u>Seated Load</u>. One hundred fifty pounds for every designed passenger seating position and for the operator.

<u>Gross Load</u>. One hundred fifty pounds for every designed passenger seating position, for the operator, and for each 1.5 square feet of free floor space.

SLW (Seated Load Weight). Curb weight plus seated load.

GVW (Gross Vehicle Weight). Curb weight plus gross load.

<u>GVWR (Gross Vehicle Weight Rated)</u>. The maximum total weight as determined by the bus manufacturer, at which the bus can be operated safely and reliably for its intended purpose.

<u>GAWR (Gross Axle Weight Rated)</u>. The maximum total weight as determined by the axle manufacturer, at which the axle can be operated safely and reliably for its intended purpose.

<u>Heavy Heavy-Duty (Natural Gas) Engine (HHDG)</u>. Heavy heavy-duty natural gas engines have sleeved cylinder liners, are designed for multiple rebuilds, and a rated horsepower that generally exceeds 250.

<u>Operator's Eye Range</u>. The 95th-percentile ellipse defined in SAE Recommended Practice J941, except that the height of the ellipse shall be determined from the seat at its reference height.

Fireproof. Materials that will not burn or melt at temperatures less than 2,000° F.

Fire Resistant. Materials that have a flame spread index less than 150 as measured in a radiant panel flame test per ASTM-E 162-90.

Human Dimensions. The human dimensions used in these technical specifications are defined in Humanscale 1/2/3, N. Diffrient, A. R. Tilley, J. C. Bardagjy, MIT Press.

HIC (Head Injury Criteria). The following equation presents the definition of head injury criteria:

$$\left[\frac{1}{t_2-t_1}\int_{t_1}^{t_2}(a)dt\right]^{2.5}(t_2-t_1)$$

### where:

a = the resultant acceleration at the center of gravity of the head form expressed as a multiple of g, the acceleration of gravity.

 $t_1$  and  $t_2$  = any two points in time during the impact.

<u>Baseline Configuration Bus</u>. The bus as described in these technical specifications if no alternatives are selected. Signing, colors, the destination sign reading list and other information must be provided by the Authority in attachments to these technical specifications.

<u>Alternative</u>. An alternative specification condition to the baseline configuration bus. The Authority may define alternatives to the baseline configuration to satisfy local operating requirements. Alternatives for the baseline configuration will be clearly identified.

<u>Design Operating Profile</u>. The operating profile for design purposes shall consist of simulated transit type service. The duty cycle is described in the figure "Transit Bus Duty Cycle." The duty cycle consists of three phases to be repeated in sequence: a central business district (CBD) phase of 2 miles with 7 stops per mile and a top speed of 20 mph, an arterial route phase of 2 miles with 2 stops per mile and a top speed of 40 mph, and a commuter phase of 4 miles with 1 stop and a maximum speed of 65 mph and a 5 minute idle phase.

Phase	Stops/	Тор	Miles	Accel	Accel	Cruise	Cruise	Decel.	Decel.	Decel.	Dwell	Cycle	Total
	Mile	Speed (mph)		Dist. (ft.)	Time (s)	Dist. (ft.)	Time (s)	Rate (fpsps)	Dist. (ft.)	Time (s)	Time (s)	Time (min-s)	Stops
CBD	7	20	2	155	10	540	18.5	6.78	60	4.5	7	9-20	14
Idle	-	-	-	-	-	-	-	-	-	-	-	5-0	-
Arterial	2	40	2	103 5	29	1350	22.5	6.78	255	9	7	4-30	4
CBD	7	20	2	155	10	510	18.5	6.78	60	4.5	7	9-20	14
Arterial	2	40	2	103 5	35	1350	22.5	6.78	255	9	7	4-30	4
CBD	7	20	2	155	10	510	18.5	6.78	60	4.5	7	9-20	14
Commuter	1 stop for	Max.	4	550	90	2	188	6.78	480	12	20	5-10	1
	phase	or 55		0		miles + 4580 ft.							
Total			14									47-10	51
Average Sp mph	eed - 17.8												



The bus shall be loaded to SLW and shall average approximately 18 mph while operating on this duty cycle. Operation shall continue regardless of the ambient temperature or weather conditions. The passenger doors shall be opened and closed at each stop, and the bus shall be knelt at each stop during the CBD phase. The braking profile shall be:

16 percent of the stops at 3 ft/sec/sec 50 percent of the stops at 6 ft/sec/sec 26 percent of the stops at 9 ft/sec/sec 8 percent of the stops at 12 ft/sec/sec

These percentages of stops shall be evenly distributed over the three phases of the duty cycle. For scheduling purposes, the average deceleration rate is assumed.

<u>Class of Failures</u>. Classes of failures are described below.

<u>Class 1: Physical Safety</u>. A failure that could lead directly to passenger or operator injury or represents a severe crash situation.

<u>Class 2: Road Call</u>. A failure resulting in an in-route interruption of revenue service. Service is discontinued until the bus is replaced or repaired at the point of failure.

<u>Class 3: Bus Change</u>. A failure that requires removal of the bus from service during its assignments. The bus is operable to a rendezvous point with a replacement bus.

<u>Class 4: Bad Order</u>. A failure that does not require removal of the bus from service during its assignments but does degrade bus operation. The failure shall be reported by operating personnel.

<u>Maintenance Personnel Skill Levels</u>. Defined below are maintenance personnel skill levels used in these Technical Specifications.

Specialist Mechanic, to include, body, electronics, machinist and upholstery

Journeyman or Class A Mechanic

Service worker, to include, runner, cleaner and fueler

In attachments to these Technical Specifications, the Authority may relate the skill levels and ratings of mechanics in its operation to the above definitions.

<u>Note</u>: Whenever a specific time is indicated to access components or complete a task, it is assumed the bus is in the location where the work is to be performed. All necessary equipment is in its correct position (tools, jacks, bus lifts, lighting, fluid recovery systems, etc.) and ready for use.

<u>Standards</u>. Standards referenced in Part 5: Technical Specifications are the latest revisions unless otherwise stated.

<u>Wheelchair</u>. A mobility aid belonging to any class of three or four-wheeled devices, usable indoors, designed for and used by individuals with mobility impairments, whether operated manually or powered. A "common wheelchair" is such a device that does not exceed 30 inches in width and 48 inches in length measured two inches above the ground and does not weigh more than 600 pounds when occupied.

<u>Structure</u>. The structure shall be defined as the basic body, including, the main frame, axle housings, axle suspension beams, component supporting cradles, sidewall/roof tube support structure, floor support structure, floor deck material and installation, load bearing external panels, structural components, axle mounting provisions and attachment points.

<u>Low Floor Bus</u>. A bus, which, between at least the front (entrance) and rear (exit) doors, has a floor sufficiently low, and level to remove the need for steps in the aisle between the doors and near these doors.

<u>Discrete Signals.</u> A signal which can take only pre-defined values, usually of a binary 0 or 1 nature where 0 is battery ground potential and 1 is a defined battery positive potential.

<u>Analog Signals.</u> A continuously variable signal that is solely dependent upon magnitude to express information content. Note: Analog signals are used to represent the state of variable devices such as rheostats, potentiometers, temperature probes, etc.

<u>Serial Data Signals.</u> Serial data signals are a current loop-based representation of ASCII or Alphanumeric data used for transferring information between devices by transmitting a sequence of individual bits in a prearranged order of significance. Note: An example is the communication that takes place between two or more electronic components with the ability to process and store information.

<u>Physical Layer</u>. The first layer of the seven-layer International Standards Organization (ISO) Open Systems Interconnect (OSI) reference model. This provides the mechanical, electrical, functional and procedural characteristics required to gain access to the transmission medium (e.g., cable) and is responsible for transporting binary information between computerized systems.

<u>Fuel Management System</u>. Natural gas fuel system components that control or contribute to engine air fuel mixing and metering, and the ignition and combustion of a given air-fuel mixture. The fuel management system shall include, but is not limited to, reducer/regulator valves, fuel-metering equipment (e.g. carburetor, injectors), sensors (e.g. main throttle, wastegate).

<u>Ambient Temperature</u>. The temperature of the surrounding air. For testing purposes, ambient temperature must be between +16°C (+50°F) and +38°C (+100°F).

Burst Pressure. The highest pressure reached in a container during a burst test.

<u>Capacity (fuel container)</u>. The water volume of a container in gallons (liters).

Code. A legal requirement.

<u>Defueling</u>. The process of removing fuel from a bus.

<u>Defueling Port</u>. Device, which allows for, or point at which, a bus is defueled.

<u>Destroyed</u>. Physically made permanently unusable.

<u>Fuel Line</u>. The pipe, tubing, or hose on a bus, including all related fittings, through which fuel passes. <u>Fusible Material</u>. A metal, alloy, or other material capable of being melted by heat.

<u>Labeled</u>. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization, that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Leakage. Release of contents through a defect or crack.

<u>Lower Explosive Limit (LEL)</u>. The lowest concentration of gas where, given an ignition source, combustion is possible.

<u>Maximum Service Temperature</u>. The maximum temperature to which a container/cylinder will be subjected in normal service.

<u>Metallic Hose</u>. A hose whose strength depends primarily on the strength of its metallic parts; it can have metallic liners or covers, or both.

<u>Operating Pressure</u>. The varying pressure that is developed in a container during service.

<u>Pressure Activated Gas Relief Device</u>. A pressure or temperature activated device, or both used to vent the container/cylinder contents and thereby prevent rupture of an NGV fuel container/cylinder, when subjected to a standard fire test as required by fuel container/cylinder standards.

NOTE: Since this devise is pressure activated device, it may not protect against rupture of the container when the application of heat weakens the container to the point where its rupture pressure is less than the rated burst pressure of the relief device, particularly if the container is partially full.

<u>Rupture</u>. Sudden and unstable damage propagation in the structural components of the container resulting in a loss of contents. See "Leakage."

<u>Specification</u>. A particular or detailed statement, account, or listing of the various elements, materials, dimensions, etc. involved in the manufacturing and construction of a product.

Standard. A firm guideline from a consensus group.

Stress Loops. The "pig-tails" commonly used to absorb flexing in piping

<u>Sources of Ignition.</u> Devices or equipment those, because of their modes of use or operation, can provide enough thermal energy to ignite flammable compressed natural gas-air mixtures when introduced into such a mixture, or when such a mixture comes into contact with them

### TS 1.3 ABBREVIATIONS

The following is a list of abbreviations used in these Technical Specifications.

- (1) <u>ADA</u> Americans with Disabilities Act
- (2) <u>ANSI</u> American National Standards Institute
- (3) <u>APTA</u> American Public Transportation Association
- (4) <u>ASHRAE</u> American Society of Heating, Refrigerating and Air Conditioning Engineers
- (5) <u>ASTM</u> American Society for Testing and Materials
- (6) <u>CAN/CGA</u> Canadian Gas Association

(7)	<u>CFR</u>	Code of Federal Regulations
(8)	<u>CGA</u>	Compressed Gas Association
(9)	CHP	California Highway Patrol
(10)	<u>CNG</u>	Compressed Natural Gas
(11)	DOE	U.S. Department of Energy
(12)	DOT	U.S. Department of Transportation
(13)	EMI	Electromagnetic Interference
(14)	EPA	U.S. Environmental Protection Agency
(15)	FMEA	Failure Modes and Effects Analysis
(16)	<u>FMCSR</u>	Federal Motor Carrier Safety Regulations
(17)	<u>FMVSS</u>	Federal Motor Vehicle Safety Standards
(18)	<u>FTA</u>	U.S. Federal Transit Administration
(19)	IAS	International Approval Services
(20)	<u>I/O</u>	Input/output
(21)	<u>ISO</u>	International Organization for Standardization
(22)	<u>JIC</u>	Joint Industrial Council
(23)	<u>LED</u>	Light Emitting Diode
(24)	<u>LEL</u>	Lower Explosive Limit
(25)	<u>ALTD</u>	Armored Linear Thermal Device
(26)	MAWP	Maximum Allowable Working Pressure
(27)	<u>MPH</u>	Miles Per Hour
(28)	<u>NAFTP</u>	The National Alternative Fuel Training Program
(29)	NATEF/SAE	The National Automotive Technicians Education Foundation/
		Automotive Service Excellence
(30)	<u>NFPA</u>	National Fire Protection Association
(31)	<u>NGV</u>	Natural Gas Vehicle
(32)	<u>NHTSA</u>	National Highway Traffic Safety Administration
(33)	<u>OEM</u>	Original Equipment Manufacturer
(34)	<u>OSHA</u>	Occupational Safety and Health Administration
(35)	<u>PRD</u>	Pressure Relief Device
(36)	<u>RFI</u>	Radio Frequency Interference
(37)	<u>SAE</u>	Society of Automotive Engineers
(38)	<u>SPI</u>	Society of the Plastics Industry
(39)	<u>TRC</u>	Texas Railroad Commission
(40)	<u>UL</u>	Underwriters Laboratories
(41)	<u>USDOT</u>	United States Department of Transportation

### **TS 1.4 REFERENCED PUBLICATIONS**

The documents or portions thereof referenced within this specification shall be considered part of the requirements of this specification. The edition indicated for each referenced document is the current edition, as of the date of the issuance of this specification.

### TS 1.5 LEGAL REQUIREMENTS

The contractor shall comply with all applicable Federal, state and local regulations. Local regulations are defined as those below the state level. These shall include, but not be limited to, Federal ADA as well as state and local accessibility, safety and security requirements. The bus shall meet all applicable Federal Motor Vehicle Safety Standards and shall accommodate all applicable Federal Motor Carrier Safety Regulations in effect at the date of manufacture. The bus shall meet CA Title 13 Vehicle Code regulations. In the event of any conflict between the requirements of this specification and any applicable legal requirement, the legal requirement shall prevail. Technical requirements that exceed the legal requirements are not considered to conflict.

### TS 1.6 OVERALL REQUIREMENTS

Contractor shall ensure that the application and installation of major bus sub-components and systems are compliant with all such sub-component vendors' requirements and recommendations. Components used in the bus shall be of heavy-duty design and proven in transit service. Overall, the bus shall be assembled per an inclusive design plan, to include selection, location and application of components, routing and securement of harnesses, piping, hoses, hoses, fittings, fasteners, etc. The following general guidelines shall apply unless specifically addressed otherwise:

The use/length of flexible piping should be minimized. The quantity of fittings shall be minimized (unnecessary use of bushings, adapters, etc.) and SAE O-ring / JIC flare type fittings used as available in place of NPT. NPT fittings shall not be used in any part of the fuel system prior to obtaining the Authority's written consent.

Fasteners shall not be of excessive length and critical fasteners subject to loosening shall incorporate a locking mechanism, such as, pinned, safety wire, thread locking adhesive, interference nuts, etc.

Piping and all cables shall be routed in a parallel fashion and be retained by split type mounting blocks using pinch bolts; therefore, the use of "P" clamps shall not be allowed, and the use of traditional tie straps shall not be permitted. As an alternative, Hellermann Tyton type/style of fasteners, clamps are acceptable.

Current natural gas-powered engines in conjunction with the all-electric-cooling packages generates excessive temperatures in the engine compartments and as such, all fluid carrying hoses, plumbing, etc., that are not made of stainless steel, shall be rated to operate at a minimum of 350 degrees F or higher. This requirement shall include all components intended for placement in any such environment; e.g., electrical cables, wire harnesses, fasteners, pipes, fittings, valves, solenoids, controllers, etc.

### **TS 1.7 DIMENSIONS**

### 1.7.1 Physical Size

With the exceptions of exterior mirrors, marker and signal lights, bumpers, fender skirts, washers, wipers, ad frames and rub rails, the bus shall have the following overall dimensions as shown in the figure "Transit Bus Exterior Dimensions" at static conditions and design height.

Body Length: 40 feet  $\pm 3$  inches

Body Width: 102 inches (+0, -1 inch)

Maximum Overall Height: 140 inches, includes all rigid roof mounted items such as A/C, exhaust, fuel system and cover, etc.



### 1.7.2 Underbody Clearance

The bus shall maintain the minimum clearance dimensions as shown in the figure "Transit Bus Minimum Road Clearance" and defined in SAE Standard J689, regardless of load up to the gross vehicle weight rating.

<u>Ramp Clearances</u>. Approach angle shall be no less than 8.5 degrees. Break over angle shall be no less than 8 degrees. Departure angle shall be no less than 9 degrees.

The approach angle is the angle measured between a line tangent to the front tire static loaded radius arc and the initial point of structural interference forward of the front tire to the ground.

The departure angle is the angle measured between a line tangent to the rear tire static loaded radius arc and the initial point of structural interference rearward of the rear tire to the ground.

The break over angle is the angle measured between two lines tangent to the front and rear tire static loaded radius and intersecting at a point on the underside of the bus that defines the largest ramp over which the bus can roll.

<u>Ground Clearance</u>. Ground clearance shall be no less than 10 inches, except within the axle zone and wheel area.

<u>Axle Clearance</u>. Axle zone clearance, which is the projected area between tires and wheels on the same axial centerline, shall be no less than  $5\frac{1}{2}$  inches.

<u>Wheel Area Clearance</u>. Wheel area clearance shall be no less than 8 inches for parts fixed to the bus body and 6 inches for parts that move vertically with the axles.





### 1.7.3 Floor Height

Height of the floor above the street shall be no more than 15 inches measured at the centerline of the front and rear doorway. The floor may be inclined along the longitudinal axis of the bus, and the incline shall be less than 3 1/2° off the horizontal except locally at the doors where 2° slope toward the door is allowed. All floor measurements shall be with the bus at the design running height and on a level surface and with the standard tires.

### 1.7.4 Interior Headroom

Headroom above the aisle and at the centerline of the aisle seats shall be no less than 78 inches in the forward half of the bus tapering to no less than 74 inches forward of the rear settee. At the centerline of the window seats, headroom shall be no lower than 65 inches. Headroom at the back of the rear bench seat may be reduced to a minimum of 56 inches, but it shall increase to the ceiling height at the front of the seat cushion. In any area of the bus directly over the head of a seated passenger and positioned where a passenger entering or leaving the seat is prone to strike his/her head, padding shall be provided on the overhead paneling.

### 1.7.5 Weight

The preferred maximum curb weight of the bus is 31,000 pounds. The maximum GVWR on any one axle shall not exceed 22,000 Lbs., or as applicable by code/law at the time of manufacturing.

### 1.7.6 Capacity

The bus shall be designed to carry the Gross Vehicle Weight which shall not exceed the bus GVWR.

### 1.7.7 Service Life and Maintenance

### 1.7.7.1 Service Life

The bus shall be designed to operate in transit service for at least 12 years or 500,000 miles and be capable of operating at least 40,000 miles per year including the twelfth year.

### 1.7.7.2 Maintenance and Inspection

Scheduled maintenance or inspection tasks as specified by the Contractor shall require a skill level of journeyman mechanic or less. Scheduled maintenance tasks shall be related and shall be, in general, at intervals of 6,000 miles (along with routine daily service performed during the fueling operations).

Test ports shall be provided for commonly checked functions on the bus such as air intake, exhaust, hydraulic, pneumatic, charge-air and engine cooling systems.

Additionally, oil sample extraction fittings shall be provided as a part of the engine and transmission, as available through the Titan Oil Lab, Part #OD1014, or approved equal. The Authority shall approve the fastening and location of these fittings.

### 1.7.7.3 Maintainability Requirements

Following are maintenance requirements stated in mean time to fix (MTTF). Unless specified otherwise, these numbers represent the total elapsed labor time in hours and minutes required to complete the indicated maintenance tasks by one journeyman mechanic. These figures do not include time required to bring the vehicle to the shop, hoist setting, etc.

INSPECTION	
Daily Operation pre trip inspection (standard AUTHORITY bad order -BO- card	10 min.
Daily maintenance inspection	8 min.
6,000-mile inspection interval	7.5 hr.
REMOVAL AND REPLACEMENT OF	
HVAC blower motor	1 hr.
HVAC condenser motor	1 hr.
To gain access for door motor adjustment	2 min.
Batteries set	45 min.
Brake application valve	1 hr.
Brake inspection	15 min.
Electronic unit (plc module, relay, fuses, etc.)	15 min.
Exterior mirrors	5 min.
Starter motor	1.5 hr.
Lamps, passenger lights	15 min.
Alternator	1 hr.
Operator seat	30 min.
Power steering gear box assembly	2 hr.
Radiator (2 journeyman mechanics)	2 hr.
Seat insert	2 min.
Shock absorber (each)	45 min.
Wheel change, front	45 min.
Wheel change, rear	1 hr.
Window glassing passenger	15 min.
Window guard or protection, passenger and door	10 min.
Wiper motor	20 min.
Wire harness assembly (other than main body harness)	30 min.

### 1.7.7.4 Maintainability Demonstrations

The Contractor shall be required to demonstrate these maintenance tasks using the information contained in the service and parts manuals. The demonstration shall be conducted on the first article vehicle, may occur at the Authority facilities, and shall be certified by the Authority's Training Department. Should a failure of the demonstration occur, the Contractor shall revise the vehicle design or service manual information as necessary and re-demonstrate the procedure on the first article vehicle. The purpose of these demonstrations is to validate the maintenance manual, special tool requirements and MTTF.

### 1.7.7.5 Accessibility

All systems or components subject to periodic maintenance or that are subject to periodic failures shall be readily accessible for service and inspection. To the extent practicable, removal or physical movement of components unrelated to the specific maintenance or repair tasks or both involved shall be unnecessary.

As a goal, relative accessibility of components, measured in time required to gain access, shall be inversely proportional to frequency of maintenance and repair of the components.

### 1.7.7.6 Interchangeability

Components with identical functions shall be interchangeable to the extent practicable. These components shall include, but not limited to, passenger window hardware, interior trim, lamps, lamp lenses, and seat assemblies. Components with non-identical functions shall not be, or appear to be, interchangeable. A component shall not be used in an application for which it was neither designed nor intended.

Any one component or unit used in the construction of these buses shall be an exact duplicate in design, manufacture, and assembly for each bus in each order group in this Contract.

### 1.7.7.7 Operating Environment

The bus shall operate normally under all environmental conditions usually occurring in the Authority's service area. Specific conditions include ambient temperatures, which range between 30° F and 125° F, at relative humidity between 5 percent and 100 percent, and at altitudes as high as 3,000 feet above sea level.

Speed, grade ability, and acceleration performance requirements shall be met at, or corrected to, 77° F, 29.31 inches Hg, dry air per SAE J1995 including all accessories and air conditioning system.

### 1.7.8 Noise

### 1.7.8.1 Interior Noise

The combination of inner and outer panels and any material used between them shall provide sufficient sound insulation so, that a sound source with a level of 80 dBA measured at the outside skin of the bus, shall have a sound level of 65 dBA or less at any point inside the bus. These conditions shall prevail with all openings, including doors and windows, closed and with the engine and accessories switched off.

The bus-generated noise level experienced by a passenger at any seat location in the bus shall not exceed 83 dBA and the operator shall not experience a noise level of more than 75 dBA under the following test conditions. The bus shall be empty except for test personnel, not to exceed four persons, and the test equipment. All openings shall be closed, and all accessories shall be operating during the test. The bus shall accelerate at full throttle from a standstill to 35 mph on level commercial asphalt or concrete pavement in an area free of large reflecting surfaces within 50 feet of the bus path. During the test, the ambient noise level in the test area shall be at least 10 dBA lower than the bus under test. Instrumentation and other general requirements shall conform to SAE Standard J366. If the noise contains an audible discrete frequency, a penalty of 5 dBA shall be added to the sound level measured.

### 1.7.8.2 Exterior Noise

Airborne noise generated by the bus and measured from either side shall not exceed 80 dBA under full power acceleration when operated at or below 35 mph at curb weight. The maximum noise level generated by the bus pulling away from a stop at full power shall not exceed 83 dBA. The bus-generated noise at curb idle shall not exceed 65 dBA. If the noise contains an audible, discrete frequency a penalty of 5 dBA shall be added to the sound level measured. All noise readings shall be taken 50 feet from and perpendicular to, the centerline of the bus with all accessories operating. Instrumentation, test sites, and other general requirements shall be in accordance with SAE Standard J366. The pull away test shall begin with the front bumper even with the microphone.

### 1.7.9 Fire Safety

The bus shall be designed and manufactured in accordance with all applicable fire safety and smoke emission regulations. These provisions shall include the use of fire-retardant/low-smoke materials, fire detection systems, fire suppression, firewalls, and facilitation of passenger evacuation. In recognition of the high exhaust temperatures experienced, the construction of areas directly surrounding the exhaust stack shall be done using fire-retardant/low-smoke materials. Design of this area shall be such that any material ejected from the exhaust stack will not cause ignition or degradation of the surfaces in the immediate vicinity surrounding the stack.

The selection of fire-retardant materials, as available, shall extend to fluids as well, such as hydraulic oil, power steering fluid, fluids used as transfer media at heat exchangers, etc. Particular attention to this requirement shall apply to fluids typically used in areas of high heat (engine compartment, exhaust piping/muffler area, turbo charger/turbine).

All materials used in the construction of the passenger compartment of the bus shall be in accordance with the Recommended Fire Safety Practices defined in FMVSS 302, dated October 20, 1993. Materials entirely enclosed from the passenger compartment, such as insulation within the sidewalls, need not comply. In addition, smaller components and items, such as seat grab rails, switch knobs and small light lenses, shall be exempt from this requirement.

### 1.7.10 Elderly And Disabled Passengers

Contractor shall comply with all applicable Federal requirements defined in the Americans with Disabilities Act, 49 CFR Part 38, and all state and local regulations regarding mobility-impaired persons.

### 1.7.11 Respect For The Environment

In the design and manufacture of the bus, the Contractor shall make every effort to reduce the amount of potentially hazardous waste generated by the Authority when maintaining the bus in accordance with the procedures contained in the manufacturer's maintenance manuals. The manufacturer shall use, whenever possible, light emitting diode, LED, lighting tubes with cleanable filters, and non-asbestos brake blocks and gaskets. In accordance with Section 6002 of the Resource Conservation and Recovery Act, the Contractor shall use, whenever possible and allowed by the specifications, recycled materials in the manufacture of the bus.
#### TS 1.8 PROPULSION SYSTEM

#### 1.8.1 Bus Performance

#### 1.8.1.1 Power Requirements

Propulsion system and drive train shall provide power to enable the bus to meet the defined acceleration, top speed, and gradeability requirements, and operate all propulsion-driven accessories. Power requirements are based on heavy heavy-duty natural gas (HHDG) engines certified by the California Air Resources Board (CARB) for use in California using actual road test results, computerized performance data or engine dynamometer. The engine shall be CARB certified based on the year of the bus' manufacturing.

### **1.8.1.1.1 Optional Power Requirements**

The OCTA, due to upcoming regulatory and code compliance requirements for the air basin, e.g., Fleet Rule, zero emission bus regulation, near-zero emission technologies, etc., reserves the right, at its own discretion, as part of any Lot of buses intended to be ordered through this RFP, to have a future defined quantity of buses built in compliance with the potential new rules and requirements. The type and quantity of buses compliant with the new rules and regulations shall be discussed and evaluated with the successful bidder at any time during the tenure of the signed agreement. If any optional power driven buses are exercised as part of the existing award, a new first article bus may be required and all the existing approval processes and steps defined in this RFP for a "first article", testing period, acceptance inspection, notice to proceed with the first article, notice to proceed with the alternative production run and others shall apply.

#### 1.8.1.2 Top Speed

The bus shall be capable of being at a top speed of 65 mph for an unlimited amount of time on a straight, level road at GVWR with all accessories operating.

### 1.8.1.3 Gradeability

Gradeability requirements shall be met on grades with a dry commercial asphalt or concrete pavement at GVWR with all accessories operating. The propulsion system and drive train shall enable the bus to achieve and maintain a speed of 40 mph on a 2-1/2 percent ascending grade and 7 mph on a 16 percent ascending grade.

#### 1.8.1.4 Acceleration

The acceleration shall meet the requirements below and shall be sufficiently gradual and smooth to prevent throwing standing passengers off-balance. Acceleration measurement shall commence when the accelerator is depressed – (Idle Start.)

MAXIMUM IDLE START ACCELERATION TIMES ON A LEVEL SURFACE (Vehicle weight = GVWR)

SPEED (MPH)	TIME (SEC)
10	5.0
20	10.0
30	18.0
40	30.0
50	60.0
65	Bus Manufacturer to enter time

### 1.8.1.5 Operating Range

The operating range of the bus when run/operated on the transit bus duty cycle shall be at least 400 miles.

# TS 1.9 DRIVETRAIN

# 1.9.1 Power Plant

#### 1.9.1.1 Engine



The engine shall be designed to operate for not less than 300,000 miles without major failure or significant deterioration. Components of the fuel management or control system or both shall be designed to operate for not less than 150,000 miles without replacement or major service. Exception: Spark plugs and wires. Mileage intervals are based upon the design operating profile.

The engine should meet all requirements when operating on CNG as certified by the engine manufacturer and specified by Authority.

The engine shall be equipped with an electronically controlled management system, compatible with 24-volt power distribution. The engine control system shall be capable of transmitting and receiving electronic inputs and data from other drive train components and transmit that data to other bus systems. The engine's electronic management system shall monitor operating conditions and provide instantaneous adjustments to optimize both engine and bus performance. The system shall be programmable to allow optimization of engine performance.

The engine control system shall have onboard diagnostic capabilities able to monitor vital engine functions; store and time stamp out of parameter conditions in memory and communicate faults and vital conditions to service personnel. Diagnostic reader device connector ports, suitably protected against dirt and moisture, shall be provided in operator's area and near or inside engine compartment. The onboard diagnostic system shall inform the operator via visual or audible alarms or both when out of parameter conditions exist for vital engine functions.

The engine starter shall be protected by an interlock that prevents its engagement when the engine is running, or the drive selector is not in the neutral position or both.

The engine control system shall protect the engine against progressive damage. The system shall monitor conditions critical for safe operation and automatically de-rate power or speed or both and initiate engine shutdown as needed. The on-board diagnostic system shall trigger a visual and audible alarm to the operator when the engine control unit detects a malfunction and the engine protection system is activated.

Automatic shutdown shall only occur when parameters established for the functions below are exceeded:

- Coolant Level
- Coolant Temperature
- Exhaust Temperature
- Oil Pressure

A control shall be available to the operator which, when constantly depressed, will allow the driver to delay the engine shutdown but not the Fire Suppression System activation and alarm system.

If additional warning and monitoring systems/devices are engineered into the bus, all of them shall be operating under the same parameters/specifications.

Contractor shall supply a chart, from each of the potential engines, indicating all major parameters such as:

Horsepower

Torque

Engine weight

Fuel consumption @ IDLE

Fuel consumption under PARTIAL and under MAXIMUM LOAD

Schedule of maintenance items e.g. spark plugs, throttle plates, turbocharger, valve adjustments, tune-up, ignition system, fuel metering system, oil changes, fuel filter changes, fuel pressure required, quality of fuel, type of engine oil and alternatives, type of coolant and alternatives, emission certification level, maximum engine operating temperature, use of catalytic converter, etc.

### 1.9.1.2 Engine Air Filtration

An air filter and ducting shall be provided. The duct inlet shall be located in a manner that will not draw air from the engine compartment, exhaust system, or from the rear wheel area. Engine air inlet duct shall be located at the minimum height of five feet above the ground. Automatic gravity water drainage shall be provided at a location before the filter housing.

# 1.9.1.3 Engine Starter

The engine shall be equipped with an electric starter manufactured by Delco-Remy, or approved equal, model 39MT. The engine starter shall be protected by an interlock that prevents its engagement when the engine is running. Starter shall also be interlocked to the fuel fill door to prevent starting with door opening.

## 1.9.1.4 Starter Inhibitor Switch

A key (\*) operated starter motor inhibitor switch shall be located on the rear run box and the circuit shall be operated by a GEM, or approved equal, round key camlocks. The switch is intended to inhibit the starter motor from operating when deemed necessary during the performing of repairs or other organizational needs.

(\*) Additional details shall be provided at the pre-production meeting.

# 1.9.1.5 Engine Control System

The engine shall be equipped with an operator-controlled fast idle (1000RPM) device. The fast-idle control shall be a two-way toggle mounted on the dash or side console. A hand operated Electronic Throttle Control Multi-Turn unit shall be mounted in the engine compartment, Morse part No 310714, or approved equal. The throttle mechanism will not be capable of raising the engine RPM unless (1) the transmission is in neutral (2) the parking brake is applied (3) the engine compartment door is open. The device will incorporate the redundant features for automatically returning to idle. This device may be used to help meet the requirements of bus cool down. The location of these controls shall be approved, in writing, by the Authority.

# 1.9.1.6 Engine Oil

The engine shall operate satisfactorily on the Authority's current natural gas grade engine oil. Characteristics of current oil as follows or in full compliance with Cummins Engineering Standard, CES 20092.

SAE 15w40 Low Ash

# 1.9.1.7 Engine Oil Filtration

The engine shall be equipped with an oil filtration system approved by the engine manufacturer and installed according to their recommendations.

### 1.9.1.8 Engine Oil Analysis

To establish a baseline, the Contractor shall be responsible for providing, at the time of each engine installation at the manufacturing plant, a complete engine oil analysis that shall include, at a minimum, a basic Spectrographic/ICP analysis based on testing methods which conform to the ASTM D5185 standard for the following elements:

- a. <u>Elemental Analyses to be reported as PPM, to include the following elements:</u>
  - Silicon, Sodium, Boron, Potassium, Chromium, Copper, Iron, Lead, Tin, Aluminum, Barium, Boron, Calcium, Magnesium, Molybdenum, Nickel, Phosphorus, Silver, Sodium, Titanium, Zinc.
- b. <u>The testing shall also include:</u>
  - Viscosity change at 100° C, <u>+</u>1 SAE Viscosity Grade (ASTM D445)
  - Total Solids, % Volume (ASTM D893)

- Fuel Dilution, % Volume (ASTM D3524, ASTM D3525 or ASTM D2887)
- Water Dilution, % Volume (D95)
- Water content (ASTM D-95)
- Total Base Number (TBN) (ASTM D-4739)
- Total Acid Number (TAN) (ASTM D664)
- Glycol Dilution, PPM (D2982); shall be reported as Pass/Fail or as PPM
- TGA Soot. %(E1131) (ASTM D5967) (E2412 provided that the method is calibrated against TGA results)
- Oxidation (ASTM E2412)
- Nitration (ASTM E2412)
- Sulfated Ash % by mass (ASTM D874-07)

A second engine oil analysis shall be performed at the time of each bus' approval for shipment to Orange County, California.

# 1.9.1.9 Power Plant Mounting

The power plant shall be mounted in a compartment in the rear of the bus. All power plant mounting shall be mechanically isolated to minimize transfer of vibration to the body structure. Mounts shall control movement of the power plant so as not to affect performance of belt driven accessories or cause strain in piping and wiring connections to the power plant.

The bidders shall provide with their responses the amount of time that it will take to have the engine replaced, and the list of tools required, or recommended, to accomplish the task within the indicated timelines. Bidders also shall indicate if their proposed bus is manufactured with completely removable engine-cradles

### 1.9.1.10 Service

The power plant shall be arranged so that accessibility for all routine maintenance is assured. No special tools, other than dollies and hoists, shall be required to remove the power plant. Two journeyman mechanics shall be able to remove and replace the engine assembly in less than 12 total combined person-hours. The muffler, exhaust system, air cleaner, air compressor, starter, alternator, radiator, all accessories, and any other component requiring service or replacement shall be easily removable and independent of the engine. An engine oil pressure gauge and coolant temperature gauge shall be provided in the engine compartment. These gauges shall be easily read during service and mounted in an area where they shall not be damaged during minor or major repairs.

Engine oil and the radiator filler caps shall be hinged to the filler neck and closed with spring pressure or positive locks. All fluid fill locations shall be properly labeled to help ensure correct fluid is added and all fillers shall be easily accessible with standard funnels, pour spouts, and automatic dispensing equipment. All lubricant sumps shall be fitted with magnetic-type, external, hex head, drain plugs.

The engine shall be equipped with enough heavy-duty fuel and oil filters for efficient operation and to protect the engine and transmission between scheduled filter changes. To the extent practicable, the filters shall be of the spin-on, disposable type or integral with the engine and transmission. All filters shall be easily accessible, and the filter bases shall be plumbed to assure correct reinstallation. An air cleaner with a dry filter element and a graduated air filter restriction indicator shall be provided. The filter shall be removable by a specialist mechanic in 10 minutes or less. The location of the air intake system shall be designed to minimize the entry of dust and debris and maximize the life of the air filter. The engine air duct shall be designed to minimize the entry of water into the air intake system. Drainage provisions shall be included to allow any water/moisture to drain prior to entry into air filter.

## 1.9.2 Cooling Systems

An all-electric cooling system shall be of sufficient size to maintain all engine and transmission fluids and engine intake air at safe, continuous operating temperatures during the most severe operations possible and in accordance with engine and transmission manufacturers' cooling system requirements. The cooling system fan controls should sense the temperatures of the operating fluids and the intake air, and if either is above safe operating conditions the cooling fan should be engaged. The fan control system shall be designed with a fail-safe mode of "fan on."

The cooling system design will provide adequate cooling of the engine and transmission during ambient operating temperature between 30- and 125-degrees F at idle with all accessories on and the transmission in gear, at the rated gross vehicle weight during prolonged maximum acceleration and deceleration. The radiator design shall facilitate ease of cleaning, to include fin profile and aligned tubes, rather than staggered.

All clamped coolant hoses shall be silicone type and shall be protected from engine heat, which may cause premature failure. All hoses shall be clamped with the coiled or Belleville sprong equipped constant torque clamps. Clamps shall be complete with extended inside sleeve and of the wide band design. Head of clamp adjusting screw shall allow for slotted screwdriver or socket wrench tightening or both.

### 1.9.2.1 Engine Cooling

The engine shall be cooled by a Fleetguard ES Compleat Coolant, and the system shall be a pressure type, cooling system that does not permit boiling or coolant loss during the operations described above. Engine thermostats shall be easily accessible for replacement. All below described shut off valves intended for the cooling system shall be <sup>1</sup>/<sub>4</sub> turn valves. Shutoff valves shall allow filter replacement without coolant loss. Valves shall permit complete shutoff of lines for the heating and defroster units, and water booster pumps. The water boost pump shall be a magnetically coupled, brushless design. All low points in the cooling system shall be equipped with drain cocks. Air vent valves shall be fitted at high points in the cooling system unless it can be demonstrated that the system is self-purging.

A sight glass to determine satisfactory engine coolant level shall be provided and shall be accessible by opening one of the engine compartment's access doors. A spring-loaded, push button type valve to safely release pressure, or vacuum in the cooling system shall be provided and located no more than 60 inches above the ground and shall be accessible through the coolant-fill access door.

The radiator, and charge air cooler if integrated, shall be of durable corrosion-resistant construction with bolted-on removable tanks. The radiator shall be designed so a specialist mechanic can gain access to a substantial portion of the side facing the engine for cleaning the radiator in five minutes or less. All radiator solder joints shall be done with 97 % tin, 3% cooper – lead free solder. Radiator headers shall be a minimum of .06-inch yellow brass construction and shall incorporate 1/8-inch airside ring reinforcements.

No heat producing components or climate control system components shall be mounted between the engine cooling air intake aperture and the radiator. The radiator and charge air cooler shall be designed to withstand thermal fatigue and vibration associated with the installed configuration. The engine cooling system shall be equipped with a properly sized spin-on coolant filter for releasing supplemental coolant additives as needed to replenish and maintain protection properties. Shut off valves will be provided to aid in coolant filter replacement.

# 1.9.2.2 Charge Air Cooling

The charge air cooling system also referred to as after-coolers or inter-coolers shall provide maximum air intake temperature reduction with minimal pressure loss. The charge air radiator shall be sized and positioned to meet engine manufacturer's requirements. The charge air radiator shall not be stacked ahead or behind the engine radiator and shall be positioned as close to the engine as possible unless integrated with the radiator. Air ducting and fittings shall be protected against heat sources and shall be configured to minimize restrictions and maintain sealing integrity.

# 1.9.2.3 Transmission Cooling

The transmission shall be cooled by a separate heat exchanger sized to maintain operating fluid within the transmission manufacturer's recommended parameters of flow, pressure, and temperature. The transmission cooling system shall be matched to retarder and engine cooling systems to ensure that all operating fluids remain within recommended temperature limits established by each component manufacturer.

### 1.9.3 Transmission

The transmission should be multiple speeds, automatic shift with torque converter, retarder and electronic controls and shall be manufactured by Allison, Voith, or ZF. The transmission shall permit the vehicle to operate in forward and reverse motions.

Gross input power, gross input torque and rated input speed shall be compatible with the engine. A journeyman mechanic, with optional assistance, shall be able to remove and replace the transmission assembly for service in less than 16 total combined person-hours. The transmissions shall be designed to operate for not less than 300,000 miles on the design operating profile without replacement or major service.

A complete SCAAN, or equivalent, should be included within the bidder's technical proposal. The transmission should be capable of diagnostics, archive of failure data, adaptive learning and programming via interfaces and electronic devices. This capability should extend to time stamping of failure data, running in real time mode for road testing, and data storage.

The electronic controls shall be compatible with multiplex wiring systems, capable of receiving inputs from the throttle, shift selector, engine and transmission. Communication between the transmission and other electronically controlled vehicle systems shall be made using the SAE J1939 Recommended Practice communication link. Electronic controls shall be compatible with either 12-or 24-volt systems, provide consistent shift quality, and compensate for changing conditions, such as variations in vehicle weight and engine power.

The operator shall require a brake pedal application of 9 to 15 psi to engage forward or reverse range from the neutral position.

The electronically controlled transmission shall have on-board diagnostic capabilities, able to monitor functions, store out of parameter conditions in memory, and communicate faults and vital conditions to service personnel. A diagnostic reader device connector port, suitably protected against dirt and moisture, shall be provided in the operator's area. The on-board diagnostic system shall trigger a visual alarm to the operator when the control unit detects a malfunction. The transmission shall contain built-in protection software to guard against severe damage.

The transmission shall be capable of satisfactorily operating at extended drain intervals (84,000 miles minimum) using Allison approved fluids. The initial transmission fluid fill at the manufacturing plant shall be a TES 295 or approved fluid, preferred Transynd or Allison's approved equal for extended drain intervals.

Transmission filtering shall be done by a sump screen and filter. Transmission oil filter replacement intervals shall be every 42,000 miles minimum. The transmission filler tube should be adequate in size and venting to allow filling the transmission with fluid, after draining, within 5 minutes at an ambient temperature of 30 degrees F.

Important: Current natural gas-powered engines in conjunction with the all-electric-cooling packages generates excessive temperatures in the engine compartments and as such, all hoses, plumbing, etc., that are not made of stainless steel, shall be rated to 350 degrees F or higher. This requirement shall include all components intended for placement in any such environment; e.g., cables, pipes, fittings, valves, solenoids, controllers, etc.

# 1.9.3.1 Transmission Retarder

The transmission shall be equipped with an integral hydraulic retarder designed to extend brake line service life. The application of the hydraulic retarder shall cause and smooth blending of the retarder and service brake functions without exceeding jerk requirements, as defined under "Transmission Jerk" section. Brake lights shall illuminate when the retarder activates.

The retarder application shall absorb 80 percent of the normal foundation brake energy. The retarder application should occur automatically, and the intensity of application should be determined by the application of the foundation brakes and throttle position. Retarder deactivation should occur quickly to avoid parasitic loading to the vehicle during acceleration or coasting and deactivation via ABS interface. The offeror shall provide the Authority with evidence to support retarder performance and reliability. The highest degree of retardation (\*), e.g. 1,600 ft-lbs., shall be used for these buses. Minimum performance should be a ratio of brake lining wear with and without the retarder of 4 to 1. Based upon historic experience, the Authority anticipates the rear brake reline interval to exceed 40,000 miles and the front brake interval to exceed 60,000 miles. (Retarder activation should be phased as 1/3 @ 0 throttle, 1/3 @ 1 psi brake, 1/3 @ 4 psi brake,) A more preferred rate of retarder application shall be linear, as compared to foundation brake application, rather than the 1/3 steps. Retarder should provide decel at least 0.15g.

(\*) Due to all the potential available combinations for an operational retarder, e.g., aggressive, medium mild, etc., the Contractor shall include the provisions for Authority to test and evaluate all possible combinations during the evaluation of the first article bus.

# 1.9.3.2 Transmission Jerk

Jerk, the rate of change of acceleration measured at the centerline, floor level of the bus, should be minimized throughout the shift of each transmission range and retarder application and should be no greater than 0.3g/sec. for duration of a quarter-second or more.

#### 1.9.4 Final Drive

A single heavy-duty axle at the rear shall drive the bus with a load rating sufficient for the bus loaded to GVWR shall be lubricated with long-life synthetic gear oil; minimum 72,000 miles. Transfer of gear noise to the bus interior shall be minimized. The drive axle shall be designed to operate for not less than 300,000 miles on the design operating profile without replacement or major repairs. The lubricant drain plug shall be magnetic type, external hex head. If a planetary gear design is employed, the oil level in the planetary gears shall be easily checked through the plug or sight gauge. The drive shaft shall be guarded to prevent it striking the floor of the coach or the ground in the event of a tube or universal joint failure.

#### 1.9.5 Accessories

Engine-driven accessories shall be mounted for quick removal and repair. Accessory drive systems shall operate without unscheduled adjustment or belt replacement for not less than 50,000 miles on the design operating profile. These accessories shall be driven at speeds sufficient to assure adequate system performance during extended periods of idle operation and low route speed portion of the design operating profile.

### 1.9.6 Belt Guards

Belt guards shall be provided and painted in safety yellow and properly stripped as required for safety and shall be sturdy in design and installation and readily removable or hinged mounted for ease of access. All pulleys and rotating devices shall be protected by guards and protections. Final approval will be provided by Authority during the First Article's configuration review and acceptance process upon arrival to Authority property.

### TS 1.10 HYDRAULIC SYSTEMS

The hydraulic system shall be filled with Allison TES 295 oil and shall be capable of operating within the allowable temperature range as specified by the lubricant manufacturer. The hydraulic system shall demonstrate a mean time between repairs in excess of 50,000 miles.

Hydraulic system service tasks shall be minimized and scheduled no more frequently than those of other major coach systems. All elements of the hydraulic system shall be easily accessible for service or unit replacement. Critical points in the hydraulic system shall be fitted with service ports so that portable diagnostic equipment may be connected or sensors for an off-board diagnostic system permanently attached to monitor system operation. A tamper-proof priority system shall prevent the loss of power steering during operation of the bus if other devices are also powered by the hydraulic system. Sensors in the hydraulic system, excluding those in the power steering system, shall indicate on the operator's on-board diagnostic panel conditions of low hydraulic fluid level. All sight glasses shall be in visible locations which shall be defined during the first article's review.

All pressurized circuits, to the extent practical, shall be made of stainless-steel pipes and tubing, properly secured using Swagelok, or approved equal, cushion clamps (split-blocks). All "transition" connections between rigid and non-rigid members of the bus, e.g. bus chassis to hydraulic pump, shall be made using high pressure hydraulic hoses routed and shielded with

clamped snap-tite, hose guard, HGU-Polyurethane or approved equal, heavy duty, with 500 F degrees minimum operating range, permanently clamped and secured in one end so that failure of a line shall not allow the contents to spray or drain onto any component operable above the auto-ignition temperature of the fluid. This requirement, Snap-Tite sleeves, also applies to the low pressure and high flow circuits (return lines) in the hydraulic system.

All pressurized hydraulic lines/hoses, throughout the bus shall be equipped with permanently crimped, non-reusable Parker Seal-Lok, O-Ring Face Seal Fittings, or approved equal. All hydraulic hoses, pipes, flex-lines and others shall be secured by means of using Swagelok, or approved equal, cushion clamps, tube support or bolted plastic clamp supports, subjected to Orange County Transportation Authority's approval. All fitting attachments to castings, housings and hydraulic components shall be SAE straight thread with O-ring seal rather that tapered pipe thread. These requirements are also applicable to the steering system/circuit.

### 1.10.1 Fluid Lines

All lines and piping shall be supported to prevent chafing damage, fatigue failures, and tension strain. Lines passing through a panel, frame, or bulkhead shall be protected by grommets (or similar device) that fit snugly to both the line and the perimeter of the hole that the line passes through to prevent chafing or wear or both. Lines shall be as short as practicable and shall be routed and shielded with clamped sleeves so that failure of a line shall not allow the contents to spray or drain onto any component operable above the auto-ignition temperature of the fluid. All fluid lines/pipes/hoses shall be secured, in a maximum of 15-inch centers, using Swagelok, or approved equal, cushioned clamp tube support or bolted plastic clamp supports subject to the Authority approval.

# 1.10.2 Radiator, Piping, Hoses, and Clamps

Radiator piping shall be stainless steel or brass tubing and hose quantity/length shall be minimized. Necessary hoses shall be a premium, silicone rubber type that is impervious to all bus fluids. All hoses shall be secured with premium, stainless steel clamps that provide a complete 360° seal. The clamps shall always maintain a constant tension, expanding and contracting with the hose in response to temperature changes and aging of the hose material.

# 1.10.3 Oil And Hydraulic Lines, and pipes

Oil and hydraulic lines and pipes shall be compatible with the substances they carry. The lines and pipes shall be designed and intended for use in the environment, which they are installed, i.e., high temperatures in engine compartment, road salts, oils, etc. Lines and pipes shall be capable of withstanding maximum system pressures. To the extent practical, the Offeror shall use stainless steel piping on all pressurized circuits. All hydraulic hoses, high and low pressure, high flow, etc. shall be covered with Snap-Tite, or approved equal. All fluid lines shall be secured, in a maximum of 15-inch centers, using Swagelok, or approved equal, cushioned clamp tube support or bolted plastic clamp support

# TS 1.11 CHARGE AIR PIPING

Charge air piping and fittings shall be designed to minimize air restrictions and leaks. Piping shall be as short as possible, and the number of bends shall be minimized. Bend radii shall be maximized to meet the pressure drop and temperature rise requirements of the engine manufacturer. The cross section of all charge air piping shall not be less than the cross section of the intake manifold inlet. Any changes in pipe diameter shall be gradual to ensure a smooth passage of air and to minimize

restrictions. Piping shall be routed away from exhaust manifolds and other heat sources and shielded as required to meet the temperature rise requirements of the engine manufacturer.

Charge air piping shall be constructed of stainless steel or anodized aluminum except between the air filter and turbocharger inlet where piping may be constructed of fiberglass. Connections between all charge air piping sections shall be sealed with a short section of reinforced hose and secured with stainless steel, constant tension clamps that provide a complete 360° seal.

### TS 1.12 CNG FUEL SYSTEM

The fuel system within this section shall include the design, hardware and installation, as needed to transfer, store and supply the fuel requirement for the engine and extend to the necessary vehicle points of support, bus systems interface and fueling station. The physical extremes of the system shall be between the fuel receptacle, fuel tanks, vent receptacle, roof vent outlet and inlet fitting to the engine's low-pressure regulator.

The following conceptual design represents an overall design goal, rather than a mandatory blueprint. If the Contractor's proposal differs, in part or all, from these set of specifications, the Contractor is responsible to provide, in writing, calculations, diagrams, drawing, fuel flow patterns, piping, layouts and any others necessary to highlight the advantage(s) and or support of its proposal(s).

A CNG fuel system consisting of fuel cylinders, filler provisions, fuel lines, pressure reduction and auxiliary equipment necessary to safely operate under all operating conditions to meet the performance requirements of this specifications shall be provided. The system shall be capable of refueling from 0 psi to 125% of working pressure in a maximum of five minutes.

### 1.12.1 CNG Fuel System Overall Requirements

The fuel system shall be expected to meet the following overall requirements:

#### 1.12.2 Pressure Regulators

An IIT Conoflow, Tescom, or approved equal, primary fuel pressure regulator shall be supplied and mounted in an accessible location for servicing. Coolant lines shall be routed in a manner to prevent trapping air or draining coolant when the regulator is removed for service via equipped <sup>1</sup>/<sub>4</sub> turn service valves on both ends of the regulator. The <sup>1</sup>/<sub>4</sub> turn coolant shut off valves shall be located closer to the coolant source to allow the replacement of delivery hoses, and the regulator, without having the need to drain the entire cooling system.

#### 1.12.3 Fuel Capacity

The fuel capacity shall be sufficient to meet the required operating range of 400 miles, without mid-day refueling and without exceeding the maximum allowable bus configuration/specification and/or curb weight. Contractor, with its proposal, shall provide fuel consumption calculations (engine, speed, bus weight, fuel pressure, fuel load, number of passengers, etc.) to support its claim of meeting the 400-miles required range.

#### 1.12.4 Installation

CNG fuel containers/cylinders must be designed, constructed, manufactured, and tested in accordance with at least one of the following:

Fuel cylinders shall be installed in accordance with ANSI/IAS NGV2-1998, Basic Requirements for Compressed Natural Gas Vehicles Fuel Containers, NPFA 52 Standard for Compress Natural Gas (CNG) Vehicular Fuel Systems, FMVSS 304 and 303 as applicable, Fuel System Integrity of Compressed Natural Gas Vehicles, Compressed Natural Gas Vehicular Fuel Systems Code, 1998 edition Section 303.

For low floor buses, the placement of tanks shall be limited to the roof of the bus or in the compartment above the engine.

Fuel cylinders, attached valves, pressure relief devices and mounting brackets should be installed and protected so that their operation is not affected by bus washers and environmental agents such as rain, snow, ice or mud. All components shall be protected from significant damage caused by road debris or collision.

The roof and above the engine mounted tanks shall be contained within a skeletal structure resembling a roll cage and contained within an enclosure. The enclosure shall incorporate a hinged clamshell type access. The access panels shall be designed to offer protection from weather and sacrificial as a means of providing an escape path to atmosphere upon rapid enclosure pressure rise.

The access panels shall require a force less than 35 lbs. to open and to close throughout its entire opening and closing cycles. The access panels shall be locked in the closed position with positive-locked devices, subjected to Authority's approval and, when in the open position, the access panels shall be positively secured by props locked at preset locations. Provisions shall be provided to securely stow away the props when not in use. The access panels shall also be interlocked via proximity sensors, such that, if other than in their fully closed/locked position, an interlock will prevent engine starter engagement, prevent selection of forward or reverse transmission and shall apply the brake interlock at speeds less than 3 MPH the latching method shall utilize quick release captive hardware that can be demonstrated to last the life of the bus. Additional shielding shall be provided surrounding end fittings and valves as needed. Shields shall be attached to the bus structure hinged in a manner that permits one journeyman mechanic to unlatch and swing the shield open for routine inspections. As practical, electrical components shall not be located within the roof enclosure and if unavoidable, they shall be intrinsically safe

### 1.12.5 Fuel Pressure Gauge

An oil or glycerin filled gauge shall be located in the high-pressure manifold that shall indicate fuel system pressure. The fuel gauge shall have minimum 100-PSI increments, 0 to 5,000 PSI range, and shall be visible during fueling operations.

### 1.12.6 Fuel Lines

All tubing shall be a minimum of seamless Type 304 stainless steel (ASTM A269 or equivalent). Fuel lines and fittings shall not be fabricated from cast iron, galvanized pipe, aluminum, plastic, or copper alloy with content exceeding 70 percent copper. Pipe fittings and hoses shall be clear and free from cuttings, burrs or scale. Pipe thread joining material that is impervious to CNG shall be utilized as required. Fuel lines shall be identifiable as fuel lines only.

High pressure CNG lines shall be pressure tested to a minimum of 125% of system working pressure prior to fueling. CNG, nitrogen or clean, dry air shall be used to pressure test the lines/assembly. The bus manufacturer shall have a documented procedure of testing the high-pressure line assembly.

Fuel lines shall be securely mounted braced and supported using "split-block" type of clamps; all mounting clamps shall be mounted to a rigid structure to minimize vibration and shall be protected against damage, corrosion or breakage due to strain, rubbing, or wear. "Floating clamps" (not mounted to a rigid structure and use of "P" clamps shall not be permitted). Fuel lines shall not be used to secure other components (e.g. wires, air lines, etc.).

Manifolds connecting fuel containers shall be designed and fabricated to minimize vibration and shall be installed in protected location(s) to prevent line or manifold damage from unsecured objects or road debris.

Fuel hose connections, where permitted, shall be less than 48 inches in length, made from materials resistant to corrosion and action of natural gas, and protected from fretting and high heat and shall be supported approximately every 12 inches.

Each assembly/bus/unit-test shall be recorded individually and copy of results, clearly signed, stamped and approved by the Manufacturer's Engineering Department, shall be provided with each set of bus' documentation at the time of delivery.

# 1.12.7 Codes, Standards and Regulations

Contractor shall be responsible for ensuring that the entire fuel system, to include, fuel containers, brackets, mounting systems, delivery lines, operating pressures, fuel pressure regulators, engine, piping, connections, gauges, breakaway connections, valves, pressure relief devices, path for the fuel flow, engine requirements and any other related to the CNG fuel system meets all applicable Federal, State and Local codes, and represent the highest state of industry practice. In the absence of applicable regulation or specification, decisions shall be based upon safety, reliability and ability to be maintained. Regulations to include, however not limited to, are (among others):

The NFPA, CA Vehicle Code, DOT, ASME, FMCSR, CGA and SAE Recommended Practice

National Fire Protection Association Standards: NFPA 52 - Compressed Natural Gas Vehicular Fuel Systems Code - 1998

SAE (Society of Automotive Engineers) Standards: SAE J1616 - Recommended Practice for Compressed Natural Gas Vehicle Fuel

ANSI (American National Standards Institute) Standards: ANSI/AGA NGV1 -1994 (with 1997 and 1998 addenda) - Compressed Natural Gas Vehicle Fueling Connection Devices ANSI/CSA NGV2 - 2000 - Basic Requirements for Compressed Natural Gas Vehicle Fuel Containers

ANSI/AGA NGV3.1 -1995 - Fuel System Components for Natural Gas Powered Vehicles ANSI/IAS NGV4.1 -1999 - NGV Dispensing Systems

ANSI/IAS NGV4.2 -1999 - Hoses for Natural Gas Vehicles and Dispensing Systems ANSI/IAS NGV4.4 -1999 - Breakaway Devices for Natural Gas Dispensing Hoses and Systems ANSI/IAS NGV4.6 - 1999 - Manually Operated Valves for Natural Gas Dispensing Systems ANSI/IAS PRD1 - 1998 (with 1999 addendum) - Basic Requirements for Pressure Relief Devices for Natural Gas Vehicle Fuel Containers

CGA (Compressed Gas Association) Standards: CGA C-6.4-1998 - Methods for External Visual Inspection of Natural Gas Vehicle Fuel Containers and Their Installations

US Department of Transportation Standards: 49 CFR 571.304, FMVSS 304 - Compressed Natural Gas Fuel Container Integrity, 49 CFR 571.303, FMVSS 303 - Fuel System Integrity of Compressed Natural Gas Vehicles, 49 CFR 393.65, FMCSR - All Fuel Systems

# 1.12.8 Reliability

The fuel system shall be reliable, leak free and of the quality typically expected of a pressurized fuel system or refrigeration system. A "leak" shall be defined as observance of gas, liquid loss or bubbles at applied soap solution (Snoop) or both. Leak detection may be further supplemented by electronic or infra-red methane detection or acoustic measurements. The design, selection of hardware and workmanship shall be in support of this objective.

## 1.12.9 Inspectability, Maintainability and Serviceability

The fuel system shall be designed in a manner to facilitate ease and effectiveness of inspection, repair and serviceability. Examples of this objective to include, but not limited to, are isolation valves, system test ports and means of testing components inherently providing regulation via springs.

# 1.12.10 CNG Fuel System Performance Requirements

The following shall represent minimum levels of system performance:

# 1.12.11 Vehicle Performance/Operating Range

Useable fuel shall provide a range of 400 miles. The Authority will conduct a range test upon delivery of the prototype bus. The system shall be capable of meeting fuel flow/pressure/temperature requirements at engine maximum load under any condition.

# 1.12.12 System Functionality

The bus shall be capable of being reliably fueled to within 95 to 100 percent of the tank's useable capacity, regardless of beginning fuel tank(s) pressure. The fuel system shall incorporate provisions for individual tank de-fueling. De-fueling shall be via reverse flow at receptacle/nozzle interface to fueling station.

### 1.12.13 Fuel Station Interface

The fueling port receptacle shall be via Sherex 5000 type, nozzle/receptacle, ANSI/AGA/ NFPA 52 certified receptacle. The bus shall be capable of being fueled by a nozzle. The Authority, at the pre-production meeting, shall provide detailed information about fueling nozzle. The fueling port receptacle shall be such that connection, by fueling personnel, shall be performed without physical strain or interference.

A "dust cap" shall be permanently "tethered" to the fueling port receptacle. The fueling port receptacle shall be equipped with an interlock sensor that shall disable the engine's starting system when the access door is open, to prevent drive-aways. The interlock shall be of the type such if the sensor fails, the bus shall not start.

Due to Authority's Fuel-Island vacuum Cyclone, the center line of the fill receptacle shall be 38 inches above grade plus or minus 2 inches and 400 inches rearward plus or minus 5 inches of the center line of the front door opening. The fill and vent receptacles shall be located within an enclosure on the right side of the bus. The access door shall be sized to allow full viewing of gauges, ease of hookups and maneuver of fuel nozzle.

The bus shall be equipped with two static ground straps mounted on the undercarriage of the bus and a static ground plug installed near the fueling receptacle for grounding during refueling operations. The fuel fill receptacle and vent receptacle attachment shall be robust and capable of routine fueling connects/disconnects without deflection or metal fatigue, and capable of withstanding mechanical loads induced by a fueling drive away incident without attachment failure.

A Fleet Watch fuel management data transponder system shall be installed and programmed with vehicle ID number and odometer mileage. This device shall be capable of communication at the CNG fueling facilities located at all OCTA fueling facilities. Authority shall approve the final location

## 1.12.14 CNG De-Fueling System

The CNG de-fueling port shall be an ANSI/AGA NGV1 certified receptacle. The CNG de-fueling port shall be located on the curbside of the bus (next to the fuel fill nozzle's enclosure). Subject to the Authority's approval. The de-fueling system shall incorporate the following characteristics:

- Dust Cap permanently "tethered" to the de-fueling port
- De-fueling valve, remotely located to prevent accidental de-fueling (to be discussed during the pre-production meeting).
- Others for discussion during pre-production meetings

#### 1.12.15 Hardware/Component Level Requirements

The fuel system shall be suitable for its intended application to include highest potential operating pressures and temperature range.

#### 1.12.16 Tank(s)

#### 1.12.16.1 Fuel Containers – Cylinders

Tanks shall be Type IV and rated at 5,000 psig. The tank system shall provide a minimum useable quantity of gas of 20,000 SCF, or other as required to meet a 400-mile vehicle range, and this useable quantity shall assume on-board pressure range between a fill of 3,600 psig (temperature corrected to 70 degrees F) down to 500 psig. Each tank shall be isolated via a "NC" valve and each tank shall be capable of individual isolation to allow repairs, servicing and replacement if necessary, without having to perform a complete defueling of the bus. No pressure relief devices/valves (PRD's) shall be shared among the fuel tanks.

In addition to manual activation of the fuel solenoids, CNG defueling shall be accomplished remotely, via a defueling-program, strategically located defueling switch, or by other means similar in nature. The previously described protocol(s) shall only maintain the fuel-solenoids energized during the defueling process; all other circuits shall be deenergized. Additional programing details shall be discussed during the pre-production meetings.

The tank manufacturer shall permanently mark on every fuel tank the capacity, date of manufacture, manufacturer name, and certification of compliance to FMCSR, ASME or DOT. These markings shall be clearly visible when the fuel tank's storage door is opened. DO NOT STEP ON THE CNG TANK shall be clearly, visible and permanently marked on all fuel tanks.

Additionally, every tank shall be permanently marked at every location where a securing strap or a fixed reference point is located to indicate if each fuel tank is experiencing physical displacement or rotating movement during the operation of the bus.

# 1.12.16.2 Design and construction

CNG fuel containers/cylinders shall be designed, constructed, manufactured, tested and mounted in accordance with all applicable rules, practices and regulations at the time of manufacturing to include, among others, all applicable state and/or local standards specifically intended for CNG fuel containers

#### 1.12.16.3 Operating Range

The operating range of the bus in the Orange County environment shall be 400 miles with a gas settled pressure of 3,600 psi @70 °F. The Contractor, with its proposal, shall explain the benefits of using the proposed fuel containers. Scaled and clear AutoCAD drawings, with all fuel tanks dimensions, shall be provided

#### 1.12.16.4 Service Valves

A quarter turn valve shall be accessible through the fuel door that shall isolate the highpressure manifold and fuel storage system from the rest of the engine fuel system. The valve function and open and closed positions shall be clearly marked. An additional <sup>3</sup>/<sub>4</sub>" 2-way valve shall be provided for draining the high-pressure manifold and any fuel cylinder(s) through a service port. Type and location of the service port(s) shall be subject to the Authority's approval.

Isolation, manual valves, of packless type, shall be provided for tank isolation, gauge isolation and a means of isolation for components requiring isolation for inspection. Automated valves, of normally closed type, shall be provided at each tank fuel out line as close to the tank as practical and as necessary to shut down the engines fuel supply.

Vent valves, of packless type manual or pneumatic remote, shall be provided to vent each tank to a common poppeted vent port at the control enclosure and a common vent valve shall be provided to the common roof vent stack. The common vent stack shall serve as the vent and primary pressure relief valve exit and incorporate a means of condensate drain. The preferred vent stack shall terminate in a flapper style valve.

Pressure relief valves, primary and secondary pressure relief devices (PRDs) shall be provided at each tank and at all locations necessary for system pressure protection resulting from potential trapping. Pressure relief valves shall not be shared by CNG tanks.

Flow and check valves shall be provided as necessary for isolation, preventing reverse flow and minimize excessive flow resulting from gross product loss. The excess flow protection may also be supplemented by remote activation of the fuel system automated shutoff valves. Excess flow valves shall satisfactorily function regardless of mixed phase fluid flow, provide positive shut-off and not be influenced by typical g force occurring during vehicle roadway operation, bumps, dips, vibrations, etc.

Pressure regulators; pressure regulating valves shall be used to regulate fuel pressure entering the engine's fuel system and may be used to manage tank pressure. These valves shall incorporate a means of inspection, adjustment and ease of isolation without system depressurization.

# 1.12.17 Control Panel/Instrumentation

The fuel system filling receptacle, vent receptacle, vent valves and tank-system pressure gauges shall be located within an enclosure as previously defined. Each tank shall require a pressure gauge. Pressure gauges shall be of rugged quality, liquid filled. The tank pressure gauges shall be graduated in 1/8 increments and accurate within one increment.

#### 1.12.18 Documentation

The following documentation shall be provided in addition to the general requirements of this overall procurement specification:

### 1.12.19 Design Suitability/Application Approval

The overall fuel system shall be suitable for the intended application and require application approval. (Note: Components of the system will be subject to suitability at OE level.)

#### 1.12.20 Fuel System - Manuals & Schematics

Manuals, schematics and drawings shall be comprehensive, providing the following level of detail:

Description of system operation Preventive maintenance guideline Diagnostic and repair guideline, at system and component level Piping/Component schematic, to include System heat leak Flow and pressure drop Procedure for fueling, de-fueling, venting, purging Procedure for components requiring adjustment OEM level specification sheets at component level to include all systems part numbers (both, manufacturers and OEM's) Tank calculations, to include, gross volume, useable capacity, gas flow/pressure, estimated vehicle range, etc. System FMEA and listing of applicable code/regulation compliance

Three sets of draft Service and Operational Manuals, schematics and drawings shall be delivered with the first article.

### TS 1.13 EMISSIONS/EXHAUST

#### 1.13.1 Exhaust Emissions

The engine shall meet all applicable EPA and CARB emission requirements for heavy duty natural gas engines at the time of bus manufacture.

### 1.13.2 Exhaust System

Exhaust gases and waste heat shall be discharged from the roadside rear corner of the roof. The exhaust pipe shall be of enough height to prevent exhaust gases and waste heat from discoloring or causing heat deformation to the bus. The entire exhaust system shall be adequately shielded with removable, re-serviceable, hard shell, metal foil insulation type blanket, Insultech insulation, <u>www.insultech.com</u>, or approved equal, to prevent heat damage to any bus component. All shielding shall be properly rated to operate above the engine's exhaust temperature at a minimum of 2000 degree F. The exhaust outlet shall be designed to minimize rain, snow or water generated from high-pressure washing systems from entering the exhaust pipe and causing damage to the

catalyst. The manufacturer shall consider all potential reigns of motions that the exhaust system shall be exposed/subjected to during the bus' operation and shall design a system that does not requires any periodic adjustments and/or realignments of pipes, flex tubes or other exhaust system related components. The exhaust system shall be stainless.

### TS 1.14 CHASSIS

#### 1.14.1 Suspension

#### 1.14.1.2 General Requirements

Both the front and rear suspensions shall be pneumatic type. The basic suspension system shall last the service life of the bus without major overhaul or replacement. Normal replacement items, such as one suspension bushing, shock absorbers, or air spring shall be replaceable by a journeyman mechanic in 45 minutes or less. Air springs shall be fully independent at all wheel positions thus blocking air transfer between them thus increasing rolling stability, minimizing sway and actively maintaining ride height on uneven road conditions.

Adjustment points shall be minimized and shall not be subject to a loss of adjustment in service. Necessary adjustments shall be easily accomplished without removing or disconnecting the components.

#### 1.14.2 Springs And Shock Absorbers

#### 1.14.1.3 Travel

The suspension system shall permit a minimum wheel travel of 3 inches jounce-upward travel of a wheel when the bus hits a bump (higher than street surface), and 3 inches rebound-downward travel when the bus comes off a bump and the wheels fall relative to the body. Elastomeric bumpers shall be provided at the limit of jounce travel. Rebound travel may be limited by Elastomeric bumpers or hydraulically within the shock absorbers. Suspensions shall incorporate appropriate devices for automatic height control so that regardless of load the bus height relative to the centerline of the wheels does not change more than  $\pm 1/2$  inch at any point from the height required to maintain normal ride height.

### 1.14.1.4 Damping

Hydraulic shock absorbers mounted to the suspension arms or axles and attached to an appropriate location on the chassis shall accomplish vertical damping of the suspension system. Damping shall be sufficient to control coach motion to 3 cycles or less after hitting road perturbations. Shock absorbers shall maintain their effectiveness for at least 50,000 miles of the service life of the bus. Each unit shall be replaceable by a journeyman mechanic in less than 45 minutes. The shock absorber bushing shall be made of Elastomeric material that will last the life of the shock absorber

#### 1.14.1.5 Lubrication

All elements of steering, suspension, and drive systems requiring scheduled lubrication shall be provided with grease fittings conforming to SAE Standard J534. These fittings shall be located for ease of inspection and shall be accessible with a standard grease gun without flexible hose end from a pit or with the bus on a hoist. Each element requiring lubrication shall have its own grease fitting with a relief path. Lubricant specified shall be

standard for all elements on the bus serviced by standard fittings. Additional requirements for lubrication if any are contained in an attachment to this technical specification.

### 1.14.1.6 Kneeling

A kneeling system shall lower the entrance(s) of the bus a minimum of 2.5 inches during loading or unloading operations regardless of load up to GVWR, measured at the longitudinal centerline of the entrance door(s), by the driver using a three position, spring loaded to center switch:

Downward direction will lower the bus. Release of switch at any time will completely stop lowering motion and hold height of the bus at that position. Upward direction of the switch will allow the system to go to floor height without the driver having to hold the switch up.

Brake and Throttle interlock shall be activated and shall prevent movement when the bus is kneeled. The kneeling control shall be disabled when the bus is in motion. The bus shall kneel at a maximum rate of 1<sup>1</sup>/<sub>4</sub> inches per second at essentially a constant rate. After kneeling, the bus shall rise within 2 seconds to a height permitting the bus to resume service and shall rise to the correct operating height within 7 seconds regardless of load up to GVWR. During the lowering and raising operation, the maximum acceleration shall not exceed 0.2g and the jerk shall not exceed 0.3g/sec.

An indicator visible to the driver shall be illuminated until the bus is raised to a height adequate for safe street travel. An audible warning alarm will sound simultaneously with the operation of the kneeler to alert passengers and bystanders. A warning light mounted near the curbside of the front door, minimum 3-inch diameter, amber lens shall be provided that will blink when the kneel feature is activated. Kneeling shall not be operational while the wheelchair ramp is deployed or in operation. Kneeling switches shall also be installed at the rear door's wheelchair ramp control boxes.

### TS 1.15 WHEELS AND TIRES

#### 1.15.1 Wheels

Wheels and rims shall be hub-piloted with 2-sided polished aluminum Alcoa, Dura-Flange, or approved equal and shall resist rim flange wear. All wheels shall be interchangeable and shall be removable without a puller. Wheels shall be compatible with tires in size and load-carrying capacity. Front wheels and tires shall be balanced as an assembly per SAE J1986. Front, rear and spare wheel/tire assemblies shall be alike. Each bus unit shall be equipped with one spare wheel-tire assembly mounted and balanced as previously described

### 1.15.2 Tires

Tires shall be suitable for the conditions of transit service and sustained operation at the maximum speed capability of the bus. Load on any tire at GVWR shall not exceed the tire supplier's rating. The tires shall be of the radial type, capable of sustained speeds of 65 MPH. The Contractor shall be responsible for providing Bridgestone tires (\*).

(\*) Bridgestone is the current tire supplier for Authority. Due to the Authority's contracting services with tire suppliers/manufacturers, the applicable tire's brand name, if changes by the time of manufacturing, shall be provided during the pre-production meeting.

## TS 1.16 STEERING

### 1.16.1 Front Axle

The front axle shall be non-driving with a load rating sufficient for the bus loaded to GVWR and shall be equipped with sealed, oiled type front wheel bearings. All friction points on the front axle shall be equipped with replaceable bushings or inserts and lubrication fittings easily accessible from a pit or hoist. The front axle shall be manufactured by MAN or approved equal.

#### 1.16.2 Strength

Fatigue life of all steering components shall exceed 1,000,000 miles. No element of the steering system shall sustain a Class I failure when one of the tires hits a curb or strikes a severe road hazard. Inadvertent alternations of steering because of striking road hazards shall be considered steering failures.

#### 1.16.3 Turning Radius

Outside body corner-turning radius, for a standard configuration 40-foot long bus, shall not exceed 44 feet.

#### 1.16.4 Steering Turning Effort

The steering wheel shall be removable with a standard or universal puller. The steering column shall have full tilt and telescoping capability allowing the operator to easily adjust the location of the steering wheel and, a electrohydraulic assisted power steering shall be provided as manufactured by TRW, ZF or approved equal intended to make the bus easier to drive, reduce driver's fatigue, among others.

The steering gear shall be an integral type with flexible lines eliminated or the number and length minimized. With the bus on dry, level, commercial asphalt pavement, and tires inflated to recommended pressure and the front wheels positioned straight ahead, the torque required to turn the steering wheel 10 degrees shall be no less than 5-foot pounds and no more than 10-foot pounds. Steering torque may increase to 70-foot pounds when the wheels are approaching the steering stops, as the relief valve activates. Steering effort shall be measured with the bus at GVWR, stopped with the brakes released and the engine at normal idling speed on clean, dry, level, commercial asphalt pavement and the tires inflated to recommended pressure. Power steering failure shall not result in loss of steering control. With the bus in operation, the steering effort shall not materially increase because of power assist failure. Gearing shall require no more than seven (7) turns of the steering wheel lock-to-lock.

Caster angle shall be selected to provide a tendency for the return of the front wheels to the straight position with minimal assistance from the driver.

### 1.16.5 Steering Wheel – General

The steering wheel diameter shall be 20 inches and equipped with two spokes; the rim diameter shall be 7/8 inch to 1<sup>1</sup>/<sub>4</sub> inches and shaped for firm grip with comfort for long periods. The steering wheel shall be removable with a standard or universal puller. Steering wheel spokes and wheel thickness should be such as to ensure that visibility is within the range of a 95-percentile range as described in SAE 1050, or current. Placement of steering column must be as far forward as possible, but either in-line or behind the instrument cluster.

# 1.16.6 Steering Wheel Tilt

The steering wheel shall have a rearward tilt adjustment range of no less than 40 degrees as measured from the horizontal and upright position.

#### 1.16.7 Steering Wheel Telescopic Adjustment

Measurement – From the top of the rim of the steering wheel in the horizontal position to the cab floor at the heel point. The steering wheel shall adjust to maximum height of 35 inches and a minimum low-end adjustment of 29 inches.

The following chart is acknowledged as the standard for measurements of thigh clearance, resting elbow height, the slope of the steering wheel, and the height of the wheel, and the relationship of one to another, to assist in determining the appropriate telescopic range.

Thigh Clearan	се	Resting Elbow Height	
19.1"		22.1"	
25.6"		30.4"	
Steering Wheel Height (Measured from Bottom Portion Closest to Driver)			
Relative to Angle of Slope			
At Minimum Telescopic Height At Maximum Telescopic Height		elescopic Height	
	Adjustment (5"		
t	Angle of Slope	Height	
	0 degrees	35"	
	15 degrees	30.2"	
	25 degrees	28.6"	
	35 degrees	26.5"	
	Thigh Clearan 19.1" 25.6" asured from Bot ht t	Thigh Clearance   19.1"   25.6"   asured from Bottom Portion Cl   ht At Maximum To   Adjustment (5"   it Angle of Slope   0 degrees   15 degrees   25 degrees   35 degrees	

#### (Based on Drillis and Contini, 1966)

#### TS 1.17 BRAKES

#### 1.17.1 General

The entire brake system shall a have minimum overhaul or replacement life of 40,000 miles. Brakes shall be self-adjusting throughout this period. Visible stroke and wear indicators shall be provided to allow service personnel to easily identity when the brakes are not in correct adjustment.

#### 1.17.2 Service Brake

#### 1.17.2.1 Actuation

A compressed air system shall control and actuate service brakes. Force to activate the brake pedal control shall be an essentially linear function of the bus deceleration rate and shall not exceed 50 pounds at a point 7 inches above the heel point of the pedal to achieve maximum braking. The heel point is the location of the driver's heel when foot is rested flat on the pedal and the heel is touching the floor or heel pad of the pedal. A microprocessor controlled Automatic Braking System (ABS) shall be provided. The microprocessor for the ABS system shall be protected and in an accessible location to allow for ease of service. The total braking effort shall be distributed between all wheels in such a ratio as to ensure equal friction material wear rate at all wheel locations.

# 1.17.2.2 Friction Material

The entire service brake system, including friction material, shall have a minimum overhaul or replacement life of 40,000 miles. Brakes shall be self-adjusting throughout this period. Visible stroke indicators shall be provided to allow service personnel to easily identify when the brakes are not in correct adjustment. The brake pads/linings shall be made of non-asbestos material. To aid maintenance personnel in determining extent of wear, a provision such as a scribe line or chamfer indicating the thickness at which replacement becomes necessary, shall be provided on each brake pad/lining in addition to electronic wear pad indicators with a driver's display. Each axle and each wheel shall be reported independently. The driver's display shall not broadcast the brake lining/pad thickness at any time; it shall broadcast the brake pad condition on demand.

# 1.17.2.3 Hubs

Replaceable wheel bearing seals shall run on replaceable wear surfaces or be of an integral wear surface sealed design. Wheel bearing and hub seals shall not leak or weep lubricant for 100,000 miles when running on the design operating profile. The brake system material and design shall be selected to absorb and dissipate heat quickly, so the heat generated during braking operation does not glaze brake pads/linings. The heat generated shall not increase the temperature of tire beads and wheel contact area to more than that allowed by the tire manufacturer.

The brake pad or lining and cam interface shall be easily viewable (direct or assisted by mirror or both) in their entirety. Therefore, restrictive backing plates or others shall not be permitted. The bus shall be capable of deceleration without secondary retardation of at least 0.8g. If equipped, the bus shall be equipped with out-board brake rotors removable without the need of hub removal.

### 1.17.2.4 Disc Brakes

The bus shall be equipped with disc brakes on both the front and rear axles, and the brake discs shall allow machining of each side of the disc to obtain smooth surfaces per manufacturer's specifications.

# 1.17.3 Parking Emergency Brake

The parking brake shall be a spring-operated system, actuated by a valve that exhausts compressed air to apply the brakes. The parking brake may be manually enabled when the air pressure is at the operating level per FMVSS 121. An emergency brake release shall be provided to release the brakes in the event of automatic emergency brake application. The parking brake valve button will pop out when air pressure drops below requirements of FMVSS 121. The driver shall be able to manually depress and hold down the emergency brake release valve to release the brakes and maneuver the bus to safety. Once the operator releases the emergency brake release valve, the brakes shall engage to hold the bus in place.

The parking brake application shall be performed via manual operation or via toggle switch located on the driver's side console at a location that is practical and in compliance with best ergonomic practices. Soft padding shall be provided on both sides of the parking brake knob to ease operator's hand/finger interface with the device.

#### TS 1.18 PNEUMATIC SYSTEM

#### 1.18.1 General

The bus air system shall operate the air-powered accessories and the braking system with reserve capacity. New buses shall not leak down more than 5 psi as indicted on the instrument panel mounted air gauges, within 15 minutes from the point of governor cut-off.

Provision shall be made to apply shop air to the bus air systems using a standard tire inflation type valve. A quick disconnect fitting shall be easily accessible and located in the engine compartment and near the front bumper area for towing. Retained caps shall be installed to protect fitting against dirt and moisture when not in use. Air for the compressor shall be filtered through the main engine air cleaner system. The air system shall be protected by a pressure relief valve set at 150 psi and shall be equipped with check valve, pressure protection valves and positive hand shut-off valves to assure partial operation in case of line failures.

#### 1.18.2 Air Compressor

The air compressor shall be sized to charge the air system from 40 psi to the governor cutoff pressure in less than 3 minutes while not exceeding the fast-idle speed setting of the engine.

#### 1.18.3 Air Lines and Fittings

Air lines, except necessary flexible lines, shall conform to the installation and material requirements of SAE Standard J1149 for copper tubing with standard, brass, flared or ball sleeve fittings, or SAE Standard J844 for nylon tubing if not subject to temperatures over 200 degrees F. Nylon tubing shall be installed in accordance with the following color-coding standards:

Green.	Indicates primary brakes and supply
Red.	Indicates secondary brakes
Brown.	Indicates parking brake
Yellow.	Indicates compressor governor signal
Black.	Indicates accessories

Line supports shall prevent movement, flexing, tension strain, and vibration. Copper lines shall be supported to prevent the lines from touching one another or any component of the bus. To the extent practicable and before installation, the lines shall be pre-bent on a fixture that prevents tube flattening or excessive local strain. Copper lines shall be bent only once at any point, including pre-bending and installation. Rigid lines shall be supported at no more than 5-foot intervals. Nylon lines may be grouped and shall be supported at 2-foot intervals or less.

The compressor discharge line between power plant and body-mounted equipment shall be flexible convoluted copper or stainless-steel line or may be flexible Teflon hose with a braided stainless-steel jacket. Other lines necessary to maintain system reliability shall be flexible Teflon hose with a braided stainless-steel jacket. End fittings shall be standard SAE or JIC brass or steel, flanged, swivel type fittings. Flexible hoses shall be as short as practicable and individually supported. They shall not touch one another or any part of the bus except for the supporting grommets. Flexible lines shall be supported at 2-foot intervals or less.

Air lines shall be clean before installation and shall be installed to minimize air leaks. All air lines shall be sloped toward a reservoir and routed to prevent water traps. Grommets or insulated clamps shall protect the air lines at all points where they pass through understructure components.

Important: Current natural gas-powered engines in conjunction with the all-electric-cooling packages generates excessive temperatures in the engine compartments and as such, all hoses, plumbing, etc., that are not made of stainless steel, shall be rated to 350 degrees F. This requirement shall include all components intended for placement in any such environment; e.g., cables, pipes, fittings, valves, solenoids, controllers, etc.

## 1.18.4 Air Reservoirs

All air reservoirs shall meet the requirements of FMVSS Standard 121 and SAE Standard J10 and each tank shall be equipped with clean-out plugs and manual and automatic drain valves. Major structural members shall protect these valves and any automatic moisture ejector valves from road hazards. Reservoirs shall be sloped toward the drain valve. All air reservoirs shall have brass drain valves that discharge below floor level with lines routed to eliminate the possibility of water traps or freezing or both in the drain line. Automatic pressure differential drain valves, one for each air tank, Bendix or approved equal, shall be mounted on the lower section of the bus' skirt and, be equipped with manual, petcock style of valves, intended to manually drain the air tanks during servicing or, on an as-needed basis.

### 1.18.5 Air System Dryer

An air dryer shall prevent accumulation of moisture and oil in the air system. The air dryer system shall include a replaceable desiccant bed, electrically heated drain, and activation device. A journeyman mechanic shall replace the desiccant in less than 15 minutes. The dryer will be a Bendix AD9 or approved equal. A Bendix, part # 801731, Puraguard QC oil coalescent filter, or approved equal, shall be installed following the manufacturer's specifications for location, height and ease of draining and servicing.

### TS 1.19 BODY

### 1.19.1 General

### 1.19.1.1 Design

The bus shall have a clean, smooth, simple design, primarily derived from bus performance requirements and passenger service criteria established by these technical specifications.

The exterior and body features, including grilles and louvers, shall be shaped to facilitate cleaning by automatic bus washers without snagging washer brushes. Water and dirt shall not be retained in or, on any body feature to freeze or bleed out onto the bus after leaving the washer. The body, doors and windows shall be sealed to prevent leaking of air, dust, or water under normal operating conditions and during cleaning in automatic bus washers for the service life of the bus.

Exterior panels shall be sufficiently stiff to minimize vibration, drumming or flexing while the bus is in service. When panels are lapped, the upper and forward panels shall act as a watershed. However, if entry of moisture into interior of bus is prevented by other means, then rear cap panels may be lapped otherwise. The windows, hatches, and doors shall be able to be sealed. Accumulation on any window of the bus of spray and splash generated by the bus' wheels on a wet road shall be minimized.

# 1.19.1.2 Crashworthiness

The bus body and roof structure shall withstand a static load equal to 150 percent of the curb weight evenly distributed on the roof with no more than a 6-inch reduction in any interior dimension. Windows shall remain in place and shall not open under such a load.

The bus shall withstand a 25-mph impact by a 4,000-pound automobile at any point, excluding doorways, along either side of the bus with no more than 3 inches of permanent structural deformation at seated passenger hip height. This impact shall not result in sharp edges or protrusions in the bus interior.

Exterior panels below 35 inches from ground level shall withstand a static load of 2,000 pounds applied perpendicular to the bus by a pad no larger than 5 inches square. This load shall not result in deformation that prevents installation of new exterior panels to restore the original appearance of the bus. In addition to the above requirements, NFPA-52 and local regulations must be met.

#### 1.19.1.3 Materials

Body materials shall be selected, and the body fabricated to reduce maintenance, extend durability, and provide consistency of appearance throughout the service life of the bus. Detailing shall be kept simple; add-on devices and trim, where necessary, shall be minimized and integrated into the basic design.

#### 1.19.1.4 Corrosion

The entire bus including flooring, sides, side walls, interior walls, exterior walls, panels, enclosures, roof, structure, frames, doors, brackets, clamps, all fasteners (bolts, clamps, nuts, washers, rivets, etc.), hinges, understructure, bolted on components, non-bolted components, axle suspension components shall resist corrosion or deterioration from atmospheric conditions and/or road salts for a period of 12 years or 500,000 miles whichever comes first. It shall maintain structural integrity and nearly maintain original appearance throughout its service life.

The bus shall be constructed using only inherently corrosion-resistant materials such as, stainless steel, non-metallic composites and fasteners to minimize deterioration. The structure shall not require corrosion-preventive coatings or after-treatments throughout the service life of the bus.

All materials that are not inherently corrosion resistant shall be protected with corrosionresistant coatings. All joints and connections of dissimilar metals shall be corrosion-resistant and shall be protected from galvanic corrosion. Representative samples of all materials and connections shall withstand a 2-week (336-hour) salt spray test in accordance with ASTM Procedure B-117 with no structural detrimental effects to normally visible surfaces, and no weight loss of over 1 percent. The bus manufacturer shall provide certification, in writing, that all materials and connections are in compliance with this procedure.

### 1.19.1.5 Resonance and Vibration

All structure, body, and panel-bending mode frequencies, including vertical, lateral, and torsional modes, shall be sufficiently removed from all primary excitation frequencies to minimize audible, visible, or sensible resonant vibrations during normal service.

# 1.19.1.6 Engine Compartment Bulkheads

The passenger and engine compartment shall be separated by fire-resistant bulkheads. The engine compartment shall include areas where the engine and exhaust system are housed. This bulkhead shall preclude or retard propagation of an engine compartment fire into the passenger compartment and shall be in accordance with the Recommended Fire Safety Practices defined in FTA Docket 90A, dated October 20, 1993. Only necessary openings shall be allowed in the bulkhead, and these shall be fire-resistant. Any passageways for the climate control system air shall be separated from the engine compartment by fire-resistant material. Piping through the bulkhead shall have fire-resistant fittings sealed at the bulkhead. Wiring may pass through the bulkhead only if connectors or other means are provided to prevent or retard fire propagation through the bulkhead. Engine access panels in the bulkhead shall be fabricated of fire-resistant material and secured with fire-resistant fasteners. These panels, their fasteners and the bulkhead shall be constructed and reinforced to minimize warping of the panels during a fire that will compromise the integrity of the bulkhead. The engine's access panel locking mechanism shall be operated with a  $\frac{1}{4}$ -inch square key.

#### TS 1.20 FIRE PROTECTION – methane detection

A Kidde, or approved equal, fire detection/suppression system shall be provided, to include, control module, UPS (48-hour minimum stand-alone back-up), minimum of three (3) optical detectors, minimum 22-pound purple K agent, discharge nozzles and required harnesses, brackets, etc. The subject supplier shall also be responsible for providing installation guidelines and certification and approval by a professional registered fire protection engineer and approval of final installation/operation. The control module shall be capable of recording events (time stamp log), sensor ID and provide a standard data communication port to facilitate the computer interface for diagnostics, data retrieval and others not broadcasted via the system's interface. The fire detection system may also include a local means of thermal detection via armored linear thermal device, ALTD, in addition to the optic sensors. The ALTD element shall be capable of providing continuous operation and shall be routed, mounted, secured and attached to all high-power cables in the engine compartment, e.g., alternator, battery cables, HVAC, all cooling system, alternator, etc., in accordance with the Authority standards. The fire suppressing agent's delivery lines/plumbing, starting at the fire extinguisher container and ending at the discharge nozzles, shall all be made of stainless steel and shall be properly secured using split-blocks.

The following components, at a minimum, shall be part of the Kidde, or approved equal, fire monitoring and suppression system:

- Driver's display and Control Panel with datalogging and diagnostic capabilities
- ALTD, armored linear thermal device type sensing element
- Module for Thermal sensing element
- Installation kit for ALTD
- 22 Lbs. extinguisher bottle w/pressure sensing device
- Distribution manifolds
- Nozzles
- PM-3M Optical Sensors
- Stainless steel plumbing

## 1.20.1 Operator's Alarm

The operator's area at a clearly visible location shall be equipped with a Floyd Bell, or approved equal, whoop fire alarm, part # TXO-86-515-Q and TLM-87R-930-Q, that shall emit a distinctive sound and warning light to alert the driver in case of an impending or detected fire related event. The feed for this alarm shall be provided through the fire-suppression's control panel and it shall be muted upon driver's acknowledgment of the event.

#### **1.20.2 Methane Detection**

The bus shall also be equipped with an on-board methane detection system. The system shall be integrated into the above fire detection system and at a minimum consist of multiple IR type detectors located within the passenger compartment and areas most likely capable of fuel release, such as, fuel storage, engine compartment, confined areas where methane may be introduced through the venting or HVAC systems into the passenger compartment, etc. The detectors shall be suitable for the intended application and shall provide 20 and 50% LEL detection. All sensors shall be located at locations where remote viewing of display-light status is possible and servicing of the units is possible without requiring the removal of additional bus' components. All methane detectors' electrical connectors shall be waterproof and shall be properly located, secured and treated to eliminate the penetration of water, dirt, moisture and humidity. The Offeror must provide documentation supporting the location of the detectors in the passenger compartment and in areas most likely capable of a fuel release. The supporting documentation shall include certification of the system's acceptability to a registered, professional, fire protection engineer.

The methane detection system shall be equipped with a display panel, visible and accessible to the driver -while seated, constantly displaying, at the same time, each sensor, by location and status e.g. SENSOR XX is at 0% LEL, -20% LEL, -50% LEL.

All incidents resulting from triggering any of the methane detectors at a level of 20% LEL or higher shall be:

- Logged
- Time stamped
- Sensor or sensors that triggered the event shall be individually identified on the driver's display. Identification of activated sensors within a "loop" shall not be acceptable.
- Sensor status shall monitor and constantly displayed, in real time, on the driver's panel.
- Indication of methane level reached.
- Duration of the incident.
- Driver's acknowledgement button shall not clear historical data.
- All historical data shall be displayed, one incident at the time, using driver's display
- System shall store historical data for a minimum of thirty days.
- Historical data shall be clear only by a "password" protected procedure not accessible to the driver.
- The system shall incorporate a device, mounted on the outside of the bus, intended to provide a visible an audible warning to the driver that the system is/was in any stage of methane alarm level/mode while the bus was left unattended. This device shall be intrinsically safe, and it shall not worsen any ongoing condition/stage during its operation.

Additional operating parameters such as, sequence of events, levels of warnings, and others associated with this display shall be discussed during the pre-production meeting(s).

## **1.20.3** Remote warning device for presence of methane

The system shall incorporate a device, e.g., light, buzzer, blinker, etc., properly labeled, mounted on the outside of the bus and connected to the existing on-board methane detection system, intended to provide a visible and audible warning to the driver that the system is/was in any stage of methane alarm level/mode (20% LEL, 50% LEL, etc.) while the bus was left unattended. This device shall be intrinsically safe, and it shall not worsen any ongoing condition/stage during its operation. The system/device shall operate in a "latching configuration" and it shall only be resettable by maintenance personnel. Additional details shall be provided during the pre-production meetings and/or during the first article's evaluation.

# TS 1.21 STRUCTURE

# 1.21.1 Strength and Fatigue Life

The structure of the bus shall be designed to withstand the transit service conditions typical of an urban duty cycle throughout its service life.

### 1.21.2 Distortion

The bus, loaded to GVWR and under static conditions, shall not exhibit deflection or deformation that impairs the operation of the steering mechanism, doors, windows, passenger escape mechanisms and service doors. Static conditions shall include the bus at rest with any one wheel or dual set of wheels on a 6-inch curb or in a 6-inch deep hole.

# 1.21.3 Altoona Testing

Prior to acceptance of prototype bus, the proposed structure of the bus shall have undergone appropriate structural testing or analysis or both, including FTA required Altoona testing, to ensure adequacy of design for the urban transit service. Any items that required repeated repairs or replacement must undergo the corrective action with supporting test and analysis. A copy of the Altoona test report, clearly describing and explaining the failures and corrective actions taken to ensure all such failures will not occur, shall be submitted to the Authority for review and approval.

### 1.21.4 Towing

### 1.21.4.1 Towing Devices

Towing devices and securing hooks, or applicable, shall be provided on each end of the bus. Towing devices should accommodate flat-bedding or flat-towing. Each towing device shall withstand, without permanent deformation, tension loads up to 1.2 times the curb weight of the bus within 20 degrees of the longitudinal axis of the bus. The rear towing device(s) shall not provide a toehold for unauthorized riders. The rear towing devices shall permit lifting and towing of the bus for a short distance, such as in cases of an emergency, to allow access to provisions for front towing of the bus.

The front towing devices shall allow attachment of adapters for a rigid tow bar and shall permit lifting and towing of the bus, at curb weight, until the front wheels are clear off the ground. The method of attaching the tow bar or adapter shall require the specific, in writing, approval of the Authority. Each towing device shall accommodate a crane hook with a 1-inch throat.

# 1.21.5 Dyno Anchors

The tow hooks shall also be used to anchor the vehicle on a chassis dynamometer. These hooks shall be required to withstand maximum loading of the vehicles propulsion system and tolerate inherent jerking of the transmission while shifting at full throttle. The manufacturer shall be responsible for determining the worst-case dynamic loading of the hooks and incorporate a practical safety factor.

#### 1.21.6 Jacking

It shall be possible to safely jack up the bus, at curb weight, with a common 10-ton floor jack with or without special adapter, when a tire or dual set is completely flat and the bus is on a level, hard surface, without crawling under any portion of the bus. Jacking from a single point shall permit raising the bus sufficiently high to remove and reinstall a wheel and tire assembly. Jacking pads located on the axle or suspension near the wheels shall permit easy and safe jacking with the flat tire or dual set on a 6-inch-high run-up block not wider than a single tire.

Contractor shall be responsible for providing 12 sets of adapters (front and rear) if required.

Jacking and changing any one tire shall be completed by a journeyman mechanic in less than thirty (30) minutes from the time the bus is approached. The bus shall withstand such jacking at any one or any combination of wheel locations without permanent deformation or damage. Jacking pads shall be painted safety yellow or orange for ease of identification.

### 1.21.7 Hoisting

The bus axles or jacking plates shall accommodate the lifting pads of a two-post hoist system. Jacking plates, if used as hoisting pads, shall be designed to prevent the bus from falling off the hoist. Other pads or the bus structure shall support the bus on jack stands independent of the hoist. The bus shall be capable of being hoisted on a Rotary model post hoist by using adapters, as provided by the bus manufacturer. The adapters shall be designed/fabricated to interface with the subject hoist model and restrain bus move in the fore/aft as well as sideways directions. Contractor shall contact the Authority's Facilities Maintenance Department prior to the design, test, evaluation and manufacturing of the hoist adapters to ensure proper fitting with existing hoist-equipment installed in all Authority Bases. Contractor shall be responsible for providing 90 sets of hoist adapters (45-front and 45-rear).

### 1.21.8 Jack Stand Interface

The bus shall be equipped with pads suitable for placement of stationary jack stands. These pads shall be permanently located to the bus' main structure and capable of providing a stable platform when used in combination with "standard" jack stands. Further requirements of pads and standard interface, as follows:

- Pads shall be located as near the vehicle's perimeter as practical, ahead of the front axle and rearward of the rear axle.
- Pads shall be located to facilitate un-obstructed removal of the front axle, rear axle, differential carrier assembly, engine and transmission.
- Pads shall interface to a standard jack stand having a 5.5-inch clear of obstructions square platform with a center indexing pin of 1-inch diameter x 1-inch in height.
- Pads shall be painted safety yellow.
- Stickers mounted on the outside of the bus' skirt shall clearly identify the padding locations.

# 1.21.9 Floor

## 1.21.9.1 Design

The floor shall be essentially a continuous flat plane, except at the wheel housings and platforms. The floor height shall be designed to eliminate steps and facilitate boarding and de-boarding of passengers.

The floor design shall consist of two levels (bi-level construction). Aft of the rear door extending to the rear settee riser, the floor height may be raised to a height approximately 18-inches above the lower level. An increase slope shall be allowed on the upper level not to exceed 3½ degrees off the horizontal.

Where the floor meets the walls of the bus, as well as other vertical surfaces, such as, platform risers, the surface edges shall be blended with a circular section of radius not less than 1-inch. Similarly, a molding or cove shall prevent debris accumulation between the floor and wheel housings. The bus floor in the area of the entrance and exit doors shall have a lateral slope not exceeding 2 degrees to allow for drainage.

The floor shall be constructed of exterior waterproof plywood, a minimum of <sup>3</sup>/<sub>4</sub> inch thick or light weight material with similar strength and anti-rot properties. The floor shall be supported, fastened and sealed to maintain its integrity throughout the life of the vehicle. The floor covering should be RCA Transit Floor TR766, or approved equal, and be installed without gaps between mating joints. The entrance area and standee areas are to be separated by a yellow strip molded into the flooring. The center aisle exit door approach and rear standee area shall be covered with ribbed flooring. The entire driver's area shall be covered with Line-X or approved equal anti-skid flooring material. The Authority is interested in alternatives to the traditional plywood floor and manufacturers sharing this interest are encouraged to submit composite or alternative flooring materials, that do not corrode, during the approved equals period.

The bus' flooring shall have special markings such as yellow stripes, embedded lights or others blended with the bus' flooring material that do not create a trip hazard, intended to indicate the beginning, the top and the end of any floor humps, risers or any others that result in a change of the passengers' walking floor-plane.

### 1.21.9.2 Interior Floor Strength

The floor deck may be integral with the basic structure or mounted on the structure securely to prevent chafing or horizontal movement and designed to last the life of the bus. Sheet metal screws shall not be used to retain the floor, and all floor fasteners shall be serviceable from one side only. The use of adhesives to secure the floor to the structure shall be allowed only in combination with the use of bolt or screw fasteners and its effectiveness shall last throughout life of the coach. Tapping plates, if used for the floor fasteners, shall be no less than the same thickness as a standard nut and all floor fasteners shall be secured and protected from corrosion for the service life of the bus.

The floor deck shall be reinforced as needed to support passenger loads. At GVWR, the floor shall have an elastic deflection of no more than 0.60 inches from the normal plane. The floor shall withstand the application of 2.5 times gross load weight without permanent detrimental deformation. Floor, with coverings applied, shall withstand a static load of at least 150 pounds applied through the flat end of a <sup>1</sup>/<sub>2</sub>-inch diameter rod, with 1/32-inch radius, without permanent visible deformation.

# 1.21.9.3 Construction

The floor shall consist of the subfloor and the floor covering. The floor, as assembled, including the sealer, attachments and covering shall be waterproof, non-hygroscopic, and resistant to mold growth. The subfloor shall be resistant to the effects of moisture, including decay (dry rot). It shall be impervious to wood destroying insects such as termites.

If plywood is used, it shall be certified at the time of manufacturing by an industry approved thirdparty inspection agency such as APA – The Engineered Wood Association (formerly the American Plywood Association). Plywood shall be of a thickness adequate to support the design loads, manufactured with exterior glue, satisfy the requirements of a Group I Western panel as defined in PS 1-95 (Voluntary Product Standard PS 1-95, Construction and Industrial Plywood) and be of a grade that is manufactured with a solid face and back. Plywood shall be installed with the highestgrade veneer up and will have all edges sealed. Plywood shall be pressure-treated with a preservative chemical that prevents decay and damage by insects.

Before any preservative treating, the plywood shall be certified at the time of manufacturing by an industry approved third-party inspection agency such as APA, the Engineered Wood Association (formerly the American Plywood Association). Preservative treatments shall use no EPA listed hazardous chemicals. The concentration of preservative chemical shall be equal to or greater than required for an above ground level application. Treated plywood will be certified for preservative treated plywood shall have moisture content at or below fifteen percent. A barrier shall be installed to prevent contact by road salt with the plywood panels.

# 1.21.10 Platforms

### 1.21.10.1 General

Platform height shall not exceed 12 inches. Trim shall be provided along top edges of platforms unless integral nosing is provided. Except where otherwise indicated, covering of platform surfaces and risers shall be same material as specified for floor covering. Trim installed along edges of platforms shall be constructed of stainless steel.

Other raised areas such as for providing space for under-floor installation of components shall be limited. Such raised areas shall be constructed in accordance to these specifications.

### 1.21.10.2 Operator Platform

The operator's platform shall be of a height that, in a seated position, the operator can see an object located at an elevation of 42-inches above the road surface, 24-inches from the leading edge of the bumper. Notwithstanding this requirement, the platform height shall not position the operator such that the operator's vertical upward view is less than 15 degrees. A warning decal or sign shall be provided to alert the operator to the change in floor level. The following schematic diagram illustrates a means for determining platform height using the Critical Line of Sight. Anti-skid Line-X material, or approved equal, shall be used on the driver's platform. An adhesive type of antiskid material shall not be accepted. Contractor shall apply or install a long-lasting friction enhancing coating or RCA flooring and this item shall be subjected to the Authority's approval.



# 1.21.10.3 Farebox Platform

If the driver's platform is higher than 12-inches, the GFI Odyssey farebox shall be mounted on a platform of suitable height to provide accessibility for the operator without compromising a passenger's access. The platform shall be sufficiently rigid to prevent swaying, bouncing and movement of the farebox. Contractor shall obtain, in writing, the Authority's approval for the design, securing, materials used, and location of this platform. The farebox's horizontal platform shall be covered with Line-X, or approved equal, safety yellow anti-skid material.

# 1.21.10.4 Intermediate Platform

If the bus is of a bi-level floor design, an intermediate platform shall be provided along the center aisle of the bus to facilitate passenger traffic between the upper and lower floor levels. This intermediate platform shall be cut into the rear platform and shall be approximately the aisle width, 18-inches deep and approximately one-half the height of the upper level relative to the lower level. The horizontal surface of this platform shall be covered with yellow Hypalon ribbed rubber or Line-X, or approved equal, skid-resistant material and shall be sloped slightly for drainage. A warning decal or sign shall be provided at the immediate platform area to alert passengers to the change in floor level.

# 1.21.11 Wheel Housing

## 1.21.11.1 Design

Sufficient clearance and air circulation shall be provided around the tires, wheels, and brakes to preclude overheating when the bus is operating on the design operating profile. Interference between the tires and any portion of the bus shall not be possible in maneuvers up to the limit of tire adhesion with weights from curb weight to GVWR. Wheel housings shall be adequately reinforced where seat pedestals are installed. Wheel housings shall have sufficient sound insulation to minimize tire and road noise and meet all noise and ADA requirements for passenger and wheelchair circulation.

Design and construction of the front wheel housings shall allow for the installation of radio/electronic equipment's storage box/compartment that shall extend, continually, from the wheel well housing's top surface to the ceiling using the maximum available section/footprint. This storage box, and trays, are subject to the Authority's approval. The radio/electronic equipment compartment shall be keyed using a flush-mounted <sup>1</sup>/<sub>4</sub><sup>2</sup>-turn square-key access.

The exterior finish of the front wheel housings shall be scratch-resistant, meeting requirements of Interior Panels and Finishes, and complement interior finishes of the bus to minimize the visual impact of the wheel housing. If fiberglass wheel housings are provided, then they shall be color-impregnated to match interior finishes. The lower portion extending to approximately 12-inches above floor shall be equipped with additional stainless-steel trim.

Safety yellow markings, at the Authority's discretion, may be required in areas or sections of the wheel well housings that can potentially become trip hazards.

### 1.21.11.2 Construction

Wheel housings shall be constructed of corrosion-resistant, fire-resistant material. Wheel housing as installed, shall withstand impacts of a tire tread dislodging from the tire at a maximum vehicle speed without penetration. Wheel housings, as installed and trimmed, shall withstand impacts of a 2-inch steel ball with at least 200 pounds of energy without penetration.

### 1.21.12 Exterior Panels and Finishes

### 1.21.12.1 Pedestrian Safety

Exterior protrusions greater than ½ inch and within 80-inches of the ground shall have a radius no less than the amount of the protrusion. The exterior rearview mirrors and required lights and reflectors are exempt from the protrusion requirement. Advertising frames shall protrude no more than 7/8-inch from the body surface and shall have the exposed edges and corners rounded to the extent practicable. Grilles, doors, bumpers and other features on the sides and rear of the bus shall be designed to minimize the ability of unauthorized riders to secure toeholds or handholds.

### 1.21.12.2 Repair and Replacement

Exterior panels below the lower daylight opening and within 35-inches above ground level shall be divided into sections that are repairable or replaceable in less than thirty (30) minutes for a section up to five (5) feet long (excludes painting).

## 1.21.12.3 Rain Gutters

Rain gutters shall be provided to prevent water flowing from the roof onto the passenger doors, operator's side window, and exterior mirrors. When the bus is decelerated, the gutters shall not drain onto the windshield, or operator's side window, or into the door boarding area. Cross sections of the gutters shall be adequate for proper operation. Rain gutters shall also be provided above passenger side windows.

#### 1.21.12.4 License Plate Provisions

Provisions, and/or housings, shall be made to mount standard size U.S. license plates perpendicular to the ground per SAE J686 on the front and rear of the bus. These provisions shall direct mount or recess the license plates so that they can be cleaned by automatic bus washing equipment without being caught by the brushes. License plates shall be mounted at a location not to be blocked by the bicycle rack and the device, and provided provisions, shall not allow a toehold or handhold for unauthorized riders.

Licensing and registration shall be completed by the bus manufacturer prior to or by the time of delivery. Contractor shall be responsible for installing a vehicle registration holder, Truck-lite model 97960, or approved equal, subject to the Authority approval.

#### 1.21.12.5 Rubrails

No requirements for rubrails.

### 1.21.12.6 Fender Skirts

Features to minimize water spray from the bus in wet conditions shall be included in wheel housing design. Any fender skirts shall be easily replaceable. They shall be flexible if they extend beyond the allowable body width. Wheels and tires shall be removable with the fender skirts in place.

### 1.21.12.7 Splash Aprons

Splash aprons, composed of ¼-inch-minimum composition or rubberized fabric, shall be installed behind or in front of wheels or both as needed to reduce road splash and protect underfloor components. The splash aprons shall extend downward within 4-inches of the road surface at static conditions. Apron widths shall be no less than tire widths, except for the front apron that shall extend across the width of the bus. Splash aprons shall be bolted to the bus understructure. Splash aprons and their attachments shall be inherently weaker than the structure to which they are attached. The flexible portions of the splash aprons shall not be included in the road clearance measurements. Other splash aprons shall be installed where necessary to protect bus equipment.

### 1.21.13 Service Compartments and Access Doors

### 1.21.13.1 Access Doors

Vertically hinged or pantograph hinged doors shall be used for the engine compartment and for all auxiliary equipment compartments including doors for checking the quantity and adding to the engine coolant, engine lubricant, transmission fluid and the windshield washer reservoir. The upper engine radiator/A.C. compartment door may be horizontally hinged.

Access openings shall be sized for easy performance of tasks within the compartment including tool operating space. Access doors shall be of rugged construction and shall maintain mechanical integrity and function under normal operations throughout the service life of the coach. They shall close flush with the body surface. All doors shall be hinged at the top or on the forward edge and shall be prevented from coming loose or opening during transit service or in bus washing operations.

Doors with top hinges shall have safety props stored behind the door or on the doorframe. All access doors shall be retained in the open position by props or counterbalancing with over-center or gas-filled springs and shall be easily operable by one person. Springs and hinges shall be corrosion resistant.

All latch handles shall be flush with, or recessed behind, the body contour and shall be sized to provide an adequate grip for opening. At a minimum, all access doors larger in area than 100 square inches shall be equipped with corrosion resistant flush-mounted locks. All such access door locks shall be flush mount, push to open type, Southco, or approved equal, C5, sealed lever latches. Access doors that are not equipped with locks shall be remotely accessible from only the operator's area or other secured compartment via a cable release or similar device.

Access doors, when opened, shall not restrict access for servicing other components or systems. Large access doors shall hinge up (180-degree operation) and out of the way or fold flat against the coach body and shall be easily operable by one person. These doors, when opened, shall not restrict access for servicing other components or systems. Retention devices used to hold the engine compartment access doors in the open position shall be heavy duty and designed to last the service life of the coach. Access doors subject to becoming open by wind force shall be positioned such that the normal air flow influence by the bus moving in a forward direction shall bias closing the door.

# 1.21.13.2 Battery Compartment

The battery compartment or enclosure shall be vented and self-draining. It shall be accessible only from outside the bus. All components within the battery compartment, and the compartment itself, shall be protected from damage or corrosion from the electrolyte and gases emitted by the battery, and from snow, slush, salt spray, mud, etc. generated from environmental conditions outside the bus. Louvers, vents and others used for air circulation shall not allow the introduction of dust, dirt and/or road debris inside the battery compartment. The inside surface of the battery compartment's access door shall be electrically insulated, as required, to prevent the battery terminals from shorting on the door if the door is damaged in an accident or if a battery comes loose.

To minimize the length and routing, throughout the bus, of battery cables, the battery compartment shall be located as close as practical to the electric generator and starter motor. The battery compartment shall be free of any component(s) that generate or produce sparks in general, no other components, devices or wirings, specifically required for battery operation, shall be located in the battery compartment or the immediate vicinity of the battery if not in a separated enclosed compartment.

Battery cables (limited to two, one positive and one ground at battery attachment) shall not be less than 4/0 gauge with a minimum of 2000 strands, shall be a premium grade cable and incorporate a redundant insulation sleeve. The preferred sleeve shall be Packard Flex Guard Loom. Cables shall be routed in a manner to prevent abrasion and pinch points during the routine sliding of the battery tray during battery service. Cable routing securement shall be accomplished using insulated split blocks with pinch bolts, (subject to the Authority's approval) "P" clamps are not permitted.

### 1.21.13.3 Service Area Lighting

Lights shall be provided in the engine and in all other compartments, where service may be required, to generally illuminate the area for night emergency repairs or adjustments. Sealed lamp assemblies shall be provided in the engine compartment and shall be controlled by a switch located

near the rear start controls in the engine compartment. Necessary lights, located in other service compartments, shall be provided with switches on the light fixture or convenient to the light. All lights, when available, shall be LED with a lifetime warranty.

# 1.21.14 Bumpers

# 1.21.14.1 Location

Bumpers shall provide impact protection for the front and rear of the bus with the top of the bumper being 28-inches plus or minus 2 inches above the ground. Bumper height shall be such that when one bus is parked behind another, a portion of the bumper faces will contact each other.

# 1.21.14.2 Front Bumper

No part of the bus, including the bumper, shall be damaged as a result of a 5 mph impact of the bus at curb weight with a fixed, flat barrier perpendicular to the longitudinal centerline of the bus. The bumper shall return to its pre-impact shape within 10 minutes of the impact. The bumper shall protect the bus from damage as a result of 6.5 mph impacts at any point by the Common Carriage with Contoured Impact Surface defined in Figure 2 of FMVSS 301 loaded to 4,000 pounds parallel to the longitudinal centerline of the bus. The energy absorption system of the bumper shall be independent of every power system of the bus and shall not require service or maintenance in normal operation during the service life of the bus. The bumper may increase the overall bus length by no more than 7 inches.

# 1.21.14.3 Rear Bumper

No part of the bus, including the bumper, shall be damaged as a result of a 2-mph impact with a fixed, flat barrier perpendicular to the longitudinal centerline of the bus. The bumper shall return to its pre-impact shape within 10 minutes of the impact. When using a yard tug with a smooth, flat plate bumper 2-feet wide contacting the horizontal centerline of the rear bumper, the bumper shall provide protection at speeds up to 5 mph, over pavement discontinuities up to 1-inch high, and at accelerations up to 2-mph/sec.

The rear bumper shall protect the bus, when impacted anywhere along its width by the Common Carriage with Contoured Impact Surface defined in Figure 2 of FMVSS 301 loaded to 4,000 pounds, at 4 mph parallel to, or up to a 30-degree angle to, the longitudinal centerline of the bus. The rear bumper shall be shaped to preclude unauthorized riders standing on the bumper. The bumper shall be independent of all power systems of the bus and shall not require service or maintenance in normal operation during the service life of the bus. The bumper may increase the overall bus length specified by no more than 7-inches.

# 1.21.14.4 Bumper Material

Bumper material shall be corrosion-resistant and withstand repeated impacts of the specified loads without sustaining damage. Visible surfaces shall be black. These bumper qualities shall be sustained throughout the service life of the bus.

# 1.21.15 Finish and Color

All exterior surfaces shall be smooth and free of wrinkles and dents. Exterior surfaces to be painted shall be properly prepared as required by the paint system supplier, prior to application of paint to assure a proper bond between the basic surface and successive coats of original paint for the service life of the bus. Drilled holes and cutouts in exterior surfaces shall be made prior to cleaning, priming and painting to prevent corrosion. The bus shall be completely painted prior to installation
of exterior lights, windows, mirrors and other items that are applied to the exterior of the bus. Body filler materials may be used for surface dressing, but not for repair of damaged or improperly fitted panels.

Paint shall be applied smoothly and evenly with the finished surface free of dirt and the following other imperfections:

- Blisters or bubbles appearing in the topcoat film.
- Chips, scratches, or gouges of the surface finish.
- Cracks in the paint film.
- Craters where paint failed to cover due to surface contamination.
- Overspray.
- Peeling.
- Runs or sags from excessive flow and failure to adhere uniformly to the surface.
- Chemical stains and water spots.

To the degree consistent with industry standards for commercial bus finishes, painted surfaces shall have gloss and orange peel shall be minimized. All exterior finished surfaces shall be impervious to environmental exposure and commercial cleaning agents. Finished surfaces shall resist damage by controlled applications of commonly used graffiti-removing chemicals. Except for periodic cleaning, exterior surfaces of the bus shall be maintenance-free, permanently colored and not require refinish/repaint for the life of the bus. Durable, peel-resistant pressure sensitive appliqués shall be used for any striping and coloring required.

The overall exterior color of painted surfaces shall be based on the OC Bus paint scheme provided in **Attachment labeled "Branding OCBUS regular**"

Paint shall be Dupont Imron, PPG concept or Deft with a final clear coat. The Authority identity, OCBus, OCbus.com and other additional graphics, bus ID numbers (side, front, rear & large ID, 44-inch numbers at roof) and CA Carrier Number (CA 43438). The exact size, quantity and location of decals are subject to review/final acceptance by the Authority and will be conducted with the Contractor between time of award and pre-production meeting. The subject review will also include elements of subjective color coordination such as, but not limited to, exterior color approval and interior colors that have not been specifically addressed otherwise.

# 1.21.16 Numbering and Signing

## 1.21.16.1 General

Monograms, numbers and other special signing specified by the Authority shall be applied to the inside and outside of the bus as required. Signs shall be durable and fade, chip, and peel resistant. The signs may be painted signs, decals, or pressure-sensitive appliqués. All decals shall be sealed with clear, waterproof sealant around all exposed edges if required by the decal supplier. The Authority bus ID numbers will be provided at the pre-production meeting.

Signs shall be provided in compliance with the ADA requirements defined in 49 CFR Part 38, Subpart B, Section 38.27. Decals indicating on-board CNG fuel, in compliance with California Code of Regulations Title 13, and NFPA 52 shall be affixed to the bus.

# 1.21.16.2 Interior

Coach Interior decal layout shall consist of the following basic items:

- Information required by Federal, State and Local regulations
- International graphic symbols typical of transit buses
- Authority bus ID numbers
- Driver and Passenger information typical of the proposed bus

The Authority reserves the right of final approval upon acceptance of the prototype bus.

# 1.21.16.3 Exterior

The exterior decal and paint layout shall be based on the "OCBUS" paint scheme; see **Attachment labeled** "**Branding OCBUS regular**", in addition to the following basic items:

- Authority logos; OCBUS, OCbus.com", "T" logos and all others.
- Bike rack operation instructions
- Authority 4-digit bus ID numbers (front, rear, driver's side, street side, others)
- Rooftop ID numbers (48 inches high)
- CA commercial carrier number CA43438)
- Authority name
- CNG decals. Multiple CNG decals shall be installed to clearly indicate the type of fuel when the bus is approached from any, and all directions.

Decals, if applicable, shall consist of 3M Reflective 680 CR Series material with 9700 Series ink or approved equal. Authority reserves the right of final approval upon acceptance of the prototype bus.

# 1.21.16.4 Exterior Paint Scheme

OCTA's standard exterior paint scheme is depicted below.





- 1. PPG paint to match 284 C Blue
- 2. PPG paint to match PMS 151 C Orange
- 3. PPG paint to match White HSV 921472
- 4. PPG paint to match PMS 2935 Blue for Stripes and Logo on front of the bus
- 5. 3M 8991R clear surface protectant to alleviate scratches on paint from bus king advertisements and should be the last item applied (146" wide x 30" high).
- 6. Drawing is for reference only. Final engineering drawing shall be provided by Contractor for Authority approval.
- 7. All lettering is white cut out vinyl.

# 1.21.17 Exterior Lighting

All exterior lights shall be designed to prevent entry and accumulation of moisture or dust, and each lamp shall be replaceable in less than five (5) minutes. Commercially available LED (Light Emitting Diode) type lamps, with a lifetime warranty, shall be used at all locations.

Lights mounted on the engine compartment doors shall be protected from the impact shock of door opening and closing. Lamps, lenses and fixtures shall be interchangeable to the extent practicable. Two hazard lamps at the rear of the bus shall be visible from behind when the engine service doors are opened. Light lenses shall be designed and located to prevent damage when running the bus through an automatic bus washer. Lights located on the roof and sides (directionals) of the bus shall have protective shields or be of the flush mount type to protect the lens against minor impacts. As available, lamps shall operate at nominal 24 vdc and include internal voltage regulation.

Two hazards, 7-inch LED lamps with a lifetime warranty, shall be installed at the rear of the bus and shall be visible from behind when the engine service doors are opened.

Visible and audible warning shall inform following vehicles/bus or pedestrians of reverse operation. Visible reverse operation warning shall conform to SAE Standard J593. Audible reverse operation warning shall conform to SAE Recommended Practice J994 Type C or D.

Lamps at the front and rear passenger doorways shall comply with ADA requirements and shall activate only when the doors open. These lamps shall illuminate the street surface to a level of no less than 1 foot-candle for 3-feet outward from the outboard edge of the door threshold. The lights may be positioned above or below the lower daylight opening of the windows and shall be shielded to protect passengers' eyes from glare.

Turn-signal lights, 7-inch lamps with a lifetime warranty, shall be provided on both sides of the bus.

## 1.21.17.1 Brake and Back-up Lights

Two vertically mounted 7-inch LED rear brake lights, with a lifetime warranty, shall be installed in each side of the rear section of the bus. Three rear centered mounted 7-inch LED brake lights, with a lifetime warranty, shall be provided and located as to not interfere with the placement of the rear ad frame. Two 7-inch LED back-up lights shall be vertically mounted on the rear section of the bus.

## 1.21.17.2 Curbside Cornering Lights

Two LED cornering lights, 4-inch diameter minimum, or applicable, shall be provided to allow the operator viewing of the curbs when making right-hand turns. Such lights shall be activated by the floor-mounted Right-Hand turn signal switch and shall be aimed at each, front and rear curbside wheels. The lights shall remain energized after the turn-signal switch is released, for an amount of time to be determined during the evaluation of the first article

#### 1.21.18 Interior Panel and Finishes

#### 1.21.18.1 General

Materials shall be selected based on maintenance, durability, appearance, safety, flammability, and tactile qualities. Trim and attachment details shall be kept simple and unobtrusive. Materials shall be strong enough to resist everyday abuse and vandalism; they shall be resistant to scratches and markings. Interior trim shall be secured to avoid resonant vibrations under normal operational conditions.

Interior surfaces more than 10-inches below the lower edge of the side windows or windshield shall be shaped so that objects placed on them fall to the floor when the coach is parked on a level surface. The entire interior shall be cleanable with a hose, using a liquid soap attachment. Water and soap should not normally be sprayed directly on the instrument and switch panels.

#### 1.21.19 Front End

The entire front end of the bus shall be sealed to prevent debris accumulation behind the dash and to prevent the operator's feet from kicking or fouling wiring and other equipment. The front end shall be free of protrusions that are hazardous to passengers standing or walking in the front of the bus during rapid decelerations. Paneling across the front of the bus and any trim around the operator's compartment shall be formed metal or plastic material. Formed metal dash panels shall be painted and finished or may be carpeted or vinyl covered. Plastic dash panels shall be reinforced, as necessary, vandal-resistant, and replaceable. All colored, painted, and plated parts forward of the operator's barrier shall be finished with a dull matte surface to reduce glare.

Manufacturer shall place special attention to the selection of components, materials, placement of the lights, use of filters, non-reflective materials, paints and surfaces to minimize the glare effect on the Operator.

# 1.21.20 Rear End

The rear bulkhead and rear interior surfaces shall be material suitable for exterior skin, painted and finished to exterior quality, or paneled with melamine-type material, plastic, or carpeting and trimmed with stainless steel, aluminum, or plastic. Authority reserves the right of selecting from any of the listed materials.

# 1.21.21 Interior Panels

# 1.21.21.1 General

Interior side trim panels and operator's barrier shall be textured stainless steel, anodized aluminum, plastic, melamine-type material, or carpeting. Panels shall be easily replaceable and tamper resistant. They shall be reinforced, as necessary, to resist vandalism and other rigors of transit bus service. Individual trim panels and parts shall be interchangeable to the extent practicable. Grey carpet shall be used on top of non-corrosive material at the rear section of the bus. Untrimmed areas shall be painted and finished. All materials shall comply with the Recommended Fire Safety Practices defined in FTA Docket 90A, dated October 20, 1993. Only stainless-steel panels or materials that inherently do not permit corrosion shall be allowed on the interior of the bus unless, the Contractor obtains the Authority's approval in writing for a different type of material(s).

# 1.21.22 Operator's Coat Hanger

A suitable hanger shall be installed in a convenient approved location for the operator's overcoat.

# 1.21.23 Operator Barrier and Schedule Holder

A barrier or bulkhead between the operator and the street-side front passenger seat shall be provided. The barrier shall minimize glare and reflections in the windshield directly in front of the barrier from interior lighting during night operation.

Operator's Barrier shall extend continually from floor to ceiling and from the bus wall to first stanchion immediately behind the Operator to provide security to the Operator and limit passenger conversation.

- Location and shape must permit full seat travel possibilities and accommodate the shoulders of a 95<sup>th</sup> percentile male.
- Partition shall have a side return and stanchion to prevent passenger from standing behind the Operator's seat; lower area between seat and panel must be accessible to the Operator.
- Partition must be strong enough in conjunction with entire partition assembly for mounting of such equipment as flare kits, fire extinguishers (1.2kg), microcomputer, public address amplifier, etc.
- Partition shall start 25mm (1-inch) above floor
- Dark or black panels preferred <sup>1</sup>/<sub>2</sub>-inch thick acrylic or similar
- Schedule holder shall be mounted, at Authority's decision, horizontally on the passenger side of the barrier or vertically, facing the passenger aisle.
- Panel should be attached with rubber grommets.

## 1.21.24 Operator Storage Box

An enclosed Operator storage area shall be provided with a positive latching door and key-lock UCP # 2051641; minimum approximate size: 355 mm x 355 mm x 355 mm (14" x 14" x 14"). This box shall be located at the driver's workstation area. No key shall be required if the driver's seat, or other, during normal operations, blocks the access to the Operator's storage box.

#### 1.21.25 Modesty Panels

Sturdy, stainless steel for the lower sections and transparent melamine for the upper sections, divider panels constructed of durable, unpainted, corrosion-resistant material complementing the interior trim shall be provided to act as both a physical and visual barrier for seated passengers. Modesty panels shall be immune to vandalism or be of a design incorporating inexpensive/easily replaceable sacrificial panels, firms, etc.

Modesty panels shall be located at, when applicable, front and rear sections of doorways to protect passengers on adjacent seats, and along front edge of rear upper level. Design and installation of modesty panels located in front of forward-facing seats shall include a handhold/grab handle along its top edge. These dividers shall be mounted on the sidewall and shall project toward the aisle no farther than passenger knee projection in longitudinal seats or the aisle side of the transverse seats.

Modesty panels shall extend no higher than the lower daylight opening of the side windows and those forward of transverse seats shall extend downward to a level between 1½ and 1 inch below the floor. Panels forward of longitudinal seats shall extend to below the level of the seat cushion. Dividers positioned at the doorways shall provide no less than a 2½-inch clearance between the modesty panel and the opened door to protect passengers from being pinched. Modesty panels installed at doorways shall be equipped with yellow powder coated grab rails and, when applicable (e.g., rear doors), shall extend below the floor level to prevent door interaction with passenger's feet.

The modesty panel and its mounting shall withstand a static force of 250 pounds applied to a fourinch by four-inch area in the center of the panel without permanent visible deformation. Mounting provisions of modesty panels shall accommodate easy replacement of damaged or vandalized components and shall be secured with removable tamper-proof provisions.

Stainless steel modesty panels, or passenger barriers, shall be in front of any and all forward, or rear facing seats where a barrier does not exist. Such modesty panels shall cover the entire width of the forward or side facing seats.

## 1.21.26 Passenger Hand Holds

Stainless steel powder coated safety yellow passenger handholds shall be located at all seat locations where the installation or presence of a modesty panel, or passenger barrier, is not practical or, where such barrier or modesty panel, does not cover the entire forward "projected width" of a passenger seat e.g.; forward-facing seats located in the rearmost bench-seat of the bus, first row of aisle facing seats after the front wheel wells, etc. The passenger handholds shall be made of stainless steel and shall be mounted on the side, or in between of the targeted seats, and they shall be of a slim design intended to minimize protrusion, passenger interference, object catching and any other passenger traffic related interferences. The passenger handholds shall be similar in design to an "arm-rest" and shall be capable of allowing a passenger ranging in size from a 5<sup>th</sup>-percentile female to a 95<sup>th</sup>-percentile male to have a full hand grip on the device when required. Final locations shall be discussed and defined during the pre-production meetings and during the evaluation of the first article.

# 1.21.27 Rear Bulkhead

The rear bulkhead paneling shall be contoured to fit the ceiling, side walls, and seat backs so that any litter, such as a cigarette package or newspaper, will tend to fall to the floor or seating surface when the bus is on a level surface. Any air vents in this area shall be louvered to reduce airflow noise and to reduce the probability of trash or liter being thrown or drawn through the grille. To service components located on the rear bulkhead, the panel shall be hinged or shall be able to be removed and replaced by a specialty mechanic in five (5) minutes. Grilles where access to or adjustment of equipment is required shall be heavy duty and designed to minimize damage. The panels above the rear seats shall be covered with dark color carpet material.

# 1.21.28 Headlining

Ceiling panels shall be a material that inherently does not corrode such as textured stainless steel, anodized aluminum, melamine-type material, carpeting, or material suitable for exterior skin painted and finished to exterior quality. Headlining shall be supported to prevent buckling, drumming, or flexing and shall be secured without loose edges. Headlining materials shall be treated or insulated to prevent marks due to condensation where panels are in contact with metal members. Moldings and trim strips, as required to make the edges tamperproof, shall be stainless steel, aluminum, or plastic, colored to complement the ceiling material. Headlining panels covering operational equipment that is mounted above the ceiling shall be on hinges for ease of service but retained to prevent inadvertent opening.

# 1.21.29 Fastening

Interior panels shall be attached so that no exposed unfinished or rough edges or rough surfaces exist. Panels and fasteners shall not be easily removable by passengers. Interior trim fasteners, where required, shall be rivets or cross-recessed head screws. Fasteners shall be stainless steel.

## 1.21.30 Insulation

Any insulation material used between the inner and outer panels shall be sealed or self-sealing to minimize entry or retention of moisture or both. Insulation properties shall be unimpaired during the service life of the bus. Any insulation material used inside the engine compartment shall not absorb or retain oils or water and shall be designed to prevent casual damage that may occur during maintenance operations. All insulation materials shall comply with the Recommended Fire Safety Practices defined in FTA Docket 90A, dated October 20, 1993.

The combination of inner and outer panels on the sides, roof, wheel wells and ends of the bus, and any material used between these panels shall provide a thermal insulation sufficient to meet the interior temperature requirements of these Technical Specifications. The bus body shall be thoroughly sealed so that the operator or passengers cannot feel drafts during normal operations with the passenger doors closed.

## 1.21.31 Floor Covering

The floor covering shall have a non-skid walking surface that remains effective in all weather conditions and complies with all ADA requirements. The floor covering, as well as transitions of flooring material to the main floor and to the entrance and exit area, shall be smooth and present no tripping hazards. The standee line shall be at least 2-inches wide and shall extend across the bus aisle. This line shall be the same color as the outboard edge of the entrance/exit areas. Color/pattern shall be consistent throughout the floor covering. Floor covering shall be RCA transit flooring, type TR-766.

Any areas on the floor, which are not intended for standees, such as areas "swept" during passenger door operation, shall be clearly and permanently marked. The floor in the operator's compartment shall be easily cleaned and shall be arranged to minimize debris accumulation. A one-piece center strip shall extend from the vertical wall of the rear settee between the aisle sides of transverse seats to the standee line. If the floor is of a bi-level construction, then center strip shall be one-piece at each level. The covering between the center strip and the wheel housings may be separate pieces. At the rear door, however, a separate strip as wide as the door shall extend from the center strip to the outboard edge of the rear/exit area.

The floor under the wheelchair locations shall be covered with Line-X, or approved equal, antiskid material and, the floor under the seats shall be covered with smooth antiskid surface flooring material and the center strip shall be ribbed. The floor covering shall closely fit the sidewall cove or extend to the top of the cove.

#### 1.21.32 Passenger Interior Lightning

The interior LED lighting system, with a lifetime warranty, shall provide a minimum 15 foot-candle illumination on a 1 square foot plane at an angle of 45-degrees from horizontal, centered 33-inches above the floor and 24-inches in front of the seat back at each seat position. Allowable average light level for the rear bench seats shall be 7-foot-candles. Floor surface in the aisles shall be a minimum of 10-foot-candles, vestibule area a minimum of 4-foot-candles with the front doors open and a minimum of 2-foot-candles with the front doors closed.

The light source shall be located to minimize windshield glare with distribution of the light focused primarily on the passengers' reading plane while casting enough light onto the advertising display. LED lights/tubes shall be a maximum 6-foot length, single-pin, T-12 type (with exception granted for extinguishing or dimming fixtures). Lens material shall be clear polycarbonate. Lens shall be designed to effectively "mask" the LED individual diode's light source projection and reflection. Lens shall be sealed to inhibit incursion of dust and insects yet are easily removable for service. If threaded fasteners are used, they must be held captive in the lens. Access panels shall be provided to allow servicing of components located behind all light panels. If necessary, the entire light fixture shall be hinged.

The front entrance area and curb lights shall illuminate when the front door is open and master run switch is in the "Lights" positions. Rear exit area and curb lights shall illuminate when rear door is unlocked. Step lighting for the intermediate platform between lower and upper floor levels shall be provided and shall illuminate in all engine run positions. The step lighting shall be low-profile to minimize tripping and snagging hazard for passengers and shall be shielded as necessary to protect passengers' eyes from glare.

When the master switch is in the RUN or NITE/RUN mode, the first light module on each side of the bus shall automatically extinguish or dim when the front door is in the closed position and illuminate when the door is opened.

The light system may be designed to form part or the entire air distribution duct. A light fixture shall be mounted in the ceiling above the farebox location. The fixture shall project a concentrated beam of light on the farebox. This light will automatically come on whenever the front doors are opened, and the run switch is in the "night run" or "night park" position. The interior lighting configuration, glare, reflection, operation, etc. shall be reviewed and approved during the first article evaluation.

# 1.21.33 Fare Collection

Space shall be made for installation of the GFI Odyssey Farebox and the connecting operator control unit. Location of this equipment shall not restrict traffic in the vestibule, including wheelchairs if a front door loading device is used, and shall allow the operator to easily reach the farebox controls and to view the Operator Control Unit (OCU). The farebox and the farebox operator control unit shall not restrict access to the operator area, shall not restrict operation of operator controls and shall not, either by it or in combination with stanchions, and route destination signs, restrict operator's field of view per SAE Recommended Practice J1050. Placement of the OCU shall not prevent fully opening of the farebox top lid.

Location and mounting of the GFI Odyssey model farebox shall allow use, without restriction, by passengers. Farebox location shall permit accessibility to the vault for easy manual removal and for data probing. The floor under the fare box shall be reinforced, as necessary, to provide a sturdy mounting platform and to prevent shaking of the fare box. Farebox mounting, power cables at 24 vdc, data cables at J-1708 interface, brackets and mounting provisions for operator interface shall be provided by the bus manufacturer to accept installation of a GFI Odyssey model farebox. Contractor shall use 12-gauge wire, at a minimum, for power cables and shall consult GFI for inline fuse size. The J-1708 data cable connection at the transit interface box (TIB) must allow for multiple connection points (Y–connector or breakout box). The Authority will install the GFI Odyssey model farebox on the prototype bus after delivery, within acceptance inspection process. The floor area shall be sealed at the farebox base plate interface to prevent water from entering the farebox electrical connection area.

Additionally, Contractor shall be responsible for providing the required mounting provisions e.g., pre-drilled bar(s), bracket, holder, or other as applicable in the front entrance section of the bus to accommodate mounting Authority's "iNit" proximobile reader/scanner. The iNit unit will be provided by Authority and is intended for Authority's web-based application/transactions. The final mounting location shall be defined during the evaluation of the first article. Existing mounting location is depicted below.



During the Pre-Production Meeting, the Offeror and Authority shall discuss how to design the operator control area to allow maximum visibility and access to the Farebox Operator Control unit, AMDT/IVU, iNit, and all others.

## 1.21.34 Access Panels and Doors – Interior

Panels and doors that appear to be an integral part of the interior shall provide access for maintenance and replacement of equipment. Access doors shall be hinged with gas props or overcenter springs, where practical, to hold the doors out of the mechanic's way. Panel fasteners shall be standardized so that only one tool is required to service all special fasteners within the bus.

Locks shall secure access doors for the door actuator compartments and shall prevent entry of mechanism lubricant into the bus interior. The locks shall be standardized so that only one tool is required to open access doors on the bus. All fasteners that retain access panels shall be captive in the cover.

Access openings in the floor shall be sealed to prevent entry of fumes and water into the bus interior. Flooring material shall be flush with the floor and shall be edge-bound with stainless steel, or other material that is acceptable to the Authority, to prevent the edges from coming loose. Access openings shall be asymmetrical so that reinstalled flooring shall be properly aligned. Fasteners shall tighten flush with the floor.

# TS 1.22 PASSENGER ACCOMMODATIONS

#### 1.22.1 Passenger Seating

#### 1.22.1.1 General

Passenger seats shall be USSC Aries, American Seating Vision or approved equal, to include, stainless steel structure, vandal guard padded/fabric replaceable seat and back inserts, 980 gray color, Holdsworth Defender anti-bacterial, anti-fungal and anti-stain custom Authority fabric (sample shall be provided at the pre-production meeting) or equivalent and thermoplastic padded hand rails.

## Arrangements and Seat Styles

The passenger seating arrangement in the bus shall be such that seating capacity is maximized and in compliance to the following requirements. The Authority recognizes that ramp location, foot room, hip-to-knee room, doorway type and width, seat construction, floor level type, seat spacing requirements, etc. ultimately affect seating capacity and layout.

Passenger seats shall be arranged in a transverse, forward facing configuration, except at the wheel housings where aisle-facing seats may be arranged as appropriate with due regard for passenger access and comfort. Other areas where aisle-facing seats may be provided are at wheelchair securement areas and platforms (such as for fuel tank storage space).

The last row of passenger seats shall accommodate five passengers and the center seat shall be equipped with handholds on each side of the seat. The center seats shall securely latch in the closed position and shall be hinged to fully open for easy access to the engine compartment. A gas spring shall be provided to assist lifting to the fully open position. A prop rod, with a latch, shall be provided to securely hold the seat in the fully opened position. An engine access door shall be provided under the last row of seats in the bus. Such removable door/cover shall be noise and thermally insulated.

Passenger seating capacity with this arrangement shall be no less than 35 seats not including the operator, with the specified seating arrangement. The passenger seats shall be equipped with vandal-resistant padded inserts throughout the bus. Note that all applicable seat dimensions specified below shall be measured with the pad fully depressed. Hip-to-knee room measured from the front of one seat back horizontally across the highest part of the seat to the seat or panel immediately in front, shall be no less than 26-inches. Hip-to-knee room shall be no less than 26.5 inches at all seating positions in paired transverse seats immediately behind other seating positions.

Foot room, measured at the floor forward from a point vertically below the front of the seat cushion, shall be no less than 14 inches. Seats immediately behind the wheel housings and modesty panels may have foot room reduced, provided the wheelhouse is shaped so that it may be used as a footrest or the design of modesty panel effectively allows for foot room. Thickness of the transverse seat backs shall be minimized at the bottom to increase passenger knee room and passenger capacity. The area between the longitudinal seat backs and the attachment to the bus sidewalls shall be designed to prevent debris accumulation.

The aisle between the seats shall be no less than 20-inches wide at seated passenger hip height. Seat backs shall be shaped to increase this dimension to no less than 24-inches at standing passenger hip height. Raised platforms for passenger seats shall not be allowed without the Authority's approval. If bus is of a sloped floor design, then raised platforms for passenger seats may be provided in the rear sloped section.

Contractor shall submit in accordance to requirements under Section 1 Offeror Communications and Requests, a copy of the proposed seat layout consistent with these specifications showing hip-to-knee and foot room dimensions, stanchion layout and wheelchair maneuverability layout with proposal for the Authority's review and approval. Contractor shall also indicate on this layout the Free Floor Space available to standees and include the calculation of the Free Floor Space area.

#### 1.22.1.2 Dimensions

Following are the seat dimensions for the various seating arrangements: (Refer to the diagram below.)

- The width, W, of the seat shall be 35 inches.
- The length, L, shall be 17 ±1 inch.
- The seat back height, B, shall be a minimum of 15 inches.
- The seat height, H, shall be 17 ± 1 inches. For the rear lounge (or settee) and longitudinal seats, and seats located above raised areas for storage of under floor components, a cushion height of up to 18 ± 2 inches will be allowed. This shall also be allowed for limited transverse seats, but only with expressed approval of the Authority.
- The seat cushion slope, S, shall be between 5° to 11°.
- The seat back slope, C, shall be between 8° to 17°.



#### 1.22.1.3 Structure and Design

The passenger seat frame and its supporting structure shall be corrosion resistant, constructed and mounted to maximize that space to increase wheelchair maneuvering room and is completely free of obstructions to facilitate cleaning. The transverse seat structure shall be fully cantilevered from the sidewall with enough strength for the intended service. The lowest part of the seat assembly that is within 12-inches of the aisle shall be at least 10-inches above the floor. Folding seats used in wheelchair securement areas, as well as, transverse seats mounted in locations at which cantilevered installation is precluded by design or structure, or both, need not be cantilevered. All seat support structures shall be free of sharp edges.

The underside of the seat and the sidewall shall be configured to prevent debris accumulation and the transition from the seat underside to the bus sidewall to the floor cove radius shall be smooth. All transverse objects, including seat backs, modesty panels, and longitudinal seats, in front of forward-facing seats shall not impart a compressive load in excess of 1,000 pounds onto the femur of passengers ranging in size from a 5<sup>th</sup>-percentile female to a 95<sup>th</sup>-percentile male during a 10g deceleration of the bus. This deceleration shall peak at .05  $\pm$  .015 seconds from initiation. Permanent deformation of the seat resulting from two 95<sup>th</sup>-percentile males striking the seat back during this 10g deceleration shall not exceed 2-inches, measured at the aisle side of the seat frame at height H. Seat back should not deflect more than 14-inches, measured at the top of the seat back, in a controlled manner to minimize passenger injury. Structural failure of any part of the seat or sidewall shall not introduce a laceration hazard.

The seat assembly shall withstand static vertical forces of 500 pounds applied to the top of the seat cushion in each seating position with less than  $\frac{1}{4}$ -inch permanent deformation in the seat or its mountings. The seat assembly shall withstand static horizontal forces of 500 pounds evenly distributed along the top of the seat back with less than  $\frac{1}{4}$ -inch permanent deformation in the seat or its mountings. The seat backs at the aisle position and at the window position shall withstand repeated impacts of two 40-pound sandbags without visible deterioration. One sandbag shall strike the front 40,000 times and the other sandbag shall strike the rear 40,000 times. Each sandbag shall be suspended on a 36-inch pendulum and shall strike the seat back 10,000 times each from distances of 6, 8, 10, and 12 inches. Seats at both seating positions shall withstand 4,000 vertical drops of a 40-pound sandbag without visible deterioration. The sandbag shall be dropped 1,000 times each from heights of 6, 8, 10, and 12 inches. Seats at both seating positions shall withstand 4,000 vertical drops of a 40-pound sandbag without visible deterioration. The sandbag shall be dropped 1,000 times each from heights of 6, 8, 10, and 12 inches. Seat cushions shall withstand 100,000 randomly positioned  $\frac{31}{2}$ -inch drops of a squirming, 150-pound, smooth-surfaced, buttocks-shape striker with only minimal wear on the seat covering and no failures to seat structure or cushion suspension components.

The back of each transverse seat shall incorporate a handhold no less than 7/8-inch in diameter for standees and seat access/egress. The handhold shall not be a safety hazard during severe decelerations. The handhold shall extend above the seat back near the aisle so that standees shall have a convenient vertical assist, no less than 4 inches long that may be grasped with the full hand. This handhold shall not cause a standee using this assist to interfere with a seated 50<sup>th</sup>-percentile male passenger. The handhold shall also be usable by a 5<sup>th</sup>-percentile female, as well as by larger passengers, to assist with seat access/egress for either transverse seating position. The upper rear portion of the seat back and the seat back handhold immediately forward of transverse seats shall be padded or constructed of energy absorbing materials or both. During a 10g deceleration of the bus, the HIC number (as defined by SAE Standard J211a) shall not exceed 400 for passengers ranging in size from a 5<sup>th</sup> percentile female through a 95<sup>th</sup> percentile male. The seat back handhold may be deleted from seats that do not have another transverse seat directly behind and where vertical assist is provided. Armrests shall not be included in the design of transverse seats.

Longitudinal seats shall be the same general design as transverse seats but without seat back handholds. Longitudinal seats may be mounted on the wheelhouses. Armrests shall be included on the ends of each set of longitudinal seats except on the forward end of a seat set that is immediately to the rear of a transverse seat, the operator's barrier, or a modesty panel and these fixtures perform the function of restraining passengers from sliding forward off the seat. Armrests are not required on longitudinal seats located in the wheelchair parking area that fold up when the armrest on the adjacent fixed longitudinal seat is within 1-1/2 to 3-1/2-inches of the end of the seat cushion. Armrests shall be located from 7 to 9-inches above the seat cushion surface. The area between the armrest and the seat cushion shall be closed by a barrier or panel. The top and sides of the armrests shall have a minimum width of 1 inch and shall be free from sharp protrusions that form a safety hazard.

Seat back handhold and armrests shall withstand static horizontal and vertical forces of 250 pounds applied anywhere along their length with less than ¼-inch permanent deformation. Seat back handhold and armrests shall withstand 25,000 impacts in each direction of a horizontal force of 125 pounds with less than ¼-inch permanent deformation and without visible deterioration.

Contractor shall provide a test report at the Authority's request fully documenting compliance with all the requirements defined above upon request. The test report shall contain a record

of all testing activities, test diagrams, testing equipment, as well as test data related to loads, deflections and permanent deformation of the seat assembly. The report shall include a statement of compliance with the requirements of this section of the Technical Specifications.

## **1.22.1.4 Construction and Materials**

Seats shall be constructed with materials that comply with the physical test. Selected materials shall minimize damage from vandalism and shall reduce cleaning time. The seats shall be attached to the frame with tamperproof fasteners. Coloring shall be consistent throughout the seat material, with no visually exposed portion painted. All visually exposed metal of the standard seat structure including mounting brackets and other components shall be aluminum or stainless steel. The seat, pads and cushions shall be contoured for individuality, lateral support, and maximum comfort and shall fit the framework to reduce exposed edges.

The minimum radius of any part of the seat back, handhold, or modesty panel in the head or chest impact zone shall be a nominal ¼-inch. Seat covering materials shall be selected based on durability, ease of maintenance, and pleasing texture and appearance. The seat back and seat back handhold immediately forward of transverse seats shall be constructed of energy absorbing materials to provide passenger protection and, in a severe crash, allow the passenger to deform the seating materials in the impact areas in accordance with the Knee Impact and Head Impact Criteria requirements. Complete seat assemblies shall be interchangeable to the extent practicable.

# 1.22.2 Passenger Assists

## 1.22.2.1 General

Passenger assists in the form of full grip, vertical stanchions or handholds shall be provided for the safety of standees and for ingress/egress. Passenger assists shall be convenient in location, shape, and size for both the 95<sup>th</sup>-percentile male and the 5<sup>th</sup>-percentile female standee. Starting from the entrance door and moving anywhere in the bus and out the exit door, a vertical assist shall be provided either as the vertical portion of seat back assist or as a separate item so that a 5<sup>th</sup>-percentile female passenger may easily move from one assist to another using one hand and the other without losing support. All handholds, stanchions and passenger assists shall be stainless steel.

Excluding those mounted on the seats and doors, the assists shall have a cross-sectional diameter between  $1\frac{1}{4}$  and  $1\frac{1}{2}$ -inches or shall provide an equivalent gripping surface with no corner radii less than  $\frac{1}{4}$  inch.

All vertical stanchions and horizontals identified by the Authority's Risk Management or Health, Safety & Environmental Compliance Departments or both shall be covered by a rubber like energy absorbing sleeves (padding) secured in place with adhesive that shall be applied to tubing and sleeve. All passenger assists shall permit a full hand grip with no less than 1½-inches of knuckle clearance around the assist. Passenger assists shall be designed to minimize catching or snagging of clothes or personal items and shall pass the NHTSA Drawstring Test.

Any joints in the assist structure shall be underneath supporting brackets and securely clamped to prevent passengers from moving or twisting the assists. Passenger assists shall

be designed to minimize glare in the Operator's area to the extent possible. Except for seat and door handholds, all areas of the passenger assist that are handled by passengers including functional components used as passenger assists shall be of anodized aluminum or stainless steel. Seat handholds may be of the same construction and finish as the seat frame. Front and rear door mounted passenger assists shall be of anodized aluminum, stainless steel, or powder coated metal in yellow color. Connecting tees and angles may be powder coated metal castings. Assists shall withstand a force of 300 pounds applied over a 12-inch lineal dimension in any direction normal to the assist without permanent visible deformation. All passenger assists components, including brackets, clamps, screw heads, and other fasteners used on the passenger assists shall be designed to eliminate pinching, snagging and cutting hazards and shall be free from burrs or rough edges. All passenger stanchions located by the entrance and exit's doors shall be painted in powder coated safety yellow color.

# 1.22.2.2 Front Doorway

Front doors, or the entry area, shall be fitted with ADA compliant assists. Assists shall be as far outward as practicable but shall be located no farther inboard than 6-inches from the outside edge of the entrance step and shall be easily grasped by a 5<sup>th</sup>-percentile female boarding from street level. Door assists shall be functionally continuous with the horizontal front passenger assist and the vertical assist and the assists on the wheel housing or on the front modesty panel.

## 1.22.2.3 Vestibule

The aisle side of the operator's barrier, the wheel housings, and when applicable the modesty panels shall be fitted with vertical passenger assists that are functionally continuous with the overhead assist and that extend to within 36-inches of the floor. These assists shall have sufficient clearance from the barrier to prevent inadvertent wedging of a passenger's arm.

A horizontal passenger assist shall be located across the front of the bus and shall prevent passengers from sustaining injuries on the fare collection device or windshield in the event of a sudden deceleration. Without restricting the vestibule space, the assist shall provide support for a boarding passenger from the front door through the fare collection procedure. Passengers shall be able to lean against the assist for security while paying fares. The assist shall be no less than 36-inches above the floor. The assists at the front of the bus shall be arranged to permit a 5<sup>th</sup>-percentile female passenger to easily reach from the door assist, to the front assist, to vertical assists on the operator's barrier, wheel housings, or front modesty panel.

## 1.22.2.4 Rear Doorway

Vertical assists that are functionally continuous with the overhead assist shall be provided at the aisle side of the transverse seat immediately forward of the rear door and on the aisle side of the rear door modesty panel(s). Passenger assists shall be provided on modesty panels that are functionally continuous with the rear door assists. Rear doors, or the exit area, shall be fitted with assists no less than <sup>3</sup>/<sub>4</sub>-inch in width and shall provide at least 1<sup>1</sup>/<sub>2</sub>-inches of knuckle clearance between the assists and their mounting. The assists shall be designed to permit a 5<sup>th</sup>-percentile female to easily move from one assist to another during the entire exiting process. The assists shall be located no farther inboard than 6-inches from the outside edge of the rear doorway.

# 1.22.2.5 Overhead

Except forward of the standee line and at the rear door, a continuous, full grip, overhead assist shall be provided. This assist shall be convenient to standees anywhere in the bus and shall be located over the center of the aisle seating position of the transverse seats. The assist shall be no less than 70-inches above the floor. All vertical stanchions and horizontals identified by the Authority's Risk Management or Health, Safety & Environmental Compliance Departments or both shall be covered by a rubber like energy absorbing sleeve (adhesive will be applied to tubing and sleeve).

Passenger hand straps of webbing design, permanently mounted on the selected locations, shall be provided for sections where vertical assists are not available and for the use by passengers that cannot reach to 70-inches and the quantity must be equal to the allowable number of standees. One per standee overhead assists shall be provided and those shall simultaneously support 150 pounds on any 12-inch length. No more than 5 percent of the full grip feature shall be lost due to assist supports. Final hand-strap configuration/location shall be reviewed during the first article's presentation to Authority.

## 1.22.2.6 Longitudinal Seats

Longitudinal seats shall have vertical assists located between every other designated seating position, except for seats that fold/flip up to accommodate wheelchair securement. All flip-up seats' locking/latching mechanisms shall be located on the right-hand side of the seats. Assists shall extend from near the leading edge of the seat and shall be functionally continuous with the overhead assist. Assists shall be staggered across the aisle from each other where practicable and shall be no more than 52 inches apart or functionally continuous for a 5<sup>th</sup> percentile female passenger.

# 1.22.2.7 Wheel Housing Barriers/Assists

Unless passenger seating is provided on top of a wheel housing, passenger assists shall be mounted around the exposed sides of the wheel housings (and propulsion compartments if applicable) which shall also be designed to prevent passengers from sitting on wheel housings.

# TS 1.23 PASSENGER DOORS

## 1.23.1 General

Two doorways shall be provided on the curbside of the bus for passenger ingress and egress. The front doorway shall be forward of the front wheels and located so that the operator will be able to collect or monitor the collection of fares. Passenger doors and doorways shall comply with ADA requirements. To maximize ADA accommodations, center aisle spacing, passenger circulation, the centerline of the rear doorway shall be located, approximately, twenty feet rearward of the front door's centerline and/or, as close as possible to beginning of the upper deck of the bus.

The door style for the front door shall be slide glide with yellow hand bars. The door style for the rear door shall be slide glide with yellow hand bars.

## 1.23.2 Materials and Construction

Door structures, their attachments, inside and outside trim panels, and any mechanism exposed to the elements shall be corrosion resistant. Door panel construction shall be of corrosion-resistant metal or reinforced non-metallic composite materials. The doors, when fully opened, shall provide

a firm support and shall not be damaged if used as an assist by passengers during ingress or egress. The front leaves of the passenger doors shall overlap the rear leaves.

#### 1.23.3 Dimensions

Front door width shall be no less than 34-inches and rear door width no less than 40-inches with the doors fully opened. When open, the doors shall leave an opening no less than 76-inches in height.



## 1.23.4 Door Glazing

The upper section of both front and rear doors shall be glazed for no less than 45 percent of the respective door opening area of each section. The lower section of the front door shall be glazed for no less than 25 percent of the door opening area of the section. The front door panel glazing material shall have a nominal one-quarter ( $\frac{1}{4}$ ) inch or 6 mm thick laminated safety glass conforming to the requirements of ANSI Z26.1 Test Grouping 2 and the Recommended Practices defined in SAE J673. Glazing material in the rear doorway door panels shall be the same material, thickness and color as the side windows.

## 1.23.5 Door Projection

The exterior projection of the front doors beyond the side of the bus shall be minimized and shall not block the line of sight of the rear exit door via the curb side mirror when the doors are fully open. The exterior projection of both doors shall be minimized and shall not exceed 13-inches during the opening or closing cycles or when doors are fully opened. Projection inside the bus shall not exceed 21-inches. The closing edge of each door panel shall have no less than 2-inches of soft weather stripping. The doors, when closed, shall be effectively sealed and the hard surfaces of the doors shall be at least 4-inches apart. The combined weather seal and window glazing elements of the

front door shall not exceed 10 degrees of binocular obstruction of the operator's view through the closed door.

# 1.23.6 Door Height Above Pavement

It shall be possible to open and close either passenger door when the bus, loaded to GVWR, is not knelt and parked with the tires touching an 8-inch-high curb on a street sloping toward the curb so that the street side wheels are 5-inches higher than the right side wheels.

# 1.23.7 Door Actuators

The bus shall be equipped with a single electric 24 VDC nominal Vapor, or approved equal, electric door operator/actuator incorporating a non-back drivable feature which shall hold the doors in the closed position without the need or application of electrical power. The actuators shall be lubed with grease not with oil.

The door operator and the complex door mechanism shall be in the overhead door compartment and concealed from passengers but shall be easily accessible for servicing. This door operator shall be mechanically synchronizing both doors and shall not rely on software or simple door timing for proper door panel sequencing. The doors, when exposed to a force in excess of 300 pounds applied to the center of the door panel leading edges, the door operator, without the use of auxiliary locking devices shall prevent the doors from opening. If a higher force is applied causing the doors to be opened there shall be no damage to the door operator itself or door panels, any damage shall be limited to minor door components that are easily accessible and replaceable. Whether or not the obstruction system is present or functional, it shall be possible to withdraw a 1-inch diameter smooth cylinder from between the closed-door panels with a force no greater than 35 pounds and the electric door operators shall be rebuildable. The 4-way hazard flashers shall be activated any time that any door is in the open position.

# 1.23.8 Closing Door Speed -

Closing door edge speed shall not exceed 2.5 to 3.5 seconds. Power close rear doors shall be equipped with a sensitive edge or other obstruction sensing system such that if an obstruction is struck by a closing door edge, the doors will stop or reverse direction or both prior to imparting a 10-pound force on 1 square inch of that obstruction. The Vapor, or approved equal, pressure wave sensors shall be optical type, solid state with a tamper proof housing, visible LED status light indicator intended to aid in the diagnostic and operation of the device.

# **1.23.9** Door Actuator – Sensing Obstructions

During the closing-door cycle, the electric door actuator's electrical current shall be constantly monitored by the door or bus' control systems and when, or if the normal actuator's operating current threshold is exceeded, then the door control system shall consider that as a "passenger obstruction" and it shall stop the doors from continuing its closing cycle.

## 1.23.10 Remote Switch

An exterior door switch shall be provided at a location discussed and defined during the pre-production meeting and the manufacturing and presentation of the first article to Authority, to open and close the door when entering or leaving the bus.

## 1.23.11 Door Motor Control

The door operator shall be driven by a dedicated electrical controller that shall provide the capability of auto set up determining full open, full closed and proper door preload. This controller shall have password protected Bluetooth capabilities for programming and diagnostics and shall be J1939

compatible capable of communicating with the master vehicle network (PLC, I/O, Vansco, etc.). The door controller shall provide diagnostic capability as well as storage and time/date stamping of any door related faults. There shall be an integral cycle counter as part of the embedded software in the controller. Door speed and cushioning shall be accessible through the diagnostic program. Diagnostics and programming shall be an MS Windows based format accessible by a PC laptop device.

# 1.23.12 Passenger Contact-Less Acoustic Sensor System

The buses shall be equipped with a rear-door mounted contact-less acoustic sensor system (CLASS ultra) as manufactured by Vapor or approved equal. The CLASS system shall be designed to allow passengers to initiate the opening of the doors and exit the vehicle and detect the presence of passenger(s) in the defined zones of detection. The rear door shall be equipped with waterproof or weatherproof touch-tape switches and an "on/off" CLASS-system-switch located in the driver's overhead compartment. That switch shall be labeled and, when in the "off" position, the rear door system shall maintain full door operational functionality (tape switches, sensitive edges, driver's door control, etc.)

# 1.23.13 Emergency Operation

The door operator shall provide a manual release which when actuated by one single motion with the application of a force no greater than 20 pounds allows manual opening of the doors. The manual release shall not allow disengagement of any of the major operating components, linkages or meshing gears and shall be internal to the gear motor mechanism. Reset of the manual release shall be accomplished with one single motion without the use of tools regardless of door panel position.

The respective door emergency unlocking device shall be accessible from the entrance and exit areas. The emergency release activation mechanisms shall be located within hinged enclosures and the intent for passenger use shall require breaking an etched clear lens. Additionally, the enclosures shall be hinged, and shall remain in the closed position by means of magnets thus allowing ease access of use for maintenance and servicing.

When the rear door emergency device is actuated, the door interlock throttle system shall return the engine to idle and the door interlock brake system shall apply to stop the bus. When the front door emergency device is actuated, only the door interlock throttle system shall be actuated. Locked doors shall require a force of more than 300 pounds to open manually. When the locked doors are manually forced to open, damage shall be limited to the bending of minor door linkage with no resulting damage to the doors, engines, and complex mechanism. Application of the brake interlock shall be dependent upon the bus being at near zero speed (less than 2 MPH).

# TS 1.24 ACCESSIBILITY PROVISIONS

## 1.24.1 General

Contractor shall design and construct the bus in accordance with all requirements defined in 49 CFR, Part 38, Subpart B: ADA Accessibility Specifications for Transportation Vehicles – Buses, Vans and Systems. Contractor shall provide space and body structural provisions at the rear door of the bus to accommodate the wheelchair loading system. Prior to submission of bid, the Contractor shall provide a plan, including layout drawings for entry, maneuvering, parking, and exiting of wheelchair passengers, to show compliance with ADA regulations.

# 1.24.2 Loading System

An automatically-controlled, power-operated ramp, 1 to 6 ratio (rise over run relationship), system compliant to requirements defined in 49 CFR Part 38, Subpart B, §38.23c shall provide ingress and egress quickly, safely, and comfortably, both in forward and rearward directions, for a passenger in a wheelchair from a level street or curb. Contractor shall provide the ADA ramp at the rear door location. When the system is not in use, the passageway shall appear normal. In the stored position of the ramp, no tripping hazards shall be present, and any resulting gaps shall be minimized. The controls shall be simple to operate with no complex phasing operations required, and the loading system operation shall be under the surveillance and complete control of the operator.

The controls for the loading system shall be located near the rear door in which the system is located. The key "on" switch, using key UCP #205164, shall be located at the driver's console/dashboard panel. The ramp and kneeling controls shall also be incorporated in a secondary key-locked metal enclosure using key UCP #205164 located by the door, as to not obstruct passage through the doorway or aisle. The location and shape of the enclosure shall be discussed at the pre-production meeting and will be subject to the Authority approval at that time. A switch shall be provided in the operator's area to disable the loading system using key-lock UCP # 205164. The bus shall be prevented from moving during the loading or unloading cycle by a shifter, throttle and brake interlock system.

The control panel shall be labeled RAMP (STOW, FLOAT, DEPLOY), KNEELING (RAISE, KNEELING) and ENABLE.

The wheelchair loading system shall not present a hazard, nor inconvenience any passenger. The loading system shall be inhibited from retracting or folding when a passenger is on the ramp/platform. A passenger departing or boarding via the ramp shall be able to easily obtain support by grasping the passenger assist located on the doors or other assists provided for this purpose. The platform shall be designed to protect the ramp from damage and persons on the sidewalk from injury during the extension/retraction or lowering/raising phases of operation.

The loading platform shall be covered with Line-X, or approved equal, nonskid material and shall be fitted with devices to prevent the wheelchair from rolling off the sides during loading or unloading. Deployment or storage of the ramp shall require no more than 15 seconds. The device shall function without failure or adjustment for 500 cycles or 5,000 miles in all weather conditions on the design operating profile when activated once during the idle phase. A manual override system shall permit unloading a wheelchair and storing the device in the event of a primary power failure. The manual operation of the ramp shall not require more than 20 pounds of force. The ramp assembly components shall be replaceable within 30 minutes by a journeyman mechanic.

The unit shall be equipped with a "non-zeroing" historical counter controlled, recorded and operated within the PLC. The data shall be time stamped and downloadable into a spread-sheet format for analysis (intended to evaluate activity; daily, monthly, time of the day, day of the week, etc.)

## 1.24.3 Wheelchair Accommodations

Two forward-facing locations, as close to the wheelchair loading system as practical, shall provide parking space, individual barriers and securement system compliant with ADA requirements for a passenger in a wheelchair. Additional equipment, including passenger restraint seat belts, shoulder harnesses and wheelchair securement devices shall be provided for each wheelchair passenger. All belt assemblies and securements shall be capable of remote activation, must stow up and out

of the way when not in use and provisions shall be provided to eliminate having them laying on the ground floor by means of, e.g., magnetic plates, stow-away devices, hooks, etc.

Antiskid Line-X, or approved equal, flooring material, subject to the Authority's approval, is required at all wheelchair locations.

LED lights shall be provided above the doorway equipped with the wheelchair lift/ramp system to floodlight the loading area. The lamps shall illuminate when the lift system is in operation and shall illuminate the street surface to a level of no less than 1 foot-candle for three-feet square outward from the lowest step tread edge.

The basic securement system shall be USSC 4-ONE or American Seating Q-POD, or approved equal, to include a three-point securement system, stabilizing bumper, scooter ring provisions, multiple scooter straps for two ADA positions, integrated shoulder belt thus eliminating window brackets, electrical release with back-up provisions with audible alarm, integrated wheelchair securements, stainless steel paneling's to minimize vandalism, belting system for conventional wheelchairs as well as three wheel scooters. All flip-up seats' locking/latching mechanisms shall be located on the right-hand side of the seats.

## 1.24.4 Interior Circulation

Maneuvering room inside the bus shall accommodate easy travel for a passenger in a wheelchair from the loading device through the bus to the designated parking area and back out. It shall be designed so that no portion of the wheelchair or its occupant shall protrude into the normal aisle of the bus when parked in the designated parking space(s). As a guide, no width dimension should be less than 34-inches. Areas requiring 90-degree turns of wheelchairs should have a clearance arc dimension no less than 45-inches and in the parking area where 180-degree turns are expected, space should be clear in a full 60-inch-diameter circle. A vertical clearance of 12-inches above the floor surface should be provided on the outside of turning areas for wheelchair footrest.

The bus shall be equipped with a rear mounted wheelchair ramp. Contractor shall submit a scaled drawing with clear and complete dimensions indicating potential seating layouts intended to maximize seated capacity, wheelchair turning radius, wheelchairs in parked position, wheelchair accommodations for rear mounted wheelchair ramps. An ADA compliance envelope of 30 x 48-inches shall be included in the drawings showcasing that the physical layouts proposed are in compliance with the ADA requirements.

#### 1.24.5 Passenger Information

ADA priority seating signs as required and defined by 49 CFR, Part 38.27 shall be provided to identify the seats designated for passengers with disabilities. Additional signage and passenger information requirements are outlined within the following sections of these technical specifications:

Public Address System Destination Signs Passenger Stop Request Voice Annunciation System

#### 1.24.6 Bike Rack

The bus shall have a front bumper mounted 3-position bike rack, as manufactured by Byk Rack, Sports Works or approved equal. The bicycle rack dimensions shall comply with the California Vehicle Code. The bike rack shall be made of stainless steel, powder coated flat black and include a solid-state proximity-sensing device. The sensing device shall be incorporated into the operator's indicator panel, alerting the operator of bike rack position when not in its fully stowed position. In addition, a convex mirror mounted around the driver's workstation shall be used for viewing of deployed bike-rack.

Two (2) additional low-beam style of lights, intended to illuminate the roadway when the rack is loaded with bicycles, shall be mounted on a practical location on the rack, bumper, bracket or other attachment(s) not subjected to vibrations that will hinder the low-beam aiming direction. These additional lights shall only be energized only when the 3-position bicycle rack is deployed.

Clearly posted instructions to operate the rack shall be posted on the front of the bus, visible by any patron during loading and unloading of bicycles.

## TS 1.25 OPERATOR PROVISIONS

#### 1.25.1 Operator's Area

#### 1.25.1.1 General

The operator's work area shall be designed to minimize glare to the extent possible and dashboard lights and indicators shall be equipped with additional shading provisions, e.g., dashboard visor, antireflective/antiglare sunshade or others as applicable. Objects within and adjacent to this area shall be matte black or dark gray in color wherever possible to reduce the reflection of light onto the windshield. The use of polished metal and light-colored surfaces within and adjacent to the operator's area shall be avoided. Such objects include dash panels, switches and controls, cowlings, windshield wipers and arms, barriers and modesty panels, fare stanchions, access panels and doors, fasteners, flooring, ventilation and heating ducting, window and door frames, and visors. Interior lighting located ahead of the standee line shall be controlled by the operator. In general, when designing the operator's area, SAE Recommended Practice, J833, Human Physical Dimensions, shall be used.

## 1.25.1.2 Visors

Adjustable sun visor(s) shall be provided for the windshield and the operator's side window. Visors shall be shaped to minimize light leakage between the visor and windshield pillars and cover the full width of the window. Visors shall store out of the way and shall not obstruct airflow from the climate control system or interfere with other equipment such as the radio handset or the destination control. Deployment of the visors shall not restrict vision of the rearview mirrors. Visor adjustments shall be made easily by hand with positive locking and releasing devices and shall not be subject to damage by over-tightening. Sun visor construction and materials shall be strong enough to resist breakage during adjustments. Visors may be transparent but shall not allow a visible light transmittance in excess of 10 percent. Visors, when deployed, shall be effective in the operator's field of view at angles more than 5-degrees above the horizontal. Contractor shall supply the Authority with different options of front and side visors for approval.

## 1.25.1.3 Fire Extinguishers

A general-purpose 5-pound ABC extinguisher and mounting bracket shall be provided. Preliminary mounting location shall be on the front, curbside, wheel well, inside the safety equipment storage box (\*). Authority will determine location at the pre-production meeting. (\*) Safety triangles shall also be mounted and secured inside the safety equipment storage box.

# 1.25.1.4 Operator's Controls

All switches and controls necessary for the safe operation of the bus shall be conveniently located in the operator's area and shall provide for ease of operation. Switches and controls shall be divided into basic groups and assigned to specific areas, in conformance with SAE Recommended Practice J680, Revised 1988, Location and Operation of Instruments and Controls in Motor Truck Cabs and be essentially within the hand reach envelope described in SAE Recommended Practice, J287, Driver Hand Control Reach.

Operational controls, instrumentation, switches, and other system controls shall not be mixed with ventilation diffusers and non-operational controls or readouts. Controls shall be located so that boarding passengers may not easily tamper with control settings.

Ergonomically designed operator controls, especially those used with a higher degree of frequency are required; e.g., driver's door control, parking brake valve, foot controls, etc.

The door control, kneel control, windshield wiper/washer controls, and run switch shall be in the most convenient operator locations. They shall be identifiable by shape, touch, and permanent markings. Doors shall be operated by a single control, conveniently located and operable in a horizontal plane by the operator's left hand. The setting of this control shall be easily determined by position and touch.

All panel-mounted switches and controls shall be marked with easily read identifiers. Text designating position (on/off) shall be a minimum of 9 points, identifying legends shall be a minimum of 11 points. Extremely condensed or italic type fonts shall not be used. Graphical symbols shall conform to SAE Recommended Practice J2402, Road Vehicles – symbols For Controls, Indicators, and Tell Tales, where available and applicable. Color of switches and controls shall be dark with contrasting typography or symbols. Red type on a black or gray field (or vice versa) shall not be used. Mechanical switches and controls shall be replaceable, and the wiring at these controls shall be serviceable from the vestibule or the operator's seat. Switches, controls, and instruments shall be dust and water resistant.

The following list for Normal Bus Operations identifies bus controls used to operate the bus safely and efficiently. These controls are frequently used, or they are critical to the operation of the bus. They should be located within easy reach of the operator. The operator should not be required to stand or turn his/her body to view or to actuate these controls unless specified otherwise. Final approval to the Operator's Controls locations shall be approved by Authority's Health, Safety and Environmental Compliance department during the presentation of the first article.

The following chart summarizes controls typical of operator interface and all controls electrical in nature shall be assumed to be input signals to the PLC system. PLC input signals shall be positive "high" for activation and PLC outputs shall be positive "high" for load device activation. The PLC based upon rung instruction may directly or indirectly activate device loads, unless the control function is defined as "critical" per the following chart. Critical devices shall require redundant in series confirmation of operator intended activation by passing the output current through the control switch for the subject load device.

Control Device	Control Type	Control Location	Function of Control Activation	"Critical"
Master Run Switch	Rotary, 4 position detent	Side Console	Master control for bus, off, day run, night run and clearance ID lights	No
Engine Start, Front	Push button, n.o. momentary	Side Console	Activates engine starter motor	Yes
Engine Start, Rear	Push button, n.o. momentary	Engine Compartment	Activates engine starter motor	Yes
Engine Run, Rear	3 position toggle switch	Engine Compartment	Permits running engine from rear start & normal front run position & off	Yes
Drive Selector	Touch panel switch	Side Console	Provides selection of propulsion, forward, reverse and neutral	No
HVAC	Rotary, 5 position detent	Side Console	Permits selection of passenger ventilation, off, cool, heat, low fan, high fan	No
Driver's Ventilation	Rotary, 3 position detent	Side Console	Permits supplemental ventilation fan, off, low, high	No
Defroster Fan	Rotary, 3 position detent	Side Console	Permits defroster fan, off, low, high	No
Defroster Temperature	Variable position	Side Console	Adjusts defroster water flow / temperature	No
Windshield Wiper	Variable rotary position (2 required)	Dash left wing	Variable speed control of left / right windshield wipers	No
Windshield Washer	Push button	Dash left wing	Activates windshield washers	No
Dash Panel Lights	Rotary Rheostat	Dash left wing	Provides adjustment for light intensity in night run position	No
Interior Lights	3 position toggle switch	Side Console	Selects mode of passenger compartment lighting, off, on, normal	No
Fast Idle	2 position toggle switch	Side Console	Selects high idle speed of engine	No
WC Ramp / Kneel Enable	2 position keyed (*) switch	Dash right wing	Permits operation of ramp and kneel operations at each door remote panel	Yes
Front Door Ramp/Kneel Enable	2 position keyed (*) switch	Front door remote	Permits ramp and kneel activation from front door area (*) key required	Yes
Front Door Ramp	3 position toggle switch momentary	Front door remote	Permits deploy and stow of front ramp	Yes
Front Kneel	3 position toggle switch detent	Front door remote	Permits kneeling activation and raise and normal at front door remote location	Yes
Rear Door	2 position keyed (*) switch	Rear door	Permits ramp and kneel	Yes
Ramp/Kneel Enable		remote	activation from rear door area (*) key required	

Control Device	Control Type	Control Location	Function of Control Activation	"Critical"
Rear Door Ramp	3 position toggle switch momentary	Rear door remote	Permits deploy and stow of rear ramp	Yes
Rear Kneel	3 position toggle switch detent	Rear door remote	Permits kneeling activation and raise and normal at rear door remote location	Yes
Silent Alarm	Recessed Push button, n.c. momentary	Side Console	Activates emergency radio alarm at dispatch & permits covert microphone	No
Left Remote Mirror	4 position toggle type	Side Console	Permits 2 axis adjustment of left exterior mirror	No
Right Remote Mirror	4 position toggle type	Side Console	Permits 2 axis adjustment of right exterior mirror	No
Passenger Door Control	5 position handle type detent	Side Console, Forward	Permits open / close control of front and rear passenger doors	Yes
Rear Door Override	2 position momentary toggle	Side Console, Forward	Allows driver to override activation of rear door passenger tape switches	Yes
Engine Shutdown Override	2 position momentary toggle	Side Console	Permits driver to override auto engine shutdown	No
Hazard Flashers	2 position toggle detent	Side Console	Activates emergency flashers	No
Fire Suppression	Square D red push button w/protective cover	Dash left wing	Permits driver to override and manually discharge fire suppression system	N/A
Mobile Data Terminal	Conduent driver interface panel	Above right dash wing	Facilitates driver interaction with Communication system & master logon	N/A
Farebox Interface	GFI driver interface panel	Near farebox	Facilitates driver interaction with Farebox system	N/A
Sign Interface	Luminator interface panel	Above windshield	Facilitates driver interaction with destination sign system, manual entry	N/A
Turn Signals	Momentary push button (2 required)	Left foot panel	Activates left and right turn signals	No
RIGHT Turn Signal	Momentary push button	Left Foot Pedal	Activates rear wheel exterior flood turning light	No
PA Manual	Momentary push button	Left foot panel	Permits driver to manually activate PA microphone	No
Low Profile Microphone	Low profile discrete Mounting	Steering column	Permits driver to make announcements with both hands on the wheel and focusing on road conditions	No
High Beam	Detent push button	Left foot panel	Permits driver to toggle between low and high beam	No
Parking Brake	Pneumatic PPV	Side Console	Permits driver to apply and release parking brake	N/A

Control Device	Control Type	Control Location	Function of Control Activation	"Critical"
Remote Engine Speed	Rotary Rheostat	Engine Compartment	Permits technician to raise and lower engine RPM from engine compartment	N/A
Master Door / Interlock	Multi-pole toggle, detent	In sign compartment	Permits driver override to disable door and brake/throttle interlock	Yes
Retarder Disable	Multi-pole toggle, detent	Side Console	Permits driver override to disable brake retardation/regeneration	No
Alarm Acknowledge	Push button momentary, n.c. (2 required)	Dash center panel	Permits driver to acknowledge alarm condition and reset sentry system	No
Indicator / Alarm Test Button	Push button*	Dash center panel	Permits driver to activate test of sentry, indicators, and audible alarms	No
Radio Power	2 position toggle switch	Side Console	Permits turning radio power on and off	No

(\*): All indicators shall have a method of momentarily testing operation. Wherever possible, sensors shall be of the closed-circuit type so that failure of the circuit or sensor or both shall activate the malfunction indicator. Audible alarms shall be loud enough for the operator to hear and to be inclined to discontinue operation of the bus.

Critical systems or components monitored by onboard diagnostics system shall be displayed in clear view of the operator. This display shall have visual or audible indicators or both. The intensity of indicators shall permit easy determination of on/off status in bright sunlight but shall not cause a distraction or visibility problem at night. All indicators shall be illuminated using back lighting.

Space shall be provided on the panel for future additions of no less than five spare indicators as the capability of onboard diagnostic systems improves. Blank spaces shall contain bulbs (or LED's).

All overriding switches, e.g. retarder, class, door master, ABS, Kidde, etc., shall be located inside the destination sign compartment.

# 1.25.1.5 Master Run Switch

The run switch shall be a four-position rotary switch with the following functions:

OFF - All electrical systems off, except power available for the passenger interior lighting, stoplights, turn lights, hazard lights, radio, silent alarm, horn, fare box, fire detection equipment, engine compartment lights, methane detection if provided and electronic equipment that require continuous energizing. If the bus is not operated for a period of 48 hours, the total electric load due to devices that require continuous energizing shall not cause the battery to be discharged below the level necessary to start the engine. Electrical loads resulting from the Authority's devices, such as, fare box, GPS or applicable, radio, etc., shall not exceed 1.5 amps with the master run switch in the OFF position.

CL/ID - All electrical systems off, except those listed in OFF and power to destination signs, interior lights and marker lights.

RUN - All electrical systems and engine on, except the headlights, parking lights and marker lights. Daytime running lights (DRL), if provided, shall be on.

NITE/RUN - All electrical systems and engine on.

## 1.25.1.6 Door Control

The bus shall be equipped with a Vapor, or approved equal, ergonomic door position selector knob, digital door controller equipped with RAISE and KNEEL easy to read, backlighted switch icons/buttons.

Doors shall open or close completely in not more than 2.5 to 3.5 seconds from the time of control actuation and shall be subject to closing force requirements and adjustment requirements. The door control shall be located on the street side of the operator's area within the hand reach envelope described in SAE Recommended Practice, J287, Driver Hand Control Reach. The front door shall remain in commanded state position even if power is removed or lost.

To preclude movement of the bus while the rear door is open, an accelerator interlock shall lock the accelerator in the closed position and a brake interlock shall engage the service brake system when the rear door control is activated. The interlock system shall also energize the emergency four-way flasher system.

Operation of, and power to, the front passenger doors shall be completely controlled by the operator. Power to rear doors shall be controlled by operator. The opening of rear doors shall be controlled by passenger via touch-tapes, or by the operator using a bypass switch. An alarm shall sound whenever the rear door is opened or attempted to be opened when rear doors are not powered.

A control or valve in the operator's compartment shall shut off the power to, or dump the power from, the front door mechanism or both to permit manual operation of the front door with the bus shut down. A master door switch that is not within reach of the seated operator when set in the "Off" position shall close the doors, deactivate the door control system, release the interlocks, and permit only manual operation of the doors.

## 1.25.1.7 Step Well Lamp

Front and rear step well areas shall be lighted by two-step well LED lights in each step well, suitable mounted so that the entire step well and a portion of the ground area immediately outside the bus is sufficiently illuminated. These lights shall be shielded to protect passengers' eyes from glare. The front step well lights shall be on with front door open and off when the front door is closed. The rear step well lights shall always be on except when the master switch is in the off position.

## 1.25.1.8 Operator Interior Lights

The operator's area shall have a light to provide general illumination, and it shall illuminate the half of the steering wheel nearest the operator to a level of 10 to 15 foot-candles. This LED light shall be operator controlled by a toggle switch located on the operator's control panel or other approved location.

A three-position toggle switch, labeled "Interior Lights; On (at top), Off, Normal" shall control the lights.

"On" turns on all lights in any Master Switch position "Off" turns off all lights "Normal" turns on all lights in "Night Run" and "Night Park" except as noted below.

The first light on each side (behind the Operator and the front door) is normally turned on only when the front door is opened, in "Night Run" and "Night Park." As soon as the door closes, these lights shall go out. These lights shall be turned on when the toggle switch is in the "On" position

To help eliminate windshield reflection on suburban roads, where street lighting is at a low level, the second light on each side, when "Night Run" or "Night Park" is selected, shall be controlled by the toggle switch; off in "Off" and on in "Normal." (These LED lights shall be turned on when the toggle switch is in the "On" position.)

All interior lighting shall be turned off whenever the transmission selector is in the reverse and engine run switch is in the "On" position. Authority shall approve the interior lighting design.

# 1.25.1.9 Operator Foot Controls

Authority's Health, Safety & Environmental Compliance department shall approve all foot controls, pedal angles, actuation and recovery forces as well as locations throughout the bus during the presentation and review of the first article bus.

## 1.25.1.10 Adjustable Throttle and Brake Pedals

The bus shall be equipped with Teleflex, or approved equal, adjustable foot controls including brake and throttle pedals.

## 1.25.1.11 Accelerator

## 1.25.1.11.1 Accelerator Pedal Angle

The angle of the accelerator pedal shall be determined from a horizontal plane regardless of the slope of the cab floor. The accelerator pedal shall be positioned at an angle of 27-35 degrees at the point of initiation of contact and extend downward to an angle of 10-18 degrees at full throttle. Authority's Health, Safety & Environmental Compliance department shall approve the accelerator pedal angle, actuation and recovery force as well as location.

## 1.25.1.11.2 Accelerator Pedal Dimensions

The floor mounted accelerator pedal shall be 10-inches to 12-inches long and 3-inches to 4-inches wide.

#### 1.25.1.11.3 Accelerator Pedal Force

The force to depress the accelerator pedal shall be measured at the midpoint of the accelerator. The accelerator force shall be no less than 7-foot pounds and no more than 9-foot pounds.

# 1.25.1.11.4 Accelerator Interlock

To preclude movement of the bus, an accelerator interlock shall lock the accelerator in the closed position and a brake interlock shall engage the service brake system when the rear door control is activated. The braking effort shall be adjustable with hand tools. Rear doors shall not open until bus speed is at 0 mph and brake interlock shall not activate until bus speed is at 0 mph.

#### 1.25.1.12 Brake

## 1.25.1.12.1 Brake Pedal Angle

The brake pedal angle shall be determined from a horizontal plane regardless of the slope of the cab floor. The brake pedal shall be positioned at an angle of 27 to 35-degrees at the point of initiation of contact and extend downward to an angle of 20 to 28-degrees at full depression. Authority's Health, Safety & Environmental Compliance department shall approve the brake pedal angle, actuation and recovery force as well as location.

## 1.25.1.12.2 Brake Pedal Dimensions

The floor mounted brake pedal shall be 10-inches to 12-inches long and 3-inches to 4-inches wide.

#### 1.25.1.12.3 Brake Force

The force to depress the brake pedal shall be measured at the midpoint of the brake pedal. The brake pedal force shall be no less than 10-foot pounds and no more than 50-foot pounds.

## 1.25.1.12.4 Relative Position Between Accelerator and Brake Pedals

The accelerator and brake pedals shall be positioned such that the spacing between them, measured at the heel of the pedals, is between 1-inch and 2-inches. The Authority's Health, Safety & Environmental Compliance department shall approve the relative position between accelerator and brake pedals.

## 1.25.1.12.5 Accelerator and Brake Pedal Location and Lateral Angle

Contractor shall determine the location of the brake and accelerator pedals based upon space needs, visibility, lower edge of windshield, and vertical H-point. The brake pedal shall have a 0-degree lateral angle. The accelerator shall have a 12-degree lateral angle to coincide with the position of the operator's leg as it moves outward to operate the accelerator pedal.

## 1.25.1.13 Turn Signal Platform

The angle of the turn signal platform shall be determined from a horizontal plane, regardless of the slope of the cab floor. The turn signal platform shall be angled at a minimum of 10-degrees and a maximum of 21-degrees. It shall be located no closer to the seat-front than the heel point of the accelerator pedal. The Authority shall provide a sample floor plate with switches to the Contractor after the pre-production meeting. All turn signal lights, when available, shall be LED with a lifetime warranty.

# 1.25.1.14 Turn Signal Controls

Turn signal controls shall be floor-mounted, foot-controlled, waterproof, heavy-duty, momentary contact switches.

#### 1.25.2 Instrumentation

#### 1.25.2.1 Reverse Motion and Rear Door Camera – Display

The bus manufacturer shall be responsible for providing a rear-door viewing camera, Apollo camera RR-CTMIRA, and monitor, Rear View Safety-7709900, with an impact rating of 5G or greater, 7-inch x 5-inch x 1-inch LCD color monitor located on the driver's vicinity intended to monitor the passenger traffic at the rear door of the bus including reverse motion. The LCD color monitor shall be equipped with features that automatically adjust intensity and contrast to provide clear views under all ambient light conditions. Camera's field of view and additional operating display and functionality features shall be discussed at the pre-production meeting and during the first article's evaluation. Sunshade or antireflection devices maybe required for both, the camera and driver's monitor/display.

## 1.25.2.2 Instruments

The speedometer, air pressure gauge(s), and certain indicator lights shall be in the Instrument Panel immediately ahead of the steering wheel. The steering wheel spokes or rim shall not obstruct the operator's vision of the instruments when the steering wheel is in the straight-ahead position. Illumination of the instruments shall be simultaneous with the marker lamps. Glare or reflection from the windshield, side window, or front door windows from the instruments, indicators, or other controls shall be minimized. Instruments shall be easily readable in direct sunlight or shielded in such a manner that sunlight does not adversely affect legibility. Instrument covers shall be non-reflective, without electrostatic qualities that attract and hold dust, and shall be resistant to scratching or hazing as a result of cleaning.

Text shall be a minimum of 11 points. Extremely condensed or italic type fonts shall not be used. The color of the display field shall be dark with contrasting typography. Indicator lights or illuminated symbols or typography immediately in front of the operator shall be restricted to those concerned with the operation of the bus, as identified in the following table.

The instrument panel shall include an electronic speedometer indicating no more than 80 mph and calibrated in maximum increments of 5 mph. The speedometer shall be a rotating pointer type, with a dial deflection of 220 to 270-degrees and 40 mph near the top of the dial. The speedometer shall be sized and accurate in accordance with SAE Recommended Practice J678.

The bus shall be equipped with a combination bus mileage/fluid management system transponder such as Fleet Watch, equivalent or approved equal. The Authority shall provide the specific brand/type/model of this device during the pre-production meeting.

The device shall be installed and configured to store bus information, fluid specifications, and collect cumulative bus mileage. The device shall be capable of communications via antenna. The antenna shall be located beneath the bus, centered in the front doorway, centered widthwise of the bus, a maximum of 18-inches from ground level. The Authority shall approve the location of the Fleetwatch antenna.

The instrument panel shall also include air brake reservoir pressure gauge(s) with indicators for primary and secondary air tanks and voltmeter(s) to indicate the operating voltage across the bus batteries. The instrument panel and wiring shall be easily accessible for service from the operator's seat or top of the panel. The diagnostic panel shall be separately removable and replaceable without damaging the instrument panel or gauges. Wiring shall have sufficient length and be routed to permit service without stretching or chafing the wires.

# 1.25.2.3 Visual and Audible Alarms

The bus shall be equipped with visual and audible alarms linked to an on-board diagnostic system that will indicate conditions that require immediate action by the operator to avoid an unsafe condition or prevent further damage to the bus. The indicator display shall be located on the instrument panel. The intensity of visual indicators shall permit easy determination of on/off status in bright sunlight or shielded in such a manner that sunlight does not adversely affect legibility. Indicator illumination shall not cause a visibility problem at night. All indicators shall have a method of momentarily testing their operation. The audible alarm shall be tampering resistant and shall have an outlet level between 80 and 83 dBA when measured at the location of the operator's ear. Wherever possible, sensors shall be of the closed-circuit type, so that failure of the circuit or sensor or both shall activate the malfunction indicator.

To avoid unnecessary confusion and anxiety on the part of the operator, on-board displays visible to the operator shall be limited to indicating the status of those functions described herein that are necessary for the safe operation of the bus and protection of assets. All other indicators needed for diagnostics and their related interface hardware shall be concealed and protected from unauthorized access. The following chart represents instruments and alarms. The intent of the overall physical layout of the indicators shall be in a logical grouping of systems and severity nature of fault.

# 1.25.2.4 Visual and Audible Alarms – Sentry System

The sentry indicator strategy is to provide a simple method of consolidating individual indicators into a central easily viewed layout for the operator to determine that all systems are ok or at some stage of fault/failure. Activation of the sentry system shall require the operator to depress an acknowledgement reset button to extinguish/mute the alarm.

The sentry system, as well as the individual source of alarm shall be managed/recorded within the PLC or central on-board computer or both in a fashion to time stamp events and allow event data to be moved from an active to an inactive historic file. The inactive file shall not be capable of deletion by operator or technician.

Instrument / Indicator	Visual	Audible	Location	Resultant Action of Activation
Speedometer	Х		Dash center	Visual indication of speed / distance traveled
Air Pressure Gauge	X		Dash center	Visual indication of primary /
Mobile Data Terminal	Х		Dash center	Visual communication status and text messages
High Beam	Blue		Dash center	Indication of high beams on
Left Turn Signal	Flashing Green		Dash center	Indication of left turn and/or hazard lights on
Right Turn Signal	Flashing Green		Dash center	Indication of right turn and/or hazard lights
Sentry System	X		Dash center	Visual indication of all monitored systems ok
Sentry System	Flashing Yellow		Dash center	Visual indication of non-critical failure of monitored systems (requires acknowledge to reset)
Sentry System	Flashing Red	Buzzer	Dash center	Visual indication of critical failure of monitored systems requires acknowledge to reset)
Fire Detection	Red	Bell	Dash center	Indication of fire detection activation
Door Obstruction	Red	Buzzer	Dash center	Indication of rear door sensitive edge activation
Door Ajar	Red	Buzzer	Dash center	Indication of rear door not properly closed
Low System Air Pressure	Red	Buzzer	Dash center	Indication of low air system pressure
Methane Detection	Red		Dash center	Indication of system failure
Methane Detection	Red Flashing		Dash center	Indication of 20% LEL methane
Methane Detection	Red Flashing	Buzzer	Dash center	Indication of 50% LEL methane
Engine	Yellow	*	Dash center	Indication of low engine coolant
Engine	Red		Dash center	Indication of overheated engine, time delay shutdown
Engine	Red		Dash center	Indication of low engine oil pressure, time delay shutdown
ABS Fault	Yellow		Dash center	Indication of ABS and/or ATC fault
HVAC fault	Yellow		Dash center	Indication of HVAC fault
24 vdc charging fault	Yellow		Dash center	Indication of low, high or in-balance
Bike Rack Deployed	Yellow		Dash center	Indication of bike rack not being in fully stowed position
Fuel Tank Pressure	Yellow		Dash Center	Indication of fuel tank pressure approaching set point of primary PRD

# 1.25.3 Windshield Wipers

The bus shall be equipped with a variable speed windshield wiper for each half of the windshield. The windshield wiper shall be synchronized; separate controls for each side shall not be allowed. A variable intermittent feature shall be provided to allow adjustment of wiper speed for each side between approximately 5 to 25 cycles per minutes. If powered by compressed air, exhaust from the wiper motors shall be muffled or piped under the floor of the bus. No part of the windshield wiper mechanism shall be damaged by manual manipulation of the arms. At 60 mph, no more than 10 percent of the wiped area shall be lost due to windshield wiper lift. Both wipers shall park along the edges of the windshield glass. Windshield wiper motors and mechanisms shall be easily accessible for repairs or service and shall be removable as complete units. The fastener that secures the wiper arm to the drive mechanism shall be corrosion resistant.

## 1.25.3.1 Windshield Washers

The electrically operated windshield washer system shall deposit washing fluid on the windshield and, when used with the wipers, shall evenly and completely wet the entire wiped area.

The windshield washer system shall have a minimum 3-gallon reservoir, located for easy refilling from outside of the bus and protected from freezing. Reservoir pumps, lines, and fittings shall be corrosion-resistant, and the reservoir itself shall be translucent for easy determination of fluid level.

## 1.25.4 Operator's Seat

#### 1.25.4.1 General

Contractor shall provide and install the USSC Q90 seat or approved equal. The seat shall accommodate operators from the fifth percentile female to 95th percentile male, and include the following items:

- PNEUMATIC FULL STROKE SUSPENSION: Eliminates torque during suspension movement and provides five (5) inches of vertical height adjustment.
- QUICK DUMP: Air valve shall incorporate quick dump feature for easy entry and egress. Air valve will have roll pin stop, not snap ring. Air valve will be mounted on the left-hand side of the seat cushion, close to the front of the seat.
- BILATERAL DAMPERS: Suspension system shall be damped by two (2) shock absorbers to eliminate torque in the suspension system. Dampers to attach to the scissors system.
- SECONDARY ANTI-BOTTOM-OUT SYSTEM: Two (2) half-circle rubber bumpers that prevent the suspension from bottoming out shall prevent Spine shock.
- THREE (3) POSITION SUSPENSION LOCKOUT: Seat shall be provided with a three (3) position suspension lockout located on the left rear side of the seat frame. The outward position allows full suspension travel; the middle position limits suspension range; the inside position locks out the suspension completely for use during maintenance and for shipping purposes.
- PROTECTIVE BELLOWS: Seat shall be provided with protective bellows that prevent dust and debris from fouling the suspension system and keep fingers and other body parts clear of the scissors system.

- PROTECTIVE BELLOWS: Seat shall be provided with a heavy-duty protective back-shell
- PENDULUM SCISSORS SYSTEM: Scissors are to be solid bar stock with outside scissors 12.5-inch width.
- SEAT PAN: Suspension shall incorporate a secondary leaf spring suspension that facilitates keeping the spine straight up and down.
- AIR SLIDE RELEASE: Seat shall be equipped with air activated fore and aft slide release, (United States Patent No. 5,613,733), air pressure shall be required to release the fore/aft slides from the locked position. Design shall ensure that seat remains locked in position should there be loss of air pressure. There shall be a manual override.
- BILATERAL ADJUSTMENTS: All seat adjustments shall activate both sides of the seat to prevent torque and increase durability.
- BACK RECLINE: Recline system shall engage on both sides of the backrest. Operators shall be able to adjust the backrest recline from knobs on either side of the back. Recline shall be adjustable from 45 to 105-degrees.
- SEAT TILT: Two (2) knobs shall manually operate eight (8)-degrees of stepless seat tilt, one on either side of the seat. Seat tilt knob on one side is unacceptable. Seat tilt shall operate independently of the seat height adjustment, allowing full tilt at all heights. Bilateral tilt is necessary to eliminate torque in the suspension system.
- FORE/AFT ADJUSTMENT: The entire seat shall adjust fore/aft a minimum of 11.80-inches. Slides shall be double locking, roller bearing design. Slides shall be located below the suspension.
- LUMBAR SUPPORT: Three (3) air bladders shall be in the lumbar region of the back frame. Independent switches located on the right front side of seat frame shall activate lumbar bags. Lumbar systems shall operate off the vehicle air pressure, without pumps or motors.
- SECUREMENT OF UPHOLSTERY TO FOAM: Foam shall have Velcro molded into the foam. Velcro shall be used to secure the upholstery material in place allowing quick, easy reupholstering of the operator's seat without having to remove it from the vehicle. Foam shall be self-skinning polyurethane.
- SOLID STEEL BACK: Seat shall be equipped with solid steel back that prevents break-through.
- INTEGRATED LAP BELT: Seat shall be provided with ALR (Automatic Locking Retractor) 2-point lap belt. Seat shall have integral tether straps that allow seat to meet FMVSS 207/210-pull test. Seat systems shall allow operator to move seat front to back without having to loosen lap belts. Seat belt shall be adjustable to fit up to 54-inches in length.

- RISER: Seat shall be provided with an appropriate mild steel heavy-duty riser. Height shall be determined during the first article evaluation.
- SEAT CUSHION: Air circulation/venting provisions with minimum 19-inch width; minimum 18.5-inch length; 16 to 21-inches from uncompressed seat cushion to the floor
- UPHOLSTERY: Seat shall be upholstered with Holdsworth DEFENDER, or approved equal, A72OCW with the Authority "T" logos fabric upholstery Fabric inserts with vinyl boxing.
- WIDE BACKREST: Air circulation/venting provisions with width adjustable from 19 to 21-inches; 23-inches from uncompressed seat cushion to top of backrest
- 4-Way adjustable head rest

Contractor shall provide a minimum three-year warranty, 100-percent parts and labor, on the driver seat, components and installation

#### 1.25.4.2 Dimensions

The operator's seat shall be comfortable and adjustable so that persons ranging in size from the 95th-percentile male to the 5th-percentile female may operate the bus. While seated, the operator shall be able to make seat adjustments by hand without complexity, excessive effort, or being pinched. Adjustment mechanisms shall hold the adjustments and shall not be subject to inadvertent changes. Graphical symbols shall conform to SAE Recommended Practice (Proposed) J1458, Universal Symbols for Seat and Suspension Adjustments.




### 1.25.4.3 Seat Belt Adjustment

A Type I seat belt shall attach at a point that moves with the assembly, so that the operator may adjust the seat without resetting the seat belt. Seat belts shall be stored in automatic retractors. Seat belts shall be extended to a length of 54-inches. Seat belt lock shall be located on the right side of driver's seat.

### 1.25.4.4 Seat Structure and Materials

The operator's seat shall be contoured to provide maximum comfort for extended periods of time. Cushions shall be fully padded with at least 3-inches of closed-cell polyurethane foam or material with equal properties, in the seating areas at the bottom and back. Upholstery shall be ventilated, transportation grade material. All visually exposed metal on the operator's seat, including the pedestal, shall be unpainted aluminum or stainless steel.

The seat and seatbelt assemblies, as installed in the bus, shall withstand static horizontal forces as required in FMVSS 207 and 210. The seat shall withstand 10,000 impacts of a 40-pound sandbag dropped from a height of 12-inches without visible deterioration. The seat shall be tested in the lowest vertical position and repeated with the seat in the top vertical position. The 40-pound sandbag shall be suspended on a 36-inch pendulum and shall strike the seat back 10,000 times from distances of 6, 8, 10, and 12 inches. Seat cushion shall withstand 100,000 randomly positioned  $3\frac{1}{2}$ -inch drops of a squirming, 150-pound, smooth-surfaced, buttocks-shape striker with only minimal wear on the seat covering.

At the request of the Authority, the Contractor shall provide a certified test report fully documenting compliance with all the above defined requirements. The test report shall contain a record of all testing activities, test diagrams, testing equipment, as well as test data related to loads, deflections and permanent deformation of the seat assembly. The report shall include a statement of compliance with the requirements of this section of these Technical Specifications.

### 1.25.5 Mirrors

### 1.25.5.1 Exterior Mirrors

Contractor shall equip the bus with corrosion-resistant, outside top-mounted rearview mirrors on each side of the bus. Mirrors shall permit the operator to view the roadway along both sides of the bus, including the rear wheels. The curbside rearview mirror shall be top-mounted so that its lower edge is no less than 80-inches above the street surface. The bus shall be equipped with 2 outside mirrors of unit magnification (flat), each with not less than 50 square inches of reflective surface and include turn signal indicators, mounted on the mirror housing, not on the mirror glass itself.

The mirrors shall be corrosion-resistant and be installed with stable supports on each side of the bus. The mirrors shall be located to provide the operator a view to the rear along both sides of the bus and, the mirror glass, as well as the mirror housing shall be adjustable in the horizontal and vertical directions to view the rearward scene. The curbside rearview mirror shall be top-mounted so that its lower edge is no less than 80-inches above the street surface. The roadside rearview mirror shall be mounted lower on the bus body so that the operator's line of sight is not obstructed. In addition, a convex mirror mounted around the driver's workstation shall be used for viewing of a deployed bike-rack. The operator shall be able to adjust the curbside and street side mirrors remotely while seated in the driving position. The control for remote positioning of the mirror shall be a single switch or device. Mirrors shall be firmly attached to the bus to minimize vibration and prevent loss of adjustment, but not so firmly attached that the bus or its structure is damaged when the mirror is struck in an accident. Mirrors shall be provided for the operator to observe passengers throughout the bus without leaving the operator's seat and without shoulder movement. The operator shall be able to observe passengers in the front/entrance and rear/exit areas, anywhere in the aisle, and in the rear seats. Location and type of mirrors shall be approved by Authority's Health, Safety & Environmental Compliance department.

### 1.25.5.2 Interior Mirrors

Mirrors shall be provided for the operator to observe passengers throughout the bus without leaving operator's seat and without shoulder movement. With a full standee-load, including standees in the vestibule, the operator can observe passengers in the front and by the rear door, anywhere in the aisle and in the rear seats. Inside mirrors shall not be in the line of sight to the right outside mirror.

### 1.25.6 Windows

### 1.25.6.1 Windshield

The windshield shall permit an operator's field of view as referenced in SAE Recommended Practice J1050. The vertically upward view shall be a minimum of 15-degrees, measured above the horizontal and excluding any shaded band. The vertically downward view shall permit detection of an object 3½-feet high no more than 2-feet in front of the bus. The horizontal view shall be a minimum of 90 degrees above the line of sight. Any binocular obscuration due to a center divider may be ignored when determining the 90-degree requirement, provided that the divider does not exceed a 3-degree angle in the operator's field of view. Windshield pillars shall not exceed 10-degrees of binocular obscuration. The windshield shall be designed and installed to minimize external glare as well as reflections from inside the bus. The upper portion of the front windshield(s) shall be tinted as dark as permissible by both Federal, and State regulations.

The windshield shall be easily replaceable by removing zip-locks from the windshield retaining moldings. Bonded-in-place windshield shall not be used. The windshield glazing material shall have a ¼-inch or 6-mm nominal thickness laminated safety glass conforming to the requirements of ANSI Z26.1 Test Grouping 1A and the Recommended Practices defined in SAE J673. The glazing material shall have single density tint. The upper portion of the windshield above the operator's field of view shall have a dark, shaded band with a minimum luminous transmittance of 6-percent when tested in accordance to ASTM D-1003.

# 1.25.6.2 Operator's Side Window

The operator's side window shall be the sliding type, requiring only the rear half of sash to latch upon closing and shall open sufficiently to permit the seated operator to easily adjust the street side outside rearview mirror. When in an open position, the window shall not rattle or close during braking. The entire assembly shall be hinged and have a single release for emergency egress. This window section shall slide in tracks or channels designed to last the service life of the bus. The operator's side window shall not be bonded in place and shall be easily replaceable. The glazing material shall have a single density tint. Light

transmittance shall be 75-percent on the glass area below 53-inches from the operator platform floor.

IMPORTANT: Authority encourages Offerors to propose enhanced sun blocking protections for the driver by means of films and/or window materials intended, in compliance with code, to minimize exposure to the sun's radiation and heat transmissivity.

The operator's view, perpendicular through operator's side window glazing, should extend a minimum of 840 mm (33-inches) to the rear of the heel point on the accelerator, and in any case must accommodate a 95th percentile male operator. The view through the glazing at the front of the assembly should begin not more than 560 mm (26-inches) above the operator's floor to ensure visibility of an under-mounted convex mirror. Operator's window construction shall maximize ability for full opening of the window.

The operator's side window glazing material shall have a <sup>1</sup>/<sub>4</sub>-inch nominal thickness laminated safety glass conforming to the requirements of ANSI Z26.1, as stated in 49 CFR Section 571.205, Test Grouping 2 and the Recommended Practices defined in SAE J673.

#### 1.25.6.3 Side Windows

### 1.25.6.3.1 Configuration

All side windows, except windows in passenger doors and those smaller than 500 square inches, shall have window panels that passengers can open. Window panels that passengers can open shall be equipped with latches that secure the window in the fully open and fully closed positions. Each side window that passengers can open shall incorporate an upper transom portion. The transom shall be between 25 and 35 percent of the total window area. The lower portion of the window shall be fixed. The transom portion shall be hinged along the lower edge and open inward.

If a hazardous condition is created by the tip-in windows (transom) when operated on the upper deck of the bus then, the windows at such locations shall be fixed top/bottom, maintaining the same widow frame configuration as in the rest of bus.

All side windows shall be easily replaceable without disturbing adjacent windows and shall be mounted so that flexing or vibration from engine operation or normal road excitation is not apparent. The windows shall be designed and constructed to enable removal and replacement in less than 15 minutes.

All side windows shall be <sup>1</sup>/<sub>4</sub>-inch thick tempered glass without window guard and, at the time of delivery, the buses shall be equipped with 3M, or approved equal, anti-graffiti film as described in "Materials".

#### 1.25.6.3.2 Materials

Side windows glazing material shall have a ¼-inch nominal thickness laminated safety glass. The material shall conform to the requirements of ANSI Z26.1 Test Grouping 2 and the Recommended Practices defined in SAE J673. Windows on the bus sides and in the rear door shall be tinted a neutral color, complementary to the bus exterior. The maximum solar energy transmittance shall not exceed 37-percent, as measured

by ASTM E-424, and the luminous transmittance shall be no less than 16-percent as measured by ASTM D-1003. Windows over the destination signs shall not be tinted.

All windows, excluding driver's side, and front door(s), on the interior side, shall be equipped with 3M Scotchgard<sup>™</sup> Multi-Layer, 3M-8991 RW, or approved equal. All windows including destination sign glass and doors, on the outside, shall be equipped with 3M Scotchcal, 8991 RW, or approved equal, clear protection film.

#### 1.25.6.3.3 Rear Window

No requirement for rear window

#### TS 1.26 HEATING VENTILATING AND AIR CONDITIONING

#### 1.26.1 General

The Heating, Ventilation and Air Conditioning (HVAC) unit may either be roof or rear mounted. Fuel tank location will affect the location of the HVAC unit. Accessibility and serviceability of components shall be provided without requiring maintenance personnel to climb-up on the roof of the bus. The system shall be equipped with a screw type of compressor.

#### **1.26.2** Capacity and Performance

The HVAC climate control system shall maintain the interior of the bus at the temperature and humidity levels defined in the following paragraphs:

With the bus running, at the design operating profile with corresponding door opening cycle and carrying a number of passengers equal to 150-percent of the seated load, the HVAC system shall control the average passenger compartment temperature within a range between 65F and 80°F, while maintaining the relative humidity to a value of 50-percent or less. The system shall maintain these conditions while subjected to any outside ambient temperatures within a range of 115 to 95°F and at any ambient relative humidity levels between 5 and 50-percent.

When the bus is operated in outside ambient temperatures of 95°F to 115°F, the interior temperature of the bus shall be permitted to rise one degree for each degree of exterior temperature in excess of 95°F. System capacity testing, including pull-down/warm-up, stabilization and profile, shall be conducted in accordance to the APTA Recommended Instrumentation and Performance Testing for Transit Bus Air Conditioning System.

Temperature measurements shall be made in accordance to this document with the following modifications:

- The three primary locations used for temperature probes are:
  - 12-inches aft of front wheel housing, centered between the two axles and 6-inches aft of rear wheel housing.
- At each primary location, the nine (9) temperature sensing devices shall be:
  - 72 inches above floor level, 6-inches above top surface of seat cushion and 6-inches above floor.

The recommended locations of temperature probes are only guidelines and may require slight modifications to address actual bus design. Contractor must take care to avoid placement of sensing devices in the immediate path of an air duct outlet. In general, the locations are intended to accurately represent the interior passenger area.

Additional testing shall be performed as necessary to ensure compliance to performance requirements stated herein.

The air conditioning portion of the HVAC system shall be capable of reducing the passenger compartment temperature from 110° to 90°F in less than 20 minutes after engine start-up. Engine temperature shall be within the normal operating range at the time of start-up of the cool-down test and the engine speed shall be limited to fast idle that may be activated by an operator-controlled device. During the cool-down period the refrigerant pressure shall not exceed safe high-side pressures and the condenser discharge air temperature, measured 6-inches from the surface of the coil, shall be less than 45°F above the condenser inlet air temperature. The appropriate solar load as recommended in the APTA "Recommended Instrumentation and Performance Testing for Transit Bus Air Conditioning System," representing 4 P.M. on August 21, shall be used. No passengers shall be on board, and the doors and windows shall be closed during the test.

The air conditioning system shall meet these performance requirements using R407c refrigerant. All fans within the HVAC and defroster system shall be brushless. The climate control blower motors and fan shall be designed such that their operation complies with all interior noise level requirements.

### 1.26.3 Controls and Temperature Uniformity

The HVAC system, excluding the operator's heater/defroster, shall be centrally controlled with an advanced electronic/diagnostic control system with provisions for extracting/reading data. After manual selection or activation or both of climate control system operation mode, and all interior climate control system requirements for the selected mode shall be attained automatically to within  $\pm 2^{\circ}$ F of specified temperature control set-point.

The operator shall have full electric control over the defroster and operator's heater. The use of cable operated controls shall not be allowed. The operator shall be able to adjust the temperature in the operator's area through air distribution and fans. The interior climate control system shall switch automatically to the ventilating mode if the refrigerant compressor or condenser fan fails. Interior temperature distribution shall be uniform to the extent practicable to prevent hot or cold spots or both. After stabilization with doors closed, the temperatures between any two points in the passenger compartment in the same vertical plane, and 6-inches to 72-inches above the floor, shall not vary by more than  $5^{\circ}$ F with doors closed. The interior temperatures, measured at the same height above the floor, shall not vary more than  $\pm 5^{\circ}$ F, from the front to the rear, from the average temperature determined in accordance to APTA Recommended Instrumentation and Performance Testing for Transit Bus Air Conditioning System. Variations of greater than  $\pm 5$ -degree F will be allowed for limited, localized areas provided most of the measured temperatures fall within the specified requirement.

### 1.26.4 Air Flow

#### 1.26.4.1 Passenger Area

The cooling mode of the interior climate control system shall introduce air into the bus at or near the ceiling height at a minimum rate of 25 cubic feet per minute (cfm) per passenger. This level is based

upon the standard configuration bus carrying a number of passengers equal to 150-percent of the seated load. Airflow shall be evenly distributed throughout the bus with air velocity not exceeding 100 feet per minute on any passenger. The ventilating mode shall provide air at a minimum flow rate of 20 cfm per passenger.

Airflow may be reduced to 15 cfm per passenger (150 percent of seated load) when operating in the heating mode. The fans shall not activate until the heating element has warmed sufficiently to assure at least 70°F air outlet temperature. The heating air outlet temperature shall not exceed 120°F under any normal operating conditions. The air shall be composed of no less than 20-percent outside air.

### 1.26.4.2 Operator's Area

Contractor shall provide separate heating, ventilation, and defroster system for the operator's area and the operator shall control the system. The system shall meet the following requirements:

The heater and defroster system shall provide heating for the operator and heated air to completely defrost and defog the windshield, operator's side window, and the front door glasses in all operating conditions. Fan(s) shall draw air from the bus body interior or the exterior or both through a control device and pass it through the heater core to the defroster system and over the operator's feet. A minimum capacity of 100 cfm shall be provided. The operator shall have complete control of the heat and fresh airflow for their area.

Contractor shall locate defroster supply outlets at the lower edge of the windshield. These outlets shall be unbreakable and shall be free of sharp edges that can catch clothes during normal daily cleaning. The system shall be designed so that foreign objects, such as coins or tickets, cannot fall into the defroster air outlets. Adjustable ball vents shall be provided at the left of the operator's position to allow direction of air onto the side windows. Two additional ball vents shall be located on the vertical front dash panel adjacent to the front door to allow direction of air onto the door windows or entrance area or both.

Contractor shall provide a ventilation system to ensure operator comfort and shall be capable of providing fresh air in both the foot and head areas. Vents shall be controllable by the operator from the normal driving position. Decals shall be provided indicating "operating instructions" and "open" and "closed" positions as well. When closed, vents shall be sealed to prevent the migration of water or air into the bus.

### **1.26.5** Controls for the Climate Control System (CCS)

The controls for the operator's compartment for heating, ventilation, and cooling systems shall be integrated and shall meet the following requirements:

A separate switch shall control the heat/defrost system fan that has an "Off" position and at least two positions for speed control. All switches and controls shall preclude the possibility of clothing becoming entangled and shields shall be provided, if required. If the Authority approves the fans, an "On-Off" switch shall be located to the right of or near the main Defroster switch. No fan, motor or other shall remain energized when the master switch is in the "off" or "night-park" position.

A manually operated control valve shall control the coolant flow through the heater core. If a cable operated manual control valve is used, the cable length shall be kept to a minimum to reduce cable seizing. Heater water control valves shall be "positive" type, closed or open. The method of operating remote valves shall require the written approval of the Authority.

### 1.26.6 Maintainability

Manually controlled shutoff valves in the refrigerant lines shall allow isolation of the compressor and dehydrator filter for service. To the extent practicable, self-sealing couplings using O-ring seals shall be used to break and seal the refrigerant lines during removal of major components, such as the refrigerant compressor. Shut-off valves may be provided in lieu of self-sealing couplings.

The condenser shall be located to efficiently transfer heat to the atmosphere and shall not ingest air warmed above the ambient temperature by the bus mechanical equipment, or to discharge air into any other system of the bus. The location of the condenser shall preclude its obstruction by wheel splash, road dirt or debris. HVAC components located within 6-inches of floor level shall be constructed to resist damage and corrosion.

### 1.26.7 Air Filtration

Air shall be filtered before discharge into the passenger compartment. The filter shall meet the ANSI/ASHRAE 52.1 requirement for 5-percent or better atmospheric dust spot efficiency, 50-percent weight arrestance, and a minimum dust holding capacity of 120 gram per 1,000 cfm cell. More efficient air filtration may be provided to maintain efficient heater and/or evaporator operation. Air filters shall be easily removable for service. Air filters shall be cleanable.

### 1.26.8 Roof Ventilators

Contractor shall provide two roof ventilators in the roof of the bus, one approximately over or just forward of the front axle and the other, approximately over the rear axle.

Each ventilator shall be easily opened and closed manually by a 50th percentile female. If roof ventilator(s) cannot be reached by a 50th percentile female, then a tool shall be provided to facilitate this action. When open with the bus in motion, this ventilator shall provide fresh air inside the bus. Each ventilator shall cover an opening area no less than 425 square inches and shall be capable of being positioned as a scoop with either the leading or trailing edge open no less than 4-inches, or with all four edges raised simultaneously to a height of no less than 3½- inches.

Contractor shall incorporate an escape hatch into the roof ventilator. Roof ventilator(s) shall be sealed to prevent entry of water when closed.

# 1.26.9 Entrance/Exit Area Heating

No requirements for entrance/exit area heating.

### 1.26.10 Floor Level Heating

No requirements for floor level heating

### 1.26.11 Fan, Motors and Pumps

All HVAC electric motors shall be brushless, and each motor shall be serviced by a solid-state controller. All electric boost pumps shall be brushless and sealless.

### TS 1.27 SIGNAGE AND COMMUNICATION

### 1.27.1 Destination Signs

The sign system shall be Luminator, Hanover. I/O Controls, or approved equal, 100-percent LED matrix configuration of 16 x 160, or approved equal, consisting of a front, side, rear, run number sign, route/run number display and Operator Display Keyboard (ODK) to include the following signs:

Front, 16 x 160 Side, 8 x 96 Rear 16 x 48 Interior 144 x 19 (one & two row sign)

Interior and route/run number display 12 rows x 40 columns or as large as practical dependent upon the bus' physical constraints.

Sign system control shall be capable of accepting logon and route entry via wireless interface to Conduent communication as well as manual entries.

The destination sign compartments shall be designed to meet the following minimum requirements:

Prevent condensation and entry of moisture and dirt.

Prevent fogging of both compartment window and glazing on unit itself.

Access shall be provided to allow cleaning of inside compartment window and unit glazing. Front window shall have an exterior display area of no less than 8.5-inches high by 56-inches wide.

The route/run display shall be located at the lower right windshield corner.

### 1.27.2 Destination Sign System Capabilities

The sign system capability shall include the following features:

- Console operation from the driver's workstation, to include display, keypad and programming receptacle
- Capacity of 10,000 message lines at 12 characters per line
- Illumination of night visibility
- Pre-selection of two destination messages and one public relation message
- Auto blanking
- Front and side sign shall be hinged to facilitate glass cleaning.
- Capable of updating messages via Wi-Fi, USB flash drive.

# 1.27.3 Destination Sign Expansion Capability

The sign system shall be capable of expansion, to include pre-wiring for operating an interior sign and interior/exterior automated voice with GPS or applicable interface.

### 1.27.4 Interior Sign and Annunciation System

A fully automated interior sign and annunciation system shall be provided as manufactured by Conduent and interfaced to the existing destination sign system. The integrated system shall be capable of automatic stop announcement, GPS or applicable, PA system and be programmed to the Authority's fixed route assignment.

### 1.27.5 Passenger Information and Advertising

### 1.27.5.1 Interior Displays

Provisions shall be made on the rear, or aisle side, of the operator's barrier for a frame to retain information such as routes and schedules. Advertising media 11-inches high and 0.09-inches thick shall be retained near the juncture of the bus ceiling and sidewall. The retainers may be concave and shall support the media without adhesives. The media shall be illuminated by the interior LED light system.

### 1.27.5.2 Exterior Displays

There are no requirements for exterior displays

### 1.27.6 Passenger Stop Request/Exit Signal

A passenger "Stop Requested" signal system that complies with applicable ADA requirements defined in 49 CFR Part 38.37 shall be provided. The system shall consist of a heavy-duty pull cable, chime, and interior sign message. The pull cable shall be located the full length of the bus on the sidewalls at the level where the transom is located. It shall be easily accessible to all passengers, seated or standing. Pull cable(s) shall activate a solid state or magnetic proximity switch(es). Additionally, on each stanchion pole located at each side of the exit door, a thumb operated stop request switch shall be integrated on each pole. These switches shall be positioned and mounted at a location in compliance with hand and reach standards and not to interfere with passenger traffic.

At each wheelchair parking position and priority seating positions additional provisions shall be included to allow a passenger in a mobility aid to easily activate "Stop Requested" signal.

A single "Stop Requested" chime shall sound when the system is first activated. A double chime shall sound when the system is first activated from wheelchair passenger areas. With a voice annunciation system activated, an announcement of a stop request or lift request or both will occur. Exit signals located in the wheelchair parking area shall be no higher than 4-feet above the floor. Instructions shall be provided to clearly indicate function and operation of these signals.

The operator shall be able to deactivate the signal system from the operator's area.

#### 1.27.7 Public Address System

### 1.27.7.1 General

Contractor should provide and install all necessary equipment for the public-address system. The Public-Address system shall include an advanced technology Digital Signal Processor (DSP) or equivalent system that can reduce background noise. A highly sensitive unidirectional microphone shall provide clear announcement without the need of handling or positioning of a microphone by the coach operator. The stationary "hands free" PA system shall have no visible cabling or conduit - only a discrete, low profile, unbreakable, exposed microphone housing. The system shall be completely solid state, designed to SAE J1455 environmental specifications, and shall have no scheduled maintenance requirements.

### 1.27.7.2 Public Address System Microphone

The system shall include a low-profile stealth microphone that the operator can activate at the steering column clever devices P/N 901-1500-200 or applicable. This microphone allows for a hands-free operation. An input jack shall be provided in the operator's area for a hand-held microphone.

### 1.27.7.3 Public Address System Amplifier

If not included with the Conduent components, radio, IVU, Orbstar, the Contractor shall provide the voice annunciation system's required amplifiers.

### 1.27.7.4 Public Address System Speakers

Eight internal and one external low-profile speakers with baffles, mobile/page part #603/6FB, or approved equal (that can handle digital voice/annunciation). They shall be installed at locations in the ceiling of the vehicle with all connecting wires available in a wire loom for easy replacement and protection. Speakers wired in series shall incorporate shunt resistors to prevent an open circuit in the event of a speaker failure.

#### 1.27.7.5 Public Address System Switch

A foot operated momentary switch mounted to the floor to the left of the steering column shall activate the PA amplifier. This switch, along with the turn signal and headlight dimmer, shall be located on an inclined platform. Authority shall provide a standard sample at the pre-production meeting.

### 1.27.8 RADIO/ITMS/AVL/Announcement Passenger Counter Equipment

All other items required for a fully functional RADIO/ITMS/Voice/Passenger Counter/ AVL, etc., radio communication equipment shall be provided as manufactured or supplied by Conduent and this equipment shall be compatible with the Authority's existing communication system. Hardware location shall be determined at the pre-production meeting and may require refinement during the evaluation of the prototype bus. The radio handset shall be located within reach of the coach operator and not interfere with the operator's feet or walkway (for safety reasons) with proper length of the cord.

Contractor shall be responsible for contacting Conduent and securing an accurate and updated parts list to match the Authority configuration and the manufacturer's bus platform/model.

The following list of Conduent's ITMS Radio/Voice/Passenger Counter and other items provided for the most recent Authority bus delivery is provided only as a reference. Contractor shall be responsible for contacting Conduent to secure the most up-to-date configuration build for the Authority's, 40-foot bus platform.

Conduent - Contact Information Michael Smith <u>mike.smith6@xerox.com</u> (443) 259-7156 7160 Riverwood Drive Columbia, Maryland 21046

	CONDUENT AUTHORITY OEM BOM FOR THE IVU-4000 SYSTEM		
CONDUENT PART #	DESCRIPTON		
TBD	ANTENNA, GPS or applicable/WLAN		
120004-5	HANDSET		
120041-3	INTERNAL AGC MIC		
131482-1	Bracket, Handset Dash Mount, GILLIG, San Diego		
131623-1	Gasket, External AGC Microphone		
140394-300	Cable Assembly, IVU to WLAN Antenna, w/SMA, W21		
410001A	ASSY MDT-4000		
410006A	ASSY IVU-4000 /TIB EQUIPMENT TRAY (INCLUDES IVU AND TIB)		
420000-24	EXTERNAL AGC MIC		
440007-72	Cable Assembly, IVU-4000 LAN Cable		
440040-60	Cable Assembly, APC Analyzer, J1708 Van, Power, Door Open		
440041-312	Cable Assembly, IVU-4000 TIB - Fare Box J1708, Term Strip		
440043-48	Cable Assembly, Vehicle Power to IVU-4000 TIB		
440044-36	Cable Assembly, Vehicle Power to IVU-4000		
440047-18	Cable Assembly, External AGC Rigtail		
440048-216	Cable Assembly, External AGC Pre-AMP - Audio Interface, TIB		
440055-180	Cable Assembly, AGC Microphone to IVU4000 TIB Audio		
440056-144	Cable Assembly, IVU-4000 to Destination Sign		
440071-216	Cable Assembly, Handset to IVU-40000 TIB		
440072-180	Cable Assembly, AVA LED Sign to J1708_TR, IVU-4000 TIB		
4400XXX-18	Cable Assembly, Radio Tray Power, W14,		
440XXX-144	Cable Assembly, Destination Sign to TIB		
440XXX-240	CABLE MDT TERMINAL TO IVU-4000		
440XXX-300	CABLE ASSY, GPS ANTENNA, IVU-4000 to GPS ANT		
440XXX-48	Cable Assembly, Discrete Connections, IVU-4000 TIB		
TBD	ANTENNA CELL ROUTER		
TBD	IRMA MATRIX APC SYSTEM 2 DOOR		
TMS-006042	NMO Mount (Tessco 23538)		
TMS-006291	DB25 Male to Female 12"		
TMS-006292	DB26 Male to Female 12"		
TMS-006293	DB44 Male to Female 12"		
TMS-006294	DB50 Male to Female 12"		
TMS-006298	Mounting Base with Ball Vesa Base 3.625 sq		
TMS-006299	Mounting Base Square 100 and 75 hole 4.75 sq		
TMS-006300	Socket Arm Assembly, DBL Ball,		
N/A	HANOVER Interior 2-Line Stop Request		

### 1.27.9 Mobile Router

- a. Contractor shall provide and install a Cradlepoint, or approved equal, router, model number IBR1700, modular modem MC400 plus five (5) year Advance licensing and a Cradlepoint 170654-000 five-way antenna for each bus. The router shall be mounted within the electronics cabinet using 3.5-inches of 1-inch wide 3M Dual Lock SJ3560 applied according to the manufacturer's directions along the mounting holes edge of each side of the mobile router. The antenna shall be mounted at a location approved by Authority's project manager. Power, ground, and ignition signal shall be sourced from the same points as the 12 Volts of the ITMS radio power source.
- b. In addition, each mobile router shall be pre-paid and added to Authority's Cradlepoint ECM Prime account and Authority's CradleCare account for a period of five (5) years. Cradlepoint ECM shall be at Prime service level and CradleCare shall be at full-service level to include:
  - i. Twenty-four (24) hours per day, seven (7) days per week qualified phone support and twelve (12) hours per day, five (5) days per week portal/chat support for Cradlepoint routers, NCM and NetCloud Gateway
  - ii. Next business day replacement
  - iii. Service level targets
  - iv. Knowledge Base access
  - v. NetCloud OS upgrades
  - vi. Extended router warranty for term of CradleCare license
- c. **Cloud Services** Cloud Services for management of the mobile routers for a period of five (5) years shall be provided. At minimum, the cloud services shall meet the following features, functionality, and specifications:
  - i. Open API such that third-party applications can interphase with the cloud service to provide added value functionality.
  - ii. Manage user access at multiple levels.
  - iii. Single point management of all mobile routers in Authority's fleet
  - iv. Fleet configurations that provide the ability to set-up and save a single router, then copy that configuration to another router, group, or fleet.
  - v. Group configurations that provide the ability to designate groups of routers with individual configurations to be managed together.
  - vi. Remote firmware management that provides the ability to download and apply firmware to a single router, group, or fleet.
  - vii. GPS based location services.
  - viii. Command line interface to individual routers in real-time.
  - ix. Historical storage of data for a minimum of ninety (90) days.
- d. Alert System Provides the ability for the router to alert the system administrator of critical issues with the router. The system shall be capable of alerting via the cloud interface, through SNMP trapping, and email. Alerts shall be configurable for the following:
  - i. Down time
  - ii. Security
  - iii. Data usage
  - iv. Hardware failure
  - v. Geo-fencing

- e. **Support** Technical support for the mobile routers for a period of five (5) years shall be provided. At minimum technical support shall meet the following features, functionality and specifications:
  - i. Unlimited twenty-four (24) hours per day, seven days per week phone support
  - ii. Carrier specific support
  - iii. Dedicated assigned technical engineer
  - iv. Complete access to technical training on the router, networking and cloud services
  - v. Unlimited access to firmware, software, feature upgrades, and patches
  - vi. Priority consideration for advanced access to features and beta testing

#### 1.27.10 Fluid Management System

- a. Bus shall be equipped with a Fleetwatch combination bus mileage/fluid management system transponder that shall be installed and programmed with the Authority's vehicle's ID number and odometer mileage. The system shall be capable of communication at the fuel island, or other location to be determined. Use of this device will not impact or be impacted by other devices operating in the vehicle, or vehicles, on a CAN-bus network and/or platform.
- b. Authority shall approve the location of the Fleetwatch datalogger/module/device during the presentation/evaluation of the first article bus. Contractor must contact Fleetwatch to obtain the latest transponder/interface required for the Authority's existing configuration.
- c. S&A Systems Inc., Rockwall, Texas, phone (972) 722-1009.

Mailing Address S&A Systems, Inc. P.O. Box 1928 Rockwall, Texas 75087

Shipping Address S&A Systems, Inc. 992 Sids Road Rockwall, Texas 75032

#### Contact

Terry Walsh (972) 722-1009 terry.walsh@fleetwatch.com

- d. As a reference only, see Exhibit below labeled "Fleetwatch Technical".
- e. JX75 module/transceiver is required. Please note that all references to JX55 transceiver are obsolete





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#### TS 1.28 ELECTRICAL, ELECTRONIC AND DATA COMMUNICATION SYSTEMS

The overall bus electrical/electronic system shall be fully integrated to achieve the following objective:

Conventional bus functions shall be incorporated into a multiplexed PLC system.

Bus systems, typically microprocessor controlled, shall communicate via CAN, J1939, device net, etc. as required to exchange information needed for each system to function. Representative systems are HVAC, engine, propulsion system, etc.

An overall Conduent communications system shall fully integrate operations, to include, RF radio, WLAN, stop announcement system (audio/visual), sign system, automatic passenger counters, AVL/GPS or applicable, interface to farebox, provide connectivity to a variety of communication platforms and interface to the buses on-board central industrial computer.

A central industrial grade computer will act as an information hub between all previously mentioned systems.

#### 1.28.1 General Requirements

The following general requirements shall be used to define and expand the overall bus electrical/electronic objective. They portray an operational performance requirement rather than specific to manufacturer or model of equipment. Contractors are therefore encouraged to submit proposals meeting the objective and general guidelines, as follows:

If available, open/publicly available standards are preferred.

Software shall be user-configurable and licensed to the Authority for its use and to the extent practical, all devices mentioned in this section shall be installed within a single enclosure, to include lockable door, sliding shelves and located behind the driver above the left front wheel housing.

#### 1.28.2 PLC System

The PLC system shall control all basic bus functions that are not already controlled by microprocessor-based controllers. These functions typically consist of "on" and "off" functions. The execution of outputs is based upon scanning "on" and "off" inputs and substituting their value into a ladder logic program. The PLC shall permit ease of user reprogramming and facilitate future expansion by including 10-percent spare wires within those harnesses linking major electrical areas, and at each individual I/O module, 10-percent spare input and 10-percent spare output terminals. The percentages shall always be rounded upward to the next digit when defining the percentages.

The preferred method of input sensing shall be to monitor input value as the voltage becomes positive high and the preferred method of output shall be positive high when the rung is true. The PLC system hardware shall be weather resistant, and outputs shall be solid state and over current protected. PLC shall be capable of basic logic operations, timers, counters and arithmetic instructions, and this functionality shall be extended to the communication interface to the on-board central computer. I/O modules shall be available for digital and analog insertion to include voltage, current and thermocouple connectivity.

Critical outputs shall include in-series contact validation to the intended load device, such that the PLC output is not capable of directly powering a load device in the absence of the operator initiating/sustaining the action. As an example, the push to start engine button may contain two sets of contacts, such that one set provides input to the PLC while the other is in series with the PLC output leading to the starter relay.

The PLC shall be capable of logging battery high voltage, low voltage, and imbalance data received from a Vanner micro-processor-based system or an approved equal. In the event an input is received from the voltage monitoring micro-processor device, after a settling period of five minutes, the PLC shall be capable of beginning a sequence of events. The sequence will provide early warning to the coach operator. The sequence shall disable devices prior to shutting the bus down. Acceptable early warning devices shall be discussed in a pre-production meeting.

The overall hierarchy of power distribution shall consist of power source (24 vdc batteries and ultra-capacitor), manual disconnect switch, automatic disconnect relays, over-current protections devices to main distribution buss bars, load-shed strategy and over current protection devices at branch circuits to individual load devices. The intent shall be to minimize live circuits at their source during periods of non-use, such that all power shall be routed via the automatic disconnect relays, excluding devices required for operation with the master run switch in the "off" position. The power shut down sequence shall be based on pre-set timers that shall be initiated by the driver's master rotary switch. Additional details and shut down sequences shall be provided at the pre-production meeting.

Each main distribution buss and high current individual circuit shall be monitored by current sensing devices. The PLC shall monitor these values, thus allowing the PLC the capability of monitoring devices/circuits within a range of allowable current consumption to early detect low or high current consumption. Dependent upon the over current threshold, the PLC shall be capable of shutting down the load device or deactivating the automatic disconnect relays or both. At a minimum, automatic disconnect relays shall be required for the following circuits:

- starter motor
- main buss to generator/alternator
- main power distribution buss
- main power to HVAC/All Electric Cooling System

The above listed circuits shall also be disconnected when the driver's rotary switch is in the off or park position based on logic timers applicable to each circuit intended to allow the components to perform proper shut down sequences and to comply with regulatory requirements in regard to turn signals, 4-way flashers and others.

The length of high voltage/high current cables, circuits or buss bars that remains energized shall be minimized when the ignition is in the off position, or in the event of an emergency situation during programmed shutdown sequences or others, and as such, the high-voltage, high-power disconnect relays shall be located as close as practical to the main sources of energy such as bus batteries and others as applicable.

Opening the manual disconnect switch will remove power from all disconnect relays and power to all devices operable with the master run switch "off". Electrical power supply to four-way flasher shall always be maintained (excluded main-battery on/off switch).

The basic bus electrical platform will be predominantly 24 vdc, therefore devices requiring lesser voltage (12 vdc) will require dc/dc converters at the device level. A UPS device shall be provided to provide back-up power for devices that may require power in the event the basic bus electrical platform faults due to interruption or brown out. The UPS shall be sized to provide a 2-24hour day power back up in the event the main electrical system is at zero vdc. At a minimum, the UPS supplied systems shall include central computer, fire detection/suppression system, methane detection system, on board video surveillance system and any bus system found sensitive to power interruption based upon Contractor's design.

All power cables capable of exceeding 50 amps current and all cables/wiring in environments capable of exceeding 150 degrees F shall be double insulated. As a rule, over current protection devices shall be sized to approximately 125 percent to 150 percent of the intended load device current and wiring between the over current protection device leading to the load device shall at a minimum be rated at 150 percent of the over-current protection devices.

# 1.28.3 PLC System - Updates

Contractor, at the Authority's request, shall be responsible for providing free of charge, up to three Vansco/I/O, PLC programing changes per-year, for 12 years. The Authority requested changes shall not be in conflict with any safety operational feature built into the bus configuration, rather shall be intended as operational enhancements or resulting from Authority's initiated campaigns; e.g., engine replacement, transmission upgrades, addition of lights, improvements in performance and any others similar nature and scope.

### 1.28.4 Micro Processor Based Systems

Microprocessor based systems shall, at a minimum, include all systems outside of the direct control of the PLC. Typically, these are stand-alone controllers responsible for the control of an individual system (engine, electrical charging system, propulsion system, sign system, HVAC, etc.) Many of these controllers are linked to other system controllers to facilitate immediate/reliable sharing of data critical to system operation. All microprocessor-based controllers shall be interfaced to the on-board central computer at an information level. Information level data shall include, at a minimum, data values representative of sensor values (direct or calculated), diagnostic data, fault codes, system health and in general data required to determine the status of operation/performance.

### 1.28.5 Modular Design

Overall design of the electrical system shall be modular so that each major component, apparatus panel, or wiring bundle is easily separable with standard hand tools or by means of connectors. Each module, except the body wiring harness, shall be removable and replaceable in less than one hour by a specialist mechanic. Power plant wiring shall be an independent wiring module. Replacement of the engine compartment wiring module(s) shall not require pulling wires through any bulkhead or removing any terminals from the wires.

### 1.28.6 Wiring and Terminals

All wiring between electrical components and terminations, except battery cable shall double electrical insulation, shall be waterproof, and shall meet the requirements of SAE Recommended Practice J1127 and J1128.

Except as interrupted by the master battery disconnect switch, battery and starter wiring shall be continuous cables, grouped, numbered, or color-coded, or both. They have connections secured by bolted terminals; and shall conform to specification requirements of SAE Standard 1127-Type SGT or SGX and SAE Recommended Practice J541.

Double insulation shall be maintained as close to the terminals as possible. The requirement for double insulation shall be met by wrapping harnesses with plastic electrical tape or by sheathing all wires and harnesses with no-conductive, rigid or flexible conduit. Strain-relief fittings shall be provided at points where wiring penetrates metal structures outside of electrical enclosures. Wiring supports shall be protective and non-conductive at areas of wire contact and shall be damaged by heat, water, solvents, or chafing.

All wiring harnesses over 5-feet long and containing at least 5 wires shall include 10-percent excess wires for spares that are the same size as the largest wire in the harness excluding the battery cables. Wiring length shall allow end terminals to be replaced twice without pulling, be crimped to the wiring and may be soldered only if the wire is not stiffened above the terminal and no flux residue remains in the terminal. Terminals shall be corrosion resistant and full ring type or interlocking lugs with insulating ferrules. T splices may be used when there is less than 25,000 circular mills of copper in the cross section and a mechanical clamp is used in addition to solder on the splice; the wire supports no mechanical load in the area of the splice; and the wire is supported to prevent flexing.

All cable connectors shall be locking type, keyed, and watertight, unless enclosed in watertight cabinets. Pins shall be removable, crimp contact type of the correct size and rating for the wire being terminated. Unused pin positions shall be sealed with sealing plugs. Adjacent connectors shall use either different inserts or different insert orientations to prevent incorrect connections.

All cable lengths shall be properly sized, length, and properly trimmed to fit the intended components and functionality. Excessive cable length shall not be acceptable.

### 1.28.7 Junction Boxes

All relays, controllers, flashers, circuit breakers, and other electrical components shall be grouped according to voltage; and mounted in easily accessible junction boxes. The boxes shall be sealed to prevent moisture from normal sources, including engine compartment cleaning, from reaching the electrical components and shall prevent fire that may occur inside the box from propagating outside the box.

The components and circuits in each box shall be identified, and their location permanently recorded on a schematic drawing glued to or printed on the inside of the box cover or door. The drawing shall be protected from oil, grease, fuel and abrasion.

The front junction box shall be completely serviceable from the driver's seat, vestibule, or from outside. A rear start and run control box shall be mounted in an accessible location in the engine compartment. If a rear junction box is required, it shall be located away from the surge tank or properly protected from coolant overflows.

Electrical harnesses from junction boxes shall be run, to the extent possible, to facilitate troubleshooting and to reduce defects. Terminal strips shall be used to make connection.

### 1.28.8 Electrical Components

All electrical components, including switches, relays, flashers, and circuit breakers, shall be heavy-duty designs and shall be of the longest lasting, commercially available type. All relays shall be internally voltage spike protected. Electrical components shall be replaceable in less than 5 minutes by a journeyman mechanic. Sockets of plug-in components shall be polarized where required for proper function and the components shall be positively retained. Any manually re-settable circuit breakers critical to the operation of the coach shall be mounted in a location convenient to the operator and provide visible indication of open circuits. All serviceable electronic components must be readily available through access doors or removable panels.

All electric motors, except cranking motors, shall be heavy-duty brushless type, with a constant duty rating of no less than 40,000 hours, shall be located for easy replacement and shall be replaceable in less than 15 minutes by a journeyman mechanic. Electronic circuit protection for the cranking motor shall be provided to prevent engaging of the motor for more than 30 seconds at a time.

### 1.28.9 Multiplex Wiring System

The components of the multiplex system shall be of modular design, thereby providing ease of replacement by maintenance personnel. The modules shall be easily accessible for troubleshooting electrical failures and performing system maintenance. Each module shall be shielded to prevent interference by EMI and RFI; and shall use LEDs to indicate circuit integrity, assist in rapid circuit diagnostics, and verify the load and wiring integrity. In conjunction with relays if necessary, each circuit shall be capable of providing a current load of up to 10 amperes. The internal controls shall be a solid-state devise providing an extended service life. Wiring for data bus and node module power shall consist of three, 22 gauge or larger, UL approved, shielded twisted pairs.

Protection to each individual circuit shall be provided. An automatic test system, integral to the multiplexing, shall be provided. The system shall be hosted on an IB-compatible personal computer as well as a hand-held field diagnostic unit capable of reading the network data, control function and address data, or function code. The journeyman mechanic shall use either unit to check the bus wire function.

# 1.28.10 Batteries

Contractor shall be responsible for providing a single or a combination of components/systems, e.g. 12/24 volt batteries + ultra-capacitor, circuits or others, capable of providing enough energy to sustain the operation of all sensitive and bus safety related components, and the engine starting requirements, after the ignition is placed in the off position for a period of 48 hours; e.g., weekend or holiday parking of the bus. The safety and sensitive bus components are: radio system, fire detection/suppression, methane detection, on board video surveillance and others to be discussed during the pre-production meetings.

The bus shall also be equipped with an electrical monitoring system/feature, load shed, that, based on the batteries state of charge, shall be capable of starting a pre-planned disconnect sequence of components intended to place the components "off-line" when the battery voltage drops below their required operational levels of energy.

Contractor, during the first article bus build shall be responsible for providing an amperage-draw evaluation/quantification of all systems to determine the architecture and sizing of the energy management system.

If batteries are used, Absorbent Glass Mat (AGM) batteries shall be selected and the charging rate shall be modulated via a temperature compensated voltage regulator suited to the real conditions experimented by the batteries e.g., temperature, voltages, state of charge, etc. The proposed battery units shall conform, at a minimum, to SAR standard J537. Each unit shall be fitted with threaded stud terminals and have minimum of 1150 cranking amps. Each unit shall have a purchase date no more than 60 days from the date of release for the shipment to the coach manufacturer.

Batteries shall be easily accessible for inspection and service from only the outside of the coach. Battery tray(s), in their entirety shall be corrosion proof for the life of the bus including bearings, rollers, brackets, plates, fasteners, etc. The 12/24-volt bus batteries shall be securely mounted on a stainless-steel tray that can accommodate the size and weight of the installed batteries. The battery tray shall pull out easily and properly support the batteries while they are being serviced. The tray shall allow each battery cell to be easily serviced and filled. A positive locking device shall retain the battery tray in the stowed position.

Positive and negative terminal ends shall have different size studs to prevent incorrect installation. The battery terminal ends, and cables shall be color-coded with red for the primary positive, black for negative, and another color for any intermediate voltage cable. Battery cables shall be flexible and sufficiently long to reach the batteries with the tray in the extended position without stretching or pulling on any connection and shall not lie directly on top of the batteries. Battery cables must be of sufficient size to carry the load required by the starting motor.

Cable routing securement shall be accomplished using insulated split blocks with pinch bolts, (subject to the Authority's approval) "P" clamps are not permitted.

### 1.28.11 Master Battery Switch

A master switch on the battery positive (+) shall be provided in the battery compartment near the batteries for complete disconnecting from all coach electrical systems. The location of the master battery switch shall be clearly identified on the access panel and be accessible in less than 10 seconds for activation. Activation of the master battery switch shall result in engine shutdown. The master switch shall be capable of carrying and interrupting the total circuit load. Any equipment that requires power without reference to the master battery switch shall be listed in attachments to these technical specifications. Opening the master switch with the power plan operating shall not damage any component of the electrical system to include engine/transmission's ECM or electrical alternator. The location of the master battery switch shall prevent corrosion from fumes and battery acid when the batteries are washed off.

# 1.28.12 On Board Video Surveillance Systems

A March Networks, on board video surveillance system (OBVSS) with nine color cameras (five interior and four exterior), GPS antenna or applicable, cables and all others in compliance with the Authority's current standard OBVSS shall be provided by the Contractor to include the mobile digital video recorder, 3-axis accelerometer, two interior microphones, two interior motion detectors among others. Contractor shall be responsible for contacting March Networks and secure an updated list of parts and materials intended.

The below list is to be used as a reference only from the most recent March Networks' Authority build however, the Offeror shall contact March Networks to secure the latest Authority Configuration for 40-foot buses.

March Networks' contact information: Keith O. Winchester <u>kwinchester@MarchNetworks.com</u> North America Mobile Solutions – Director (800) 563-5564 x 5430

March Part	Description	Quantity
Numbers #		
29803-105	DVR-MARCH GT12, 1TB SSD	1
30200-101	CABLE-ALARM INPUT, GTXX	1
30199-101	CABLE-AUDIO INPUT, GTXX	1
18784	SENSOR-MOTION NO. 1, CAMERA	2
18782	CABLE-Y, MOTION SENSOR	1
18790	MIC-RECORDER, BLK (MARCH NETWORKS)	2
23684	MODULE-TIME DELAY, CAMERA	1
32049	CAM C2001A MOBILE HDR FF (4.0mm)	1
30077	CAMERA-MICRODOME, IR, 2.9MM LENS	1
34460-101	CAM EVO-05 MINI OUT 360deg 5MP RJ45 WHT	2
31320	CAMERA-3.6MM, CLR, EXTERIOR, WHITE	3
31318	CAM C0401A MOBILE IR WEDGE 2.9mm WHT	1
33164-101	CAM C2401A ME4 IR MicDOME 2.8mm	1







### TS 1.29 DIAGNOSTIC TOOLS AND EQUIPMENT

The following chart shall identify diagnostic tools and equipment necessary to maintain the proposed buses. Unless specified otherwise, the item deliverable shall include all necessary hardware, software, interfaces, cables and instruction. It is also required, that diagnostic software will be operable in a laptop environment, and therefore the laptop need not be a redundant deliverable for each item requiring a laptop. The laptop shall be an industrial grade ruggedized suitable for intended use in a harsh environment.

Item or System	Qty
Vansco, I/O, PLC multiplex system – Program, Software, Interface, cables, peripherals,	6
connectors, security keys, etc.	
TOUGHBOOK 31 Model CF-318F458VM	6
DESCRIPTION:	
Operating System: Windows 10 Pro	
CPU: Intel Core i7-7600U 2.80GHz	
Display: 13.1-Inch XGA Touchscreen LCD	
Storage Drive: 512GB Solid State Drive	
Memory: 16GB (8+8)	
Optical Drive: DVD Super MULTI Drive	
Wireless: WI-FI, Bluetooth, Dual Pass (Ch1: none/Ch2: selectable)	
Ports & Expansions: No PC/Express Card	
Security: TDM 2.0	
ARS / ATC system Interface with software	6
HVAC = Interface with software	6
Engine Interface with software	6
Transmission Interface with software	6
Destination Sign Interface with software	6
Door interface with software	6
Passenger Counter interface with software	6
Voltage regulator or equivalent control system interface with software	6
All electric cooling system interface with software	6
Specialized Engine cradle, and all accessories required to remove the engine from the bus	3
Specialized set of tools required to rebuild and repair the front and rear axles.	1
Offeror shall provide a detailed list of tools, including part numbers, tool description and	
individual pricing with proposal.	
Multiplex training simulator.	1
Manufacturer to provide a fully functional multiplex training simulator that is an exact	
duplication of the program, and contains the very same components, of the multiplex	
system installed in the final product bus.	
This simulator shall include a 120VAC to 12VDC convertor to power the simulator board,	
shall include labeled switches for inputs and labeled lights for outputs, and shall be	
mounted on boards which are to be mounted to a durable steel frame structure with wheels	
for transport.	
Specialized Looling Lot (*)	1
	1
All software/interfaces and all others provided will be operational for 12 years without requiring additional fees, charges, subscriptions or any others for licensing or renewals.	

(\*) = A specialized tooling lot is defined as all necessary tools, equipment, instruction, associated manuals that would be referenced within the vehicle and/or suppliers manuals needed to perform diagnosis, repair and adjustment. The contents of this lot would exclude typical tooling that would be expected to exist at a generic bus repair facility and/or tooling specifically itemized as deliverables within this specification, examples such as, jacks, pneumatic tools, and welders.

#### TS 1.30 Manuals

All manuals shall be provided in a format compatible with LinkOne.

### TS 1.31 Optional Equipment

If any of the below listed optional equipment is exercised, the number of buses for this RFP shall not change and shall remain the same. The Authority at its own discretion may require having the optional items installed in any, or none, of buses listed in this RFP.

### 1.31.1 OPTIONAL – Tire pressure monitoring system

The optional tire pressure monitoring system shall be priced separately as an option with the Offeror's submittal.

An all-wheel Tire Pressure Monitoring system shall be incorporated and integrated with the bus. Preliminary location for the driver's display shall be on the dashboard. Final location shall be defined during the pre-production meetings. The system, e.g., tire pressure sensors, antennas, interfaces, mounting provisions and all others shall be of a heavy-duty design intended to withstand the life of the bus without requiring replacement. Offeror, in its proposal, shall include six (6) sets of tools required to excite, read and to ID the sensors when required.

The driver's display shall be capable of reporting individual tire pressure and tire temperature status, it shall report status on demand and/or when the pressures and/or temperatures are exceeding the pre-established normal operating ranges. The TPM system shall be interfaced with the existing bus' warning devices thus minimizing redundancy of alarms and displays.

# 1.31.2 OPTIONAL – EXPRESS BUS CONFIGURATION

The optional EXPRESS BUS CONFIGURATION shall be priced separately as an option with the Offeror's submittal. The express configuration shall include the USSC Patriot, or equivalent American Seating, or approved equal, high-back padded reclinable passenger seats, extra padding and head rests on all fixed seats, upholstered with Authority's defined seat fabric and logos, individual LED passenger reading lights, passenger luggage racks designed for easy inspection and monitoring of any objects unintentionally left behind by the passengers, two USSC/American Seating Q-pod, or approved equal, ADA compliant wheelchair securement systems, stainless steel modesty panels shall be located in front of any, and all, forward facing seats where a barrier does not exist including all hand holds provisions.

The exterior standard **Branding OCBUS regular** identity package, and all other provisions listed in this RFP shall remain the same for any and all Express configured buses.

The estimated quantity of Express configured buses shall be approximately thirty (30) units however, the Authority at its sole discretion reserves the right to change the quantity of buses based on its organizational needs.

Offeror, with its submittal, shall also include proposed seating lay-outs depicting potential seating arrangements intended for the Express configured buses.

Express configured buses shall be equipped with front-door mounted wheelchair ramps.

#### **1.31.3 OPTIONAL – Recommended List of Spare Components**

Offeror shall provide separate pricing for a list of recommended spare components. The Authority, at its discretion, shall select any, all, or none of the below listed components. Offerors are encouraged to suggest additional items that are traditionally required for the upkeeping of the proposed bus.

Description	Recommended Quantity	Unit Cost \$	Ext. \$ (Quantity x Unit Cost)
Front axle brake rotors (both sides)			
Rear axle brake rotors (both sides)			
Front brake pads (both sides)			
Rear brake pads (both sides)			
All Electric Cooling Package			
Starter motor			
I/O, Vansco/ PLC modules			
Fire Suppression/Methane Detection- Control Panel w/required Interface		•	
Infra-red Methane Detectors			
Differential carriers			
Complete drivelines w/U-joints			
Complete Transmission			
Complete Cummins L9N Engine w/Standard Warranty			
Transmission accumulator (retarder)			
Electric door motor			
HVAC- Screw Type Compressor			
Complete Mirror assembly- Curb side			
Complete Mirror assembly- Street side			
Surge Tank assembly			
Driver Seat			
Power steering hydraulic pumps			
Complete accelerator pedal assembly			
Others			
Others as applicable			

### 1.31.4 **OPTIONAL – Exterior Paint Scheme.** Bravo! Configuration

Offeror shall provide separate pricing, if applicable, for having the buses painted with the Authority's exterior BRAVO! paint scheme as depicted below. See attachment labeled **Branding OCBUS BRAVO!** 

The estimated quantity of BRAVO! painted buses shall be approximately twenty (20) units however, the Authority at its sole discretion reserves the right to change the quantity of buses based on its organizational needs.



- 1. PPG paint to match 3005 C Blue
- 2. PPG paint to match PMS 151 C Orange
- 3. PPG paint to match White HSV 921472
- 4. BRAVO! Blue for all the Blue decals is PMS 3005 C and needs to match the bus paint color. Paint swatches will be provided to Contractor for color match. All White and BLUE decals are printed on 3M 6870CR reflective material, unless otherwise noted.
- 5. PMS Reflex Blue C on 3M 680CR reflective material, needs to match striping on existing fleet.
- 6. White striping printed on 3M 680CR reflective material
- 7. White decal on 3M 680CR reflective material.
- 8. Drawing is for reference only. Final engineering drawing shall be provided by Contractor for Authority approval.
- 9. All lettering is white cut out vinyl.

# 1.31.5 **OPTIONAL – Driver Protection System - Driver's Barriers**

Offeror shall provide separate pricing for having the buses equipped with a driver protection system, e.g., driver's barrier. If more than one model/type of barrier is submitted, Offeror shall provide along with pricing, detailed information associated with each model's attributes and benefits.

Authority encourages Offerors to provide driver's barriers that are an integral part of the driver's workstation rather than, add-on products that do not conform to the interior bus' layout, traffic circulation, functionality, challenging visibility of mirrors, slowing interaction with passengers, etc.

### 1.31.6 OPTIONAL – 12-Inch & 15-Inch Safety Awareness Monitor/Displays (One Each)

Offeror shall provide separate pricing for having the buses equipped with one (1), 12-inch safety awareness monitor mounted above the driver and another, 15-inch monitor mounted on the back of the radio compartment facing the passengers. These monitors shall be rugged, vibration proof, equipped with vandal protections and others designed to withstand, and operate, in a transit environment. As a rule, the two monitors will be mounted on the driver's vicinity however, final location will be defined during the evaluation of the first article.

Offeror shall be responsible for the complete integration, and installation of the system including all required cabling, brackets, power sources, mounting provisions and others.

Reference 12-inch and 15-inch monitors: Model numbers DMS2012, DMS2015



#### TS 1.32 GENERAL BUS DATA SHEET:

#### LOW FLOOR 40-FOOT BUSES

#### Bus Manufacturer:

**Bus Model Number:** 

#### **Basic Body Construction Type:**



- Body Shell material (stainless steel/ composite)
- Body Sidewall Tube Material (stainless steel)
- Body Roof tube material (stainless steel)
- Body Front/Rear cap material (stainless steel/composite)
- Body CNG Tank enclosure / cage (stainless steel)







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Horizontal turning enve	elope (see diagran	n below)			
Outside body turning rad		feet	inches		
Inside Body Turning Rad	r)	feet	inches		
get rid of TR1-TR3					
Wheelbase					
First axle to rear axle		inches			
Overhang, centerline of	f axle over bump	er			
Front in	nches				
Rear ii	nches				
Floor					
Maximum interior floor sl	ope (from horizont	al) degrees			
Capacity					
Total number of passeng	jer sittings				
Passenger seating manu	ifacturer/model nu	mber			
Total number of standing	) passengers (1 pe	er 1.5 sq. ft.)			
Minimum hip to knee spa	ace	i i	nches		
Maximum hip to knee spa	ace		nches		
Restraint system type an	d model number				
•					
Bus weight					
	Curb weight	Curb weight plus seated load*		GVWR	
Front axle	lbs.	lbs.			lbs.
Rear axle	lbs.	lbs.			lbs.
Total	lbs.	lbs.			lbs.

\* Including operator and passengers at 150 lbs. per person

### Vehicle Speed




Manufacturer

Supply reservoir number and size Primary reservoir number and size Secondary reservoir number and size Parking reservoir number and size Accessory reservoir number and size Other reservoir number and size



### SECTION 5: Cooling System

	Radiator		Charge Air Cooler
Manufacturer			
Туре			
Model number			
Number of tubes			
Fins per inch			
Fin thickness (inches)			
Fin construction			
Total cooling system capacity (	gallons)	gallons	
Radiator fan manufacturer			
Fan speed/control type (mech/	elect/hyb)		
Surge tank capacity		gallons	
Surge tank material			
Overheat alarm temperature		degrees	F
Shutdown temperature settings	;	degrees	F
SECTION 6: Electrical			
Primary interior lighting syst	em	· ·	
lype			
Model number			
Alternator			
Manufacturer			
Nodel number			
	an	nns	
		11p3	
Voltage Regulator			
Manufacturer			
Model number			

Temp. Compensation – Range - Ratings

### Voltage Equalizer

Manufacturer	
Model number	

### Starter Motor Manufacturer Voltage Model number Batteries Manufacturer Type Model number Cold cranking amps Ultra-Capacitor Manufacturer

. . . . . .

Model number

Ultra-capacitor ratings: Provide data sheet for energy efficiency, estimated calendar life, cycle life, voltage (each capacitor and each module), working and peak power, and weight

SECTION 7: Engine	
Manufacturer	
Model number/version	
Horsepower/torque rating	
Engine Oil Capacity (Qts.)	

### **SECTION 8: Fire Suppression/Methane Detection System**

Manufacturer				
Model number				
Number of detectors		fire		methane
Type of detector	□ Thermal □ Optical			
Battery backup				

### **SECTION 9: Bumpers**

Manufacturer

Туре

### SECTION 10: Fuel and Exhaust System

Fuel type Operating range and route profile



SCF

SCF

Front

### Fuel Tanks (CNG)

Manufacturer Capacity (total and usable) Construction material/Type Quantity and location of tanks Life Expectancy (years/miles)

### SECTION 11: Air Suspension

Shock absorber manufacturer Shock absorber quantity per axle

### **SECTION 12: Steering**

Pump manufacturer

- Pump model number
- Steering gear manufacturer
- Steering gear model number
- Steering gear type
- Steering wheel diameter
- Maximum effort at steering wheel\*

 inches		

Rear

\* Unloaded stationary coach on dry asphalt pavement

### **SECTION 13: Transmission**

Manufacturer	
Туре	
Model number	
Number of forward speeds	
Cooling Type	
Retarder Capacity	
Transm. Oil Capacity (Qts.)	
SECTION 14: Driveshaft	
Manufacturer/Model #	

### **SECTION 15: Wheels**

Manufacturer

Туре

Size

Mounting type

Bolt circle diameter

Protective coating

Tires

Manufacturer

Туре

Size

Load range/air pressure

### **SECTION 16: Door System**

Door panels	Manufacturer	Туре
Front door		
Rear door		

### Actuating mechanism (air, electric, spring, other)

Manufacturer	
Front door	
Rear door	

### **SECTION 17: Heating and Ventilating Equipment**



Multiplex system model number

Automatic<br/>manufacturerpassenger<br/>countersystem<br/>modelAutomatic<br/>numberpassenger<br/>countersystem<br/>modelDestination<br/>sign<br/>model numberImage: Counter<br/>modelDestination<br/>sign<br/>model numberImage: Counter<br/>modelAVL/AVM<br/>system<br/>model numberImage: Counter<br/>modelAVL/AVM<br/>system<br/>model numberImage: Counter<br/>modelPassenger<br/>information<br/>system<br/>model numberImage: Counter<br/>modelPassenger<br/>information<br/>system<br/>model numberImage: Counter<br/>model

### TS 1.33 REQUIRED TECHNICAL COMPONENTS OF PROPOSAL

The following documents are required elements within the technical proposal: (Note: All drawings shall be submitted in AutoCAD on a memory stick or other portable device.)

- 1. Altoona Test Report
- 2. Complete General Bus Data Sheet
- 3. Verification that the bus manufacturer shall perform a complete "Engine Cooling Test Summary sheet" (as contained in SAE J819 or as required by the engine and transmission manufacturers) for the power train audit on the first bus to verify heat transfer capabilities of radiator, trans-cooler, hydraulic coolers, and others under an air ambient temperature of 115 degrees F. Heat rejection of transmission retarder must also be considered. Cooling system performance shall be demonstrated on first article and shall be certified by engine and transmission manufacturer.
- 4. Engine application approval.
- 5. Transmission application approval
- 6. Allison SCAAN or equivalent
- Layout drawing of Operator's Work area to include seat dash, side console steering wheel and foot controls. Layout shall include range/envelope of motion of all elements and components (i.e. driver's range, all possible driver's seat movement, all steering wheel – possible- positions, etc.
- 8. Layout drawing of interior, to include seating arrangement, aisle, doorways, modesty panels and passenger assists.
- 9. Interior layout depicting the number of standees including a graphical representation of them on the bus floor.
- 10. ADA compliant mobility securement system (with options) shall be submitted to the Authority for review and approval including, but not limited, to the following: Restrain system description, wheelchair and mobility aid floor plan and track layout, storage for mobility aid securement devices, belts and accessories, potential locations of wheelchair stations.
- 11. Layout drawing of exterior for graphics.
- 12. General structural layout with axle weight distribution and tire size and rating
- 13. State of California, Air Resources Board, copy of executive Order Approval for the proposed engine.

- 14. Brake system design data and provisions for compliance with FMVSS 121
- 15. Sample Service, Parts and Operator's Manuals
- 16. Documentation supporting installation of fuel system storage tanks to include, engineering analysis, safety criteria, and others as listed:
  - Description of system operation
  - Preventive maintenance guideline
  - Piping/Component schematic, to include
    - 1. System safety design guidelines
    - 2. System code compliance
    - 3. Flow and pressure drop
  - Procedure for fueling, de-fueling, venting, purging
  - Procedure for components requiring adjustment
  - O.E.M. level specification sheets at component level
  - Fuel Tank calculations, to include, gross volume, useable capacity, operating pressure, fuel consumption, vehicle range at fully loaded capacity, etc.
  - System FMEA and listing of applicable code/regulation compliance
  - Documentation certifying that the design service life of the CNG tanks and the complete fuel system are at least 20 years, regardless of mileage
- 17. Documentation supporting location of methane detectors in the passenger area and elsewhere to include engineering analysis, safety criteria for placement and others involved in the process; e.g. past experience, air flow, potential pockets of methane gas, etc.
- 18. Documentation supporting location of fire suppression system; targeted locations, system functionality, reaction times, datalogging provisions, etc.



# SECTION V: COST AND PRICE FORMS

### PRICE SUMMARY SHEET

Availability of the First Article unit shall be within \_\_\_\_\_ weeks after receipt of Notice to Proceed. The remaining vehicles shall be delivered at the continuous and uninterrupted rate of \_\_\_\_\_ vehicles per week after acceptance of the First Article.

ltem	Description	Unit	Quantity	Unit Price
1	<b>Low-Floor 40-Foot Heavy Duty CNG Transit Bus</b> Total base price per unit per specification less cost of any non- taxable ADA equipment and delivery charges not subject to sales tax. These items shall be priced separately.	Each	299	\$
2	<b>ADA Accessibility Equipment</b> Any item considered non-taxable. Identify individual equipment as an attachment to the Price Summary Sheet.	Each	299	\$
3	Delivery Charges	Each	299	\$
4	Conduent / ITMS Radio Provisions	Each	299	\$
5	On Board Video Surveillance	Each	299	\$
6	Fire Suppression and Methane Detection	Each	299	\$
7	Hoist Adapters (45-Front and 45-Rear)	Set	90	\$
8	Training	Hours	700	\$
9	Manuals	Each	299	\$
10	Optional: Tire Pressure Monitoring System	Each	299	\$
11	Optional: Express Bus Configuration (Additional) (*) Quantity Subject to Change	Each	30 (*)	\$
12	Optional: BRAVO! Exterior Paint (Additional) (*) Quantity Subject to Change	Each	20 (*)	\$
13	Optional: Spare Components	Each	299	\$
14	Optional: Driver's Protection Barrier	Each	299	\$
15	Optional: 12-Inch & 15-Inch Awareness Monitor / Display (Two Per Bus)	Each	299	\$
16	Optional: Diagnostic Equipment. Itemized Price Required.	Each	299	\$

### PRICE SUMMARY SHEET

### ACKNOWLEDGMENT OF RECEIPT OF ADDENDA AND OFFER

Offeror shall complete the following form and include in the price proposal. Failure to acknowledge receipt of all addenda may cause the proposal to be considered non-responsive to the solicitation. Acknowledged receipt of each addendum must be clearly established and included with the Offer.

Γ

By execution below Offeror hereby proposes to furnish equipment and services as specified in the Orange County Transportation Authority's RFP 9-1836, including Technical Specifications (Section IV), General Terms and Conditions / Proposed Agreement (Section VIII), Quality Assurance (Section VI) and Warranty Requirements (Section VII), therein.
<ol> <li>I acknowledge receipt of RFP 9-1836 and Addenda No.(s)</li> <li>I acknowledge receipt of RFP 9-1836 and Addenda No.(s)</li> <li>I acknowledge receipt of RFP 9-1836 and Addenda No.(s)</li> <li>I acknowledge receipt of RFP 9-1836 and Addenda No.(s)</li> </ol>
5. This offer shall remain firm fordays from the date of proposal
COMPANY NAME
ADDRESS
TELEPHONE
FACSIMILE NO.
EMAIL ADDRESS
SIGNATURE OF PERSON AUTHORIZED TO BIND OFFEROR
NAME AND TITLE OF PERSON AUTHORIZED TO BIND OFFEROR

## SECTION VI: QUALITY ASSURANCE

### A. CONTRACTOR'S IN-PLANT QUALITY ASSURANCE REQUIREMENTS

### 1. QUALITY ASSURANCE REQUIREMENTS

Contractor, the Contractor's manufacturing plant and organization shall be certified to the appropriate QS-9000/ISO 9000 series of standards

### 2. QUALITY ASSURANCE ORGANIZATION

### a. ORGANIZATION ESTABLISHMENT

Contractor shall establish and maintain an effective in-plant quality assurance organization. It shall be a specifically defined organization and should be directly responsible to the Contractor's top management.

### b. CONTROL

The quality assurance organization shall exercise quality control over all phases of production from initiation of design through manufacture and preparation for delivery. The organization shall also control the quality of supplied articles.

### c. AUTHORITY AND RESPONSIBILITY

The quality assurance organization shall have the authority and responsibility for reliability, quality control, inspection planning, establishment of the quality control system, and acceptance/rejection of materials and manufactured articles in the production of the transit buses.

### 3. QUALITY ASSURANCE ORGANIZATION FUNCTIONS

The quality assurance organization shall include the following minimum functions.

### a. WORK INSTRUCTIONS

The quality assurance organization shall verify inspection operation instructions to ascertain that the manufactured product meets all prescribed requirements.

### b. RECORDS MAINTENANCE

The quality assurance organization shall maintain and use records and data essential to the effective operation of its program. These records and data shall be available for review by the Resident inspectors. Inspection and test records for this procurement shall be available for a minimum of one (1) year after inspections and tests are completed.

### c. CORRECTIVE ACTION

The quality assurance organization shall detect and promptly assure correction of any conditions that may result in the production of defective transit buses. These conditions may occur in designs, purchases, manufacture, tests, or operations that culminate in defective supplies, services, facilities, technical data, or standards.

- 4. QUALITY ASSURANCE BASIC STANDARDS AND FACILITIES
  - a. BASIC STANDARDS AND FACILITIES The following standards and facilities shall be basic in the quality assurance process.
  - b. CONFIGURATION CONTROL

Contractor shall maintain drawings, assembly procedures, and other documentation that completely describe a qualified bus that meets all of the options and special requirements of this procurement. The quality assurance organization shall verify that each transit bus is manufactured in accordance with these controlled drawings, procedures, and documentation.

### c. MEASURING AND TESTING FACILITIES

Contractor shall provide and maintain the necessary gauges and other measuring and testing devices for use by the quality assurance organization to verify that the buses conform to all specification requirements. These devices shall be calibrated at established periods against certified measurement standards that have known valid relationships to national standards.

### d. PRODUCTION TOOLING AS MEDIA OF INSPECTION

When production jigs, fixtures, tooling masters, templates, patterns, and other devices are used as media of inspection, they shall be proved for accuracy at formally established intervals and adjusted, replaced, or repaired as required to maintain quality.

### e. EQUIPMENT USED BY RESIDENT INSPECTORS

Contractor's gauges and other measuring and testing devices shall be made available for use by the resident inspectors to verify that the buses conform to all specification requirements. If necessary, Contractor's personnel shall be made available to operate the devices and to verify their condition and accuracy.

### 5. CONTROL OF PURCHASES

Contractor shall maintain quality control of purchases.

a. SUPPLIER CONTROL

Contractor shall require that each supplier maintains a quality control program for the services and supplies that it provides. The Contractor's quality assurance organization shall inspect and test materials provided by suppliers for conformance to specification requirements. Materials that have been inspected, tested, and approved shall be identified as acceptable to the point of use in the manufacturing or assembly processes. Controls shall be established to prevent inadvertent use of nonconforming materials.

b. PURCHASING DATA

Contractor shall verify that all applicable specification requirements are properly included or referenced in purchase orders of articles to be used on transit buses.

### 6. MANUFACTURING CONTROL

### a. CONTROLLED CONDITIONS

Contractor shall ensure that all basic production operations, as well as all other processing and fabricating, are performed under controlled conditions. Establishment of these controlled conditions

shall be based on the documented work instructions, adequate production equipment, and special working environments if necessary.

### b. COMPLETED ITEMS

A system for final inspection and test of completed transit buses shall be provided by the quality assurance organization. It shall measure the overall quality of each completed bus.

### c. NONCONFORMING MATERIALS

The quality assurance organization shall monitor the Contractor's system for controlling nonconforming materials. The system shall include procedures for identification, segregation, and disposition.

### d. STATISTICAL TECHNIQUES

Statistical analysis, tests, and other quality control procedures may be used when appropriate in the quality assurance processes.

### e. INSPECTION STATUS

A system shall be maintained by the quality assurance organization for identifying the inspection status of components and completed transit buses. Identification may include cards, tags, or other normal quality control devices.

### 7. INSPECTION SYSTEM

### a. INSPECTION SYSTEM SCOPE

The quality assurance organization shall establish, maintain, and periodically audit a fully-documented inspection system. The system shall prescribe inspection and test of materials, work in process, and completed articles. As a minimum, it shall include the following controls.

### b. INSPECTION PERSONNEL

Sufficient trained inspectors shall be used to ensure that all materials, components, and assemblies are inspected for conformance with the qualified bus design.

### c. INSPECTION RECORDS

Acceptance, rework, or rejection identification shall be attached to inspected articles. Articles that have been accepted as a result of approved materials review actions shall be identified. Articles that have been reworked to specified drawing configurations shall not require special identification. Articles rejected as unsuitable or scrap shall be plainly marked and controlled to prevent installation on the bus. Articles that become obsolete as a result of engineering changes or other actions shall be controlled to prevent unauthorized assembly or installation. Unusable articles shall be isolated and then scrapped.

Discrepancies noted by the Contractor or resident inspectors during assembly shall be entered by the inspection personnel on a record that accompanies the major component, subassembly, assembly, or bus from start of assembly through final inspection. Actions shall be taken to correct discrepancies or deficiencies in the manufacturing processes, procedures, or other conditions that cause articles to be in nonconformity with the requirements of the contract specifications. The inspection personnel shall verify the corrective actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the nonconforming materials, the Authority shall approve the modification, repair, or method of correction to the extent that the contract specifications are affected.

### d. QUALITY ASSURANCE AUDITS

The quality assurance organization shall establish and maintain a quality control audit program. Records of this program shall be subject to review by the Authority.

### **B. INSPECTIONS**

### 1. INSPECTION STATIONS

Inspection stations shall be at the best locations to provide for the work content and characteristics to be inspected. Stations shall provide the facilities and equipment to inspect structural, electrical, hydraulic, and other components and assemblies for compliance with the design requirements.

Stations shall also be at the best locations to inspect or test characteristics

before they are concealed by subsequent fabrication or assembly operations. These locations shall minimally include underbody structure completion, body framing completion, body prior to paint preparation, water test before interior trim and insulation installation, engine installation completion, underbody dress-up and completion, bus prior to final paint touchup, bus prior to road test, and bus final road test completion.

### 2. RESIDENT INSPECTOR

### a. RESIDENT INSPECTOR ROLE

The Authority shall be represented at the Contractor's plant by resident inspectors. They shall monitor, in the Contractor's plant, the manufacture of transit buses built under the procurement. The presence of these resident inspectors in the plant shall not relieve the Contractor of its responsibility to meet all of the requirements of this procurement. The Authority shall designate a primary resident inspector, whose duties and responsibilities are delineated in "Pre-Production Meetings", "Authority" and "Pre-Delivery Tests". Contractor and resident inspector relations shall be governed by the "Guidelines" and "Quality Assurance" Provisions.

### b. PRE-PRODUCTION MEETINGS

The primary resident inspector shall participate in design review and pre-production meetings with the Authority. At these meetings the configuration of the buses and the manufacturing processes shall be finalized, and all contract documentation provided to the inspector.

No less than thirty (30) days prior to the beginning of bus manufacture, the primary resident inspector shall meet with the Contractor's quality assurance manager and shall conduct a pre-production audit meeting. They shall review the inspection procedures and finalize inspection checklists. The resident inspectors may begin monitoring bus construction activities two (2) weeks prior to the start of bus fabrication.

### c. AUTHORITY

Records and data maintained by the quality assurance organization shall be available for review by the resident inspectors. Inspection and test records for this procurement shall be available for a

minimum of one year after inspections and tests are completed.

Contractor's gauges and other measuring and testing devices shall be made available for use by the resident inspectors to verify that the buses conform to all specification requirements. If necessary, the Contractor's personnel shall be made available to operate the devices and to verify their condition and accuracy.

Discrepancies noted by the resident inspector during assembly shall be entered by the Contractor's inspection personnel on a record that accompanies the major component, subassembly, assembly, or bus from start of assembly through final inspection. Actions shall be taken to correct discrepancies or deficiencies in the manufacturing processes, procedures, or other conditions that cause articles to be in nonconformity with the requirements of the contract specifications. The inspection personnel shall verify the corrective actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the nonconforming materials, the Authority shall approve the modification, repair, or method of correction to the extent that the contract specifications are affected.

The primary resident inspector shall remain in the Contractor's plant for the duration of bus assembly work under the contract. Only the primary resident inspector or designee shall be authorized to release the buses for delivery. The resident inspectors shall be authorized to approve the pre-delivery acceptance tests. Upon request to the quality assurance supervisors, the resident inspectors shall have access to the Contractor's quality assurance files related to this procurement. These files shall include drawings, assembly procedures, material standards, parts lists, inspection processing and reports, and records of defects.

### d. SUPPORT PROVISIONS

Contractor shall provide office space for the resident inspectors in close proximity to the final assembly area. This office space shall be equipped with desks, outside and interplant telephones, file cabinet, chairs, and clothing lockers sufficient to accommodate the resident staff.

### C. ACCEPTANCE TESTS

### 1. RESPONSIBILITY

Fully-documented tests shall be conducted on each production bus following manufacture to determine its acceptance to the Authority. These acceptance tests shall include pre-delivery inspections and testing by the Contractor and inspections and testing by the Authority after the buses have been delivered.

### 2. PRE-DELIVERY TESTS

Contractor shall conduct acceptance tests at its plant on each bus following completion of manufacture and before delivery to the Authority. These pre-delivery tests shall include visual and measured inspections, as well as testing the total bus operation. The tests shall be conducted and documented in accordance with written test plans, approved by the Authority.

Additional tests may be conducted at the Contractor's discretion to ensure that the completed buses have attained the desired quality and have met the requirements in "Technical Specifications" (Section IV). The Authority may, prior to commencement of production, demand that the Contractor demonstrate compliance with any requirement in "Technical Specifications" (Section IV), if there is evidence that prior tests have been invalidated by Contractor's change of supplier or change in manufacturing process. Such demonstration shall be by actual test or by supplying a report of a previously performed test on similar or like components and configuration. Any additional testing shall be recorded on appropriate test forms provided by the Contractor and shall be conducted before approval of bus delivery to the Authority.

The pre-delivery tests shall be scheduled and conducted with fifteen (15) days' notice so that they may be witnessed by the resident inspectors, who may accept or reject the results of the tests. The results of pre-delivery tests, and any other tests, shall be filed with the assembly inspection records for each bus. The underfloor equipment shall be available for inspection by the resident inspectors, using a pit or bus hoist provided by the Contractor. A hoist, scaffold, or elevated platform shall be provided by the Contractor to easily and safely inspect bus roofs. Delivery of each bus shall require written authorization of the primary resident inspector. Authorization forms

for the release of each bus for delivery shall be provided by the Contractor. An executed copy of the authorization shall accompany the delivery of each bus.

### a. INSPECTION - VISUAL AND MEASURED

Visual and measured inspections shall be conducted with the bus in a static condition. The purpose of the inspection testing is to verify overall dimensional and weight requirements, to verify that required components are included and are ready for operation, and to verify that components and subsystems that are designed to operate with the bus in a static condition do function as designed.

### b. TOTAL BUS OPERATION

Total bus operation shall be evaluated during road tests. The purpose of the road tests is to observe and verify the operation of the bus as a system and to verify the functional operation of the subsystems that can be operated only while the bus is in motion.

Each bus shall be driven for a minimum of fifteen (15) miles during the road tests. Observed Defects shall be recorded on the test forms. The bus shall be retested when Defects are corrected and adjustments are made. This process shall continue until Defects or required adjustments are no longer detected. Results shall be pass/fail for these bus operation tests.

### 3. POST-DELIVERY TESTS

The Authority may conduct vehicle inspection tests on each delivered bus. These tests shall be completed within thirty (30) calendar days after bus delivery and shall be conducted in accordance with written test plans. The purpose of these tests is to identify defects that have become apparent between the time of bus release and delivery to the Authority. The post-delivery tests shall include visual inspection and bus operations. No post-delivery test shall apply criteria that are different from the criteria applied in an analogous pre-delivery test (if any).

Buses that fail to pass the post-delivery tests are subject to rejection. The Authority shall record details of all Defects on the appropriate test forms and shall notify the Contractor of each bus status within thirty (30)

calendar days according to "Acceptance of Bus" after completion of the tests. The Defects detected during these tests shall be repaired according to procedures defined in the Agreement, "Repairs By Contractor."

### a. VISUAL INSPECTION

The post-delivery inspection is similar to the inspection at the Contractor's plant and shall be conducted with the bus in a static condition. Any visual delivery damage shall be identified and recorded during the visual inspection of each bus.

### b. BUS OPERATION

Road tests will be used for total bus operation similar to those conducted at the Contractor's plant. In addition, the Authority may elect to perform chassis dynamometer tests. Operational deficiencies of each bus shall be identified and recorded.

### D. GUIDE FOR INSPECTION

The following provides the Authority's general criteria of the manufacturing and bus inspections intended for each one of the buses procured under this solicitation, including product quality assurance, audit, certifications required by FTA, Buy America regulations pertaining to rolling stock purchases and the Authority's on-site inspection tests and acceptance guidelines.

This inspection is intended to be in compliance with all Code of Federal Regulations (CFR), 49 CFR 661 Buy America, 49 CFR 668 Pre-Award and Post Delivery Audits of Rolling Stock purchases, 49 CFR 668 Bus Testing, United States Code (USC) 49 USC 5323 (j) Buy America, Federal Acquisitions Regulations, FTA Master Agreement, FTA Circular 4220.1F, FTA Circular 5000 Grants Management, FTA Handbook Conducting Pre and Post-Delivery Audits, FTA Best Practices Procurement manual to include Buy America Certification, Buy America and Buy America Requirements and all applicable standards set forth in 49 CFR, Part 571 – Federal Motor Vehicle Safety Standards.

- 1. TASKS
  - a. Pre-production meeting in Orange County, California, or at the

manufacturer's location having representatives from the Authority and the Contractor prior to the manufacturing of First Article bus.

- b. Authority's issuing of the Notice to Proceed with the manufacturing of the First Article bus.
- c. In-plant inspection of the First Article bus at the Contractor's facility/location, to include configuration review of the Authority's first article, Buy America Audit.
- d. Contractor's presentation of a fully completed First Article bus at the manufacturer's location.
- e. The Authority personnel perform the in-plant review of the First Article bus and, if in compliance with all the requirements, approval for shipment is provided to the Contractor.
- f. Contractor performs licensing and registration of the First Article bus prior to delivery to the Authority.
- g. Continued inspection at the final delivery location, any of the Authority facilities in Orange County, California, including forty (40) hours of uninterrupted revenue service testing.
- h. Completion of First Article testing and review after all discrepancies are corrected to Authority's satisfaction.
- i. Authority issues Notice to Proceed with the Production Run
- j. Same above listed steps are followed with the Production Run
- 2. PRE-PRODUCTION PHASE
  - a. Authority personnel or its On-Site inspector will conduct a review of Contractor's supplied documents for areas such as Buy America Pre-Award Compliance audit, Buy America Pre-Award Purchasers Requirements Certification, Buy America Pre-Award FMVSS Certification, DOT Safety requirements/specifications/regulations; and Quality Control/Quality Assurance procedures. Formal reports to the Authority in these areas are required.
  - b. Authority personnel and its On-Site inspector will be provided with all contract documentation with bus manufacturer prior to start of manufacture.
  - c. Authority personnel and/or its On-Site inspector will attend a preproduction audit meeting with the bus manufacturer. At this meeting, primary contact persons from the Authority, the bus manufacturer

and In-Plant inspection representatives are expected to be present to finalize vehicle configuration decisions/documentation; and review manufacturing processes and schedule.

### 3. MANUFACTURING PHASE

- a. Authority personnel or its On-Site inspectors will be on site at the manufacturer's location during all phases of manufacture, unless otherwise instructed by the Authority in writing.
- b. Authority personnel or its On-Site inspectors will provide continuity of inspectors during each vehicle acquisition for the Authority.
- c. The Authority or its On-Site inspectors will ensure sufficient staffing on site based on the production schedules and quantity of buses to ensure expedited production. Inspection delays cannot be allowed to slow down the manufacturing process, except for documented quality problems.
- d. On-site inspectors will be available during all normal work hours of the manufacturer.
- e. On-Site Inspectors will work cooperatively with manufacturers and the Authority representatives. The expected result is a high-quality transit vehicle completed on schedule, and in conformance with Federal, State & local specifications, with minimal changes in configuration during manufacture.
- f. Authority or its On-Site inspectors will designate a project "Team Leader" (in the event more than one inspector is assigned to a project). This person will be the primary point of contact for the Authority staff, and will be the direct liaison with the manufacturer's personnel, and the only person delegated to make "stop work" or "stop ship" decisions on behalf of the Authority, based on pre-agreed criteria. The Authority will similarly appoint a single point of contact.
- g. The On-Site inspector will provide daily and weekly summary reports by e-mail or facsimile to the designated Authority Project Manager. The written reports will include, at a minimum, the following items:
  - Production progress during the period.
  - Production schedule.
  - Vehicle shipment status.
  - Production line movement identified by stage and Authority vehicle numbers.
  - Specific problems encountered during the period.

- Status of problems/issues reported during the previous reporting periods.
- Recommended solutions to problems/issues reported.
- Request for input from the Authority to make a decision or support the On-Site inspector's position.
- General comments.
- h. The On-Site inspector will ensure that the manufacture of the vehicles is in a manner consistent with all 49 CFR Part 571 & California State regulations (Title 13 CCR and specifications; as well as Authority's specifications (incorporating any approved changes).
- i. The On-Site inspector will meet with the Authority Project Manager at the end of production of the First Article, to conduct a configuration audit on the First Article bus. Once the configuration has been established, the On-Site inspector will produce the required Buy America post-delivery audit documents prior to Authority's issuing of the Notice to Proceed to the Manufacturer.
- j. The On-Site inspector will inspect and certify that each bus complies with the Buy America content/requirement, and Authority's configuration requirements, as approved with the first article.
- k. The On-Site inspector will maintain and distribute meeting minutes for any formal meeting (i.e.: pre-production audit meeting) held with the manufacturer and/or the Authority.
- I. Except for those differences among vehicles in a single order that might be required for in the specifications, the On-Site inspector will ensure that all transit vehicles manufactured are identical and interchangeable within the same order. The On-Site inspector will similarly ensure that vehicle manuals and other documentation are updated with any changes to match actual vehicle configuration.
- m. During the production of the first buses, the production line will be thoroughly evaluated for its conformity to the agreements set forth during the initial audit process. This will include compliance to the quality assurance program, testing requirements, documentation of certification testing, including but not limited to fastener testing, steel treatment, torque wrench calibration, welding testing (ultra sound and die penetrant testing), paint adhesion testing, paint thickness testing, electrical wiring and component ratings, etc.
- n. All final operating tests will be checked during the final buy-off stage to help ensure that all of the appropriate testing has been completed. If the tests fail to meet the standard of the technical specifications,

the On-Site inspector will develop a list that will be forwarded to the manufacturer requesting adjustments in the process. The goal is to adjust the testing within the final stages of the first two to five buses.

- o. As part of the final inspection phase, the On-Site inspector will perform a road test, riding each bus and listening for abnormal power train noises, interior rattles, and observing for proper shift points, acceleration, braking performance, ride quality, and appropriate functioning of other bus systems.
- p. Upon completion of manufacture of each unit, the On-Site inspector will perform a full inspection test at the manufacturer's location prior to shipment to the Authority. Any defects noted will be made known to the manufacturer and tracked for correction prior to shipment to the Authority. Upon approval for shipment by the On-Site inspector, the On-Site inspector will transmit a copy of the inspection sheet to the Authority for each vehicle as quickly as practical to expedite final vehicle inspection at the Authority. On-Site inspector will not allow the manufacturer to ship any vehicle that has not successfully passed this inspection, unless approved in writing by the Authority.
- q. Specific emphasis will be placed on undercarriage, electrical installation, brakes, wheelchair lift, air conditioning, differential, and interior seating. It cannot be over-emphasized that the production line is critical point for identification and documentation of noncompliant matters and to clarify and resolve noted discrepancies and issues to include:
  - QC production procedures.
  - Weld integration (Zyglow, ultrasound test methods, etc.).
  - Frame undercoating thickness.
  - Sheet metal application, fit and finish, sidewall trueness as well as sheet metal quality.
  - Paint adherence pull test and thickness tests.
  - Paint Quality (orange peel, fish eye, sagging, and dirt)
  - Detailed Inspection to include hydraulic lines, fuel lines and electrical harnesses.
  - Electrical component ratings and proper grounding.
  - Proper clamping, routing and spacing of air lines from making contact with other components.
  - Proper clamping, routing and spacing of electrical wire harnesses from making contact with other components.
  - Etc.

- r. The on-site inspector will be responsible for providing at a minimum, the following (As applicable) with each individual bus record:
  - Inspection Report verifying conformity to all specifications.
  - Methane Detection System Test.
  - Wheel alignment
  - Fire Suppression System Test
  - Water test certification
  - Front end alignment and steering stop adjustment certification.
  - "Completed Bus" inspection document.
  - Copy of defects and corrections noted during bus inspection.
  - VIN number (copy of bus data plate)
  - Manufacturer inspection records
  - Certificate of Origin
  - Certified Weight slip (curb weight)
  - On-Site Inspector's inspection documents
  - Final factory bus inspection Report
  - Road Test function Report to include:
    - Acceleration Test
    - Top Speed Test
    - Service Brake Test
    - Parking Brake Test
    - Turning Effort Test
      - Turning Radius Test
    - Shift Quality
    - Retarder Deceleration Test
  - During the road test, one vehicle should be taken to a weigh station to record the vehicle's front axle weight; rear axle weight and total vehicle (curb) weight.
  - A list of major component serial numbers will be documented for each bus; at a minimum the following components will be listed:
    - > Engine
    - Transmission
    - Alternator
    - Starter
    - HVAC Unit
    - AC Compressor
    - Drive Axle
    - Power Steering Unit

- > Air Compressor
- Engine Cooling System (EMP)
- All other components that the manufacturer will require in order to process warranty claims.
- s. The On-Site inspector will be responsible for providing at a minimum, the following (As applicable) with each separate bus build:
  - A Pre-Award Purchasers Requirements certification, which certifies that the product meets the Authority's specifications and is being built within the requirements outlined in 49 CFR, Sections 663.27, 663.25 & 663.23
  - A copy of the Pre-Award and Post-Delivery manufacturer's self-certification of compliance with the Federal Motor Vehicle Safety Standards (FMVSS) stating that the bus manufactured meets the requirements of those standards (49 CFR, Sec. 663.41).
  - A Post-Delivery Audit. The On-Site inspector will certify that each bus was built to the specified FTA requirements/specifications and Authority configuration in accordance with 49 CFR, Sections, 663.33, 663.35, 663.37 & 663.39.
- t. The On-Site inspector is not responsible for final bus acceptance. This task will be performed by the Authority personnel.

### 4. POST PRODUCTION ACTIVITIES

- a. The On-Site inspector will provide final written documentation to the Authority summarizing the production processes and issues supplemented for each bus; and copies of the inspection write-ups of each vehicle inspected.
- b. In addition to the bus production documents, and Road Test Sheets, all memoranda and QA correspondence will be stored and chronologically organized and provided in the final production report.
- 5. VEHICLE INSPECTION PHASE AT AUTHORITY
  - a. Upon delivery of the bus to the Authority facilities, Authority personnel shall perform a complete delivery/vehicle

inspection/verification to include, among others, recording of all vehicle serialized components, e.g., VIN number, transmission serial #, engine, serial #, axles, etc.

- b. Visual checks to include, among others, all exterior lights, body finish, paint, decals, installation of bike rack, operation of all interior and exterior access panels and doors, latches, condition of tires, etc.
- c. Mechanical checks to include verification of lug nuts torque, belt tensions, lubrication of chassis, lubrication of driveshaft, lubrication of components, re-torqueing of components, testing of fire suppression and methane detection systems, drain and replace engine oil, check of transmission and engine mounts, etc.
- d. Operational checks to include, among others, seat belts, steering column, horn, sun visors, mirrors, windows, parking brake, wiper blades, ventilation system, transmission shifting quality, air conditioning, parking brake, fluid and fuel leaks, plumbing, radio system, on board video surveillance system, passenger counters, voice announcement, destination signs, sun visors, driver's controls, passenger circulation, lights, switches, knobs, emergency releases, etc.
- e. Drivability tests to include, among others, at a minimum, 40-hours of continuous uninterrupted service testing to evaluate performance, driving ability, steering response, cooling system's performance, vehicle speed, system's operation and interaction, acceleration, engine compartment temperature, braking distances, etc.
- f. Dimensional and performance tests to include complete electrical system audit, dimensional requirements audit, seating capacity, water test, water runoff test, function test of systems and subsystems and components, sound/noise level tests, airflow test, PA function, silent alarm, interior lighting, exterior lighting, gradeability test, kneeling, HVAC pull-down test, wheelchair ramp, axle weight, engine and transmission performance test among others.
- g. Additional tests and/or verifications maybe included based on the outcome of previously listed tests, inspections and checks.
- h. If any discrepancies are noted, the bus shall be rejected and the list of discrepancies shall be provided to the bus manufacturer. The bus manufacturer shall be responsible for removing the bus from the Authority property, performing the corrections and repairs to the

highlighted deficiencies and re-delivering the bus to Authority for a secondary vehicle inspection.

i. Upon receipt of the re-delivered bus, the Authority shall perform a new bus inspection to verify that all items are individually, and/or as a system, in working order to include all items provided in the discrepancy list. If existing or additional discrepancies are noted, the bus shall be rejected and the bus manufacturer will be required to remove the bus from Authority's property to perform the necessary repairs. Upon completion of the manufacturer's repairs, the bus will be redelivered to Authority for a follow up inspection and at that point, if all repairs were performed to the Authority's satisfaction, the bus shall be released for revenue service and Authority personnel will start the necessary paperwork to add the bus to the revenue fleet and will complete the internal paperwork e.g., forms, approvals, signature of invoices, etc. If the bus is rejected, the bus manufacturer shall be required to remove the bus from Authority property and to continue the repairs until completion of a satisfactory and fully functional bus.

SECTION VII: WARRANTY REQUIREMENTS

### A. BASIC PROVISIONS

### 1. WARRANTY REQUIREMENTS

### a. CONTRACTOR WARRANTY

Warranties in this document are in addition to any statutory remedies or warranties imposed on the Contractor. Any warranties extended by component or subsystem manufacturers/suppliers that exceed the warranty terms shall be provided to the Authority. Consistent with this requirement, the Contractor warrants and guarantees to the original Authority each complete bus, and specific subsystems and components as follows.

### b. COMPLETE BUS

The complete bus, propulsion system, components, major subsystems, and body and chassis structure, shall be warranted to be free from Defects and Related Defects for one (1) year or 50,000 miles, whichever comes first, beginning on the date of deployment in revenue service. The warranty is based on regular operation of the bus under the operating conditions prevailing in the Authority's locale.

### c. BODY AND CHASSIS STRUCTURE

The body, body structure, bolted and non- bolted components, all fasteners, frames, skeletal, cages, enclosures, structural elements of the suspension, such as the primary load carrying members of the bus structure, shall be warranted from corrosion, failure and/or fatigue, for the service life of the bus

### d. PROPULSION SYSTEM

Propulsion system components specifically the engine, transmission and drive and non-drive axles shall be warranted to be free from Defects and Related Defects for five years or 300,000 miles, whichever comes first. Propulsion system manufacturer's standard warranty, delineating items excluded from this warranty, submitted in accordance with Section I of the Authority's solicitation.

The proposed engine warranties shall start after completion of each bus' deployment into revenue service and after correction of all, and any discrepancies noted during the Quality Assurance (QA) and Quality Control (QC) inspection processes. The QA/QC process shall be documented via Authority's Work Order Control System, Ellipse, and the Contractor shall be formally informed in writing, by Authority's Warranty Coordination Section, of the bus/engine's official in-service date to commence the warranty terms.

Contractor shall provide verification of warranty registration immediately upon the registration of each engine.

Unless specified otherwise, all engine warranty service shall be provided by Cummins authorized technicians at the Base where the bus needing such service is normally domiciled; which may be at any of the Authority operating facilities in the County of Orange, California.

During the entire base and extended engine warranty period, two (2) years, 100,000 miles, the Authority shall not be invoiced for travel time, hourly technician rate/fee, mileage, etc., as a result of field service calls provided by the Warranty Center/Provider/Dealer/Service network and/or Repair Facility.

No administration fees, registration fees, filing fees or any other fees shall be charged to Authority for all or any steps, processes, etc., required or associated with any aspect of the provided warranties and or engine registrations.

### e. MAJOR SUBSYSTEMS

Major subsystems shall be warranted to be free from Defects and Related Defects, for a minimum of three years or 150,000 miles, whichever comes first. Major subsystem manufacturers standard warranty, delineating items excluded from this warranty, submitted in accordance to this solicitation. Items included as Major Subsystems are listed below:

Brake system Heating, Ventilating, and Air conditioning system All electrical cooling system Door systems Air compressor and dryer Wheelchair kneeling and ramp system Starter Alternator **Electrical Batteries** Fuel Storage System Fire Suppression System Methane Detection All electric cooling System Exhaust system in its entirety Hydraulic pump(s) Steering system including steering wheel, gear box, linkages, and all others.

Exceptions are:

- Destination signs shall be warranted to be free from defects for the life of the bus.
- All wiring and electrical harnesses, including connectors, terminal ends, fasteners, securements, etc., shall be free from defects, water intrusion, corrosion and failures for a period of 12 years.
- Headlights 6 years, unlimited miles warranty
- All LED lights shall be warranted to be free from defects for the life of the bus.
- Ultra-capacitor and control system shall be warranted to be free from defects for 5 years, unlimited miles.
- Decals 6-year, unlimited mileage
- CNG Fuel tanks; 20 years, unlimited miles
- 12 Years, unlimited miles, warranty corrosion on CNG Tank cradles, fasteners, brackets and all others.
- Front and Rear Axles; 5 years, 300,000 miles
- Driver's seat, 5 years, unlimited miles
- Instrument cluster and gateway, 5 years, 300,000 miles.
- CLASS system 5 years, 300,000 miles
- Passenger seats, 6 years, 300,000 miles

### f. EXTENSION OF WARRANTY

If, during the warranty period, repairs or modifications on any bus, made necessary by defective design, materials or workmanship are not completed due to lack of material or inability to provide the proper repair for thirty (30) calendar days, the applicable warranty period shall be extended by the number of days equal to the delay period.

### 2. VOIDING OF WARRANTY

The warranties shall not apply to the failure of any part or component of the bus that directly results from misuse, negligence, accident, or repairs not conducted in accordance with the Contractor provided maintenance manuals and with workmanship performed by adequately trained personnel in accordance with recognized standards of the industry. The warranty shall also be void if the Authority fails to conduct normal inspections and scheduled preventive maintenance procedures as recommended in the Contractor's maintenance manuals and that omission caused the part or component failure. The Authority shall maintain documentation, auditable by the Contractor, verifying service activities in conformance with the Contractor's maintenance manuals.

a. EXCEPTIONS AND ADDITIONS TO WARRANTY

The warranties shall not apply to the following scheduled maintenance

items, normal wear-out items, and items furnished by the Authority, except insofar as such equipment may be damaged by the failure of a part or component for which the Contractor is responsible.

The warranties shall not apply to components and major subsystems specified by the Authority, and required by the Authority to be installed on the bus by the Contractor, if the following conditions apply: the Authority has rejected the Contractor's requests for approved equal under Section I of the Authority's solicitation, and the component or major subsystem supplier declines to participate in this warranty; and the Contractor's original Offer. The Contractor shall pass on to the Authority any warranty, offered by a component supplier, that is superior to that required herein.

### 3. DETECTION OF DEFECTS

If the Authority detects a Defect within the warranty periods defined in "Warranty Requirements", it shall within twenty (20) working days, notify the Contractor's representative. Within five working days after receipt of notification, the Contractor's representative shall either agree that the Defect is in fact covered by warranty, or reserve judgment until the subsystem or component is inspected by the Contractor's representative or is removed and examined at the Authority's property or at the Contractor's plant. At that time, the status of warranty coverage on the subsystem or component shall be mutually resolved between the Authority and the Contractor. Work shall commence to correct the Defect within ten (10) working days after receipt of notification and shall be conducted in accordance with "Repairs by Contractor" in the Agreement.

4. SCOPE OF WARRANTY REPAIRS

When warranty repairs are required, the Authority and the Contractor's representative shall agree within five (5) working days after notification on the most appropriate course for the repairs and the exact scope of the repairs to be performed under the warranty. If no agreement is obtained within the five-day period, the Authority reserves the right to commence the repairs in accordance with "Repairs by Authority".

5. FLEET DEFECTS

### a. OCCURRENCE AND REMEDY

A fleet defect is defined as cumulative failures of any kind in the same components in the same or similar application where such items covered by the warranty and such failures occur in the warranty period in the specified proportion of the buses delivered under this contract. For this agreement, the proportion shall be twenty (20) percent. Contractor shall correct a fleet defect under the warranty provisions defined in "Repair Procedures". After correcting the Defect, the Authority and the Contractor shall mutually agree to and the Contractor shall promptly undertake and complete a work program reasonably designed to prevent the occurrence of the same Defect in all other buses and spare parts purchased under this contract. Where the specific Defect can be solely attributed to particular identifiable part(s), the work program shall include redesign and/or replacement of only the defectively designed and/or manufactured part(s). In all other cases, the work program shall include inspection and/or correction of all of the buses in the fleet via a mutually agreed to arrangement.

### b. EXCEPTIONS TO FLEET DEFECT PROVISIONS

The fleet defect warranty provisions shall not apply to the Authoritysupplied items such as fareboxes, radio and fare collection equipment, communication systems, and tires,

Fleet defect warranty provisions shall not apply to components and major subsystems specified by the Authority and required by the Authority to be installed on the bus by the Contractor, if the following conditions apply: the Authority has rejected the Contractor's requests for approved equal and the component or major subsystem supplier declines to participate in this warranty; and the Contractor notifies the Authority in writing with, or before submitting, Contractor's original Offer. The Contractor shall pass on to the Authority any warranty, offered by a component supplier, that is superior to that required herein.

### **B. REPAIR PROCEDURES**

### 1. REPAIR PERFORMANCE

Contractor is responsible for all warranty-covered repair work. To the extent practicable, the Authority will allow the Contractor or its designated representative to perform such work. At its discretion, the Authority may perform such work if it determines it needs to do so based on transit service or other requirements. Such work shall be reimbursed by the Contractor including parts, labor and towing costs.

### 2. REPAIRS BY CONTRACTOR

Contractor or its designated representative shall begin work on warrantycovered repairs, within three (3) calendar days after receiving notification of a Defect from the Authority. The Authority shall make the bus available to complete repairs timely with the Contractor repair schedule. The Contractor shall provide at its own expense all spare parts, tools, and space required to
complete repairs. At the Authority's option, the Contractor may be required to remove the bus from the Authority's property while repairs are being performed. If the bus is removed from the Authority's property, repair procedures must be diligently pursued by the Contractor's representative.

# 3. REPAIRS BY AUTHORITY

# a. PARTS USED

If the Authority performs the warranty-covered repairs, it shall correct or repair the Defect and any Related Defects utilizing parts supplied by the Contractor specifically for this repair. At its discretion, the Authority may use Contractor-specified parts available from its own stock if deemed in its best interest. Reports of all parts loaned to the Contractor, covered by this warranty shall be submitted by the Authority to the Contractor for reimbursement or replacement of parts monthly, or at a period to be mutually agreed upon, the Contractor shall replace or reimburse the Authority at full value all parts loaned to the Contractor within ten days after receiving the report.

# b. CONTRACTOR SUPPLIED PARTS

If the Authority request that the Contractor supply new parts for warrantycovered repairs these parts shall be shipped prepaid to the Authority from any source selected by the Contractor within 10 (ten) working days of receipt of the request for said parts. Parts supplied by the Contractor shall be Original Equipment Supplier (OEM) equivalent or superior to that used in the bus original manufacture.

# c. DEFECTIVE COMPONENTS RETURN

The Contractor may request that parts covered by the warranty be returned to the manufacturing plant. The total cost for this action shall be paid by the Contractor. Materials should be returned in accordance with Contractor's instructions.

# d. FAILURE ANALYSIS

Contractor shall, upon specific request of the Authority, provide a failure analysis of fleet defect- or safety-related parts, or major components, removed from buses under the terms of the warranty, that could affect fleet operation. Such reports shall be delivered within 45 days of the receipt of failed parts.

# e. REIMBURSEMENT FOR LABOR

The Authority shall be reimbursed by the Contractor for labor. The amount shall be determined by multiplying the number of man-hours actually

required to correct the Defect by a per hour, mechanic, straight wage rate, plus 25% percent fringe benefits and 58% overhead rate [SWR x 125] x 1.58), plus the cost of towing in the bus if such action was necessary and if the bus was in the normal service area. These wage and fringe benefit rates shall not exceed the rates in effect in the Authority's service garage at the time the Defect correction is made.

# f. REIMBURSEMENT FOR PARTS

The Authority shall be reimbursed by the Contractor for defective parts and for parts that must be replaced to correct the Defect. The reimbursement shall be at the current price at the time of repair and shall include taxes where applicable and 15% (fifteen) percent handling costs.

# g. REIMBURSEMENT REQUIREMENTS

Contractor shall reimburse the Authority for warranty labor and/or parts within forty-five (45) days of receipt of warranty claim.

# 4. WARRANTY AFTER REPLACEMENT/REPAIRS

If any component, unit, or subsystem is repaired, rebuilt or replaced by the Contractor or by the Authority with the concurrence of the Contractor, the component, unit, or subsystem shall have the unexpired warranty period of the original. Repairs shall not be warranted if Contractor-provided or authorized parts are not used for the repair; unless the Contractor has failed to respond within five days, in accordance with "Scope of Warranty Repairs".

The warranty on items determined to be fleet defects shall be extended for the time and/or miles of the original warranty remaining at the time the fleet defect was identified. This extended warranty shall begin on the repair/replacement date for corrected items on each bus.

EXHIBIT VIII: GENERAL TERMS AND CONDITIONS / PROPOSED AGREEMENT

DRAFT
PROPOSED AGREEMENT NO. C-9-1836
BETWEEN
ORANGE COUNTY TRANSPORTATION AUTHORITY
AND
CONTRACTOR
THIS AGREEMENT is effective as of this day of, 2020
("Effective Date"), by and between the Orange County Transportation Authority, 550 South Main Street,
P.O. Box 14184, Orange, CA 92863-1584, a public corporation of the State of California (hereinafter
referred to as "AUTHORITY"), , , (hereinafter referred to as "CONTRACTOR").
WITNESSETH:
WHEREAS, AUTHORITY requires assistance from CONTRACTOR to manufacture and deliver
299 forty-foot low floor compressed natural gas-powered (CNG) buses; and
WHEREAS, said work cannot be performed by the regular employees of AUTHORITY; and
WHEREAS, CONTRACTOR has represented that it has the requisite personnel, experience and
facilities, and is capable of manufacturing and delivering such buses in accordance to AUTHORITY's
technical specifications; and
WHEREAS, CONTRACTOR wishes to perform the services required to manufacture and deliver
the buses;
NOW, THEREFORE, it is mutually understood and agreed by AUTHORITY and CONTRACTOR
as follows:
ARTICLE 1. COMPLETE AGREEMENT
A. This Agreement, including all exhibits and documents incorporated herein and made
applicable by reference, constitutes the complete and exclusive statement of the terms and conditions of
the Agreement between AUTHORITY and CONTRACTOR and it supersedes all prior representations,
understandings and communications. The invalidity in whole or in part of any term or condition of this
Agreement shall not affect the validity of other terms or conditions.

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B. AUTHORITY's failure to insist in any one or more instances upon CONTRACTOR's performance of any terms or conditions of this Agreement shall not be construed as a waiver or relinquishment of AUTHORITY's right to such performance or to future performance of such terms or conditions and CONTRACTOR's obligation in respect thereto shall continue in full force and effect. Changes to any portion of this Agreement shall not be binding upon AUTHORITY except when specifically confirmed in writing by an authorized representative of AUTHORITY by way of a written amendment to this Agreement and issued in accordance with the provisions of this Agreement.

## ARTICLE 2. AUTHORITY DESIGNEE

The Chief Executive Officer of AUTHORITY, or designee, shall have the authority to act for and exercise any of the rights of AUTHORITY as set forth in this Agreement.

# ARTICLE 3. TECHNICAL SPECIFICATIONS

A. CONTRACTOR shall perform the work necessary to complete in a manner satisfactory to AUTHORITY the services set forth in Exhibit \_\_, entitled "Technical Specifications," attached to and, by this reference, incorporated in and made a part of this Agreement. All services shall be provided at the times and places designated by AUTHORITY.

B. CONTRACTOR shall provide the personnel listed below to perform the above-specified services, which persons are hereby designated as key personnel under this Agreement.

	Name	Function
	•	
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C. No person named in paragraph B of this Article, or his/her successor approved by AUTHORITY, shall be removed or replaced by CONTRACTOR, nor shall his/her agreed-upon function or level of commitment hereunder be changed, without the prior written consent of AUTHORITY.

D. Should the services of any key person become no longer available to CONTRACTOR, the

resume and qualifications of the proposed replacement shall be submitted to AUTHORITY for approval as soon as possible, but in no event later than seven (7) calendar days prior to the departure of the incumbent key person, unless CONTRACTOR is not provided with prior notice by the departing employee. AUTHORITY shall respond to CONTRACTOR within seven (7) calendar days following receipt of these qualifications concerning acceptance of the candidate for replacement.

## ARTICLE 4. TERM OF AGREEMENT

This Agreement shall commence upon the effective date of this Agreement, and shall continue in full force and effect through \_\_\_\_\_, unless earlier terminated or extended as provided in this Agreement.

## ARTICLE 5. ASSIGNABILITY OF OPTIONS

If the Authority does not exercise the options as listed in this Agreement, then the Authority reserves the right to assign the options to other grantees of FTA funds in accordance with FTA Circular 4220.1F or its successors.

## ARTICLE 6. MILESTONE PAYMENTS

A. AUTHORITY shall pay and the CONTRACTOR shall accept the amounts set forth in Exhibit \_\_\_, entitled "Price Summary Sheet" attached to and, by this reference, incorporated in and made a part of this Agreement, as full compensation for all costs and expenses of completing the work in accordance with the Agreement, including but not limited to all labor and material required, overhead, expenses, storage and shipping, risks and obligations, taxes (as applicable), fees and profit, and any unforeseen costs.

B. All payments, including the First Article, shall be made as provided herein, less a withholding of fifteen percent (15%) plus any additional monies withheld as provided below and less any amounts for liquidated damages in accordance with Article 38, Liquidated Damages.

C. AUTHORITY shall make payments for buses at the unit prices itemized in the Price Summary Sheet, less retention, within thirty (30) calendar days after receipt of a proper invoice.

D. Invoice shall be submitted with confirmed completion of requirements for each vehicle, as applicable.

#### AGREEMENT NO. C-9-1836

E. For each bus delivered, CONTRACTOR shall issue two (2) invoices. The first invoice for an amount equal to eighty-five percent (85%) of the total bus price shall be issued after the CONTRACTOR's completion of all repairs, correction of all discrepancies, compliance with all technical requirements, verification of proper integration of items, devices and components to AUTHORITY's satisfaction, and any and all other noted items during "Vehicle Inspection Phase at AUTHORITY" performed after delivery to the AUTHORITY. See Section VI – Quality Assurance, Vehicle Inspection Phase at Authority.

F. The second invoice for an amount equal to fifteen (15%) percent of the total bus price shall be issued upon final acceptance upon successful delivery and AUTHORITY's acceptance of all technical and contractual requirements; e.g., 40-continuous hours of fail free revenue service, updated manuals, schematics, decals, corrections of all noted deficiencies during the vehicle inspection, warranty registrations, correction of all fleet defects, delivery of all ordered spare components, diagnostic equipment, and overall delivery and acceptance of all Contractual deliverables, CONTRACTOR provisions of any certifications as required by law, regulations and/or the RFP and other documents and certifications, e.g.; code compliance, legal, compliance, technical, ADA, FMVSS, DOT, Buy America, vehicle licensing and registration, etc., excluding training.

G. AUTHORITY shall make a final payment for all withholding within thirty (30) calendar days of receipt of a final proper invoice.

# ARTICLE 7. PROMPT PAYMENT CLAUSE

A. AUTHORITY has adopted a prompt payment provision on all U.S. DOT-assisted contracts to facilitate timely payment to all subcontractors in accordance with regulatory mandates. Pursuant to 49 CFR Part 26.29, AUTHORITY will include the following clause in each U.S. DOT-assisted contract:

B. "CONTRACTOR agrees to pay each subcontractor under this Agreement for satisfactory performance of its contract no later than seven (7) days from the receipt of each payment CONTRACTOR receives from AUTHORITY. CONTRACTOR agrees further to return retainage payments to each subcontractor within thirty (30) days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the Agreement work by AUTHORITY. Any

delay or postponement of payment from the above referenced time frame may take place only for good cause and with AUTHORITY's prior written approval." CONTRACTOR shall incorporate this clause verbatim, set forth above, in all subcontract, broker, dealer, vendor, supplier, purchase order or other source agreements issued to both DBE and non-DBE firms.

C. Any violation of the provisions listed above shall subject the violating CONTRACTOR to the penalties, sanctions, and other remedies specified in Section 7108.5 of the California Business and Professions Code. This requirement shall not be construed to limit or impair any contractual, administrative or judicial remedies otherwise available to CONTRACTOR or subcontractor in the event of a dispute involving late payment or nonpayment by CONTRACTOR; deficient subcontractor performance and/or noncompliance by a subcontractor.

D. Failure to comply with this provision without prior approval from AUTHORITY will constitute noncompliance, which may result in the application of appropriate administrative sanctions, including, but not limited to, a penalty of two percent (2%) of the invoice amount due per month, for every month that full payment is not made.

#### ARTICLE 8. MAXIMUM OBLIGATION

Notwithstanding any provisions of this Agreement to the contrary, AUTHORITY and CONTRACTOR mutually agree that AUTHORITY's maximum cumulative payment obligation (including obligation for CONTRACTOR's profit) shall be \_\_\_\_\_ Dollars (\$ \_\_\_\_\_.00) which shall include all amounts payable to CONTRACTOR for its subcontracts, leases, materials and costs arising from, or due to termination of, this Agreement.

## ARTICLE 9. NOTICES

All notices hereunder and communications regarding the interpretation of the terms of this Agreement, or changes thereto, shall be effected by delivery of said notices in person or by depositing said notices in the U.S. mail, registered or certified mail, returned receipt requested, postage prepaid and addressed as follows:

## AGREEMENT NO. C-9-1836

To CONTRACTOR:

To AUTHORITY:

Orange County Transportation Authority

550 South Main Street

P.O. Box 14184

Orange, CA 92863-1584

Phone: (714) 560–5842

Email: kmason@octa.net

ATTENTION:

ATTENTION: Kristen Mason Section Manager, Maintenance Procurement

Phone:

Email:

## ARTICLE 10. INDEPENDENT CONTRACTOR

A. CONTRACTOR's relationship to AUTHORITY in the performance of this Agreement is that of an independent contractor. CONTRACTOR's personnel performing services under this Agreement shall at all times be under CONTRACTOR's exclusive direction and control and shall be employees of CONTRACTOR and not employees of AUTHORITY. CONTRACTOR shall pay all wages, salaries and other amounts due its employees in connection with this Agreement and shall be responsible for all reports and obligations respecting them, such as social security, income tax withholding, unemployment compensation, workers' compensation and similar matters.

B. Should CONTRACTOR's personnel or a state or federal agency allege claims against AUTHORITY involving the status of AUTHORITY as employer, joint or otherwise, of said personnel, or allegations involving any other independent contractor misclassification issues, CONTRACTOR shall defend and indemnify AUTHORITY in relation to any allegations made.

# ARTICLE 11. INSURANCE

A. CONTRACTOR shall procure and maintain insurance coverage during the entire term of this
 Agreement. Coverage shall be full coverage and not subject to self-insurance provisions.
 CONTRACTOR shall provide the following insurance coverage:

1. Commercial General Liability, to include Products/Completed Operations,

Independent Contractors', Contractual Liability, Personal Injury Liability, Product Liability and Property Damage with a minimum limit of \$1,000,000.00 per occurrence and \$2,000,000.00 general aggregate;

2. Automobile Liability Insurance to include owned, hired and non-owned autos with a combined single limit of \$1,000,000.00 each accident;

3.

Employers' Liability with minimum limits of \$1,000,000.00; and

B. Proof of such coverage, in the form of a certificate of insurance, with the AUTHORITY, its officers, directors, employees and agents, designated as additional insureds as required by contract. In addition, provide an insurance policy blanket additional insured endorsement. Both documents must be received by AUTHORITY prior to commencement of any work. Proof of insurance coverage must be received by AUTHORITY within ten (10) calendar days from the effective date of this Agreement. Such insurance shall be primary and non-contributive to any insurance or self-insurance maintained by the AUTHORITY. Furthermore, AUTHORITY reserves the right to request certified copies of all related insurance policies.

C. CONTRACTOR shall include on the face of the certificate of insurance the Agreement Number C-9-1836; and, the Contract Administrator's Name, Kristen Mason.

D. CONTRACTOR shall also include in each subcontract the stipulation that subcontractors shall maintain insurance coverage in the amounts required from CONTRACTOR as provided in this Agreement.

E. CONTRACTOR shall be required to immediately notify AUTHORITY of any modifications or cancellation of any required insurance policies.

#### ARTICLE 12. ORDER OF PRECEDENCE

Conflicting provisions hereof, if any, shall prevail in the following descending order of precedence: (1) the provisions of this Agreement, including all exhibits; (2) the provisions of RFP 9-1836, (3) CONTRACTOR's initial cost proposal dated; and (4) all other documents, if any, cited herein or incorporated by reference.

## ARTICLE 13. CHANGES

A. By written notice or order, AUTHORITY may, from time to time, order work suspension and/or make changes in the general scope of this Agreement, including, but not limited to, the services furnished to AUTHORITY by CONTRACTOR as described in the Scope of Work. If any such work suspension or change causes an increase or decrease in the price of this Agreement or in the time required for its performance, CONTRACTOR shall promptly notify AUTHORITY thereof and assert its claim for adjustment within ten (10) calendar days after the change or work suspension is ordered, and an equitable adjustment shall be negotiated. However, nothing in this clause shall excuse CONTRACTOR from proceeding immediately with the Agreement as changed.

B. CONTRACTOR shall only commence work covered by an amendment after the amendment is executed by AUTHORITY.

## ARTICLE 14. DISPUTES

A. Except as otherwise provided in this Agreement, any dispute concerning a question of fact arising under this Agreement which is not disposed of by supplemental agreement shall be decided by AUTHORITY's Director, Contracts Administration and Materials Management (CAMM), who shall reduce the decision to writing and mail or otherwise furnish a copy thereof to CONTRACTOR. The decision of the Director, CAMM, shall be final and conclusive.

B. Pending final decision of a dispute hereunder, CONTRACTOR shall proceed diligently with the performance of this Agreement and in accordance with the decision of AUTHORITY's Director, CAMM. This Disputes clause does not preclude consideration of questions of law in connection with decisions provided for above. Nothing in this Agreement, however, shall be construed as making final the decision of any AUTHORITY official or representative on a question of law, which questions shall be settled in accordance with the laws of the State of California.

# ARTICLE 15. TERMINATION FOR CONVENIENCE

A. AUTHORITY may terminate this Agreement for its convenience at any time, in whole or part, by giving CONTRACTOR written notice thereof. Upon termination, AUTHORITY shall pay CONTRACTOR its allowable costs incurred to date of that portion terminated. Said termination shall be construed in accordance with the provisions of CFR Title 48, Chapter 1, Part 49, of the Federal Acquisition Regulation (FAR) and specific subparts and other provisions thereof applicable to termination for convenience. If AUTHORITY sees fit to terminate this Agreement for convenience, said notice shall be given to CONTRACTOR in accordance with the provisions of the FAR referenced above and Article 8, herein. Upon receipt of said notification, CONTRACTOR agrees to comply with all applicable provisions of the FAR pertaining to termination for convenience.

B. In the event either Party defaults in the performance of any of their obligations under this Agreement or breaches any of the provisions of this Agreement, the non-defaulting Party shall have the option to terminate this Agreement upon thirty (30) days' prior written notice to the other Party. Upon receipt of such notice, CONTRACTOR shall immediately cease work, unless the notice from AUTHORITY provides otherwise. Upon receipt of the notice from AUTHORITY, CONTRACTOR shall submit an invoice for work and/or services performed prior to the date of termination. AUTHORITY shall pay CONTRACTOR for work and/or services satisfactorily provided up to the date of termination in compliance with this Agreement. Thereafter, CONTRACTOR shall have no further claims against AUTHORITY under this Agreement. AUTHORITY shall not be liable for any claim of lost profits or damages for such termination.

# ARTICLE 16. TERMINATION FOR DEFAULT

A. The AUTHORITY may, by written notice of default to the CONTRACTOR, terminate the whole or any part of this Agreement if the CONTRACTOR fails to make delivery of the supplies or to perform the services within the time specified herein or any extension thereof; or if the CONTRACTOR fails to perform any of the other provisions of the Agreement, or so fails to make progress as to endanger performance of this Agreement in accordance with its terms, and in either of these two circumstances does not cure such failure within a period of ten (10) days (or such longer period as the AUTHORITY may authorize in writing) after receipt of notice from the AUTHORITY specifying such failure.

B. In the event that AUTHORITY elects to waive its remedies for any breach by CONTRACTOR

of any covenant, term or condition of this Agreement, such waiver by AUTHORITY shall not limit AUTHORITY's remedies for any succeeding breach of that or of any other term, covenant, or condition of this Agreement.

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C. If the Agreement is terminated in whole or in part for default, the AUTHORITY may procure, upon such terms and in such manner as the AUTHORITY may deem appropriate, supplies or services similar to those so terminated. CONTRACTOR shall be liable to the AUTHORITY for any excess costs for such similar supplies or services, and shall continue the performance of this Agreement to the extent not terminated under the provisions of this clause.

D. Except with respect to the defaults of subcontractors, the CONTRACTOR shall not be liable for any excess costs if the failure to perform the Agreement arises out of causes beyond the control and without the fault or negligence of the CONTRACTOR. If the failure to perform is caused by the Default of a subcontractor, and if such default arises out of causes beyond the control of both the CONTRACTOR and subcontractor, and without the fault or negligence of either of them, the CONTRACTOR shall not be liable for any excess costs for failure to perform, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the CONTRACTOR to meet the required delivery schedule.

E. Payment for completed supplies delivered to and accepted by the AUTHORITY shall be at the Agreement price. The AUTHORITY may withhold from amounts otherwise due the CONTRACTOR for such completed supplies such sum as the AUTHORITY determines to be necessary to protect the AUTHORITY against loss because of outstanding liens or claims of former lien holders.

F. If, after notice of termination of this Agreement under the provisions of this clause, it is determined for any reason that the CONTRACTOR was not in default under the provisions of this clause, or that the default was excusable under the provisions of this clause, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to termination for convenience of the AUTHORITY.

G. The rights and remedies of the AUTHORITY provided in this clause shall not be exclusive

and are in addition to any other rights and remedies provided by law or under this Agreement.

## ARTICLE 17. INDEMNIFICATION

CONTRACTOR shall indemnify, defend, and hold harmless AUTHORITY, its officers, directors, employees and agents from and against any and all claims (including attorneys' fees and reasonable expenses for litigation or settlement) for any loss, costs, penalties, fines, damages, bodily injuries, including death, damage to or loss of use of property, arising out of, resulting from, or in connection with the performance of CONTRACTOR, its officers, directors, employees, agents, subcontractors or suppliers under the Agreement. Notwithstanding the foregoing, such obligation to defend, hold harmless, and indemnify AUTHORITY, its officers, directors, employees and agents shall not apply to such claims or liabilities arising from the sole or active negligence or willful misconduct of AUTHORITY.

# ARTICLE 18. ASSIGNMENTS AND SUBCONTRACTS

A. Neither this Agreement nor any interest herein nor claim hereunder may be assigned by CONTRACTOR either voluntarily or by operation of law, nor may all or any part of this Agreement be subcontracted by CONTRACTOR, without the prior written consent of AUTHORITY. Consent by AUTHORITY shall not be deemed to relieve CONTRACTOR of its obligations to comply fully with all terms and conditions of this Agreement.

B. AUTHORITY hereby consents to CONTRACTOR's subcontracting portions of the Scope of Work to the parties identified below for the functions described below. CONTRACTOR shall include in the subcontract agreement the stipulation that CONTRACTOR, not AUTHORITY, is solely responsible for payment to the subcontractor for the amounts owing and that the subcontractor shall have no claim, and shall take no action, against AUTHORITY, its officers, directors, employees or sureties for nonpayment by CONTRACTOR.

	Subcontractor Name/Addresses	Subcontractor Amounts
		.00
		.00

## ARTICLE 19. ACCESS TO RECORDS AND REPORTS

CONTRACTOR shall provide AUTHORITY, the U.S. Department of Transportation (DOT), the Comptroller General of the United States, or other agents of AUTHORITY, such access to CONTRACTOR's accounting books, records, payroll documents and facilities of the CONTRACTOR which are directly pertinent to this Agreement for the purposes of examining, auditing and inspecting all accounting books, records, work data, documents and activities related hereto. CONTRACTOR shall maintain such books, records; data and documents in accordance with generally accepted accounting principles and shall clearly identify and make such items readily accessible to such parties during CONTRACTOR's performance hereunder and for a period of four (4) years from the date of final payment by AUTHORITY. AUTHORITY's right to audit books and records directly related to this Agreement shall also extend to all first-tier subcontractors identified in Article 18 of this Agreement. CONTRACTOR shall permit any of the foregoing parties to reproduce documents by any means whatsoever or to copy excerpts and transcriptions as reasonably necessary.

## ARTICLE 20. AUDIT AND INSPECTION OF REPORTS

A. In accordance with 49 C.F.R. § 18.36(i), 49 C.F.R. § 19.48(d), and 49 U.S.C. § 5325(a), provided the Authority is the FTA Recipient or a subgrantee of the FTA Recipient, the CONTRACTOR agrees to provide the Authority, FTA, the Comptroller General of the United States, the Secretary of the U.S. Department of Transportation, or any of their duly authorized representatives access to any books documents, papers, and records of the CONTRACTOR which are directly pertinent to or relate to this Agreement (1) for the purpose of making audits, examinations, excerpts, and transcriptions and (2) when conducting an audit and inspection.

B. In the event of a sole source Agreement, or single Offer, single responsive Offer, or competitive negotiated procurement the CONTRACTOR shall maintain and the AUTHORITY, the U.S. Department of Transportation (if applicable), or the representatives thereof, shall have the right to examine all books, records, documents, and other cost and pricing data related to the Agreement price, unless such pricing is based on adequate price competition, established catalog or market prices of commercial items sold

in substantial quantities to the public, or prices set by law or regulation, or combinations thereof. Data related to the negotiation or performance of the contract shall be made available for the purpose of evaluating the accuracy, completeness, and currency of the cost or pricing data. The right of examination shall extend to all documents necessary for adequate evaluation of the cost or pricing data, along with the computations and projections used therein, including review of accounting principles and practices that reflect properly all direct and indirect costs anticipated for the performance of the Contract.

C. For Agreement modifications or change orders the AUTHORITY, the U.S. Department of Transportation (if applicable), or their representatives shall have the right to examine all books, records, documents, and other cost and pricing data related to a Agreement modification, unless such pricing is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the public, or prices set by law or regulation, or combinations thereof. Data related to the negotiation or performance of the Agreement modification or change order shall be made available for the purpose of evaluating the accuracy, completeness, and currency of the cost or pricing data. The right of examination shall extend to all documents necessary for adequate evaluation of the cost or pricing data, along with the computations and projections used therein, either before or after execution of the Agreement modification or change order reveals inaccurate, incomplete, or out-of-date data, AUTHORITY may renegotiate the contract modification or change order price adjustment and the AUTHORITY shall be entitled to any reductions in the price that would result from the application of accurate, complete or up-to-date data.

D. For any cost reimbursable work the CONTRACTOR shall maintain and the AUTHORITY, the U.S. Department of Transportation (if applicable), or their representatives shall have the right to examine books, records, documents, and other evidence, including review of accounting principles and practices that reflect properly all direct and indirect costs incurred as related to said cost reimbursable work.

E. The materials described in Paragraphs A, B and C above shall be available at the CONTRACTOR's office at all reasonable times for inspection, audit, and making excerpts and

transcriptions until three years from the date of final payment under the Contract except that the materials described in Paragraph A above shall also be available prior to any award and materials relating to "Service and Parts". For records relating to appeals under "Disputes", "Audit and Inspection of Records", litigation, or the settlement of claims arising out of the negotiation or the performance of Agreement modifications, records shall be kept available until such appeals, litigation, or claims have been resolved.

F. AUTHORITY and any other parties authorized under this clause shall employ sound business practices to protect the confidence of the data specified under this clause, for which the CONTRACTOR provides access, against disclosure of such information and material to third parties except as permitted by the Contract. CONTRACTOR shall be responsible for ensuring that any confidential data bears appropriate notices relating to its confidential character.

G. The requirements of this section are in addition to other audit, inspection, and record-keeping provisions specified elsewhere in the Agreement documents.

# ARTICLE 21. CONFLICT OF INTEREST

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CONTRACTOR agrees to avoid organizational conflicts of interest. An organizational conflict of interest means that due to other activities, relationships or contracts, the CONTRACTOR is unable, or potentially unable to render impartial assistance or advice to the AUTHORITY; CONTRACTOR's objectivity in performing the work identified in the Scope of Work is or might be otherwise impaired; or the CONTRACTOR has an unfair competitive advantage. CONTRACTOR is obligated to fully disclose to the AUTHORITY in writing Conflict of Interest issues as soon as they are known to the CONTRACTOR. CONTRACTOR is obligated to fully disclose to the AUTHORITY in writing Conflict of Interest issues as soon as they are known to the CONTRACTOR. All disclosures must be submitted in writing to AUTHORITY pursuant to the Notice provision herein. This disclosure requirement is for the entire term of this Agreement.

## ARTICLE 22. SEVERABILITY

Whenever possible, each provision of the Contract shall be interpreted in a manner as to be effective and valid under applicable law. However, if any provision, or part of any provision, should be

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prohibited or invalid under applicable law, such provision, or part of such provision, shall be ineffective to the extent of such prohibition or invalidity without invalidating the remainder of such provision or the remaining provisions of the Contract.

#### ARTICLE 23. SURVIVAL

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The following sections shall survive the nominal expiration or discharge of other Contract obligations, and the AUTHORITY may obtain any remedy under law, Contract or equity to enforce the obligations of the CONTRACTOR that survive the manufacturing, warranty and final payment periods:

- "Finished and Preliminary Data
- "Indemnification"
- "Disputes"
- "Parts Availability Guaranty"
- "Access to Records"
- "Training"

# ARTICLE 24. CODE OF CONDUCT

CONTRACTOR agrees to comply with the AUTHORITY's Code of Conduct as it relates to Third-Party contracts, which is hereby referenced and by this reference is incorporated herein. CONTRACTOR agrees to include these requirements in all of its subcontracts.

# ARTICLE 25. PROHIBITION ON PROVIDING ADVOCACY SERVICES

CONTRACTOR and all subcontractors performing work under this Agreement, shall be prohibited from concurrently representing or lobbying for any other party competing for a contract with AUTHORITY, either as a prime CONTRACTOR or subcontractor. Failure to refrain from such representation may result in termination of this Agreement.

# ARTICLE 26. FEDERAL, STATE AND LOCAL LAWS

CONTRACTOR warrants that in the performance of this Agreement, it shall comply with all applicable federal, state and local laws, statutes and ordinances and all lawful orders, rules and regulations promulgated thereunder.

## ARTICLE 27. GENERAL NON-DISCRIMINATION CLAUSE

In connection with the performance of Work provided for under this Agreement, CONTRACTOR agrees that it will not, on the grounds of race, religious creed, color, national origin, ancestry, physical disability, medical condition, marital status, sex, sexual orientation or age, discriminate or permit discrimination against any person or group of people in any manner prohibited by federal, state or local laws.

## ARTICLE 28. EQUAL EMPLOYMENT OPPORTUNITY

In connection with its performance under this Agreement, CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age or national origin. CONTRACTOR shall take affirmative action to ensure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex, age or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

## ARTICLE 29. CIVIL RIGHTS ASSURANCE

During the performance of this Agreement, CONTRACTOR, for itself, its assignees and successors in interest agree as follows:

A. <u>Compliance with Regulations</u>: CONTRACTOR shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Agreement.

B. <u>Nondiscrimination</u>: CONTRACTOR, with regard to the work performed by it during the Agreement, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The CONTRACTOR shall not participate either directly or indirectly in the discrimination prohibited by Section

21.5 of the Regulations, including employment practices when the Agreement covers a program set forth in Appendix B of the Regulations.

C. <u>Solicitations for Subcontracts, Including Procurement of Materials and Equipment</u>: In all solicitations either by competitive bidding or negotiation made by the CONTRACTOR for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the CONTRACTOR of the CONTRACTOR's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

D. <u>Information and Reports</u>: CONTRACTOR shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the AUTHORITY to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this information the CONTRACTOR shall so certify to the AUTHORITY as appropriate, and shall set forth what efforts it has made to obtain the information.

E. <u>Sanctions for Noncompliance</u>: In the event of the CONTRACTOR's noncompliance with nondiscrimination provisions of this Agreement, the AUTHORITY shall impose Agreement sanctions as it may determine to be appropriate, including, but not limited to:

 Withholding of payments to the CONTRACTOR under the Agreement until the CONTRACTOR complies; and/or

2. Cancellation, termination, or suspension of the Agreement, in whole or in part.

F. <u>Title VI of the Civil Rights Act</u>: In determining the types of property or services to acquire, no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity receiving Federal financial assistance in violation of Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. Sections 2000d et seq. and DOT regulations, "Nondiscrimination in Federally

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Assisted Programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964," 49 CFR Part 21. In addition, FTA Circular 4702.1, "Title VI and Title VI-Dependent Guidelines for FTA Recipients," 05-13-07, provides FTA guidance and instructions for implementing DOT's Title VI regulations.

G. <u>The Americans with Disabilities Act of 1990, as amended (ADA)</u>, 42 U.S.C. Sections 12101 et seq., prohibits discrimination against qualified individuals with disabilities in all programs, activities, and services of public entities, as well as imposes specific requirements on public and private providers of transportation.

H. <u>Incorporation of Provisions</u>: CONTRACTOR shall include the provisions of paragraphs (A) through (H) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The CONTRACTOR shall take such action with respect to any subcontract or procurement as the AUTHORITY may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the CONTRACTOR may request the AUTHORITY to enter into such litigation to protect the interests of the AUTHORITY, and, in addition, the CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

# ARTICLE 30. PROHIBITED INTERESTS

A. CONTRACTOR covenants that, for the term of this Agreement, no director, member, officer or employee of AUTHORITY during his/her tenure in office or for one (1) year thereafter, shall have any interest, direct or indirect, in this Agreement or the proceeds thereof.

B. No member of or delegate to, the Congress of the United States shall have any interest, direct or indirect, in this Agreement or to the benefits thereof.

# ARTICLE 31. OWNERSHIP OF REPORTS AND DOCUMENTS

A. The originals of all letters, documents, reports and other products and data produced under this Agreement shall be delivered to, and become the property of AUTHORITY. Copies may be made for CONTRACTOR's records but shall not be furnished to others without written authorization from AUTHORITY. Such deliverables shall be deemed works made for hire and all rights in copyright therein shall be retained by AUTHORITY.

B. All ideas, memoranda, specifications, plans, manufacturing, procedures, drawings, descriptions, and all other written information submitted to CONTRACTOR in connection with the performance of this Agreement shall not, without prior written approval of AUTHORITY, be used for any purposes other than the performance under this Agreement, nor be disclosed to an entity not connected with the performance of the project. CONTRACTOR shall comply with AUTHORITY's policies regarding such material. Nothing furnished to CONTRACTOR, which is otherwise known to CONTRACTOR or is or becomes generally known to the related industry shall be deemed confidential. CONTRACTOR shall not use AUTHORITY's name, photographs of the project, or any other publicity pertaining to the project in any professional publication, magazine, trade paper, newspaper, seminar or other medium without the express written consent of AUTHORITY.

C. No copies, sketches, computer graphics or graphs, including graphic artwork, are to be released by CONTRACTOR to any other person or agency except after prior written approval by AUTHORITY, except as necessary for the performance of services under this Agreement. All press releases, including graphic display information to be published in newspapers, magazines, etc., are to be handled only by AUTHORITY unless otherwise agreed to by CONTRACTOR and AUTHORITY.

## ARTICLE 32. PATENT AND COPYRIGHT INFRINGEMENT

A. In lieu of any other warranty by AUTHORITY or CONTRACTOR against patent or copyright infringement, statutory or otherwise, it is agreed that CONTRACTOR shall defend at its expense any claim or suit against AUTHORITY on account of any allegation that any item furnished under this Agreement or the normal use or sale thereof arising out of the performance of this Agreement, infringes upon any presently existing U.S. letters patent or copyright and CONTRACTOR shall pay all costs and damages finally awarded in any such suit or claim, provided that CONTRACTOR is promptly notified in writing of the suit or claim and given authority, information and assistance at CONTRACTOR's expense

for the defense of same. However, CONTRACTOR will not indemnify AUTHORITY if the suit or claim results from: (1) AUTHORITY's alteration of a deliverable, such that said deliverable in its altered form infringes upon any presently existing U.S. letters patent or copyright; or (2) the use of a deliverable in combination with other material not provided by CONTRACTOR when such use in combination infringes upon an existing U.S. letters patent or copyright.

B. CONTRACTOR shall have sole control of the defense of any such claim or suit and all negotiations for settlement thereof. CONTRACTOR shall not be obligated to indemnify AUTHORITY under any settlement made without CONTRACTOR's consent or in the event AUTHORITY fails to cooperate fully in the defense of any suit or claim, provided, however, that said defense shall be at CONTRACTOR's expense. If the use or sale of said item is enjoined as a result of such suit or claim, CONTRACTOR, at no expense to AUTHORITY, shall obtain for AUTHORITY the right to use and sell said item, or shall substitute an equivalent item acceptable to AUTHORITY and extend this patent and copyright indemnity thereto.

#### ARTICLE 33. FINISHED AND PRELIMINARY DATA

A. All of CONTRACTOR's finished technical data, including but not limited to illustrations, photographs, tapes, software, software design documents, including without limitation source code, binary code, all media, technical documentation and user documentation, photo prints and other graphic information required to be furnished under this Agreement, shall be AUTHORITY's property upon payment and shall be furnished with unlimited rights and, as such, shall be free from proprietary restriction except as elsewhere authorized in this Agreement. CONTRACTOR further agrees that it shall have no interest or claim to such finished, AUTHORITY-owned, technical data; furthermore, said data is subject to the provisions of the Freedom of Information Act, 5 USC 552.

B. It is expressly understood that any title to preliminary technical data is not passed to AUTHORITY but is retained by CONTRACTOR. Preliminary data includes roughs, visualizations, software design documents, layouts and comprehensives prepared by CONTRACTOR solely for the purpose of demonstrating an idea or message for AUTHORITY's acceptance before approval is given

for preparation of finished artwork. Preliminary data title and right thereto shall be made available to AUTHORITY if CONTRACTOR causes AUTHORITY to exercise Article 12, and a price shall be negotiated for all preliminary data.

#### ARTICLE 34. PROPRIETARY RIGHTS / RIGHT IN DATA

A. The term "subject data" used in this clause means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Agreement. The term includes graphic or pictorial delineation in media such as drawings or photographs; text in specifications or related performance or design-type documents; machine forms such as punched cards, magnetic tape, or computer memory printouts; and information retained in computer memory. Examples include, but are not limited to: computer software, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications, and related information. The term "subject data" does not include financial reports, cost analyses, and similar information incidental to Agreement administration.

B. AUTHORITY reserves a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, the following subject data for its purposes:

1. Any subject data required to be developed and first produced in the performance of the Agreement and specifically paid for as such under the Agreement, whether or not a copyright has been obtained; and

2. Any rights of copyright to which the CONTRACTOR, subcontractor or supplier purchases ownership for the purpose of performance of the Agreement and specifically paid for as such under the Agreement.

C. CONTRACTOR agrees to include the requirements of this clause, modified as necessary to identify the affected parties, in each subcontract and supply order placed under the Agreement.

#### ARTICLE 35. COVENANT AGAINST CONTINGENT FEES

CONTRACTOR warrants that he/she has not employed or retained any company or person, other than a bona fide employee working for the CONTRACTOR; to solicit or secure this Agreement; and that

he/she has not paid or agreed to pay any company or person other than a bona fide employee, any fee, commission, percentage, brokerage fee, gift or any other consideration, contingent upon or resulting from the award, or formation of this Agreement. For breach or violation of this warranty, the AUTHORITY shall have the right to annul this Agreement without liability, or at its discretion; to deduct from the Agreement price or consideration, or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

## ARTICLE 36. LOBBYING

CONTRACTORS who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR part 20, "New Restrictions on Lobbying". Each tier certifies to the above that it will not or has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

# ARTICLE 37. PRIVACY ACT

CONTRACTOR shall comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. §552a. Among other things, CONTRACTOR agrees to obtain the express consent of the Federal Government before the CONTRACTOR or its employees operate a system of records on behalf of the Federal Government. CONTRACTOR understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying Agreement.

## ARTICLE 38. LIQUIDATED DAMAGES

A. It is mutually understood and agreed by and between the parties to the Agreement that time

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is of the essence with respect to the completion of the Work and that in case of any failure on the part of the Contractor to complete the Work within the time specified in "Delivery Schedule", except for any excusable delays as provided in ""Unavoidable Delays", or any extension thereof, the AUTHORITY will be damaged thereby. The amount of said damages, being difficult if not impossible of definite ascertainment and proof, it is hereby agreed that the amount of such damages due the Authority shall be fixed at \$500 per day per bus not delivered in substantially as good condition as inspected by the AUTHORITY at the time released for shipment.

B. CONTRACTOR hereby agrees to pay the aforestated amounts as fixed, agreed and liquidated damages, and not by way of penalty, to the AUTHORITY and further authorizes the AUTHORITY to deduct the amount of the damages from money due the CONTRACTOR under the Contract, computed as aforesaid. If the monies due the CONTRACTOR are insufficient or no monies are due the CONTRACTOR, the CONTRACTOR shall pay the AUTHORITY the difference or the entire amount, whichever may be the case, within 30 (thirty) calendar days after receipt of a written demand by the AUTHORITY.

C. The payment of aforesaid fixed, agreed and liquidated damages shall be in lieu of any damages for any loss of profit, loss of revenue, loss of use, or for any other direct, indirect, special or consequential losses or damages of any kind whatsoever that may be suffered by the AUTHORITY arising at any time from the failure of the CONTRACTOR to fulfill the obligations referenced in this clause in a timely manner. AUTHORITY specifically reserves the right, without limitation of any other rights, to terminate the Contract in accordance with "Termination for Convenience."

#### ARTICLE 39. QUALITY ASSURANCE

CONTRACTOR shall perform the work necessary to complete in a manner satisfactory to AUTHORITY the services set forth in Exhibit \_\_, "Quality Assurance," attached to and, by this reference, incorporated in and made a part of this Agreement.

#### ARTICLE 40. CONTRACTOR WARRANTY

CONTRACTOR shall perform the work necessary to complete in a manner satisfactory to AUTHORITY

the services set forth in Exhibit \_\_\_, entitled "Warranty Requirements," attached to and, by this reference, incorporated in and made a part of this Agreement.

#### ARTICLE 41. CONTRACTOR CHANGES

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Any proposed change to this Agreement shall be submitted to AUTHORITY for prior approval.

#### ARTICLE 42. WRITTEN CHANGE ORDERS

Oral change orders are not permitted. No change to this Agreement shall be made unless the AUTHORITY gives prior written approval therefore. CONTRACTOR shall be liable for all costs resulting from, and/or for satisfactorily correcting, any specification change not properly ordered by written modification to the Agreement and signed by the AUTHORITY.

## ARTICLE 43. CHANGE ORDER PROCEDURE

As soon as reasonably possible but no later than thirty (30) calendar days after receipt of the written change order to modify the Agreement, CONTRACTOR shall submit to the AUTHORITY a detailed price and schedule proposal for the work to be performed. This proposal shall be accepted or modified by negotiations between the CONTRACTOR and AUTHORITY. At that time a detailed modification shall be executed in writing by both parties. Disagreements that cannot be resolved within negotiations shall be resolved in accordance with the Agreement's "Disputes" clause. Regardless of any disputes, CONTRACTOR shall proceed with the work ordered.

#### ARTICLE 44. PRICE ADJUSTMENT FOR REGULATORY CHANGES

If price adjustment is indicated, either upward or downward, it shall be negotiated between the AUTHORITY and CONTRACTOR for changes that are mandatory as a result of legislation or regulations that are promulgated and become effective after the Due Date. Such price adjustment may be audited, where required.

#### ARTICLE 45. SUCCESSION

The Agreement will be binding on the parties, their successors and assigns.

#### ARTICLE 46. SPECIFICATION AND OFFER OMISSIONS

A. Notwithstanding the provision of drawings, technical specifications, or other data provided

by the AUTHORITY, CONTRACTOR shall have the responsibility of supplying all parts and details required to make the bus complete and ready for service even though such details may not be specifically mentioned in the drawings and specifications. Fare collection equipment, communication equipment, and other items that are installed by the AUTHORITY shall not be the responsibility of the CONTRACTOR unless included in this Agreement.

B. Any request, condition, exception, reservation, understanding or other deviation by CONTRACTOR not separately stated as required by "Instructions to Proposers" (Section I, of AUTHORITY's solicitation) shall be invalid and shall not be binding on the AUTHORITY.

#### ARTICLE 47. MATERIALS AND WORKMANSHIP

CONTRACTOR shall be responsible for all materials and workmanship in the construction of the bus and all accessories used, whether the same are manufactured by the CONTRACTOR or purchased from a Supplier. This provision excludes any equipment leased or supplied by the AUTHORITY, except insofar as such equipment is damaged by the failure of a part or component for which the CONTRACTOR is responsible, or except insofar as the damage to such equipment is caused by the CONTRACTOR during the manufacture of the buses.

#### ARTICLE 48, CONFORMANCE WITH SPECIFICATIONS AND DRAWINGS

A. Materials furnished and work performed by the CONTRACTOR shall conform to the requirements of the Technical Specifications and other Agreement documents. Notwithstanding the provision of drawings, technical specifications or other data provided by the AUTHORITY, CONTRACTOR shall have the responsibility of supplying all parts and details required to make the bus complete and ready for service even though such details may not be specifically mentioned in the drawings and specifications. Items that are installed by the AUTHORITY shall not be the responsibility of CONTRACTOR unless included in this Agreement.

B. Omissions from the Agreement specifications, or the inaccurate description of details of Work that are manifestly necessary to carry out the intent of the Agreement specifications, or that are customarily performed, shall not relieve the CONTRACTOR from performing such omitted Work or

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inaccurately described details of the Work, and they shall be performed as if fully and correctly set forth and described.

## ARTICLE 49. BUS DELIVERY PROCEDURE

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Delivery of buses shall be determined by signed receipt of AUTHORITY's designated agent(s) at the following point of delivery and may be preceded by a cursory inspection of the bus: Maintenance Department, 4301 West MacArthur Boulevard, Santa Ana, California 92704.

## ARTICLE 50. DELIVERY SCHEDULE

A. AUTHORITY expects to take delivery of the pilot bus/First Article, no later than forty-five (45) weeks after issuing the first notice to proceed, having an estimated time of arrival to the AUTHORITY sometime during the first half of the year 2021. Then, after evaluation and acceptance of the First Article for up to sixteen (16) weeks, the AUTHORITY will issue a second notice to proceed with the production run of up to 298 buses, requiring the buses to commence arrival to the AUTHORITY by the end of June 2022, on a continuous basis, at the rate of two (2) buses per week, or as agreed upon, to have all buses delivered by June 2025.

B. Buses shall be delivered at a rate of two (2) buses per week. Delivery of all two-hundred ninety-nine (299) buses shall be completed by June 2025. Hours of delivery shall be 8:00 a.m. through 3:00 p.m., Monday through Friday. CONTRACTOR's failure to meet the delivery schedule herein may result in "Liquidated Damages"

## ARTICLE 51. CONFIGURATION AND PERFORMANCE APPROVAL

In order to assess the CONTRACTOR's compliance with the Technical Specifications, AUTHORITY and CONTRACTOR shall, at the Pre-Production Meeting, jointly develop a configuration and performance review document, master resolution list or other for review of the First Article bus that shall include a detailed specification, at the component and functional level, of all items intended for final integration. This document shall include appropriate performance standards for each test that is being required and the document shall become part of the official record of the pre-production meeting.

#### ARTICLE 52. PRE-DELIVERY TESTS AND INSPECTIONS

The pre-delivery tests and inspections shall be performed at or near the CONTRACTOR's plant; inspections shall be performed in accordance with the procedures defined in Section VI: Quality Assurance Provisions and may be witnessed by the resident inspector. When the bus passes these tests and inspections, the resident inspector shall authorize release of the bus for shipment.

## ARTICLE 53. FIRST ARTICLE EVALUATION / TESTING

A. The purpose of a First Article inspection is to confirm that any components, systems, subsystems, major assemblies, subassemblies, products, parts, apparatuses, articles and other materials comply with the Technical Specifications and all other Agreement documents.

B. CONTRACTOR shall produce one First Article bus with respect to the base order. The First Article bus shall demonstrate that the bus fully meets all requirements of the Agreement. The First Article bus shall be inspected, tested and approved by the AUTHORITY prior to making the decision to move forward with the production of the remaining order.

C. A First Article inspection shall include both a physical configuration inspection and a functional demonstration. First Article inspections shall be conducted at the CONTRACTOR's facility and the CONTRACTOR shall furnish the AUTHORITY, prior to each First Article inspection, a written inspection and demonstration plan for each item intended for review. The AUTHORITY's inspectors shall attend each First Article inspection unless the Agency provides a written waiver of its right to attend any such inspection. The results of each First Article inspection shall be documented by the CONTRACTOR in a format deemed acceptable to the AUTHORITY and all documents relating to the inspection shall be forwarded to the AUTHORITY.

D. Additionally, upon its arrival to the AUTHORITY, the First Article build shall be evaluated/tested for a period up to sixteen (16) weeks. The evaluation/testing shall start after the bus is licensed, registered and delivered to the AUTHORITY and all, if any detected discrepancies are repaired and or corrected to the AUTHORITY's satisfaction. The sixteen (16) week evaluation/testing shall include, among others, compliance with specifications, compliance with regulations, California Highway Patrol

inspection, ergonomics, driver's reach and controls, wheelchair locations, securement, placement, pressure and actions required to activate pedals, switches, knobs, access doors, driver's field of view, windshield glare, interior and exterior lighting, vehicle handling, steering, braking, turning radius, suspension, kneeling, approach and break over angles, vehicle range, handling of slopes, power plant, to include entire and individual pieces of the fuel system, fuel consumption, maintenance logging of break downs, fuel tanks performance, operating pressures, ability to fuel and defuel the tanks, ability to maintain temperature and fuel pressure through time, fittings, connections, and fuel leaks. Placement of the bus in revenue service, among others, shall be one of the key elements that shall be used for this evaluation/testing. AUTHORITY, at its own discretion, reserves the right to extend the evaluation/testing timeline, modify it to include other elements and/or tasks as part of this assessment. CONTRACTOR, during this period, shall demonstrate the Maintainability Requirements.

E. In the event that a noncompliance is identified, the AUTHORITY shall to the extent practicable notify the CONTRACTOR of said noncompliance no later than seven (7) days after the end of the sixteen (16) week testing period. AUTHORITY shall issue a written report to the CONTRACTOR that advises the CONTRACTOR of any noncompliance issues and/or any proposed modifications or changes required on the remaining buses.

F. See additional details in Section VI: Quality Assurance, Vehicle Inspection Phase at AUTHORITY.

## ARTICLE 54. ASSUMPTION OF RISK AND LOSS

AUTHORITY shall assume risk of loss of the bus on delivery, as defined in "Bus Delivery Procedure", if delivered by common carrier or drive-away, or on release to the AUTHORITY's drivers at the CONTRACTOR's plant. Prior to this delivery or release, the CONTRACTOR shall have risk of loss of the bus, including any damages sustained during the common carrier or drive-away operation regardless of the status of title or any payments related to the bus. Drivers shall keep a maintenance log en route and it shall be delivered to the AUTHORITY with the bus.

## ARTICLE 55. ACCEPTANCE OF BUS (PRODUCTION RUN)

A. Acceptance of the bus shall occur upon payment of second invoice for an amount equal to fifteen (15%) percent of the total bus price after successful delivery and AUTHORITY's acceptance of all technical and contractual requirements; e.g., 40-continuous hours of fail free revenue service, updated manuals, schematics, decals, corrections of all noted deficiencies during the vehicle inspection and warranty period, correction of all fleet defects, delivery of all ordered spare components, diagnostic equipment, and overall delivery and acceptance of all Contractual deliverables, CONTRACTOR provisions of any certifications as required by law, regulations and/or the RFP and, any and all, other documents and certifications, e.g.; code compliance, legal, compliance, technical, FTA, ADA, FMVSS, DOT, Buy America (Pre & Post), California Highway Patrol Review, vehicle licensing, vehicle registration, etc., excluding training.

B. AUTHORITY shall make the final fifteen percent (15%) payment for each bus within thirty (30) calendar days of receipt of a final proper invoice.

# ARTICLE 56. REPAIRS BY CONTRACTOR

A. After non-acceptance of the bus, CONTRACTOR must begin work within five (5) working days after receiving notification from the AUTHORITY of failure of acceptance tests. AUTHORITY shall make the bus available to complete repairs timely with the CONTRACTOR's repair schedule. If the CONTRACTOR fails or refuses to begin repairs within five (5) working days, the work may be done by AUTHORITY personnel with reimbursement by the CONTRACTOR.

B. CONTRACTOR shall provide, at its own expense, all spare parts, tools, and space required to complete the repairs. At the AUTHORITY's option, CONTRACTOR may be required to remove the bus from the AUTHORITY's property while repairs are being affected. If the bus is removed from the AUTHORITY's property, repair procedures must be diligently pursued by the CONTRACTOR's representatives, and the CONTRACTOR shall assume risk of loss while the bus is under CONTRACTOR's control.

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## ARTICLE 57. CONTRACTOR DELAY

A. If the CONTRACTOR is delayed at any time during the progress of the work by the neglect or failure of the AUTHORITY or by a cause described below, then the time for completion and/or affected delivery date(s) shall be extended by the AUTHORITY subject to all of the following conditions:

1. The cause of the delay arises after the notice of award and neither was nor could have been anticipated by the CONTRACTOR by reasonable investigation before such award;

2. CONTRACTOR demonstrates that the completion of Work and/or affected delivery(ies) will be actually and necessarily delayed;

3. The effect of such cause cannot be avoided or mitigated by the exercise of all reasonable precautions, efforts and measures whether before or after the occurrence of the cause of delay;

4. CONTRACTOR makes written request and provides other information to the AUTHORITY as described in "Notification of Contractor Delay".

B. A delay meeting all the conditions of this section shall be deemed an excusable delay. Any concurrent delay which does not constitute an excusable delay shall not be the sole basis for denying a request hereunder.

C. None of the above shall relieve the CONTRACTOR of any liability for the payment of any liquidated damages owing from a failure to complete the Work by the time for completion that the CONTRACTOR is required to pay pursuant to "Liquidated Damages" for delays occurring prior to, or subsequent to the occurrence of an excusable delay.

D. AUTHORITY reserves the right to rescind or shorten any extension previously granted, if subsequently the AUTHORITY determines that any information provided by CONTRACTOR in support of a request for an extension of time was erroneous; provided however, that such information or facts, if known, would have resulted in a denial of the request for an excusable delay. Notwithstanding the above, the AUTHORITY will not rescind or shorten any extension previously granted if the CONTRACTOR acted in reliance upon the granting of such extension and such extension was based on information which, although later found to have been erroneous, was submitted in good faith by the CONTRACTOR.

## ARTICLE 58. NOTIFICATION OF CONTRACTOR DELAY

Notwithstanding "CONTRACTOR's Delay", no extension or adjustment of time shall be granted unless (1) written notice of the delay is filed with the AUTHORITY within fourteen (14) calendar days after the commencement of the delay; and (2) a written application therefore, stating in reasonable detail, the causes, the effect to date, and the probable future effect on the performance of the CONTRACTOR under the Agreement; and the portion or portions of the work affected, is filed by the CONTRACTOR with the AUTHORITY within thirty (30) calendar days after the commencement of the delay. No such extension or adjustment shall be deemed a waiver of the rights of either party under this Agreement. The AUTHORITY shall make its determination within thirty (30) calendar days after receipt of the application.

## ARTICLE 59. TITLE

Upon acceptance of each bus, the CONTRACTOR warrants that the title shall pass the AUTHORITY free and clear of all encumbrances. CONTRACTOR shall deliver the vehicles to the AUTHORITY registered, equipped with registration holders and with license plates installed.

#### ARTICLE 60. TRAINING

A. The following material for each course shall be provided to AUTHORITY for review and approval after delivery and prior to delivery of the First Article bus:

- Course Overview
- Instructors Guide
- Student Handouts
- Video Presentations
- PowerPoint or other Multimedia Materials
- **B. TRAINING TOPICS & CLASSES**

The following topics are minimum requirements. Quantity of classes and training hours per class are indicated within parenthesis. Adjustments to the topics and/or hours may be made upon approval of the AUTHORITY.

• Overall vehicle/system orientation, six (6) sessions, four (4) hours each

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1	Preventive ma	intenance, six (6) sessions, four (4) hours each	
2	2 • Electrical/Elec	tronic, six (6) sessions, eight (8) hours each	
3	Multiplex, six (	6) sessions, twenty-four hour (24) hours each	
4	• Destination Si	gn System, four (4) sessions, eight (8) hours each	
5	5 • Destination Si	gn Software, two (2) sessions, four (4) hours each	
6	6 • HVAC, six (6)	sessions, eight (8) hours each	
7	7 • Brakes, six (6)	sessions, four (4) hours each	
8	8 • Engine, six (6)	sessions, eight (8) hours each	
9	• Transmission,	six (6) sessions, eight (8) hours each	
10	• Steering Axle,	Alignment, six (6) sessions, four (4) hours each	
11	Drive Axle, six	(6) sessions, four (4) hours each	
12	CNG Fuel Sys	stem, six (6) sessions, eight (8) hours each	
13	Methane Dete	ction and Fire Suppression Systems, six (6) sessions, eight (8) hours each	
14	Ooor mechani	sms and passenger sensing systems, six (6) sessions, four (4) hours each	
15	5 • Cooling fan pa	ickage, six (6) sessions, four (4) hours each	
16	Kneeling System	em, six (6) sessions, four (4) hours each	
17	7 • Wheelchair Ra	amp, six (6) sessions, four (4) hours each	
18	8 Parts/Service	Manual Training, six (6) sessions, two (2) hours each	
19	ARTICLE 61. DOCUMENTATION		
20	0 A. Ten (10) each	of the following manuals will be provided to AUTHORITY prior to delivery of the	
21	first production vehicle. These manuals will specifically reference the vehicles produced in relation to this		
22	2 specification. All manua	als shall be provided in portable document format (PDF) and in a format	
23	compatible with LinkOne.		
24	4 Maintenance Man	ual Packages	
25	5 B. The Service N	lanual to be used by maintenance mechanics as a repair guide. This manual	

will describe the operation of all vehicle systems; provide trouble shooting assistance, step by step

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instructions for component removal, rebuilding and replacement, pictorial illustrations of disassembled components and schematics for the electrical, hydraulic and air system. A supplement to this manual shall be provided to identify required skill level and labor hours required to perform routine maintenance activities, such as, inspection, lubrication, brake reline, tune-up and R&R of replaceable components. All manuals shall be provided in PDF and in a format compatible with LinkOne.

• Engine Overhaul Manual

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- Transmission Overhaul Manual
- Differential Overhaul Manual
- Preventative Maintenance (PM) Inspection

C. The vehicle manufacturer shall supply the AUTHORITY with a detailed all-inclusive routine preventive maintenance manual and procedure. This manual/procedure will contain, at a minimum, the following items:

- Change interval for all fluids and filters.
- Lubrication points identified by location, interval and lubricant type required.
- Items requiring periodic inspection and adjustment.
- Detailed PM inspection requirements, including Pass/Fail criteria, at a minimum, for the following systems and/or components shall be provided:
  - Daily Pre-Test
  - Air System
  - HVAC
  - Fire Suppression
  - Methane Detection
    - Electrical System
    - Driver's area and operator's controls
  - Brake System
    - Front Axle
| 1  | Rear Axle  |
|----|--|
| 2  | Fuel System  |
| 3  | Cooling System   |
| 4  | Power Train: Engine, Transmission, Differential  |
| 5  | Bus' interior  |
| 6  | Bus' exterior  |
| 7  | Entrance and Exit Doors  |
| 8  | Wheelchair Ramp  |
| 9  | D. Where gauge and instrument readings are required, the dimensions and tolerance will be                  |
| 10 | specified. Fluid analysis contaminant and degradation criteria will be specified for engine, transmission, |
| 11 | differential, and coolant fluids. This information may be used to determine fluid change intervals and/or  |
| 12 | identify component defects. The vehicles information typically represented by drawings and schematics      |
| 13 | shall be provided to AUTHORITY via AutoCAD media.  |
| 14 | Parts Manuals  |
| 15 | E. Parts manuals shall contain each part used during the assembly of the vehicle on a production           |
| 16 | line ticket and also each part will be referenced in a manual by specific vehicle sub-system. The manual   |
| 17 | will be one produced specifically for the vehicle referenced. All manuals shall be provided in PDF and in  |
| 18 | a format compatible with LinkOne. The manual will contain the following:                                   |
| 19 | • Components and component parts indexes by (1) part nomenclature, and (2) bus                             |
| 20 | manufacturer's part number   |
| 21 | Pictorial views as needed for illustration   |
| 22 | Components will be identified as an assembly and by individual breakdowns                                  |
| 23 | Engine Overhaul Parts Manual   |
| 24 | Transmission Overhaul Parts Manual   |
| 25 | Differential Overhaul Parts Manual   |
| 26 | • Parts Bulletins will be provided as changes or updates are made to the original parts                    |
|    | Page 227   |

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information for the service life of the vehicle.

F. Production Bill of Materials, including all purchased components thoroughly described and listed by brand, model, and component manufacturer's part number, identifying the names of manufacturer. A cross reference, with the CONTRACTOR's part number cross-referenced to the component's original equipment manufacturer's name and part number may be substituted.

#### **Bulletins**

G. Each and every time a change or modification is made to the vehicles described within this specification, the manufacturer will announce and initiate this action by issuing a bulletin. The bulletin shall be mailed to the AUTHORITY at: 550 South Main Street, Orange, California 92868, Attention: Manager of Transit Technical Services and Manager of Maintenance and Motorist Services. This bulletin service will start after AUTHORITY's receipt of the first vehicle and remain active throughout the service life of the fleet. All bulletins shall be provided in PDF and in a format compatible with LinkOne. Each bulletin will contain, at minimum, the following items:

- Description of actual change or modification
- Date of implementation
- Replacement pages for service and/or parts manuals, as applicable
- Method of implementation

# ARTICLE 62. DOCUMENTS

For each series of vehicles produced, and prior to the delivery of the First Article bus, CONTRACTOR shall provide ten (10) each of all service operation, parts, maintenance manuals and documentation, to be submitted in hard copy as well as AutoCAD via Transit Information Viewer or other applicable electronic media. Schematics and drawings shall also be submitted in PDF and in AutoCAD, so they can be accessed via Transit Information Viewer media. CONTRACTOR shall keep maintenance manuals available for a period of three (3) years after the date of acceptance for the buses procured under this Agreement. CONTRACTOR shall also exert CONTRACTOR's best efforts to keep maintenance manuals, operator manuals, and parts manuals up-to-date for a period of fifteen (15) years. The supplied parts, maintenance, and operator's manuals shall incorporate all equipment ordered on the buses covered by this procurement. The manuals shall be supplied as indicated in sets, such that a set consists of a hardcopy, memory stick or security-protected thumb drive.

#### ARTICLE 63. PARTS AVAILABILITY GUARANTY

A. CONTRACTOR hereby guarantees to provide, within reasonable periods of time, the spare parts, software and all equipment necessary to maintain and repair the buses supplied under this Agreement for a period of at least fifteen (15) years after the date of acceptance. Parts shall be interchangeable with the original equipment and be manufactured in accordance with the quality assurance provisions of this Agreement. Prices shall not exceed the CONTRACTOR's then current published catalog prices.

B. Where the parts ordered by the AUTHORITY are not received within two (2) working days of the agreed upon time/date and a bus procured under this Agreement is out-of-service due to the lack of said ordered parts, the CONTRACTOR shall provide the AUTHORITY, within eight (8) hours of the AUTHORITY's verbal or written request, the original suppliers' and/or manufacturers' parts numbers, company names, addresses, telephone numbers and contact names for all of the specific parts not received by the AUTHORITY.

C. Where the CONTRACTOR fails to honor this parts guaranty or parts ordered by the AUTHORITY are not received within thirty (30) days of the agreed upon delivery date, the CONTRACTOR shall provide to AUTHORITY, within seven (7) days of the AUTHORITY's verbal or written request, the design and manufacturing documentation for those parts manufactured by the CONTRACTOR and the original suppliers' and/or manufacturers' parts numbers, company names, addresses, telephone numbers and contact names for all of the specific parts not received by the AUTHORITY. CONTRACTOR's design and manufacturing documentation provided to the AUTHORITY shall be for its sole use in regard to the buses procured under this Agreement and for no other purpose.

ARTICLE 64. ADA ACCESS

A. Applicability

1	1. This Article applies to federally funded Architect & Engineer, Operations/Management,
2	Rolling Stock Purchase, and Construction Contracts.
3	B. Access Requirements for Persons with Disabilities
4	CONTRACTOR shall comply with:
5	1. The requirements of 49 U.S.C. § 5301(d), which states the Federal policy that elderly
6	persons and persons with disabilities have the same right as other persons to use mass transportation
7	service and facilities, and that special efforts shall be made in planning and designing those services and
8	facilities to implement the policy;
9	2. All applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended
10	29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps;
11	3. The Americans with Disabilities Act (ADA) of 1990, as amended, 49 U.S.C. § 12101 et
12	seq., which requires that accessible facilities and services be made available to persons with disabilities,
13	including any subsequent amendments to that Act;
14	4. The Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 et seq., which
15	requires that building and public accommodations be accessible to persons with disabilities, including any
16	subsequent amendments to that Act; and
17	5. All applicable requirements of the following regulations and any subsequent amendments
18	thereto:
19	a) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities
20	(ADA)," 49 C.F.R. Part 37;
21	b) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and
22	Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;
23	c) Joint U.S. Architectural and Transportation Barriers Compliance Board (U.S.
24	ATBCB)/U.S. DOT regulations, "Americans With Disabilities Accessibility Specifications for
25	Transportation Vehicles," 36 C.F.R. Part 1192 and 49 C.F.R. Part 38;
26	d) U.S. Department of Justice (DOJ) regulations, "Nondiscrimination on the Basis of

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Disability in State and Local Government Services," 28 C.F.R. Part 35;

e) U.S. DOJ regulations, "Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities," 28 C.F.R. Part 36;

f) U.S. General Services Administration (U.S. GSA) regulations, "Accommodations for the Physically Handicapped," 41 C.F.R. Subpart 101-19;

g) U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630;

 h) U.S. Federal Communications Commission regulations, "Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled," 47 C.F.R.
 Part 64, Subpart F; and

i) U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194; and

j) FTA regulations, "Transportation for Elderly and Handicapped Persons," 49 C.F.R. Part 609;

k) Any implementing requirements FTA may issue.

# ARTICLE 65. INTERCHANGEABILITY

Unless otherwise agreed, all units and components procured under this Agreement, whether provided by suppliers or manufactured by the CONTRACTOR, shall be duplicates in design, manufacture, and installation to assure interchangeability among buses in this procurement. This interchangeability shall extend to the individual components as well as to their locations in the buses.

#### ARTICLE 66. SURVIVABILITY

CONTRACTOR's obligations under this Agreement shall survive the nominal expiration or discharge of other Agreement obligations and AUTHORITY may obtain any remedy under law, Agreement or equity to enforce the obligations of CONTRACTOR that survive the manufacturing, warranty, and final payment periods.

#### ARTICLE 67. ENGINEER / SERVICE REPRESENTATIVES

CONTRACTOR's representative, at its own expense, shall be on-site at the AUTHORITY's delivery location for the entire period of delivery. The representative shall remain at the AUTHORITY's property during regular business hours and each weekday during the entire period of delivery and vehicle inspection of each bus lot, from the day of the delivery of the first bus, through final acceptance of the last bus delivery.

#### ARTICLE 68. PRODUCTION DOCUMENTS

Upon award of the Agreement, CONTRACTOR shall commence performance under the Agreement by executing all Contract Guaranty Agreements provided with the offer, by furnishing any required bonds, and by furnishing copies of the certificates of insurance required to be procured by the CONTRACTOR pursuant to the Agreement documents within thirty (30) calendar days after the date of receipt of the notice of award or within such further time as the AUTHORITY may allow. Failure to fulfill these requirements within the specified time is cause for termination of the Contract under "Termination for Default"

#### ARTICLE 69. MATERIALS / ACCESSORIES RESPONSIBILITY

CONTRACTOR shall be responsible for all materials and workmanship in the construction of the bus and all accessories used, whether the same are manufactured by the CONTRACTOR or purchased from supplier. This provision excludes fare boxes, radios, and any equipment leased or supplied by the AUTHORITY, except insofar as such equipment is damaged by the failure of a part or component for which the CONTRACTOR is responsible, or except insofar as the damage to such equipment is caused by the CONTRACTOR during the manufacture of the buses. Risk of damage to or loss of the buses is the subject of "Assumption of Risk of Loss".

#### ARTICLE 70. INCORPORATION OF FTA TERMS

All contractual provisions required by Department of Transportation (DOT), whether or not expressly set forth in this document, as set forth in Federal Transit Administration (FTA) Circular 4220.1F, as amended, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all

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FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. CONTRACTOR shall not perform any act, fail to perform any act, or refuse to comply with any requests, which would cause AUTHORITY to be in violation of the FTA terms and conditions.

#### ARTICLE 71. FEDERAL CHANGES

CONTRACTOR shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the agreement between the AUTHORITY and FTA, as they may be amended or promulgated from time to time during this Agreement. CONTRACTOR's failure to comply shall constitute a material breach of contract.

#### ARTICLE 72. NO FEDERAL GOVERNMENT OBLIGATION TO THIRD PARTIES

AUTHORITY and CONTRACTOR acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying Agreement, absent the express written consent by the Federal Government, the Federal Government is not a party to this Agreement and shall not be subject to any obligations or liabilities to the AUTHORITY, CONTRACTOR, or any other party (whether or not a party to this Agreement) pertaining to any matter resulting from the underlying Agreement. CONTRACTOR agrees to include these requirements in all of its subcontracts.

# ARTICLE 73. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS AND RELATED ACTS

A. CONTRACTOR acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this project. Accordingly, by signing this Agreement, CONTRACTOR certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying Agreement of the FTA assisted project for which this Agreement's work is being performed. CONTRACTOR also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose penalties of the Program Fraud Civil Remedies Act of 1986 on the CONTRACTOR to the extent the Federal Government deems appropriate.

B. CONTRACTOR also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under an agreement connected with a project that is financed in whole or part with Federal assistance awarded by FTA under the authority of 49 U.S.C. §5307 et seq., the Government reserves the right to impose the penalties of 18 U.S.C. §1001 and 49 U.S.C. §5307(n) (1) et seq. on the CONTRACTOR, to the extent the Federal Government deems appropriate. CONTRACTOR agrees to include this requirement in all of its subcontracts.

#### ARTICLE 74. DISADVANTAGED BUSINESS ENTERPRISE

A. It is the policy of the Department of Transportation that Disadvantaged Business Enterprises (DBE) as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of Agreements financed in whole or in part with Federal Funds provided under this Agreement. Consequently, the DBE requirements of 49 CFR Part 23 apply to this Agreement.

B. CONTRACTOR agrees to ensure that Disadvantaged Business Enterprises as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of Agreements and subcontracts financed in whole or in part with Federal funds provided under this Agreement. In this regard, all recipients or CONTRACTORs shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that DBEs have the maximum opportunity to compete for and perform contracts. Recipients and their CONTRACTORs shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of DOT assisted contracts.

#### ARTICLE 75. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

A. **Overtime Requirements:** No contractor or subcontractor contracting for any part of the Contract Work that may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such work to work in excess of forty (40) hours in such work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in

excess of forty (40) hours in such workweek.

B. Violation; Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in Paragraph A of this section, the CONTRACTOR and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such CONTRACTOR and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in Paragraph A of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in Paragraph A of this section.

C. Withholding for Unpaid Wages and Liquidated Damages: AUTHORITY shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the CONTRACTOR or subcontractor under any such contract or any other Federal contract with the same Prime Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same Prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such CONTRACTOR or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in Paragraph B of this section.

D. **Subcontracts:** CONTRACTOR or subcontractor shall insert in any subcontracts the clauses set forth in Paragraphs A through D of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower-tier Subcontractor with the clauses set forth in Paragraphs A through D of this section.

#### ARTICLE 76. RECYCLED PRODUCTS

CONTRACTOR shall comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of 40 CFR Part 247. CONTRACTOR agrees to include this requirement in all of its subcontracts.

#### ARTICLE 77. ENERGY CONSERVATION REQUIREMENTS

CONTRACTOR shall comply with mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy Conservation Act.

#### ARTICLE 78. CLEAN AIR

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CONTRACTOR shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. CONTRACTOR shall report each violation to AUTHORITY, who will in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office. CONTRACTOR agrees to include this requirement in all of its subcontracts.

#### ARTICLE 79. CLEAN WATER REQUIREMENTS

CONTRACTOR shall comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. CONTRACTOR shall report each violation to AUTHORITY and understands and agrees that the AUTHORITY who will in turn, report each violation as required to assure notification to FTA and appropriate EPA Regional Office. CONTRACTOR agrees to include this requirement in all of its subcontracts.

#### ARTICLE 80. FLY AMERICA REQUIREMENT

CONTRACTOR agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and sub recipients of Federal funds and their contractors are required to use U.S. Flag air carriers for the U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. CONTRACTOR shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. CONTRACTOR agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

#### ARTICLE 81. CARGO PREFERENCE

CONTRACTOR agrees to the following:

A. To use privately owned U.S.-flag commercial vessels to ship at least fifty (50) percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners and tankers) involved, whenever shipping any equipment, material or commodities pursuant to the underlying Agreement to the extent such vessels are available at fair and reasonable rates for U.S.-flag commercial vessels;

B. To furnish within twenty (20) working days following the date of loading for shipments originating within the United States or within thirty (30) working days following the date of leading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill of lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the CONTRACTOR in the case of a subcontractor's bill-of-lading.) To include these requirements in all subcontracts issued pursuant to this Agreement when the subcontract may involve the transport of equipment, material or commodities by ocean vessel.

#### ARTICLE 82. BUY AMERICA

A. CONTRACTOR agrees to comply with 49 U.S.C. 5323(j) and 49 CFR Part 661, which provide that Federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7. A general public interest waiver from the Buy America requirements applies to microprocessors, computers, microcomputers, software or other such devices, which are used solely for the purpose of processing or storing data. This general waiver does not extend to a product or device that merely contains a

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microprocessor or microcomputer and is not used solely for the purpose of processing or storing data.

B. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 70 percent domestic content.

#### ARTICLE 83. PRE-AWARD AND POST DELIVERY AUDITS

CONTRACTOR agrees to comply with 49 U.S.C. § 5323(I) and FTA's implementing regulation at 49 CFR Part 663 and to submit the following certifications:

A. **Buy America Requirements:** The CONTRACTOR shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If the CONTRACTOR certifies compliance with Buy America, it shall submit documentation that lists (1) component and subcomponent parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs; and (2) the location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly.

B. **Solicitation Specification Requirements:** CONTRACTOR shall submit evidence that it will be capable of meeting the bid specifications.

C. Federal Motor Vehicle Safety Standards (FMVSS): CONTRACTOR shall submit (1) manufacturer's FMVSS self-certification, Federal Motor Vehicle Safety Standards, that the vehicle complies with relevant FMVSS or (2) manufacturer's certified statement that the contracted buses will not be subject to FMVSS regulations.

#### ARTICLE 84. TESTING NEW BUS MODELS

CONTRACTOR agrees to comply with 49 U.S.C. § 5323(c) and FTA's implementing regulation at 49 CRF Part 665 and shall perform the following:

A. A manufacturer of a new bus model or a bus produced with a major change in components or configuration shall provide a copy of the final test report to the AUTHORITY prior to the recipient's final acceptance of the first bus.

B. A manufacturer who releases a report under Paragraph A above shall provide notice to the operator of the testing facility that the report is available to the public.

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C. If the manufacturer represents that the vehicle was previously tested, the vehicle being sold should have the identical configuration and major components as the vehicle in the test report, which must be provided to the AUTHORITY prior to AUTHORITY's final acceptance of the first vehicle. If the configuration or components are not identical, the manufacturer shall provide a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing.

D. If the manufacturer represents that the vehicle is "grandfathered" (has been used in mass transit service in the United States before October 1, 1988, and is currently being produced without a major change in configuration or components), the manufacturer shall provide the name and address of the recipient of such a vehicle and the details of that vehicle's configuration and major components.

#### ARTICLE 85. SEISMIC SAFETY REQUIREMENTS.

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CONTRACTOR agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. CONTRACTOR also agrees to ensure that all work performed under this contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

#### ARTICLE 86. DEBARMENT AND SUSPENSION

CONTRACTOR shall not do business with a subcontractor or other participant who is debarred, suspended or otherwise disqualified. CONTRACTOR shall comply with 2 CFR Part 180, as adopted and supplemented by 2 CFR Part 1200. CONTRACTOR shall include these requirements in any lower tier covered transaction it enters into.

#### ARTICLE 87. FORCE MAJEURE

Either party shall be excused from performing its obligations under this Agreement during the time and to the extent that it is prevented from performing by an unforeseeable cause beyond its control, including but not limited to: any incidence of fire, flood; acts of God; commandeering of material, products, plants or facilities by the federal, state or local government; national fuel shortage; or a material act or

## AGREEMENT NO. C-9-1836

Ву:	Ву:			
CONTRACTOR	ORANGE COUNTY TRANSPORTATION AUTHORITY			
executed as of the date of the last signature below.				
IN WITNESS WHEREOF, the parties hereto have caused this Agreement No. C-9-1836 to be				
the fault or negligence of the party not perform	ing.			
and provided further that such nonperformance is unforeseeable, beyond the control and is not due to				
omission by the other party; when satisfactory evidence of such cause is presented to the other party;				

8	Ву:	By:
9		Darrell E. Johnson Chief Executive Officer
10	Date:	Date:
11		
12		APPROVED AS TO FORM:
13		Ву:
14		James M. Donich General Counsel
15		Date:
16		
17		AFFROVED.
18		By:
19		Executive Director, Operations
20		Date:
21		Date
22		Bv:
23		Jennifer L. Bergener
24		Chief Operating Officer
25		Date:
26		
		Page 240

EXHIBIT A: CAMPAIGN CONTRIBUTION DISCLOSURE FORM

#### CAMPAIGN CONTRIBUTION DISCLOSURE FORM

#### Information Sheet

#### ORANGE COUNTY TRANSPORTATION AUTHORITY

The attached Campaign Contribution Disclosure Form must be completed by applicants for, or persons who are the subject of, any proceeding involving a license, permit, or other entitlement for use pending before the Board of Directors of the OCTA or any of its affiliated agencies. (Please see next page for definitions of these terms.)

#### IMPORTANT NOTICE

Basic Provisions of Government Code Section 84308

- A. If you are an applicant for, or the subject of, any proceeding involving a license, permit, or other entitlement for use, you are prohibited from making a campaign contribution of more than \$250 to any board member or his or her alternate. This prohibition begins on the date your application is filed or the proceeding is otherwise initiated, and the prohibition ends three months after a final decision is rendered by the Board of Directors. In addition, no board member or alternate may solicit or accept a campaign contribution of more than \$250 from you during this period.
- B. These prohibitions also apply to your agents, and, if you are a closely held corporation, to your majority shareholder as well. These prohibitions also apply to your subcontractor(s), joint venturer(s), and partner(s) in this proceeding. Also included are parent companies and subsidiary companies directed and controlled by you, and political action committees directed and controlled by you.
- C. You must file the attached disclosure form and disclose whether you or your agent(s) have in the aggregate contributed more than \$250 to any board member or his or her alternate during the 12-month period preceding the filing of the application or the initiation of the proceeding.
- D. If you or your agent have in the aggregate contributed more than \$250 to any individual board member or his/or her alternate during the 12 months preceding the decision on the application or proceeding, that board member or alternate must disqualify himself or herself from the decision. However, disqualification is not required if the board member or alternate returns the campaign contribution within 30 days from the time the director knows, or should have known, about both the contribution and the fact that you are a party in the proceeding. The Campaign Contribution Disclosure Form should be completed and filed with your proposal, or with the first written document you file or submit after the proceeding commences.

- 1. A proceeding involving "a license, permit, or other entitlement for use" includes all business, professional, trade and land use licenses and permits, and all other entitlements for use, including all entitlements for land use, all contracts (other than competitively bid, labor or personal employment contracts), and all franchises.
- 2. Your "agent" is someone who represents you in connection with a proceeding involving a license, permit or other entitlement for use. If an individual acting as an agent is also acting in his or her capacity as an employee or member of a law, architectural, engineering, consulting firm, or similar business entity, both the business entity and the individual are "agents."
- 3. To determine whether a campaign contribution of more than \$250 has been made by you, campaign contributions made by you within the preceding 12 months must be aggregated with those made by your agent within the preceding 12 months or the period of the agency, whichever is shorter. Contributions made by your majority shareholder (if a closely held corporation), your subcontractor(s), your joint venturer(s), and your partner(s) in this proceeding must also be included as part of the aggregation. Campaign contributions made to different directors or their alternates are not aggregated.
- 4. A list of the members and alternates of the Board of Directors is attached.

This notice summarizes the major requirements of Government Code Section 84308 of the Political Reform Act and California Code of Regulations, Title 2 Sections 18438-18438.8.



#### ORANGE COUNTY TRANSPORTATION AUTHORITY CAMPAIGN CONTRIBUTION DISCLOSURE FORM

RFP Number:	RFP T	Title:
Was a campaign contrib regardless of dollar amoun agent/lobbyist?	oution made to any OCTA I nt of the contribution by either Yes	Board Member within the preceding 12 months, the proposing firm, proposed subconsultants and/or No
If no, please sign and dat	e below.	
If yes, please provide the	following information:	
Prime Contractor Firm Na	ime:	
Contributor or Contributor	Firm's Name:	
Contributor or Contributor	Firm's Address:	
Is Contributor: o The Prime Contra o Subconsultant o Agent/Lobbyist hi to represent the F	actor red by Prime Prime in this RFP	YesNo YesNo YesNo
Note: Under the State of Title 2, Section 18438, ca agent/lobbyist who is rep determine the total campa	California Government Code ampaign contributions made b presenting the Prime Contrac aign contribution made by the	section 84308 and California Code of Regulations, by the Prime Contractor and the Prime Contractor's actor in this RFP must be aggregated together to Prime Contractor.
Identify the Board Memb contributions, the name of amount of the contribution	er(s) to whom you, your subo i the contributor, the dates of c n. Each date must include the	consultants, and/or agent/lobbyist made campaign contribution(s) in the preceding 12 months and dollar e exact month, day, and year of the contribution.
Name of Board Member:		
Name of Contributor:	, in the second se	
Date(s) of Contribution(s)		
Amount(s):		
Name of Board Member:		
Name of Contributor:		
Date(s) of Contribution(s)	:	
Amount(s):		
Date:		Signature of Contributor
Print Firm Name		Print Name of Contributor

#### ORANGE COUNTY TRANSPORTATION AUTHORITY AND AFFILIATED AGENCIES

#### **Board of Directors**

Tim Shaw, Chairman Steve Jones, Vice Chairman Lisa A. Bartlett, Director **Doug Chaffee, Director** Laurie Davies, Director **Barbara Delgleize, Director** Andrew Do, Director Michael Hennessey, Director Gene Hernandez, Director Jose F. Moreno, Director Joseph Muller, Director Mark A. Murphy, Director **Richard Murphy, Director Miguel Pulido, Director** Michelle Steel, Director Donald P. Wagner, Director **Greg Winterbottom, Director** 

# EXHIBIT B: STATUS OF PAST AND PRESENT CONTRACTS

#### STATUS OF PAST AND PRESENT CONTRACTS FORM

On the form provided below, Offeror/Bidder shall list the status of past and present contracts where the firm has either provided services as a prime vendor or a subcontractor during the past five (5) years in which the contract has been the subject of or may be involved in litigation with the contracting authority. This includes, but is not limited to, claims, settlement agreements, arbitrations, administrative proceedings, and investigations arising out of the contract.

A separate form must be completed for each contract. Offeror/Bidder shall provide an accurate contact name and telephone number for each contract and indicate the term of the contract and the original contract value. Offeror/Bidder shall also provide a brief summary and the current status of the litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations. If the contract was terminated, list the reason for termination.

Offeror/Bidder shall have an ongoing obligation to update the Authority with any changes to the identified contracts and any new litigation, claims, settlement agreements, arbitrations, administrative proceedings, or investigations that arise subsequent to the submission of the bid. Each form must be signed by an officer of the Offeror/Bidder confirming that the information provided is true and accurate.

Project city/agency/other:		
Contact Name:	Phone:	
Project Award Date:	Original Contract Valu	e:
Term of Contract:		
(1) Litigation, claims, settlements, ar	oitrations, or investigation	ons associated with contract:
(2) Summary and Status of contract:		
(3) Summary and Status of action iden	ntified in (1):	
· · · · · · · · · · · · · · · · · · ·		
(4) Reason for termination, if applicab	le:	

By signing this Form entitled "Status of Past and Present Contracts," I am affirming that all of the information provided is true and accurate.

Name

Signature

Title

Date

Revised. 03/16/2018

EXHIBIT C: DISADVANTAGED BUSINESS APPROVAL CERTIFICATION

## DBE Approval Certification

I hereby certify that the Offeror has complied with the requirements of 49 CFR 26, Participation by Disadvantaged Business Enterprises in DOT Programs, and that its goals have not been disapproved by the Federal Transit Administration.

### Name and Title of Offeror's Authorized Official:

Company Name	
Signature of Offeror's Authorized Official	
Name and Title of Offeror's Authorized Offic	ial
Date	

# EXHIBIT D: RESTRICTIONS ON LOBBYING

#### CERTIFICATION LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS

#### A. DEFINITIONS

- 1. Authority, as used in this clause, means the Orange County Transportation Authority, acting on behalf of the Orange County Transit District.
- 2. Covered Federal action, as used in this clause, means any of the following Federal actions:
  - a. The awarding of any Federal contract.
  - b. The making of any Federal grant.
  - c. The making of any Federal loan.
  - d. The entering into of any cooperative agreement.
  - e. The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- 3. Indian tribe and tribal organization, as used in this clause, have the meaning provided in Section 450b of the Indian self-determination and Education Assistance Act (25 U.S.C. 450) and include Alaskan Natives.
- 4. Influencing or attempting to influence, as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.
- 5. Local government, as used in this clause, means a unit of government in a State and, if chartered, established, or other were recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.
- 6. Officer or employee of an agency, as used in this clause, includes the following individuals who are employed by an agency:
  - a. An individual who is appointed to a position in the Government under title 5, United States code, including a position under a temporary appointment.
  - b. A member of the uniformed services, as defined in the subsection

101(3), Title 37, United States Code.

- c. A special Government employee, as defined in Section 202, Title 18, United States Code.
- d. An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code, Appendix section 3.
- 7. Person, as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization or any other Indian organization with respect to expenditures specifically permitted by other Federal law.
- 8. Reasonable compensation, as used in this clause, means with respect to a regularly employed officer of employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.
- 9. Reasonable payment, as used in this clause means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.
- 10. Recipient, as used in this clause, includes the CONSULTANT and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.
- 11. Regularly employed, as used in this clause, means, with respect to an officer or employee of a person requesting or receiving by such person for at least 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person for less than 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.
- 12. State, as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-State regional or interstate entity having governmental duties and powers.
- B. PROHIBITIONS

- 1. Section 1352 of Title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or, the modification of any Federal contract, grant, loan, or cooperative agreement.
- 2. The Act also requires consultant to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan or cooperative agreement.
- 3. The prohibitions of the Act do not apply under the following conditions:
  - a. Agency and legislative liaison by own employees.
    - (1) The prohibition on the use of appropriated funds, in subparagraph C.1. of this clause, does not apply in the case of payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.
    - (2) For purposes of paragraph C.3.a.(1) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.
    - (3) The following agency and legislative liaison activities are permitted any time where they are not related to a specific solicitation for any covered Federal action:

Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sale, and service capabilities.

Technical discussions and other activities regarding the application of adaptation of the person's products or services for an agency's use.

(4) The following agency and legislative liaison activities are

permitted where they are prior to formal solicitation of any covered Federal action:

Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and,

Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507, and subsequent amendments.

- (5) Only those services expressly authorized by paragraph C.3.a.(1) of this clause are permitted under this clause.
- b. Professional and technical services
  - (1) The prohibition on the use of appropriated funds, in subparagraph C.1. of this clause, does not apply in the case of:

A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as condition for receiving that Federal action.

Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission or negotiation of any bid, proposal, or application or that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include contractors and trade associations.

(2) For purposes of paragraph C.3.a.(1) of this clause, professional and technical services shall be limited to advise and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or

proposal is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission, or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission, or negotiation of a covered Federal action.

- (3) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.
  - Only those services expressly authorized by paragraph C.3.a. (1) and (2) of this clause are permitted under this clause.
- (5) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.
- c. Disclosure
  - (1) The consultant who requests or receives from an agency a Federal contract shall file with that agency a disclosure form OMB standard form LLL, Disclosure of Lobbying Activities, (Attachment to the bid package) if such person has made or had agreed to made any payment using non appropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph B.1. of this clause, if paid for with appropriated funds.
  - (2) The consultant shall file a disclosure form at the end of each

calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph II.A. of this clause. An event that materially affects the accuracy of the information reported includes:

A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

- (3) The consultant shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding \$100,000 under the Federal contract.
- (4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime consultant. The prime consultant shall submit all disclosures to the District at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding consultant.
- d. Agreement

The consultant agrees not to make any payment prohibited by this clause.

- e. Penalties
  - (1) Any person who makes an expenditure prohibited under paragraph a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph d) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.
  - (2) Consultants may relay without liability on the representation made by their subcontractors in the certification and disclosure forms.

f. Cost Allowability:

Nothing in this clause is to be interpreted to make allowable or reasonable any costs, which will otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provisions.



#### CERTIFICATION OF RESTRICTIONS ON LOBBYING

I, \_\_\_\_\_\_, hereby certify on behalf (name of offeror) of

that:

# (Firm name)

- 1. No Federal appropriated funds have been paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer of employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- 2. If any funds, other than Federal appropriated funds, have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit the attached Standard Form-LLL, "Disclosure of Lobbying Activities", in accordance with its instructions.
- 3. The undersigned shall require that the language of this certification be included in all subcontracts, and that all subcontractors shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Bidder, \_\_\_\_\_\_, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Bidder understands and agrees that the provisions of 31 U.S.C. 3801, et seq. apply to this certification and disclosure, if any.

Executed this	day of	,20
Ву		
	(Signature of aut	horized official)

(Title of authorized official)

RFP 9-1836 EXHIBIT D

> Approved by OMB 003480045

Complete this form t	to disclose lobbying	g activities pursual	nt to 31 U.S.C. 1352	00348004
1 Type of Ecderel Action	See reverse for pu	blic burden disclo	SUIPE.)	
<ul> <li>a. contract</li> <li>b. grant</li> <li>c. cooperative agreement</li> <li>d. loan</li> <li>e. loan guarantee</li> <li>f. loan insurance</li> </ul>	a. bid/offer app b. initial award c. post-award	lication	<ul> <li>a. initial filing</li> <li>b. material changes</li> <li>For Material Change Only:</li> <li>year quarter</li> <li>date of last report</li> </ul>	
4. Name and Address of Reporting Entity:           Prime         Subawardee           Tier         , if known:		5. If Reporting Ent	ity in No. 4 is Subawardee, Enter Name and	Address of Prime:
Congressional District, if known:		Congressional [	District. <i>if known</i> :	
6. Federal Department/Agency:		7. Federal Program CFDA number, i	if applicable:	
8. Federal Action Number, <i>if known</i> :		9. Award Amount, \$	if known:	
10. a. Name and Address of Lobbying Entity (if individual, last name, first name, MI)		b. Individuals Perf (last name, first	forming Services (including address if differe name, MI):	ent from No 10a)
(; 11. Amount of Payment (check all that apply):	attach Continuation Shee	e <mark>i(s) SF - LLL - A if nec</mark> t 13. Type of Paymen	essary) ht (check all that apply):	
\$ actual	planned	a. retainer	e fee	
12. Forum of Payment (check all that apply):         a. cash         b. in-kind; specify         nature:         value:		<ul> <li>c. commiss</li> <li>d. continge</li> <li>e. deferred</li> <li>f. other spectrum</li> </ul>	sion Int fee ecify:	
14. Brief Description of Services Performed or to be Pe indicated in Item, 11:	erformed and Date(s) o	of Service, including	officer(s), employee(s) or Member(s) contra	acted for Payment
(a	ttach Continuation She	oet(s) SF-III-∆ if noc	eccarv)	
4 15. Continuation Sheet(s) SF-LLL-A attached:	Yes		····· J/	
16. Information requested through this form is authorized by 0 1352. This disclosure of lobbying activities is a material upon which reliance was placed by the tier above when made or entered into. This disclosure is required pursu	Code 31 U.S.C. Section representation of fact n this transaction was lant to 31 U.S.C. 1352.	Signature:		
This information will be reported to the Congress sem available for public inspection. Any person who fails disclosure shall be subject to a civil penalty of not less th more than \$100,000.00 for each such failure.	i-annually and will be s to file the required nan \$10,000.00 and not	Title:	Date:	
Federal Use Only		·	Authorized for Local Reproducti	on
			Standard FOIII - LLL	Approved by OMB 003480045

DISCLOSURE OF LOBBYING ACTIVITIES

#### INSTRUCTIONS FOR COMPLETION OF SF-LLL DISCLOSURE OF LOBBYING ACTIVITIES

This DISCLOSURE FORMS SHALL BE COMPLETED BY the reporting entity, whether Subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

- 1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
- 2. Identify the status of the covered Federal action.
- 3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
- 4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be a prime or subaward recipient. Identify the tier of the subawardee e.g., the first subawardee of the prime is the first tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
- 5. If the organization filing the report in item 4 checks "Subawardee" then enter the full name, address city, state, and zip code of the prime Federal recipient. Include Congressional District.
- 6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency, name if known. For example, Department of Transportation, United State Coast Guard.
- 7. Enter the Federal program name for description of the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
- 8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g. Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract, grant, or loan award number, the application/ proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP DE-90-001."
- 9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
- 10. (a) Enter the full name, address, city, state, and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a.). Enter Last Name, First Name, and Middle Initial (MI).

- Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
- 12. Check the appropriate box (es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
- 13. Check the appropriate box (es). Check all boxes that apply. If other, specify nature.
- 14. Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with Federal officials. Identify the Federal official(s) or employee(s) contacted or the officer(s), employee(s), or Member(s) of Congress that were contacted.
- 15. Check whether or not a SF-LLL-A Continuation Sheet(s) is attached.
- 16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

Public reporting burden for this collection for information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Office of Management and Budget Paperwork Reduction Project (0348-0446), Washington, D.C. 20503

## RFP 9-1836 EXHIBIT D

Approved by OMB 003480045

# **DISCLOSURE OF LOBBYING ACTIVITIES CONTINUATION SHEET**

Reporting Entity:	Page	of

# EXHIBIT E: CERTIFICATION OF CONSULTANT COMMISSION AND FEES
#### RFP 9-1836 EXHIBIT E

#### CERTIFICATION OF CONSULTANT, COMMISSIONS & FEES

I HEREBY CERTIFY that I am the				_, and du	ıly a	authorize	d
representative of the firm of				_, whose	ado	dress is	
	, 8	and	that,	except	as	hereby	

expressly stated, neither I nor the above firm that I represent have:

(a) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me or the above consultant) to solicit or secure this contract; nor

(b) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract; nor

(c) paid, or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me or the above consultant) any fee, contribution, donation, or consideration of any kind, for or in connection with, procuring or carrying out this contract.

I acknowledge that this Certificate is to be made available to the California Department of Transportation (Caltrans) in connection with this contract involving participation of federal-aid highway funds, and is subject to applicable state and federal laws, both criminal and civil.



(Signature)

EXHIBIT F: BUY AMERICA CERTIFICATION

#### BIDDER'S CERTIFICATE REGARDING "BUY AMERICA" REQUIREMENTS FOR PROCUREMENT OF BUSES, OTHER ROLLING STOCK AND ASSOCIATED EQUIPMENT

In order to demonstrate compliance with the Buy America Requirements, if the bid is for a contract greater than one hundred and fifty thousand dollars (\$150,000), Bidder shall complete <u>only one</u> of the two statements below:

The				
Firm name/principal				
hereby certifies that it <b>will comply</b> with the requirements of 49 U.S.C. 5323(j), and the applicable regulations in 49 CFR Part 661.11.	Section			
Signature				
Name				
Title				
Date				
OR:				
The				
Firm name/principal				
hereby certifies that it <b>cannot comply</b> with the requirements of 49 U.S.C. Section 5323(j), but may qualify for an exception to the requirement pursuant to 49 U.S.C. Section 5323(j)(2), as amended, and the applicable regulations in 49 CFR Part 661.7.				
Signature				
Name				
Title				
Date				

Revised: 01/6/2020

EXHIBIT G: CERTIFICATE OF COMPLIANCE WITH BUS TESTING REQUIREMENT

#### Certificate of Compliance with Bus Testing Requirement

The undersigned certifies that the vehicle offered in this procurement complies and will, when delivered, comply with 49 USC § 5323(c) and FTA's implementing regulation at 49 CFR Part 665 according to the indicated one of the following three alternatives.

Mark one and only one of the three blank spaces with an "X."

- 1. \_\_\_\_\_ The buses offered herewith have been tested in accordance with 49 CFR Part 665 on \_\_\_\_\_\_ (date). If multiple buses are being proposed, provide additional bus testing information below or on attached sheet. The vehicles being sold should have the identical configuration and major components as the vehicle in the test report, which must be submitted with this Proposal. If the configuration or components are not identical, then the manufacturer shall provide with its Proposal a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing. If multiple buses are being proposed, testing data on additional buses shall be listed on the bottom of this page.
- 2. \_\_\_\_\_ The manufacturer represents that the vehicle is "grandfathered" (has been used in mass transit service in the United States before October 1, 1988, and is currently being produced without a major change in configuration or components), and submits with this Proposal the name and address of the recipient of such a vehicle and the details of that vehicle's configuration and major components.
- 3. \_\_\_\_ The vehicle is a new model and will be tested and the results will be submitted to the Agency prior to acceptance of the first bus.

The undersigned understands that misrepresenting the testing status of a vehicle acquired with federal financial assistance may subject the undersigned to civil penalties as outlined in the Department of Transportation's regulation on Program Fraud Civil Remedies, 49 CFR Part 31. In addition, the undersigned understands that FTA may suspend or debar a manufacturer under the procedures in 49 CFR Part 29.

	Company Name
·	Signature of Offeror
	Name and Title of Offeror's Authorized Official
	Date

EXHIBIT H: FEDERAL MOTOR VEHICLE SAFETY STANDARDS

#### Federal Motor Vehicle Safety Standards

Offeror and (if selected) Contractor shall submit (1) manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS or (2) manufacturer's certified statement that the contracted buses will not be subject to FMVSS regulations.

	Company Name
	Signature of Offeror
	Name and Title of Offeror's Authorized Official
	Date
Q	

#### EXHIBIT I: CONTRACTOR SERVICE AND PARTS SUPPORT DATA

#### CONTRACTOR SERVICE AND PARTS SUPPORT DATA

Location of nea	rest Technical Service Representative to Authority				
Name					
Address					
Telephone					
Offeror to descr	ibe technical services readily available from said representative.				
Location of nea	rest Parts Distribution Center to Authority				
Name					
Address					
Telephone					
Offeror shall describe the extent of parts available at said center.					
Policy for Deliv Maintenance Regular Met	ery of Parts and Components to be Purchased for Service and hod of Shipment				
Cost to Auth	ority				

EXHIBIT J: NON-COLLUSION AFFIDAVIT

To the Orange County Transportation Authority:

In accordance with Title 23 United States Code Section 112 and Public Contract Code 7106 the Offeror declares that the proposal is not made in the interest of, or on the behalf of, any undisclosed person, partnership, company, association, organization or corporation; that the proposal is genuine and not collusive or sham; that the Offeror has not directly or indirectly induced or solicited any other Offeror to put in a false or sham proposal, or that anyone shall refrain from proposing; that the Offeror has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the price of the Offeror or any other Offeror, or to fix any overhead, profit, or cost element of the price, or of that of any Offeror, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the proposal are true, and, further, that the Offeror has not, directly, or indirectly, submitted his or her price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham proposal.

Name of Offeror:

Signature:

Date:

#### EXHIBIT K: PROPOSAL EXCEPTIONS AND/OR DEVIATIONS

#### **PROPOSAL EXCEPTIONS AND/OR DEVIATIONS**

The following form shall be completed for each technical and/or contractual exception or deviation that is submitted by Offeror for review and consideration by Authority. The exception and/or deviation must be clearly stated along with the rationale for requesting the exception and/or deviation. If no technical or contractual exceptions or deviations are submitted as part of the original proposal, Offerors are deemed to have accepted Authority's technical requirements and contractual terms and conditions set forth in the Scope of Work (Exhibit A) and Proposed Agreement (Exhibit C). Offerors will not be allowed to submit this form or any contractual exceptions and/or deviation after the proposal submittal date identified in the RFP. Exceptions and/or deviations submitted after the proposal submittal date will not be reviewed by Authority.

Offeror:			<u> </u>
RFP No.:	RFP Title:		
Deviation or Exception	No. :		
Check one: Scope of Work ( Proposed Agree	Technical) ment (Contractual)		
Reference Section/Exh	ibit:	Page/Article No	
Complete Description o	f Deviation or Exception:		
		· · · · · · · · · · · · · · · · · · ·	
			<u> </u>

Rationale for Requesting Deviation or Exception:

Area Below Reserved for Authority Use Only:

Approval to Release Request for Proposals for the Procurement of 40-Foot Compressed Natural Gas-Powered Buses



# 40-ft Compressed Natural Gas (CNG) Bus Fleet OCBUS

## 462 40-foot CNG-Powered Buses

### **299** CNG Buses Model Year 2007-2008



### 163 CNG Buses

### Model Year 2016-2018





- Federal Transit Administration (FTA) minimum useful life for a 40-foot bus as 12 years or 500,000 miles
- OCTA minimum useful life was previously set at 14 years, but recently increased to 18 years.
  - 18-year useful life is a cost-saving measure
  - Phase into 18 years by replacing the 299 buses at 16 to 18 years of service
- California Air Resources Board, Innovative Clean Transit Rule
  - Transition to 100 percent zero emission buses by 2040
  - Purchasing requirements begin in 2023
  - Last CNG-powered bus procurement

## **New Bus Specifications**



- Standard OCTA configuration and branding
- Near-zero emission CNG engines
- Rear wheelchair boarding
- Option for next generation radio communications
- Option for smooth style flooring
- Option for awareness monitors
- Option for operator barriers
- Option for all-door boarding provisions



The proposed evaluation criteria and weights are as follows:

- Technical Specifications 50 percent
  Qualifications of the Firm 20 percent
- Cost and Price 30 percent

### Recommendations

- Approve the proposed evaluation criteria and weightings for Request for Proposals (RFP) 9-1836 for the procurement of up to 299, 40-foot CNG-powered buses.
- Approve the release of RFP 9-1836 for the procurement of up to 299, 40-foot CNG-powered buses.





- March 23, 2020 Board Approval for RFP Release
- March 23, 2020 Issue RFP
- April 7, 2020 Pre-Proposal Conference
- May 12, 2020 Bids Due
- June 9, 2020 Interviews
- August 13, 2020 Transit Committee
- August 24, 2020 Board of Directors for final approval to award



March 23, 2020

То:	Members	of the	Board	of Directors
			~	

From: Laurena Weinert, Clerk of the Board

Subject: OC Streetcar Project Quarterly Update

Transit Committee Meeting of March 12, 2020

Present:Directors Do, Davies, Jones, Shaw, and SidhuAbsent:Directors Pulido and Winterbottom

#### **Committee Vote**

Following the discussion, no action was taken on this receive and file information item.

#### Staff Recommendation

Receive and file as an information item.



#### March 12, 2020

То:	Transit Committee
From:	Darrell E. Johnson, Chief Executive Officer
Subject:	OC Streetcar Project Quarterly Update

Jane Ofthe

#### Overview

The Orange County Transportation Authority is currently implementing the OC Streetcar project. Updates are provided to the Board of Directors on a quarterly basis. This report provides an update on OC Streetcar project activities from October 2019 through February 2020.

#### Recommendation

Receive and file as an information item.

#### Background

The Orange County Transportation Authority (OCTA), in cooperation with the cities of Santa Ana and Garden Grove, is implementing a modern streetcar running 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 Project S – Transit Extensions to Metrolink, approved by Orange County voters in November 2006.

Construction of the 4.15-route-mile OC Streetcar line involves complex and specialized work, including the installation of embedded track in streets, an overhead catenary system to supply power to the vehicles, stops with canopies, bridges, and a maintenance and storage facility (MSF).

The Project includes ten streetcar stops in each direction (four shared center platforms and six side platforms in each direction, for a total of 16 platforms). Each stop includes a canopy, benches, leaning rails, trash cans, lighting, changeable

message signs, video cameras, a public address system, and ticket vending machines, which will be procured separately. Platforms will be 14 inches high to enable level boarding. Also included is the installation of new traffic signals and transit signal priority at intersections.

The MSF can accommodate up to 15 modern streetcar vehicles and includes Project administration, operations, vehicle maintenance, parts storage, and maintenance-of-way. Secured exterior vehicle storage, including a wye track for turning vehicles end-for-end, a free-standing vehicle wash, employee parking, and fire department/delivery access will also be included.

On March 26, 2018, the OCTA Board of Directors (Board) awarded a contract to Siemens Mobility, Inc., (Siemens) for the manufacture and delivery of eight modern streetcar vehicles, spare parts, and special tools. On September 24, 2018, the Board awarded the Project construction contract to Walsh Construction Company II, LLC (Walsh). On November 30, 2018, the Federal Transit Administration (FTA) executed the Full Funding Grant Agreement (FFGA), which was a significant milestone as it secured \$149 million in federal New Starts discretionary funding for the Project. In February 2019, the FFGA was awarded through the FTA Transit Award Management System, which was the final step necessary to begin the drawdown of federal funding. Through January 2020, \$26.81 million has been drawn down on the FFGA.

#### Discussion

The following is a status of ongoing OC Streetcar activities.

Construction Activities

The Notice to Proceed with construction was issued to Walsh on March 4, 2019. Construction activities continued throughout the Project, with the focus on construction of the Santa Ana River and Westminster Avenue bridges, the MSF, and relocation of storm drain, sewer, and water systems within the City's streets.

Foundations, abutments, and the center pier for the bridge over Westminster Avenue were completed in December 2019. The temporary falsework to support bridge construction is being installed. Furthermore, foundations for the retaining wall approaches for the bridges over Westminster Avenue and the Santa Ana River are also underway.

Testing, manifesting, and hauling of contaminated materials to approved disposal facilities from the Pacific Electric Right-of-Way (PEROW) and other project areas is progressing. This will allow for construction of retained fill

approaches to the bridges and establishment of areas for rail deliveries and rail welding. Additionally, the prototype station canopy is being fabricated.

#### MSF

Construction of the MSF is critical to the Project schedule as the MSF is needed to accept delivery and conduct final acceptance testing for the eight vehicles being manufactured by Siemens. Spread footings and conduits have been installed at the MSF, and construction of the service and inspection pits has begun and will be followed by the pouring of the building slab. Structural steel members for the building frame are being fabricated.

#### Utility Relocation

Wet utilities (sewer, water, and storm drains) are being relocated by Walsh as part of the construction contract. Utility relocations from Raitt Street to Bristol Street are complete; therefore, the in-street embedded trackwork construction can begin once the rail strings have been welded. Sewer relocations are approximately 80 percent complete. Water line relocations are approximately 56 percent complete, and storm drain relocations for all of the street-running portions of the Project are approximately 17 percent complete.

There have been challenges installing storm drains and sewers due to the discovery of utilities that were either not shown on any of the record drawings or shown at different locations or elevations than on the plans. Some of the utility conflicts have been taking longer to resolve due to the need for additional potholing and/or excavation work to expose the utility and determine how it should be relocated. A supplemental change order for the additional work to address the unknown utilities was approved by the Board in November 2019.

Dry utilities (electric, communications, and gas) are being relocated by the owners of these systems, with most of these third-party utility relocations having been completed. Remaining work includes Southern California Edison's removal of underground vaults on Santa Ana Boulevard, one final relocation being scheduled by AT&T, and a few communications facilities.

#### Vehicle Manufacturing and Delivery

The production of the Siemens S700 vehicles is underway with six of the eight vehicles in various stages of early production. To date, first article inspections have been conducted for the braking system, first welded carshell, auxiliary power supply, and the painted carshell. Parallel to production of the vehicle carshells, final design review continues for a few remaining vehicle components, which include the train to wayside communication, monitoring and diagnostic

system, crash energy management, energy absorbing bumper, and the emergency battery drive.

In January 2020, the California Public Utilities Commission approved a variance request for the use of rearview cameras in lieu of rearview mirrors. OCTA elected to utilize a camera and monitor system instead of rearview mirrors on the vehicles in order to allow operators a clearer view of the rear and both sides of the vehicle for the full length of the vehicle. The rearview cameras are a component of the vehicles' safety and security measures, which include monitoring and recording of forward-facing cameras, passenger area cameras, and in-cab inward facing cameras.

Staff continues to receive weekly reports from OCTA's on-site vehicle inspector with details of production progress, pictures of the work completed, and upcoming production schedule and milestones. The on-site vehicle inspector also reviews the subcontractors' manufacturing processes and performs critical quality control checks.

Coordination is ongoing between Conduent Transportation, OCTA, and Siemens in the design of the Computer Aided Dispatch and Automated Vehicle Location, as well as the communications equipment on the vehicles.

Coordination also continued between OCTA, Siemens, and Walsh in the integration of the streetcar vehicle with the infrastructure, including the tracks, platforms, MSF, and wayside equipment and systems.

Operations and Maintenance (O&M) Contract

The O&M contractor selection process is progressing. Best and final offers have been submitted and reviewed in response to the request for proposals. Award of the O&M contract is anticipated for consideration by the Board in April 2020.

Public Outreach

Outreach activities continue to focus on keeping the community and project stakeholders aware of ongoing construction activities with a targeted focus on expanding project awareness to visitors in Downtown Santa Ana (Downtown).

The biweekly Construction News email alert looks ahead to general activities along the alignment, as well as segment-by-segment details. In addition to email alerts, individual notifications are provided with multilingual doorhangers describing the activities in detail. The alerts also are available on the project website, and social media channels are used to broaden its availability and awareness. OCTA launched a promotional campaign for the Project's digital

application (app) to encourage downloads. The app includes information about current construction activities, locations of parking facilities in Downtown, and links to additional Project information.

A construction safety campaign is under way, and messaging has been added to the website, social media, and other collateral. The safety campaign includes an activity book for school-age children and an overview flyer. Both collateral pieces will be distributed to all schools on the Project alignment.

OCTA and the City partnered to design and install large-format banners on several of the parking structures in Downtown. The banners help to attract drivers to the parking structures and remind the public that businesses are open during construction. In addition, OCTA has provided additional parking structure signage, A-frame street signs, and printed maps promoting the City's two-hour free parking program.

OCTA outreach staff works proactively with representatives from the cities of Santa Ana and Garden Grove to provide periodic closed-caption slides on major construction activities for display before city council meetings. OCTA is collaborating with City staff to monitor community events in Downtown and ensures that the contractor is aware and can coordinate activities accordingly. This coordination also offers opportunities for the outreach team to host information tables at the events, such as the Downtown art walk.

OCTA has introduced the Eat, Shop, Play (ESP) program to provide assistance to local businesses and to promote the Downtown area. OCTA has partnered with both Downtown business associations to share the ESP program enrollment application with the more than 700 businesses in Downtown. OCTA also assisted Downtown, Inc., with rebranding its dining guide to include an updated business listing, safety messaging, ESP program information, and a campaign encouraging jurors to eat at Downtown restaurants. As Project construction continues, OCTA has encouraged its employees to show continued support of the businesses in Downtown.

Tabletop and free-standing lobby displays with literature holders were created to disseminate general Project information and promote the ESP program. These displays will be available at city halls, libraries, community centers, municipal buildings, and the 4<sup>th</sup> Street Market. The literature holders will include materials such as construction brochures, dining guides, and safety information.

On February 24, 2020, the Board approved entering into agreements with two business associations that directly support Santa Ana's Business Improvement District. The efforts of Downtown, Inc., and the Santa Ana Business Council support more than 700 businesses in the district and share the goal of bringing

more awareness and customers to Downtown. Staff will report on the progress of these enhanced efforts in future updates.

In addition, a phased marketing program to create awareness, interest, and anticipation began in late 2019, and will run through the start of revenue service. Key initiatives for the first phase of the marketing program include a brand video showcasing vehicle renderings travelling along the corridor, a revitalized website, multilingual branded brochures, and a themed digital campaign set to begin in spring 2020.

#### Cost and Schedule

The Project cost, as included in the FFGA, remains at \$407.7 million, including \$37.96 million in contingency. As of February 2020, approximately \$17.09 million in contingency has been expended or committed.

As discussed with the Board in February 2020, the revenue service date is anticipated for mid-2022. Staff will continue to keep the Board apprised of schedule updates.

#### Next Steps

Construction activities in the next quarter are scheduled to include preparation of pits and slabs for the MSF building foundations, constructing retaining walls and approach fills for the Westminster Avenue and Santa Ana River bridges, the superstructure for the Westminster Avenue Bridge, preparation for ballasted track installation in the PEROW, and the start of in-street embedded track installation. Next steps for vehicles include finalizing design for remaining vehicle components, additional first article inspections, and continued production and assembly for the remaining vehicles. Upcoming outreach activities include coordination with the construction team and the City regarding traffic control measures that will be needed for the in-street embedded track installation.

#### Summary

An OC Streetcar project update is provided for the Orange County Transportation Authority Board of Directors' review.

#### Attachment

None.

Prepared by:

Marysla

Mary Shavalier Program Manager (714) 560-5856 Approved by:

2 spe

James G. Beil, P.E. Executive Director, Capital Programs (714) 560-5646



# Background

- Measure M2 Project S Transit Extensions to Metrolink approved by Orange County voters in November 2006
- Key OC Streetcar project (Project) implementation dates:

Key Milestone	Date	Contract Execution Amount ( in Millions)
Vehicle Contract Award	March 2018	\$51.52
Construction Contract Award	September 2018	\$220.53
Full Funding Grant Agreement Executed	November 2018	\$148.96

## **OC Streetcar Features**



#### Pacific Electric Right-of-Way (PEROW)

- Dedicated right-of-way owned by the Orange County Transportation Authority (OCTA)
- Double-Track, Ties, and Ballast

- Two Bridges-Westminster and Santa Ana River
- Two Gated Crossings-Fairview and 5<sup>th</sup> Street
- Maintenance facility for eight cars west of Raitt Street
- Center Platforms
- Two-Wire Overhead Catenary System (OCS)

#### STREET RUNNING

- Traffic Signal Priority
- One-Way Couplet Downtown
  - 4<sup>th</sup> Street Eastbound, Santa Ana Boulevard Westbound

- Embedded Track (Block Rail)
- Side Platforms (except Santa Ana Regional Transportation Center)
- Protected bike lane on Santa Ana Boulevard
- One-Wire OCS with underground feeder

## Construction—Segment 1



- Bridge foundations, bents, abutments and piers completed. Temporary falsework supports to build Westminster bridge installed. Retaining walls for bridge approaches beginning construction.
- Testing, manifesting, and hauling of contaminated materials from PEROW to approved disposal facilities is progressing.
- Establish rail laydown and welding area in PEROW.

# Santa Ana River Bridge



5

# Westminster Avenue Bridge





# Maintenance and Storage Facility (MSF)



## Construction—Segments 2 Through 5



- Wet utilities relocated by OCTA's contractor: water, sewer, and storm drain
  - Raitt Street to Bristol Street utilities complete, in-street embedded trackwork will begin once the rail strings delivered and welded
  - Sewer relocations in Segment's 4 and 5 approximately 80 percent complete
  - Water line relocations are approximately 56 percent complete
  - Storm drain relocations in street-running segments are approximately 17 percent complete

# Third-Party Utility Relocations

- Most third-party dry utility relocations are complete
- Remaining work includes:
  - Southern California Gas working downtown and east of downtown on Santa Ana Boulevard
  - Southern California Edison removal of underground vaults on Santa Ana Boulevard
  - AT&T with one final relocation being scheduled now that a conflicting sewer line has been relocated




#### Vehicles

- First article inspections have been conducted for the brake system, first welded carshell, auxiliary power supply, and the painted carshell
- Finalizing outstanding items from final design review
- California Public Utilities Commission approved a variance request for the use of rearview cameras in lieu of rearview mirrors
- Ongoing coordination with Conduent and Siemens on Computer Aided Dispatch and Automated Vehicle Location design specifications
- Ongoing coordination between OCTA, Siemens, and Walsh Construction Company II, LLC, in the integration of the streetcar vehicle with the infrastructure, including the tracks, platforms, MSF, and wayside equipment and systems



#### Vehicle Interior







#### Other Key Project Updates

- Best and final offers were received in response to the operations and maintenance request for proposals
  - Contract award anticipated in April 2020
- Ongoing coordination with the Federal Transit Administration, City of Santa Ana, City of Garden Grove, Orange County Fire Authority, Orange County Flood Control District, and OC Parks



# OC Streetcar Outreach – Support

- Eat, Shop, Play Lobby Displays
- Dining Guide
- OCTA Employee
  Program
- Parking Signage

Safety Campaign





CGO & VealSTA A G











# OC Streetcar Outreach – Construction

- E-Blasts
- Social Media
- Flyers and Doorhangers
- Mobile App

- Construction
  Brochure
- Closed Circuit Television Slides
- Posters with tear-sheets









M OCGO C Ventra A G

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# OC Streetcar Awareness Campaign

- Promote brand awareness
- Integrated website design and development
- Brand video
- Benefit-driven brochure





