

Utah Transit Authority
 669 West 200 South
 Salt Lake City, Utah 84101
 Phone: (801) 741-8885
 Fax: (801) 741-8892



CHANGE ORDER

No. 1

TITLE: Change order #1 to TO #2 -Simulation Assitance and Operations Planning DATE: 12/17/2021
 PROJECT/CODE: MSP252 - Frontrunner Double Tracking This is a change order to CONTRACT No: Task Order #02 - Op Planning and 20-03323BM
 TO: DB E.C.O. North America (formerly DB Engineering & Consulting USA Inc.)
 ATTN: David Hüffmeier

DESCRIPTION OF CHANGE: Brief scope, references to scope defining documents such as RFIs, submittals, specified drawings, exhibits, etc.

Change order 1 for Task order 2 - DB will develop and Operations and Maintenance (O&M) cost model that allows UTA to understand the financial implications of service expansion. The model will be based on existing financial data, calibrated to reflect the existing operating environment. DB will also perform an assessment of alternative powertrain options capable of meeting the service specifications of the FrontRunner Forward concepts. This will need Board approval.

Direction or Authorization to Proceed (DAP) previously executed: YES ___ NO X

It is mutually agreed upon, there is a schedule impact due to this Change order: YES X NO ___

The amount of any adjustment to time for Substantial Completion and/or Guaranteed Completion or Contract Price includes all known and stated impacts or amounts, direct, indirect and consequential, (as of the date of this Change Order) which may be incurred as a result of the event or matter giving rise to this Change Order. Should conditions arise subsequent to this Change Order that impact the Work under the Contract, including this Change Order, and justify a Change Order under the Contract, or should subsequent Change Orders impact the Work under this Change Order, UTA or the Contractor may initiate a Change Order per the General Provisions, to address such impacts as may arise.

Current Change Order		Contract		Schedule	
Lump Sum:	\$96,137	Original Contract Sum:	\$320,105	Final Completion Date Prior to This Change:	12/31/2021
Unit Cost:	-	Net Change by Previously Authorized Changes:	\$0	Contract Time Change This Change Order (Calendar Days):	92
Cost Plus:	-	Previous Project Total:	\$320,105	Final Completion Date as of This Change Order:	5/31/2022
Total:	\$96,137	Net Change This Change Order:	\$96,137		
		Current Project Total:	\$416,242		

ACCEPTED: Digitally signed by David Hüffmeier
 By: Date: 2022.01.27 17:17:25 -08'00'

David Hüffmeier
 DB E.C.O. North America Inc.
 By: Date: 2022.01.27 17:17:25 -08'00'

Mark Evans
 DB E.C.O. North America Inc.
 By: Date:

By: Date:

By: Date:

By: Date:

Janelle Robertson
 Project Manager <\$10,000
 By: Date:

Todd Provost
 Director of Capital Development <\$50,000
 DocuSigned by: 70E33A415BA44F6...
 By: Date: 1/17/2022

Mary DeLoretto
 Chief Service Dev Officer <\$100,000
 By: Date:

Brian Notes
 Procurement

Michael Bell
 Legal Review

Jay Fox
 Executive Director >\$100,000



Change Order Summary Worksheet
Previously Authorized Changes

Contract Task Order #02 - Op

Change Order No	Date	Amount of CO	Running Contract Total	Subject
Original Contract			\$320,105	
Total to Date		\$		



UTA – Simulation and Operations Planning **Task Order 2 - Addendum**

DB E.C.O. North America Inc.

Consulting

555 Capitol Mall, Suite 1250

Sacramento, CA 95814

October 15, 2021

DB E.C.O. North America Inc.

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DB E.C.O. North America Inc.

1 FrontRunner Service and Ops Analysis Task Order 2- Addendum Overview

DB E.C.O. North America Inc. (formerly DB Engineering & Consulting USA Inc.) (DB), as requested by Utah Transit Authority (UTA), has developed the following scope addendum for the on-going work effort in support of the FrontRunner Forward Business Plan.

1.1 Proposed Sub-Tasks

This work effort will be structured in Two Sub-Tasks:

- Sub-Task 5: Operations and Maintenance Cost Modeling
- Sub-Task 6: Equipment Technology Assessment

2 Sub-Task 5: Operations and Maintenance Cost Modeling

DB will develop an Operations and Maintenance (O&M) cost model that allows UTA to understand the financial implications of service expansion. The model will be based on existing financial data, calibrated to reflect the existing operating environment, and be sensitive to changes in operations. The model will be developed using cost drivers that are sensitive to operating parameters including, but not limited to, train miles, car miles, route miles, passenger miles, and employee hours.

Using the developed model, DB will estimate the incremental costs associated with changes to FrontRunner service represented by the concepts developed for the FrontRunner Forward Program. Three scenarios will be modeled, one in each of the categories reflecting incremental expansion of service from 2 trains per hour, to 4 trains per hour, to 8 trains per hour.

The O&M costs include, but are not limited to:

- Labor: Train crew labor data
- Energy: diesel fuel costs (electricity cost and/or hydrogen costs in future scenarios)
- Stations: train dispatching services, customer information, station building O&M costs
- Train maintenance: routine and non-routine maintenance of rolling stock, cleaning
- Railroad: costs to operate and maintain infrastructure
- General and Administrative: management, marketing, ticket sales, all general office expenses

DB will require multiple years of UTA budgeted and actual expenditures and service characteristics (train miles, car miles, route miles, etc.) over the same time period covered by the financial data.

2.1 Deliverables: Sub-Task 5

- Draft and Final Annual Operations and Maintenance costs for up to three (3) operating scenarios

DB E.C.O. North America Inc.**3 Sub-Task 6: Equipment Analysis: Motive Power Evaluation**

UTA currently provides service on the FrontRunner corridor with diesel-electric, locomotive-hauled consists, typically comprising a MP36PH-3C locomotive, a single-level coach (Comet Car), two Bombardier bi-level coaches, and a Bombardier bi-level cab car. Trains reach a maximum speed of 79mph on current infrastructure. Service concepts being developed for the FrontRunner Forward Business Plan consider raising the maximum speed of the corridor and operating higher performance equipment.

This task will perform an assessment of alternative powertrain options capable of meeting the service specifications of the FrontRunner Forward concepts. Lower-emission (e.g. renewable diesel, and diesel-hybrid) and zero-emission options (e.g. conventional wayside electrification with an overhead contact system (OCS), partial OCS with a battery-powered trains, battery-powered trains with charging infrastructure at some locations, and hydrogen fuel cell) will be assessed.

Suitability of the various technologies for FrontRunner service will be evaluated from a technology perspective, including possible impact on service provision (such as charging and refuelling frequency and time), emissions resulting from train operation, energy consumption, and indicative capital investment and operational cost resulting from energy/fuel consumption.

Well-to-wheel energy and emission impacts as well as detailed powertrain simulation and design are outside the scope of the study but could be included in a more detailed assessment once pre-selection of options has been made by UTA. DB will utilize publicly available literature, information from DB databases, and expert knowledge from previous projects with similar scope.

The outcome of the high-level motive power evaluation will enable UTA to make an informed decision on which technologies and train consist options would be most suitable to meet objects for the FrontRunner service and should be investigated further.

3.1 Deliverables: Sub-Task 6

- Memo providing recommendations on motive power options

4 Estimated Project Schedule

Sub-Task 5 and 6 will proceed in the Fall/Winter of 2021-2022 in accordance with the overall FrontRunner Forward schedule. DB is responsible for timely development of materials and will ensure best efforts to coordinate with UTA and other stakeholders as needed to deliver outlined scope above.

5 Estimated Level of Effort – Not to Exceed Budget

DB reserves the right to reassign work hours among the project team, as required, to fulfil the scope of work for this task. The not to exceed budget for the work described in this scope is \$96,137.60. If complexity is beyond the anticipated level, additional budget may be necessary to complete this effort.

DB E.C.O. North America Inc.

	Principal Consultant	Managing Consultant	Senior Consultant	Consultant	Analyst	Total	Total
Task 5: Operations and Maintenance Modeling	40	0	120	0	100	260	\$48,782.00
Task 6: Equipment Analysis	16	80	40	0	120	280	\$47,355.60
Total	56	80	160	0	220	540	\$96,137.60