



REGULAR MEETING
of the
SANTA BARBARA METROPOLITAN TRANSIT DISTRICT BOARD OF DIRECTORS
a Public Agency
Tuesday, November 3, 2020
8:30 AM
VIA TELECONFERENCE

IMPORTANT NOTICE REGARDING THIS BOARD MEETING:

This virtual meeting is being conducted utilizing teleconferencing and electronic means pursuant to State of California Executive Order N-29-20 issued by Governor Gavin Newsom on March 17, 2020, regarding the COVID-19 pandemic. The public may only view a livestream of the meeting online at: <http://tinyurl.com/sbmtdyoutube>

Public Participation

To make a general public comment or to comment on a specific agenda item, the following methods are available: Email, Phone, and Zoom webinar.

All comments will be limited to 3 minutes per speaker.

1. Email:

- Submit public comment to clerk@sbmtd.gov *before 12 p.m.* on the Monday prior to the Board meeting for advance distribution to the Board of Directors.
- Public comment emails submitted to clerk@sbmtd.gov *during* the meeting will be recognized *if* the email is received prior to or during the item to be addressed.
- **In ALL emailed Public Comments, please include:**
 - (A) The agenda item(s) to be addressed
 - (B) If you would like your comment read into the record
 - (C) Public Comment text

2. Phone: Call the Zoom webinar line 10 minutes prior to the 8:30 a.m. meeting start time:

- Toll-Free Dial-in: **(669) 900-6833**.
 - When prompted, enter Meeting ID **940 1293 9419** and then #.
 - When prompted for a password, dial **413666** and then #.
- When the item you wish to address is announced, dial *9 to request to comment.

Please mute your phone until called to speak. If you do not have a mute button, you may mute by dialing *6. You can unmute by pressing the same keys (*6). When the chair calls for public comment, the clerk will announce you and will unmute your microphone.

3. Zoom webinar & computer audio: View the webinar at the following link at 8:30 a.m.:

<https://zoom.us/j/94012939419?pwd=TmQxaFhhV2s0UDBiamN3amlNOG9Sdz09>

To give public comment via the Zoom webinar, click the "Raise Hand" button only when the item you wish to speak on has begun. When the chair calls for public comment, the clerk will announce you and will unmute your microphone. The public will not be able to share their video or screen.

BOARD OF DIRECTORS AGENDA

BOARD MEMBERS WILL JOIN VIA TELECONFERENCE

ITEMS TO BE CONSIDERED:

1. CALL TO ORDER

2. ROLL CALL OF THE BOARD MEMBERS

Dave Davis (Chair), David Tabor (Vice Chair), Bill Shelor (Secretary), Olivia Rodriguez (Director), Dick Weinberg (Director), Chuck McQuary (Director), Paula Perotte (Director).

3. REPORT REGARDING POSTING OF AGENDA

CONSENT CALENDAR

4. APPROVAL OF PRIOR MINUTES - (ACTION MAY BE TAKEN)

The Board of Directors will be asked to approve the draft minutes for the meeting of October 20, 2020.

5. CASH REPORT - (ACTION MAY BE TAKEN)

The Board of Directors will be asked to review and approve the Cash Report from the following dates: October 10, 2020 through October 23, 2020.

THIS CONCLUDES THE CONSENT CALENDAR

6. PUBLIC COMMENT

Members of the public may address the Board of Directors on items within the jurisdiction of the Board that are not scheduled for public hearing. The time allotted per speaker will be at the discretion of the Board Chair. If you wish to address the Board under this item number, see the above instructions on giving remote public comment. Additional public comment will be allowed during each agenda item, including closed session items.

7. ZERO EMISSION BUS (ZEB) POWER MODELING REPORT - (ATTACHMENT - INFORMATIONAL)

Staff will recommend that the Board receive a presentation on the Draft "ZEB Power Modeling Final Report."

8. APPROVAL OF PUBLIC TRANSPORTATION AGENCY SAFETY PLAN - (ATTACHMENTS - ACTION MAY BE TAKEN)

Staff will recommend that the Board adopt Resolution No. 2020-05 approving MTD's Public Transportation Agency Safety Plan in compliance with 49 Code of Federal Regulations Part 673.

9. RENEWAL OF STAFF HEALTH INSURANCE EFFECTIVE JANUARY 1, 2021 - (ACTION MAY BE TAKEN)

Staff will recommend the Board of Directors authorize the General Manager to renew Staff health insurance policies for the plan year effective January 1, 2021. Insurance coverage under these policies is for MTD Staff employees not represented by a Collective Bargaining Agreement.

10. GENERAL MANAGER'S REPORT - (INFORMATIONAL)

The General Manager will provide an update on district activities.

BOARD OF DIRECTORS AGENDA

11. OTHER BUSINESS AND REPORTS - (INFORMATIONAL)

The Board will report on other related public transit issues and committee meetings.

12. RECESS TO CLOSED SESSION: PUBLIC EMPLOYEE PERFORMANCE EVALUATION - (ACTION MAY BE TAKEN)

The Board will meet in closed session, pursuant to Government Codes § 54957 and § 54954.5(e), to evaluate the performance of the District's General Manager.

PUBLIC COMMENT RELATED TO CLOSED SESSION ITEM(S) WILL BE ALLOWED BEFORE THE RECESS

13. ADJOURNMENT

AMERICANS WITH DISABILITIES ACT: If you need special assistance to participate in this meeting, please contact the MTD Administrative Office at 805.963.3364 at least **48 hours in advance** of the meeting to allow time for MTD to attempt a reasonable accommodation.



BOARD OF DIRECTORS DRAFT MINUTES

REGULAR MEETING
of the
BOARD OF DIRECTORS
of the
SANTA BARBARA METROPOLITAN TRANSIT DISTRICT
A Public Agency
Tuesday, October 20, 2019
8:30 AM
John G. Britton Auditorium
550 Olive Street, Santa Barbara, CA 93101

1. CALL TO ORDER

Chair Dave Davis called the meeting to order at 8:30 AM.

2. ROLL CALL OF THE BOARD MEMBERS

Chair Davis reported that all members were present, with the exception of Director Dick Weinberg.

3. REPORT REGARDING POSTING OF AGENDA

Christina Perry, Administrative Assistant Lead, reported that the agenda was posted on Friday, October 16, 2020, at MTD's Administrative office, mailed and emailed to those on the agenda list, and posted on MTD's website.

CONSENT CALENDAR

4. APPROVAL OF PRIOR MINUTES - (ATTACHMENT - ACTION MAY BE TAKEN)

The Board was asked to approve the draft minutes for the meeting of October 6, 2020.

5. CASH REPORT - (ATTACHMENT - ACTION MAY BE TAKEN)

The Board was asked to review and approve the Cash Report from the following dates: September 19, 2020 through October 9, 2020.

Vice Chair Dave Tabor moved to approve the consent calendar. Director Olivia Rodriguez seconded the motion. Chair Davis opened a roll call vote and the motion passed unanimously.

THIS CONCLUDES THE CONSENT CALENDAR

6. PUBLIC COMMENT

No public comments were made.

7. FISCAL YEAR 2019-20 ANNUAL RIDERSHIP REPORT - (ATTACHEMENTS - INFORMATIONAL)

Planning and Marketing Manager Hillary Blackerby presented a report regarding annual ridership statistics for FY 2019-20.

BOARD OF DIRECTORS DRAFT MINUTES

8. COMMUNITY SURVEY RESULTS & HEALTH & SAFETY COMMITMENTS CAMPAIGN - (INFORMATIONAL)

Ms. Blackerby presented results from a COVID-19 related community survey and provided an update on its participation in the American Public Transportation Association's Health and Safety Commitments Program.

9. ANNUAL ELECTION OF BOARD OFFICERS - (ACTION MAY BE TAKEN)

Director Olivia Rodriguez notified the Board that she will not be reapplying for a position on the Board of Directors when her term concludes.

Director Chuck McQuary moved that current assignments continue for the upcoming year. Director Paula Perotte seconded the motion. The motion passed unanimously by roll call vote.

10. GENERAL MANAGER'S REPORT - (INFORMATIONAL)

General Manager Jerry Estrada provided an update on district activities, including an explanation of the average weekly ridership reports. General Manager Estrada also answered general questions from the Board.

Director Olivia Rodriguez left the meeting at 9:56 AM.

11. OTHER BUSINESS AND REPORTS - (INFORMATIONAL)

Chair Davis noted that the deadline for receipt of proposals for the Calle Real Development project was extended to Friday, October 23, 2020.

12. RECESS TO CLOSED SESSION: PUBLIC EMPLOYEE PERFORMANCE EVALUATION - (ACTION MAY BE TAKEN)

The Board met in closed session, pursuant to Government Codes § 54957 and § 54954.5(e), to evaluate the performance of the District's General Manager.

No public comment was made prior to recess. The Board recessed at 9:58 AM.

The Board returned from recess at 10:25 AM. Chair Davis reported that no action was taken.

13. ADJOURNMENT

Director Perotte moved to adjourn the meeting. Vice Chair Tabor seconded the motion. The motion passed unanimously and the meeting was adjourned at 10:25 AM.

Santa Barbara Metropolitan Transit District
Cash Report
Board Meeting of November 3, 2020
For the Period October 10, 2020 through October 23, 2020

MONEY MARKET

Beginning Balance October 10, 2020 **\$2,378,817.43**

Accounts Receivable	3,991,470.93
Prepays & Advertising	3,912.00
Interest Income	898.96
Miscellaneous Income	873.33
Passenger Fares	12.00
Total Deposits	3,997,167.22

Miscellaneous Transfers	(545.97)
Bank & Credit Card Fees	(5,107.01)
401(k)/Pension Transfer	(34,614.64)
Workers' Compensation	(72,204.31)
Payroll Taxes	(137,737.63)
Payroll	(325,444.42)
Accounts Payable	(864,630.75)
Total Disbursements	(1,440,284.73)

CERTIFICATES OF DEPOSIT

Institution	Maturity	Rate	
American Riviera Bank	2/28/2021	2.00%	1,522,648.89
Total Certificates of Deposit			1,522,648.89

\$1,522,648.89

Ending Balance **\$6,458,348.81**

CASH INVESTMENTS

LAIF Account	\$5,859,597.74
Money Market Account	6,458,348.81

Total Cash Balance **\$12,317,946.55**

SELF INSURED LIABILITY ACCOUNTS

WC / Liability Reserves	(\$4,790,440.54)
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Working Capital **\$7,527,506.01**

Santa Barbara Metropolitan Transit District
Cash Receipts of Accounts Receivable

Date	Company	Description	Amount
10/9/2020	Blue Line Media LLC	Advertising on Buses	1,856.00
10/9/2020	Goodwin & Thyne Properties	Advertising on Buses	1,040.00
10/16/2020	Hiltachk Marketing Group/SB Airport	Advertising on Buses	3,854.70
10/16/2020	Moonlight Graphics/Mktg	Advertising on Buses	4,203.00
10/23/2020	Sansum Clinic	Advertising on Buses	2,934.00
10/23/2020	State Transit Assistance	STA - Capital	3,972,651.23
10/23/2020	True Media LLC/Cottage Health	Advertising on Buses	936.00
10/23/2020	True Media LLC/Cottage Health	Advertising on Buses	936.00
10/23/2020	Wells Marketing, LLC	Advertising on Buses	1,731.60
10/23/2020	Wells Marketing, LLC	Advertising on Buses	1,328.40
Total Accounts Receivable Paid During Period			\$3,991,470.93

Santa Barbara Metropolitan Transit District
Accounts Payable

Check #	Date	Company	Description	Amount	Voids
125080	10/15/2020	ABC BUS COMPANIES INC	BUS PARTS	165.81	
125081	10/15/2020	AMERICAN SEATING COMPANY	BUS SEATS & PARTS	241.28	
125082	10/15/2020	ASBURY ENVIRONMENTAL SERVI	WASTE OIL RECYCLER	110.00	
125083	10/15/2020	AUTOZONE STORES LLC	SHOP SUPPLIES	42.84	
125084	10/15/2020	BAY ALARM COMPANY, INC	ALARM CONTRACT	368.00	
125085	10/15/2020	BIG BRAND TIRES, BRANDCO BILL	SERVICE VEHICLE MAINTENANCE	102.42	
125086	10/15/2020	BROWN ARMSTRONG ACCOUNTA	ANNUAL AUDIT	5,000.00	
125087	10/15/2020	BYD COACH & BUS LLC	BUS PARTS	2,307.26	
125088	10/15/2020	BYD MOTORS LLC	CAPITAL LEASE PAYMENT	31,625.22	
125089	10/15/2020	CALIFORNIA ELECTRIC SUPPLY, I	SHOP/B&G SUPPLIES	213.37	
125090	10/15/2020	MANUEL CASTANON	DMV REIMBURSEMENT	207.00	
125091	10/15/2020	CITY OF SANTA BARBARA	TC FIRE INSPECTION FEE	283.00	
125092	10/15/2020	CENTRAL COAST CIRCULATION, L	BUS BOOK DISTRIBUTION	627.00	
125093	10/15/2020	CROCKER REFRIGERATION & AIR	HVAC MAINTENANCE	1,084.58	
125094	10/15/2020	CUMMINS SALES & SERVICE dba	BUS PARTS & REPAIRS	1,431.53	
125095	10/15/2020	DENMUN OFFICE SOLUTIONS DB	IT CONTRACT SERVICES	3,740.00	
125096	10/15/2020	DESTIN THOMAS COMMUNICATIO	RADIOS SUPPLIES/REPAIRS	1,009.50	
125097	10/15/2020	EASY LIFT TRANSPORTATION, IN	MONTHLY ADA SUBSIDY	83,463.33	
125098	10/15/2020	CARLOS FLORES	TOOL ALLOWANCE	1,100.00	
125099	10/15/2020	FRONTIER CALIFORNIA INC.	TELEPHONE SERVICE	100.98	
125100	10/15/2020	GIBBS INTERNATIONAL INC	BUS PARTS	1,592.31	
125101	10/15/2020	GILLIG LLC	BUS PARTS	4,686.98	
125102	10/15/2020	GOLD COAST TRANSPORT REFRIG	BUS A/C MAINTENANCE	2,059.34	
125103	10/15/2020	GRAINGER, INC.	SHOP/B&G SUPPLIES	132.03	
125104	10/15/2020	HAYWARD LUMBER	SHOP SUPPLIES	26.22	
125105	10/15/2020	LANSPEED DBA	IT SERVICES	1,508.00	
125106	10/15/2020	LABOR ALLIANCE MANAGED TRU	UNION DENTAL INSURANCE	10,110.50	
125107	10/15/2020	MARBORG INDUSTRIES (INC)	UTILITIES & RENTAL FEES	213.75	
125108	10/15/2020	MC CORMIX CORP. (OIL)	LUBRICANTS	2,164.52	
125109	10/15/2020	MIKE CUEVAS GARDENING SERVI	LANDSCAPE MAINTENANCE SERVICE	1,045.00	
125110	10/15/2020	MUNOZ JANITORIAL	JANITORIAL/DISINFECTANT SERVICE	7,800.00	
125111	10/15/2020	NEWTON CONSTRUCTION & MGM	TRANSIT CENTER RENOVATIONS	49,563.02	
125112	10/15/2020	NFI PARTS DBA	BUS PARTS	1,062.81	
125113	10/15/2020	O'REILLY AUTO PARTS DBA	BUS PARTS	167.34	
125114	10/15/2020	POWERSTRIDE BATTERY CO.	BATTERIES	1,197.78	
125115	10/15/2020	REPUBLIC ELEVATOR, INC	ELEVATOR MAINTENANCE	170.00	
125116	10/15/2020	SB LOCKSMITHS, INC.	B&G REPAIR & SUPPLIES	113.00	
125117	10/15/2020	SANTA BARBARA NEWSPRESS D	PUBLIC NOTICE ADS	84.00	

Check #	Date	Company	Description	Amount	Voids
125118	10/15/2020	SANTA BARBARA TROPHY	DRIVER NAME PLATES	62.64	
125119	10/15/2020	SM TIRE, CORP.	BUS TIRE MOUNTING	463.26	
125120	10/15/2020	SPECIALTY TOOL & BOLT, LTD	SHOP SUPPLIES	308.62	
125121	10/15/2020	TEAMSTERS MISC SECURITY TRU	UNION MEDICAL INSURANCE	206,488.00	
125122	10/15/2020	TRUMAN ARNOLD COMPANIES (T	DIESEL FUEL	42,356.46	
125123	10/15/2020	J.C.M. AND ASSOCIATES INC.	UNIFORMS	765.89	
125124	10/15/2020	VALLEY POWER SYSTEMS, INC.	BUS PARTS	13.62	
125125	10/15/2020	WAXIE SANITARY SUPPLY DBA	JANITORIAL SUPPLIES	564.92	
125126	10/16/2020	NEWTON CONSTRUCTION & MGM	TRANSIT CENTER RENOVATIONS	317,317.43	
125127	10/23/2020	ABC BUS COMPANIES INC	BUS PARTS	393.29	
125128	10/23/2020	AMERICAN MOVING PARTS, LLC	BUS PARTS	444.82	
125129	10/23/2020	ASBURY ENVIRONMENTAL SERVI	WASTE OIL RECYCLER	160.00	
125130	10/23/2020	BREMSKERL NORTH AMERICA, IN	BUS PARTS	304.50	
125131	10/23/2020	BROWN & BROWN INSURANCE SE	CONTRACTOR'S LIABILITY INSURANC	413.00	
125132	10/23/2020	CITY OF CARPINTERIA	CHARGING STATION ELECTRICITY	133.31	
125133	10/23/2020	CUMMINS SALES & SERVICE dba	BUS PARTS & REPAIRS	1,092.51	
125134	10/23/2020	CA DEPT. OF TAX & FEE ADMIN.	QTRLY USER FUEL TAX	1,516.00	
125135	10/23/2020	CDTFA	SALES/CONSUMER USE TAX	326.00	
125136	10/23/2020	CA. DEPT. of TAX & FEE ADMINIST	UNDERGROUND STORAGE TANK FEE	2,527.00	
125137	10/23/2020	DIESEL FORWARD, INC.	BUS PARTS	9.27	
125138	10/23/2020	DOCUPRODUCTS CORPORATION	COPIER MAINTENANCE/SUPPLIES	77.14	
125139	10/23/2020	FIRST LOAN	PAYROLL RELATED	50.00	
125140	10/23/2020	SHERRIE FISHER	RETIREE HEALTH REIMBURSEMENT	328.07	
125141	10/23/2020	FLEET SERVICES, INC.	BUS PARTS	121.08	
125142	10/23/2020	STATE OF CALIFORNIA	PAYROLL RELATED	32.50	
125143	10/23/2020	FRONTIER CALIFORNIA INC.	TELEPHONE SERVICE	2,045.74	
125144	10/23/2020	GIBBS INTERNATIONAL INC	BUS PARTS	301.81	
125145	10/23/2020	GILLIG LLC	BUS PARTS	982.48	
125146	10/23/2020	HOME IMPROVEMENT CTR.	SHOP/B&G SUPPLIES	152.24	
125147	10/23/2020	HR AUTOGLASS DBA	BUS PARTS/REPAIRS	245.00	
125148	10/23/2020	LMA ARCHITECTS, CORP.	TC CONSTRUCTION OVERSIGHT	9,988.60	
125149	10/23/2020	MARBORG INDUSTRIES (INC)	UTILITIES & RENTAL FEES	1,314.05	
125150	10/23/2020	MC CORMIX CORP. (OIL)	LUBRICANTS	2,144.52	
125151	10/23/2020	MOHAWK MFG. AND SUPPLY CO.	BUS PARTS	295.06	
125152	10/23/2020	NATIONAL DRIVE	PAYROLL DEDUCTION	28.00	
125153	10/23/2020	NATIONAL INTERSTATE INS INC.	LIABILITY INSURANCE	37,819.28	
125154	10/23/2020	NFI PARTS DBA	BUS PARTS	501.86	
125155	10/23/2020	O'REILLY AUTO PARTS DBA	BUS PARTS	10.85	
125156	10/23/2020	PACIFIC POWER GROUP	BUS PARTS	225.22	
125157	10/23/2020	LETICIA RAMIREZ	PAYROLL RELATED	650.00	
125158	10/23/2020	SB COUNTY FEDERAL CREDIT UNI	PAYROLL DEDUCTION	260.00	

Check #	Date	Company	Description	Amount	Voids
125159	10/23/2020	SILVAS OIL CO., INC.	LUBRICANTS	366.16	
125160	10/23/2020	SANTA BARBARA TROPHY	DRIVER NAME PLATES	31.32	
125161	10/23/2020	SANTA BARBARA ELECTRONICS S	BUS PARTS, IT & SHOP SUPPLIES	228.35	
125162	10/23/2020	SO. CAL. EDISON CO.	UTILITIES	5,357.43	
125163	10/23/2020	SOCALGAS	UTILITIES	122.47	
125164	10/23/2020	STAPLES CONTRACT & COMMERC	OFFICE SUPPLIES	202.30	
125165	10/23/2020	STATE BOARD OF EQUALIZATION	PAYROLL RELATED	250.00	
125166	10/23/2020	STEWART'S DE-ROOTING & PLUM	PLUMBING REPAIRS	596.71	
125167	10/23/2020	SB CITY OF-REFUSE/WATER	UTILITIES	551.45	
125168	10/23/2020	TELONIC/BERKELEY	SHOP SUPPLIES	280.81	
125169	10/23/2020	THE MEDCENTER	MEDICAL EXAMS	1,004.00	
125170	10/23/2020	TANK TEAM INC.	TANK TESTS	128.00	
125171	10/23/2020	TEAMSTERS UNION LOCAL NO. 18	UNION DUES	249.25	
125172	10/23/2020	TREAS.TAX COLLECTOR,Harry E. H	PROPERTY TAXES	483.07	
125173	10/23/2020	UNITED PARCEL SERVICE, INC.	FREIGHT CHARGES	373.75	
125174	10/23/2020	UNITED WAY OF SB	PAYROLL DEDUCTION	40.00	
125175	10/23/2020	VC STAR / DESK SPINCO, INC	PUBLIC NOTICE ADS	276.20	
125176	10/23/2020	VERIZON WIRELESS	WIRELESS PHONES & AIM CELLULAR	3,011.76	
125177	10/23/2020	WAXIE SANITARY SUPPLY DBA	JANITORIAL SUPPLIES	633.71	
125178	10/23/2020	WURTH USA WEST INC.	SHOP SUPPLIES	237.25	
125179	10/23/2020	YACO SCHOLARSHIP FUND	PAYROLL DEDUCTION	53.00	
				864,630.75	
Current Cash Report Voided Checks:				0.00	
Prior Cash Report Voided Checks:				0.00	
Grand Total:				\$864,630.75	



BOARD OF DIRECTORS REPORT

MEETING DATE: NOVEMBER 3, 2020

AGENDA ITEM: #7

DEPARTMENT: CAPITAL PROJECTS

TYPE: INFORMATIONAL ITEM

PREPARED BY: RYAN GRIPP

Signature

REVIEWED BY: GENERAL MANAGER

Signature

SUBJECT: ZERO EMISSION BUS (ZEB) POWER MODELING REPORT

RECOMMENDATION:

Staff recommends that the Board receive a presentation on the Draft "ZEB Power Modeling Final Report."

DISCUSSION:

In 2019, MTD contracted with Stantec Architecture, Inc. (Stantec) to conduct a Facilities Master Plan (Plan) concentrated on Terminals 1 and 2 to determine MTD's facility needs and inform decisions regarding facility investments through 2040. A component of that project was to use the information compiled during plan development to perform power modeling to determine power demand for battery-electric bus (BEB) charging at Terminals 1 and 2 and route level energy requirements. To achieve the foregoing, Stantec used its proprietary modeling tool called ZEBDecide. The tool utilizes myriad inputs related to route characteristics like average speed, topography, and ridership as well as vehicle specifications (like energy storage capacity and weight) to predict fuel efficiency and operating range. Stantec was also able to develop charging profiles at Terminals 1 and 2 to simulate daily charging schedules and power requirements for vehicles housed at each facility.

MTD's bus service is comprised of "blocks" or combinations of trips on various lines that are combined to create a day's work or "run" for an MTD bus operator. Using the methodology outlined above, Stantec concluded that only 10 of MTD's 118 current blocks are unable to be covered by BEBs at a 1:1 ratio with a 524 kWh battery capacity, which is the capacity of the four New Flyer buses MTD is procuring. Further, Stantec determined that MTD can serve all of its current blocks and vehicle assignments (assuming reblocking with the available fleet complement) with a maximum power demand of 1.5 MW at Terminals 1 and 2 at a cost of \$0.131-0.107 per kWh for Terminal 1 and \$0.115-0.107 per kWh at Terminal 2.

ATTACHMENT:

- Draft "ZEB Power Modeling Final Report"



Santa Barbara MTD ZEB Power Modeling

Final Report

Prepared for the Santa Barbara MTD
Prepared by Stantec

October 2020





**Santa Barbara MTD ZEB Power
Modeling**

Final Report

October 27, 2020

Prepared for:

Santa Barbara MTD

Prepared by:

Stantec Consulting Services Inc.

SANTA BARBARA MTD ZEB POWER MODELING

Release Version

Rev.	Description	Date
0	Draft Report Issued to Agency	10/20/2020
1	Final Report Issued to Agency	10/27/2020

This document entitled *Santa Barbara MTD ZEB Power Modeling* was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Santa Barbara Metropolitan Transit District (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Project Team

Stantec

801 S. Figueroa St., Suite 300

Los Angeles, CA 90017

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Executive Summary

This document serves to outline the power demand and energy needs for the MTD's future all battery-electric fleet. Specifically, this report outlines Stantec's methodology to determine future power and energy requirements at MTD's facilities under an all-electric fleet. This modeling process, called ZEBDecide, utilizes a route-based and block-based approach to determining fuel efficiency and energy use of zero-emission buses under MTD's current operations and schedules¹. ZEBDecide involves a suite of inputs and parameters to accurately determine how battery-electric buses will perform using the MTD's current schedules and within the MTD's operating environment. This document includes:

- A review of existing conditions and MTD operational data to determine operation and scheduling conditions under which modeling will be performed.
- Route- and block-based modeling to determine power requirements for an all-electric fleet, using inputs including bus specifications, representative driving cycles, passenger loads, ambient temperatures and HVAC, and route elevation and topography.
- Presentation and discussion of modeling results, which show the current percentage of daily blocks and vehicles that can successfully complete scheduled service under the conditions laid out in the modeling.
- An additional sensitivity analysis to further understand the differences in energy efficiency and power consumption under more significant variations in topography and HVAC use.
- Developing charging profiles at the MTD's two facilities (assuming that Terminal 2 at Goleta will eventually become operational) to simulate daily charging schedules and power requirements for vehicles housed at each facility. This exercise was also used to determine an estimated number of chargers at each facility as well as high-level fuel cost estimate (cost per kWh) to meet daily charging requirements.
- Recommendations for fleet configurations and power requirements for MTD's future electric fleet.

¹ Unless otherwise noted, "current" refers to pre-Coronavirus operating conditions



Abbreviations

BEB	Battery electric bus
CARB	California Air Resources Board
ICT	Innovative Clean Transit
MTD	Metropolitan Transit District
NREL	National Renewable Resources Laboratory
ZEB	Zero-emission bus



1.0 PROJECT OVERVIEW AND INTRODUCTION

The California Air Resources Board (CARB) adopted the Innovative Clean Transit (ICT) regulation in December 2018, which establishes the goal that all public bus transit agencies in California gradually transition to a completely zero-emission bus (ZEB) fleet by 2040. The Santa Barbara Metropolitan Transit District (MTD) is a pioneer in zero-emission technologies, operating ZEBs since 1991 and currently operating the second-largest public zero-emission fleet in the state. Further, the MTD has committed to a goal of operating a completely zero-emission fleet by 2030, accelerating the timeline laid out by CARB by ten years.

Stantec recently completed the MTD's Facilities Master Plan, which provided the groundwork for future space and operating fleet requirements at MTD's facilities to accommodate fleet growth as well as the transition to fully ZEB operations. To help support this zero-emission future, the MTD has retained Stantec to perform energy and power modeling simulation analyses to determine the amount of energy required at MTD's facilities to sufficiently power a fleet of battery electric buses (BEBs). This detailed determination of power and energy needs involved the following steps:

- Collect and review additional data beyond the datasets provided in the Facilities Master Planning process
- Review of operational analysis from the Facilities Master Plan to consider operating conditions which impact power and energy requirements for a bus fleet
- Route- and block-based modeling to determine power requirements for an all-electric fleet, based on the following inputs:
 - Bus specifications
 - Representative driving cycles
 - Passenger load
 - Ambient temperatures and HVAC
 - Route elevation and topography
- Developing charging profiles at the MTD's two facilities (assuming that Terminal 2 at Goleta will eventually become operational) to simulate daily charging schedules and power requirements for vehicles housed at each facility. This exercise was also used to determine an estimated number of chargers at each facility as well as high-level fuel cost estimate (cost per kWh) to meet daily charging requirements.

Finally, the report concludes with recommendations for fleet configuration and power requirements based on the results of the modeling and MTD's current operating conditions.

The project scope and process is outlined in Figure 1 below.

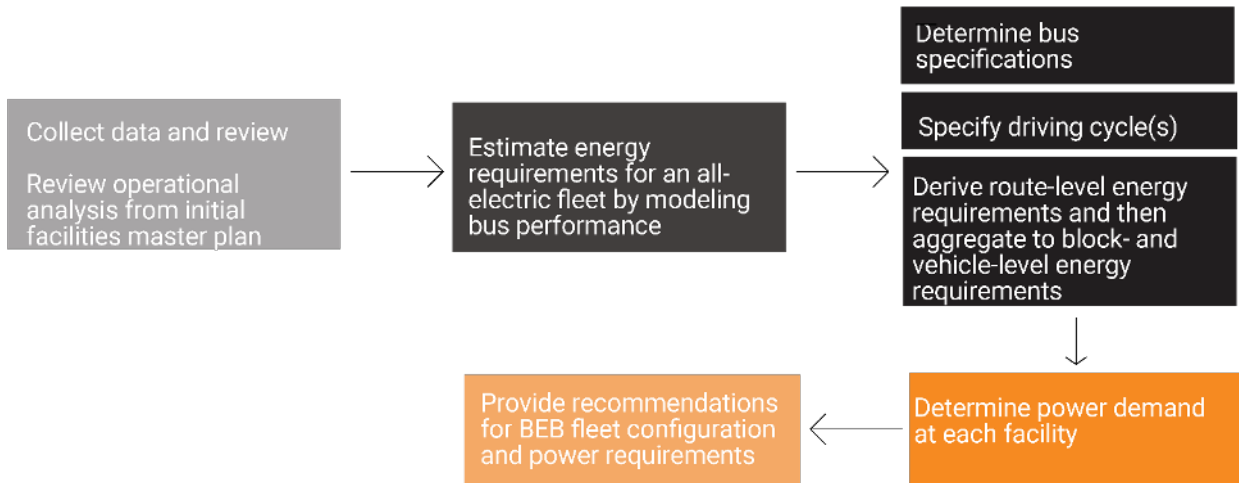


Figure 1: MTD power modeling project process

2.0 EXISTING CONDITIONS AND DATA REVIEW

The project began with a review of the operational analysis from the previously completed Facilities Master Plan. A full understanding of the MTD's current operations is imperative to ensure that the modeling captures (as closely as possible) actual operating conditions so that power and energy requirements are accurate and represent operating conditions on a high-demand day. The major findings that helped to shape the modeling parameters are summarized below.

Regarding vehicle usage, the MTD operates different services on different days and different times of the year (Figure 2). This involves school trippers and summer only services. In addition, demand for MTD tends to be seasonal, with demand being higher when school is in service, due to university students being a major driver of demand. To plan conservatively for maximum energy and power requirements as well as a "high-demand" scenario, Stantec used service scheduled for a "typical" weekday during the school year when school trippers are in operation to capture a "peak" service day with the maximum number of vehicles in operation. Because of this, the MTD and Stantec used the service schedule from October 14, 2019 to represent peak demand and vehicle use that includes school trippers. In addition, the scope excludes the modeling of MTD's electric shuttle services, which are already battery electric vehicles.

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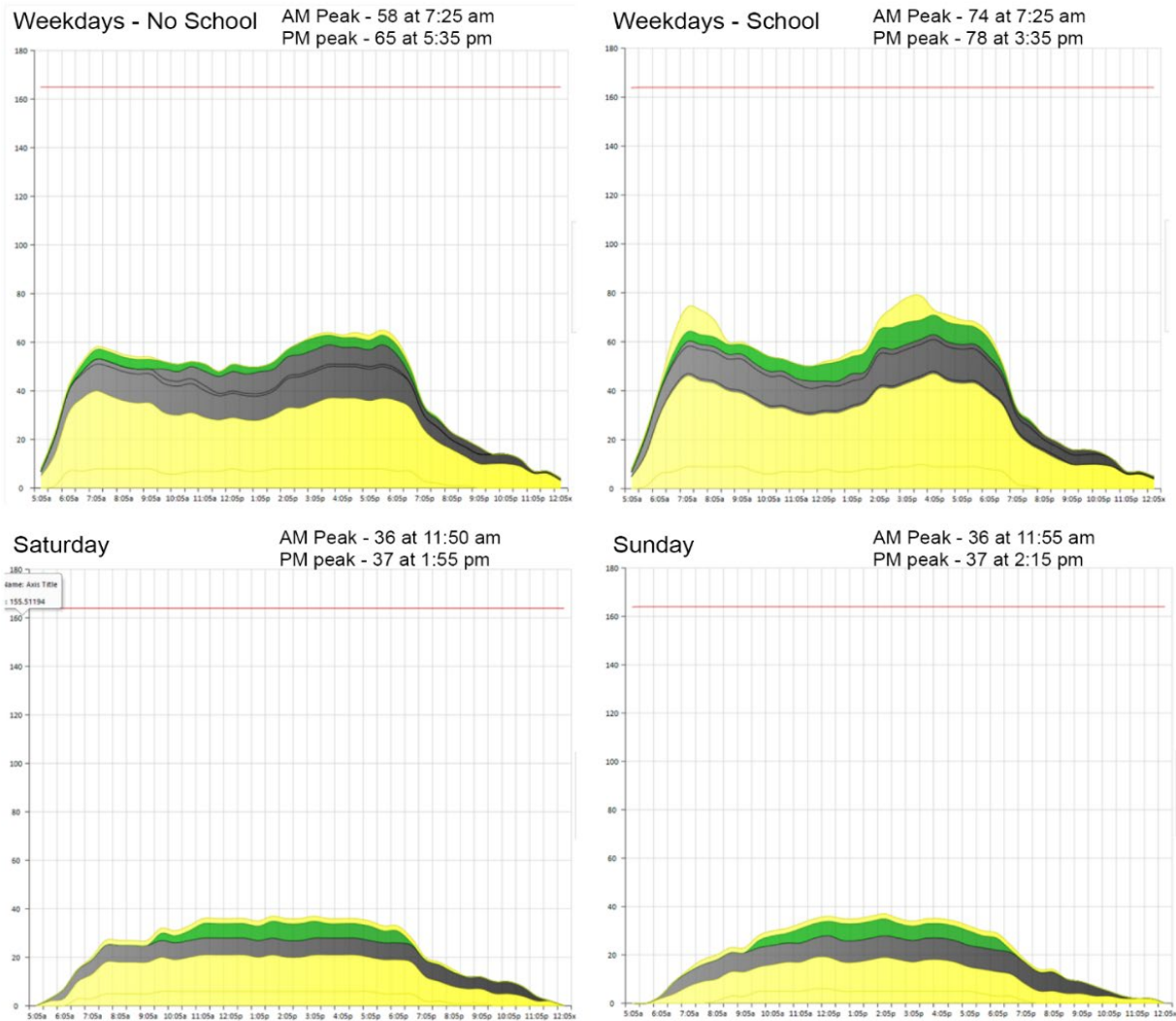


Figure 2: Vehicle usage across various service days

In addition to different levels of service, the MTD also operates several different vehicle lengths to match demand and service, including 60-ft., 40-ft., and 29-ft. vehicles. Vehicles in use (area graph) and spares (bar graph) by time and hour of day for October 14, 2019 are shown in Figure 3.

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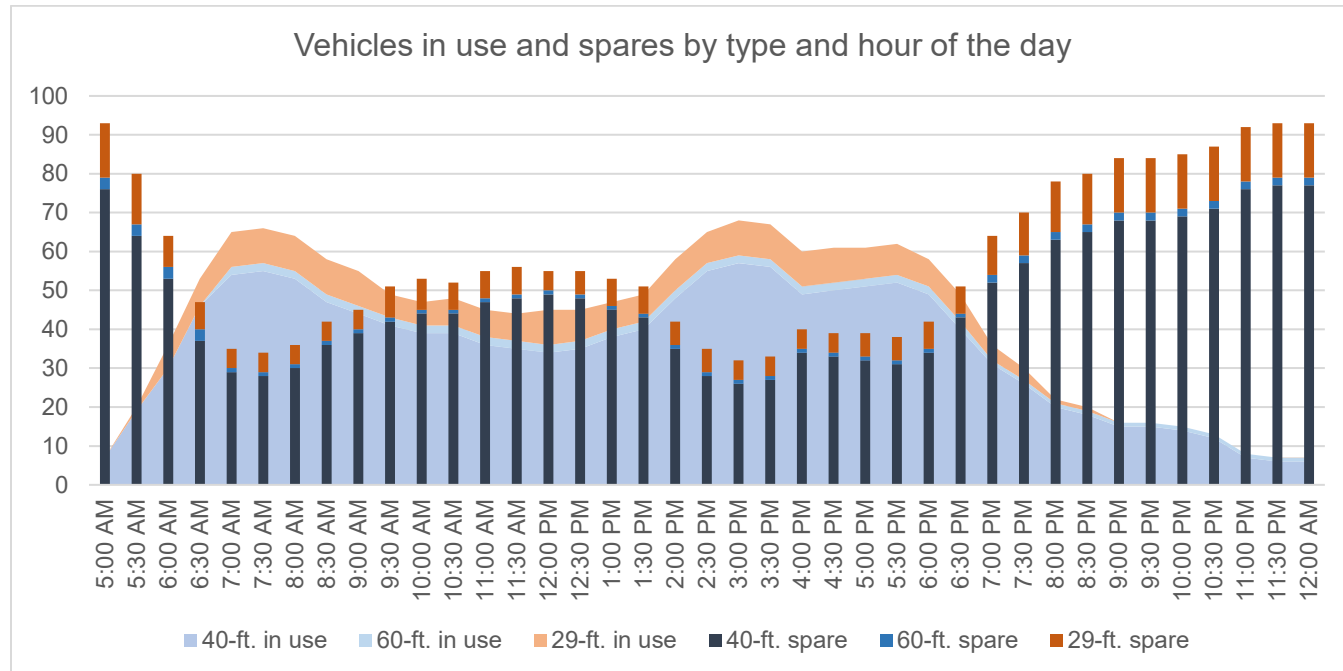


Figure 3: Vehicles in use and spares by type and hour of day

As seen in Figure 3, peak vehicle requirement is in the afternoon, specifically between 2PM and 4PM.

Another challenge identified in the analysis completed during the Facilities Master Plan is that the current facility in Santa Barbara (Terminal 1) is very constrained and will be increasingly constrained with additional charging infrastructure and future fleet growth. However, the MTD is planning to reopen its currently dormant facility in Goleta (Terminal 2), which will be used to help spread the vehicles out and accommodate fleet growth. Importantly, operating select service out of Goleta and help reduce vehicle deadheading for certain routes. Stantec worked with the MTD to identify which blocks and vehicles would likely be moved to operate out of the Goleta facility, and this was integrated into the modeling to determine power demand at both yards.

Another important step in the operational analysis is to determine the daily block mileage for the representative service day, as it helps to determine preliminary feasibility of BEBs that are depot-only charging.² Because the current range of BEBs is approximately 180 miles³, blocks that accumulate less mileage than this threshold could theoretically be completed by a depot-only charging BEB (however, there are many other parameters that affect range that are discussed in detail in the following sections outlining the modeling process and inputs). Total daily block mileage for a representative service day is shown in Figure 4.

² For several reasons including community preferences, on-street bus charging is not a potential strategy.

³ For a 524 kWh BEB, assuming 80% utilization and a fuel efficiency of 2.33 kWh/mi.

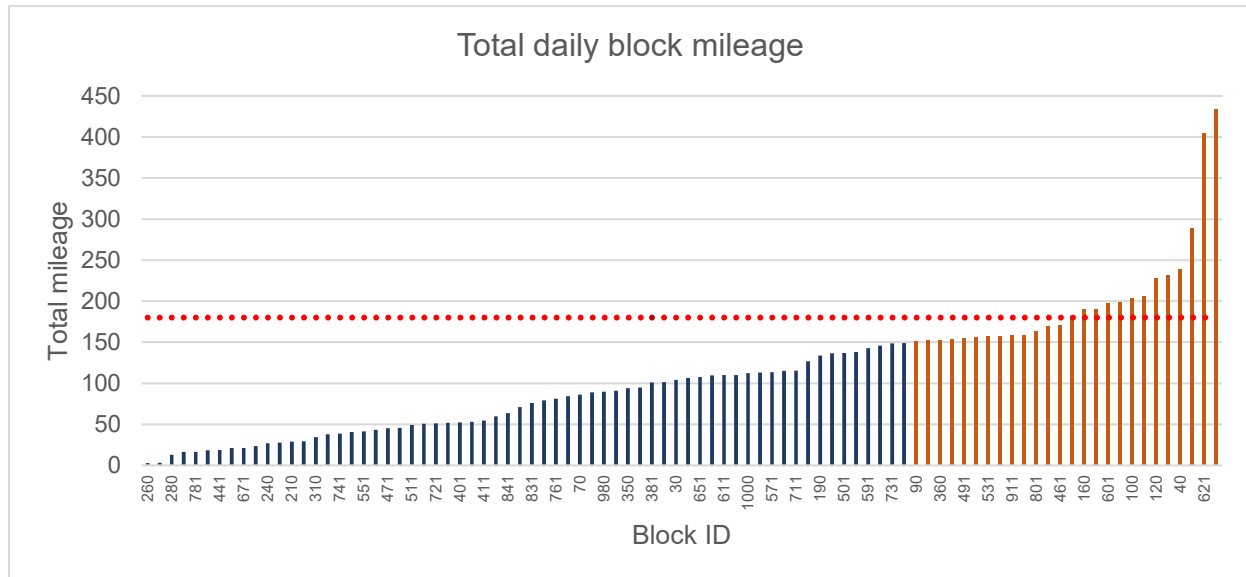


Figure 4: MTD total daily block mileage

Figure 4 shows that most blocks are designed for less than 180 miles in length (denoted by the red dotted line), suggesting most service could be electrified with depot-only charging BEBs. However, many of the MTD’s vehicles are assigned to complete multiple blocks in one day, meaning when blocks are combined and served by a single vehicle over the course of the day, this combined daily block mileage may exceed the current feasible range of a BEB.

This operational review reveals a few key points that will help to shape the modeling and overall power demand and energy requirements.

- The MTD operates several varying service patterns depending on the day of week and season. To provide an estimate of power and energy needs, Stantec used a “typical” heavy day, which is a school day service in the fall. In reality, the modeling will therefore represent more strenuous operations and the MTD can adjust accordingly for other service days, such as weekends or summer periods.
- The new facility in Goleta will help to offset space constraints at the current yard in Santa Barbara. Assigning vehicles to this facility and determining power and energy requirements for both facilities will be outlined in this report.

3.0 BUS MODELING AND ROUTE SIMULATION

ZEBDecide is a tool designed by Stantec to support transit agencies in transitioning to zero-emission fleets, and ultimately helps to answer the question: what is the ideal configuration of ZEBs for my fleet? Because the MTD has determined their fleet will be entirely comprised of BEBs and have provided vehicle specifications, the ZEBDecide tool is being used to model the blocks outlined above under the provided specifications. This will help determine how much of the MTD’s current service can successfully

be transitioned to depot-only charging BEBs, what the daily power and energy requirements are, and begin to provide strategies on blocks that cannot be successfully converted to BEBs to help the MTD transition to an all-BEB fleet.

3.1 ZEBDECIDE PROCESS

Figure 5 provides an overview of the modeling process, which takes a two-pronged approach to understanding power and energy usage. The goal of the modeling is to provide an understanding of how we expect a ZEB to perform in MTD's environment to inform fuel economy, operating range, and ultimately, the energy and power requirements for MTD's future BEB fleet.

The approach first examines route-level operations, and then aggregates the results to provide block/vehicle level fuel and energy requirements. The predictive ZEB performance modeling depends on several inputs, such as actual passenger loads, driving dynamics, topography, vehicle specifications, and ambient conditions in which the agency operates. In this way, a more realistic estimate of operating range and energy consumption can be provided.

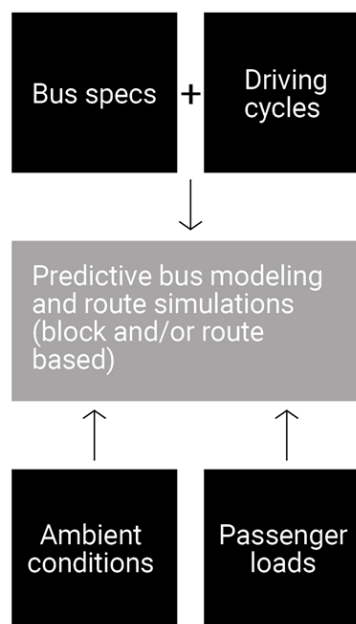


Figure 5: ZEBDecide process

3.2 MODELING INPUTS

3.2.1 Bus Specifications

ZEBDecide's energy modeling process predicts ZEB drivetrain power requirements specific to given acceleration profiles. One key component to the modeling is the bus design or specification that includes

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curb weight and frontal dimensions (factors needed to account for aerodynamic drag and rolling resistance coefficients), auxiliary, and HVAC (Figure 6).

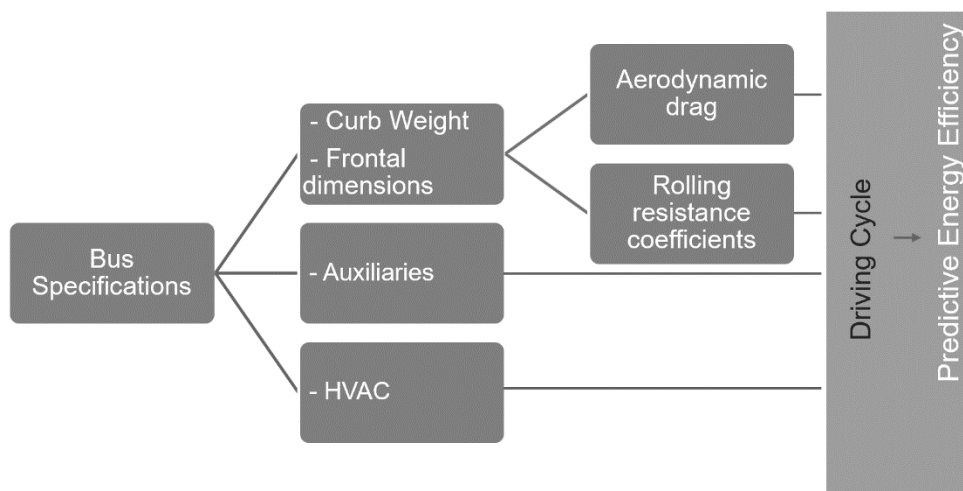


Figure 6: Detailed bus specification inputs

For the MTD, the New Flyer Xcelsior CHARGE vehicle (40-ft.) with a 524-kWh battery and curb weight of 30,500 pounds was used in the modeling.⁴

3.2.2 Representative Driving Cycles

Assigning representative driving cycles, also called acceleration profiles, is the other major step in the energy modeling. A driving cycle is a speed versus time profile that is used to simulate a vehicle's expected performance, and consequently, the energy use. Representative driving cycles were assigned to all routes based on the MTD's operations, observed driving conditions, and input from the MTD.

The driving cycles have been created from data collection of real-world operations or from chassis dynamometer tests and have been convened by the National Renewable Energy Laboratory (NREL) in a drive cycle data called DriveCAT⁵. Additionally, Stantec considered a driving cycle created from real-world operations of the Anteater Express fleet at the University of California, Irvine.

To assign driving cycles to the MTD's routes, we evaluated each route in terms of average speed, route length, the number of stops, and traffic levels. The suite of driving cycles chosen to represent the MDs routes are shown in Table 1.

⁴ While MTD operates a mix for 29-ft, 40-ft, and 60-ft., the modeling was based on 40-ft buses only.

⁵ NREL DriveCAT - Chassis Dynamometer Drive Cycles. (2019). National Renewable Energy Laboratory. www.nrel.gov/transportation/drive-cycle-tool

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Table 1: Driving cycles technical specifications (source: NREL)

Cycle Name	Main characteristic	Max Speed (mph)	Avg. Speed (mph)	Avg. Driving Speed (mph)	Stops per min
Orange County Transit Bus Cycle (OCTA)	Medium traffic + Boulevards	40.63	12.33	15.67	0.97
Manhattan Bus Cycle	City medium traffic, lower driving speeds	25.4	6.83	10.67	1.1
New York Bus Cycle (NY Bus)	High traffic	30.8	3.7	10.7	1.1
Arterial Segment of the Transit Coach Operating Duty Cycle	Highway	40	26	29.7	0.89
Urban Dynamometer Driving Schedule for Heavy-Duty Vehicles (UDDS)	Freeway	58	18.84	28.23	0.79
University of California Irvine (UCI)	Confidential				

Each of MTD's routes was individually analyzed and then categorized into up to two representative driving cycles for route modeling. To obtain route information to assess routes, route lengths were obtained from MTD GTFS data, and it was supplemented by information provided by the MTD. Average speed was also provided by MTD.

Up to two cycles were assigned to each route to better reflect the different driving conditions encountered along different portions of a route. Routes were assigned a primary driving cycle (constituting two-thirds of the route in the modeling) and a secondary driving cycle (making up the remaining one-third of the route in the modeling). The complete classification of all routes is presented in Table 2.

Table 2: Categorization of service routes to representative driving cycles

Line	Line Name	Distance Inbound	Distance Outbound	Avg Speed (mph)	Drive Cycle 1 (2/3 of route)	Drive Cycle 2 (1/3 of route)
7	Goleta Old Town	11.01	10.95	10.55	Manhattan	Arterial
12x	Goleta Express	10.51	10.45	17.37	Manhattan	Arterial
20	Carpinteria	15.4	14.37	14.7	Manhattan	OCTA
6	Goleta	10.44	10.24	10.53	Manhattan	N/A
11	UCSB	13.66	13.25	10.57	Manhattan	N/A
14	Montecito	8.1	9.54	11.19	Manhattan	N/A

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Line	Line Name	Distance Inbound	Distance Outbound	Avg Speed (mph)	Drive Cycle 1 (2/3 of route)	Drive Cycle 2 (1/3 of route)
5	Mesa/La Cumbre	8.35	8.54	11.51	NY Bus	UCI
16	SBCC	1.83	2.18	4.97	NY Bus	N/A
4	Mesa/SBCC	3.26	3.58	8.34	OCTA	NY Bus
10	Cathedral Heights	11.25	10.67	17.98	OCTA	Manhattan
24x	UCSB Express	12.52	12.6	19.79	OCTA	UDDS
3	Oak Park	5.78	6.13	8.54	OCTA	N/A
1	West Santa Barbara	2.15	2.14	7.5	UCI	Manhattan
2	East Santa Barbara	3.12	3.24	8.9	UCI	Manhattan
23	El Encanto Heights	2.07	2.6	11.08	UCI	OCTA
25	Ellwood/Winchester Canyon	2.48	3.74	13.43	UCI	OCTA
27	Isla Vista Shuttle	3.29	3.12	9.56	UCI	OCTA
28	UCSB Shuttle	2.62	2.56	8.28	UCI	OCTA
17	Lower West SB/SBCC	1.64	2.2	5.31	UCI	N/A
15x	SBCC/UCSB Express	11.12	14.2	22.91	UDDS	OCTA
90	Amtrak Goleta West	3.31	-	12.05	Manhattan	N/A
91	Amtrak Goleta East	4.65	-	9.07	Manhattan	N/A
92	Amtrak Santa Barbara	2.61	-	6.93	Manhattan	N/A
2010	Alpha Resource Center	5.74	-	13.52	Manhattan	N/A
2110	Santa Barbara Jr. High	1.31	-	13.52	Manhattan	N/A
2410	La Colina Jr. High	5.44	-	13.52	Manhattan	N/A
2420	La Colina Jr. High	5.13	-	13.52	Manhattan	N/A
2430	La Colina Jr. High	4.16	-	13.52	Manhattan	N/A
2510	San Marcos High School	6.41	-	13.52	Manhattan	N/A
2520	San Marcos High School	5.91	-	13.52	Manhattan	N/A
2530	San Marcos High School	6.41	-	13.52	Manhattan	N/A
2540	San Marcos High School	8.92	-	13.52	Manhattan	N/A
2610	Goleta Valley Jr. High	2.2	-	13.52	Manhattan	N/A
2620	Goleta Valley Jr. High	5.68	-	13.52	Manhattan	N/A
2630	Goleta Valley Jr. High	6.4	-	13.52	Manhattan	N/A
2650	Goleta Valley Jr. High	5.41	-	13.52	Manhattan	N/A
2660	Goleta Valley Jr. High	10.82	-	13.52	Manhattan	N/A
2710	Dos Pueblos High School	3.16	-	13.52	Manhattan	N/A
2720	Dos Pueblos High School	5.31	-	13.52	Manhattan	N/A
2730	Dos Pueblos High School	8.74	-	13.52	Manhattan	N/A
2740	Dos Pueblos High School	4.34	-	13.52	Manhattan	N/A

3.2.3 Passenger Loading

As the total weight of a ZEB impacts performance, it is important to understand and capture passenger loads in the modeling process. This is especially important for the MTD, whose service is highly seasonal and may experience difference fuel efficiencies at different times of the year under different passenger loads. For modeling purposes, loading capacity refers to the assumed maximum number of 42 passengers in a 40-ft bus, both seated and legal standees.

To examine the impacts of passenger loads, we compiled route-level (by direction) load statistics to determine different passenger loads to be used in the modeling.

We modeled MTD routes under three conditions to determine the fuel efficiencies under different passenger loads (fuel efficiency ranges for each route at different passenger loads are shown in Figure 7):

- A deadheading condition, which assumes no passengers onboard
- A moderate, typical condition with passengers at 50% of loading capacity to represent passenger conditions on an average, non-peak day and time
- A more strenuous, extreme condition with passengers at 90% of loading capacity to represent peak service on a busy day

One of the three conditions described above was assigned to each trip based on their observed passenger load and then aggregated to the block level. For example, if a trip from La Cumbre to County Health along the Goleta Old Town route had a recorded load of 40% (that is, 16 passengers on average, based on the information provided by MTD), then the fuel efficiency for that trip was assigned to be 2.24 kWh/mi, which corresponds to a 50% load. Additionally, the efficiency for the deadhead trip for the Goleta Old Town route was set at 2.10 kWh/mi.

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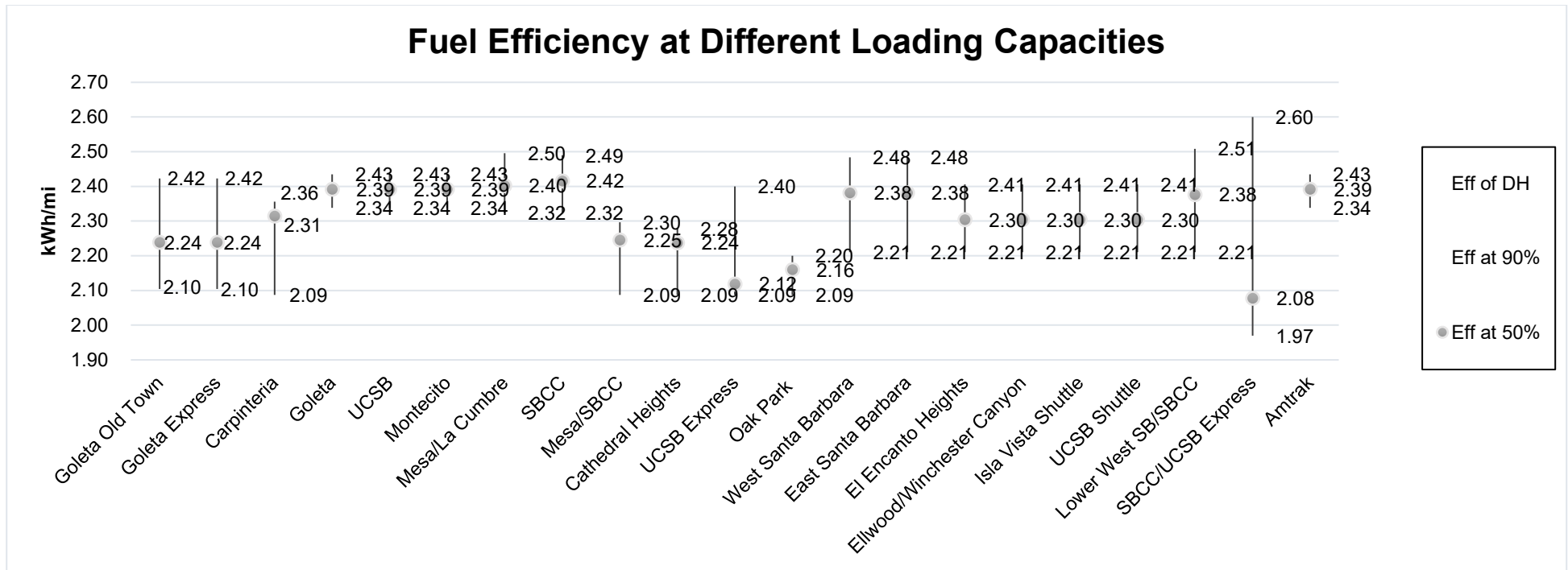


Figure 7: Fuel efficiency at different loading capacities for MTD routes

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3.2.4 Ambient Temperatures

The ambient temperature has a significant impact on the fuel economy of ZEBs, as it is directly related to the power output from the batteries required for the heating, ventilation, and air conditioning (HVAC) system. Stantec developed a correlation between ambient temperature and power requirements from the HVAC system. For example, moderate daily temperatures (between 55 °F and 65 °F) can have a nominal power demand on the HVAC system, of up to 4 kW. Colder temperatures (below 45 °F) or hotter temperatures (above 70 °F) can represent more strenuous loads of up to 12 kW. The power requirements for modeling purposes were set based on an average high temperature for Santa Barbara between July and October at 73 °F, representing strenuous loads of up to 12 kW.

To further explore the effect that HVAC and weather conditions have on BEB performance, the HVAC utilization factor was increased by 40% to develop a range of energy efficiencies under different weather and HVAC conditions to further allow the MTD to prepare for the “extreme case” scenario of vehicle performance. This exercise is described in Section 4.2.2.

3.2.5 Route Elevation

Varied topography can be seen across the MTD’s service area, and these elevation gains will undoubtedly influence BEB performance and energy efficiency and need to be captured in the modeling.

The first step in the route elevation analysis is to determine the elevation gains and losses seen across the MTD’s routes. Furthermore, the total elevation gains will inform the maximum average grades across each route.

MTD’s routes were analyzed to understand similarities in length (inbound and outbound), alignment, origin, and destination to create representative categories for the route elevation analysis. Routes were grouped into 11 different categories, with one route acting as a representative of all routes in that route category. The representative route for each category was chosen to proceed with analysis and modeling as that route experiences the most significant changes in elevation of all routes within that route category. These are outlined in Table 3⁶.

Table 3: Route categorization for elevation analysis

Route category	Representative route	MTD routes
Carpinteria	20	20
Cathedral Oaks	10	10
Downtown	2	1, 2
Ellwood/El Encanto Heights	23	23, 25
Goleta 101	7	7, 12X

⁶ Because school booster trips are a small set of all daily trips, it is assumed topography will have a nominal effect on performance for school booster routes and they are thus excluded from the elevation analysis.

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Route category	Representative route	MTD routes
Goleta Hollister	6	6
Isla Vista	27	27, 28
Mesa/SBCC	5	4, 5, 16, 17
Montecito	14	14
Oak Park	3	3
UCSB	24X	11, 15X, 24X

Each representative route alignment was drawn in Google Earth to create an elevation profile and to understand the total elevation gains/losses seen for each major route category (Figure 8). Additionally, the average and maximum grades for each route were similarly determined using these elevation profiles, which were used as the inputs for the topography analysis.



Figure 8: Elevation profile example (Route 20)

The specific effects and penalties to energy efficiency and power consumption for BEBs operating in MTD's service area are detailed in Section 4.2.1.

3.3 MODELING PROCESS

The energy profile process is described in Figure 9. The first three steps of the process yield the predictive fuel efficiency of a BEB on MTD's routes, under the loading capacity expected during regular service. The subsequent two steps of the ZEBDecide Energy Profile process define 1) the energy consumption at the block level – using data from each individual trip – and 2) the energy consumption for each vehicle assignment⁷. The modeling results for these two steps of the process are presented in the sections below.

⁷ For MTD, blocks are constant, but how blocks are assigned to a given vehicle ("vehicle assignment") is not, i.e., blocks can be assigned to certain vehicles on one day and change on the next. To complete this analysis, Stantec worked with MTD to determine that October 14, 2019 represents a 'typical' service day.

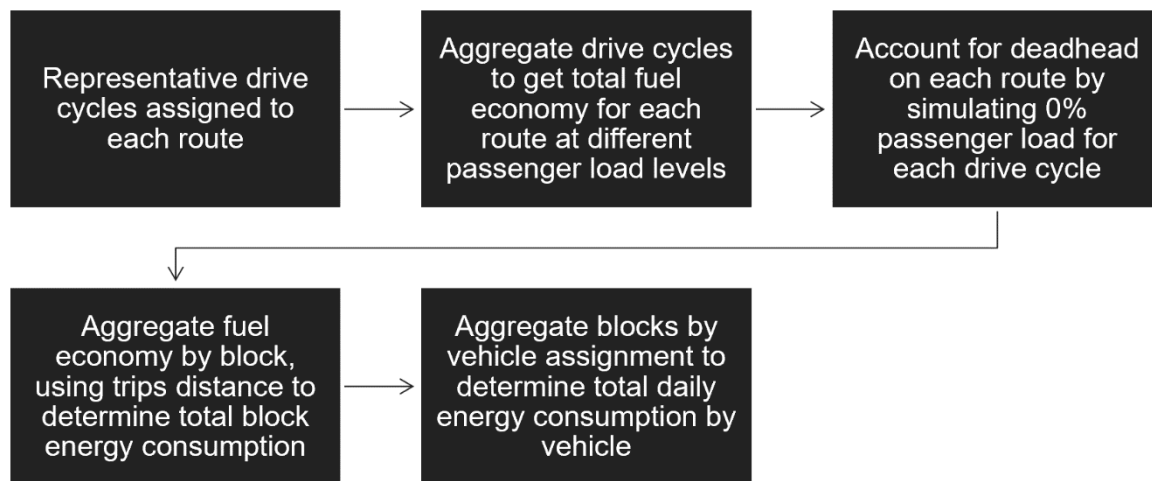


Figure 9: ZEBDecide route-level modeling steps

4.0 MODELING RESULTS

4.1 ENERGY CONSUMPTION AND ELECTRIFICATION SUCCESS RATE

The overall energy demand per block was obtained by aggregating the fuel consumption from each trip. The threshold to determine whether a block can be successfully served by a BEB is if the state of charge (SOC) of the battery is equal to or greater than 20% after completing all the trips in a block.

Results of the block-level modeling for BEBs are shown in Figure 10. The results indicate that of the 118 modeled blocks, 92% can be successfully converted to 40-ft BEBs with only overnight charging. The charging times range from one to five hours, with 60% of the blocks requiring less than three hours for a full charge.

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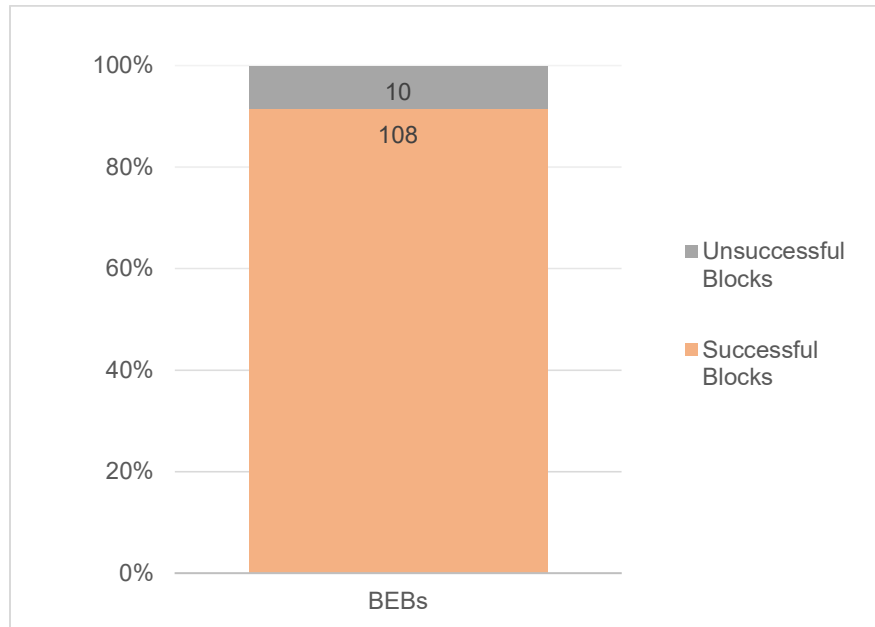


Figure 10: Successful rate for blocks operated by BEBs

Table 4 shows the average fuel economy of the BEBs operating MTD's blocks, as well as the minimum and maximum predicted fuel economy of all blocks under regular operations.

Table 4: Average, minimum, and maximum fuel economy of Blocks

Fuel Economy of blocks kWh/mi	
Minimum	2.08
Average	2.33
Maximum	2.43

Furthermore, the total energy required to operate the 118 blocks is 22,300 kWh. Details regarding the total energy consumption are shown in Table 5.

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Table 5: Energy consumption of BEBs

	Number of Blocks	Energy Consumption (MWh)
Consumption at T1	69	13.6
Consumption at T2	49	8.7
Total Energy Consumption	118	22.3

When pivoting from the block-level to the vehicle-level (since vehicles can be assigned more than a single block), the success rate drops; the percentage of vehicle assignments that are successful as BEBs with only overnight in-depot charging drops from 92% to 90%. The ten unsuccessful vehicle assignments are due to long blocks that do not have layover times at the depot, so midday charging is not an option. Figure 11 shows the successful rate conversion to BEBs for the vehicle assignment and Table 6 shows details of the unsuccessful vehicle assignments.

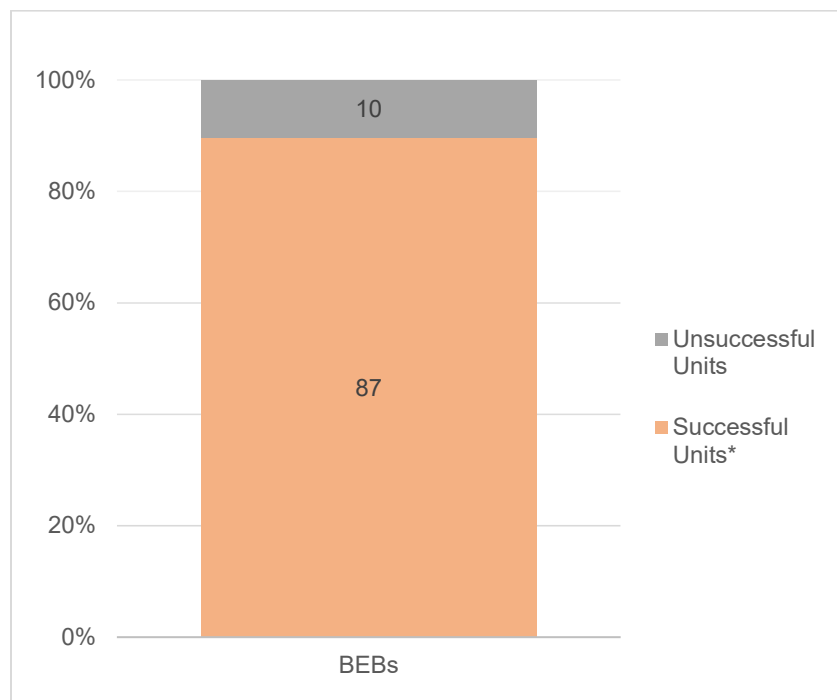


Figure 11: Successful rate for vehicle assignments operated by BEBs

Table 6: List of unsuccessful electrification of vehicle assignments

Unsuccessful Assignment	Block	Mileage
626	44932	417
628	44964	204
629	44931	415
631	44905	357
632	44629	190
638	44902	231
643	44906	355
644	44631	290
651	44967	239
1003	45013	189

For the purposes of modeling the power requirements in the subsequent sections, the blocks assigned to the unsuccessful vehicle assignments were split into two separate blocks with shorter mileage. Creating new blocks (or subblocks) increases the vehicle requirement to provide the same level of service. However, this does not necessarily translate into a growth in the total fleet size since MTD could conceivably redesign the vehicle assignment (re-block) or reduce spare ratio during non-peak hours.

4.2 SENSITIVITY ANALYSIS

To account for variations in topography and temperature that would impact power requirements, fuel economy, and operating range, Stantec conducted a sensitivity analysis by varying these inputs. The outputs of the sensitivity analysis can help the MTD during service and operations planning for the BEB fleet.

4.2.1 Effects of Topography

As discussed in Section 3.2.5, the first step in the route elevation analysis is to determine the elevation gains and losses seen across MTD's routes to identify the maximum and average grades of each route. Each route was then categorized into representative categories and each category was assigned the average of the maximum grade or slope experienced by a representative route. While this approach provides the energy requirements of the "maximum slope", there are routes that will operate in areas with grades higher than the modeled ones.

To account for instances when routes surpass the representative "maximum slope", the sensitivity analysis evaluated the expected fuel economy if all routes were to operate in the "extreme slope" of each category. Table 7 presents the categories for the topography analysis, as well as the maximum and extreme slopes.

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Table 7: Max and extreme slope for topography categories

Route Categories (main route)	MTD Routes	Max slope ⁸	Extreme Slope
Carpinteria	20	1.10	3.73
Cathedral Oaks	10	2.20	5.98
Downtown	1, 2	1.80	5.90
Ellwood/El Encanto Heights	23, 25	2.00	5.07
Goleta 101	7, 12X	1.60	4.17
Goleta Hollister	6	1.40	3.03
Isla Vista	27, 28	1.10	2.40
Mesa/SBCC	4, 5, 16, 17	2.30	6.61
Montecito	14	2.40	7.36
Oak Park	3	2.60	7.13
UCSB	11, 15X, 24X	1.20	5.08

Figure 12 shows how the predicted fuel economy changes when considering the “extreme slope” versus the “maximum slope”.

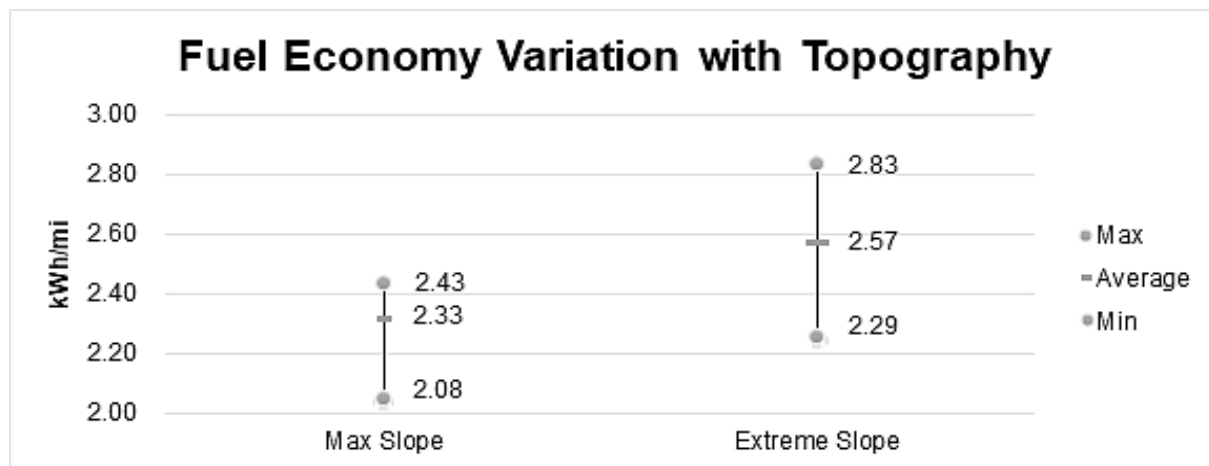


Figure 12: Fuel economy variations at different slopes

⁸ Maximum slope is the average of the maximum grade encountered along the main route and extreme slope is the peak slope along the main route.

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When calculating the expected fuel economy using the “maximum slope” for each route category, the resultant fuel economy ranges between 2.08-2.43 kWh/mi. Comparatively, when calculating the expected fuel economy using the “extreme slope” for each route category, the resultant fuel economy ranges between 2.29-2.83 kWh/mi. This change represents a 10% decrease in average fuel economy. The outcome of a worse fuel economy due to extreme slopes is a decrease in the number of successful units that can be operated by BEBs (Figure 13); the successful units drop from 87 to 82. Even though this is an extreme scenario that does not represent the typical operations of MTD, it nonetheless provides information for contingency planning.

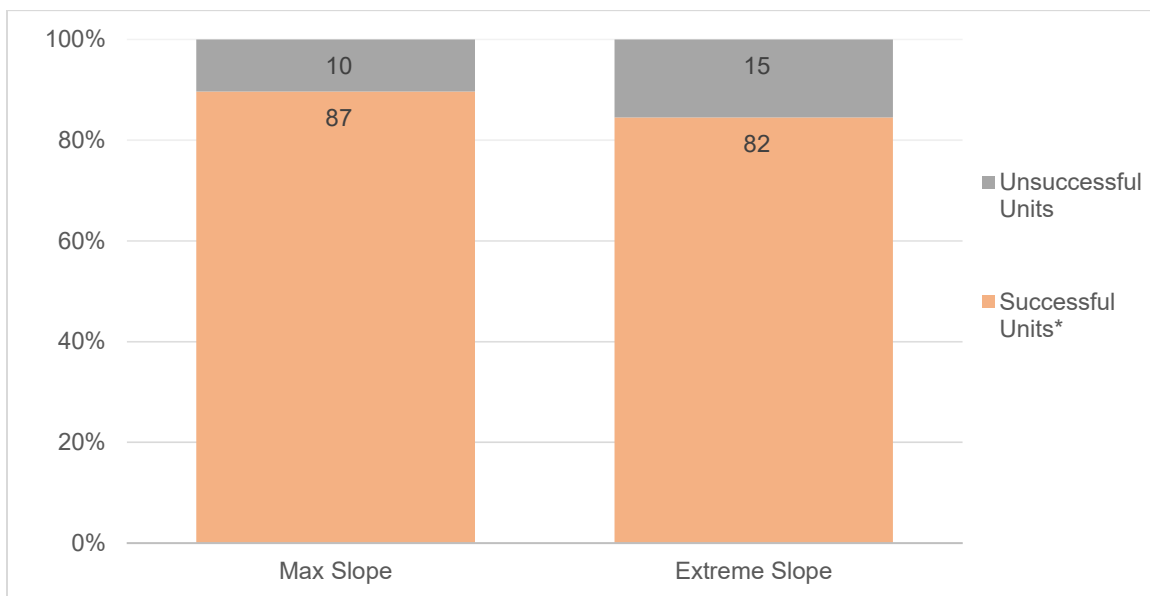


Figure 13: Changes in success rate of BEBs for extreme topography conditions

4.2.2 Effects of HVAC System

The modeling approach considers a correlation between power requirements of the HVAC system and external temperatures. The base case that yielded the modeling results presented in Section 4.1 was based on an average high temperature for Santa Barbara between July and October at 73 °F (“Hot Weather”), representing strenuous loads of up to 12 kW.

To evaluate the effects that weather conditions – which implies greater utilization of the HVAC system – have in the overall performance of the BEBs, all modeling variables were held constant and only the HVAC utilization factor was increased by 40%. The 40% increase in the sensitivity analysis was applied to the 12-kW load and is labeled as “Extreme Weather” in the discussion that follows since these conditions will likely be encountered seldomly.

Figure 14 shows the variation in fuel economy for hot and extreme weather conditions. The average, minimum, and maximum are based on the fuel economy of all the blocks in the MTD’s system. The average bus efficiency under hot temperatures is 2.33 kWh/mi, while for extreme conditions is 2.82 kWh/mi.

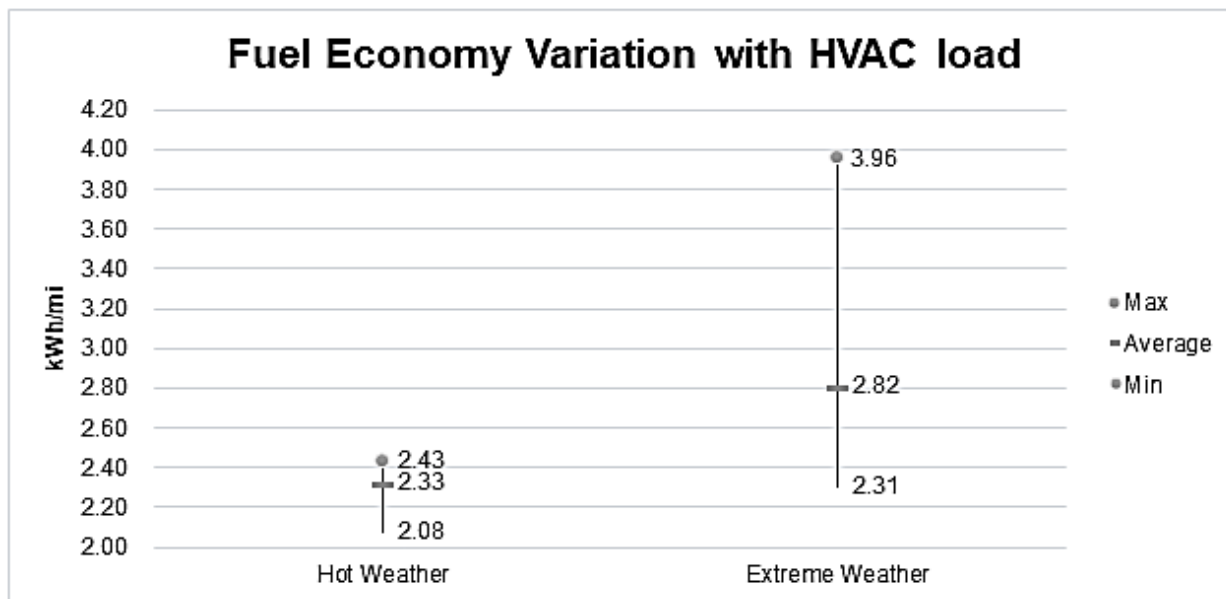


Figure 14: Fuel economy variations at different HVAC loads

The outcome of a greater utilization of the HVAC system due to higher or lower temperatures is a decrease in the number of successful units that can be operated by BEBs (Figure 15); the successful units drops from 87 to 77. Even though this an extreme scenario that does not represent the typical operations of MTD, the sensitivity analysis provides information for contingency planning.

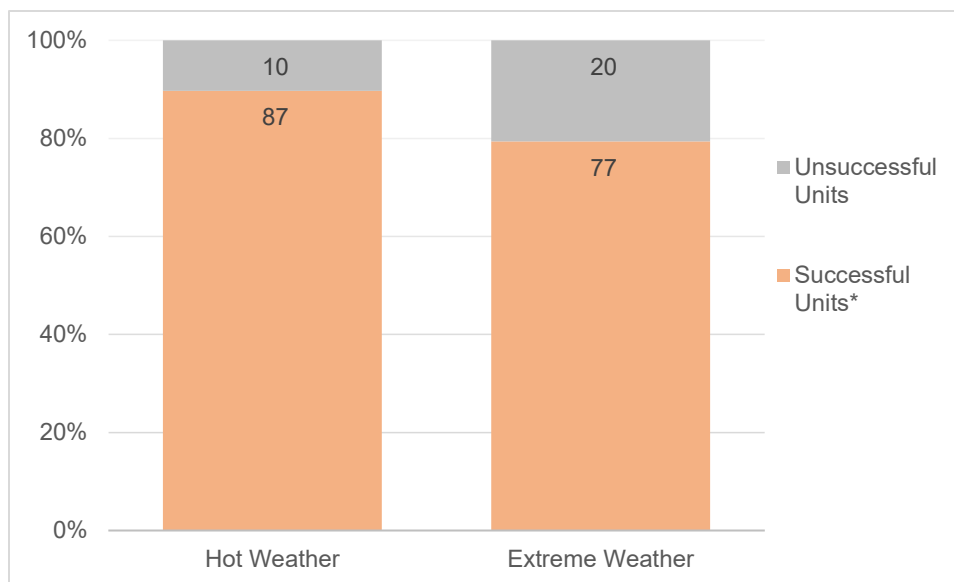


Figure 15: Changes in success rate of BEBs for extreme weather conditions

5.0 POWER DEMAND MODEL AND CHARGING PROFILE

5.1 POWER DEMAND METHODOLOGY

After calculating the energy demand necessary to operate MTD's routes and blocks, energy demand needs to be translated into the power capacity for the depot in order to accommodate BEB charging.

Several operational factors were incorporated as constraints for the modeling work. The first factor is the recharging window. Stantec assumed that all buses start charging overnight and can charge during the day at times that they are not out of the depot according to the service schedules and vehicle assignment. The second factor is charger specifications. Technical specifications of the onboard chargers installed in the New Flyer BEBs allow for charge inputs between 50-175 kW and are compatible plug-in chargers from ABB, ChargePoint, Siemens, and Efacec. Giving the flexibility in charger equipment, key assumptions were made to estimate the power demand. Table 8 presents a summary of the technical aspects that were used as assumptions for the power demand calculations.

Table 8: Charging Equipment Assumptions

Charger Max Output (kW)	Available Brands ⁹	Charger Efficiency (Eff.)	Charge Rate Contingency
150	ABB, Siemens, Efacec	0.91	0.20
80	BYD	0.91	0.20

The max output for each charger was obtained from the “New Flyer Infrastructure Solutions – Charger Catalog” brochure¹⁰. The charger efficiency was obtained from confidentiality agreements with BEBs manufacturers and set to 91%. A charge rate contingency was established to account for the limits onboard charging equipment that limits the maximum power capacity from the chargers; the value was set to 20%. Additionally, the charger specifications and efficiency factors for the BYD buses were considered.

Using the technical specifications and assumptions from the charging equipment, the charging hours that are required based on a daily energy demand were calculated using Equation 1.

Equation 1 – Hours Charging Needed to Serve a Daily Energy Demand

$$Hrs. Charging = \left[\left(\frac{kWh}{day} * \frac{1}{Charger Output kW} \right) * \frac{1}{eff.} \right] * (1 + Contingency)$$

⁹ ChargePoint can provide 125kW as max power output which will imply lower max power but longer periods of time

¹⁰ <https://www.newflyer.com/site-content/uploads/2020/03/Xcelsior-CHARGE%E2%84%A2-Charger-Catalog-min.pdf>

SANTA BARBARA MTD ZEB POWER MODELING

Equation 1 was applied to the daily energy demand calculated for all vehicle assignments. The total time needed to charge per vehicle were then used to develop a charging schedule, i.e., hours during the day that each bus needs to charge in order to have enough energy to go into service at the time specified by the service or dispatching schedule.

The number of hours each charger needs to be online provides a power requirement, and the addition of connected chargers at a specific hour represents the total power throughout the day. For example, if 10 chargers with a maximum capacity of 150 kW are connected at the same time for one hour, the power demand during this hour is 1,500 kW (10 chargers × 150 kW).

The key aspect of calculating the power demand for each hour of the day is assigning the correct charging schedule to every bus serving a specific block. Assigning a charging start time to a vehicle was based on the following parameters:

- Maximizing charging during off-peak hours as established by SoCal Edison TOU-EV-9
- Maintaining the maximum power demand below 2 MW
- Charging buses as soon as possible when they return to base
- Charging during hours that the bus is not in service based on block schedules
- Charging during midday hours when the bus is not in service if the bus is scheduled to more than one block

The power modeling provides the following outputs:

- The maximum number of chargers that can be connected at a time
- Charging schedule
- Maximum power requirement at the facility
- And, ultimately, the power demand profile throughout the day.

The results for the power modeling were divided by terminal (Terminal 1 and Terminal 2), and an additional scenario is presented which assumes that all BEBs will be operating from Terminal 1¹¹.

¹¹ The power requirements and charging schedule includes the 10 unsuccessful blocks.

5.2 POWER REQUIREMENTS AT TERMINAL 1

A charging schedule developed for Terminal 1 is presented in Figure 16 and was designed for up to 67 in-service vehicles, including BYD electric vehicles and assumes that 31 BEBs will be relocated to Terminal 2. The maximum power demand remains below 1.5 MW and aims to minimize the charging hours during on-peak times (4 pm - 9 pm).

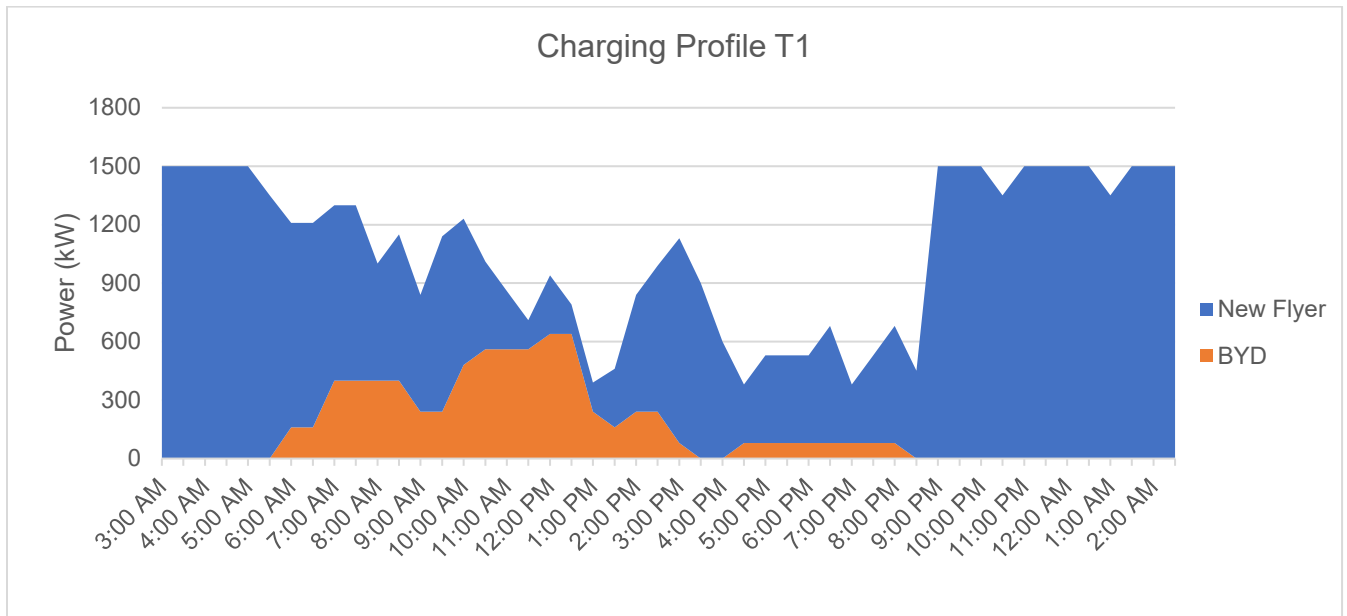


Figure 16: Charging profile for Terminal 1

Figure 17 presents the detailed schedule of the number of active chargers can be connected simultaneously to keep the power demand at 1.5 MW while providing charge to all buses for the scheduled service. The chargers for New Flyer buses have a maximum power of 150 kW and the MTD's current BYD chargers have power output of 80 kW. It is important to note this charging profile and total number of online chargers will vary if using a charging management software, but this modeling exercise ensures that a high demand day of service for MTD can be fulfilled under a maximum power demand of 1.5 MW.

SANTA BARBARA MTD ZEB POWER MODELING

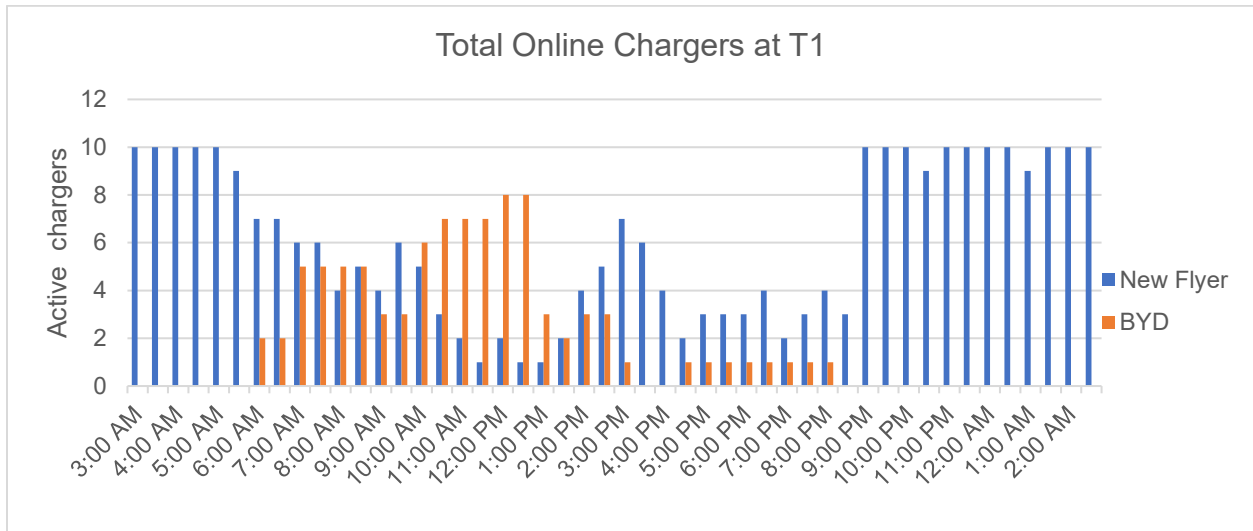


Figure 17: Schedule of online chargers for Terminal 1

Stantec also created a power profile for Terminal 1 under that assumption that no vehicles would be redistributed to Terminal 2, resulting in 98 active vehicles in one location. Although space considerations might not allow for an all-electric fleet in Terminal 1, this scenario explores the power requirements for an extended transition period to Terminal 2.

Figure 18 presents the charging profile for this scenario, showing that the power requirements remain below 2 MW. However, capping the maximum power demand at this level requires challenging logistics that could impact scheduling flexibility. For example, a busy charging schedule involves less than 30 minutes between end-of-charge and bus pull-out, partially charging a bus in the morning and then again before service, and immediately connecting buses to chargers when returning from service. In other words, there would be little room for error, like a delay in plugging in a bus. The total number of peak active chargers is 13 for New Flyer buses and 8 for BYD buses.

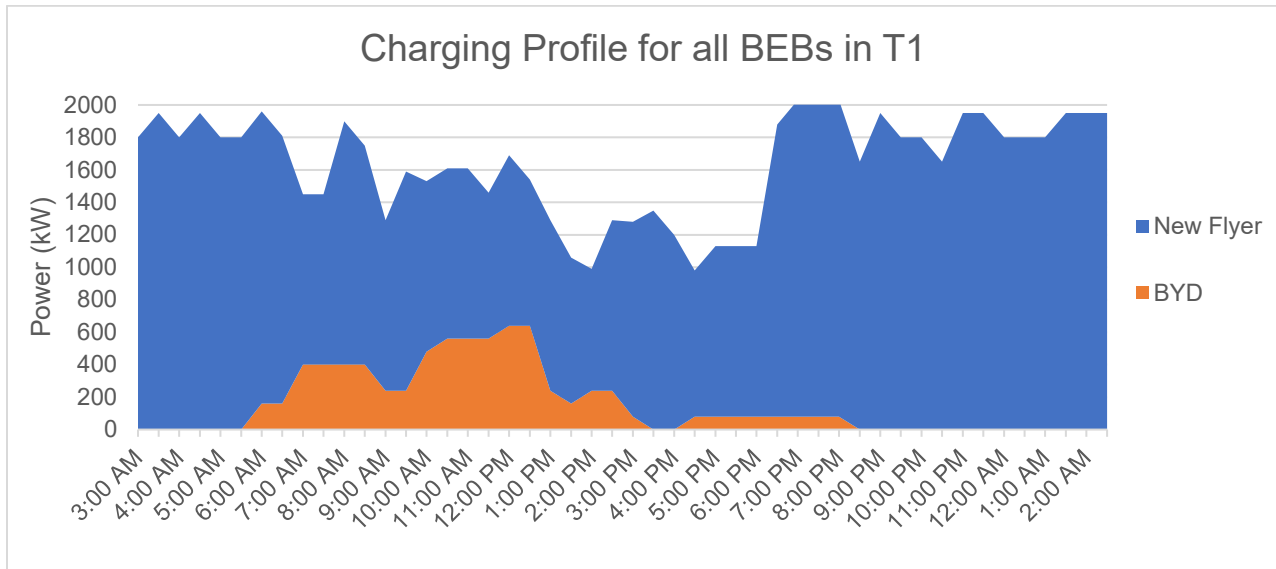


Figure 18: Charging profile for all BEBs in Terminal 1

5.3 POWER REQUIREMENTS AT TERMINAL 2

The same methodology was followed for the buses that are planned to be allocated to Terminal 2. Figure 19 presents the charging profile for Terminal 2 and it was designed for up to 31 BEBs. The maximum power demand will also remain below 1.5 MW while minimizing charging during on-peak hours.

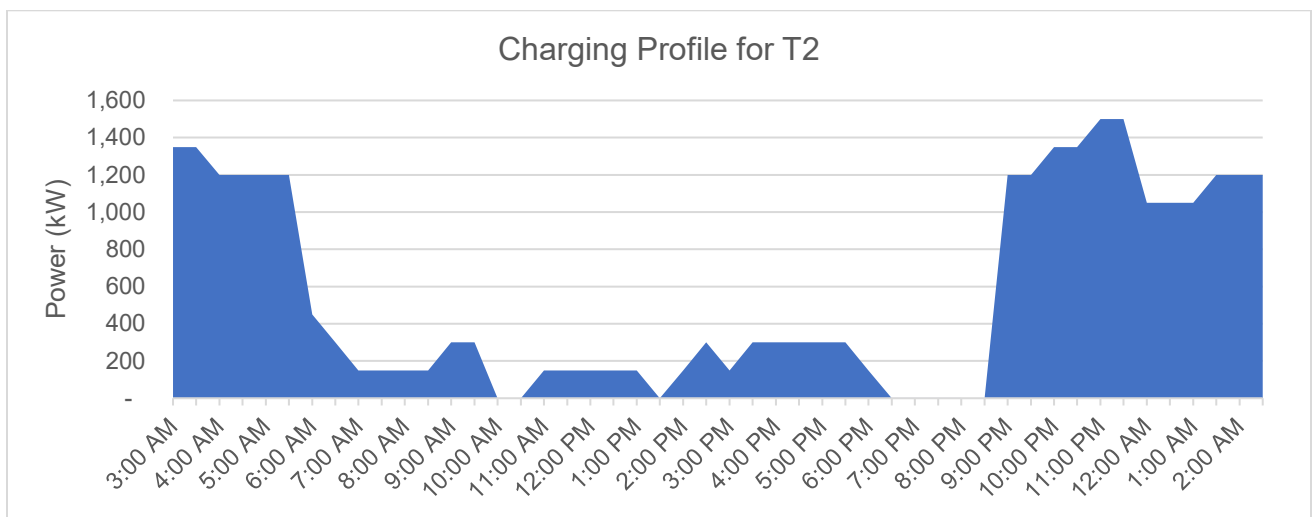


Figure 19: Charging profile for Terminal 2

Figure 20 shows the number of active chargers that can be connected simultaneously to keep the power demand below 1.5 MW.

SANTA BARBARA MTD ZEB POWER MODELING

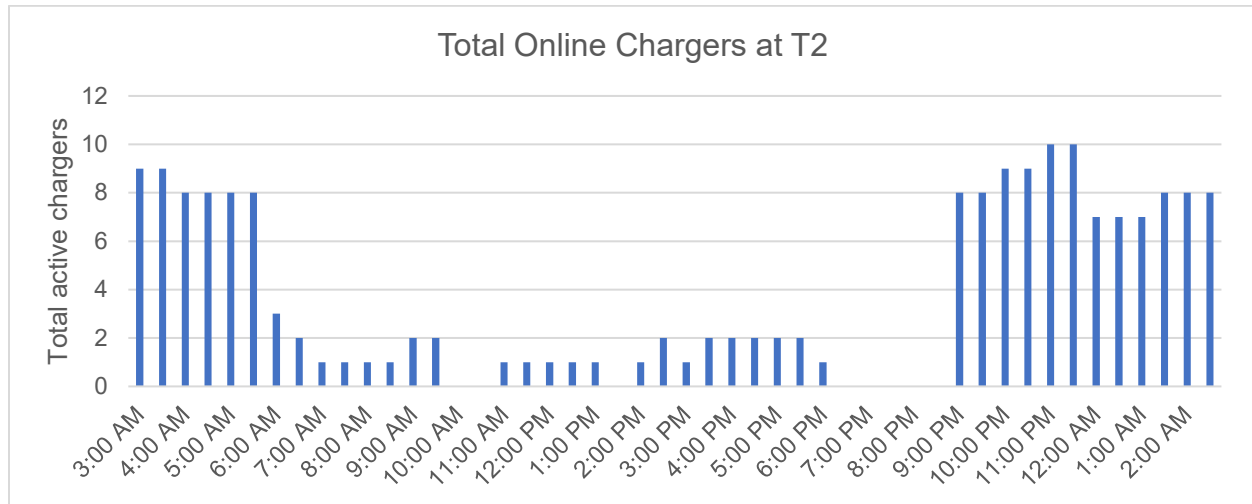


Figure 20: Schedule of online chargers for Terminal 2

5.4 PROJECTED ELECTRICITY COST

Based on the power demands, Terminal 1 would fall under the SoCal Edison rate schedule EV-9 for service above 2 KV but below 50 KV. Using this rate schedule, Stantec estimated the total energy costs for Terminal 1 and presented in Table 9. The resultant fuel price is \$0.131 per kWh in the summer and \$0.107 per kWh during the winter.

Table 9: Energy cost under TOU-EV-9 for Terminal 1

Edison TOU-EV-9 2-KV to 50-KV						
Customer Charge¹²	\$ 9.64			\$9.64		
Energy Charge						
	kWh/day	Summer \$/kWh	Daily Total	kWh/day	Winter \$/kWh	Daily Total
On-Peak	1,653	\$ 0.41	\$ 676	1,653	\$ 0.24	\$ 390
Mid-Peak		\$ 0.20		9,866	\$ 0.10	\$ 1,019
Off-Peak	14,359	\$ 0.10	\$ 1,416	4,494	\$ 0.07	\$ 292
Total	16,013		\$ 2,102	16,013		\$ 1,711
\$/kWh		\$ 0.131 per kWh			\$ 0.107 per kWh	

¹² Monthly charge of \$231.24 divide by 24 days of operation

SANTA BARBARA MTD ZEB POWER MODELING

The energy cost calculations for Terminal 2 are presented in Table 10. The price per kWh is lower at this location during the summertime at \$0.115 per kWh when compared to the price from Terminal 1. The electricity cost during the winter is coincidentally the same at both terminals, \$0.107 per kWh.

Table 10: Energy cost under TOU-EV-9 for Terminal 2

Edison TOU-EV-9 2-KV to 50-KV						
Customer Charge	\$ 9.64			\$9.64		
Energy Charge	Summer			Winter		
	kWh/day	\$/kWh	Daily Total	kWh/day	\$/kWh	Daily Total
On-Peak	439	\$0.41	\$179	439	\$0.24	\$104
Mid-Peak		\$0.20	\$-	7,605	\$0.10	\$786
Off-Peak	8,434	\$0.10	\$832	829	\$0.06	\$54
Total	8,873		\$1,021	8,873		\$953
\$/kWh	\$0.115 per kWh			\$0.107 per kWh		

6.0 CONCLUSION

Stantec was retained by MTD to (1) provide block-based modeling to inform performance of BEBs, and (2) provide a charging power requirement at MTD's terminals based on MTD's current schedules.

Stantec's approach was to utilize its modeling tool called ZEBDecide to calculate the energy and power demand for the electrification of MTD's fleet. Two final estimations were obtained for the energy demand, one based on the daily distance requirements per block schedule and the second based on vehicle assignments.

The energy demand calculated considering blocks' daily mileage was 13.6 MWh per day at Terminal 1 and 8.7 MWh per day at Terminal 2. From the 118 analyzed and modeled blocks, ten are unable to be served by BEBs with 524-kWh battery capacity. Stantec assumed that these blocks will be restructured, and spare buses will be used to complete the service so that the total fleet size remains unchanged.

The final modeling results show that MTD can serve all its current blocks and vehicle assignments with a maximum power demand of 1.5 MW in both terminals. The fuel cost at Terminal 1 will vary between \$0.131-0.107 per kWh, for summer and winter rates, respectively. At Terminal 2, the electricity cost will vary between \$0.115-0.107 per kWh.





BOARD OF DIRECTORS REPORT

MEETING DATE: NOVEMBER 3, 2020

AGENDA ITEM: #8

DEPARTMENT: RISK

TYPE: ACTION ITEM

PREPARED BY: MARY GREGG

Signature

REVIEWED BY: GENERAL MANAGER

Signature

SUBJECT: APPROVAL OF PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

RECOMMENDATION:

Staff recommends the Board adopt Resolution No. 2020-05 approving MTD's Public Transportation Agency Safety Plan in compliance with 49 Code of Federal Regulations Part 673.

BACKGROUND:

In 2018, the Federal Transit Administration (FTA) published the Public Transportation Agency Safety Plan (PTASP) Rule, 49 C.F.R. Part 673, requiring certain operators of public transportation systems that receive federal funds under FTA's Section 5307 Urbanized Area Formula Grants, to develop an Agency Safety Plan (ASP) that includes the processes and procedures to implement Safety Management System (SMS). MTD has rigorous safety programs previously established that meet local, state and Federal compliance regulations which are included in the ASP and address SMS.

DISCUSSION:

On September 1, 2020 Staff gave a presentation on MTD's fixed route directly operated bus service and SMS processes outlined in the draft ASP. MTD is responsible for ensuring Part 673 requirements are satisfied when using another entity to provide transit services. MTD's contractor of its ADA paratransit service is Easy Lift. Staff worked with Easy Lift management to document their SMS processes for reference in MTD's ASP, as reflected in the final ASP Version 1.0.

The PTASP Rule requires the agency's governing body approve the Agency Safety Plan and the Accountable Executive sign it. MTD will self-certify the ASP through the FTA Certifications and Assurance process after Board approval, to meet the compliance deadline of December 31, 2020.

ATTACHMENTS:

- Resolution 2020-05
- 2020 SBMTD Public Transportation Agency Safety Plan Version 1.0

RESOLUTION
of the
BOARD OF DIRECTORS
of the
SANTA BARBARA METROPOLITAN TRANSIT DISTRICT

A RESOLUTION APPROVING THE SANTA
BARBARA METROPOLITAN TRANSIT
DISTRICT PUBLIC TRANSPORTATION
AGENCY SAFETY PLAN IN COMPLIANCE
WITH TITLE 49 C.F.R. PART 673

RESOLUTION NO. 2020-05

WHEREAS, the Santa Barbara Metropolitan Transit District (District) directly operates safe, appealing, equitable, environmentally responsible, and fiscally sound fixed route transit service; and

WHEREAS, the District contracts its ADA paratransit service to Easy Lift Transportation, Inc.; and

WHEREAS, on July 19, 2018, the Federal Transit Administration (FTA) published Title 49, Code of Federal Regulations (CFR), Subtitle B, Chapter VI, Part 673 – Public Transportation Agency Safety Plan (PTASP) Final Rule; and

WHEREAS, on July 19, 2019, the PTASP Final Rule requires all FTA Section 5307 recipient transit agencies to establish an Agency Safety Plan (ASP) that meets the requirement of Part 673; and

WHEREAS, on April 22, 2020, the FTA extended the PTASP regulation compliance deadline to December 31, 2020 due to the extraordinary operational challenges presented by the COVID-19 public health emergency; and

WHEREAS, the ASP formalizes safety programs and procedures already in place at the District and sets forth improvements to the safety risk management, safety assurance and safety oversight processes; and

WHEREAS, safety is a core value of the District; and

WHEREAS, the District's ASP and subsequent updates, must be signed by the Accountable Executive and approved by the agency's Board of Directors;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Santa Barbara Metropolitan Transit District hereby approve the SBMTD Public Transportation Agency Safety Plan

PASSED AND ADOPTED by the Board of Directors of the Santa Barbara Metropolitan Transit District this 3rd day of November, 2020, by the following vote:

AYES: _____
NAYS: _____
ABSENT: _____

Chair, Board of Directors
Santa Barbara Metropolitan Transit District

ATTEST:

Secretary, Board of Directors
Santa Barbara Metropolitan Transit District

2020 PUBLIC TRANSPORTATION AGENCY SAFETY PLAN



The mission of Santa Barbara Metropolitan Transit District is to enhance the mobility of South Coast residents, commuters, and visitors by offering safe, appealing, equitable, environmentally responsible, and fiscally sound transit service.

Public Transportation Agency Safety Plan

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1. Definition of Terms Used in the Agency Safety Plan

Santa Barbara Metropolitan Transit District incorporates all of the Federal Transit Administration's definitions that are in 49 CFR § 673.5 of the Public Transportation Agency Safety Plan regulation.

- **Accident** means an Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision of public transportation vehicles; an evacuation for life safety reasons.
- **Accountable Executive** means a single, identifiable person who has ultimate responsibility for carrying out the Agency Safety Plan of a public transportation agency; responsibility for carrying out the agency's Transit Asset Management Plan; and control or direction over the human and capital resources needed to develop and maintain both the Agency Safety Plan, in accordance with 49 U.S.C. § 5329(d), and the Transit Asset Management Plan, in accordance with 49 U.S.C. § 5326, of said public transportation agency.
- **Agency or transit agency** means Santa Barbara Metropolitan Transit District, located at 550 Olive Street, Santa Barbara, CA 93101, an operator of a public transportation system.
- **Agency Safety Plan** means the documented comprehensive Public Transportation Agency Safety Plan for a transit agency that is required by 49 U.S.C. 5329 and Part 673.
- **Board of Directors** means governing body of Santa Barbara Metropolitan Transit District.
- **Chief Safety Officer** means the adequately trained individual who has responsibility for safety and reports directly to the transit agency's Accountable Executive.
- **Event** means any Accident, Incident, or Occurrence.
- **Hazard** means any real or potential condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment.
- **Incident** means an Event that involves any of the following: a personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of the transit agency.
- **Investigation** means the process of determining the causal and contributing factors of an accident, incident, or hazard, for the purpose of preventing recurrence and mitigating risk.
- **National Public Transportation Safety Plan** means the plan to improve the safety of all public transportation systems that receive federal financial assistance under 49 U.S.C. Chapter 53.
- **Occurrence** means an Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of a transit agency.
- **Operator** of a public transportation system means a provider of public transportation as defined under 49 U.S.C. 5302.
- **Part 673** means 49 CFR Part 673.
- **Performance measure** means an expression based on a quantifiable indicator of performance or condition that is used to establish targets and to assess progress toward meeting the established targets.
- **Performance target** means a quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the FTA.
- **Public Transportation Agency Safety Plan** means the documented comprehensive Agency Safety Plan for a transit agency that is required by 49 U.S.C. 5329 and Part 673.
- **Risk** means the composite of predicted severity and likelihood of the potential effect of a hazard.
- **Risk mitigation** means a method or methods to eliminate or reduce the effects of hazards.

- **Safety Assurance** means processes within the transit agency's Safety Management System that function to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information.
- **Safety Management Policy** means the transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees in regard to safety.
- **Safety Management System** means the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS is a continuous improvement process that includes systematic procedures, practices, and policies for managing risks and hazards.
- **Safety Performance Target** means a performance target related to safety management activities.
- **Safety Promotion** means a combination of training and communication of safety information to support SMS as applied to the transit agency's public transportation system.
- **Safety Risk Assessment** means the formal activity whereby the transit agency determines Safety Risk Management priorities by establishing the significance or value of its safety risks.
- **Safety Risk Management** means a process within the transit agency's ASP for identifying hazards and analyzing, assessing, and mitigating safety risk.
- **Serious injury** means any injury which: (1) Requires hospitalization for more than 48 hours, commencing within seven days from the date when the injury was received; (2) Results in a fracture of any bone (except simple fractures of fingers, toes, or noses); (3) Causes severe hemorrhages, nerve, muscle, or tendon damage; (4) Involves any internal organ; or (5) Involves second- or third-degree burns, or any burns affecting more than five percent of the body surface.
- **State of Good Repair** means the condition in which a capital asset is able to operate at a full level of performance.
- **Transit Agency** means an operator of a public transportation system.
- **Transit Asset Management Plan** means the strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation, as required by 49 U.S.C. 5326 and 49 CFR Part 625.

2. Commonly Used Acronyms

Acronym	Word or Phrase
ADA	American's with Disabilities Act of 1990
AE	Accountable Executive
ASP	Agency Safety Plan (also referred to as a PTASP in Part 673)
BOD	Board of Directors
Caltrans	California Department of Transportation
CSO	Chief Safety Officer
CFR	Code of Federal Regulations
DOT	Department of Transportation

ESRP	Employee Safety Reporting Program
FTA	Federal Transit Administration
MPO	Metropolitan Planning Organization
Part 673	49 CFR Part 673 (Public Transportation Agency Safety Plan)
SBCAG	Santa Barbara County Association of Governments
SBMTD	Santa Barbara Metropolitan Transit District
SGR	State of Good Repair
SMP	Safety Management Policy
SMS	Safety Management System
SPT	Safety Performance Target
SRM	Safety Risk Management
U.S.C.	United States Code
VRM	Vehicle Revenue Miles
VTT	Verification of Transit Training

3. Public Transportation Agency Safety Plan Overview

Public Transportation Agency Safety Plan

On July 19, 2018, the Federal Transit Administration (FTA) published the Public Transportation Agency Safety Plan (PTASP) Rule. The rule applies to all operators of public transportation systems that are recipients and subrecipients of federal financial assistance under the Urbanized Area Formula Program (49 U.S.C. § 5307). The rule requires these transit operators to develop an Agency Safety Plan (ASP) that include the processes and procedures to implement Safety Management System (SMS). FTA has adopted the principles and methods of SMS as the basis for enhancing the safety of public transportation in the United States.

- The Rule 49 CFR Part 673 became effective on July 19, 2019.
- FTA published a Dear Colleague letter on July 19, 2019, to alert the transit industry of the July 20, 2020 safety compliance deadline.
- FTA published a Notice of Enforcement Discretion on April 22, 2020, effectively extending the compliance deadline to December 31, 2020 due to the COVID-19 pandemic.

SBMTD developed the contents of our Agency Safety Plan to meet all requirements specified in 49 CFR Part 673. SBMTD's ASP addresses all applicable requirements and standards as set forth in FTA's Public Transportation Safety Program and the National Public Transportation Safety Plan.

The Agency Safety Plan is based on the four principles or pillars of the Safety Management System (SMS). SMS is defined as the formal, top-down, organization-wide, data-driven approach to managing safety risk and assuring the effectiveness of safety mitigations. It includes systematic policies, procedures, and practices for the management of safety risk.

The four principles or pillars of SMS are: (1) Safety Management Policy; (2) Safety Risk Management; (3) Safety Assurance; and (4) Safety Promotion.

SMS is a comprehensive, collaborative approach that brings management and labor together to build on the transit industry's existing safety foundation to control risk better, detect and correct safety concerns earlier, share and analyze safety data more effectively, and measure safety performance more efficiently. SBMTD's SMS focuses on applying resources to risk and is based on ensuring that the agency has the organizational infrastructure to support decision-making at all levels regarding the assignment of resources. The SMS processes in the ASP are for SBMTD's directly operated fixed route bus service.

Key components of SBMTD's SMS include:



- Strong executive safety leadership;
- Defined roles and responsibilities;
- Formal safety accountabilities and communications;
- Effective policies and procedures; and
- Active employee involvement

SBMTD monitors the contractor providing its ADA/Paratransit service to ensure they are following their SMS as referenced in Appendix A. Contractor's Agency Safety Plan was developed in coordination with SBMTD and meets all requirements specified in 49 CFR Part 673.

4. Transit Agency Information

Transit Agency Name	Santa Barbara Metropolitan Transit District			
Transit Agency Address	550 Olive Street, Santa Barbara, CA 93101			
Name and Title of Accountable Executive	Jerry Estrada, General Manager			
Name of Chief Safety Officer	Mary Gregg, Director of Human Resources and Risk			
Mode(s) of Service Covered by This Plan	Fixed Route Bus	List All FTA Funding Types (e.g., 5307, 5337, 5339)	5307, 5339	
Mode(s) of Service Provided by the Transit Agency	Directly Operated Fixed Route Bus; Contracted ADA/Paratransit Service			
Does the agency provide transit services on behalf of another transit agency or entity?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Description of Arrangement(s)	N/A
Name and Address of Transit Agency(ies) or Entity(ies) for Which Service Is Provided	N/A			

5. Plan Development, Approval, and Updates

Name of Person Who Drafted This Plan	Mary Gregg, Director of Human Resources and Risk / Chief Safety Officer	
Signature by the Accountable Executive	Signature of Accountable Executive	Date of Signature
		11/03/2020
Approval by the Board of Directors or an Equivalent Authority	SBMTD Board of Directors	Date of Approval
	Resolution # 2020-05	11/03/2020
	Relevant Documentation (Title and Location)	
	A copy of SBMTD's Board of Directors Resolution # 2020-05, approving the Agency Safety Plan, is maintained on file by SBMTD's Chief Safety Officer.	
Certification of Compliance	Name of Entity That Certified This Plan	Date of Certification
	Santa Barbara Metropolitan Transit District	
	Relevant Documentation (Title and Location)	
	Federal Fiscal Year 2020 Certifications and Assurances, on file at SBMTD's administrative office	

Agency Safety Plan Version Number and Updates			
Version Number	Section/Pages Affected	Reason for Change	Date Issued
1.0	All Pages	New Document	11/03/2020

Annual Review and Update of the Agency Safety Plan
<p>This plan will be reviewed and updated by the Chief Safety Officer by September 1, 2021, and then by July 20 in perpetuity. All Agency Safety Plan updates shall be signed by the Accountable Executive and approved by SBMTD's Board of Directors.</p> <p>SBMTD updates this ASP when information, processes or activities change within the agency and/or when Part 673 undergoes significant changes, or annually, whichever comes sooner. Data collected by SBMTD through its Safety Risk Management and Safety Assurance processes is shared with the State Department of Transportation, and the local Metropolitan Planning Organization. Both entities will evaluate SBMTD's safety performance targets (SPTs) to determine whether they need to be changed, as well.</p>

6. Safety Performance Targets

Safety Performance Targets							
<p>Safety Performance Targets (SPTs) are specific numerical targets set by SBMTD based on safety performance measures under the <i>National Public Transportation Safety Plan</i> for: (1) Fatalities, (2) Injuries, (3) Safety Events, and (4) System Reliability (State of Good Repair). Rates for the safety performance targets are calculated by SBMTD per 100,000 vehicle revenue miles (VRM) based on a five-year average from 2015-2019 of SBMTD's reportable data to the National Transit Database (NTD).</p>							
Mode of Transit Service	Fatalities (Total)	Fatalities (Rate)	Injuries (Total)	Injuries (Rate)	Safety Events (Total)	Safety Events (Rate)	System Reliability
Fixed Route Bus	0.6	0.02	2.4	0.09	3.0	0.12	8,000
ADA/Paratransit	0	0	1	0.04	4.0	0.17	50,000

Safety Performance Target Coordination		
<p>SBMTD's Accountable Executive shares our ASP, including safety performance targets, with the Metropolitan Planning Organization (MPO) in our service area each year after its formal adoption by the Board of Directors. MTD's Chief Safety Officer also provides a copy of our formally adopted plan to the State Department of Transportation. MTD personnel are available to coordinate with both agencies in the selection of each agency's safety performance targets upon request.</p>		
Targets Transmitted to the State	State Entity Name	Date Targets Transmitted
	California Department of Transportation, Division of Rail and Mass Transportation (Caltrans)	11/03/2020
Targets Transmitted to the Metropolitan Planning Organization(s)	Metropolitan Planning Organization Name	Date Targets Transmitted
	Santa Barbara County Association of Governments (SBCAG)	11/03/2020

7. Safety Management Policy

Safety Management Policy
<p>The first component of SBMTD's Safety Management System is Safety Management Policy, which is the foundation the agency's SMS. It states the agency's safety objectives and sets forth the policies, procedures, and organizational structures necessary to accomplish these safety objectives.</p>

Safety Management Policy Statement

Safety is Santa Barbara Metropolitan Transit District's number one priority. We educate, encourage, and endorse a strong culture of safety at every level of the organization. We value the responsibility entrusted in us by the communities that we serve. SBMTD is committed to developing, implementing, maintaining, and constantly improving processes to ensure the safety of our customers, employees, and the public. The agency's overall safety objective is to proactively manage safety hazards and their associated safety risk to achieve the highest level of safety performance, meeting and exceeding established standards for our industry.

All levels of management, employees and contractors are accountable for the delivery of the highest level of safety performance. Our commitment is to:

- **Communicate** the purpose and benefits of the Safety Management System (SMS) to all employees, reaffirming that responsibility for making our operations safer for everyone lies with all employees;
- **Provide** all employees with appropriate safety information and training, to ensure they are competent in safety matters, and assigned only tasks commensurate with their duties and skills;
- **Establish** an effective Employee Safety Reporting Program (ESRP) that will encourage employees to communicate and report any unsafe work conditions, hazards, or at-risk behavior to the management team;
- **Support** a culture of open reporting of all safety concerns, to ensure that no action will be taken against any employee who discloses a safety concern through the ESRP, unless such disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures;
- **Identify** hazardous and unsafe work conditions, thoroughly analyzing data from the ESRP, and then developing procedures to mitigate safety risk to an acceptable level;
- **Establish** and measure our safety performance against realistic and data-driven safety performance indicators and safety performance targets.
- **Continually** improve our safety performance through management processes that ensure appropriate safety management action is taken and is effective.



Jerry Estrada, General Manager and Accountable Executive

Safety Management Policy Communication

The Safety Management Policy is communicated throughout the agency, to all employees, managers, and executives, as well as contractors, and to SBMTD's Board of Directors. This is accomplished through various processes, such as:

- New Hire Onboarding – Safety orientation for all new employees regardless of their classifications; training about their roles and responsibilities pertaining to PTASP and the principles of SMS.
- Workshops/training sessions – Conducted for executives, department managers, and supervisors; Verification of Transit Training for bus operators; toolbox safety meetings.
- Safety Communication Board – Newsletters and safety information posted in employee work locations throughout the agency; email blasts to staff, and/or safety committee meetings.

Authorities, Accountabilities, and Responsibilities	
Accountable Executive	<p>The General Manager serves as Santa Barbara Metropolitan Transit District's Accountable Executive with the following authorities, accountabilities, and responsibilities under this plan:</p> <ul style="list-style-type: none"> • Controls and directs human and capital resources, to support asset management and capital investments needed to develop and maintain SBMTD's Agency Safety Plan and Safety Management System. • Ensures safety concerns are considered and addressed in the agency's ongoing budget planning process. • Designates an adequately trained Chief Safety Officer who is a direct report. • Ensures that the agency's SMS is effectively implemented throughout the organization and safety policy is appropriately communicated throughout the agency. • Ensures action is taken, as necessary, to address substandard performance in the agency's SMS. • May delegate specific responsibilities, but responsibility for carrying out the ASP and SMS, and ultimate accountability for SBMTD's safety performance, rests with the AE. • Maintains responsibility for carrying out the Transit Asset Management Plan.
Chief Safety Officer or SMS Executive	<p>The Accountable Executive designated the Director of Human Resources and Risk as SBMTD's Chief Safety Officer. The Chief Safety Officer has the following authorities, accountabilities, and responsibilities under this plan:</p> <ul style="list-style-type: none"> • Develops the ASP and SMS policies and procedures. • Authority and responsibility for day-to-day implementation and operation of the agency's SMS. • Manages the Employee Safety Reporting Program. • Chairs the SBMTD Safety Committee and <ul style="list-style-type: none"> ○ Coordinates the activities of the committee; ○ Establishes and maintains the agency's Safety Risk Register and Safety Event Log; and ○ Maintains and distributes minutes of committee meetings. • Briefs the Accountable Executive on SMS progress and status. • Identifies substandard performance in SBMTD's SMS and develops action plans for approval by the AE. • Ensures policies are consistent with the agency's safety objectives. • Provides Safety Risk Management expertise and support for other SBMTD personnel who conduct and oversee Safety Assurance activities.

Agency Leadership and Executive Management	<p>Agency Leadership and Executive Management also have authorities and responsibilities for day-to-day SMS implementation and operation of SBMTD's SMS under this plan. These personnel include the Director of Finance and Administration, Operations Manager, Fleet and Facilities Manager, Planning and Marketing Manager, and Human Resources Manager. They have the following authorities, accountabilities, and responsibilities under this plan:</p> <ul style="list-style-type: none"> • Oversees day-to-day operations of the SMS and communicates safety accountability and responsibility in their departments. • Supports implementation of the SMS throughout the organization. • Ensures employees in their department are following safety rules and regulations in performing their jobs, and their specific roles and responsibilities in the implementation of this Agency Safety Plan and SMS. • Modifies policies in their departments consistent with implementation of the SMS, as necessary. • Completes training on SMS and the ASP elements. • Provides subject matter expertise to support implementation of the SMS as requested by the AE or the CSO, including SRM activities, investigation of safety events, development of safety risk mitigations, and monitoring of mitigation effectiveness. • Replaces aging facilities, equipment, and infrastructure. • Participates as members of SBMTD's Safety Committee as assigned.
Key Staff	<p>The agency Key Staff may include managers, supervisors, specialists, analysts, database administrators and other key employees who are performing highly technical work and overseeing employees performing critical tasks and providing support in the implementation of the ASP and SMS principles in various departments throughout the agency. These personnel include, but are not limited to, Superintendent of Maintenance, Assistant Superintendent of Maintenance, Fleet Maintenance Supervisor, Superintendent of Operations, Operations Safety and Training Administrator, Risk Administrator. Key Staff responsibilities include:</p> <ul style="list-style-type: none"> • Supports implementation of the SMS throughout the organization. • Promotes safety in employee's respective area of responsibilities and compliance with agency rules and procedures and regulatory requirements. • Ensures employees are complying with the safety reporting program. • Ensures safety of passengers, employees and the public. • Develops and maintains programs to gather pertinent data elements to develop safety performance reports and conduct useful statistical analyses to identify trends and system performance targets. • Establishes clear lines of safety communication and hold accountability for safety performance • Maintains aging facilities, equipment, and infrastructure. • Assists as subject matter experts in safety risk assessment and safety risk mitigation processes.

Employee Safety Reporting Program

The purpose of an Employee Safety Reporting Program (ESRP) is to establish a system for all employees who identify unsafe conditions or hazards in their day-to-day duties to report them to department and executive management in good faith without fear of reprisal.

The ESRP is intended to help the Accountable Executive, Chief Safety Officer, and other executive management get important safety information from across the transit agency.

SBMTD has implemented a process that allows and encourages its employees to report safety conditions through verbal reporting to supervisors and management, paper forms such as accident/incident reports, safety meetings and toolbox talks, and local union representation.

Some examples of voluntary information typically reported include:

- Safety concerns in the operating environment;
- Policies and procedures that may not be working as intended;
- Events that managers might not otherwise know about; and
- Information about why a safety event occurred.

SBMTD's Chief Safety Officer or designee reviews reported safety conditions and documents safety conditions in the Safety Risk Register.

The CSO will review and address each employee report, ensuring that hazards and their consequences are appropriately identified and resolved through the agency's Safety Risk Management (SRM) process and that reported deficiencies and non-compliance with rules or procedures are managed through the agency's Safety Assurance process. Findings will be published following mitigation actions, and presented through meetings throughout the year such as those held for Operations Supervisors and VTT for Bus Operators, for example.

Employees may report safety concerns anonymously. If the reporting employee provided his or her name during the reporting process, the CSO or designee follows up directly with the employee when SBMTD determines what action, if necessary, is to be taken and after any mitigations are implemented.

All employees have the obligation to report immediately any unsafe conditions or hazards to their immediate supervisor/department manager and may do so without fear of reprisal. Further, SBMTD encourages participation in the ESRP by protecting employees that report safety conditions in good faith. However, if the report reveals any of the following, SBMTD may take disciplinary action for:

- Willful participation in or conduct of an illegal act;
- Gross negligence, deliberate or willful disregard of regulations or procedures, including reporting to work under the influence of controlled substances;
- Physical assault of a co-worker, passenger, vendor or any member of the public;
- Theft of agency property;
- Unreported safety events, unreported collisions, and unreported passenger injuries or fatalities;
- Or violation of agency Code of Conduct and employment policies.

8. Safety Risk Management

Safety Risk Management Process

The second component of SMS is Safety Risk Management, which includes the following activities: (1) Safety Hazard identification, (2) Safety Risk Assessment, and (3) Safety Risk Mitigation. SRM is the primary method to ensure the safety of our operations, passengers, employees, vehicles, and facilities. It is a process whereby hazards and their consequences are identified, assessed for potential safety risk, and resolved in a manner acceptable to SBMTD's leadership. SBMTD's SRM process allows us to carefully examine what could cause harm and determine whether we have taken sufficient precautions to minimize the harm, or if further mitigations are necessary. SBMTD's SRM process applies to all elements of our system including our operations and maintenance; facilities and vehicles; and personnel recruitment, training, and supervision. In carrying out the SRM process, SBMTD uses the following terms:

- **Event** – Any accident, incident, or occurrence.
- **Hazard** – Any real or potential condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure belonging to SBMTD; or damage to the environment.
- **Risk** – Composite of predicted severity and likelihood of the potential effect of a hazard.
- **Risk Mitigation** – Method(s) to eliminate or reduce the effects of hazards.
- **Consequence** – An effect of a hazard involving injury, illness, death, or damage to SBMTD property or the environment.

(1) Safety Hazard Identification

The safety hazard identification process offers SBMTD the ability to identify hazards and potential consequences in the operation and maintenance of our system. Hazards can be identified through a variety of sources, including but not limited to:

- Employee Safety Reporting Program (ESRP);
- Review of vehicle camera footage and/or property footage;
- Review of monthly performance data and safety performance targets;
- Observations from supervisors;
- Maintenance reports;
- Comments from customers, passengers, vendors, and third parties;
- Safety Committee, Drivers, Maintenance, and Staff Meetings;
- Results of audits and inspections of vehicles and facilities;
- Results of training assessments;
- Investigations into safety events, incidents, and occurrences; and
- Federal Transit Administration (FTA) and other oversight authorities.

When a safety hazard has been identified, whatever the source, it is reported to the Chief Safety Officer through the procedures established and identified throughout this Agency Safety Plan. The CSO enters the information into the Safety Event Log. The CSO will conduct further analyses of hazards to collect information and identify additional consequences, to inform which hazards should be prioritized for safety risk assessment. In following up on identified hazards, the Chief Safety Officer may:

- Reach out to the reporting party, if available, to gather all known information about the reported hazard;
- Conduct a walkthrough of the affected area, assessing the possible hazardous condition, generating visual documentation, and taking any measurements deemed necessary;

- Conduct interviews with employees in the area to gather potentially relevant information on the reported hazard;
- Review any documentation associated with the hazard (records, reports, procedures, inspections, technical documents, etc.);
- Contact other departments that may have association with or technical knowledge relevant to the reported hazard;
- Review any past reported hazards of a similar nature; and
- Evaluate tasks and/or processes associated with the reported hazard.

Any identified hazard that poses a real and immediate threat to life, property, or the environment must immediately be brought to the attention of the Accountable Executive and addressed through the Safety Risk Management process (with or without the full Safety Committee) for safety risk assessment and mitigation. This means that the Chief Safety Officer believes immediate intervention is necessary to preserve life, prevent major property destruction, or avoid harm to the environment that would constitute a violation of Environmental Protection Agency or California State environmental protection standards. Otherwise, the Safety Committee will prioritize hazards for further SRM activity.

(2) Safety Risk Assessment

SBMTD assesses safety risk associated with identified safety hazards using its safety risk assessment process. Safety risk assessment defines the level or degree of the safety risk by assessing the likelihood and severity of the consequences of hazards, including existing mitigations, and prioritizing hazards based on safety risk.

The following matrix, adopted from the TSI Participation Guide – SMS Principles for Transit, facilitates the ranking of hazards based on their probability of occurrence and severity of their outcome. The measuring goes from A to F with A being frequent or likely to occur frequently, E being improbable and F being used when potential hazards are identified and later eliminated.

Safety Risk Probability Levels Table			
Level	Description	Specific Individual Item	Fleet Inventory
A	Frequent	Likely to occur often in the life of an item.	Continuously experienced.
B	Probable	Will occur several times in the life of an item.	Will occur frequently.
C	Occasional	Likely to occur sometime in the life of an item.	Will occur infrequently.
D	Remote	Unlikely, but possible to occur in the life of an item.	Unlikely, but can reasonably be expected to occur.
E	Improbable	So unlikely, it can be assumed occurrence may not be experienced in the life of an item.	Unlikely to occur, but possible.
F	Eliminated	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.	Incapable of occurrence. This level is used when potential hazards are identified and later eliminated.

The Safety Risk Severity presents a typical safety risk denoting the level of severity of the occurrence of a consequence. Hazard severity is a subjective measure of the worst credible mishap resulting from personnel error, environmental conditions, design inadequacies and/or procedural efficiencies for system, subsystem or component failure or malfunction. Severity is ranked as shown below:

Safety Risk Severity Levels Table		
Level	Description	Mishap Result Criteria
1	Catastrophic	Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding \$10M
2	Critical	Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding \$1M but less than \$10M
3	Marginal	Could result in one or more of the following: injuries or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding \$100k but less than \$1M
4	Negligible	Could result in one or more of the following: injuries or occupational illness not resulting in lost work day, minimum environmental impact, or monetary loss less than \$100k.

Safety Risk Probability and Safety Risk Severity are combined into the Safety Risk Index Ranking to help prioritize safety risks according to the table below.

Safety Risk Index Ranking		
1A, 1B, 1C, 2A, 2B	High	Unacceptable
1D, 2C, 3A, 3B	Serious	Undesirable - with management decision required
1E, 2D, 2E, 3C, 3D, 3E, 4A, 4B,	Medium	Acceptable - with review by management
4C, 4D, 4E	Low	Acceptable - without review

Safety Risk Assessment Matrix				
Severity → Probability ↓	Catastrophic 1	Critical 2	Marginal 3	Negligible 4
A-Frequent	1A	2A	3A	4A
B- Probable	1B	2B	3B	4B
C-Occasional	1C	2C	3C	4C
D- Remote	1D	2D	3D	4D
E- Improbable	1E	2E	3E	4E
F- Eliminated				

The Chief Safety Officer documents recommendations regarding hazard rating and mitigation options and reports this information to the Accountable Executive, including assessment activities outcomes documented from Safety Committee meetings. During Safety Committee meetings, the CSO reviews the hazard and its consequence(s) and reviews available information distributed to the committee on severity and likelihood. The CSO may request support from members of the Safety Committee in obtaining additional information to support the safety risk assessment. All Safety Committee risk assessment outcomes will be documented and maintained by the CSO for a period of three years from the date of generation.

(3) Safety Risk Mitigation

The Chief Safety Officer, assisted by Key Staff subject matter experts, reviews current safety risk mitigations and establishes procedures to 1) eliminate; 2) mitigate; 3) accept specific risks. Prioritization of safety remediation measures is based on risk analysis and a course of action acceptable to SBMTD management. The safety risk must be mitigated if ranked as Unacceptable (High-Red). Those safety risks that have been mitigated, even those mitigated risks shown as Acceptable status (Low-Green), undergo regular and consistent monitoring to ensure the mitigation strategy is effective.

Key strategies to minimize the types of risks that potentially exist include:

- Development and deployment of policies and procedures that address known hazards and risks,
- Discussion of other actions, strategies and procedures that might help safeguard against unknown/unforeseen risks,
- Training of drivers and other agency staff on all safety policies and procedures,
- Training of drivers and other agency staff on methodologies for handling emergencies, and
- Training of drivers and staff on proper and effective use of emergency equipment and communication technologies and protocol.

Safety risk mitigations are tracked and updated in the Safety Event Log by the Chief Safety Officer.

9. Safety Assurance

Safety Assurance

The third component of SBMTD's SMS is Safety Assurance, which ensures the performance and effectiveness of safety risk controls established under safety risk management. Through our Safety Assurance process, SBMTD:

- Evaluates our compliance with operations and maintenance procedures to determine whether our existing rules and procedures are sufficient to control our safety risk;
- Assesses the effectiveness of safety risk mitigations to make sure the mitigations are appropriate and are implemented as intended;
- Investigates safety events to identify causal factors; and
- Analyzes information from safety reporting, including data about safety failures, defects, or conditions.

Safety Performance Monitoring and Measurement

SBMTD has many processes in place to monitor its entire transit system for compliance with operations and maintenance procedures, including:

- Safety audits,
- Informal inspections,
- Regular review of onboard camera footage to assess drivers and specific incidents,
- Safety surveys,
- ESRP,
- Investigation of safety occurrences,
- Safety review prior to the launch or modification of any facet of service,

- Daily data gathering and monitoring of data related to the delivery of service, and
- Regular vehicle inspections and preventative maintenance.

Results from the above processes are compared against recent performance trends quarterly and annually by the Chief Safety Officer to determine where action needs to be taken. The CSO enters any identified non-compliant or ineffective activities, including mitigations, back into the SRM process for reevaluation by the Safety Committee.

SBMTD monitors the agency's operations identifying safety risk mitigations to determine if they have been implemented and are effective, appropriate, and working as intended through:

- Reviewing results from accident, incident, and occurrence investigations;
- Monitoring employee safety reporting;
- Reviewing results of internal safety audits and inspections; and
- Analyzing operational and safety data to identify emerging safety concerns.

These monitoring mechanisms may include tracking a specific metric on daily, weekly, or monthly logs or reports; conducting job performance observations; or other activities. The Chief Safety Officer will endeavor to make use of existing SBMTD processes and activities before assigning new information collection activities.

SBMTD's CSO reviews the performance of individual safety risk mitigations, based on the reporting schedule determined for each mitigation, and determines if a specific safety risk mitigation is not implemented or performing as intended. Such reviews may be included as a function of the Safety Committee. If the mitigation is not implemented or performing as intended, a proposed course of action to modify the mitigation or take other action to manage the safety risk is determined by the Safety Committee, and/or Key Staff subject matter experts, and the CSO will approve or modify this proposed course of action and oversee its execution.

SBMTD also conducts investigations of safety events, to find causal and contributing factors and review the existing mitigations in place at the time of the event. These procedures also reflect all traffic safety reporting and investigation requirements established by California Department of Motor Vehicles, including accident reporting requirements under California Vehicle Code §16002 subdivision (a) and subdivision (b).

The Chief Safety Officer maintains all documentation of SBMTD's investigation policies, processes, forms, checklists, activities, and results, and records of any report filed with FTA and/or DMV.

In the event that an incident and/or accident has been determined by the CSO to be preventable, SBMTD will include processes outlined in a Collective Bargaining Agreement for employees represented by a union, in so much as language in the CBA does not conflict with FTA legal requirements under PTASP and as so indicated in this Agency Safety Plan.

The Chief Safety Officer routinely reviews information reported through all internal safety reporting programs (e.g., safety data captured in employee incident/accident reports, safety meeting minutes, customer complaints, and other safety communication channels). When necessary, the CSO ensures that the issues and concerns are investigated or analyzed through the SRM process.

The Chief Safety Officer also analyzes internal and external reviews, including audits and assessments, with findings affecting the agency's safety performance, compliance with operations and maintenance procedures, or the effectiveness of safety risk mitigations. The CSO discusses relevant safety issues and concerns with the Accountable Executive and executive management and documents the results of these reviews in the Safety Event Log.

10. Safety Promotion

Safety Promotion

The fourth component of SBMTD's SMS is Safety Promotion, which includes a combination of training and communication of safety information to employees to enhance the agency's safety performance. There are two parts to Safety Promotion: Competencies and Training; and Safety Communication. Together, these set the tone for the SMS and helps to establish and maintain a robust safety culture.

Competencies and Training

SBMTD's comprehensive safety training program applies to all SBMTD employees directly responsible for safety and the agency dedicates resources to conduct safety training, as well as training on SMS roles and responsibilities.

All Employees, understanding of:

- Safety Performance Targets
- Fundamental principles of SMS
- Employee Safety Reporting Program
- Their individual roles and responsibilities under SMS

Managers and Supervisors, understanding of:

- Safety Risk Management
- Safety Assurance
- Safety Promotion
- Their individual roles and responsibilities for SMS

Executive Management, understanding of:

- Management commitment to and support of all SMS activities.

All employees are required to acquire the competencies and knowledge for consistent application of their skills as they relate to safety performance objectives. SBMTD dedicates resources to conduct effective safety-related skill training, the scope of which, including annual refresher training, is appropriate to each employee's individual safety-related job responsibilities and their role in the SMS.

Operations safety-related skill training includes the following:

- New-hire bus operator classroom, behind the wheel, and in-service skill training,
- Bus operator refresher training, and annual ride-check/in-service evaluation,
- Bus operator new bus type familiarization training,
- Bus operator retraining (recertification or return to work),
- Classroom and on-the-job training for operations supervisors and managers
- Accident investigation training for operations supervisors and managers.

Vehicle maintenance safety-related skill training includes the following:

- New-hire Commercial Drivers' License classroom and behind the wheel skill training,
- Ongoing mechanic skill training and mechanic supervisor training,
- Ongoing training for all maintenance personnel, to include Heat Illness Training, Hazard Communications, PPE, High Voltage Safety and Fall Protection,
- Ongoing hazardous material training for vehicle maintenance technicians and supervisors, and
- Training provided by vendors.

SBMTD's Accountable Executive and Agency Leadership and Executive Management team must complete FTA's SMS Awareness online training, and Transportation Safety Institute training as assigned by the Chief Safety Officer.

Safety Communication

SBMTD's Chief Safety Officer and the Human Resources and Risk Department coordinate safety communication activities for the SMS. SBMTD's activities focus on the three categories of communication activity established in 49 CFR Part 673 (Part 673):

- i. Communicating safety and safety performance information throughout the agency
- ii. Communicating information on hazards and safety risks relevant to employees' roles and responsibilities throughout the agency
- iii. Informing employees of safety actions taken in response to reports submitted through the ESRP

Ongoing safety communication is critical and SBMTD ensures communication occurs up, down, and across all levels of the organization. Any lessons learned are communicated to all concerned. Management commitment to address safety concerns and hazards is communicated on a regular basis.

Management encourages and motivates employees to communicate openly, authentically, and without concern for reprisal; ensures employees are aware of SMS principles and understand their safety-related roles and responsibilities; conveys safety critical information such as accident data, injuries, and reported safety concerns and hazards and their resolutions to employees. SBMTD's tools to support safety communication include:

- Safety bulletins and notices
- Posters
- Web based safety training
- Employee Newsletters
- Briefings or Toolbox talks
- Seminars and workshops
- New-hire onboarding and training
- Refresher and Return to Work training
- Safety Committee Meetings

11. Additional Information

Supporting Documentation

SBMTD maintains documentation related to the implementation of its SMS; the programs, policies, and procedures used to carry out this ASP; and the results from its SMS processes and activities for three years after creation. They will be available to the FTA or other Federal or state oversight entity upon request. They include:

- Injury and Illness Prevention Plan (IIPP)
- Emergency Response Plan
- Driver Training Manual 2020
- SBMTD Training Manual Gillig Transit Buses
- SBMTD Training Manual Articulated Transit Buses

- SBMTD Training Manual BYD Transit Buses
- Employee Handbooks – Staff
- Employee Manual - Represented
- Operators Manual
- Maintenance Manual
- Code of Conduct Policies
- SBMTD Drug & Alcohol Testing Policy
- Drug Free Workplace Policy
- Policy Against Sexual Harassment
- Easy Lift Agency Safety Plan Version 1.0



2020 PUBLIC TRANSPORTATION AGENCY SAFETY PLAN

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1. Transit Agency Information

Easy Lift Transportation was created in 1979 as a special project of the local Easter Seal Society. As our nation grows older and those with physical challenges assert greater independence, the need for service is continually on the rise. Because transportation provides the independence vital to maintaining quality of life, Easy Lift will continually strive to expand its service to meet the unmet and growing needs of our community.

Easy Lift's core programs is our ADA Paratransit service, Dial-A-Ride. Our Dial-A-Ride service is provided through a contract with MTD. We also provide medical transportation for those that have MediCal Insurance, County Clinic Shuttle, as well as Children's Accessible Transportation. Easy Lift serves from Goleta to Carpinteria.

Easy Lift's mission is to fulfill our community's need for specialized transportation to allow individuals and organizations access to essential programs and services. Easy Lift's values of Teamwork, Respect, Integrity, Honesty, Professionalism, Safety and Trust describes how we interact with our passengers and their families, our community partners and each other. Easy Lift's vision is to become the community's recognized advisor for specialized transportation needs.

Easy Lift is located at 53 Cass Place, Santa Barbara, CA 93117. Our Executive Director of Paratransit Services, Ernesto Paredes, acts as Easy Lift's Accountable Executive, and our Director of Operations, Kristina Lauterio, acts as our Chief Safety Officer. Easy Lift receives 5310 FTA Funding for its ADA/Paratransit mode of service as covered by this Agency Safety Plan.

2. Safety Performance Targets

Safety Performance Targets

Safety Performance Targets are numerical targets set by Easy Lift Transportation based upon safety performance measures under the National Public Transportation Safety Plan for the following:

- Fatalities
- Injuries
- Safety Events
- System Reliability (Good Repair)

The below rates for the safety performance targets are calculated per 100,000 vehicle revenue miles based on a five year average (2015-2019) of reportable data.

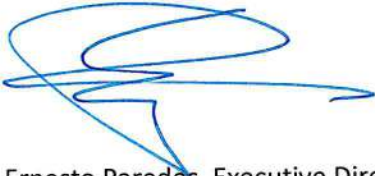
Mode of Transit Service	Fatalities (total)	Fatalities (rates)	Injuries (total)	Injuries (rates)	Safety Events (total)	Safety Events (rate)	System Reliability
ADA/Paratransit	0	0	1	0.04	4	0.17	50,000

3. Safety Management Policy

Safety Management Policy Statement

Safety is a primary value at Easy Lift Transportation and a focus of training (both initial and refresher), and managing safety is a core Paratransit function. Easy Lift has developed training for new drivers and refresher training (as part of maintenance). We continuously research to improve training to ensure the safety of our passengers, drivers, and the public. Easy Lift is committed to the following safety objectives:

- Communicating the purpose and benefits of the Safety Management System (SMS) to all staff, managers, supervisors, and employees.
- Providing a culture of open reporting of all safety concerns, ensuring that no action will be taken against any employee who reports a safety concern to the Operations Manager, unless such disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures.
- Providing appropriate management involvement and the necessary resources to establish an effective reporting process that will encourage employees to communicate and report any unsafe work conditions, hazards, or at-risk behavior to the management team.
- Identifying hazardous and unsafe work conditions and analyzing data from the reported safety concerns. (After thoroughly analyzing provided information, the Chief Safety Officer, and Operation Manager will consult with the Driver Trainer in development of processes and procedures to mitigate safety risk to an acceptable level.)
- Establishing safety performance targets that are realistic, measurable, and data driven.
- Continually improving our safety performance through management processes that ensure appropriate safety management action is taken and is effective.



Ernesto Paredes, Executive Director, Easy Lift Transportation

Safety Management Policy Communication

The Chief Safety Officer (CSO), who leads the monthly Drivers' Safety Meeting, introduces monthly selected safety topics, or any current issues that have arisen during the month (from the previous meeting). Mandatory attendance includes all drivers, managers, and supervisors. The Safety Management Policy is also communicated via:

- New Driver and Employee Introduction Training – Safety orientation and practices for all new employees. Training focuses on their Public Transportation Agency Safety Plan roles and responsibilities.
- Workshop and/or Training Sessions – Easy Lift has and will continue to offer workshops with a primary focus of safety practices. In the past contractors have included the National Transportation Institute (Rutgers University).
- Safety Board – Located in the employee lounge. Newsletter and Safety Bulletins are posted, in addition to the monthly employee safety meeting.

Authorities, Accountabilities, and Responsibilities

Accountable Executive

The Executive Director serves as the Accountable Executive for Easy Lift Transportation with the following authorities, accountabilities, and responsibilities under this plan:

- Controls and directs human and capital resources needed to develop and maintain the Agency Safety Plan (ASP) and SMS.
- Designates an adequately trained Chief Safety Officer who is a direct report.
- Ensures that Easy Lift's SMS is effectively implemented.
- Ensures action is taken to address substandard performance in Easy Lift's SMS.
- Assumes ultimate responsibility for carrying out Easy Lift's ASP and SMS.
- Maintains responsibility for carrying out the agency's Transit Asset Management Plan.

Chief Safety Officer or SMS Executive

The Accountable Executive designates the Director of Operations as Easy Lift's Chief Safety Officer. The CSO has the following authorities, accountabilities, and responsibilities under this plan:

- Develops Easy Lift's ASP and SMS policies and procedures.
- Oversees and is responsible for day-to-day implementation and operation of Easy Lift's SMS.
- Manages Easy Lift's Driver Reporting Process.
- Chairs the Easy Lift Safety Committee and coordinates the activities of the committee
 - Establishes and maintains Easy Lift's Safety Event Log to monitor and analyze trends in hazards, occurrences, incidents, and accidents
 - Maintains and distributes minutes of safety committee meetings.
- Discusses with the Accountable Executive on SMS progress and status.
- Identifies substandard performance in Easy Lift's SMS and develops action plans for approval from the Accountable Executive.
- Ensures Easy Lift policies are consistent with Easy Lift's safety objectives.
- Provides Safety Risk Management (SRM) expertise and support for other Easy Lift personnel who conduct and oversee Safety Assurance activities.

Agency Leadership and Executive Management

Agency Leadership and Executive Management also have authorities and responsibilities for day-to-day SMS implementation and operation of Easy Lift's SMS under this plan. Easy Lift's Agency Leadership and Executive Management include:

- Chief Reservationist
- Operations Manager
- Director of Human Resources
- Driver Trainer

The above personnel have the following authorities, accountabilities and responsibilities under this plan:

- Participate as members of Easy Lift's Safety Committee (operations managers and supervisors).
- Complete training on SMS and Easy Lift's ASP elements.
- Oversee day-to-day operations of the SMS in their departments.
- Modify policies consistent with implementation of the SMS, as necessary.
- Provide subject matter expertise to support implementation of the SMS as requested by the Accountable Executive or the Chief Safety Officer, including SRM activities, investigation of safety events, development of safety risk mitigations, and monitoring of mitigation effectiveness.

Key Staff and Activities

Easy Lift uses the Safety Committee, as well as the mandatory monthly Drivers' Meeting, to support its SMS as well as safety programs:

- **Safety Committee:** Any safety hazards reported will be jointly evaluated by the Safety Committee and the Chief Safety Officer during the monthly meeting. The Safety Committee members include the CSO, Operations Managers, Driver Trainer and when required, Chief Reservationist and Eligibility Coordinator who meet monthly to review issues and make recommendations to improve safety.
- **Drivers' Meetings:** A permanent agenda item in all mandatory monthly Drivers' Safety Meetings is dedicated to safety. Safety issues are discussed and documented.

Employee Safety Reporting Program

Easy Lift encourages employees who identify safety concerns in their day-to-day duties to report them to senior management in good faith without fear of retribution. There are many ways employees can report safety conditions:

- Vehicle inspection sheet (issues with vehicle)
- Directly to the Operations Manager via the Incident report (location, passenger, or vehicle issues)
- Report conditions directly to the dispatcher, who will contact the Operations Manager (who will document issue/event) and follow up as necessary).
- Report conditions directly to any supervisor, manager, or director.
- Complete the Safety Evaluation Report (*see below)

Examples of information typically reported include:

- Safety concerns in the operating environment (for example, county or city road conditions or the condition of facilities or vehicles)
- Policies and procedures that are not working as intended (for example, insufficient time to complete pre-trip inspection)
- Events that Safety Officer may not otherwise know about (for example, near misses)
- Information about why a safety event occurred (for example, radio communication challenges).

***Safety Evaluation Report Form (SER):**

All completed SER's are reviewed within 24 hours by the CSO who documents when safety concerns are identified, and supported by the Safety Committee, as necessary, will review and address each employee report, ensuring that hazards and their consequences are appropriately identified and resolved through a Safety Risk Management (SRM) process and that reported deficiencies and non-compliance with rules or procedures are managed through a Safety Assurance process.

Easy Lift's CSO discusses actions taken to address reported safety conditions during the mandatory monthly Drivers' Safety meetings. Additionally, if the reporting employee provided his or her name during the reporting process, the Chief Safety Officer or designee follows up directly with the employee when it is determined whether or not to take action and after any mitigations are implemented.

Easy Lift encourages participation in the Safety Concerns reporting process by protecting employees that report safety conditions in good faith (see Easy Lift Employee Handbook [Section 2] for more information). However, Easy Lift may take disciplinary action if the report involves any of the following:

- Willful participation in illegal activity, such as assault or theft;
- Gross negligence, such as knowingly utilizing heavy equipment for purposes other than intended such that people or property are put at risk; and
- Deliberate or willful disregard of regulations or procedures, such as reporting to work under the influence of controlled substances.

4. Safety Risk Management

Safety Risk Management Process (SRM)

The SRM process is the primary method to ensure the safety of our operations, passengers, employees, vehicles, and facilities. It is a process whereby hazards and their consequences are identified, assessed for potential safety risk, and resolved in a manner acceptable to Easy Lift's leadership. Easy Lift's SRM process allows us to carefully examine what could cause harm and determine whether we have taken sufficient precautions to minimize the harm, or if further mitigations are necessary.

Easy Lift's CSO leads Easy Lift's SRM process, working with Easy Lift's Safety Committee to identify hazards and consequences, assess safety risk of potential consequences, and mitigate safety risk. The results of Easy Lift's SRM process are documented in our Safety Risk Register and referenced materials. Easy Lift's SRM process applies to all elements of our system including our operations and maintenance; facilities and vehicles; and personnel recruitment, training, and supervision. In carrying out the SRM process, Easy Lift uses the following terms:

- **Event** – Any accident, incident, or occurrence.
- **Hazard** – Any real or potential condition that causes injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure belonging to Easy Lift; or damage to environment.
- **Risk** – Composite of predicted severity and likelihood of the potential effect of a hazard.
- **Risk Mitigation** – Method(s) to eliminate or reduce the effects of hazards.
- **Consequence** – An effect of a hazard involving injury, illness, death, or damage to Easy Lift property or damage to the environment.

Safety Hazard Identification

The safety hazard identification process offers Easy Lift the ability to identify hazards and potential consequences in the operation and maintenance of our system. Hazards can be identified through a variety of sources, including:

- Employee Report
- Review of monthly in-vehicle performance data and safety performance targets
- Observations from supervisors
- Maintenance reports
- Comments from customers, passengers, third parties, including Easy Lift's transit insurance and vendors
- Safety Committee, and monthly Drivers' Safety meetings
- Results of training assessments
- Investigations into safety events, incidents, and occurrences
- California Highway Patrol Annual Review

When a safety concern is observed by Easy Lift's management or supervisory personnel, whatever the source, it is reported to Easy Lift's CSO. Procedures for reporting hazards to Easy Lift's CSO are reviewed during the Drivers' Safety Meetings and in the Safety Committee. Easy Lift's CSO also receives employee reports from Employee Reports, customer comments related to safety, and the dispatch memo's. Easy Lift's CSO reviews these sources for hazards and documents them.

Easy Lift's CSO also may enter hazards into the Safety Risk Register based on their review of Easy Lift's operations and maintenance, the results of audits and observations, and information received from FTA and other oversight authorities, as well as the National Transportation Safety Board. Easy Lift's CSO may conduct further analyses of hazards and consequences entered into the Safety Risk Register to collect information and identify additional consequences and to inform which hazards should be prioritized for safety risk assessment. In following up on identified hazards, Easy Lift's CSO may:

- Reach out to the reporting party, if available, to gather all known information about the reported hazard;
- Conduct a walkthrough of the affected area, assessing the possible hazardous condition, generating visual documentation (photographs and/or video), and taking any measurements deemed necessary;
- Conduct interviews with employees in the area to gather potentially relevant information on the reported hazard
- Review any documentation associated with the hazard (records, reports, procedures, inspections, technical documents, etc.);
- Contact other departments that may have association with or have technical knowledge relevant to the hazard that has been reported;
- Review any past reported hazards of a similar nature; and
- Evaluate tasks and/or processes associated with the reported hazard.

Easy Lift's Chief Safety Officer will then prepare an agenda to discuss identified hazards and consequences with the Safety Committee during monthly meetings. This agenda may include additional background on the hazards and consequences, such as the results of trend analyses, vehicle camera footage, vendor documentation, reports and observations.

Any identified hazard that poses a real and immediate threat to life, property, or the environment must immediately be brought to the attention of the Accountable Executive and addressed through the SRM process (with or without the full Safety Committee) for safety risk assessment and mitigation. This means that the CSO believes immediate intervention is necessary to preserve life, prevent major property destruction, or avoid harm to the environment that would constitute a violation of Environmental Protection Agency or any State environmental protection standards. Otherwise, the Safety Committee will prioritize hazards for further SRM activity.

Safety Risk Assessment

Easy Lift assesses safety risk associated with identified safety hazards using its safety risk assessment process. This includes an assessment of the likelihood and severity of the consequences of hazards, including existing mitigations, and prioritizing hazards based on safety risk.

The CSO and Safety Committee assess prioritized hazards using Easy Lift's Safety Risk Matrix. This matrix expresses assessed risk as a combination of one severity category and one likelihood level, also referred to as a *hazard rating*. For example, a risk may be assessed as "1A" or the combination of a Catastrophic (1) severity category and a Frequent (A) probability level. This matrix also categorizes combined risks into levels, High, Medium, or Low, based on the likelihood of occurrence and severity of the outcome. Using a categorization of High, Medium, or Low allows for hazards to be prioritized for mitigation based on their associated safety risk. For purposes of accepting risk:

- "High" hazard ratings will be considered unacceptable and require action from Easy Lift to mitigate the safety risk
- "Medium" hazard ratings will be considered undesirable and require Easy Lift's Safety Committee to make a decision regarding their acceptability
- "Low" hazard ratings may be accepted by the Chief Safety Officer without additional review.

The Chief Safety Officer schedules safety risk assessment activities on the Safety Committee agenda and prepares a Safety Risk Assessment Package. This package is distributed at least one week in advance of the Safety Committee meeting. During the meeting, the CSO reviews the hazard and its consequence(s) and reviews available information distributed in the Safety Risk Assessment Package on severity and likelihood. The CSO may request support from members of the Safety Committee in obtaining additional information to support the safety risk assessment.

Once sufficient information has been obtained, the CSO will facilitate completion of relevant sections of the Safety Risk Register, using the Easy Lift Safety Risk Assessment Matrix, with the Safety Committee. The CSO will document the Safety Committee's safety risk assessment, including hazard rating and mitigation options for each assessed safety hazard in the Safety Risk Register. Safety Committee agendas, Safety Risk Assessment Packages, additional information collection, and completed Safety Risk Register sections will be maintained on file by the CSO for a period of three years from the date of generation.

Safety Risk Mitigation

Easy Lift's Accountable Executive and Chief Safety Officer review current methods of safety risk mitigation and establish methods or procedures to mitigate or eliminate safety risk associated with specific hazards based on recommendations from the Safety Committee. Easy Lift can reduce safety risk by reducing the likelihood and/or severity of potential consequences of hazards. Prioritization of safety risk mitigations is based on the results of safety risk assessments.

Easy Lift's CSO tracks and updates safety risk mitigation information in the Safety Risk Register and makes the Register available to the Safety Committee during monthly meetings and to Easy Lift staff upon request. In the Safety Risk Register, Easy Lift's CSO will also document any specific measures or activities, such as reviews, observations, or audits, that will be conducted to monitor the effectiveness of mitigations once implemented.

5. Safety Assurance

Through our Safety Assurance process, Easy Lift:

- Evaluates our compliance with operations and maintenance procedures to determine whether our existing rules and procedures are sufficient to control our safety risk;
- Assesses the effectiveness of safety risk mitigations to make sure the mitigations are appropriate and are implemented as intended;
- Investigates safety events to identify causal factors; and
- Analyzes information from safety reporting, including data about safety failures, defects, or conditions.

Safety Performance Monitoring and Measurement

Easy Lift has processes in place to monitor its entire transit system for compliance with operations and maintenance procedures, including:

- Safety audits
- Informal inspections
- Regular review of onboard camera footage to assess drivers and specific incidents
- Safety surveys
- Employee Safety Reporting Program
- Investigation of safety occurrences
- Safety review prior to the launch or modification of any facet of service
- Daily data gathering and monitoring of data related to the delivery of service, and
- Regular vehicle inspections and preventative maintenance

Results from the above processes are compared against recent performance trends quarterly and annually by the CSO to determine where action needs to be taken. The CSO enters any identified non-compliant or ineffective activities, including mitigations, back into the SRM process for reevaluation by the Safety Committee.

Easy Lift monitors safety risk mitigations to determine if they have been implemented and are effective, appropriate, and working as intended. The CSO maintains a list of safety risk mitigations in the SRR. The mechanism for monitoring safety risk mitigations varies depending on the mitigation. The CSO establishes one or more mechanisms for monitoring safety risk mitigations as part of the mitigation implementation process and assigns monitoring activities to the appropriate director, manager, or supervisor. These monitoring mechanisms may include tracking a specific metric on daily, weekly,

or monthly logs or reports; conducting job performance observations; or other activities. The CSO will endeavor to make use of existing processes and activities before assigning new information collection activities.

Easy Lift's CSO and Safety Committee review the performance of individual safety risk mitigations during bimonthly Safety Committee meetings, based on the reporting schedule determined for each mitigation, and determine if a specific safety risk mitigation is not implemented or performing as intended. If the mitigation is not implemented or performing as intended, the Safety Committee will propose a course of action to modify the mitigation or take other action to manage the safety risk. The Chief Safety Officer will approve or modify this proposed course of action and oversee its execution.

Easy Lift's CSO and Safety Committee also monitor Easy Lift's operations on a large scale to identify mitigations that may be ineffective, inappropriate, or not implemented as intended by:

- Reviewing results from accident, incident, and occurrence investigations;
- Monitoring employee safety reporting;
- Reviewing results of internal safety audits and inspections; and
- Analyzing operational and safety data to identify emerging safety concerns.

The Chief Safety Officer works with the Safety Committee and Accountable Executive to carry out and document all monitoring activities.

Easy Lift maintains documented procedures for conducting safety investigations of events (accidents, incidents, and occurrences) to find contributing factors and review the existing mitigations in place at the time of the event (see Easy Lift Safety Event Investigation Procedures Manual for specific procedures for conducting safety investigations). These procedures also reflect all traffic safety reporting and investigation requirements established by California Department of Motor Vehicles.

The CSO maintains all documentation of Easy Lift's investigation policies, processes, forms, checklists, activities, and results. As detailed in Easy Lift's procedures, an investigation report is prepared and sent to the CSO for review by the Safety Committee and in addition will be reviewed by the Safety Committee for the following:

- The accident was preventable or non-preventable
- Personnel require discipline or retraining
- The causal factor(s) indicate(s) that a safety hazard contributed to or was present during the event
- The accident appears to involve underlying organizational causal factors beyond just individual employee behavior.

The CSO and Safety Committee routinely review safety data captured in employee safety reports, safety meeting minutes, customer complaints, and other safety communication channels. When necessary, the CSO and Safety Committee ensure that the concerns are investigated or analyzed through Easy Lift's SRM process. Together they also review internal and external reviews, including audits and assessments, with findings concerning Easy Lift's safety performance, compliance with operations and maintenance procedures, or the effectiveness of safety risk mitigations.

6. Safety Promotion

Competencies and Training

Easy Lift dedicates resources to conduct a comprehensive safety training program, as well as training on SMS roles and responsibilities. The scope of the safety training, including annual refresher training, is appropriate to each employee's individual safety-related job responsibilities and their role in the SMS.

Easy Lift's comprehensive safety training program applies to all Easy Lift employees directly responsible for safety, including:

- Paratransit vehicle operators

- Reservationists
- Maintenance technicians
- Agency Leadership and Executive Management
- Chief Safety Officer
- Accountable Executive.

Basic training requirements for Easy Lift employees, including frequencies and refresher training, are documented in Easy Lift's Safety Training Matrix.

Operations safety-related skill training includes the following:

- Classroom and hands-on skill training - New-hire Paratransit drivers
- Refresher training - Paratransit vehicle operator
- Retraining (recertification or return to work) - Paratransit drivers
- On-the-job training - reservationists
- Accident investigation - operations supervisors and managers

Vehicle maintenance safety-related skill training includes the following:

- Vehicle maintenance pre-checkout skills training - technician
- Yearly skill training - vehicle maintenance supervisors provided by certified mechanic
- Accident investigation training - Driver Trainer

Communicating safety and safety performance information throughout the agency:

Easy Lift communicates information on safety and safety performance at the mandatory Drivers' Safety Meeting and posting information in the employee lounge. Easy Lift also has a permanent agenda item in all monthly Drivers' Safety Meetings dedicated to safety. Information typically conveyed during these meetings includes safety performance statistics, lessons learned from recent occurrences, upcoming events that may impact Easy Lift's service or safety performance, and updates regarding SMS implementation. Easy Lift also requests information from drivers during these meetings, which is recorded in meeting minutes. Finally, Easy Lift's Director of Human Resources posts safety bulletins and flyers on the bulletin boards located in the employee break rooms, advertising safety messages and promoting awareness of safety issues.

Communicating information on hazards and safety risks relevant to employees' roles and responsibilities throughout the agency:

As part of new-hire training, Easy Lift distributes safety policies and procedures, included in the Easy Lift Employee Handbook, to all employees. Easy Lift provides training on these policies and procedures and discusses them during safety talks between supervisors and vehicle operators. For newly emerging issues or safety events, Easy Lift's Chief Safety Officer issues bulletins or messages to employees that are reinforced by supervisors in one-on-one or group discussions with employees.

Informing employees of safety actions taken in response to reports submitted through the Employee Report:

Easy Lift provides targeted communications to inform employees of safety actions taken in response to reports submitted through an Employee Report, including handouts and flyers, safety talks, updates to bulletin boards, and one-on-one discussions between employees and supervisors.

7. Definitions of Terms Used in the Safety Plan

Easy Lift Transportation incorporates all of FTA's definitions that are in 49 CFR § 673.5 of the Public Transportation Agency Safety Plan regulation.

- **Accident** means an Event that involves any of the following: A loss of life; a report of a serious injury to a person; a collision of public transportation vehicles; a runaway train; an evacuation for life safety reasons; or any derailment of a rail transit vehicle, at any location, at any time, whatever the cause.
- **Accountable Executive** means a single, identifiable person who has ultimate responsibility for carrying out the Public Transportation Agency Safety Plan of a public transportation agency; responsibility for carrying out the agency's Transit Asset Management Plan; and control or direction over the human and capital resources needed to develop and maintain both the agency's Public Transportation Agency Safety Plan, in accordance with 49 U.S.C. 5329(d), and the agency's Transit Asset Management Plan, in accordance with 49 U.S.C. 5326.
- **Event** means any Accident, Incident, or Occurrence.
- **Hazard** means any real or potential condition that can cause injury, illness, or death; damage to or loss of the facilities, equipment, rolling stock, or infrastructure of a public transportation system; or if it causes damage to the environment.
- **Incident** means an event that involves any of the following: a personal injury that is not a serious injury; one or more injuries requiring medical transport; or damage to facilities, equipment, rolling stock, or infrastructure that disrupts the operations of a transit agency.
- **Investigation** means the process of determining the causal and contributing factors of an accident, incident, or hazard, for the purpose of preventing recurrence and mitigating risk.
- **Occurrence** means an Event without any personal injury in which any damage to facilities, equipment, rolling stock, or infrastructure does not disrupt the operations of a transit agency.
- **Performance target** means a quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the FTA.
- **Risk** means the composite of predicted severity and likelihood of the potential effect of a hazard.
- **Risk mitigation** means a method or methods to eliminate or reduce the effects of hazards.
- **Safety Assurance** means processes within a transit agency's Safety Management System that function to ensure the implementation and effectiveness of safety risk mitigation, and to ensure that the transit agency meets or exceeds its safety objectives through the collection, analysis, and assessment of information.
- **Safety Management Policy** means a transit agency's documented commitment to safety, which defines the transit agency's safety objectives and the accountabilities and responsibilities of its employees in regard to safety.
- **Safety Management System** means the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency's safety risk mitigation. SMS includes systematic procedures, practices, and policies for managing risks and hazards.
- **Safety performance target** means a performance target related to safety management activities.
- **Safety Promotion** means a combination of training and communication of safety information to support SMS as applied to the transit agency's public transportation system.
- **Safety risk assessment** means the formal activity whereby a transit agency determines Safety Risk Management priorities by establishing the significance or value of its safety risks.
- **Safety Risk Management** means a process within a transit agency's Agency Safety Plan for identifying hazards and analyzing, assessing, and mitigating safety risk.
- **Serious injury** means any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date when the injury was received; (2) Results in a fracture of any bone (except simple fractures of fingers, toes, or noses); (3) Causes severe hemorrhages, nerve, muscle, or tendon damage; (4) Involves any internal organ; or (5) Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

8. Commonly Used Acronyms

- **ADA** - American's with Disabilities Act of 1990
- **ASP** - Agency Safety Plan
- **CSO** - Chief Safety Officer
- **SER** - Safety Evaluation Report
- **SMS** - Safety Management System
- **SRM** - Safety Risk Management
- **SRR** - Safety Risk Register

9. Additional Information

Easy Lift maintains documentation related to the implementation of its SMS; the programs, policies, and procedures used to carry out this ASP; and the results from its SMS processes and activities for three years after creation. They will be available to the FTA or other Federal or state oversight entity upon request. All documentation can be found on the G-drive, under "Safety Plan Additional Information".

- Driver Introduction Training
- Safety Videos
- Safety Event Log-Excel Sheet
- Inspection Sheet
- Incident/Accident Reports
- Safety Evaluation Report – Standardized Driver Training Checklist
- Employee Report – Driver Field Review
- Passenger Spot Check
- Drug and Alcohol Testing Program
- Drug Free Workplace Policy
- Compliments/Complaints Database
- Drivers' Safety Meetings
- Performance Evaluation
- Emergency Response Plan
- Injury and Illness Prevention Plan
- Technology used: Novus, ClearPathGPS, and two-way radios



BOARD OF DIRECTORS REPORT

MEETING DATE: NOVEMBER 3, 2020

AGENDA ITEM: #9

DEPARTMENT: HUMAN RESOURCES

TYPE: ACTION ITEM

PREPARED BY: MARY GREGG

Signature

REVIEWED BY: GENERAL MANAGER

Signature

SUBJECT: RENEWAL OF STAFF HEALTH INSURANCE EFFECTIVE JANUARY 1, 2021

RECOMMENDATION:

Staff recommends the Board of Directors authorize the General Manager to renew Staff health insurance policies for the plan year effective January 1, 2021. Insurance coverage under these policies is for MTD Staff employees not represented by a Collective Bargaining Agreement.

DISCUSSION:

Staff dental and life insurance provider is Guardian through Brown & Brown Insurance Services. Staff medical insurance provider is Blue Shield HMO, and Kaiser Permanente HMO as an option for Ventura County residents. Alliant Insurance Services, Inc. is the broker, through Special District Risk Management Authority (SDRMA). SDRMA in conjunction with Public Risk Innovation, Solutions and Management (PRISM) provides a Health Benefits Program to public agencies with competitive rates for the small group market, designed for flexibility to meet the needs of its members. PRISM was formerly known as California State Association of Counties Excess Insurance Authority (CSAC-EIA). A rebranding was completed in 2020 to reflect the evolution of the organization over 40 years serving its member.

BUDGET/FINANCIAL:

The 2021 budget estimated a 5% increase for health insurance, based on below market trends seen in previous years offered by SDRMA and rate passes offered by Guardian. Quotes for the 2021 plan year came in above budget for Medical at 10.6%. Renewal rates for Dental + Life came in below budget with a flat renewal, effectively a 0% increase.

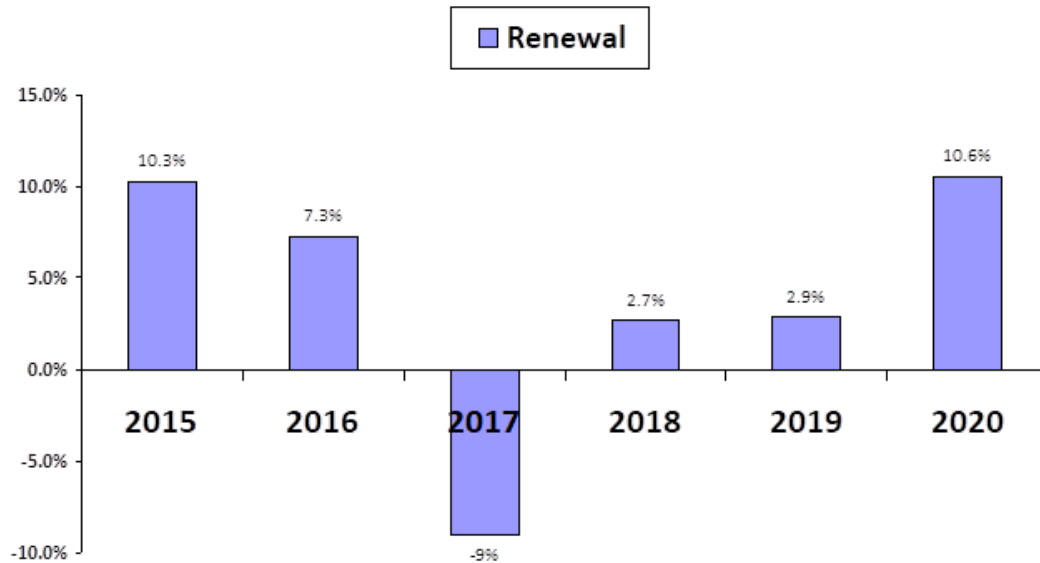
DENTAL + LIFE

Brown & Brown Insurance Services negotiated a one year rate pass with Guardian for 2021, as was also the case for the two preceding plan years. Guardian has an ongoing commitment to MTD to hold rates flat when possible, and MTD has only experienced one rate increase since 2011. MTD provides \$50,000 Basic Term Life Guarantee Issue coverage for all eligible full time Staff employees also through the Guardian plan, which includes Accidental Death and Dismemberment (AD&D) coverage.

BOARD OF DIRECTORS REPORT

MEDICAL

The Small Group Pool received an overall 10.6% increase for 2021, reflective of current trends in the market that are showing substantial upward movement due to the current climate of COVID-19. The last time that MTD was affected by a sharp increase was in 2015, as shown in the graph below, which was a result of rising health costs, fees, and taxes associated with the rollout of the Affordable Care Act.



To: MTD Board of Directors
From: Jerry Estrada, General Manager
Date: November 3, 2020
Subject: General Manager's Report

Operations, Fleet & Facilities

Planning staff have prepared scenarios for the next driver bid to start on November 30. This bid runs through the end of February, and has integrated the announced Santa Barbara Unified School District bell schedule to restart booster services when junior high and high schools are expected to return in a hybrid fashion on January 19, 2021.

On Wednesday, October 28, Night Supervisors will be participating in a one-day online Leadership Management class. In this fast-paced, interactive workshop, participants will not only learn what the five key Leadership Practices are but also how to develop the skills to build a high-performing team.

Staff entered into negotiations with the finalist of the Fleet Renewal Campaign RFP and requested the firm's Best and Final Offer (BAFO). If Staff is able to negotiate fair and reasonable pricing with the vendor, a recommendation for award will be brought to the Board.

Staff was informed that MTD's three VW Mitigation Trust grant applications are under review. If awarded, MTD could receive up to \$180,000 per bus for three of the four New Flyer battery-electric buses MTD is in the process of procuring.

Staff will be participating in a Pre-Production Meeting on October 2 with New Flyer's production team to make final selections on the 40-ft. electric bus specifications.

Administration

MTD's campaign to share the agency's participation in APTA's Health and Safety Commitments Program launched the week of October 20, and included the unveiling of a new web page (www.sbmtd.gov/covid19) with details about MTD's health and safety protocols. Social media posts, interior and exterior bus ads, and a press release are working to share information about MTD's Commitment.

This summer, MTD staff participated in the preparation of a grant application for a new program through the California Air Resources Board (ARB) called the Sustainable Transportation Equity Project (STEP). This is the first year of solicitation for the program, and it had two application tracks: Planning and Capacity Building, and Project Implementation. MTD joined a group of 13 local agencies and non-profits, led by the Isla Vista Community Services District (IVCSD) in crafting a proposal for an Isla Vista Community Mobility Plan, seeking Planning and Capacity Building funds to craft said plan. This planning process will take an equity-based, community-led, multimodal approach to addressing Isla Vista's unique mobility challenges. MTD received word

on October 27 that the grant proposal has been selected for funding in the full requested amount of \$182,158.

Submittals in response to the “Combined Request for Qualifications/Request for Proposals: Development of MTD Calle Real Property” were due Friday, October 23, at 2:00 P.M. MTD received three submittals, and has begun the initial reviews of the documents.

Staff forwarded the Close-Out Report for MTD’s Low Carbon Transit Operations Program (LCTOP) FY 2016-17 three-year Marketing Plan project to Caltrans for their review.

Risk has reviewed the final renewal quotes secured by MTD’s insurance broker, Robert Fatch of Brown & Brown Insurance, for three separate policies renewing for the policy period January 3, 2021 – January 3, 2022: Directors and Officers (D&O) with Indian Harbor Insurance Company, Employment Practices Liability (EPL) with Atlantic Specialty Insurance, and Fiduciary with Travelers Casualty. All carriers have an A.M. Best rating of Excellent or Superior. In the D&O and EPL markets in California, claims experience (frequency and severity), in conjunction with the wild fires and COVID-19 losses, are driving sharp increases of between 25% to 45%. Renewal quotes for MTD’s policies reflect this trend, and are not indicative of any claims experience specific to MTD. The D&O renewal is an approximate 27% increase and EPL a 10% increase over the expiring policies. The increase in the Fiduciary policy of 12% (approximately \$500 in total) is solely the result of the growth in plan assets under your employee benefit plans. MTD’s General Manager intends to approve the renewals for Risk to proceed with authorizing Brown & Brown to bind coverage.

Evaluations of the proposals for the workers’ compensation third-party administrator (TPA) services have been completed. The result was the determination of the “competitive range” composed of the three highest ranked bidders. Following reference checks and interviews with the remaining firms, the TPA offering the best value to MTD will be selected by the committee. A recommendation to award a three-year contract to such TPA will be brought to the board thereafter.

Contractor work on the Transit Center by Newton Construction Management is essentially complete. Most recently, the restoration work to the City’s parking lot #3 and surrounding area was finished. There are a couple outstanding matters that still need to be resolved but these are relatively minor in nature. Because project completion was delayed several months, last week MTD reached an equitable agreement for the extended overhead costs incurred during such period. Formal project completion and contract closeout is imminent.