

**OPERATIONS COMMITTEE
MAY 18, 2006****SUBJECT: LUMBAR BACK SUPPORTS****ACTION: AUTHORITY TO NEGOTIATE AND AWARD****RECOMMENDATION**

- A. The Board finds that there is only a single source of procurement for lumbar back supports and purchase is for the sole purpose of duplicating the lumbar back supports already in use.
- B. The Board hereby authorizes purchase of the lumbar back supports pursuant to Public Utilities Code section 130237.

Requires Two-Thirds Vote

- C. Authorize the Chief Executive Officer to award an indefinite quantity, indefinite delivery contract to Integral Orthopedics, Inc. for an estimated quantity of 3,500 lumbar supports for an amount not-to-exceed \$380,000 inclusive of sales tax.

ISSUE

In 2004, approximately 60% of all OSHA recordable injuries and illnesses at Metro San Gabriel Valley Sector (SGV-Sector) transportation divisions were related to Muscular Skeletal Disorders (MSD). Each incident was investigated, seeking root cause and effective corrective action. In almost every case, the root cause of injury was found to be related to lack of ergonomic awareness, seat adjustment limitations (non-adjustable seat pan depth and lumbar support height), obesity, accumulated trauma, overtime, or pre-existing conditions (fusion surgery, bulging disc, etc.).

Professional safety and health studies, including an OSHA funded study on bus operator seating and design (Oregon OSHA, 2000) support a conclusion that transit bus operators report a decrease in ergonomic discomfort associated with in-service operation with the use of a personal lumbar back support.

During 2004, the SGV-Sector Safety Specialist attended the National Ergonomic Conference and Exposition in Las Vegas for the purpose of benchmarking industry best practices and to identify new innovative products which might assist Metro to reduce bus operator

ergonomic injuries. Several back supports were examined from available manufacturers to determine their suitability on Metro buses and an internet search was done to identify other candidates. Four back supports were identified as suitable for testing on Metro buses (i.e. they fit Metro driver's seat configurations):

1. Moller Orthopedic Pro™
2. McCarty's Sacro Ease Keri Cush
3. McCarty's Sacro Back Rest and Seat Support
4. OBUS FORME® Backrest Support

An initial prototype study was conducted in which samples of each type of support were objectively tested utilizing 30-40 different Metro bus operator volunteers on different Metro bus configurations. Each support was evaluated for fit, comfort, ergonomic benefit, and operator feedback was encouraged. Operator feedback on the Sacro Ease products was mixed as over 50% reported an increase in discomfort or neutral results. Many operators complained about the firmness of the cushion and the overall size and weight of the product. Operator feedback on the OBUS FORME Support was that it was too soft and it did not provide the operator enough support. Additionally, the product wraps around the operators waist and does not accommodate all body types. Operator feedback on the Moller Orthopedic Pro™ was overwhelming positive with more than 70% of our operators reporting a decrease in ergonomic related discomfort.

SGV-Sector conducted a more extensive pilot program on the Moller Pro lumbar back support between July 1, 2005 and September 30, 2005 to confirm the results. Metro SGV distributed prototype samples to 165 bus operator volunteers most of who continue to use the supports.

The pilot study produced similar results, with approximately 90% of participating Metro bus operators reporting a reduction in ergonomic discomfort, as measured through a series of six pre/post-use wellness surveys, using the Moller Pro Lumbar back support.

Based on the in service testing done on the candidate supports and the more extensive pilot program conducted by the San Gabriel Valley Service Sector, only the Moller Orthopedic Pro™ lumbar supports offers the orthopedic benefits likely to reduce the level of ergonomic injury to Metro bus drivers. Purchase of additional quantities is for the sole purpose of expanding the use of the back supports to all Bus Divisions by duplicating units already in service that have proven to perform suitably.

POLICY IMPLICATIONS

The results of this study suggest that the use of this personal protective equipment (PPE) is beneficial in reducing bus operator ergonomic injuries and the attendant Workers Compensation and lost time costs. In addition, reducing bus operator ergonomic discomfort may have an unexpected secondary effect, reducing bus collisions and improving overall

public safety. Many participants reported higher levels of mental alertness, reduced fatigue, less frequent headaches, and higher energy levels

ALTERNATIVES CONSIDERED

The first alternative considered is to take no action and discontinue the program. Since the SGV pilot program has proven personal protective equipment reduces operator discomfort and improves ergonomic conditions, discontinuing the program is not recommended as it will likely increase Metro's workers compensation and lost time cost.

In FY 04 approximately 60% of all OSHA recordable injuries and illnesses at Metro San Gabriel Valley Sector Transportation divisions were related to Muscular Skeletal Disorders, after 3 months with the Moller Pro lumbar back support pilot program it reduced to 30%.

A second alternative it to implement another ergonomic improvement by adopting the bus seat replacement plan that was removed from the FY 05 Budget. That plan proposed replacing the Bostrom seat with a more ergonomically superior USSC Q90 and a Recaro seat on the TMC bus fleet. The cost of that program was approximately \$2 million dollars and was proposed to address operator complaints and address operator ergonomic discomfort.

A third alternative would be to compete this procurement. Since the initial studies and pilot project already evaluated different products and identified the most effective in terms of reducing operators' ergonomic discomfort, this option is not recommended since it would further delay the implementation of this program.

FINANCIAL IMPACT

Funds for this action are included in the FY07 budget under Cost Center's -3301, 3302, 3303, 3304, 3305 Account Code 50445 under Project 300011 Moller Back Supports. Since this is a multi-year contract, the cost center manager and Deputy Chief Executive Officer will be accountable for budgeting the cost in future years, including any option exercised.

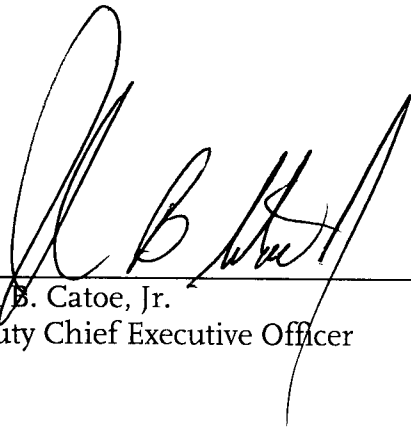
NEXT STEPS

The Contracting Officer will conduct negotiations with Integral Orthopedics, Inc. to arrive at a fair and reasonable price and terms for a multi-year requirements type contract to supply lumbar back supports.

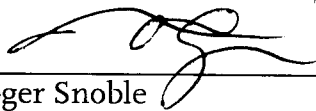
ATTACHMENT(S)

- A. Procurement Summary
- A-1. Procurement History
- A-2. List of Subcontractors
- B. SGV Moller Pilot Study Executive Summary

Prepared by: Vijay Khawani, Director Corporate Safety
Robert Torres, Corporate Health/Safety Manager



John B. Catoe, Jr.
Deputy Chief Executive Officer



Roger Snoble
Chief Executive Officer

**BOARD REPORT ATTACHMENT A
PROCUREMENT SUMMARY**

LUMBAR BACK SUPPORTS

1.	Contract Number: OP68100177		
2.	Recommended Vendor: Integral Orthopedics, Inc.		
3.	Cost/Price Analysis Information:		
	A. Bid/Proposed Price: \$380,000 (NTE)	Recommended Price: \$380,000 (NTE)	
	B. Details of Significant Variances are in Attachment A-1.D		
4.	Contract Type: Indefinite Quantity Indefinite Delivery		
5.	Procurement Dates:		
	A. Issued: N/A		
	B. Advertised: N/A		
	C. Pre-proposal Conference: N/A		
	D. Proposals Due: N/A		
	E. Pre-Qualification Completed: N/A – Only one source of supply		
	F. Conflict of Interest Form Submitted to Ethics: 5/3/06		
6.	Small Business Participation:		
	A. Bid/Proposal Goal: 0%	Date Small Business Evaluation Completed:	
	B. Small Business Commitment: 0% Details are in Attachment A-2		
7.	Invitation for Bid/Request for Proposal Data:		
	Notifications Sent: N/A	Bids/Proposals Picked up: N/A	Bids/Proposals Received: N/A
8.	Evaluation Information:		
	A. Bidders/Proposers Names: Integral Orthopedics, Inc.	<u>Bid/Proposal Amount:</u> \$380,000 (NTE)	<u>Best and Final Offer Amount:</u> \$380,000 (NTE)
	B. Evaluation Methodology: See body of Report Details are in Attachment A-1.C		
9.	Protest Information:		
	A. Protest Period End Date: May 16, 2006		
	B. Protest Receipt Date: N/A		
	C. Disposition of Protest Date:		
10.	Contract Administrator: David Vila	Telephone Number: (213) 922-1028	
11.	Project Manager: Robert Torres	Telephone Number: (213) 922-4962	

**BOARD REPORT ATTACHMENT A-1
PROCUREMENT HISTORY**

LUMBAR BACK SUPPORTS

A. Background on Contractor

Integral Orthopedics, Inc. is a global company in the business of developing and manufacturing consumer products that are engineered to enhance people's lives by delivering comfort and support to the human body.

The company was formed in 1980 and in 2002, it acquired Moller Back Support Systems.

B. Procurement Background

This recommendation requests the Board to authorize the CEO to negotiate and enter into a contract with Integral Orthopedics, Inc. to supply Moller Back Supports on an as needed basis. Delivery orders will be placed by Operations staff in various Service Sectors at pre-established unit prices.

C. Evaluation of Proposals

Details on the testing which led to the selection of the Moller Back Support are included in the body of the Board Report. The products are standard commercial items sold in substantial quantities to the public and various businesses and governmental agencies.

D. Cost/Price Analysis Explanation of Variances

The price Metro will pay will be no greater than that paid by Integral Orthopedics' most favored customer(s) for orders of similar size when placed under similar terms and market conditions.

**BOARD REPORT ATTACHMENT A-2
LIST OF SUBCONTRACTORS**

LUMBAR BACK SUPPORTS

PRIME CONTRACTOR – Integral Orthopedics, Inc.

Small Business Commitment

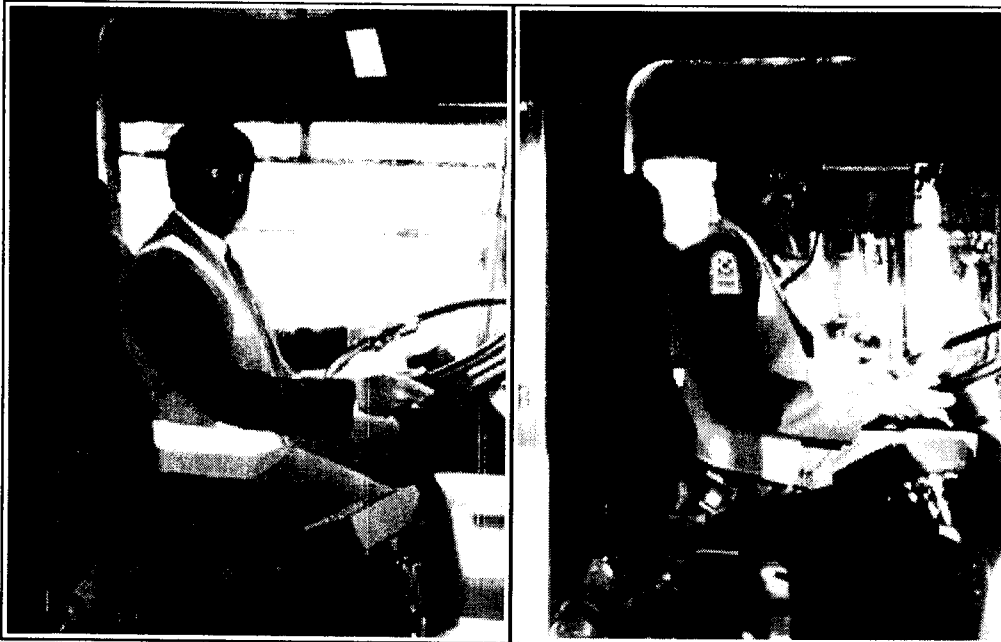
Other Subcontractors

N/A

N/A

Total Commitment 0%

Moller Pro Lumbar Back Support Pilot Study
METRO San Gabriel Valley
June 2005-November 2005



continued on next page

Executive Summary:

Ergonomic evaluation of the overall effectiveness of the Moller Pro lumbar back support in reducing the frequency and severity of bus operator reported occupational injuries, illnesses, fatigue, and associated ergonomic discomfort.

Los Angeles County Metropolitan Transit Authority author:

Scott H. Boim, CSP

Senior Safety Specialist, Metro Bus SGV

Introduction and Background:

In 2004, approximately 60% of all OSHA recordable injuries and illnesses at Metro SGV-S Transportation divisions were related to Muscular Skeletal Disorders (MSD). Each incident was investigated, seeking root cause and effective corrective action. In almost every case, the root cause of injury was found to be related to lack of ergonomic awareness, seat adjustment limitations (non-adjustable seat pan depth and lumbar support height), obesity, accumulated trauma, overtime, or pre-existing conditions (fusion surgery, bulging disc, etc.).

Professional safety and health studies, including an OSHA funded study on bus operator seating and design (Oregon OSHA, 2000) support a conclusion that transit bus operators report a decrease in ergonomic discomfort associated with in-service operation with the use of a personal lumbar back support. The pilot study conducted at Los Angeles Metro SGV-S reproduced similar results, with approximately 90% of participating Metro bus operators reporting a reduction in ergonomic discomfort, as measured through a series of six pre/post-use wellness surveys, using the Moller Pro Lumbar back support.

Scope, Methodology, and Data Collection:

The Metro SGV-S Moller Pro lumbar back support pilot program began on July 1, 2005 and concluded on September 30, 2005. Metro SGV distributed a number of samples provide by Moller and purchased 150 supports at a promotional unit price of just under \$60, a total cost of approximately \$9,000. A total of 165 bus operator volunteers participated in the pilot study; 55 from Division-3 and 110 from Division-9. This pilot study was conducted at Metro-SGV during regular revenue service operations, utilizing all current Metro bus configurations (1200, 4400, 6700, and 7000 series) and operator seats (Bostrom and USSC). Volunteers were required to complete three wellness surveys that measured the severity and frequency of common bus operator ergonomic concerns. Surveys were collected on different workdays to establish a wellness baseline for each volunteer (APPENDIX A). After collecting all three initial baseline surveys, employees were measured, fitted, and issued a personalized Moller Pro lumbar back support at no cost to the operator. All participants also received 20 minutes of personalized one-on-one ergonomic training with the SGV-S Senior Safety Specialist and/or Moller team member Dr. Tracy Newkirk. Operators were instructed how to safely use this new personal protective device and correctly adjust their bus seat. Additionally, operators received advanced training on bus operator ergonomics.

After becoming familiar with the safe use of the Moller lumbar back support (usually two to five days), operators were required to complete three identical post-use wellness surveys. A total of 98 operators completed all six surveys as requested; survey responses were inputted and tracked into an Excel spreadsheet by the Metro SGV-S Senior Safety Specialist and Administrative Manager. During the pilot period, less than 5% of the original 165 volunteers returned their back support, reporting neutral or negative results. Additionally, many operators included candid comments and positive feedback with their post-use surveys and have been included with the deliverables.

Field Observation and Feedback (FOF):

Throughout this pilot study, the sector senior safety specialist worked closely with the bus operator volunteers, often meeting with them during split time, pull-out, or in revenue service. The objective was to encourage the safe use of this product, assist operators on completing the wellness surveys, and to pro-actively respond to their ergonomic concerns. Ergonomic awareness training was essential to the success of this pilot study. Secondary objectives were to observe the utilization of this product and to evaluate its effectiveness in a dynamic environment -- navigating the streets of downtown Los Angeles and the San Gabriel Valley in revenue service.

Lessons Learned:

- Most bus operators (>90%) reported a significant decrease in ergonomic discomfort while participating in this pilot study.
- The average bus operator participant in this study was 54 years old.
- Prior to the study, many operators did not know how to correctly adjust their bus seat.
- Seatbelt use dramatically increased the effectiveness of the Moller Pro lumbar back support.
- Operators under 5'5" experienced the greatest ergonomic benefits. This device installs onto the seatback cushion, effectively shortening the depth of the seat pan, thus providing a needed adjustment for shorter bus operators. Current Metro bus seats do not have an adjustment for seat pan depth. The Moller Pro lumbar back support accommodates all operators 5'0"-6'6".
- Most operators use this device daily.
- No manufacturing defects were detected during the pilot study.

Professional Recommendations:

The results of this study suggest that the use of this personal protective equipment (PPE) is beneficial to pro-actively reducing bus operator ergonomic injuries. Serious consideration should be given to providing this equipment to all Metro bus operators, on a voluntary basis, as recommended PPE. Based on the premise that 80% of our nearly 4,400 operators would choose to participate, we could expect initial implementation to cost in the \$200,000 - \$250,000 range. For the cost of one significant ergonomic injury, Metro can equip an entire bus division. This pilot study suggests that making the Moller Pro lumbar back support available to our operators may be considered a Metro Bus "**Best Practice.**"

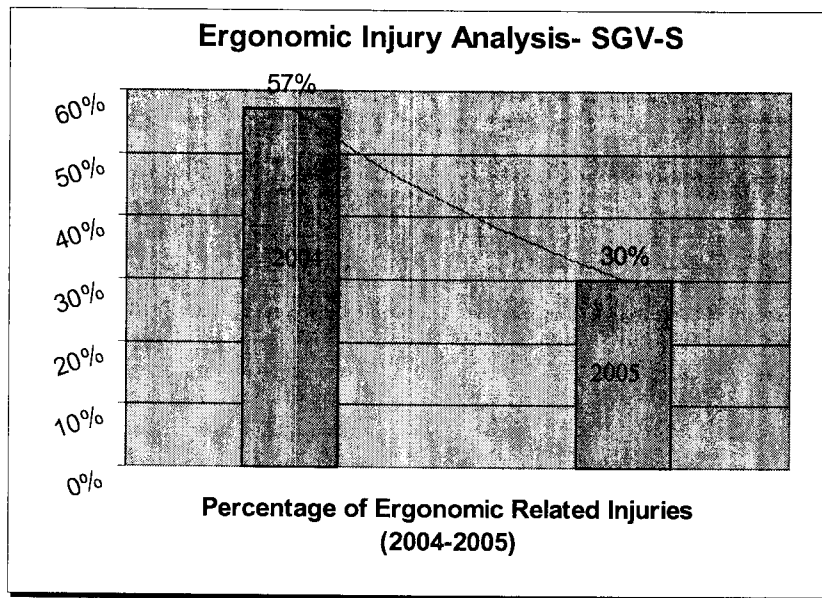
Finally, reducing bus operator ergonomic discomfort may have produced an unexpected secondary effect, reducing bus collisions and improving overall public safety. Many participants reported higher levels of mental alertness, reduced fatigue, less frequent headaches, and higher energy levels (APPENDIX B).

Data Collection and Tracking Results:

The KPIs identified and tracked during this pilot study included:

1. OSHA LOG 300 trending analysis (2004-2005)
 --Ergonomic related injury analysis comparison
2. Operator candid comments and feedback (see APPENDIX B)
3. Data analysis and trending from wellness survey data (see APPENDIX C)

SGV-S OSHA LOG 300 Injury/Illness Trending Analyses:



Data Analysis and Trending from Wellness Surveys:

Body Part	Percentage Reduction in Discomfort Levels
Head and Neck	27%
Shoulders	25%
Upper Back	27%
Lower Back	27%
Buttocks and Hamstring	31%
Feet and Ankles	26%
Headaches	26%
Fatigue	19%

Bus Operators Wellness Survey

Name _____ ID Number: _____ Date: _____

Operators,

Please respond to the following survey questions by estimating your level of wellness and/or discomfort and selecting a corresponding number. Remember to provide both an estimate of frequency (how often per day) and severity (intensity of discomfort) for each survey question.

Frequency: 1=Never 3=Rarely 5=Occasionally 8=Frequently 10=Continuous
 Severity: 1=None 3=Minimal 5=Moderate 8=Significant 10=Intolerable

*Please circle your responses

1. Head/Neck

Frequency: 1 2 3 4 5 6 7 8 9 10
 Severity: 1 2 3 4 5 6 7 8 9 10

2. Shoulders

Frequency: 1 2 3 4 5 6 7 8 9 10
 Severity: 1 2 3 4 5 6 7 8 9 10

3. Upper Back

Frequency: 1 2 3 4 5 6 7 8 9 10
 Severity: 1 2 3 4 5 6 7 8 9 10

APPENDIX A (cont'd)

4. Lower Back

Frequency: 1 2 3 4 5 6 7 8 9 10

Severity: 1 2 3 4 5 6 7 8 9 10

5. Buttocks and Hamstrings

Frequency: 1 2 3 4 5 6 7 8 9 10

Severity: 1 2 3 4 5 6 7 8 9 10

6. Feet and Ankles

Frequency: 1 2 3 4 5 6 7 8 9 10

Severity: 1 2 3 4 5 6 7 8 9 10

7. Headaches

Frequency: 1 2 3 4 5 6 7 8 9 10

Severity: 1 2 3 4 5 6 7 8 9 10

8. Fatigue

Frequency: 1 2 3 4 5 6 7 8 9 10

Severity: 1 2 3 4 5 6 7 8 9 10

Operator Candid Comments and Feedback:

- This support helps a lot with driving a bus
- I liked this cushion support. They designed it to help my lower back
- Thank you...For the back support. It does make a big difference!
- Working very well, except 4400 series bus.
- The support helps to keep my back upright and my neck from getting stiff. Pain between my shoulders has decreased slightly also.
- The Moller Back Support is working out really great! I no longer have a pain in my back and legs at the end of my shift
- Awesome!...I don't sit up close to the steering wheel anymore. I felt the positive difference the first day!
- I just love it! It supports my shoulder blades
- "Its getting better"
- "I'm not as stiff as I was before"
- "I highly recommend it to others"
- "It's OK. It is hard to get used to"
- No improvement in shoulder blade pain. All other areas show a major improvement "OUTSTANDING"
- I love it. I can't use it on the 4400 buses.
- It takes a while to get used to it. I'd rather drive with it than without
- My lower back is better! The pain is going down gradually
- Now that I've tried driving with it I will never drive without it again! I even use it at home and while commuting to work
- Notice: Since I used the Moller back support I can truly say that it has helped me when I complete my run. I don't feel as sore in my right leg and the stiffness is no longer there
- Circulating more freely throughout my body. No more headaches, less stress, less fatigue. I'm much happier throughout the whole day.
Thanks-it works
- Still doing great with the Moller!
- Beautiful. They should have come up with that a long time ago. And a bottom cushion would be wonderful.
- I feel better with the Moller!
- Since I've used the Moller back support I breathe much easier. It seems to me that my lungs are more expanded. Therefore more blood has more O₂
- Thank you Metro for finally looking out for bus operators!

Wellness Survey Results: *Measures frequency and severity of discomfort, with higher numbers signifying a higher level of discomfort.*

