Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952

Metro

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OPERATIONS COMMITTEE
OCTOBER 19, 2006

SUBJECT: DIVISION 22 IMPROVEMENTS - PHASE II

ACTION: AUTHORIZE SINGLE SOURCE PROCUREMENT TO SYSTRA CONSULTING INC.

## RECOMMENDATION

A. The Board finds that there is only a single source of procurement for the signaling system for the newly constructed crossover track and purchase is for the sole purpose of redesigning and testing the signal system already in use. The Board hereby authorizes purchase of the equipment pursuant to Public Utilities Code 130237.

Requires Two-Thirds Vote

B. Authorize the Chief Executive Officer to award a single source, firm fixed price contract to SYSTRA Consulting, Inc. to redesign and install track and safety related signaling equipment for the Metro Green Line Yard Crossover Track for an amount not to exceed $329,713.

## ISSUE

The Metro Green Line wayside train control equipment is comprised of highly specialized systems and was provided originally under Metro Green Line Contract No. H1100 (Revenue opening date August 12, 1995). Staff has identified that only SYSTRA Consulting, Inc. is qualified to perform the work. SYSTRA Consulting developed the original H1100 specifications and provided technical services during the execution of the contract.

SYSTRA designed the train control system for the Metro Green Line and provided technical services during the construction and testing of the system. In addition, they are a sub-consultant on Metro's General Engineering Contract and the 2550 vehicle contract with AnsaldoBreda. SYSTRA proposed an alternative by having SYSTRA provide the design, wayside software modifications and testing while qualified Metro staff provides labor for installation and non-safety related software modifications. This resulted in reducing the contract price by almost 50%.

## POLICY IMPLICATIONS

There are no policy implications.

## OPTIONS

The option is to not perform the signal system modifications and to maintain the status quo. This option is not recommended. Although some efficiency in yard operations is being realized in the current manual configuration, the final safety and efficiency goals of the project are not achieved. The manual operation does not have the benefit of safety features available at other yard crossovers and the manual operation requires significantly more labor than an automatic crossover.

## FINANCIAL IMPACT

Funds for this action are included in the FY07 budget in Cost Center 3960, Capital Project 204037, Division 22 Expansion - Phase II, for the crossover track signal system changes (CO726) in the amount of $329,713. This amount includes all labor, material, tools, services and-incidentals for design, construction, installation and commissioning of the signal system modifications. This action is within the board approved Life of Project budget of $4,895,000.

## BACKGROUND

The Division 22 Improvements Project is a multi-year project to provide safety and efficiency improvements for Metro Green Line Yard operations. The fleet of vehicles serviced by Division 22 has expanded from fifteen vehicles in 1996 to the current fleet size of twenty-six. This fleet size is continuing to expand as Metro receives new P2550 vehicles and P2000 vehicles removed from service are returned to Division 22.

Phase-I of the project expanded the maintenance shop facilities by providing a new Blown Down Pit, eliminating the need to transfer vehicles to Metro Blue Line Yard for heavy maintenance.

Phase-II of the project provides a new crossover track to improve the safety and efficiency of movements between shop facilities and yard storage tracks. Without the installation of the crossover track, the movement of a vehicle from the shop to storage requires three moves and the movement from storage to the shop requires two moves including a route to the mainline interface which conflicts with revenue service pull-in and pull-out operations. This seemingly inefficient design was not an issue when the Green Line Yard was intended to be operated as a fully automatic driverless system.

With the addition of the crossover track, movement of vehicles from storage to the shop and vice versa is accomplished in one move (Attachment B). The cost benefit of the addition of the fully automatic crossover track, assuming non-driverless operation and a growing fleet size, is estimated at $250,655 per year (Attachment C).

Installation of the crossover track for manual operation was completed in FY06. This satisfied an immediate need to improve the efficiency of yard operations. The manual operation requires the train operator to exit the vehicle to align a new route and to bypass the vehicle automatic train protection system in order to proceed over the new crossover track.

This method of operation is labor intensive and has potential safety problems including train collision and/or derailment. This defeats many of the efficiencies that the new crossover is intended to provide. Furthermore, remote users at the Rail Operations Control Center, Yard Control Tower and Local Control Panel would not be able to control train routing over the track or see if a train was currently on the track.

The recommended board action will provide the final system modifications necessary to integrate the crossover track into the existing yard signal system. This requires modifications to the wayside train control equipment and the Centralized Automatic Dispatch computer system located in the Yard Control Tower and the Rail Operations Control Center. When completed, train routing over this new crossover track can be controlled remotely from the Local Control Panel located in the Yard signaling room, the Yard Dispatch Computer located in the Yard Control Tower and the Dispatch Computers located in the Rail Operation Control room at the Metro Central Control Facility. Safety of this movement would be fully protected by the wayside automatic train protection system.

## NEXT STEP

Upon approval, contract will be awarded to SYSTRA Consulting INC., to be completed within 120 calendar days after receipt of notice to proceed.

## ATTACHMENT(S)

A. Procurement Summary
A-1. Procurement History
A-2. List of Subcontractors
B. Yard Routing Overview
C. Crossover Track Cost Benefit

Prepared by: Edward Smith, Rail Fleet Services Manager
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for John B. Catoe, Jr.
Deputy Chief Executive Officer

Roger Snoble
Chief Executive Officer

## BOARD REPORT ATTACHMENT A
## PROCUREMENT SUMMARY

## DIVISION 22 IMPROVEMENTS PHASE II - CROSSOVER TRACK

| | | | |
|---|---|---|---|
| 1. | Contract Number: C0726 | | |
| 2. | Recommended Vendor: SYSTRA Consulting Inc. | | |
| 3. | Cost/Price Analysis Information: | | |
| | A. Bid/Proposed Price: $329,713 | Recommended Price: $329,713 | |
| | B. Details of Significant Variances are in Attachment A-1.D | | |
| 4. | Contract Type: Fixed Price | | |
| 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: Pending | | |
| | F. Conflict of Interest Form Submitted to Ethics: 9/22/06 | | |
| 6. | Small Business Participation: | | |
| | A. Bid/Proposal Goal: 0.0% DBE Goal | Date Small Business Evaluation Completed: N/A | |
| | B. Small Business Commitment: 0.0% Details are in Attachment A-2 N/A | | |
| 7. | Invitation for Bid/Request for Proposal Data: | | |
| | Notifications Sent: N/A | Bids/Proposals Picked up: N/A | Bids/Proposals Received: 1 |
| 8. | Evaluation Information: | | |
| | A. Proposers Names: Systra Consulting, Inc. | Bid/Proposal Amount: $329,713 | Best and Final Offer Amount: N/A |
| | B. Evaluation Methodology: Details are in Attachment A-1.C | | |
| 9. | Protest Information: | | |
| | A. Protest Period End Date: N/A | | |
| | B. Protest Receipt Date: N/A | | |
| | C. Disposition of Protest Date: N/A | | |
| 10. | Contract Administrator: Michael T. Holguin | Telephone Number: 922-7365 | |
| 11. | Project Manager: Edward Smith | Telephone Number: 310-643-3804 | |

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

## DIVISION 22 IMPROVEMENTS PHASE II - CROSSOVER TRACK

### A. Background on Contractor

SYSTRA Consulting, Inc. is located at 707 Wilshire Blvd. Suite 4336, Los Angeles, CA 90017. LS Transit Systems (LSTS), the US domestic affiliate of SOFRETU, was created in 1985. Rail Transportation Systems, Inc. (RTS), the US domestic affiliate of SOFRERAIL, was formed in 1989. SOFRETU and SOFRERAIL merged, and in 1994, LSTS and RTS joined forces under the holding structure of SYSTRA USA Inc., which includes SYSTRA Consulting, headquartered in Bloomfield, NJ, and SYSTRA Engineering located in New York, NY.

SYSTRA's signal-engineering professionals have a long and impressive record in the design and construction management of railway and transit train control and signaling. Their extensive experience includes such signaling types as single direction operations and bi-directional systems incorporating the latest technologies, like microprocessor based coded track circuits, automatic train stops and cab signaling, and fully automatic driverless systems.

SYSTRA designed the train control system for the Metro Green Line and provided technical services during the construction and testing of the system. In addition, they are a sub-consultant on Metro's General Engineering Contract and the 2550 Vehicle Contract with Ansaldo Breda.

SYSTRA provides engineering services for numerous transit agencies both nationally and internationally.

### B. Procurement Background

This is a negotiated, non-competitive procurement. Due to the specialized nature of this work, there are no Disadvantaged Business Enterprise firms which could perform all or part of this work.

### C. Evaluation of Proposals

This procurement complies with Metro's Procurement policies and procedures

### D. Cost/Price Analysis Explanation of Variances

The recommended price has been determined to be fair and reasonable based upon fact finding, clarifications, estimate, analysis and the development of pre-negotiation positions. The negotiated price is $18,785 or 5.39% lower than Metro's Independent Cost Estimate.

In addition, SYSTRA proposed a different approach which consisted of having SYSTRA provide the design and testing while Metro staff made the hardware and software changes to the system. This resulted in reducing the contract price by almost 50%.

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

**DIVISION 22 IMPROVEMENTS PHASE II - CROSSOVER TRACK**

SYSTRA Consulting, Inc.

Small Business Commitment Subcontractors

None

Total Commitment 0.0%

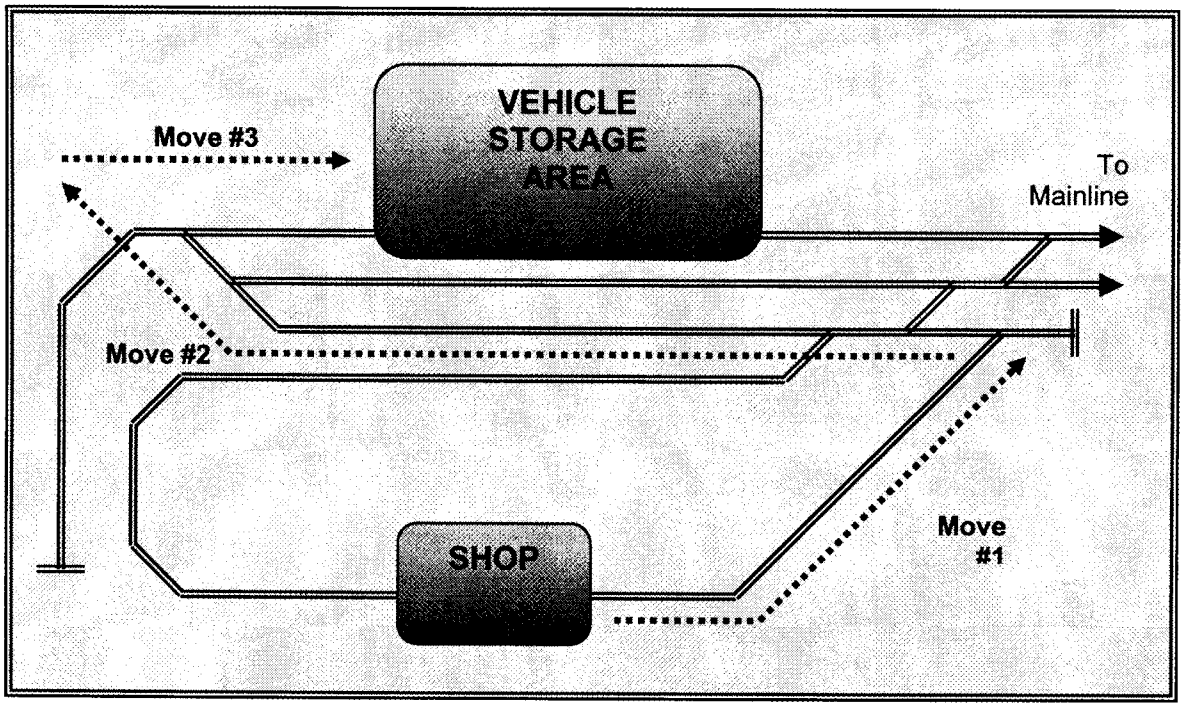
## BOARD REPORT ATTACHMENT B
## YARD ROUTING OVERVIEW

## DIVISION 22 IMPROVEMENTS PHASE II - CROSSOVER TRACK

This attachment shows a simplified Metro Green Line yard track layout with a summary of routing operations with and without the new crossover track.

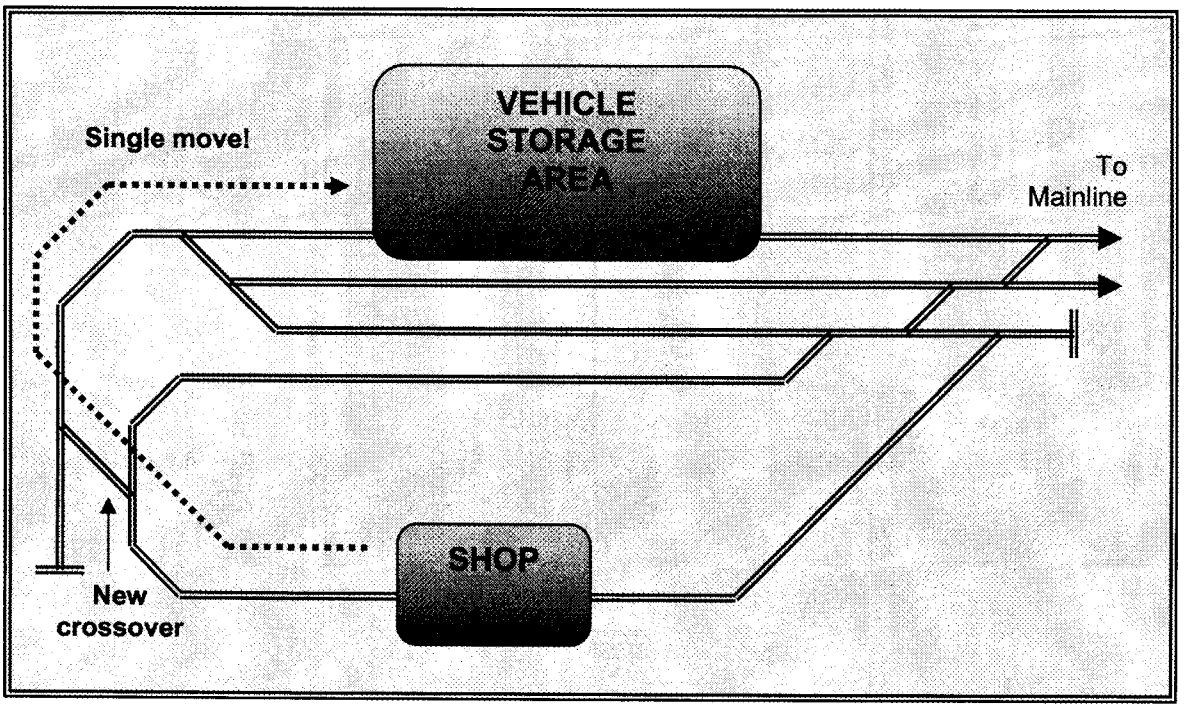
The figure below shows the current routing from the shop to storage WITHOUT the crossover. This requires three moves.

Figure 1- Current routing from Shop to Storage



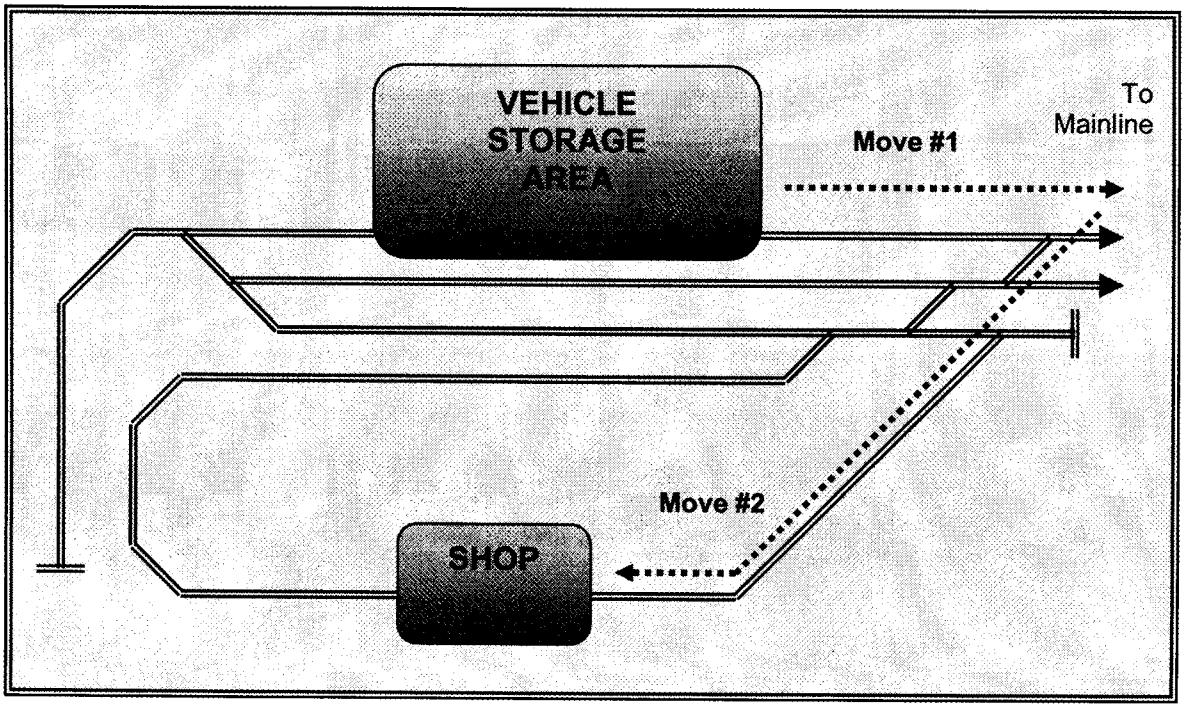
The figure below shows the current routing from the shop to storage WITH the crossover track. This requires only a single move.

Figure 2- New routing from Shop to Storage



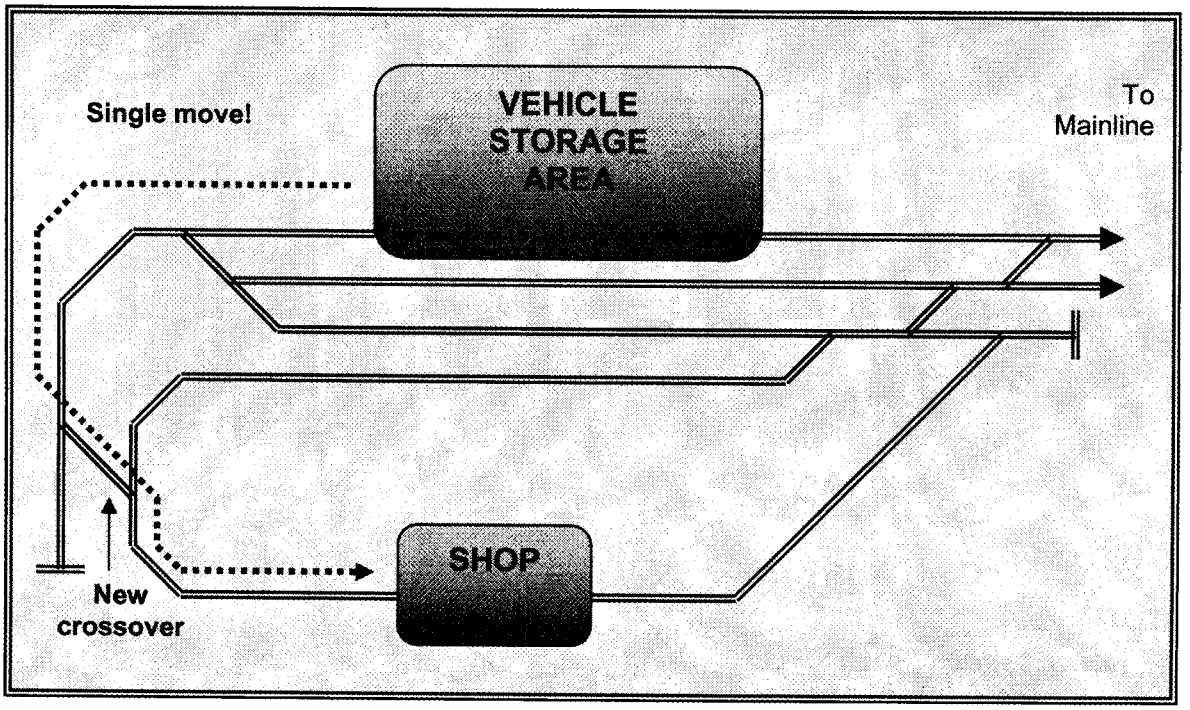
The figure below shows the current routing from storage to shop WITHOUT the crossover. This requires two moves including one into the mainline interface.

Figure 3- Current routing from Storage to Shop



The figure below shows the current routing from storage to shop WITH the crossover. This requires a single move eliminating routing into the mainline interface.

Figure 4- Current routing from Storage to Shop



| Division 22 Expansion Phase II Crossover Track | Capital Project | 204037 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E = A * 365 | F = E * B/60 | G = F - E*C/60 | H = J * rate |
| | Fleet Size FY07 LRV's | Fleet Size FY08-FY11 LRV's | Average Round Trips to Shop/Yard per | Time for R/T with Current Track Configuration | Time for R/T with Crossover Track | Savings per R/T in minutes | R/T per year | Manhours per Year | Per year Savings in Manhours | Savings per Year |
| Operator $45/hr* | 28 | | 15 | 20 | 6 | 14 | 5475 | 1825 | 1,278 | |
| Operator | | 36 | 20 | 20 | 6 | 14 | 7300 | 2433 | 1,703 | $76,650 |
| Yard Controller $58/hr* | 28 | | 15 | 4 | 2 | 2 | 5475 | 365 | 183 | |
| Yard Controller | | 36 | 20 | 4 | 2 | 2 | 7300 | 487 | 243 | $14,113 |
| Lost Maintenance Productivety $65/hr* | 28 | | 15 | 20 | 6 | 14 | 5475 | 1825 | 1,278 | |
| Lost Maintenance Productivety | | 36 | 20 | 20 | 6 | 14 | 7300 | 2433 | 1,703 | $110,717 |
| *Burdened Rate | | | | | | | | | Total | $201,480 |

| | | Hours Saved | Percentage of Yea | hr per yr | cost OOS |
|---|---|---|---|---|---|
| Lost Revenue from LRV being Out of Service | Weekend Loss Revenue of LRV, Cost per Hour $31 | 1,703 | 0.29 | 494 | $15,313 |
| | Weekday Loss Revenue of LRV, Cost per Hour $28 | 1,703 | 0.71 | 1209 | $33,862 |
| | | | | | $49,175 |

**Summary**

| | |
|---|---|
| Savings on Labor | $201,480 |
| Savings on Revenue | $49,175 |
| Total Saving per Year | $250,655 |