

**CONTRACT FOR GENERAL
CONSULTANT SERVICES**

**SOUTHERN CALIFORNIA
RAPID TRANSIT DISTRICT
METRO RAIL PROJECT**

APRIL 11, 1983

27903570

CONTRACT FOR
GENERAL CONSULTANT SERVICES
SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
METRO RAIL PROJECT

THIS CONTRACT is made and entered into as of the ____ day of _____, 1983, by and between SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT (hereinafter called "District"), a public body created under the laws of the State of California, and DANIEL, MANN, JOHNSON, & MENDENHALL; PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.; KAISER ENGINEERS (CALIFORNIA) CORPORATION; and HARRY WEESE and ASSOCIATES LTD., doing business as Metro Rail Transit Consultants, a Joint Venture (hereinafter called "General Consultant" or "GC"),

WITNESSETH:

WHEREAS, the Southern California Rapid Transit District (SCRTD or District) is a public corporation of the State of California created by the Legislature to provide mass transportation within and around the southern urbanized areas of Los Angeles County, and possessing the mandate to construct and operate a rapid transit system in such areas, and in carrying out this mandate, the District's policy is to be determined by its Board of Directors, with overall administration by its General Manager and subordinate staff; and

WHEREAS, since 1975, the District, in accordance with Federal, State and local policies, has conducted alternatives analyses of rail rapid transit systems and other supporting transit modes; and

MTA LIBRARY

WHEREAS, in 1980, following its approval of the District's Alternative Analysis/ Environmental Impact Statement/Report on Transit System Improvements in the Los Angeles Regional Core, the United States Department of Transportation, Urban Mass Transportation Administration (UTMA) provided funding for preliminary engineering of the SCRTD Metro Rail Project, an approximately eighteen mile subway in the Regional Core, which is to be an initial segment of a regional rapid transit system; and

WHEREAS, The District, with UMTA grants and matching State and local grants, has been engaged in preliminary engineering on the Metro Rail Project, and has employed special and general consultants to provide necessary technical assistance; and

WHEREAS, The scope of work for Preliminary Engineering has been jointly developed by UMTA and the District, and takes the Project from a planning stage to a level of design that allows a cost estimate to be made with sufficiently high level of confidence that resulting technical and financial information will be a basis for funding decisions, and is scheduled to be completed in June, 1983, and will constitute approximately 30% of the total design effort; and

WHEREAS, the major policy decisions for Preliminary Engineering are made by the SCRTD Board of Directors and have been grouped into 12 major Milestones as follows:

1. Preliminary System Definition and System Operation Plan
2. System Design Criteria
3. Route Alignment Alternatives
4. Station Location Alternatives

5. Right-of-Way and Relocation
6. Development and Land Use
7. Safety, Security and System Assurance Plan
8. Subsystem/System Configuration
9. Supporting Service Plan
10. Definitive Fixed Facilities Plans
11. Preliminary Cost Estimate
12. Preliminary Engineering System Plan

and adoption of each of these Milestones by the Board of Directors will "freeze" the major aspects of the Project and will permit detailed design decisions to proceed therefrom; and

WHEREAS, in order to establish a higher level of confidence in its cost estimates, and to save costs by accelerating the construction schedule and maximizing opportunities for joint development, the District has determined it necessary to advance engineering and design of the Metro Rail Project from the original thirty percent, to between fifty and eight-five percent of final design, and UMTA, State and local funding has been received for such additional work, designated as "Continuing Preliminary Engineering"; and

WHEREAS, the District has further determined it necessary to obtain appropriate consultant technical assistance in carrying out the Continuing Preliminary Engineering work program and other required work in a timely and coordinated manner, and the District desires to engage the services of a single, general architectural and engineering consultant to be known as the "General Consultant" (GC), and under such arrangement, it is to be expressly understood that all final

policy and technical decisions shall remain with the District and that overall project administration shall remain with the General Manager and his designated subordinate staff; and

WHEREAS, the District has solicited a "Request for Letters of Interest and Statements of Qualifications" (RFIQ) from firms to provide design and engineering services on fourteen design packages of the Metro Rail Project as part of Continuing Preliminary Engineering, and the firms selected to perform such services will be subconsultants of the General Consultant; and

WHEREAS, the firms which have previously furnished separately their services as General Engineering or Architectural Consultant have mutually agreed to form a joint venture partnership as General Consultant, and have further agreed to manage the work, under appropriate subcontracts, of those firms selected to provide design and engineering services set forth in the RFIQ;

NOW, THEREFORE, in view of their mutual covenants, hereinafter contained, the parties agree as follows to the Articles of this contractual agreement as hereinafter contained at length;

- Article I - Definitions
- Article II - Scope of Project
- Article III - Scope of Services
- Article IV - Compensation
- Article V - General Provisions
- Article VI - Technical Provisions
- Article VII - Agreement

ARTICLE I. DEFINITIONS

ARTICLE 1. DEFINITIONS

The words and terms as used in this Contract shall have the following meanings:

- 1.1 GC Members" or like terms: The organizations comprising the Metro Rail General Consultants Joint Venture, individually or collectively as the context requires.
- 1.2 "Project": The 18.6-mile initial segment, or Starter Line, of a Rail Rapid Transit System for the Los Angeles area.
- 1.3 "Services": The aggregate tasks to be performed pursuant to Article III of this Contract.
- 1.4 "Project Master Schedule": A document issued by the District defining the elements and time relationships of the Project.
- 1.5 "Annual Work Program (AWP)": A document, developed by the GC and approved by the District, which specifies the Services and related cost estimates for a specific period of the Project.
- 1.6 "UMTA": Urban Mass Transportation Administration of the United States Department of Transportation.
- 1.7 "Key Personnel": Project Director, Deputy Project Director, Project Control Manager, Project Administration Manager, System Integration Manager, Facilities Design Management Manager, Facilities Design Manager, and Systems Design Manager.

- 1.8 "Preliminary Engineering": That portion of the overall design effort undertaken by the District which takes the Project from the planning stage to a level of design that allows a cost estimate to be made with sufficient confidence that it can serve as the basis 30% level of design.
- 1.9 "Continuing Preliminary Engineering": The further development of engineering and architectural designs of specific facilities and systems, and packaging of plans and specifications for discrete units of construction required to refine cost estimates and interface designs with adjacent development.
- 1.10 "Final Design": The detailed development of final engineering and architectural designs of specific facilities and systems, and the compilation of complete contract packages suitable for obtaining Public Bids.

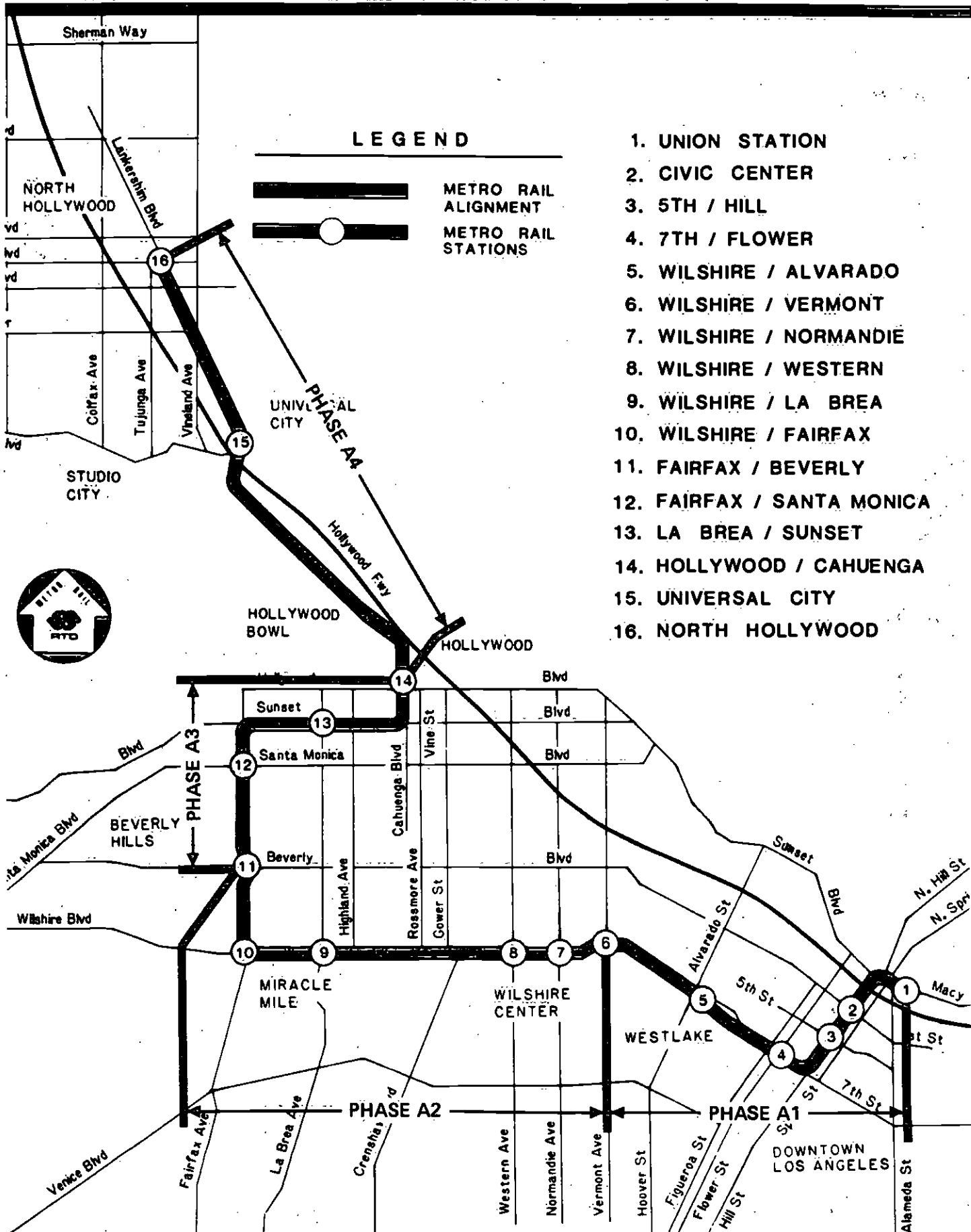
ARTICLE II. SCOPE OF PROJECT

ARTICLE II. SCOPE OF PROJECT

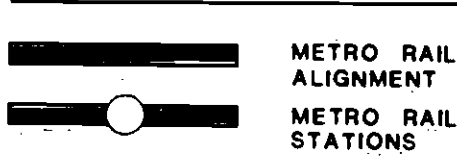
The Project is the initial segment, or Starter Line, of the ultimate rapid transit network for the urbanized area and is a conventional heavy rail system 18.6 miles in length with 16 stations serving the Central Business District, Wilshire Boulevard, Fairfax, Hollywood and North Hollywood areas. The general alignment of the project is shown in Figure 1. The entire 18.6 mile main line route will be in subway configuration. The yard and shop area is an at-grade facility located between 1st and 6th Street and between the Los Angeles River and Santa Fe Avenue in an area currently occupied by the Santa Fe Railway. Access tracks from the yard and shop will enter a tunnel in the vicinity of the Santa Ana Freeway and will connect the yard and shop to the starter line southern station at Union Station.



CONSTRUCTION PHASING



LEGEND



1. UNION STATION
2. CIVIC CENTER
3. 5TH / HILL
4. 7TH / FLOWER
5. WILSHIRE / ALVARADO
6. WILSHIRE / VERMONT
7. WILSHIRE / NORMANDIE
8. WILSHIRE / WESTERN
9. WILSHIRE / LA BREA
10. WILSHIRE / FAIRFAX
11. FAIRFAX / BEVERLY
12. FAIRFAX / SANTA MONICA
13. LA BREA / SUNSET
14. HOLLYWOOD / CAHUENGA
15. UNIVERSAL CITY
16. NORTH HOLLYWOOD



ARTICLE III. SCOPE OF SERVICES

MTA LIBRARY

ARTICLE III. SCOPE OF SERVICES

3.1 Description of Scope of Services

The Scope of Services includes the work required to manage and coordinate the existing Preliminary Engineering work and to perform Continuing Preliminary Engineering in support of the Metro Rail Project as defined in Article II. Based upon the GC's performance of such Services and the availability of financing for final design activities, the District at its option, may extend these Services to include final design and contract documents, design services during construction/procurement/installation, and other services as herein defined.

3.2 Manner of Performance

Subject to the direction and control of the District, the GC shall perform, or cause to have performed, the work described herein subject to specific budget and schedule limitations contained in the Annual Work Programs.

3.3 Coordination of Existing Preliminary Engineering

The GC shall coordinate, consolidate and integrate current activities performed by various consultants under the Metro Rail Project Preliminary Engineering program. This work shall include the review, coordination, technical and schedule integration, and finalization of all work products and deliverables identified in selected technical services contracts currently in force with the District so as to fulfill the original and amended scopes of such contracts and to allow a direct and timely transition to the Continued Preliminary Engineering program. The GC shall identify

for immediate action/resolution with District staff, all activities needed to accelerate the overall project and all design integration issues. The GC shall assist the District in bringing the existing EIS effort to a successful completion to support a timely application to DOT/UMTA for additional project funding. The GC shall manage, coordinate and integrate the remaining delivery of products required by on-going District contracts for the Preliminary Engineering Phase and shall bring such contract effort to completion as quickly as practicable.

As defined in Section 3.13.3., the GC shall assist the District in establishing a total project budget and schedule consistent with the results of the preliminary engineering coordination activity.

3.4 Continuing Preliminary Engineering

The Continuing Preliminary Engineering program will further develop the engineering design of all system elements. The work will be administered under subcontracts to the GC, or will be performed by the GC, and will be based directly upon the data, products and concepts established in Preliminary Engineering.

3.4.1 Route Profile and Alignment: The GC shall make recommendations to the District for any necessary adjustments to the horizontal alignment, vertical profile, and station centerline locations of the Metro Rail route established in Preliminary Engineering.

3.4.2 Stations and Line Sections: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the architectural, landscaping, structural, civil, electrical, and mechanical design of all stations, line sections and related structures all in accordance with the Project Master Schedule. This work shall include the continued preliminary design of all station buildings and related structures, station site facilities (including parking structures), utility relocation requirements and streetwork, station site development including required restorations and landscaping, station lighting, station ventilation, plumbing, noise and vibration mitigation measures, signing and graphics requirements, fire protection requirements, vertical circulation requirements, other station requirements, all tunnel and at-grade track support structures, maintenance and emergency access, ventilation, lighting (where required), special trackwork structures, fire protection requirements, electrical and electronic cabling and associated requirements and other wayside equipment requirements.

3.4.3 Central Control Facility: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the architectural, structural, civil, electrical, and mechanical design of a central control facility and related ancillary facilities all in accordance with the Project Master Schedule. This work shall include the continued preliminary design of a central control area and shall include necessary provisions for display and console equipment, operator control stations, HVAC equipment, computer

and other electronic and electro/mechanical support equipment, lighting, security, power and data transmission cabling and cable chases, and other central control facility requirements.

3.4.4 Yards and Shops: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the architectural, structural, civil, electrical and mechanical design of the yard and shop facilities all in accordance with the Project Master Schedule. This work shall include the continued preliminary design of the yard area including track alignment, drainage, paving, underground utilities and ductbanks, site security measures, lighting, landscaping and other necessary facilities. The work shall also include the maintenance shop buildings, car wash facilities, ancillary facilities, repair and overhaul facilities and equipment provisions and other office and administrative facilities to be located at the yard and shop area.

3.4.5 Trackwork: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of the trackwork procurement and installation all in accordance with the Project Master Schedule. This Continuing Preliminary Design activity will include, the refinement of the track schematic; the design of the track fixation system in tunnel sections, at special trackwork areas and in the yard and shop areas; the design of turnouts, crossovers, double crossovers, pocket tracks, turnback

tracks, ladder tracks and other special trackwork sections for the mainline and yard and shop areas; and other trackwork details.

3.4.6 Elevators and Escalators: The GC shall perform, or cause to perform through subcontracts, the further advancement of the design and specification of elevator and escalator equipment procurement and installation, all in accordance with the Project Master Schedule. This work shall include refinement and verification of the quantity and configuration of elevator and escalator equipment based upon the Continuing Preliminary Engineering work for the stations.

3.4.7 Passenger Vehicle: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of the passenger vehicle all in accordance with the Project Master Schedule. This work shall cover all aspects of the passenger vehicle including car body, trucks, suspension, brakes, propulsion equipment, doors, auxiliary power equipment, HVAC equipment, couplers, lighting, vehicle interior, communications equipment and ancillary items.

3.4.8 Train Control: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of the train control system procurement and installation all in accordance with the Project Master Schedule. This work shall cover all functional aspects of the system including automatic train protection, train operation, and train supervision for the main line and for the yard and shop areas. In addition a typical block layout, typical track circuit design, typical station

equipment room layouts, cabling requirements, and the central control room configuration and layout (including mimic displays and operating consoles) shall be developed.

3.4.9 Communications: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of the communications system procurement and installation, all in accordance with the Project Master Schedule. This work shall cover all radio, telephone, data transmission, closed circuit television, intercom, public address, and sensor (alarm/intrusion) communications equipment required for operation of the Metro Rail system. This work shall also include the configuration and layout of the central control room security and communications consoles.

3.4.10 Fare Collection: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of the fare collection system procurement and installation, all in accordance with the Project Master Schedule. This work shall include refinement of the configuration and quantity of station entry fare gates and exiting gates (if required), ticket issuing machines and change dispensing machines (if required), transfer dispensing machines, cash collection equipment and revenue processing equipment (if required).

3.4.11 Traction Power: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of the traction power equipment procurement and installation all in accordance with the Project Master Schedule. This work shall cover the interface with the primary power supply, A.C. circuit breakers, transformer/rectifier units, D.C. switchgear, busbar equipment, D.C. feeders, relaying and control equipment, contact rail equipment and contact rail system sectionalization, insulators, stray current control, substation equipment room requirements and all other aspects of the traction power system.

3.4.12 Auxiliary Power: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of the auxiliary power equipment procurement and installation in accordance with the Project Master Schedule. This work shall be based on the station and line section design, central control facility design, and yard and shop design efforts required under Section 3.4.2, 3.4.3, and 3.4.4 and shall include A.C. transformers, switchgear, distribution panels and auxiliary equipment necessary to meet the requirements for station and line section, central control, and yard and shop A.C. power requirements.

3.4.13 Auxiliary Vehicles: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of auxiliary vehicles in accordance with the Project Master Schedule. This work shall cover all hi-rail equipment,

tracked maintenance equipment, and automotive equipment required for normal operation and maintenance, and for emergency conditions.

3.4.14 Miscellaneous/Mechanical/Electrical Equipment: The GC shall perform, or cause to be performed through subcontracts, the further advancement of the design and specification of miscellaneous mechanical/electrical equipment procurement and installation. This work shall cover ventilation equipment (motor, fans, dampers), pumps, and other wayside and station mechanical/electrical equipment.

3.5 Final Design and Contract Documents

Subject to availability of funding and the District's direction to proceed, the GC shall perform, or cause to be performed through subcontracts, the detailed development of final engineering and architectural design of specific facilities, systems and subsystems based on continuing preliminary engineering completion, including detailed plans and schedules for testing individual systems/subsystems and compatibility testing of inter-related systems. Services for Final Design and Contract Documents will be continued by subcontractors performing the Continuing Preliminary Engineering phase of design, subject to District approval.

Based upon the final determination of contract packaging (see Section 3.13.3.7), the GC will prepare for District review and approval, plans and specifications for construction, procurement and installation contract documents suitable for obtaining public bids. Within this scope is the preparation of an engineer's estimate based on bidding documents.

3.6 System Integration

The GC shall provide services for the uniform integration of all elements of design of the transit system. These Services shall involve advancement of the Preliminary Engineering work to include:

- Integration and further development of the System Specification
- Uniform application of the District's detailed Design Criteria and Standards
- Refinement, expansion and adjustment of General Plans
- Refinement and implementation of plans and procedures for configuration management; design change control, including changes to criteria and standards; document control; identification, control and integration of design interfaces, including contractual, physical and operating considerations; system safety, assurance and security
- Support of the advancement of train operation plans, including schedules, headways, consists and fleet requirements
- Refinement of District policy and plans for train operations; and maintenance of vehicles, other equipment and systems, and ways and structures
- Refinement of District's operating and maintenance plans, including refinements of and recommendations for District goals
- Performance of other system engineering needed to support and integrate the design, construction, procurement and installation effort.

3.7 Construction, Procurement and Installation Engineering Coordination

The GC shall evaluate and compare construction, procurement and installation contract packages with associated cost estimates and schedules to determine reasonableness and compatibility with the overall project schedule.

The GC shall perform construction, procurement and installation planning, including the description and publication of discrete construction, procurement, installation engineering and other contract units; the analysis of equipment and materials needs for determination of systemwide procurement and of long-lead procurement requirements; and the identification of cost-effective opportunities for design/construct, design/fabricate/install, and joint or follow-on procurement contracting of materials, equipment and subsystems.

The GC shall provide the analysis of Value Engineering proposals, and shall review construction plans, specifications and bid documents as they are being developed and before the solicitation of bids, so as to achieve all possible economies.

The GC shall assist the District, as requested, in conducting pre-bid conferences with prospective bidders; shall provide site tours for prospective bidders; shall assist in the assembly, display and dissemination of information for bidders; shall assist the District in the evaluation of bids, including the comparative analyses of bid breakdowns, determinations as to bid responsiveness and bidder responsibility and recommendations to the District regarding construction procurement and installation contract awards.

3.8 Design Services During Construction/Procurement/Installation

The GC shall coordinate and cooperate with the District's Construction Manager to evaluate proposed design changes necessitated by conditions revealed during construction, and other requirements for design office participation during construction.

The GC and GC's civil, structural, mechanical, and electrical engineers shall visit the work site as required, and promptly whenever requested by the District, assist the Construction Manager in resolving problems.

The GC shall arrange for and process all design changes to the plans and specifications.

3.9 Systems Procurement Management:

Subject to District authorization and direction, the GC shall perform, or cause to be performed through subcontract, any or all of the following Services:

- Conduct conferences with successful bidders before the commencement of work
- Review manufacturer's activities schedules to provide effective management review and control of progress
- Review and approve manufacturer's quality assurance and workmanship standards programs, and monitor manufacturer's compliance with approved programs
- Identify and make recommendations to the District regarding any pending labor or materials shortages, and/or labor relations problems
- Interpret technical documents for manufacturers

- Perform first article inspections, required test monitoring and inspection, and release for shipment inspections
- Monitor equipment acceptance tests and on-site subsystem verification tests
- Monitor Contractor compliance with Contract requirements
- Submit findings and recommendations for corrective action on problem areas, including variances from cost and schedule forecasts
- Notify District of any potential changes to the work and/or claims from manufacturers
- Receive, evaluate and recommend to the District disposition of requests for Change Orders
- Prepare and issue Change Notices directing changes to the work in accordance with District-approved policies and procedures
- Review and certify monthly invoices submitted by manufacturers performing work on the Project
- Maintain overall cost records for each contract, including such documentation as District may require
- Develop and implement District-approved contract acceptance procedures, including provisions for correction of deficiencies

3.10 Integrated Test Support and Start-Up Assistance

The GC shall support the District in District activities associated with the development and implementation of Integrated Test programs for the

Metro Rail system and shall assist the District in the start-up of the system.

3.11 Support Services and Special Analyses

Subject to District direction, the GC shall provide Services to support District functions and responsibilities. These Services may include, but not necessarily be limited to:

- Assistance in drafting of agreements between District and agencies, utilities and railroads, and assistance in negotiations
- Assistance in the preparation of plans and negotiation of agreements for joint development
- Assistance in the right-of-way acquisition program, including defining and certifying right-of-way needs and type of acquisition required; preparation of descriptive and mathematical data; provision of property surveys; preparation of plot maps, court exhibits and similar graphics; provision of expert testimony in litigation between District and property owners; and identification of relocation requirements
- Assistance in the preparation and dissemination of public information, including participation in public hearings and meetings; preparation of graphics and other informational material; and such other assistance as District may direct
- Assistance in the development of District's Quality Assurance Program
- Assistance in preparation of Environmental Impact Analyses and Assessments

- Assistance in the development of long-term funding and cash flow requirements
- Provision of support to District in all matters relating to the Project.

3.12 Special Consultants and Other Technical Services

Continuing development of the Project will require additional special Services beyond those cited in other sections of this Scope of Services and may, in addition, require analyses of special problems or design concepts. Such Services shall be provided by the GC through its own staff, subcontractors or special consultants (sub-consultants) subject to approval by the District.

These special Services may include, but not necessarily be limited to soils; noise and vibration; fare collection system; operations planning; corrosion control; lighting; signing and graphics, including system artwork and advertising; security and surveillance; fire protection; railroad interfaces; survey and mapping.

3.13 Project Management

The GC shall, subject to the District's direction and control, provide the overall management and control of the project.

3.13.1 Overall: The GC shall appoint a Project Director who will be assigned full-time to the Project and who will be vested with responsibility for the management and direction of the performance of the Services.

The GC shall develop and implement a Project Management Plan which will define the relationships and will assign responsibilities and delegate specific authorities to the Project Director and to the several subordinate managers. A principle objective of this plan will be to establish an orderly decision making process and a system of work performance, supervision, coordination and reporting to permit early identification and correction of problem areas such as schedule slippage and cost trends.

In accordance with GC Member policies, the GC Members shall name a Management Board consisting of one representative of each of the GC Members and such other representation as from time to time may be mutually agreed. The Management Board shall provide policy guidance to the Project Director. Also the Management Board will provide to the District and the GC the expert services of the GC Members' senior management and professional personnel. The Management Board will meet no more frequently than monthly, unless requested by the District. The District shall be advised of the membership of the Management Board including alternate members, if any, thereof and any changes thereto. All direct costs and sites of board meetings, shall be subject to the approval of the District.

3.13.2 Project Administration: The GC shall provide project administration services to include the negotiation and award of subcontracts; the administration of the GC contract and subcontracts; the development, maintenance and implementation of project management and administration procedures; the provision of data processing and office

services; the coordination, monitoring, evaluation, refinement and reporting of Equal Employment Opportunity (EEO), Minority Business Enterprise (MBE) utilization, and Women Business Enterprise (WBE) utilization; the mobilization and demobilization of personnel; and other services necessary to the efficient administration of the project.

3.13.3 Project Control and Scheduling

1. Annual Work Program (AWP)

(a) The District will authorize the necessary Services in any fiscal period provided for in this Contract by an approved AWP. When approved, each AWP becomes a part of this contract as if fully set forth herein.

(b) For purposes of schedule and cost control, AWP's consisting of incremental cost estimates shall be established on a fiscal period basis throughout the course of the Services in accordance with the procedures set forth below in this Section 3.13.3.1.(b). Each AWP will be supported by financial planning data, including work descriptions, milestone schedules, and manpower allocations which form the bases for the AWP estimates. The first fiscal period shall start with the issuance of a Notice to Proceed (NTP) by the District and shall end with the 12th month thereafter.

Three months prior to the end of the fiscal period, the GC shall develop an AWP for the following fiscal period.

A similar procedure shall be followed for each succeeding fiscal period during the course of the Services.

- (c) The amount budgeted for each AWP shall include amounts estimated on a quarterly basis to be expended by the GC and its subcontractors during the applicable fiscal period for which the AWP has been established, together with applicable fixed and subcontract administration fees as negotiated between the GC and the District. In the negotiation of such fees, any over or under achievement of work under the previous AWP shall be considered as a factor.

2. Project Budget

The GC shall prepare and recommend to the District a Project Budget showing the amounts estimated to be earned by the GC and all subcontractors during the course of the Services, and the estimated budget requirements for all construction, procurement and installation contracts.

3. Current Working Estimates

The GC shall develop and recommend to the District a Current Working Estimate (CWE). The CWE shall include the estimated costs of the following:

- All engineering and supporting services related to planning and design of the system.

- Engineering services during construction.
- Systems procurement management.
- Each contract package including construction, procurement, and installation costs.

Estimated costs will include a Project Reserve and escalation to the midpoint of the time of performance of each activity. As the project progresses and system elements become more precisely defined, the CWE will be updated periodically to reflect cost changes as they occur. A CWE shall be submitted to the District concurrent with the submittal of the Annual Work Program and at appropriate intervals thereafter. At each updating of the CWE, it will be compared with the Project Budget established under Paragraph 3.13.3.2 and the District will be advised of significant variations of the estimates. The GC shall recommend to the District actions that can be taken to bring the CWE into line with the Project Budget, including design modifications and adjustments in scope.

After approval of such modifications or adjustments, the District will direct revisions to the CWE accordingly. Budget adjustments may also be made by the District to effect this reconciliation.

4. Project Master Schedule

The GC shall assist the District in preparation of a Project Master Schedule showing the sequence and interrelationship of all architectural, engineering, construction, procurement and installation activities, and to be used by the GC and District as the planned method of accomplishing the Project. As a minimum the GC shall provide data for three (3) elements of the Project Master Schedule, all of which shall be consistent with each other, namely:

- (a) The Design Master Schedule to include only architectural and engineering services and to reflect the Design Control Points for each contract design package. This schedule will be updated quarterly and incorporated into the Master Bar Chart Schedule.
- (b) The Master Bar Chart Schedule to show work element and contract package starting dates and durations. This schedule will consist of activities from Architectural and Engineering Services through Construction to Revenue Operation. This schedule will be updated concurrently with the Design Master Schedule and input into the Master CPM Schedule.
- (c) The Master CPM Schedule, which will be updated at appropriate intervals, will include subroutines showing interfaces, external inputs and deliverables to and/or from:
 - a. Engineering services
 - b. R.O.W. acquisitions

- c. Utilities relocations
- d. Procurement
- e. Installation
- f. Construction
- g. Systemwide pre-revenue testing
- h. Revenue operation

The Master GPM schedule will be used for forecasting dates of construction and procurement bid advertisement, contract awards, and revising contract durations.

The GC shall continuously maintain a record of performance for comparison with the Project Master Schedule. Changes in the approved Design Master Schedule will only be made upon written approval of the District.

5. Design Review and Control

The GC shall develop, maintain and implement a design review and control procedure for use during the Continuing Preliminary Engineering and Final Design and Contract Documents phases. The procedure shall involve the use of design control points as follows:

- (a) Design Control Point No. 1 (approximately 30% completion point) shall consist of a Scope Statement for each contract design package which defines in precise technical terms, the scope of the contract design package. The Scope Statement shall also include the District's approved budget figure for

the contract package. This shall be the "design to" budget for the contract package. Any such Scope Statement not previously prepared under Preliminary Engineering shall be scheduled and developed by GC and approved by the District prior to progressing further with the design of the contract design package.

(b) Right-of-Way Certification. Approximately three months after NTP to each Design Subcontractor, the Design Contractor shall furnish right of way requirements and the GC shall certify such requirements.

(c) Design Control Point No. 2 (approximately 50-60% completion point) shall consist of the Design Development Statement, a statement including at least single-line drawings, outline specifications and a preliminary cost estimate in sufficient detail to allow the District's technical staff to specifically ascertain the details of the proposed structure, procurement or other end product of design. Any apparent major budgetary overruns or discrepancies shall be resolved not later than the Design Development point by design modifications, adjusting the scope of design up or down to reconcile the cost estimate with the fundings which are available and budgeted. Budget adjustments will also be made to affect this reconciliation.

(d) Design Control Point No. 3 shall consist of the Pre-Final Review. At approximately the 85%-90% completion point in the design effort for any contract design package all plans,

drawings, specifications, proposed contract documents, and other material coming forth from the detailed design effort, pursuant to understandings reached at the Design Control Point No. 2 shall be fully reviewed again by the District's technical staff with GC's design teams. This is the last substantive technical review step prior to going to contract design package bid, and thence proceeding into construction or procurement (as appropriate to the contract design package). The construction cost estimate approved for the 85% design level shall be the controlling estimate for project purposes.

- (e) Design Control Point No. 4, A final review will be conducted at approximately 100% design completion with the circulation of the Advance Notice to Bidders (ANTB), to assure that the contract design package is fully ready for the bid process.
- (f) Definitive material, renderings, drawings, specifications and other data shall be submitted in a timely manner for District review at the Design Development Point, and Pre-Final Review. Completion of reviews of design for work involving private and public utilities and agencies shall be assured not later than the Pre-Final Review.

6. Deliverables

The Project deliverables to be furnished by the GC to the District include those deliverables identified in the Annual Work Program Supporting Data as described above. All project deliverables shall be shown on the Master CPM Schedule and sub-routines thereof.

The GC shall make available to the District all deliverables and, at the District's direction, shall provide copies thereof and/or a cameraready copy thereof.

7. Contract Packaging

The GC shall revise, as required, and approved by the District, a Contract Unit Descriptions report which shall provide a complete listing of; all construction, procurement and installation contract packages; all Continuing Preliminary Engineering and Final Design contract packages; and all demolition, utility relocation, and railroad relocation contracts.

3.14 Design Criteria, Drafting Criteria, Standard Specifications, Standard Drawings and Directive Drawings

The GC shall finalize and maintain all design criteria, drafting criteria standard specifications, standard drawings and directive drawings for the Metro Rail project. This will involve a review and refinement of applicable materials prepared in the Preliminary Engineering program to reflect the results of the work required by Section 3.3, and the maintenance and updating of the material as a result of application by both the GC and subcontractors to the GC.

3.15 Responsibilities

A summary list of the responsibilities of the District and the responsibilities of the GC is shown in Figure 2. The District has ultimate responsibility for project management, administration, direction and control.

As part of this function, the District will provide engineering and management personnel who will monitor the GC effort and give general policy direction to the GC regarding assigned project management, design and construction related functions.

GC and its subcontractors shall provide the management, technical and administrative expertise required to properly manage, coordinate and execute the activities described in the AWP and supporting documents.

The listing illustrates the fundamental difference in the roles of the parties. Necessary procedures for coordinating these functions shall be developed by the GC utilizing input from the District as the Project progresses.

3.16 Information to be Provided by District

District shall provide the GC with the following data and information at the inception of the work:

- Cost, schedule, budget, contract packaging, and current project status data
- Existing design criteria, standard specifications, standard and directive drawings
- Existing design packages including available mapping and geotechnical data
- Existing project plans and procedures

- Existing contracts with general and special consultants
- Technical reports, progress reports and appropriate backup data and documented policy decisions
- Other available information deemed necessary for conduct of the work.

District shall provide the GC with the following data and information on a continuing basis:

- Directed budget revisions
- Directed schedule revisions
- Design review comments
- Other information deemed necessary for conduct of the work.

FIGURE 2

DISTRICT RESPONSIBILITIES

Project Direction and Administration

- o Policy Direction
- o Project Financing
- o Prime Contracts
- o Budget Allocation
- o Accounting
- o Financial Audit
- o Project Insurance
- o Subconsultant Selection
- o Subconsultant Contract Approval, including Amendments
- o Project Control System, including Costs and Schedules
- o EEO/MBE/WBE Policy and Plan Approval

Project Coordination

- o Public Agencies
- o Utilities
- o Railroads
- o Inputs from Community or Private Organizations and Citizens

Project Development

- o Direction and Guidance of Design Development
- o Master and Project Agreements

Public Agencies

Utilities

Railroads

- o Site Development (Policy)
- o Project Development Priorities (Policy)
- o Property Agreements
 - Acquisition
 - Easements
 - Relocation
- o Specific Approvals
 - System Standards, Analyses and Studies as required
 - Progress Payments (Prime Contracts)
 - Amendments, Addenda and Change Orders (Prime Contracts)
 - Selected Management Procedures
 - Design Milestone Reviews and Contract Bid Packages
 - Interim and Final Construction Estimates During Design
 - Design Criteria and Standards and Changes Thereto
 - Design Concepts
 - Key Personnel Assignments

Planning

- o Future Systems
- o Ridership Projections
- o Demographic Data
- o Community Service and Impact
- o Environmental Impact Analyses and Assessments
- o Joint Development

Construction Management

- o Constructability Review
- o Construction Economy Reviews
- o Advertisement for Bids
- o Pre-bid Conference
- o Permits and Public Agency Approvals
- o Bid-opening and Contract Award
- o Preconstruction Conferences
- o Contractor Schedule Review and Monitoring
- o Coordination with Local Authorities
- o Shop Drawing Review
- o On-site Management and Inspection
- o Contract Interpretation
- o Monitor Contractor Compliance with Contract Requirements
- o Progress Reports
- o Invoice Certification
- o Change Notice Preparation and Issuance
- o Jobs Records Maintenance
- o Change Order and Claim Approval
- o Progress Payments
- o Record Drawing Preparation

Testing

- o Acceptance of System Testing Procedures
- o Acceptance of Pre-revenue Testing Results

Operations

- o Service Scheduling
- o Fare Structure
- o Revenue Estimates
- o Approval of Operation Plan
- o Input to Preparation of Operating Manuals

Public Relations

- o Dissemination of Public Information
- o Public Education and Involvement Programs

GENERAL CONSULTANT RESPONSIBILITIES

Project Management

- o Overall Management, District Liaison

- o Project Administration
 - Internal Procedure Development
 - Subcontract Procurement Support
 - Subcontract Negotiation and Award
 - Contract/Subcontract Administration
 - EEO/AA/MBE/WBE Compliance
 - Mobilization and Demobilization of Forces
 - Office Management
 - Publications and Graphics

- o Project Control for GC Services
 - Scope and Work Program
 - Cost
 - Schedule
 - Forecasts
 - Estimates
 - Management Information
 - Progress Reporting

Design Services and Management

- o Preliminary Engineering
 - Review, Integrate and Unify Existing Data and Work Products
 - Manage, Coordinate and Integrate Deliverables

o Continuing Preliminary Engineering

Advance all Engineering and Architectural Designs based on Preliminary Engineering

Further define Facilities, Systems, Subsystems and Equipment

Update Cost Estimates for each Design Package

Monitor, Manage and Coordinate Subcontractor Effort

Update & Refine Design Criteria, Standard and Directive Drawings

Update Standard and/or Guideline Specifications

Construction/Procurement Contract General Conditions

Design Reviews

o Final Design and Contract Documents

Final Engineering and Architectural Design

Prepare Bid Documents

Final Engineer's Estimate

Procurement Packages for Systemwide Design Elements

o Construction, Procurement and Installation Engineering Coordination

Cost Estimate and Schedule Reviews

Procurement Planning

Bidding Period Services

o Design Services During Construction/Procurement/Installation

Design Change Review

Value Engineering Proposal Review

System Integration

- o Refine System Specification
- o Refine General Plans and Design Standards
- o Refine Standard and/or Guideline Specifications for Construction and Procurement
- o Refine Operating and Maintenance Plans
- o Refine Systems Safety, Security and Assurance Plans
- o Participate in Configuration Management
- o Develop recommended Quality Assurance Program
- o Design Interface Control

Integrated Test Support and Start-Up Assistance

Systems Procurement Management (as required)

- o Preprocurement Conferences
- o Contractor Schedule Review and Monitoring
- o Quality Assurance Review and Monitoring
- o Labor/Materials Problem Identification
- o Interpretation of Technical Contract Language
- o First Article Inspections, Test Inspections, Release for Shipment Inspections
- o Equipment Acceptance Tests and On-Site Subsystem Verification Tests
- o Monitor Contractor Compliance with Contract Requirements
- o Progress Reports
- o Invoice Certification
- o Change Notice Preparation and Issuance
- o Jobs Records Maintenance

Support Services and Special Analyses (as required)

- o Right-of-way Certifications, Surveys, Data and Other Assistance
- o Agency, Utility and Railroad Agreement Identification, Drafting, and Negotiation Assistance
- o Environmental Impact Analysis Assistance
- o Public Information Dissemination Assistance
- o Other Program Support as Required

Special Consultants and Technical Services (as required)

- o Soils
- o Noise and Vibration
- o Fare Collection
- o Operations Planning
- o Corrosion Control
- o Lighting
- o Signing and Graphics
- o Artwork and Advertising
- o Security and Surveillance
- o Fire Protection
- o Railroad Interfaces
- o Surveying and Mapping
- o Other Technical Services and Special Analyses (as required)

ARTICLE IV. COMPENSATION

ARTICLE IV. COMPENSATION

4.1 For the performance of the Services, the District shall pay to the GC, in the manner and at the times herein specified, compensation consisting of Direct Wages and Salaries, Indirect Expenses, Subcontract Costs, Other Direct Costs and Fixed Fees.

4.1.1 Direct Wages and Salaries: All direct wages and salaries of GC Members personnel for time expended by such personnel in the performance of the Services.

4.1.2 Indirect Expenses: Indirect expenses (including payroll burden) of the GC based on individual indirect costs of GC Members at rates determined in accordance with the applicable cost principles of the then current Subpart 1-15.2 of the Federal Procurement Regulations, except as otherwise expressly provided in this Contract.

Pending final determination of said expenses, a provisional indirect expense rate shall be applied for each GC Member. The indirect expense rate to be applied initially hereunder in accordance with the computation methodology accepted by each GC Member's cognizant audit agency:

Daniel, Mann, Johnson, & Mendenhall	145%
Kaiser Engineers (California) Corporation	118%
Parson Brinckerhoff Quade & Douglas, Inc.	135%
Harry Weese & Associates, Ltd.	116%

These provisional rates will be adjusted to the actual rates determined by cognizant audit agencies. The provisional rates shall continue to

apply until the actual rates are determined. At that time the actual rate shall become the new provisional rate. This procedure shall be followed for the duration of the Services.

Upon determination of the actual rates any overpayment or underpayment resulting from a variance between the actual and provisional rates are to be refunded or credited in total to the District or paid to the GC on the next monthly billing. To prevent substantial over or underpayment, the provisional billing rates may be revised by mutual agreement at the request of either party.

Indirect expense rates will not be applied to any premium portion of overtime compensation included in Direct Wages and Salaries.

- 4.1.3 Subcontract Costs: The actual costs and expenses of subcontracts entered into by the GC.
- 4.1.4 Other Direct Costs: All other costs and expenses paid or incurred by the GC or GC Members in connection with the Services, exclusive of the costs and expenses provided for in subsections 4.1.1, 4.1.2, and 4.1.3 above. Except as otherwise expressly provided in the subitems of this subsection 4.1.4, the reasonableness, allocability and allowability of such costs and expenses shall be determined in accordance with the applicable cost principles of the then current Subpart 1-15.2 of the Federal Procurement Regulations. Such costs and expenses shall include but not be limited to the following:

- (a) Materials and Supplies: The cost of all engineering, architectural surveying and drafting supplies, printing, copying, binding and reproduction related to the Contract.
- (b) Travel and Related Expenses: Local and long distance travel and transportation costs, subsistence and other expenses of personnel traveling in connection with the Services.
- (c) Communications and Shipping: Long-distance communications such as telephone, telex, telecopier and shipping and postage charges.
- (d) Mobilization and Relocation: Subject to prior approval by District, costs of relocation to the Los Angeles area of GC Members' personnel, including transportation of employees and their families, moving of household effects and other property, settling-in allowances and any other related costs, all in accord with the established policies of the GC Members and in accord with applicable Federal Procurement Regulations.

In order that the District's reimbursement of individual relocations be allowable, GC's Members' personnel so relocated shall work on the Project not less than twelve (12) consecutive months or as mutually agreed with only infrequent work tasks on non-Project assignments permitted.

This item also includes relocation costs and expense of returning the GC Members' personnel to their point of origin or other destination of equal or lesser distance provided, however, that (1) the employee shall have worked on the Project for not less than twelve (12)

months, that (2) GC certifies that relocation expenses for the relocation of such employee directly to another office are not reimbursable under other contracts, and that (3) prior written approval by the District shall be required for such relocation.

- (e) Computer Services: Charges for use of electronic data processing and computer equipment required in support of the Services, including charges for equipment operators and charges for word processing services.
- (f) Models and Renderings: The cost of construction of models and development of architectural renderings.
- (g) Equipment and Tools: With prior District approval for items in excess of \$500, the cost and maintenance of any special equipment or tools purchased, rented or leased for the performance of the Services, including rented or leased vehicles.
- (h) Special Taxes: The costs of gross receipts taxes or other taxes imposed on the GC or GC Members which are not measured by corporate net income.
- (i) Recruiting: Costs of recruiting personnel not normally included in GC's indirect costs, but not limited to, travel and related expenses of job applicants, placement fees and recruitment advertising.
- (j) Insurance: Costs of premiums paid by the GC or GC Members for insurance coverage as provided in Section 5.7 of this Contract and not covered by the Indirect Expense rates, and costs of endorsement of existing policies to include operations under this Contract.

- (k) Legal Services: Cost of legal advice and other legal fees when
i) such are incurred in connection with contracts (other than this Contract), subcontracts and other agreements, the subject of which is wholly connected with the Project or in connection with disputes arising out of such agreements, or ii) as otherwise allowed by the District; provided, however, in the event of any inconsistency between the two provisions, the Indemnification provision of this Contract shall prevail.
- (l) Facilities Capital Cost of Money: Those costs allowable to GC Members determined by applying a cost of money rate to facilities capital employed in support of the Services as provided by the Federal Procurement Regulations.
- (m) Miscellaneous: Any other direct costs and expenses not included above, which are reasonable, necessary, and allowable for the proper performance of the services.

4.1.5 Fixed Fee and Fixed Subcontract Administration Fee: For satisfactory performance of the Services to be rendered pursuant to this Contract, the GC shall receive, as a Fixed Fee and a Fixed Subcontract Administration Fee, the amounts set forth in Section 4.3.1.

4.2 Payment: The District shall pay the GC for services under this Contract an amount to be calculated as provided in this Section 4.1, and as defined herein:

- 4.2.1 Such sums shall be paid in accordance with monthly invoices prepared by GC and submitted to the District. For purposes of incremental disbursement, the Fixed Fee and Fixed Subcontract Administration Fee portion of the compensation shall be paid monthly at a proportionate rate equal to costs incurred, the total amounts to be due and payable at the end of each Annual Work Program.
- 4.2.2 On or about the 25th day of each month, the GC shall submit to the District an estimate of the total compensation which will be due the GC for that month (the "Payment Estimate"). The District shall cause payment to be made to the GC for the Payment Estimate within ten (10) business days of the date the Payment Estimate is received by the District.
- 4.2.3 Once each month, the GC shall submit to the District an invoice which will include the Compensation for Direct Wages and Salaries, Indirect Expenses, Subcontract Cost, Other Direct Costs, and Fees due the GC for the preceding month (the "Payment Invoice"). Any difference between the Payment Estimate for any month and the Payment Invoice for such month, as subsequently received by the District shall be adjusted by the District upon payment of the first possible Payment Estimate.

GC shall obtain for District's benefit during the term of this contract, a clean irrevocable Letter of Credit or a Retainage Bond payable to the District in the amount equivalent to 10% of the GC's then earned fees at any time during the performance of Ser-

vices, up to a maximum of \$300,000. District shall have the right to draw upon such letter of credit or retainage bond when District determines that GC is not performing in accordance with the terms of this contract.

Funds under such letter of credit shall be available to District against District's sight draft on the bank holding the Letter of Credit. Each such draft shall be accompanied by a signed written statement from District to the effect that GC has failed to comply with the terms and conditions of this contract, specifying the paragraph(s) and/or clause(s) not satisfied. Such monies shall be retained by District until satisfactory fulfillment of the terms or conditions referenced.

District's right to draw upon such retainage bond shall be limited to the amount that would have otherwise been retained by the District, or \$300,000, whichever is less. District shall draw upon such retainage bond by a written statement from District to Surety, copy to GC, sent Certified Mail, Return Receipt Requested, specifying that GC has failed to comply with the terms and conditions of this contract citing the particular contract terms and conditions involved and the nature of the failure. Such monies drawn against the retainage bond shall be retained by the District until satisfactory fulfillment of the terms and conditions referenced.

- 4.2.4 All Payment Invoices shall be prepared in such form and supported by such copies of invoices, payrolls, and other documents of proof

as may be reasonably required by the District. Notwithstanding the procedures of Sub-Section 4.2.3 (above), payment of the next amounts due to the GC under Payment Invoices and the final payment invoice shall be made by the District within ninety (90) days after receipt of such Invoices.

4.2.5 (Reserved)

4.2.6 At the completion of the Contract, final payment, including any Fees remaining due, shall be made on determination by the District that all requirements hereunder have been completed, which determination shall not be unreasonably withheld. In no event will final payment for undisputed items be withheld beyond ninety (90) days from date of submission of the payment invoice for completion of the Contract Services.

4.3 Limitation of Cost

4.3.1 As a Contract ceiling, the estimated cost to the District for the performance of the Services hereunder for the initial AWP shall be:

(1) GC costs	\$ 37,871,360.
(2) Fixed Subcontract Administration Fee	\$ 526,860.
(3) Fixed Fee	\$ 904,740.
(4) Total Contract Ceiling	\$ 39,302,960.

With respect to any AWP, the estimated cost then established for such AWP shall not be exceeded except as otherwise provided in the Contract.

The GC agrees to use its best efforts to perform the Services specified in each AWP and all obligations under this Contract with respect thereto within such applicable estimated cost. If, at any time, the GC has reason to believe that the costs which it expects to incur in the performance of Services with respect to any AWP in the next succeeding 60 days, when added to all costs previously incurred, will exceed 75 percent of the estimated cost then established for such AWP, or, at any time, the GC has reason to believe that the total cost to the District for the performance of Services with respect to any AWP will be greater or substantially less than the estimated cost then established for such AWP, the GC shall notify the District in writing to that effect, giving the revised estimated of such total cost for the performance of Services in respect of such AWP.

- 4.3.2 Except as required by other provisions of this Contract specifically citing and stated to be an exception from this section, the District shall not be obligated to reimburse the GC for costs incurred in the performance of Services in respect of any AWP and the GC shall not be obligated to continue performance of Services in respect of such AWP or otherwise to incur costs in excess of such estimated cost, unless and until the District shall have notified the GC in writing that such estimated cost has been

increased and shall have specified in such notice a revised estimated cost which shall thereupon constitute the estimated cost of performance of Services in respect of such AWP. No notice, communication, or representation in any other form or from any source other than the District shall affect the estimated cost established for any AWP. In the absence of the specified notice, the District shall not be obligated to reimburse the GC for any costs incurred in the performance of Services in respect of such AWP in excess of the estimated cost then established for such AWP, even if those excess costs were incurred during the course of performance of such Services. When and to the extent that such estimated cost has been increased, any costs incurred by the GC in the performance of Services in respect of such AWP in excess of such estimated cost prior to such increase shall be allowable to the same extent as if such costs has been incurred after the increase; unless the District issues a termination or other notice and directs that the increase is solely for the purpose of covering termination or other specified expenses.

4.3.3 Offsetting adjustments to line item amounts may be made with District approval within an approved AWP provided the total amounts for each fiscal period of such AWP remain unchanged.

4.3.4 The estimated amount established for each AWP shall be subject to change on account of changes in the AWP or changes in the District's requirements for Services, provided that downward

adjustments shall not reduce the total amount below the compensation then due the GC and its subcontractors with respect to the AWP.

- 4.3.5 The GC shall notify the District in writing at least sixty (60) days in advance of the date on which GC estimate that any of said limitations will be reached. If the applicable limitation has not been increased at least thirty (30) calendar days prior to the date that said limitation will be reached, the Contract, at the option of the GC, may be considered terminated pursuant to Termination for Convenience as defined herein; however, in the event that neither party elects to have the Services terminated and the applicable limitation is subsequently increased, such increase shall be applicable to any costs incurred by the GC prior to such increase as well as to costs incurred thereafter.
- 4.3.6 Costs reimbursable to the GC pursuant to Section 5.9 shall not be taken into account for purposes of this Section, (4.3.).

ARTICLE V. GENERAL PROVISIONS

ARTICLE V. GENERAL PROVISIONS

5.1 Data and Property Access to be furnished to the General Consultant:

5.1.1 The District will furnish to the GC at its request in a timely manner all pertinent plans, reports, records, maps and supporting data which are and which will become available to the District and which the GC may require in performance of the Services. The District shall make all necessary arrangements to provide the GC with ready access to both public and private property as may be required in the performance of Services hereunder.

5.2 Personnel:

5.2.1 The GC represents that it has, or will secure, all personnel required to perform the services.

5.2.2 GC shall submit to the District qualifications of key personnel performing Services under this Contract.

5.2.3 The District reserves the right to approve the permanent assignment of any key personnel to perform Services. Any change to the key personnel will be approved by the District.

5.2.4 The District reserves the right to direct the GC or any of its Members to remove any of their personnel from the performance of the Services at any site and to reject nominations of replacement of key personnel for the performance of the Services. If such removal is for cause, the costs of such removal shall be borne by the GC.

5.3 Time of Performance:

5.3.1 The GC shall commence performance of the Services immediately upon receipt of the District's written Notice to Proceed. Upon receipt

of the Notice to Proceed the GC, in conjunction with the District, shall prepare a Project Master Schedule.

5.3.2 The term of this Contract shall continue from the effective date hereof through the completion of the Continuing Project Engineering, with the expressed intent to extend such term through the completion of the Project, subject to a determination by UMTA to proceed with the Project.

5.3.3 The GC agrees to use due diligence in performing the Services with the objective of completing the Services as scheduled. Neither party hereto shall be considered in default in the performance of its obligations under this Contract to the extent that the performance of any such obligation is prevented or delayed by any cause beyond the reasonable control of the affected party. Should the Services be changed by any such cause, the Project Master Schedule shall be revised accordingly.

5.4 Changes or Modifications

5.4.1 In addition to the periodic revisions to the AWP provided for in Section 3.13.3.1 the District may, from time to time order changes to AWP's, and the GC shall promptly comply with such order for changes. Each such change will be directed by a written order signed by the duly authorized representative of the District. If such order affects the Total Contract Ceiling for the current fiscal period, or affects the time of performance, an equitable adjustment in the GC's compensation and schedule as mutually agreed, shall be accomplished by means of a Contract Amendment signed by

the Parties. Any change to other provisions of this Contract affecting the rights or obligations of the Parties as mutually agreed upon, shall be accomplished by a Contract Amendment signed by the Parties.

5.5 Acceptance:

- 5.5.1 When the Services have been completed, the GC shall so advise the District in writing. Within thirty (30) days of receipt of such notice, the District shall give the GC notice in writing of final acceptance or of any Services which have yet to be completed.
- 5.5.2 Upon completion of such Services, the GC shall again notify the District, and within the above specified time period the District shall give the GC written notice of final acceptance or notice that the specified unfinished Services have not yet been completed. In the latter instance, the foregoing procedure with respect to such specified unfinished Services will be repeated. Final acceptance shall not constitute a waiver or abandonment of any rights or remedies available to the District under any other section of this Contract.

5.6 Responsibility of the General Consultant:

- 5.6.1 With respect to the performance of its Services, the GC will exercise that degree of skill, care and diligence normally exercised by recognized professional engineering and management firms with respect to services of a comparable nature.

5.6.2 With respect to the performance of services by its subcontractors, the GC shall use its recognized professional judgement, care and prudence in accepting work products.

5.6.3 In the exercise of the standards set forth in subsections 5.6.1 and 5.6.2 above, GC, in its performance of the Services, will:

- (1) Comply with all applicable laws and ordinances, including applicable regulations;
- (2) Be responsible for the review and approval of all design performed by subcontractors for general conformity with the intent of the latest approved definitive plans, general plans and design criteria; and
- (3) Be responsible for the coordination, integration and interfacing of all Services performed by the GC Members and subcontractors.
- (4) Will not be required to duplicate the subcontractors' detailed engineering calculation and analysis.

5.7 Interim Insurance Program

5.7.1 Pending placement of the insurance program by the District pursuant to subsection 5.7.2, the following Interim Insurance Program will be in effect for the Project:

5.7.1.1 The GC Members shall each provide and maintain, and the GC shall require its subcontractors to secure, and maintain in full force and effect the following insurance:

- (1) Worker's Compensation as required by the laws of the State of California, including Employer's Liability in the minimum amount of \$1,000,000.00.
- (2) Comprehensive General Liability, including Contractual Liability, covering bodily injury, including death, and property damage in the single limit per occurrence of \$5,000,000.00.
- (3) Comprehensive Automobile Liability, including owned, non-owned, and hired vehicles, covering bodily injury, including death, and property damage in the single limit per occurrence of \$5,000,000.00.

5.7.1.2 The GC members shall provide and maintain in full force and effect Architects and Engineers Professional Liability Insurance policies appropriately endorsed for their joint venture participation, in the following minimum amounts:

<u>Firm</u>	<u>Limit of Liability</u>
Daniel, Mann, Johnson, & Mendenhall	\$15,000,000
Parsons Brinckerhoff Quade & Douglas, Inc.	\$15,000,000
Kaiser Engineers (California) Corporation	\$15,000,000
Harry Weese & Associates Ltd.	\$ 5,000,000

The GC Members shall endeavor to maintain such insurance in full force and effect during the period the Interim Insurance Program is in effect. In addition to the above, the GC shall by contract, require its subcontractors to provide and maintain such coverage in minimum amounts as may be agreed to by the District and the GC.

Within fifteen (15) days after the GC's commencement of Services, the GC shall furnish the District with Certificates of insurance evidencing the coverages required under the above subsections 5.7.1.1 and 5.7.1.2, that the District has been made an additional insured or is indemnified under said policies in respect of liabilities to third parties and that thirty (30) days prior to written notice shall be given to the District in the event of any cancellation, nonrenewal or material change of any of such policies.

5.7.2 District Insurance Program

The District shall place and maintain in full force and effect a District Insurance Program under which the District, the GC Members, GC design professional subcontractors and others as determined by the District shall be named as insureds. The District Insurance Program shall, as a minimum, include the insurance coverages described in (1) and (2) below and may include one or more of the coverages described in (3), (4), and (5) below:

- (1) Architects and Engineers Professional Liability Insurance Policy in a form acceptable to the GC in the minimum Project aggregate amount of \$75,000,000 having a deductible of not more than \$1,000,000. This Policy shall provide that its stated coverages shall apply until the completion of the Project and during a discovery period thereafter of not less than three (3) years with an option to extend the discovery period subject to the Insurer's consent and the District's approval.
- (2) All Risk Builders Risk Insurance in an amount equal to the constructed value of the Project.
- (3) Worker's Compensation as required by the laws of the State of California, including Employer's Liability.
- (4) Comprehensive General Liability, including Contractual Liability, covering bodily injury, including death, and property damage.
- (5) Comprehensive Automobile Liability, including owned, non-owned, and hired vehicles, covering bodily injury, including death, and property damage.

5.7.3 The District shall exercise its best efforts to have the District Insurance Program in place at least thirty (30) days in advance of completion of the initial AWP and in any event prior to issuance of the first procurement request for quotation for the Project.

5.8 Indemnification and Limitation of Liability

- 5.8.1 The GC shall defend, indemnify and hold the U.S. Government and the District, their officers and employees, harmless from and against all liability, claims, losses, actions, and expenses (including attorneys fees) on account of bodily injury or death of any person or for loss of or damage to tangible property (including property of the District other than the Project) but only to the extent they result from the negligent acts, errors or omissions of the GC, the GC Members, their employees or agents in the performance of Services under this Contract.
- 5.8.2 During the period prior to the District Insurance Program going into effect the liability of the GC and the GC Members and their respective officers, employees, representatives, agents and sub-contractors to the District on account of their negligent acts or errors or omissions in connection with the Services, shall not include liability for punitive, exemplary or consequential damages and shall be limited to the amounts actually recovered by or paid on behalf of the GC or the GC Members not to exceed, in aggregate, the amounts stated under the Insurances set forth in Section 5.7.1. This concerns liability to the District for loss, damage or cost sustained directly by the District, as distinct from the vicarious liability of the District to third parties resulting from the negligent acts of the GC or the GC Members. Accordingly, this Section 5.8.2 does not expand the liability of the GC or the GC Members to the District provided in Section 5.8.1 or elsewhere in this Contract.

5.8.3 After the District Insurance Program goes into effect, the liability of the GC and the GC Members and their respective officers, employees, representatives, agents, and subcontractors to the District on account of their negligent acts, errors or omissions in connection with the Services, shall not include liability for punitive, exemplary or consequential damages and shall be limited to the amounts actually recovered by or paid on behalf of the GC or the GC Members under the Insurances comprising the District Insurance Program. This concerns liability to the District for loss, damage or cost sustained directly by the District, as distinct from the vicarious liability of the District to third parties resulting from the negligent acts of the GC or the GC Members. Accordingly, this Section 5.8.3 does not expand the liability of the GC or the GC Members to the District provided in Section 5.8.1 or elsewhere in this Contract.

5.8.4 The District agrees to require each construction and procurement contractor who has a contract with the District for any portion of the Project to indemnify the District, GC, GC Members and the GC's subcontractors, individually, against all liabilities, claims damages, losses and expenses, including attorney's fees, arising out of or resulting from the performance of the Work, whether caused in whole or in part by such contractor, its subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by the District, the GC, the GC Members or the GC's subcontractors. Claims against the District, the GC, the GC Members

or the GC's subcontractors by any employee of such contractor, its subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall not limit the contractor's indemnification obligation set forth above in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the contractor or its subcontractors under workers' compensation acts, disability benefit acts or other employee benefit acts or insurances.

5.9 Termination

5.9.1 Termination for Default

If through any cause within the reasonable control of the GC, the GC shall fail to fulfill in a timely and proper manner or otherwise violate any of the covenants, agreements, or stipulations material to the Contract, the District shall thereupon have the right to terminate the Services then remaining to be performed by giving written notice to the GC of such termination and specifying the effective date. In that event, all finished and unfinished documents, data, studies, surveys, drawings, maps, models, photographs, reports, and other work products prepared by the GC and its subcontractors (subconsultants) shall become the District's property, and the District shall compensate the GC for all services performed by the GC prior to termination and for all other costs permitted by FPR 1.15.205.42. Notwithstanding the above, the GC shall not be relieved of liability to the District for damages sustained by the District by virtue of any breach of the Contract

by the GC having nothing to do with the quality or timeliness of the GC's work product and the District may reasonably withhold payments to the GC for the purposes of setoff until such time as the exact amount of damages due the District from the GC is determined.

5.9.2 Termination For Convenience

The District may, for its convenience, terminate the Services then remaining to be performed, in whole or in part, at any time by giving written notice to the GC of such termination which shall become effective upon receipt by the GC of the written termination notice. In that event, all finished or unfinished documents and other materials shall become the District's property. If the Contract is terminated by the District, the District shall compensate the GC for all services actually performed by the GC. In addition, the GC shall be reimbursed for all costs incidental to said termination, including without limitation, demobilization costs not otherwise reimbursed under these termination payment provisions.

5.9.3 Based upon the concept that this Contract encompasses a multi-year period, and that the GC and the GC Members will be required to enter into commitments over a multi-year period with prior District approval (e.g. lease of office space, and purchase of furniture, telephone system, and office equipment) the costs of which would be normally amortized over such multi-year period, it is agreed that if the GC's performance hereunder is cancelled or

terminated, the District shall purchase the lease, furniture, telephone system and office equipment, the cost of this purchase to be in accordance with generally accepted accounting practices.

5.9.4 All costs reimbursable under this Section 5.9 shall be excluded from the operation of Section 4.3.

5.10 Disputes

- 5.10.1 In the event any dispute arises between the parties hereto under or in connection with this Contract (including by way of illustration and without limitation, disputes over payments, invoices, reimbursements, costs, expenses, services to be performed, scope of work and/or time of performance), the District shall, upon its own initiative or promptly upon the written request of the GC, make a determination thereof and such determination shall be complied with pending judicial determination of the dispute in the manner hereinafter specified.
- 5.10.2 Each determination made by the District pursuant hereto shall be set forth in a written notice thereof to the GC and, within sixty (60) days after the GC's receipt of any such notice, the GC shall respond to the District in writing, either accepting the determination or stating in general terms the GC's factual and/or legal objections to the determination. If the GC's response is an objection to the determination, the District shall respond in writing to the GC's response within thirty (30) days after the District's receipt thereof. No further responses by either party shall be

required. Thereafter, either party may seek a judicial determination of the dispute. Neither the District's determination, nor either party's response in connection therewith, nor the continued performance of the Contract by either party shall constitute an admission by either party as to any factual and/or legal position in connection with the dispute or a waiver of its rights under the Contract or at law.

5.11 (Reserved)

5.12 Maintenance of Records:

The GC and GC Members shall maintain books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for or in connection with the performance of this Contract until the expiration of three (3) years from the date of final payment under this Contract. The system of accounting will be in accordance with generally accepted accounting principles and practices, consistently applied.

5.13 Inspection:

The GC and its members shall permit the authorized representatives of the District, State of California and U.S., DOT to inspect, audit and review all work, tracings, plans, specifications, maps, data, records (including, without limitation, the records maintained under Section 5.12), and construction site work performed, gathered, or developed under this Contract at any time within the duration of the Contract and within three (3) years after the final acceptance or termination of the Services.

5.14 Identification of Documents:

All reports, maps, plans, drawings, specifications, and other documents completed as a part of this Contract, other than documents exclusively for internal use within the District or GC shall carry the following notation on the front cover or title page (or, in the case of maps, in the same block containing the name of the District) together with the date (month and year) the document was prepared and the name of the District:

"The preparation of this (report, map, plan, drawing, etc.) has been financed in part through a grant from the U.S. Department of Transportation, Urban Mass Transportation Administration, under the Urban Mass Transportation Act of 1964, as amended, the State of California, and the Los Angeles County Transportation Commission."

5.15 Ownership of Documents and Equipment:

All documents, data, studies, surveys, drawings, specifications, maps, photographs, reports, books, and estimates gathered or prepared for or by the GC pursuant to this Contract shall be the property of the District without restriction or limitation on their use and shall be made available, upon request, to the District at any time. Original copies of such shall be delivered by the GC to the District upon final acceptance or termination of the Services. The GC shall be permitted to retain copies of such items for the furtherance of its technical proficiency; however, publication of this material is subject to the written approval of the District.

Tangible items of nonconsumed equipment, materials, supplies, and furnishings purchased by the GC, the costs of which have been reimbursed to the

GC as a direct cost, shall be turned over to the District at completion or earlier termination of the Services or otherwise disposed of as directed by the District and the proceeds of any such disposal shall be credited to the District.

5.16 Notices:

5.16.1 All communications relating to the day-to-day activities shall be exchanged between the respective project representatives of the District and the GC, which representatives shall be designated by the parties promptly upon commencement of the Services.

5.16.2 All other notices and communications in writing required or permitted hereunder may be delivered personally to the representatives of the District or the GC listed below or may be mailed by registered mail, postage prepaid (or airmailed if addressed to an address outside of the city of dispatch). Until changed by notice in writing, all such notices and communications shall be addressed as follows:

If to the District: Southern California Rapid Transit District
Metro Rail Project
425 South Main Street
Los Angeles, CA. 90013

Attention: Assistant General Manager
for Transit System Development

If to the GC: Metro Rail Transit Consultants
548 South Spring Street, 7th Floor
Los Angeles, CA. 90013

Attention: Project Director

5.16.3 Notices hereunder shall be effective if delivered personally, on delivery; if mailed to an address in the city of dispatch, on the day following the date mailed; and if mailed to an address outside the city of dispatch, on the fifth day following the date mailed.

5.17 Assignment and Subcontracting

Neither the GC nor any of its members shall subcontract (including, without limitation, outside legal services) or assign any interest in this Contract nor shall any of them transfer any interest in the same (whether by assignment or novation) without the prior written consent of the District thereto.

5.18 Equal Employment Opportunity - Title VI , Civil Rights Act of 1964

During the performance of the Contract, the GC, for itself, its assignees and successors in interest, agrees as follows:

5.18.1 Compliance with Regulations: The GC shall comply with the Regulations relative to nondiscrimination in federally-assisted programs of the Department of Transportation (herein called "DOT") in Title 49, Code of Federal Regulations, Part 21, and related requirements as they may be amended from time to time (herein called the "Regulations"), which are herein incorporated by reference and made a part of this Contract.

5.18.2 Nondiscrimination: The GC with regard to the Services performed by it during the term of the Contract, shall not discriminate against any employee or applicant for employment because of race, creed, religion, color, sex, age, national origin, or handicapped status. The GC will take affirmative action to ensure that applicants are employed, and that employees are treated during

employment without regard to their race, religion, color, sex, age, national origin or handicapped status. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising, layoff or termination; and selection for training, including apprenticeship. The GC agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of the nondiscrimination clause. The GC will in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, or national origin or handicapped status.

5.18.3 Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the GC for Services to be performed under a subcontract, including procurements of materials or leases or equipment, each potential subconsultant or supplier shall be notified by the GC of the GC's obligations under the Contract and the Regulations relative to nondiscrimination on the grounds of race, religion, color, sex, age, national origin or handicapped status.

5.18.4 Sanctions for Noncompliance: In the event of the GC's non-compliance with the nondiscrimination provisions of the Contract, the District shall impose such Contract sanctions as it or UMTA may determine to be appropriate, including, but not limited to:

(1) Withholding of payments to the GC under the Contract until the GC complies, and/or

(2) Termination or suspension of the Contract, in whole or part.

5.18.5 Incorporation of Provisions: The GC shall include the provisions of subsections 5.18.1 through 5.18.4 above, in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The GC shall take such action with respect to any subcontract or procurement as the District or UMTA may direct as a means of enforcing such provisions the GC becomes involved in, or is threatened with, litigation with a subconsultant or supplier as a result of such direction, the GC may request the District to enter into such litigation to protect the interests of the District, and, in addition, the GC may request the United States to enter into such litigation to protect the interests of the United States.

5.19 Minority and Women's Business Enterprise:

This Contract is subject to Title 49, Code of Federal Regulations, Part 23 as amended entitled "Participation by Minority Business Enterprise in Department of Transportation Programs" which provides that Minority Business Enterprises (WBE incorporated by reference) shall have the maximum opportunity to compete for and participate in the performance of Contracts financed in whole or in part with Federal Funds. The GC and its subconsultants agree to insure that minority business enterprises as defined in 49 C.F.R. Part 23 have the maximum opportunity to compete for and participate in the performance of contracts and subcontracts financed in whole

or in part with federal funds provided under this Agreement. In this regard, the GC shall take all necessary and reasonable steps in accordance with 49 C.F.R. Part 23 to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts. The GC shall not discriminate on the basis of race, creed, color, sex, age or national origin in the award and performance of DOT-assisted contracts.

Said regulations specify as follows:

General requirements for recipients: Each recipient shall agree to abide by the statements in paragraphs (a) (1) and (2) of this section. These statements shall be included in the recipient's DOT financial assistance agreement and in all subsequent agreements between the recipient and any subrecipient and in all subsequent DOT-assisted contracts between recipients or subrecipients and any contractor.

- (1) "Policy. It is the policy of the Department of Transportation that minority business enterprises as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal funds under this agreement. Consequently the MBE requirements of 49 CFR Part 23 apply to this agreement.
- (2) "MBE Obligation. The recipient or its contractor agrees to ensure that minority business enterprises as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with

Federal funds provided under this agreement. In this regard, all recipients or contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts. Recipients and their contractors shall not discriminate on the basis of color, national origin, or sex in the award and performance of DOT-assisted contracts."

In connection with this Contract, the District has established a goal of 17% for minority business participation and 3% for women-owned business participation based on the total dollar value of the Contract as measured on a programmatic basis over the term of the Contract.

The GC shall provide a copy of any subcontracts or joint venture agreements entered into with MBE(s) in regard to the Project to the District General Manager as proof that the GC has in fact entered into a subcontract or joint venture with MBE(s) in regard to the Project for the percentage of the value of the Services as reflected therein. All MBE(s) participating in the Project must be certified by the District. The GC may count toward its MBE goals only expenditures to certified MBE's that perform a commercially useful function in the work of the Contract.

The GC shall thereafter neither terminate any such subcontract nor reduce the Services to be performed by, or decrease the price to be paid to, the MBE or the minority-nonminority joint venture thereunder without in each instance the prior written approval of the General Manager. Where the

General Manager has approved termination of a subcontract held by an MBE or minority-nonminority joint venture, the GC shall make every reasonable effort to propose and enter into an alternative subcontract(s) for the same services to be performed with other qualified MBE(s) for a contract price or prices totaling not less than the contract price of the terminated portion of the subcontract.

The General Manager shall review the GC's minority business enterprises involvement efforts during performance of the Contract. In order to facilitate such review, the GC's monthly invoices shall specify what portion of said income went to the minority business enterprise(s), and the GC shall also make available to the District written affirmation thereof by the minority business(s), upon the request of the General Manager. If the GC meets its goal established herein or if the GC demonstrates that every reasonable effort has been made to meet its goal, the GC shall be presumed to be in compliance. Where the GC is found to have failed to exert every good faith effort to involve MBE(s) in the Project, the District may, in addition to the other sanctions provided by the Contract, deny the GC participation in any further contracts to be awarded by the District.

5.20 Patent Rights, Copyrights, Confidential Findings:

5.20.1 Any patentable result arising out of this Contract as well as all information, designs, specifications, processes, data, and findings shall be made available to the District and UMTA for public use, unless the U.S. Department of Transportation shall in a specific case where it is legally permissible determine that it is in the public interest that it not be so made available.

5.20.2 No reports, maps, other documents, articles, or devices produced in whole or in part under this Contract shall be the subject of any application for copyright or patent by or on behalf of the GC or any of its members, employees, or subcontractors.

5.21 Conflict of Interest:

Each GC member covenants that it presently has no interest and shall not acquire any interest, direct or indirectly, which would conflict in any manner or degree with the performance of Services required to be performed under this Contract. The GC and each of its members further covenant that in the performance of this Contract no person having any such interest shall knowingly be employed by the GC.

5.22 Covenant Against Contingent Fees:

The GC and its members warrant that they have not employed or retained any company or person, other than a bona fide employee working solely for the GC or its members to solicit or secure this Contract and that they have not paid or agreed to pay any person, company, corporation, individual, or firm, other than a bona fide employee working solely for the GC or its members any fee, commission, percentage, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract.

5.23 Publicity News Releases:

The GC will not, during or after performance of this Contract, disseminate any information outside its organization regarding this project without prior written approval of the District.

5.24 Governing Law:

This Contract, regardless of where executed, shall be governed and construed according to the laws of the State of California.

ARTICLE VI. TECHNICAL PROVISIONS

ARTICLE VI. TECHNICAL PROVISIONS

6.1 General Requirements:

The Services include the completion of Preliminary Engineering, Continuing Preliminary Engineering, and final design of the architectural, structural, mechanical, electrical, traffic, civil and landscaping features of all facilities and equipment for the Project. These Services will include the preparation of contract plans, standard specifications, material quantities, take-offs, estimates and other construction contract documents, including all necessary and related professional services in connection with the detailed design work as specified in Article III.

6.1.1 Adjacent Developments: The GC shall review all plans supplied by the District of proposed developments by others, over, under or adjacent to the transit site. It will be the GC's responsibility to prepare and submit to the District an analysis of the possible effects of such developments on the design of the rapid transit facilities. A preliminary analysis shall be submitted to the District in a timely manner after referral by the District to the GC.

6.1.2 Design Computations: The GC shall prepare or have the subconsultants prepare design computations for each discipline. Computations shall be consistent with the detailed design and contract drawings. Design computations shall contain all computer input and related data and shall be checked either on original sheets or independently. The preparation of the design computations shall be on sheets folded up to 8-1/2 by 11 inches.

6.1.3 Quantity Take-Offs: The GC shall prepare or have the subconsultants prepare for each construction contract, quantity take-offs of

material required for the construction of the work. All quantity take-offs shall be performed and then reviewed. Any differences shall be resolved and shown. All quantity take-off sheets shall show procedures and state the supplementary assumptions used. All submittals shall include the summary sheet(s) as well as all pertinent back-up computation sheets. Quantity take-off's shall be prepared on sheets folded to a maximum dimension of 8-1/2 by 11 inches and shall have the firm name identified at the top of the sheet.

6.1.4 Cost Estimates: The GC shall prepare or have subconsultants for each construction procurement and installation contract prepare, an engineers cost estimate. The preparation of estimates shall be presented as estimated unit prices for the bid items for material in place, and shall reflect bid take-off quantities. Where lump sum items are used, a basis for determination will be used. The estimates shall show the procedures and state the assumptions used. The estimate back up data shall be based on the latest available information pertaining to the labor, equipment and material costs in the District area, and shall show cost escalation. The estimates shall include the construction contractor's overhead, profit and contingency rate. The bid items shall be on a balanced basis and no adjustment shall be made for early money or other factors that may be used in unbalancing bid items.

6.1.5 Design Analysis Report: The GC shall prepare or have the subconsultants prepare for major construction contracts and each major system element a design analysis report to be used for purposes of docu-

mentation of design and for use in construction management. In the preparation of the Design Analysis Reports, the GC shall consider and provide such qualifications and background information as needed to record the basis of design. A sequence of construction shall be specified in those cases where the design is likely to be affected in the event an alternative sequence is used.

- 6.1.6 Cost Trend Review: The GC shall review periodically with the District the development of design for each construction procurement and installation contract for the purpose of identifying estimated construction cost changes.
- 6.1.7 Assistance During Advertising and Award: The GC shall prepare or have the subconsultants prepare addenda and related drawing revisions as necessary for each construction procurement and installation contract, attend pre-bid meetings and assist in evaluation of bids as directed by the District.
- 6.1.8 Development of Standard Specifications: A complete set of specifications, covering all types of materials and workmanship anticipated to be used in the Project, will be written by the GC. In this work, the standard specifications and terminology used in local public work agencies will be drawn upon, where appropriate, and incorporated into these specifications. The specifications shall be 8-1/2 by 11 inches bound on the long side.
- 6.1.9 Codes and Regulations: In the performance of all work described herein, the GC and subconsultants will comply with all applicable provisions of appropriate local, state and national construction and building codes.

6.1.10 Seal Endorsement: In accordance with applicable laws and regulations of the State of California data prepared by the GC or the subconsultant will bear the endorsement and seal of the person, duly registered in the appropriate professional discipline in the State of California, who prepared such data or under whose responsible supervising control such data was prepared. GC shall review and approve subconsultant's drawings in accordance with Section 5.6 and so indicate its approval by signature of the appropriate GC representative in an appropriate place in the title block of the drawings.

6.2 Design Services

6.2.1 Architectural Design: The GC and its subconsultants will perform detailed plans, architectural design including preparation of renderings and models for architectural design features.

(1) The plans shall include development of designs for those station elements which will be similar for purposes of economy, ease of maintenance, and necessary to retain a balanced system. Station site plans will be tailored to the context of the immediate contiguous environment. Architectural plans shall include station configuration drawings showing concourse and platform layouts, parking areas, bus and kiss and ride facilities, access walks, roads and auxiliary facility locations.

(2) Architectural standard drawings will be prepared for the systemwide Elements of Continuity for lighting fixtures, maintenance equipment, gates, barriers,

system graphics, surveillance, communications, signing, advertising areas, stairs, escalators, elevators, landscaping, parking structures, doorways, and number, type and location of fare collection equipment. The elements of variable design include such elements as site design, materials selection, locations for systemwide light fixtures and artwork.

- (3) Special consideration shall be given in the design process such that all facilities used by the handicapped patrons and the disadvantaged shall incorporate design features which fulfill the requirements of the criteria of U.S. DOT and the American National Standards Institute.
- (4) Criteria shall be developed for the architectural design of yard and shop facilities, and the Central Control Center. Detailed design of yard and shops and the Central Control Center shall include drawings, renderings, models, criteria, standards, plans and specifications.

6.2.2 Structural Design: Element of design shall include development of details for foundations, tunnels, piers, girders and other structural members, including cross-sections, fabrication and installation drawings for cut-and-fill sections, subway sections and

at-grade facilities, under varying conditions. Structural elements of design would also be applicable to and required for tunnel liners and cut-and-cover sections, underpinning and support of structures for utilities. In addition, the GC will be required to perform the following:

(1) Restoration Design

Prepare the design of the restoration of all facilities to be repaired, restored or rebuilt following construction. Prepare contract drawings for restoration of such facilities.

(2) Underpinning

Prepare and submit to the District a report indicating recommendations for evaluating risks and the need to underpin properties and structures potentially affected by construction. The report shall identify the categories and locations of said structures.

6.2.3 Civil Design: The GC and its subconsultants will perform complete detailed civil engineering designs. Environmental management considerations will be included. These services will include, but not be limited to, the following:

(1) Alignment and Grade

Determine final horizontal and vertical alignment. Alignment shall be mathematized utilizing computer programs.

(2) Utilities Relocation Design

Provide where necessary composite utility drawings, using supplemental drawings as provided by other agencies for facility areas with requirements for utility relocations.

Prepare contract drawings delineating the existing utilities: These drawings shall include:

- (a) Composite plans
- (b) Cross sections
- (c) Large-scale detail of critical locations

Prepare and submit to the District recommended solutions for relocation, abandonments, temporary support or other disposition of affected utilities. Prepare the design and contract documents for permanent relocation of utilities affected by construction excluding utility facilities designated for design by utility companies. Design shall be based on a replacement in kind. Design shall also include the method of accommodating the utilities during construction and the location of essential service connections.

Prepare and submit to the District for betterment of relocated or revised facilities:

- (a) A written description of each betterment
- (b) Drawings delineating each betterment
- (c) A cost estimate which identifies the cost differential between the designed facility and a "replacement in kind" facility

Betterments shall be defined as existing when the replacement facility provides an increase in capacity,

a more efficient system, an extension of service, or a more durable facility; or as otherwise defined in the Master Agreement or Implementing Agreement consummated with the utility owner by the District, in which case the definition contained therein shall apply.

Prepare contract documents for relocated or revised facilities.

Designate in the contract documents the utility relocation work items to be performed by others.

(3) Street and Highway Relocation Design

Prepare the design of temporary or permanent relocation of streets and highways affected by construction, excluding those sections designated for design by other appropriate agencies. Design shall be based on a replacement in kind, and shall include plans for the maintenance of traffic, including detours, which shall be based on requirements and traffic flow data furnished by the District.

Prepare and submit to the District for any betterments of relocated streets and highways and railroads the following data:

- (a) A written description of each betterment
- (b) Drawings delineating each betterment

(c) Cost estimates which identify the cost differential between the designed facility and a "replacement in kind" facility

Betterments shall be defined as existing when the replacement facility provides an increase in capacity, a more efficient system, an extension of service, or a more durable facility; or as otherwise defined in the Master Agreements or Implementing Agreements consummated by the District with the owners, in which case the definition therein shall apply.

Prepare contact drawings for relocated streets and highways.

Provide assistance to the District in its coordination of streets and highways relocation.

6.2.4 Civil and Structural Plans: Consistent with Sections 6.2.2 and 6.2.3 and Article III, detailed plans shall be prepared by the GC for Civil and Structural design elements. Plans shall include, but not be limited to, the following:

- o Right-of Way Delineation
- o Horizontal and Vertical Alignment
- o Yard and Shop Areas and Equipment
- o Access Roads and Traffic Rerouting Plans
- o Highway and Railroad Relocations Plans
- o Parking Facilities
- o Utility Plans
- o Facility Locations

- o Security Provisions
- o Environmental Management Provisions
- o Storm Drainage and Normal Drainage Plans
- o Track Layouts
- o Station Complex Plans

6.2.5 Mechanical Design: The GC shall provide criteria and will develop final designs of all equipment related to electro-mechanical devices, transit vehicles, yard and maintenance equipment, ventilation and climate control concepts, including cooling and forced air ventilation. Appropriate elements of the fire protection system and plumbing are to be included in this group of design requirements.

Layout and space concept requirements of mechanical service rooms and facilities at passenger terminals and electrical substations are to be included in this design. The GC shall provide designs for air pumping facilities, including fan and vent shafts and other mechanical elements of the system.

6.2.6 Electrical Design: Criteria and final design shall be developed by the GC as provided for in Article III for the traction power systems and subsystems for train propulsion, and general operating power for the other system facilities. These criteria shall describe the power sources, required voltages, current characteristics, general characteristics of substations and standards for equipment quality, performance and reliability. Specifications for automatic operation for standby and emergency requirements shall be established.

All wiring, cable, terminals, raceways, conduit, panels, and lockers shall comply with all local and national codes for fire protection and underwriter specifications and shall provide for the incorporation of all applicable components, equipment and systems designed by others.

6.2.7 Train Control and Communications

Criteria and final design shall be developed by the GC as provided for in Article III to provide the system with train control and communications systems and sub-system, based on thorough design analyses. Appropriate indicators will be designed to monitor pre-determined areas for security, fire, power failures, equipment failure and unscheduled intrusion of foreign objects into controlled equipment areas, as approved by the District. A "centralized train control" display panel will indicate block occupancy, train movements, switch positions and wayside station operations status. There shall be a direct communications link between controlled train cab and the control center as well as each wayside station. Daily operational functions shall be recorded to provide an operational history.

Communications criteria will be developed to provide for communicating with the vehicle control system under normal and emergency conditions. An independent power source for emergency use shall be specified.

Provisions for public address system for passenger information and external communication for voice contact between crew and control center and maintenance personnel will be required.

Criteria should be developed by the GC to provide a required design technology for Train Operations. The design of the Train Operations system shall include, but not be limited to, train dynamics of acceleration and braking, signaling and interlocks, and traffic control. Traffic control would include a simulation via a mimic board located in central control to monitor transfers, turnbacks, routes overall, schedules (headways and dwell times) and performance levels.

The GC shall conduct an alternatives and "trade-off" analysis of available equipment versus equipment which requires a new design and manufacture. This review shall precede all final equipment selection.

6.2.8 Landscaping Design

Schematics and designs shall be prepared by the GC and its sub-consultants for the proposed landscaping concepts which will result in generally acceptable aesthetic standards, as well as performing functional requirements for visual buffering and noise abatement. Landscaping standards shall be adaptable to the various system conditions. Proposed landscaping standards shall be in keeping with the local climatic conditions and existing landscaping traditions plant selections, as well as reasonable maintenance requirements. The maintenance requirements shall be set forth, including water requirements and number of landscape maintenance personnel required.

6.2.9 The GC will provide systems engineering and support services during final design. These support services will include necessary system safety, assurance, security and operational work to support final

design of the Project. The system safety support services will include the provisions of safety certification services as directed by the District.

6.3 Contract Writing and Pre-Award Services

The GC shall produce final draft and finished contract documents as required for Project construction, procurement and installation contracts that may be required, subject to the review and approval of the District in each case. The development of the contract packages shall take into account such factors as the type and scope of work to be performed, time of performance, availability of labor and material, minority business participation and other pertinent criteria.

The GC shall review plans and specifications (1) for the proper interfacing among contracts, (2) to avoid overlapping jurisdictions which would produce conflicts between contracts and (3) assigning phases of the work to the contract.

The GC shall review specifications to determine that they contain (1) provisions for the temporary facilities necessary to enable a contractor to perform his work and (2) provisions for all of the jobsite facilities necessary to enable the construction management and supervision personnel to perform their duties effectively.

6.4 Surveying Services and Aerial Mapping

6.4.1. Surveying Services

The GC will be responsible for obtaining necessary field survey services as directed by the District. These services shall include, but may not be limited to, the following activities:

- (1) Establishing a permanent network of horizontal and vertical control points, which will serve as a basis for all design and construction surveys to be performed throughout the project and to furnish "mile" or "kilometer" markers for use during operation of the system. Guidance as to use of the metric system will be furnished by the District.
- (2) Establishing ground control points required in connection with the controlled aerial photo surveys of the system.
- (3) Obtaining and providing all necessary project facilities design surveys.
- (4) Obtaining complete topographical surveys of the project area parcels to be acquired for the project, including information on structures and other improvements, etc., within those parcels. This includes geodetic control, cadastral, route location and design and construction surveys.
- (5) Checking the horizontal and vertical dimensions and positioning of installed facilities.

This work is in addition to survey activities required by construction contractors and shall be performed in accordance with District specifications.

6.5 Soils and Subsurface Investigations

The GC will be responsible for providing appropriate geotechnical engineering services as are required in establishing reliable subsurface profiles

and foundation designs. The GC will be required to prepare and submit to the District for approval, an overall plan and program for subsurface investigations prior to beginning this activity:

The services required shall include, but may not be limited to, the following activities:

- 6.5.1 Review published geologic information of the District area and review the results of completed subsurface investigations made in connection with this Project.
- 6.5.2 Perform the necessary subsurface investigations throughout the proposed corridors and at other project related locations, including the preparation of boring plans, performing borings, field sampling and cataloging, groundwater and dewatering studies, laboratory testing and other soils investigation techniques.
- 6.5.3 Review soil characteristics assumptions made by subconsultants and monitor all Project activities related to soil characteristics and foundation design.
- 6.5.4 Prepare subsurface investigation and foundation design reports. This task includes obtaining specific soils engineering information required for individual Project sections and facilities.

6.6 Right-of-Way and Property Acquisition

The GC will be responsible for preparing and providing to the District, at the earliest possible date, plans showing the proposed right-of-way lines and easement lines.

The GC may also be required to prepare the final right-of-way and parcel maps necessary in right-of-way and property acquisition.

6.7 Project and Scheduling Services

The GC will be responsible for developing, establishing and maintaining Project schedules as provided for in Article III.

6.8 Laboratory Services

The GC will be responsible for providing the laboratory services required throughout the duration of the Project's phases, as authorized by the District.

6.9 Administrative Services

Subject to the District's direction and approval, the GC shall furnish such Project administrative services as are necessary to assist the District in the management and control of the Project. These services include, but may not be limited to, the following activities:

- (a) Assign and supervise a team of qualified managers, architects, engineers, technicians and administrative personnel to perform services described in this document.
- (b) Prepare, establish and maintain efficient managerial and administrative procedures necessary for the orderly progress and completion of the Project.
- (c) Provide professional administrative and management support to the District in all Project matters.
- (d) Control the design progress and direction to maintain approved schedules and stay within approved budgets.

- (e) Maintain continuous liaison with designated District representatives for each design and construction facet, from beginning to completion of the Project.
- (f) Provide administrative control of design effort.
- (g) Assist the District in establishing policies and, as authorized by the District, assist the District in negotiating agreements with utilities, railroads and other agencies.

6.10 Budget Administration Services and Cost Limitations

The GC will be responsible for the development and continuous regulation of detailed budgets and forecasts as provided for in Article III.

6.11 Models and Renderings

As requested by the District, the GC will be required to prepare or have prepared appropriately scaled models of selected stations, the yards and shops facility, certain selected segments of the line structures, and parking garage structures or directed by the District. The models will be lightweight, chipboard type, neatly constructed, suitable for presentation to the District, local citizens and at public hearings.

ARTICLE VII. AGREEMENT

ARTICLE VII. AGREEMENT

This document embodies the entire Contract and understanding between the parties hereto pertaining to the subject matter hereof, and there are no other agreements or understandings, oral or written, pertaining to the subject matter hereof that are not merged herein and superseded hereby. No alteration, change or modification of the terms of this Contract shall be valid unless made in writing and signed by all parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed on the date first hereinabove written.

DANIEL, MANN, JOHNSON, & MENDENHALL

By [Signature]

Title Sen. V.P.

Date April 11-83

WITNESS:

By [Signature]

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

By [Signature]

Title Vice President

Date April 7, 1983

WITNESS:

By [Signature]

KAISER ENGINEERS (CALIFORNIA) CORPORATION

By [Signature]

Title Zoltan A. Stacho Vice President

Date April 6, 1983

WITNESS:

By [Signature]

HARRY WEESE & ASSOCIATES LTD.

By [Signature]

Title Vice President

Date April 7, 1983

WITNESS:

By [Signature]

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT

John A. Dyer
General Manager

Date _____

APPROVAL RECOMMENDED:

By _____

Date _____

Title _____

APPROVED AS TO FORM:

Richard T. Powers
General Counsel

Date _____

MTA LIBRARY