

WBS 16CAA11  
Subtask IVB-C

PASSENGER VEHICLE  
CONTRACT DRAWING REQUIREMENTS

LACMTA LIBRARY

1.0 GENERAL

1.1 PURPOSE

The purpose of this document is to define the contract and reference drawing requirements of the passenger vehicle procurement contract package. The drawing list will enable an estimate of engineering work required through final design.

1.2 SCOPE

The list of drawings defines those drawings considered necessary to adequately define the passenger vehicle design requirements and the system requirements within which the vehicle will operate. Final design and eventual procurement packaging may dictate minor changes to the list. An indication of the drawings required for inclusion in the preliminary specification, industry review specification and the final procurement documents is included herein.

1.3 SOURCE

A survey of recent vehicle procurement contracts awarded by Baltimore/Miami, Atlanta and San Francisco BART provide a basis for the drawing list.

2.0 CONTRACT DRAWINGS

The following drawings are required to define the physical characteristics of the Metro Rail passenger vehicle.

DWG NO	TITLE	PREL	INDUSTRY	FINAL
C-G-01	Index of Drawings	X	X	X
C-G-02	Symbols and Abbreviations			X
C-P-01	Exterior Perspective			X
C-P-02	Interior Perspective			X
C-P-03	General Arrangement (Floor and Seating Plan)	X	X	X
C-P-04	Side Elevation	X	X	X
C-P-05	F-end Elevation			X
C-P-06	F-end Details			X
C-P-07	R-end Elevation			X
C-P-08	R-end Details			X
C-P-09	Vehicle Contour		X	X
C-P-10	Clearance Diagram	X	X	X
C-P-11	Contact Rail Clearance Requirements	X	X	X
C-P-12	Operator's Cab Plan and Elevation	X	X	X
C-P-13	Operator's Cab Details			X
C-P-14	Operator's Cab Partitions			X
C-P-15	Operator's Control Console		X	X
C-P-16	Operator's Cab Electrical and Control Panels		X	X
C-P-17	Interior Cross Sections			X
C-P-18	Reflected Ceiling Plan			X
C-P-19	Interior Details (Window Mask)			X
C-P-20	Interior Details (Side Wall Lining)			X
C-P-21	Interior Details (Ceiling Lining)			X
C-P-22	Interior Details (Light Fixtures HVAC Diffusers)			X
C-P-23	Interior Details (Windscreens)			X
C-P-24	Interior Details (Stanchions and Handholds)			X

DWG NO	TITLE	PREL	INDUSTRY	FINAL
C-P-25	Interior Color and Material Schedule			X
C-P-26	Interior Graphics			X
C-P-27	Interior Graphics			X
C-P-28	Exterior Graphics and Color Scheme			X
C-P-29	Seat, Transverse			X
C-P-30	Seat, Longitudinal			X
C-P-31	Seat, Back to Back			X
C-P-32	Operator's Seat			X
C-P-33	Schematic, Trainline Definitions			X
C-P-34	Schematic, Annunciators			X
C-P-35	Schematic, Communications Interface			X
C-P-36	Schematic, Automatic Train Control Interface	X		X
C-P-37	ATC Antenna Location Requirements			X

### 3.0 REFERENCE DRAWINGS

The following drawings are required to define the system operational performance characteristics required of the passenger vehicle.

DWG NO	TITLE	PREL	INDUSTRY	FINAL
R-P-000	Train Control Track Plan - (Starter Line)			X
R-P-100	Civil Profile, Plan and Elevation (Starter Line)	X		X

WBS16CAA11-IIC and IVC  
81152-601

PASSENGER VEHICLE  
REFERENCE DRAWING REQUIREMENTS  
and  
CONTRACT DRAWING LIST

Prepared by  
Kaiser Engineers California

May 1983

*Funding for this project is provided by grants to the Southern California Rapid Transit District from the United States Department of Transportation, the State of California, and the Los Angeles County Transportation Commission.*

1.0 GENERAL

1.1 PURPOSE

The purpose of this document is to define the contract and reference drawing requirements of the passenger vehicle procurement contract package. The drawing list will enable an estimate of engineering work required through final design.

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The list of drawings defines those drawings considered necessary to adequately define the passenger vehicle design requirements and the system requirements within which the vehicle will operate. Final design and eventual procurement packaging may dictate minor changes to the list. An indication of the drawings required for inclusion in the preliminary specification, intermediate (industry review) specification, and the final procurement documents is included herein.

1.3 SOURCE

A survey of recent vehicle procurement contracts awarded by Baltimore/Miami, Atlanta, and San Francisco BART provide a basis for the drawing list.

2.0 CONTRACT DRAWINGS

The following drawings are required to define the physical characteristics of the Metro Rail passenger vehicle.

DWG. NO.	TITLE	PREL.	INTER.	FINAL
C-G-01	Index of Drawings	X	X	X
C-G-02	Symbols and Abbreviations			X
C-PV-01	Exterior Perspective			X
C-PV-02	Interior Perspective			X
C-PV-03	General Arrangement (Floor and Seating Plan)	X	X	X
C-PV-04	Side Elevation	X	X	X
C-PV-05	F-end Elevation			X
C-PV-06	F-end Details			X
C-PV-07	R-end Details			X
C-PV-08	R-end Details			X
C-PV-09	Vehicle Contour		X	X
C-PV-10	Clearance Diagram	X	X	X
C-PV-11	Contact Rail Clearance Requirements	X	X	X
C-PV-12	Operator's Cab Plan and Elevation	X	X	X
C-PV-13	Operator's Cab Details			X
C-PV-14	Operator's Cab Partitions			X
C-PV-15	Operator's Control Console		X	X
C-PV-16	Operator's Cab Electrical and Control Panels		X	X
C-PV-17	Interior Cross Sections			X
C-PV-18	Reflected Ceiling Plan			X
C-PV-19	Interior Details (Window Mask)			X
C-PV-20	Interior Details (Side Wall Lining)			X
C-PV-21	Interior Details (Ceiling Lining)			X
C-PV-22	Interior Details (Light Fixtures HVAC Diffusers)			X
C-PV-23	Interior Details (Windscreens)			X

DWG. NO.	TITLE	PREL.	INTER.	FINAL
C-PV-24	Interior Details (Stanchions and Handholds)			X
C-PV-25	Interior Color and Material Schedule			X
C-PV-26	Interior Graphics			X
C-PV-27	Interior Graphics			X
C-PV-28	Exterior Graphics and Color Scheme			X
C-PV-29	Seat, Transverse			X
C-PV-30	Seat, Longitudinal			X
C-PV-31	Seat, Back to Back			X
C-PV-32	Operator's Seat			X
C-PV-33	Schematic, Trainline Definitions			X
C-PV-34	Schematic, Annunciators			X
C-PV-35	Schematic, Communications Interface			X
C-PV-36	Schematic, Automatic Train Control Interface		X	X
C-PV-37	ATC Antenna Location Requirements			X

### 3.0 REFERENCE DRAWINGS

The following drawings are required to define the system operational performance characteristics required of the passenger vehicle. The number required is dependent upon the civil design and train control contract.

DWG. NO.	TITLE	PREL.	INTER.	FINAL
R-TC-000	Train Control Track Plans (Starter Line)			X
R-XXX	Civil Profile, Plan, and Elevation (Starter Line)		X	X

### 4.0 DIRECTIVE DRAWINGS

DWG. NO.	TITLE	PREL.	INTER.	FINAL
	Clearance Diagram	X	X	X



AUTOMATIC TRAIN CONTROL SYSTEM

DIRECTIVE DRAWING LIST

AUTOMATIC TRAIN CONTROL SYSTEMDIRECTIVE DRAWING LIST

DWG. NO.	TITLE	INTER-		
		PRELIM. DESIGN	MEDIATE DESIGN	FINAL DESIGN
D-TC-01	Interlocking Signal Equipment Pocket			X
D-TC-02	Interlocking Signal Equipment Diamond			X
D-TC-03	Switch Machine Layout			X
D-TC-04	Train Stop Layout			X
D-TC-05	Impedance Bond Layout			X
D-TC-06	Cable Trough Cross Section and Details (incl. Junction Box) (joint directive with other disciplines)			X
D-TC-07	ATC Equipment Room Typical Layouts (multiple sheets, one for each type room [4 to 20])			X
D-TC-08	Signal Conduit and Equipment in Stations	X		
D-TC-09	Crossbonding and Negative Return Details			X
D-TC-10	Yard ATC Requirements (Yard Overview) (Multiple Sheets)			X
D-TC-11	Yard ATC Equipment Room Layout			X
D-TC-12	Passenger Vehicle Interface Block Diagram		X	
D-TC-13	Passenger Vehicle Physical Interface (Equipment Package)			X
D-TC-14	Passenger Vehicle Physical Interface (Undercar Mounting Details)			X
D-TC-15	Miscellaneous Details			X

AUTOMATIC TRAIN CONTROL SYSTEM

CONTRACT DRAWING LIST

AUTOMATIC TRAIN CONTROL SYSTEMCONTRACT DRAWING LIST

DWG. NO.	TITLE	INTER-		
		PRELIM. DESIGN	MEDIATE DESIGN	FINAL DESIGN
C-TC-01	Title Page			X
C-TC-01	Index Sheet			X
C-TC-03	Abbreviations and Symbols		X	
C-TC-04	Track Plan One-Line Diagram			X
C-TC-05	Control Line Charts (Typical)		X	
C-TC-06	Control Line Charts (Multiple Sheets, est. 18)			X
C-TC-07	Schematic Track & Cable Plan (Typical)		X	
C-TC-08	Schematic Track & Cable Plans (Multiple Sheets, est. 22)			X
C-TC-09	Yard Signal Interlocking Layout (Multiple Sheets, est. 4)			X
C-TC-10	Signal Interlocking Layout Union Station - Two #10 Diamond Crossovers			X
C-TC-11	Signal Interlocking Layout Wilshire/Alvarado - #10 Diamond Crossover			X
C-TC-12	Signal Interlocking Layout Wilshire/Vermont - #10 Diamond Crossover			X
C-TC-13	Signal Interlocking Layout Wilshire/La Brea - Two #10 Crossovers and Two #10 Turnouts (Pocket)			X
C-TC-14	Signal Interlocking Layout Fairfax/Beverly - #10 Diamond Crossover			X
C-TC-15	Signal Interlocking Layout Hollywood/Cahuenga - Two #10 Turnouts (Pocket)			X

DWG. NO.	TITLE	INTER-		
		PRELIM. DESIGN	MEDIATE DESIGN	FINAL DESIGN
C-TC-16	Signal Interlocking Layout North Hollywood (South) - #10 Diamond Crossover			X
C-TC-17	Signal Interlocking Layout North Hollywood (North) - One #10 Crossover and One #10 Turnout (Tail Track)			X
C-TC-18	Switch Machine Layouts (Multiple Sheets, est. 3)			X
C-TC-19	Union Station ATC Equipment Room			X
C-TC-20	Civic Center ATC Room			X
C-TC-21	Fifth/Hill ATC Room			X
C-TC-22	Seventh/Flower ATC Room			X
C-TC-23	Wilshire/Alvarado ATC Room			X
C-TC-24	Wilshire/Vermont ATC Room			X
C-TC-25	Wilshire/Normandie ATC Room			X
C-TC-26	Wilshire/Western ATC Room			X
C-TC-27	Rossmore ATC Room			X
C-TC-28	Wilshire/La Brea ATC Room			X
C-TC-29	Wilshire/Fairfax ATC Room			X
C-TC-30	Fairfax/Beverly ATC Room			X
C-TC-31	Fairfax/Santa Monica ATC Room			X
C-TC-32	La Brea/Sunset ATC Room			X
C-TC-33	Hollywood/Cahuenga ATC Room			X
C-TC-34	Hollywood Bowl ATC Room			X
C-TC-35	Wilson ATC Room			X
C-TC-36	Universal City ATC Room			X
C-TC-37	Lankershim ATC Room			X
C-TC-38	North Hollywood ATC Room			X

DWG. NO.	TITLE	INTER-		
		PRELIM. DESIGN	MEDIATE DESIGN	FINAL DESIGN
C-TC-39	Yard ATC Equipment			X
C-TC-40	Central Control Operations Room			X
C-TC-41	Junction Box Layout and Cable Trough Cross Section (Typical)			X
C-TC-42	Typical Signal Layout			X
C-TC-43	Typical Bond Layout			X
C-TC-44	Typical Panel (Multiple Sheets: Sheet 1, Maintenance; Sheet 2, Control)			X
C-TC-45	Typical ATC Power Distribution			X
C-TC-46	Typical Signal Clearing Circuits			X
C-TC-47	Typical Interlocking Circuits			X
C-TC-48	Typical Switch Control Circuits			X
C-TC-49	Typical Operating and Repeater Circuits			X
C-TC-50	Typical Traffic Circuit			X
C-TC-51	Typical ATC Equipment Room Racks			X
C-TC-52	Typical Speed Limit Selection Circuits (Multiple Sheets, est. 2)			X
C-TC-53	Typical Interlocking Overrun and Loop Selection Circuits			X
C-TC-54	Central Control Status Panels			X
C-TC-55	Yard Control Panel			X
C-TC-56	Passenger Vehicle Block Diagram and Interface		X	
C-TC-57	Passenger Vehicle ATC Schematics			X
C-TC-58	Passenger Vehicle Equipment Package Space and Mounting Details			X
C-TC-59	Passenger Vehicle Undercar Mounting Details (Antenna, Speed Sensor, Miscellaneous)			X
C-TC-60	Passenger Vehicle Vehicle Cab Details			X

COMMUNICATIONS SYSTEM

DIRECTIVE DRAWING LIST

COMMUNICATIONSDIRECTIVE DRAWING LIST

<u>DWG NO.</u>	<u>TITLE</u>	<u>PRELIM. DESIGN</u>	<u>INTERMED. DESIGN</u>	<u>FINAL DESIGN</u>
D-C-01	General Arrangement Diagram	X		
D-C-02	Equipment Location (Underground Station)		X	
D-C-03	Equipment Location (Yard)		X	
D-C-04	Equipment Location (Trackway)		X	
D-C-05	Station Conduit Requirements (3 Sheets)	X		
D-C-06	Communications Room Single-Line Power Diagram		X	
D-C-07	Communications Room Grounding Requirements			X
D-C-08	Communications Room (Typical Layout)			X
D-C-09	Central Control Layout			X
D-C-10	Radio System Configuration (2 Sheets)	X		
D-C-11	A TEL/M TEL/E TEL Configuration (2 Sheets)	X		
D-C-12	Station Public Address Configuration	X		
D-C-13	Station Intercom Configuration	X		
D-C-14	Closed Circuit Television Configuration	X		
D-C-15	Yard Intercom/Paging Configuration	X		
D-C-16	Data Transmission Configuration	X		
D-C-17	Cable Transmission Configuration	X		
D-C-18	Fire & Security Configuration	X		



COMMUNICATIONS SYSTEM

CONTRACT DRAWING LIST

COMMUNICATIONS  
CONTRACT DRAWING LIST

DWG NO.	TITLE	PRELIM. DESIGN	INTERMED. DESIGN	FINAL DESIGN
C-G-01	Title Page			X
C-G-02	Index of Drawings			X
C-G-03	Cross Index			X
C-G-04	Abbreviations and Symbols			X
C-C-01	Functional Reliability & Maintainability Allocations			X
C-C-02	Two-Way Radio Diagram (2 Sheets)			X
C-C-03	ATEL/MTEL/ETEL Block Diagram		X	
C-C-04	ATEL/MTEL/ETEL Interface Diagram		X	
C-C-05	Typical Public Address Block Diagram		X	
C-C-06	Typical Station Intercom Block Diagram		X	
C-C-07	Typical CCTV Block Diagram (2 Sheets)		X	
C-C-08	Yard/Shop Intercom Block Diagram		X	
C-C-09	Data Transmission System Block Diagram (2 Sheets)		X	
C-C-10	Typical Tabulation of DTS Controls and Indications		X	
C-C-11	Cable Transmission System Block Diagram (2 Sheets)		X	
C-C-12	Typical Communications & Security Alarm Panel Layout - EMP			X
C-C-13	Typical Communications & Security Alarm Panel Layout - Central Control			X X
C-C-14	Central Control Equipment Layout (2 Sheets)			X

DWG NO.	TITLE	PRELIM. DESIGN	INTERMED. DESIGN	FINAL DESIGN
C-C-15	Typical Passenger Station Fire Alarm and Detection (2 Sheets)			X
C-C-16	Typical Passenger Station Emergency Management Panel			X
C-C-17	Passenger Station Power Single-Line Diagram			X
C-C-18	Central Control Power Single-Line Diagram			X
C-C-19	Yard Power Single-Line Diagram			X
C-C-20	Passenger Vehicle Power Single-Line Diagram			X

COMMUNICATIONS SYSTEM

STANDARD DRAWING LIST

COMMUNICATIONSSTANDARD DRAWING LIST

<u>DWG NO.</u>	<u>TITLE</u>	<u>PRELIM. DESIGN</u>	<u>INTERMED. DESIGN</u>	<u>FINAL DESIGN</u>
S-C-01	Radio Antenna Mounting Detail			X
S-C-02	ATEL/MTEL/ETEL Mounting Detail (3 Sheets: Desk; Wall; and Weatherproof)			X
S-C-03	FTEL Mounting Detail (EMP, Tunnel Jacks, Street Level Jack)			X
S-C-04	Station PA Mounting Detail (Speakers, Microphones)			X
S-C-05	Station Intercom Mounting Detail			X
S-C-06	Closed Circuit Television Mounting Detail (Including power provisions)			X
S-C-07	Yard Paging/Intercom Mounting Detail (Speakers, Remote Units)			X
S-C-08	Detector Mounting Detail (Fire, Smoke, Seismic, Gas)			X

WBS 16CAD1111-III

TRACTION POWER SYSTEM SPECIFICATION OUTLINE,  
DRAWING LISTS, AND INTERFACE LIST

Prepared by  
Kaiser Engineers California

June 1983

*Funding for this project is provided by grants to the Southern California Rapid Transit District from the United States Department of Transportation, the State of California, and the Los Angeles County Transportation Commission.*

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TRACTION POWER SYSTEM DIRECTIVE DRAWING LIST

DWG NO.	TITLE	PRELIM. DESIGN	INTERMED. DESIGN	FINAL DESIGN
D-TP-01	Raceway Coordination at Traction Power Substation			X
D-TP-02	Raceway Coordination at Tunnel Sections			X
D-TP-03	Raceway Mounting Requirements - Reinforced Concrete Sections			X
D-TP-04	Typical Traction Power Substation Below Grade	X		
D-TP-05	Typical Traction Power Substation At-Grade	X		
D-TP-06	Cable and Contact Rail Interface			X
D-TP-07	Cable and Running Rail Interface			X
D-TP-08	Supervisory Control and Indication Details			X
D-TP-09	Embedded Conduit Requirements at Cross-Passages and Sump Pump Locations			X
D-TP-10	Embedded Conduit Requirements at Special Trackwork Locations			X
D-TP-11	Miscellaneous Mounting Details			X



TRACTION POWER SYSTEM PROCUREMENT CONTRACT DRAWING LIST

DWG NO.	TITLE	PRELIM. DESIGN	INTERMED. DESIGN	FINAL DESIGN
C-G-01	Metro Rail Transit System Key Plan			X
C-TP-01	Index of Drawings		X	
C-TP-02	Symbols and Abbreviations (2 Sheets)	X		
C-TP-03	Mainline Electrification System Single-Line Diagram (3 Sheets)	X		
C-TP-04	Yard Electrification Single-Line Diagram (2 Sheets)	X		
C-TP-05	Union Substation Metering and Relay Single-Line Diagram			X
C-TP-06	Civic Center Substation Metering and Relay Single-Line Diagram			X
C-TP-07	Seventh/Flower Substation Metering and Relay Single-Line Diagram			X
C-TP-08	Wilshire/Alvarado Substation Metering and Relay Single-Line Diagram			X
C-TP-09	Wilshire/Vermont Substation Metering and Relay Single-Line Diagram	X		
C-TP-10	Wilshire/Western Substation Metering and Relay Single-Line Diagram			X
C-TP-11	Wilshire/La Brea Substation Metering and Relay Single-Line Diagram			X
C-TP-12	Wilshire/Fairfax Substation Metering and Relay Single-Line Diagram			X
C-TP-13	Fairfax/Beverly Substation Metering and Relay Single-Line Diagram			X
C-TP-14	Fairfax/Santa Monica Substation Metering and Relay Single-Line Diagram			X
C-TP-15	La Brea/Sunset Substation Metering and Relay Single-Line Diagram			X
C-TP-16	Hollywood/Cahuenga Substation Metering and Relay Single Line Diagram			X
C-TP-17	Hollywood Bowl Substation Metering and Relay Single-Line Diagram			X
C-TP-18	Universal City Substation Metering and Relay Single-Line Diagram			X
C-TP-19	North Hollywood Substation Metering and Relay Single-Line Diagram			X
C-TP-20	Yard Substation Metering and Relay Single-Line Diagram		X	
C-TP-21	Maintenance Shops Substation Metering and Relay Single-Line Diagram		X	

DWC NO.	TITLE	PRELIM. DESIGN	INTERMED. DESIGN	FINAL DESIGN
C-IP-22	Equipment Arrangement Plan for Typical Below-Grade Substation	X		
C-IP-23	Equipment Arrangement Sections for Typical Below-Grade Substation			X
C-IP-24	Equipment Arrangement Plan for Typical At-Grade Substation	X		
C-IP-25	Equipment Arrangement Sections for Typical At-Grade Substation			X
C-IP-26	Equipment Arrangement Plan for Yard Substation	X		
C-IP-27	Equipment Arrangement Plan for Maintenance Shops Substation	X		
C-IP-28	Supervisory Control and Indication Terminal Interface Cabinet for Typical Mainline Substation (2 Sheets)			X
C-IP-29	Supervisory Control and Indication Terminal Interface Cabinet for Yard Substation (2 Sheets)			X
C-IP-30	Annunciator Panel Layout for Typical Mainline Substation			X
C-IP-31	Annunciator Panel Layout for Yard Substation			X
C-IP-32	DC Distribution Panel Single-Line Diagram			X
C-IP-33	Typical Mainline Emergency Trip Station Control Schematic Diagram		X	
C-IP-34	Typical Yard Emergency Trip Station Control Schematic Diagram			X
C-IP-35	Aluminum with Stainless Steel Cap Composite Contact Rail Details	X		
C-IP-36	Contact Rail Dip Rail Section and Splice Joint			X
C-IP-37	Contact Rail Side Approach Assembly			X
C-IP-38	Contact Rail End Approach Assembly			X
C-IP-39	Contact Rail Expansion Joint Assembly			X
C-IP-40	Contact Rail Anchor Assembly			X
C-IP-41	Contact Rail Support Insulator Assembly Type I (porcelain)		X	
C-IP-42	Contact Rail Support Insulator Assembly Type II (fiberglass)		X	
C-IP-43	Contact Rail Protective Coverboard Assembly Details			X

<u>DWG NO.</u>	<u>TITLE</u>	<u>PRELIM.</u> <u>DESIGN</u>	<u>INTERMED.</u> <u>DESIGN</u>	<u>FINAL</u> <u>DESIGN</u>
C-TP-44	Protective Coverboard Expansion Joint Assembly			X
C-TP-45	Protective Coverboard Support Bracket and Appurtenances			X

TRACTION POWER SYSTEM INSTALLATION CONTRACT DRAWING LIST

<u>DWG NO.</u>	<u>TITLE</u>	<u>PRELIM.</u> <u>DESIGN</u>	<u>INTERMED.</u> <u>DESIGN</u>	<u>FINAL</u> <u>DESIGN</u>
C-TP-46	Electrification Plan - Tail Track, North Hollywood, and Universal City			X
C-TP-47	Electrification Plan - Universal City, Hollywood Bowl, and Hollywood/Cahuenga			X
C-TP-48	Electrification Plan - Hollywood/Cahuenga, La Brea/Sunset, and Fairfax/Santa Monica			X
C-TP-49	Electrification Plan - Fairfax/Santa Monica, Fairfax/Beverly, and Wilshire/Fairfax			X
C-TP-50	Electrification Plan - Wilshire/Fairfax, Wilshire/La Brea, and Wilshire/Western			X
C-TP-51	Electrification Plan - Wilshire/Western, Wilshire/Vermont, and Wilshire/Alvarado			X
C-TP-52	Electrification Plan - Wilshire/Alvarado, Seventh/Flower, and Civic Center			X
C-TP-53	Electrification Plan - Civic Center, Union, and Yard Connection			X
C-TP-54	Electrification Plan - Yard (6 Sheets)			X
<u>EMERGENCY TRIP STATION CONTROL SCHEMATIC DIAGRAM</u>				
C-TP-55	Mainline (7 Sheets)			X
C-TP-56	Yard			X
<u>UNION SUBSTATION</u>				
C-TP-57	Substation Arrangement - Plan			X
C-TP-58	Substation Arrangement - Sections and Details			X
C-TP-59	Cable Tray and Exposed Conduit - Plan			X
C-TP-60	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-61	Exposed Conduit Schedule			X
C-TP-62	Cable Schedule (2 Sheets)			X
C-TP-63	Wire Interconnection Schedule (6 Sheets)			X

DWG NO.	TITLE	PRELIM.	INTERMED.	FINAL
		DESIGN	DESIGN	DESIGN
<u>CIVIC CENTER SUBSTATION</u>				
C-TP-64	Substation Arrangement - Plan			X
C-TP-65	Substation Arrangement - Sections and Details			X
C-TP-66	Cable Tray and Exposed Conduit - Plan			X
C-TP-67	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-68	Exposed Conduit Schedule			X
C-TP-69	Cable Schedule (2 Sheets)			X
C-TP-70	Wire Interconnection Schedule (6 Sheets)			X
<u>SEVENTH/FLOWER SUBSTATION</u>				
C-TP-71	Substation Arrangement - Plan			X
C-TP-72	Substation Arrangement - Sections and Details			X
C-TP-73	Cable Tray and Exposed Conduit - Plan			X
C-TP-74	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-75	Exposed Conduit Schedule			X
C-TP-76	Cable Schedule (2 Sheets)			X
C-TP-77	Wire Interconnection Schedule (6 Sheets)			X
<u>WILSHIRE/ALVARADO SUBSTATION</u>				
C-TP-78	Substation Arrangement - Plan			X
C-TP-79	Substation Arrangement - Sections and Details			X
C-TP-80	Cable Tray and Exposed Conduit - Plan			X
C-TP-81	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-82	Exposed Conduit Schedule			X
C-TP-83	Cable Schedule (2 Sheets)			X
C-TP-84	Wire Interconnection Schedule (6 Sheets)			X

DWG NO.	TITLE	PRELIM.	INTERMED.	FINAL
		DESIGN	DESIGN	DESIGN
<u>WILSHIRE/VERMONT SUBSTATION</u>				
C-TP-85	Substation Arrangement - Plan			X
C-TP-86	Substation Arrangement - Sections and Details			X
C-TP-87	Cable Tray and Exposed Conduit - Plan			X
C-TP-88	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-89	Exposed Conduit Schedule			X
C-TP-90	Cable Schedule (2 Sheets)			X
C-TP-91	Wire Interconnection Schedule (6 Sheets)			X
<u>WILSHIRE/WESTERN SUBSTATION</u>				
C-TP-92	Substation Arrangement - Plan			X
C-TP-93	Substation Arrangement - Sections and Details			X
C-TP-94	Cable Tray and Exposed Conduit - Plan			X
C-TP-95	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-96	Exposed Conduit Schedule			X
C-TP-97	Cable Schedule (2 Sheets)			X
C-TP-98	Wire Interconnection Schedule (6 Sheets)			X
<u>WILSHIRE/LA BREA SUBSTATION</u>				
C-TP-99	Substation Arrangement - Plan			X
C-TP-100	Substation Arrangement - Sections and Details			X
C-TP-101	Cable Tray and Exposed Conduit - Plan			X
C-TP-102	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-103	Exposed Conduit Schedule			X
C-TP-104	Cable Schedule (2 Sheets)			X
C-TP-105	Wire Interconnection Schedule (6 Sheets)			X

DWG NO.	TITLE	PRELIM.	INTERMED.	FINAL
		DESIGN	DESIGN	DESIGN

WILSHIRE/FAIRFAX SUBSTATION

C-IP-106	Substation Arrangement - Plan			X
C-IP-107	Substation Arrangement - Sections and Details			X
C-IP-108	Cable Tray and Exposed Conduit - Plan			X
C-IP-109	Cable Tray and Exposed Conduit - Sections and Details			X
C-IP-110	Exposed Conduit Schedule			X
C-IP-111	Cable Schedule (2 Sheets)			X
C-IP-112	Wire Interconnection Schedule (6 Sheets)			X

FAIRFAX/BEVERLY SUBSTATION

C-IP-113	Substation Arrangement - Plan			X
C-IP-114	Substation Arrangement - Sections and Details			X
C-IP-115	Cable Tray and Exposed Conduit - Plan			X
C-IP-116	Cable Tray and Exposed Conduit - Sections and Details			X
C-IP-117	Exposed Conduit Schedule			X
C-IP-118	Cable Schedule (2 Sheets)			X
C-IP-119	Wire Interconnection Schedule (6 Sheets)			X

FAIRFAX/SANTA MONICA SUBSTATION

C-IP-120	Substation Arrangement - Plan			X
C-IP-121	Substation Arrangement - Sections and Details			X
C-IP-122	Cable Tray and Exposed Conduit - Plan			X
C-IP-123	Cable Tray and Exposed Conduit - Sections and Details			X
C-IP-124	Exposed Conduit Schedule			X
C-IP-125	Cable Schedule (2 Sheets)			X
C-IP-126	Wire Interconnection Schedule (6 Sheets)			X

DWG NO.	TITLE	PRELIM.	INTERMED.	FINAL
		DESIGN	DESIGN	DESIGN
<u>LA BREA/SUNSET SUBSTATION</u>				
C-TP-127	Substation Arrangement - Plan			X
C-TP-128	Substation Arrangement - Sections and Details			X
C-TP-129	Cable Tray and Exposed Conduit - Plan			X
C-TP-130	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-131	Exposed Conduit Schedule			X
C-TP-132	Cable Schedule (2 Sheets)			X
C-TP-133	Wire Interconnection Schedule (6 Sheets)			X
<u>HOLLYWOOD/CAHUENGA SUBSTATION</u>				
C-TP-134	Substation Arrangement - Plan			X
C-TP-135	Substation Arrangement - Sections and Details			X
C-TP-136	Cable Tray and Exposed Conduit - Plan			X
C-TP-137	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-138	Exposed Conduit Schedule			X
C-TP-139	Cable Schedule (2 Sheets)			X
C-TP-140	Wire Interconnection Schedule (6 Sheets)			X
<u>HOLLYWOOD HILL SUBSTATION</u>				
C-TP-141	Substation Arrangement - Plan			X
C-TP-142	Substation Arrangement - Sections and Details			X
C-TP-143	Cable Tray and Exposed Conduit - Plan			X
C-TP-144	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-145	Exposed Conduit Schedule			X
C-TP-146	Cable Schedule (2 Sheets)			X
C-TP-147	Wire Interconnection Schedule (6 Sheets)			X



DWG NO.	TITLE	PRELIM. DESIGN	INTERMED. DESIGN	FINAL DESIGN
<u>UNIVERSAL CITY SUBSTATION</u>				
C-TP-148	Substation Arrangement - Plan			X
C-TP-149	Substation Arrangement - Sections and Details			X
C-TP-150	Cable Tray and Exposed Conduit - Plan			X
C-TP-151	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-152	Exposed Conduit Schedule			X
C-TP-153	Cable Schedule (2 Sheets)			X
C-TP-154	Wire Interconnection Schedule (6 Sheets)			X
<u>NORTH HOLLYWOOD SUBSTATION</u>				
C-TP-155	Substation Arrangement - Plan			X
C-TP-156	Substation Arrangement - Sections and Details			X
C-TP-157	Cable Tray and Exposed Conduit - Plan			X
C-TP-158	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-159	Exposed Conduit Schedule			X
C-TP-160	Cable Schedule (2 Sheets)			X
C-TP-161	Wire Interconnection Schedule (6 Sheets)			X
<u>YARD SUBSTATION</u>				
C-TP-162	Substation Arrangement - Plan			X
C-TP-163	Substation Arrangement - Sections and Details			X
C-TP-164	Cable Tray and Exposed Conduit - Plan			X
C-TP-165	Cable Tray and Exposed Conduit - Sections and Details			X
C-TP-166	Exposed Conduit Schedule			X
C-TP-167	Cable Schedule (7 Sheets)			X
C-TP-168	Wire Interconnection Schedule (10 Sheets)			X

DWG NO.	TITLE	PRELIM.	INTERMED.	FINAL
		DESIGN	DESIGN	DESIGN

MISCELLANEOUS

C-TP-169	Positive Feeder Cable Termination - Contact Rail in Tunnel			X
C-TP-170	Positive Feeder Cable Termination - Contact Rail At-Grade			X
C-TP-171	Negative Return Cable Termination - Running Rail in Tunnel			X
C-TP-172	Negative Return Cable Termination - Running Rail At-Grade			X
C-TP-173	Impedance Bond and Cross Bonding Locations			X
C-TP-174	Emergency Trip Station Cabinet and Mounting Details			X
C-TP-175	Negative Bus Box			X
C-TP-176	Tray/Conduit Installation Details (3 Sheets)			X
C-TP-177	Contact Rail Cable Adapter Assembly			X
C-TP-178	Contact Rail Cable Adapter Details			X
C-TP-179	Typical 1000 Volt dc Disconnect Switch Installation Details			X

AUXILIARY POWER SYSTEM  
CONTRACT DRAWING LIST

AUXILIARY POWER SYSTEM CONTRACT DRAWING LIST

<u>DWG NO.</u>	<u>TITLE</u>	<u>PRELIM. DESIGN</u>	<u>INTERMED. DESIGN</u>	<u>FINAL DESIGN</u>
C-AP-00	Auxiliary Power System Typical Equipment Arrangement for Passenger Stations	X		
C-AP-01	Electrical Symbols and Abbreviations	X		
C-AP-02	Auxiliary Power System at Passenger Station, Functional and Interface Diagram	X		
C-AP-03	Typical Station Electrical Service Single-Line Diagram (2 Sheets)	X		
C-AP-04	Typical Station Electrical Metering and Relay Single-Line Diagram (2 Sheets)	X		

WBS 16CAE11/II-A

81152-606

FARE COLLECTION  
DIRECTIVE, STANDARD AND CONTRACT DRAWING LIST

Prepared by  
Kaiser Engineers California

August 1983

*The preparation of this document 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.*

FARE COLLECTION DIRECTIVE DRAWING LIST

MRTC DRAWING NUMBER	DRAWING NUMBER	TITLE	PRELIM. DESIGN	INTER- MEDIATE DESIGN	FINAL DESIGN
ED-050	D-FC-01	General Arrangement	x		
ED-051	D-FC-02	Equipment Location (By Station)			
		Union Station		x	
		Civic Center		x	
		Fifth/Hill		x	
		Seventh/Flower		x	
		Wilshire/Alvarado		x	
		Wilshire/Vermont		x	
		Wilshire/Normandie			x
		Wilshire/Western			x
		Wilshire/Crenshaw (If Used)			x
		Wilshire/La Brea			x
		Wilshire/Fairfax			x
		Fairfax/Beverly			x
		Fairfax/Santa Monica			x
		La Brea/Sunset			x
		Hollywood/Cahuenga			x
		Hollywood Bowl (If Used)			x
		Universal City			x
		North Hollywood			x
ED-052	D-FC-03	Conduit Requirements			x
ED-053	D-FC-04	Single Line Power & Ground Requirments			x
ED-054	D-FC-05	Fare Gate Configurations			x
ED-055	D-FC-06	Ticket Vending Machine Configuration			x
ED-056	D-FC-07	Add Fare Configuration			x
ED-057	D-FC-08	Bill Changer Configuration			x
ED-058	D-FC-09	Not Used			
ED-059	D-FC-10	Ticket Encoder Configuration			x
ED-060	D-FC-11	Money Cart Configuration			x

STANDARD DRAWING LIST

<u>MRTC DRAWING NUMBER</u>	<u>DRAWING NUMBER</u>	<u>TITLE</u>	<u>PRELIM. DESIGN</u>	<u>INTER- MEDIATE DESIGN</u>	<u>FINAL DESIGN</u>
	S-FC-01	Mounting Detail - Fare Gate			x
	S-FC-02	Mounting Detail - Ticket Vendor			x
	S-FC-03	Mounting Detail - Add Fare			x
	S-FC-04	Mounting Detail - Bill Changer			x
	S-FC-05	Not Used			
	S-FC-06	Mounting Detail - Ticket Encoder			x
	S-FC-07	Cable Routing			x

FARE COLLECTION CONTRACT DRAWING LIST  
(TO BE INCLUDED IN THE FARE COLLETION SPECIFICATION)

MRTC DRAWING NUMBER	DRAWING NUMBER	TITLE	PRELIM. DESIGN	INTER- MEDIATE DESIGN	FINAL DESIGN
	C-FC-01	Title Page			x
	C-FC-02	Index of Drawings			x
	C-FC-03	Cross Index			x
	C-FC-04	Abbreviations & Symbols			x
	C-FC-05	Equipment Installation			x
	C-FC-06	Power & Control Diagram			x
	C-FC-07	Ticket Vending Machine			x
	C-FC-08	Bill Changer Machine			x
	C-FC-09	Fare Collection Console, (2 Sheets)			x
	C-FC-10	Add Fare Machine			x
	C-FC-11	Handicapped Gate, Emergency Gate & Details			x
	C-FC-12	Not Used			
	C-FC-13	Ticket Encoding Equipment			x



WBS16CAE1211-IIB

81152-609

MECHANICAL/ELECTRICAL  
DIRECTIVE AND CONTRACT  
DRAWING LIST

Prepared by  
Kaiser Engineers California

*Moy 1983*

*Funding for this project is provided by grants to the Southern California Rapid Transit District from the United States Department of Transportation, the State of California, and the Los Angeles County Transportation Commission.*

CONTRACT DRAWING LIST

MECHANICAL/ELECTRICAL

CONTRACT DRAWING LIST

<u>DWG. NO.</u>	<u>TITLE</u>	<u>PRELIM. DESIGN</u>	<u>FINAL INTER DESIGN</u>
<u>GAS DETECTION SYSTEM</u>			
C-M-01	Sensor Typical Arrangement and Details	X	X
C-E-01	Central Control Annunciation and Display Panel Scheme		X
<u>SEISMIC SENSOR SYSTEM</u>			
C-M-02	Trigger and Accelerometer Typical Arrangement and Details		X
C-E-03	Central Control Annunciation and Display Panel Scheme		X
<u>TUNNEL FIRE DETECTION</u>			
C-M-03	Typical Arrangement and Details		X
C-E-04	Central Control Annunciation and Display Panel Scheme		X
<u>SUMP PUMP SYSTEM</u>			
C-M-04	Sump and Pump Arrangement and Details	X	X

DIRECTIVE DRAWING LIST

MECHANICAL/ELECTRICAL

DIRECTIVE DRAWING LIST

<u>DWG. NO.</u>	<u>TITLE</u>	<u>PRELIM. DESIGN</u>	<u>INTER DESIGN</u>	<u>FINAL DESIGN</u>
<u>GAS DETECTION SYSTEM</u>				
D-M-01	Block Diagram	X	X	X
D-M-02*	Sensor and Monitor Location Schematic		X	X
D-E-01*	System Typical Electrical Details		X	X
D-E-02	Emergency Control Panel, Typical		X	X
<u>SEISMIC SENSOR SYSTEM</u>				
D-M-03	Block Diagram	X	X	X
D-M-04	Equipment Location Schematic		X	X
D-M-05*	Trigger and Accelerometer Arrangement and Details, Typical		X	X
D-E-03*	System Typical Electrical Details		X	X
<u>TUNNEL FIRE DETECTION</u>				
D-M-06	Block Diagram	X	X	X
D-M-07*	Detector Location Schematic		X	X
D-E-04*	System Typical Electrical Details		X	X
D-E-05	Emergency Control Panel, Typical		X	X
<u>SUMP PUMP SYSTEM</u>				
D-M-08	Block Diagram	X	X	X
D-M-09	Typical Arrangement and Details		X	X
D-E-06	Typical Control and Power Circuit Schematic		X	X

\*Standard drawing per definition in criteria.